

WATER PERMIT NO. 7498-3

Name of Applicant: Dale Tuchscherer

Address: 14629 481st Ave, Milbank SD 57252 Phone: 605 432-6023

Amount of Water Claimed: 1.78 cfs Total Acres: 116

Source of Water Supply: groundwater (one well)

Water to be used for: irrigation County: Grant

Type of Waste Disposal System:

Location: 4 miles northeast of Milbank

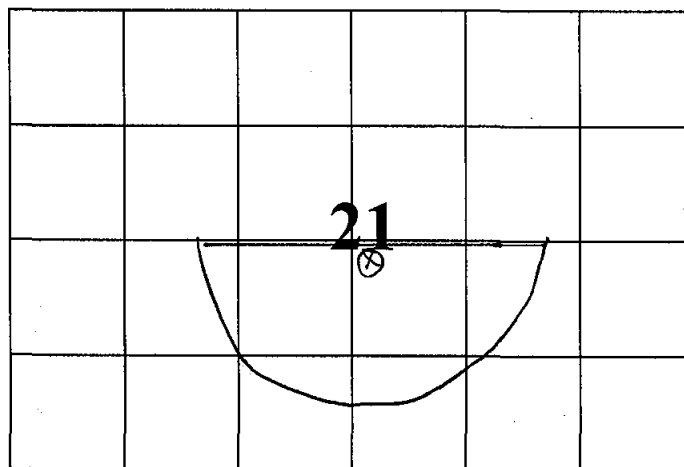
PRIORITY Date Received: 10-31-2012 Application/License Fee: \$ 950

Corrected Application Received: 11/5/12 Period of Annual Use: April 1 – November 30

Remarks:

Diversion Point: NW 1/4 SE 1/4 Sec 21-T121N-
R47W

Land to be Irrigated: N 1/2 SW 1/4, SE 1/4 SW
1/4, N 1/2 SE 1/4, SW 1/4 SE 1/4 Sec 21-T121N-
R47W



Depth of Well: 36 feet deep

Well Driller: Manikowski Well Drilling Inc.

Remarks:

Type of Map: aerial

Prepared by:

Reviewed and the Number Assigned on: 11-5-12

By: Karen Schlaak

Notice of Hearing - date to intervene: _____

FORM 2: Application for irrigation in South Dakota
(type or print)

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. <u>7498-3</u> (office use only) Hydrologic Unit <u>07020001</u> Basin <u>Minnesota - Whitehorse</u> <u>605-432-4516</u> Newspaper <u>Grant Co. Review Box 390 Milbank 57252</u> <u>Public Opinion Box 10 Watertown 57201 605-886-6901</u>
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RECEIVED
OCT 31 2012
WATER RIGHTS
PROGRAM

Application For Permit To Appropriate Water For Irrigation

Type of Application: ☒ New ☐ Vested Right ☐ Amendment/Correction to Permit No. _____
(Use predates Mar 2, 1955)

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

- Name of Applicant Dale Tuchscherer Phone 605-432-6023
(check one) ☒ Owner ☐ Tenant/lessee
Mailing Address 14629 481 Ave. Milbank State S.D. 57252
(Street, RR, or Box and City) (Zip Code)
- Amount of water claimed 1.78 *CFS or 800 **GPM ***AF Total Acreage 116
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)
- Source of water supply 1 well
- Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)
NW 1/4 SE 1/4 Sec 21 Township 121 Rg 47 Big Stone Township.
County Grant
- County or counties where water will be used Grant
- Annual period during which water is to be used April 1 - November 30
- List below each forty acre division, or lot, or fraction thereof and show number of acres to be irrigated in each.
(Attach sheet if more space is needed)

Land Description	Acres	Land Description	Acres
<u>5 1/2 Sec 21 - T121N - R47W</u>	<u>116</u>		

8. Give a description of the project. (Attach sheet if more space is needed)
Water from this well will be used in the production of crops. Land is well suited to irrigation. Applicant is requesting diversion rate greater than Statutory Limit

STATE OF SOUTH DAKOTA) SS
County of Grant

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, Dale Tuchscherer, 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 Dale Tuchscherer

Subscribed and sworn to before me this 30th day of October 20 12

Rosario Lichtain
Notary Public signature

**SOUTH DAKOTA
WATER PERMIT NO. 7498-3**

Date of first receipt of application October 31, 2012.

Date of return to applicant for corrections, amendments or changes November 1, 2012.

Date of receipt of corrected application November 5, 2012.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 7498-3 to Dale Tuchscherer, 14629 481st Ave, Milbank SD 57252 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. 7498-3 appropriates 1.78 cubic feet of water per second (cfs) from one well to be completed into the Veblen Aquifer (36 feet deep) located in NW 1/4 SE 1/4 Section 21 for irrigation of 116 acres located in the N 1/2 SW 1/4, SE 1/4 SW 1/4, N 1/2 SE 1/4, SW 1/4 SE 1/4 Section 21; all in T121N-R47W.
2. The amount of the appropriation may not exceed 2 acre feet annually for each acre of land to which water is actually and beneficially applied for irrigation. The water is to be used during the following described annual period: April 1 – November 30.
3. The date from which applicant may claim right is October 31, 2012.
4. The date of approval of Permit No. 7498-3 is January 28, 2013.
5. One-fifth of the construction is to be completed on or before July 28, 2015.
6. All construction is to be completed on or before January 28, 2018.
7. Water is to be put to beneficial use on or before January 28, 2022.
8. 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 well 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 well authorized by Permit No. 7498-3 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. Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Permit No. 7498-3 authorizes a maximum diversion rate of 1.78 cfs for the irrigation of 116 acres with an annual volume not to exceed 2 acre feet of water per acre per year.
4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

By: Garland Erbele

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

FEB 19 2013
date



Supplemental Information

(type or print in ink)

1. Well Information - Proposed Construction

- a) Drill Hole Diameter 17 1/2" Depth 36'
- b) Casing Type PVC Diameter 12" Thickness .500"
- c) Screen Type Stainless Steel Diameter 12" Thickness .375"
- d) Gravel Pack Red Flint Length of Gravel Pack 20'
- e) Depth to Top of Water Bearing Material 16'
- f) Depth to Water (ground surface to water level) 16'
- g) Distance to nearest existing domestic well:
On applicants property 1 mile On property owned by others 2500'

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 _____

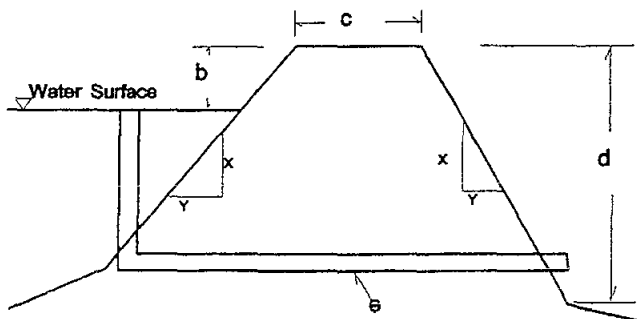
3. Dugout Information

- 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

Sec 21 T121N R47W

Tuchscherer: 116 Irrigated Acres

well X

EOS 1,700'

N45° 16.55617'
W96° 33.88737'

Data use subject to license.

© DeLorme. XMap® 7.

www.delorme.com

TN

NN (3.2°E)

Matthew Hiders

NPCS - DC Grant Co.

Scale 1 : 8,800



1" = 733.3 ft

Data Zoom 14-3

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WATER
PROGRAM

Sec 17
T121N
R47W

Sec 16
T121N
R47W

Sec 15
T121N
R47W

Sec 20
T121N
R47W

Sec 21
T121N
R47W

Sec 22
T121N
R47W

Sec 29
T121N
R47W

Sec 28
T121N
R47W

Sec 27
T121N
R47W

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location NW 1/4 SE 1/4 Sec 21 Twp 127 Rg 47

County Grant

Please mark well location with an "X"

Well completion Date 10-29-12

Distance from nearest potential pollution source (Septic tank, abandoned well, feed lot, etc.) 2500 ft. from septic (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:
Forward Rotary

CASING DATA: ☐ Steel ☒ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>200 LB/FT</u>	<u>4 IN</u>	<u>1 FT</u>	<u>16 FT</u>	<u>7 IN</u>
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type Bentonite No. of Sacks 3 Grout Weight 9.5 Lb/gal From 0 Ft To 12 Ft

Describe grouting procedure Pump Put through 1/2 inch pipe

SCREEN: ☐ Perforated pipe ☒ Manufactured

Diameter 4 Inches Length 20 Feet

Material PVC

Slot Size 1040 Set From 16 Feet to 36 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 _____

WELL OWNER: Dale Tuchscherer

Business Name: _____

Address1: _____

Address2: _____

City, State, Zip: _____

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Topsoil</u>	<u>0</u>	<u>1</u>
<u>Yellow clay</u>	<u>1</u>	<u>3</u>
<u>Gravel</u>	<u>3</u>	<u>10</u>
<u>Med sand</u>	<u>10</u>	<u>15</u>
<u>Coarse Gravel</u>	<u>15</u>	<u>36</u>

STATIC WATER LEVEL 15' 7" 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? _____

WELL TEST DATA:

☒ Pumped Describe: CENTRIFUGAL

☐ Bailed

☐ Other

Pumping Level Below Land Surface

15' 9" Ft. After 2 Hrs. pumped 85 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

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WATER RIGHTS PROGRAM

This well was drilled under license # 285

And this report is true and accurate.

Drilling firm: Markowski Well Drilling Inc.

Signature of License Representative: _____

Signature of Well Owner or Equitable Property Holder: _____

Date: 10-29

Please return White Copy to DENR Water Rights

523 E. Capitol Ave., Pierre SD 57501

Acreage breakdown for Application No.7498-3, Dale Tuchscherer

Section 21, T121N, R47W

NW ¼ SW ¼	3 acres
NE ¼ SW ¼	38 acres
SE ¼ SW ¼	6 acres
NW ¼ SE ¼	40 acres
NE ¼ SE ¼	17 acres
SW ¼ SE ¼	12 acres
Total	116 acres

Prepared by Eric Gronlund using ArcMap based on map submitted with application.

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 11/1, 20 12

RECEIVED OF Dale Tuchscherer 14692 481st Ave Milbank SD 57262

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

Fee for Application for Permit No. <u>7498-3</u> to Appropriate Water, to construct and to put water to beneficial use	750	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. <u>7498-3</u>	200	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	950 00

No. **05670**

By

James E. Erbe
Chief Engineer



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

November 1, 2012

Dale Tuchscherer
14629 481st Ave
Milbank SD 57252

Dear Mr. Tuchscherer:

Thank you for submitting the *Application for a Permit to Appropriate Water* for irrigation in Grant County. In order to complete the application, the following is required.

- Enclosed is the aerial photo map submitted with the application. The map needs to reference a government section corner or quarter corner including section, township and range. For your use, I have enclosed a map with those designations. Please outline the acres to be irrigated and mark the proposed well location with an "X".

If you have any questions, please contact me.

Sincerely,

Karen Schlaak
Water Rights Program
605 773-3352
karen.schlaak@state.sd.us

enclosures



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 7498-3, Dale Tuchscherer**

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. 7498-3, Dale Tuchscherer, 14629 481st Avenue, Milbank SD 57252.

The Chief Engineer is recommending APPROVAL of Application No. 7498-3 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 well 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 well authorized by Permit No. 7498-3 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. Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Permit No. 7498-3 authorizes a maximum diversion rate of 1.78 cfs for the irrigation of 116 acres with an annual volume not to exceed 2 acre feet of water per acre per year.
4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.

Garland Erbele, Chief Engineer

January 3, 2013

REPORT TO THE CHIEF ENGINEER
ON
WATER PERMIT APPLICATION NO. 7498-3
DALE TUCHSCHERER
DECEMBER 26, 2012

Water Permit Application No. 7498-3 proposes to appropriate up to 232 acre-feet per year (ac-ft/yr) at a maximum diversion rate of 1.78 cubic feet of water per second (cfs) from one well to be completed into the "Veblen aquifer". The well is expected to be approximately 36 feet deep and is to be located in the NW¼ SE¼ of Section 21, T121N-R47W. This permit application proposes to irrigate 116 acres located in the N½ SW¼, SE¼ SW¼, N½ SE¼, SW¼ SE¼ of Section 21, T121N-R47W in Grant County. The application proposes a diversion rate in excess of the statutory limit of one cfs per 70 acres.

AQUIFER: "Veblen aquifer" (VEB)

GEOLOGY AND AQUIFER CHARACTERISTICS:

Hedges and others (1982) described the Veblen aquifer as extending from the North Dakota and South Dakota border, through Marshal and Grant Counties in South Dakota, to the South Dakota and Minnesota border, as shown in Figure 1. The Veblen aquifer in Grant County defined by Hedges and others (1982) is estimated to underlie 70,600 acres and contain 211,800 acre-feet (ac-ft) of recoverable water in storage.

Green and Gilbertson (1987) described the Veblen aquifer as being truncated to an area north and west of Big Stone Lake and the Whetstone River, which is in the northeast portion of Grant County, as shown in Figure 2. A lower outwash unit underlying eastern portions and extending further south of the Veblen aquifer as defined by Green and Gilbertson (1987) was identified as the Fairmont aquifer, which was probably originally included in the Veblen aquifer as defined by Hedges and others (1982).

Hansen (1990) mapped the buried outwash deposits in Grant and Codington Counties, and reported that the Veblen aquifer extends north and west into Roberts and Marshall Counties, south into Deuel County, and east into Minnesota, as shown in Figure 3. In Grant County, the Veblen aquifer as defined by Hansen (1990) is estimated to underlie 260 square miles, the equivalent of 166,400 acres, and contain 700,000 ac-ft of water in storage.

Thompson (2001) delineated the Veblen aquifer with a southern extent approximately 15 miles north the Roberts and Grant County line, indicating no connection with the Veblen aquifer in Grant County defined by Hansen (1990). However, the Wilmot outwash group defined by Thompson (2001) that lies in the southeastern part of Roberts County and appears to extend into northeastern Grant County, as shown in Figure 4, could actually be a portion of the Veblen aquifer defined by Hansen (1990).

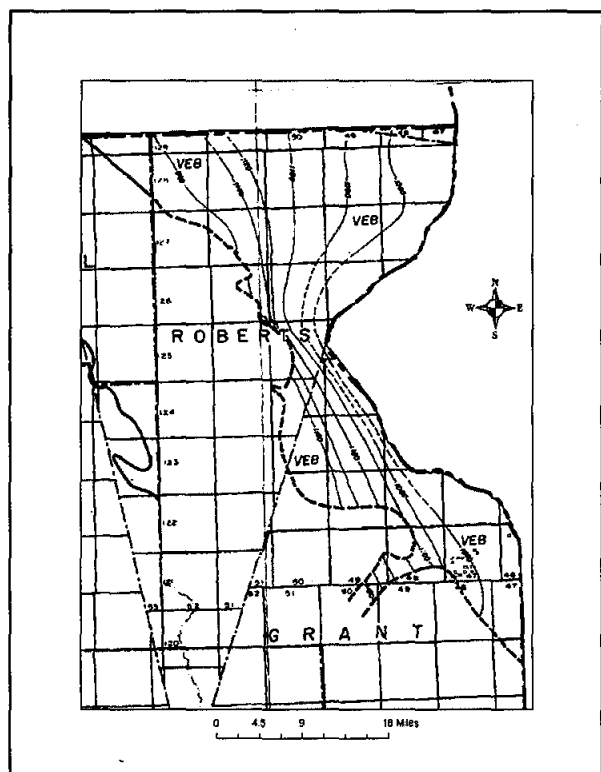


Figure 1: Veblen aquifer defined by Hedges and others (1982)

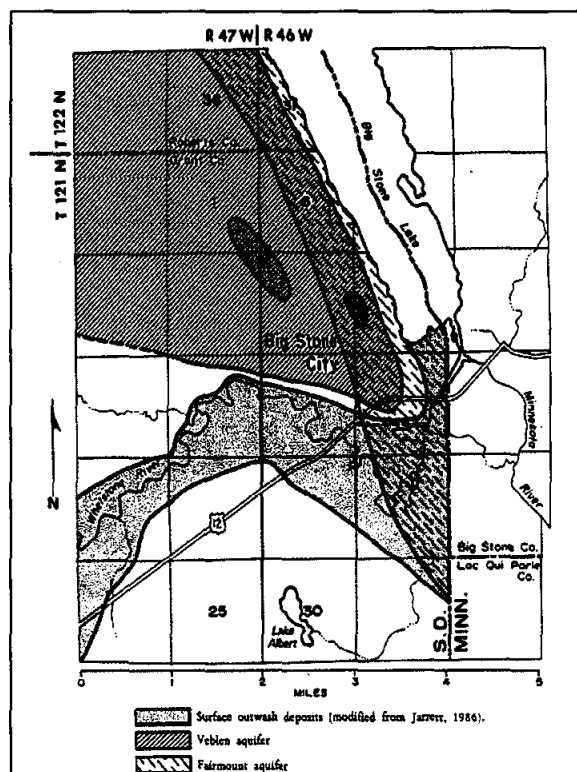


Figure 2: A Portion of the Veblen aquifer and Fairmount aquifer defined by Green and Gilbertson (1987)

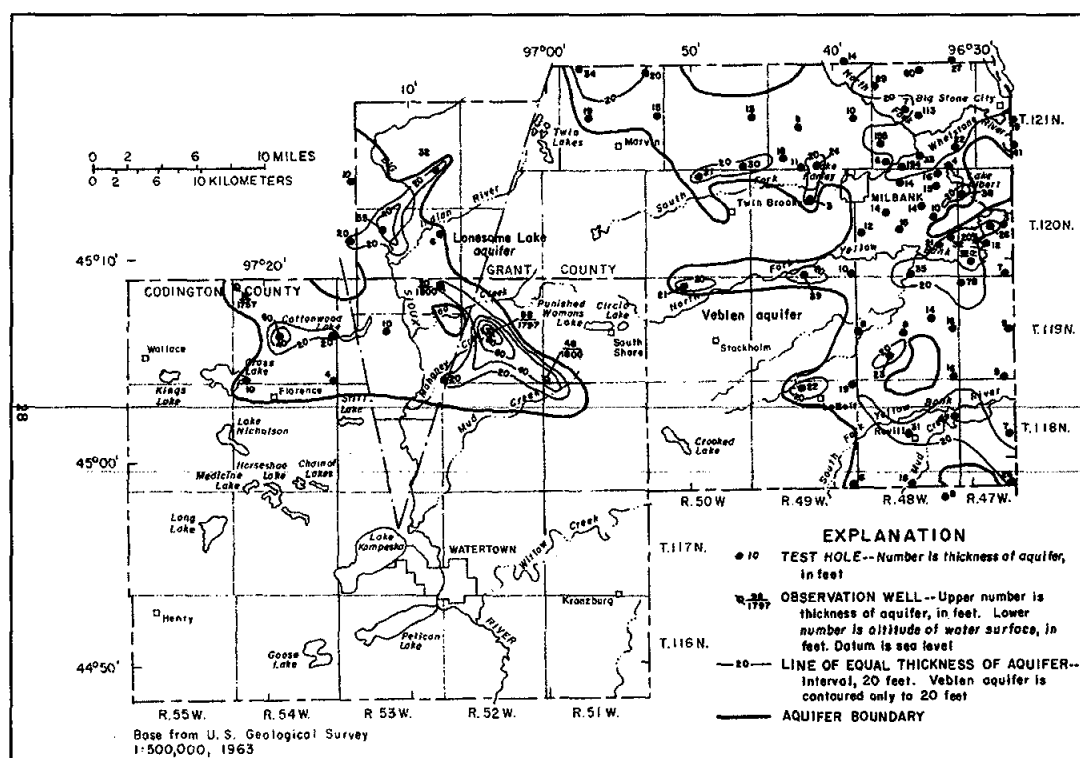


Figure 3: Veblen aquifer in Grant County defined by Hansen (1990)

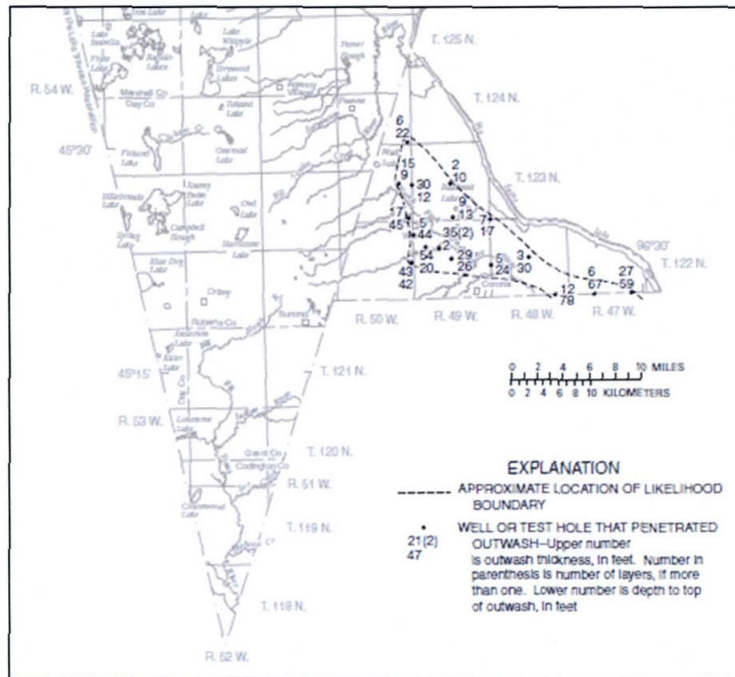


Figure 4: Wilmot outwash group in Roberts County defined by Thompson (2001)

Barr Engineering conducted a groundwater investigation for Water Permit No. 6846-3. Barr Engineering (2007) further delineated the Veblen aquifer, as shown in Figure 5, which has similar areal extents as the Veblen aquifer defined by Hansen (1990). In most cases, however, Barr Engineering (2007) reported the saturated thickness of the aquifer was less than the thickness estimated by Hansen (1990), which may be due to distinctions between layers of sand and gravel deposits.

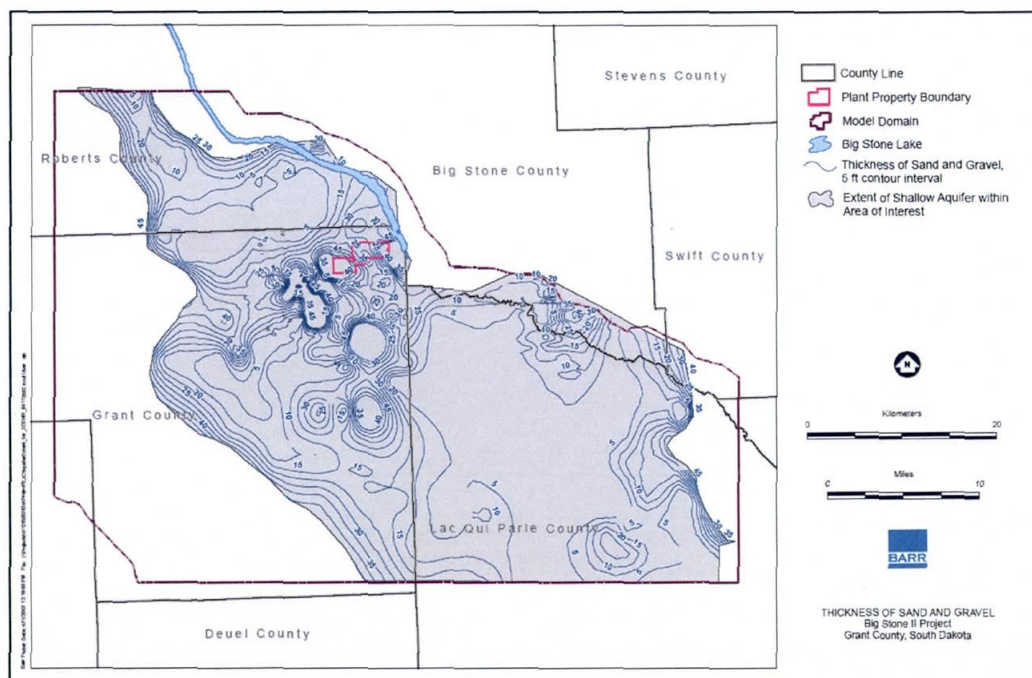


Figure 5: Veblen aquifer defined by Barr Engineering (2007)

For the purposes of appropriations by the SD DENR-Water Rights Program and the Water Management Board, the "Veblen aquifer" can be considered as the group of buried outwash deposits in Grant County that are found within the areal extent and interval of altitude defined by Hansen (1990). This "Veblen aquifer" probably includes the Fairmont aquifer defined by Green and Gilbertson (1987) and the Wilmot outwash group defined by Thompson (2001) (Buhler, 2007).

The "Veblen aquifer" is predominantly a buried outwash, consisting of medium to coarse sand and fine gravel, which is mostly under confined conditions (Hansen, 1990). Hansen (1990) reported an average depth to the top of the aquifer of 52 feet below ground surface, an average aquifer thickness of 28 feet, and an average static water level of 29 feet below ground surface. Groundwater movement is generally from west to east, and toward the Whetstone River in the area of the proposed well site (Hansen, 1990).

The proposed well site appears to be in a river valley where the North and South Forks of the Whetstone River merge, whose elevation is approximately 30 to 50 feet lower than the surrounding area. In this area, there is often a layer of clay just below ground surface, then a layer of sand then gravel, approximately 20 feet thick, then another layer of clay. The static water level ranges from five to nine feet below ground surface ("Lithologic Logs Database").

A test hole log submitted with this application, dated October 29, 2012, indicates top soil at ground surface, "yellow clay" from one to three feet below ground surface, gravel from three to ten feet below ground surface, "medium sand" from ten to 15 feet below ground surface, and "coarse gravel" from 15 to 36 feet below ground surface, and a static water level of 15 feet 7 inches.

SDCL 46-2A-9

Pursuant to SDCL 46-2A-9, a permit to appropriate water may be issued only if there is a reasonable probability that there is unappropriated water available for the applicant's proposed use, that the proposed diversion can be developed without unlawful impairment of existing rights and that the proposed use is a beneficial use and in the public interest. This report will address the availability of unappropriated water and existing rights from the aquifer and pertinent to this application.

WATER AVAILABILITY:

This application proposes to appropriate 232 ac-ft/yr from the "Veblen aquifer". If this application is approved, the actual water use will likely be less than the appropriation. The probability of unappropriated water available from an aquifer can be evaluated by considering SDCL 46-6-3.1, which requires "No application to appropriate groundwater may be approved if, according to the best information reasonably available, it is probable the quantity of water withdrawn annually from a groundwater source will exceed the quantity of the average estimated annual recharge of water to the groundwater source."

HYDROLOGIC BUDGET:

Recharge:

Recharge to the "Veblen aquifer" occurs due to direct infiltration of precipitation in areas where the aquifer is at or near land surface and leakage from till (Hansen, 1990). Hedges and others (1985) estimated the recharge rate for the "Veblen aquifer" as 0.24 inches per year (in/yr) for confined portions and 5.2 in/yr for unconfined portions. So, the actual average recharge rate for the "Veblen aquifer" is probably within this range, and probably very near the confined portions estimate rather than the unconfined portions estimate.

Discharge:

Discharge from the "Veblen aquifer" occurs due to outflow to local lakes and rivers, specifically the Whetstone River in the area of the proposed well site, and well withdrawals from municipal, institutional, industrial, and irrigation use (Hansen, 1990; Water Rights, 2012b). Currently, a total of 32 water rights/permits authorize groundwater from the "Veblen aquifer", with 30 of these water rights/permits located in Grant County (Water Rights, 2012b). Water rights/permits withdrawing from the "Veblen aquifer" in Grant County are shown in Table 1.

Table 1: Water rights/permits completed into the "Veblen aquifer" in Grant County (Water Rights, 2012b)

PERMIT NO.	NAME	STATUS	TYPE	CFS	ACRES
*1939-3	Kathleen A Trapp	LC	IRR	1.00	71
*2759-3	Liebe Irrigation	LC	IRR	2.23	198
*2808-3	Duane Trapp	LC	IRR	2.00	140
*2994-3	Anthony G Folk	LC	IRR	1.39	97
3133-3	David Kruger	LC	IRR	2.01	260
3134-3	David Kruger	LC	IRR	1.78	230
3234A-3	Michael D Johnson	LC	IRR	2.00	116
3234B-3	Joel Adler	LC	IRR	0	120
3412A-3	Dana Johnson	LC	IRR	0.64	72
3412B-3	Mark & Niki Rethke	LC	IRR	0.69	77
3627-3	James/Teresa Grorud	LC	IRR	1.94	136
3723-3	Rocky Meadows INC	LC	IRR	1.11	164
*3954-3	Roger Mc Cullough	LC	IRR	2.11	176
4050-3	City of Big Stone City	LC	MUN	3.3	
4084A-3	Richard Will	LC	IRR	1.00	254
4502-3	Rocky Gardens	LC	IRR	0.17	40
4735-3	Michael D Johnson	LC	IRR	1.00	74
4856-3	Michael D Johnson	LC	IRR	1.00	70
5469-3	Michael D Johnson	LC	IRR	2.00	230
5525-3	Mielitz Bros.	LC	IRR	1.78	140
548-3	City of Milbank	LC	MUN	2.1	
5918-3	Victory Farms	LC	COM	0.33	
6161-3	Lou's Greenhouse	LC	COM	0.04	
6171-3	Cold Spring Granite Co.	LC	IND	0.111	
6230-3	Riverview LLP	LC	COM	0.39	
6358-3	Michael & Nancy Johnson	LC	COM	0.11	
6636-3	Western Consolidated COOP	LC	COM	0.022	
*6846-3	Otter Tail Power Company	PE	IND		
6947-3	Joel Adler	PE	IRR	1.71	0
7216-3	Mielitz Bros.	PE	IRR	2.28	160
LC = Water Right, PE = Water Permit					
IRR = Irrigation, MUN = Municipal, IND = Industrial, COM = Commercial					
* = well is within approximately two miles of proposed well site					

Current diversion rate appropriation for non-irrigation use totals 6.403 cfs. The amount of water than can be expected to be withdrawn by the non-irrigation use water rights/permits at the current appropriation amount can be estimated by assuming water rights/permits limited only by diversion rate will pump at the maximum permitted diversion rate at 60 percent of the time. Therefore, the total annual withdrawal from the "Veblen aquifer" in Grant County by non-irrigation use limited by diversion rate is expected to total less than 2,782 ac-ft/yr (Water Rights, 2012b).

Water Permit No. 6846-3 is the only water right/permit limited by annual volume. The permit appropriates up to 10,000 ac-ft/yr, with a maximum average annual withdrawal of 4,700 ac-ft/yr over a 20 year period. Currently, no water use has been reported as required by the permit and the permit may therefore be considered invalid due to non-construction or nonuse pursuant to ARSD 74:02:01:37 and is subject to cancellation pursuant to ARSD 74:02:01:37. This matter will be addressed at the March 2013 Water Management Board meeting. Due to these circumstances, there is no expected annual withdrawal from the "Veblen aquifer" in Grant County by non-irrigation use limited by an annual volume (Water Rights, 2012b).

The remainder of the water rights/permits authorize irrigation use. Figure 6 shows the "Veblen aquifer's" historic irrigation data in Grant County. The development of the aquifer has remained consistent over the period of record. Annual withdrawal tends to fluctuate, which is probably due mostly to annual growing season climatic conditions. The average pumpage reported equals 852 ac-ft/yr. The maximum pumpage reported was in 1981 for 1,747 ac-ft/yr. (Water Rights, 1979-2012).

In addition, there are many well completion reports on file with the SD DENR-Water Rights Program in Grant County for domestic wells that appear to be completed into the "Veblen aquifer" (Water Rights, 2012c). The annual withdrawal due to domestic use is not significant to the hydrologic budget of the aquifer.

Water Balance:

Assuming all non-irrigation water rights/permits divert at the maximum expected rate, Water Permit No. 6846-3 continues nonuse, and irrigation water rights/permits withdraw the maximum pumpage reported, the annual discharge from the "Veblen aquifer" in Grant County due to well withdrawal is estimated to be at maximum 4,530 ac-ft/yr, but the actual annual pumpage will often be much less. Using potential maximum annual withdrawal creates the most conservative estimate. To balance the hydrologic budget, recharge must equal withdrawal. At the maximum potential annual withdrawal, plus the maximum withdrawal proposed by this application, recharge must equal 0.35 in/yr to balance this hydrologic budget. This recharge rate is within the recharge range, and is actually nearer the confined portions estimate, provided from Hedges and others (1985). Therefore, there is a reasonable probability that unappropriated water is available from the "Veblen aquifer" for the proposed appropriation of 232 ac-ft/yr.

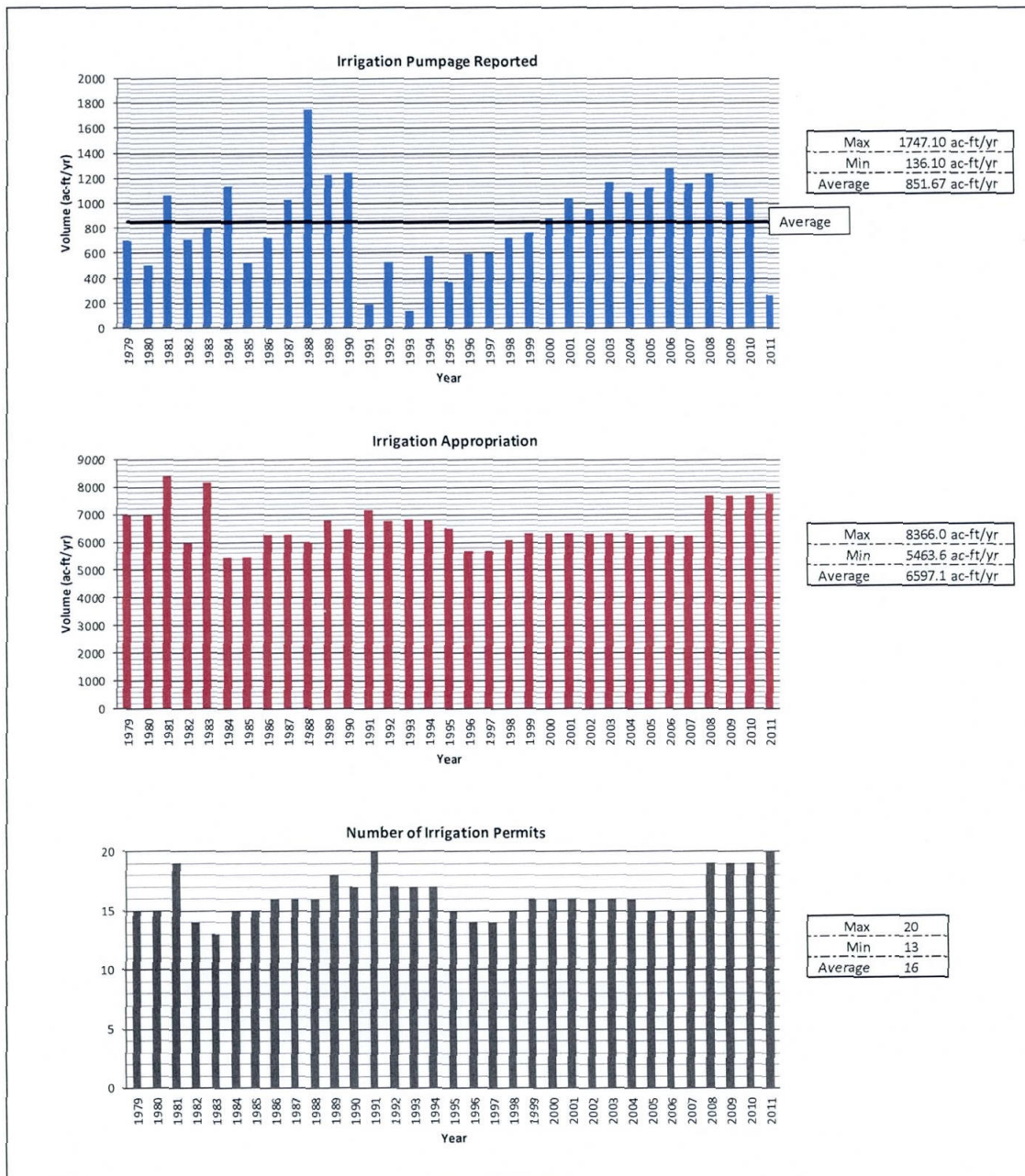


Figure 6: Historic irrigation water use from the “Veblen aquifer” in Grant County (Water Rights, 1979-2012)

OBSERVATION WELL DATA:

Administrative Rule of South Dakota Section 74:02:05:07 requires that “the Water Management Board shall rely upon the record of observation well measurements to determine that the quantity of water withdrawn annually from the aquifer does not exceed the estimated average annual recharge of the aquifer.”

The DENR-Water Rights Program monitors 34 observation wells completed into the “Veblen aquifer”, with 15 of these observation wells located in Grant County. The nearest of these wells,

GT-77N, GT-82B, and GT-83A are located approximately 0.7 miles northeast, 1.6 miles west-southwest, and 1.6 miles south-southeast of the proposed well site, respectively. Hydrographs of these observation wells are shown in Figures 7, 8, and 9 (Water Rights, 2012a).

The observation well data documents cyclic conditions of water levels, recharging during wet years and declining during dry years. The hydrographs also show the effects of nearby pumping on the aquifer. Observation well data indicates that, at the current level of development, temporal well withdrawal is masked by climatic conditions, indicating that recharge to and natural discharge from the aquifer greatly exceeds well withdrawal. Therefore, unappropriated water is available from this area of the "Veblen aquifer" to support the proposed appropriation of 232 ac-ft/yr.

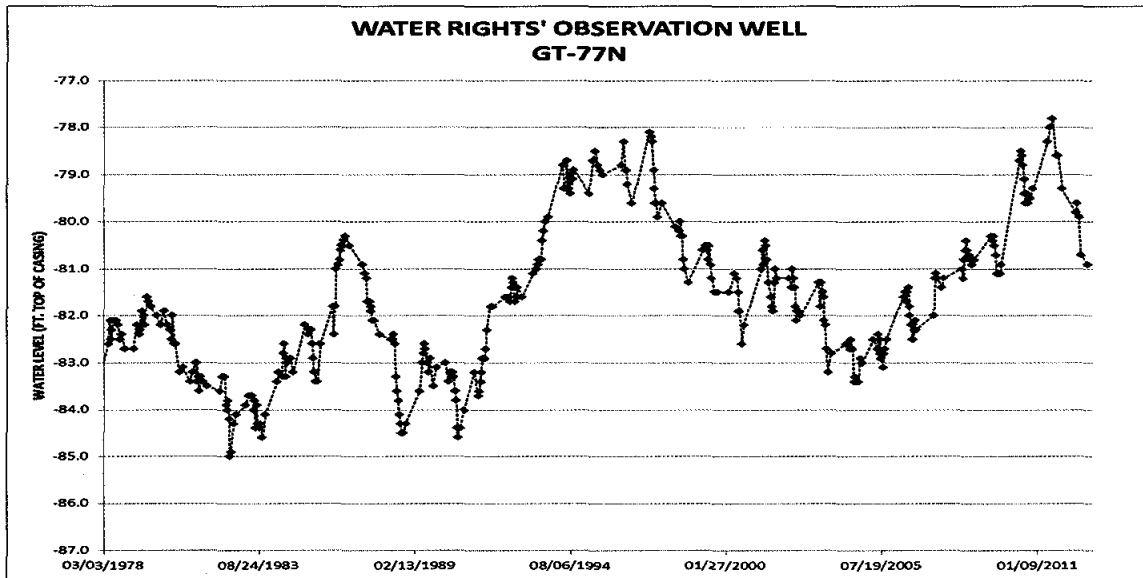


Figure 7: Hydrograph for DENR-Water Rights' observation well GT-77N (Water Rights, 2012a)

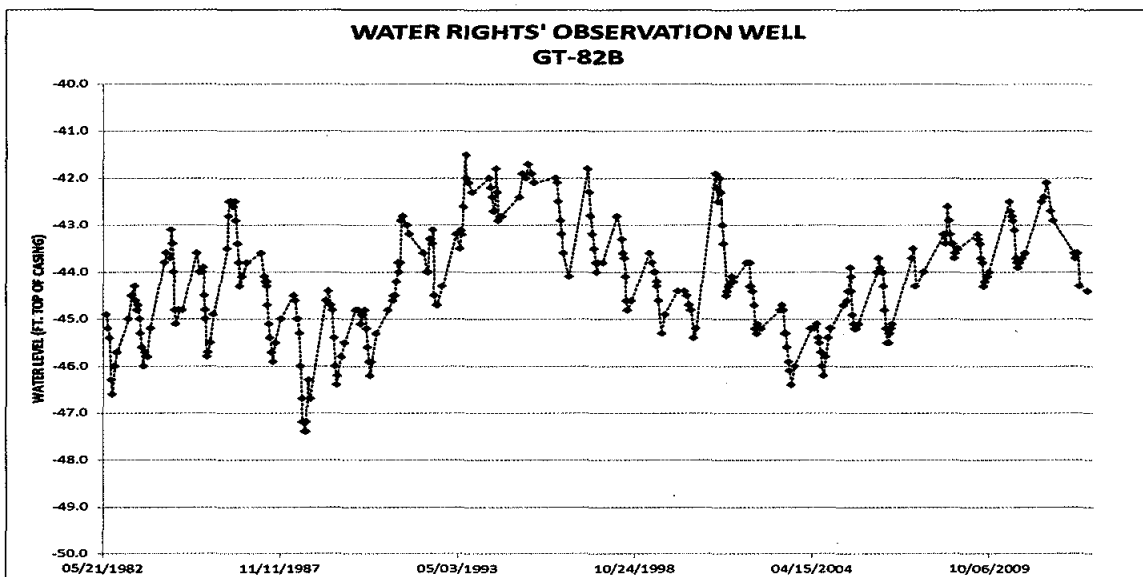


Figure 8: Hydrograph for DENR-Water Rights' observation well GT-82B (Water Rights, 2012a)

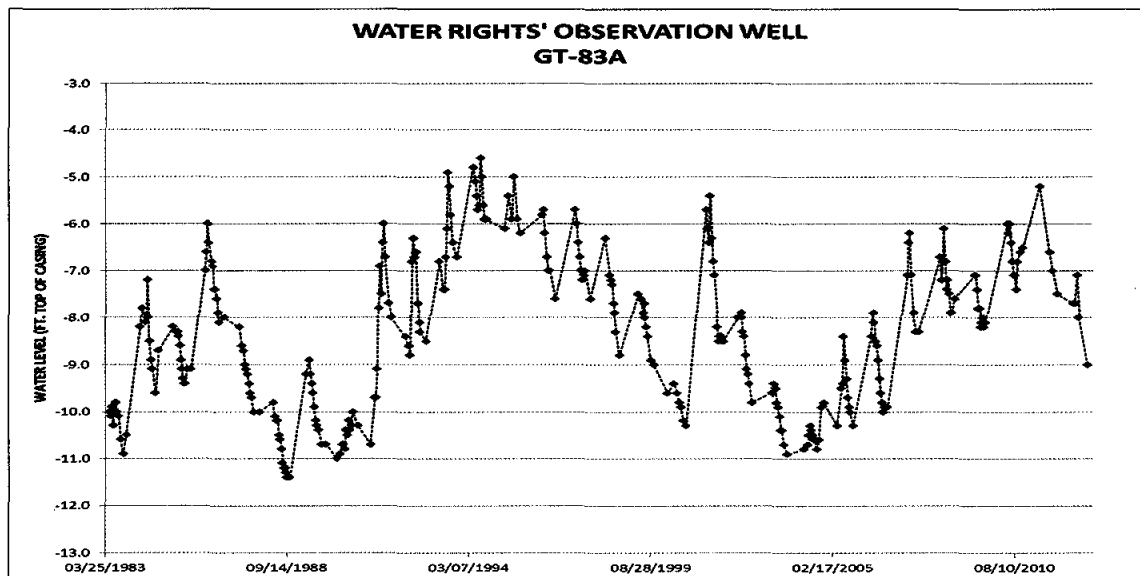


Figure 9: Hydrograph for DENR-Water Rights' observation well GT-83A (Water Rights, 2012a)

EXISTING WATER RIGHTS:

There are 30 water rights/permits appropriating water from the "Veblen aquifer" in Grant County; six of these are located within two miles of the proposed well site. Table 1 shows these water rights/permits (Water Rights, 2012b). There are well completion reports on record with the SD DENR-Water Rights Program for approximately 50 domestic wells within two miles of the proposed well site that appear to be completed into the "Veblen aquifer" (Water Rights, 2012c). None of these wells are located within a half of a mile of the proposed well site. While the "Veblen aquifer" appears to be unconfined in the area, the aquifer is likely under confined conditions a short distance away from the proposed well site. Therefore, some drawdown due to pumping is likely. First recognize that from the test hole log submitted with this application there is approximately 20 feet of artesian head pressure in the aquifer at this location.

As previously discussed, the hydrographs for observation wells completed into the "Veblen aquifer" document the effects of pumping; however, these are minimal relative to climatic conditions. Over the period of record, water levels in the three nearest observation wells fluctuated at maximum eight feet (Water Rights, 2012a). This amount of fluctuation is probably the worst case scenario for the aquifer in this area.

From the well test data in the test hole log submitted with this application, the specific capacity of this well equals 510 gallons per minute per foot. Assuming a storativity of 0.001, the transmissivity of the aquifer in this area equals approximately 1,020,000 gallons per day per foot ("Transmissivity from Specific Capacity"). Assuming the well diverts water at the proposed rate of 1.78 cfs for 185 days, the estimated drawdown equals approximately eight inches at one mile from the proposed well site ("Theis Equation Calculator"). This estimate of distance-drawdown is based on the maximum pumpage proposed on the application, creating the most conservative estimate. Actual diversion rate and pumpage will likely be less than that proposed, and therefore, drawdown will likely be less.

Considering that SDCL 46-6-6.1 does not protect artesian head pressure as a means of delivery and the Water Management Board has consistently recognized that to place water to maximum beneficial use a certain amount of drawdown may occur, a nearby adequate well defined by ARSD 74:02:20(7), which states that the pump intake must be set 20 feet below the top of the aquifer or, if the aquifer is less than 20 feet thick, as near to the bottom of the aquifer as is practical, is not expected to be adversely or unlawfully impaired. Therefore, there is a reasonable probability that any well interference from the proposed appropriation will not cause a significant impact and will also not adversely or unlawfully impair existing users.

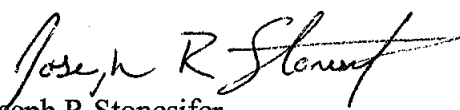
SDCL 46-5-6

Pursuant to SDCL 46-5-6, the diversion rate for an irrigation appropriation cannot be in excess of one cubic foot of water per second for every seventy acres, or "the equivalent thereof." The statute provides that the Water Management Board may allow a greater diversion if the method of irrigation so requires.

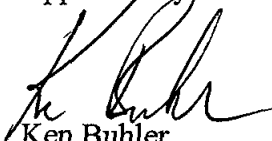
This water permit application proposes to divert at a rate of 1.78 cfs per 116 acres, equaling 1.07 cfs per 70 acres. The application indicates that proposed pivot will not make a full rotation. This requested diversion rate is probably an operational requirement of the equipment that is unrelated to the amount of rotation and subsequent area of land irrigated. Further justification for the diversion rate in excess of the statutory limit was not provided.

CONCLUSIONS:

1. The application proposes to appropriate 232 ac-ft/yr for irrigation.
2. There is a reasonable probability that unappropriated water is available from the "Veblen aquifer" to supply the proposed appropriation.
3. There is a reasonable probability that this proposed well will not cause interference in existing nearby wells.
4. This application has requested an additional diversion rate in excess of one cfs per 70 acres.


Joseph R. Stonesifer
SD DENR-Water Rights Program

Approved by


Ken Buhler
SD DENR-Water Rights Program

REFERENCES:

Barr Engineering. 2007. Groundwater Supply Evaluation, Big Stone II Project, Grant County, South Dakota: Prepared for Otter Tail Power Company

- Buhler, K. 2007. Report on Water Permit Application No. 6846-3 for Otter Tail Corporation: SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, SD.
- Green, S. and Gilbertson J.P. 1987. Ground-water Investigation for Big Stone City, South Dakota. South Dakota DENR-Geological Survey, Vermillion, SD.
- Hansen, D.S. 1990. Water Resources of Codington and Grant Counties, South Dakota: U.S. Geological Survey Water-supply Paper 2254, 263 p.
- Hedges, L.S., Burch, S.L., Iles, D.L., Barari, R.A., and Schoon, R.A. 1982. Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa, Task 1: Bedrock Topography and Distribution, Task 2: Extent of Aquifers, Task 3: Ground-Water Storage, Task 4: Computerized Data Base, Final Report. U.S. Army Corps of Engineers Contract DACW 45-80-C-0185.
- Hedges, L.S., Allen, J., and Holly, D.E. 1985. Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa. Task 7: Ground Water Recharge. South Dakota DENR-Geological Survey, Vermillion, SD.
- "Lithologic Logs Database." South Dakota Department of Environment & Natural Resources Geological Survey. 26 December 2012
- "Theis Equation Calculator." I-calcul8 Calculators and Tools. 17 December 2012
< <http://www.icalcul8.com/theis.php>>
- Thompson, R.F. 2001. Water Resources of the Lake Traverse Reservation, South and North Dakota, and Roberts County, South Dakota: U.S. Geological Survey Water-Resource Investigation Report 01-4219
- "Transmissivity from Specific Capacity." Aquifer Test Forum sponsored by HydroSOLVE, Inc. 26 December 2012 < <http://www.aqtesolv.com/forum/transcap.asp>>
- Water Rights. 1979-2012. "Annual Irrigation Summary by Aquifer": SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, SD.
- Water Rights. 2012a. Observation Well Files, SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, SD.
- Water Rights. 2012b. Water Right/Permit Files, SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, SD.
- Water Rights. 2012c. Water Well Completion Reports, SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, SD.

RECEIVED

JAN 25 2013

WATER RIGHTS
PROGRAM

Form 8

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) SS
County of Codington)

I, Monica K. Saathoff

certify that the attached printed Notice was
taken

from the Watertown Public Opinion

printed and published in Watertown

County of Codington and

state of South Dakota. The notice was
published

in the newspaper on the following date:

January 16th, 2013

Cost of Printing 54.68

(Signature)

Bookkeeper

(Title)

January 16th, 2013

(Date Signed)

**DEPARTMENT
OF ENVIRON-
MENT AND
NATURAL
RESOURCES**

**NOTICE OF APPLICATION
NO. 7498-3 to Appropriate
Water**

Notice is given that Dale Tuchscherer, 14629 481st Ave, Milbank SD 57252 has filed an application for a water permit to appropriate 1.78 cubic feet of water per second (cfs) from one well to be completed into the Veblen Aquifer (36 feet deep) located in NW 1/4 SE 1/4 Section 21 for irrigation of 116 acres located in the N 1/2 SW 1/4, SE 1/4 SW 1/4, N 1/2 SE 1/4, SW 1/4 SE 1/4 Section 21; all in T121N-R47W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7498-3 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 this 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 this 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 January 28, 2013.

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. Published once at the approximate cost of \$55.25. (January 16, 2013)

All legal notices in the Public Opinion and other South Dakota newspapers can be found at
www.sdpublicnotices.com

Printer's Affidavit of Publication

RECEIVED

STATE OF SOUTH DAKOTA
COUNTY OF GRANT

} ss.

JAN 17 2013

WATER RIGHTS
PROGRAM

Holli Seehafer

of said County and State, being first duly sworn, on oath says that the Grant County Review is a legal weekly newspaper of general circulation, printed and published in Milbank, in said County of Grant and State of South Dakota, by Phyllis Justice, and has been such newspaper during the times hereinafter mentioned; that said newspaper is a legal newspaper; and that it has a bona fide circulation of more than two hundred copies weekly, and has been published within said County of Grant in the English language and has been admitted to the United States mail under second class mailing privilege, for at least one year next prior to the publication of the Notice herein mentioned, and has been printed wholly in an office maintained at the said place of publication, that I, the undersigned, Advertising Manager of said newspaper, in charge of the advertising department thereof, have personal knowledge of all the facts stated in this affidavit; that the advertisement headed Notice of

Application No. 7498-3 to Appropriate
Water

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 once each week for one successive weeks, on the day of each week on which the said newspaper was regularly published, to-wit:

<u>January 16</u>	<u>2013</u>	<u>20</u>
<u>20</u>		<u>20</u>
<u>20</u>		<u>20</u>

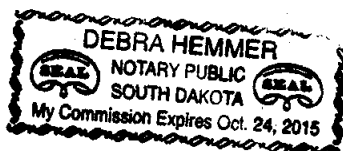
That \$ 24.23, being the full amount of the fee charged for the publication of said Notice, inures to the benefit of the publisher of the Grant County Review; that no agreement or understanding for the division thereof has been made with any person, and that no part has been agreed to be paid to any person whomsoever.

Holli Seehafer

Subscribed and sworn before me this 16th day of Jan 20 13

Debra Hemmer

Notary Public, Grant County, South Dakota



NOTICE OF APPLICATION NO. 7498-3 to Appropriate Water

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Publication Fee	\$ <u>24.23</u>
Notarial Fee	\$ <u> </u>
Total	\$ <u>24.23</u>



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

January 4, 2013

Grant County Review
PO Box 390
Milbank SD 57252

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 7498-3 to Appropriate Water. Please publish the notice once on January 16, 2013. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

The applicant must verify to you that the notice is to be published and arrange for payment. **Please BILL the APPLICANT for the cost of publication.** The APPLICANT is Dale Tuchscherer, 14629 481st Ave., Milbank SD 57252 (Ph # 605-432-6023).

Please send the Water Rights Program an affidavit or the enclosed Proof of Publication form immediately.

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



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

January 4, 2013

Public Opinion
PO Box 10
Watertown SD 57201

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Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

**NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATE, CONTACT
THE NEWSPAPER(S) RIGHT AWAY.**

January 4, 2013

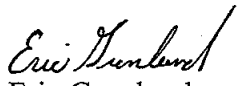
Dale Tuchscherer
14629 481st Ave
Milbank SD 57252

Dear Mr. Tuchscherer:

Water Permit Application No. 7498-3 for irrigation use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Grant County Review printed at Milbank SD (Ph # 605-432-4516) and the Public Opinion printed at Watertown SD (Ph # 605-886-6901). You will need to contact the newspaper(s) and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and 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 newspaper(s) to authorize publication of your Notice and to arrange for payment. Early contact with the paper(s) can eliminate delays. Upon receiving authorization from you, the publisher has been instructed to publish your notice. The newspaper has 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.

Instruction to Newspaper - Publish the Notice on January 16, 2013. The applicant is responsible for payment. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352 or email: Karen.schlaak@state.sd.us.

NOTICE OF APPLICATION NO. 7498-3 to Appropriate Water

Notice is given that Dale Tuchscherer, 14629 481st Ave, Milbank SD 57252 has filed an application for a water permit to appropriate 1.78 cubic feet of water per second (cfs) from one well to be completed into the Veblen Aquifer (36 feet deep) located in NW 1/4 SE 1/4 Section 21 for irrigation of 116 acres located in the N 1/2 SW 1/4, SE 1/4 SW 1/4, N 1/2 SE 1/4, SW 1/4 SE 1/4 Section 21; all in T121N-R47W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres.

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Published once at the total approximate cost of _____.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
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PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

FEB 19 2013

Dale Tuchscherer
14629 481st Ave
Milbank SD 57252

Dear Mr. Tuchscherer:

Enclosed is Water Permit No. 7498-3 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.

Sincerely,

A handwritten signature in dark ink, appearing to read "Garland Erbele".

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

enclosures

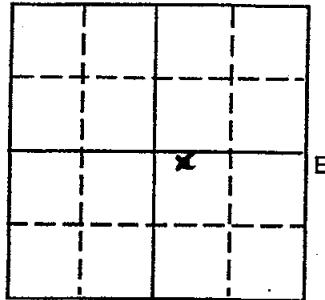
7498-3

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location NW 1/4 SE 1/4 Sec 21 Twp 12N Rg 47
121County Grant

North

Please mark well
location with an "X"

Well completion Date

10-29-12

1 Mile

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

? 2500 ft. from septic tank (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Forward Rotary

CASING DATA:

- ☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>SP 1</u> LB/FT	<u>4</u> IN	<u>1</u> FT	<u>16</u> FT	<u>7</u> IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type High Solids No. of Sacks 3 Grout Weight 9.5 Lb/gal From 0 Ft To 12 Ft
Grout Lb/gal Ft Ft

Describe grouting procedure Pressure line bottom
to top

SCREEN:

- ☐ Perforated pipe ☒ Manufactured

Diameter 4 Inches Length 20 FeetMaterial PVCSlot Size 1090 Set From 16 Feet to 36 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

Lab sample sent to for water quality analysis

Well Owner:

Dale Tuchscherer

Business Name:

Address1:

14629 48th Ave.

Address2:

City, State, Zip:

Wilbank, SD 57252

WELL LOG:

DEPTH

FORMATION	FROM	TO
<u>Top Soil</u>	<u>0</u>	<u>1</u>
<u>Yellow clay</u>	<u>1</u>	<u>3</u>
<u>Gravel</u>	<u>3</u>	<u>10</u>
<u>Medium Sand</u>	<u>10</u>	<u>15</u>
<u>Coarse Gravel</u>	<u>15</u>	<u>36</u>
<u>Clay</u>	<u>2.6</u>	

STATIC WATER LEVEL

15' 9"

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?

WELL TEST DATA:

☒ Pumped Describe:Centrifugal☐ Bailed☐ Other

Pumping Level Below Land Surface

15' 9" Ft. After2 Hrs. pumped85 GPM

Ft. After

Hrs. pumped

GPM

If pump installed, pump rate:

GPM

REMARKS

RECEIVED

APR 15 2013

WATER RIGHTS
PROGRAM

This well was drilled under license #

285

And this report is true and accurate.

Drilling firm:

Manikowski Well Drilling, Inc.

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder.

Date:

Please return White Copy to DENR Water Rights

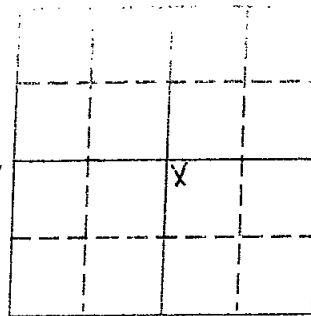
523 E. Capitol Ave., Pierre SD 57501

SOUTH DAKOTA WATER WELL COMPLETION REPORT

7498-3
11-02Location NW 1/4 SE 1/4 Sec 21 Twp 127N Rg 47WCounty
Grant

8" North

Please mark well location with an "X"



Well completion Date

7-30-13

1 Mile

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

2500 ft. from Septic (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Rotary

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
Sch 40 LB/FT	8 IN.	0 FT	FT	12 IN.
LB/FT	IN.	FT	FT	IN.
LB/FT	IN.	FT	FT	IN.

GROUTING DATA:

Grout Type #40 Flint No. of Sacks 20-50 Grout Weight Cement From 18 Ft To 38 Ft
 Lb/gal Lb/gal Ft Ft

Describe grouting procedure Poured in #40 Flint
Tremmie line cement

SCREEN:

☐ Perforated pipe ☒ Manufactured
Diameter 8 Inches Length 20 FeetMaterial SSSlot Size 040 Set From 18 Feet to 38 Feet

Other information

WAS A PACKER OR SEAL USED?

☒ Yes ☐ No
If so, what material? Weld on SS plate

Describe packer(s) and location

DISINFECTION: Well well disinfected upon completion

☒ Bleach

☐ Away Method

Water quality analysis

Well Owner: Dale Tuchscherer

Business Name:

Address 1:

14629 481st Ave

Address 2:

City, State, Zip: Milbank SD 57252

WELL LOG:

DEPTH

FORMATION

FROM

TO

Top Soil02Gravel216Med. Sand1640

STATIC WATER LEVEL

15

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:

Air lifted☐ Bailed☐ Other

Pumping Level Below Land Surface

Ft. After

Hrs. pumped

GPM

Ft. After

Hrs. pumped

GPM

If pump installed, pump rate:

GPM

REMARKS

25 hp. 485 gpm Grundfos

This well was drilled under license #

598

And this report is true and accurate.

Drilling firm:

Kranz Well + Excav.

Signature of Licensee Representative

Charles Kranz

Signature of Well Owner

Date:

RECEIVED

AUG - 8 2013

WATER RIGHTS
PROGRAM

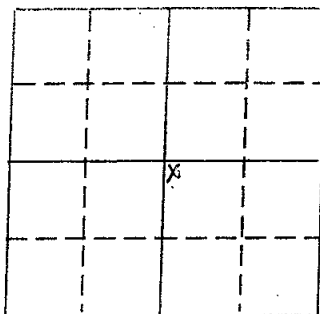
SOUTH DAKOTA WATER WELL COMPLETION REPORT

7498-3

11-02

Location NW 1/4 SE 1/4 Sec 21 Twp 127 Rg 47County
Grant

North

Please mark well
location with an "X"

Well completion Date

6-4-13

1 Mile

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

2500 ft. from Septic (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Rotary

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT LB/FT	DIAMETER IN	FROM FT	TO FT	HOLE DIAMETER IN
<u>Sch 40</u>	<u>12</u>	<u>0</u>	<u>19</u>	<u>19</u>

GROUTING DATA:

Grout Type #40 Flint No. of Sacks 75 Grout Weight 16 Lb/gal From 16 Ft To 37 Ft
Cement Lb/gal 20 Ft 16 Ft

Describe grouting procedure Poured in #40 Flint
Tremmie line cement

SCREEN:

☐ Perforated pipe ☒ Manufactured
Diameter 12 inches Length 18 FeetMaterial SSSlot Size .040 Set From 19 Feet to 37 Feet

Other information

WAS A PACKER OR SEAL USED? ☒ Yes ☐ NoIf so, what material? welded on SS plate

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? bleach☐ No, Why Not?Lab sample sent to for
water quality analysis

Well Owner:

Dale Tuchscherer

Business Name:

Address1:

14629 481st Ave

Address2:

City, State, Zip:

Mitbank SD 57252

WELL LOG:

DEPTH

FORMATION

FROM

TO

Top Soil02Gravel216Medium Sand1637

STATIC WATER LEVEL

15

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:Air lifted 120 gpm☐ Bailed☒ Other

Pumping Level Below Land Surface

Ft. After

15

Hrs. pumped

300

GPM

Ft. After

Hrs. pumped

GPM

If pump installed, pump rate:

GPM

REMARKS

15 hp 300gpm 460 3ph.This well was drilled under license # 598

And this report is true and accurate.

Drilling firm:

Kranz Well & Excav.

Signature of License Representative:

Charles Kranz

Signature of Well Owner or Equitable Property Holder:

RECEIVED

AUG - 8 2013

Date:

6-5-2013WATER RIGHTS
PROGRAM

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 7498-3

I have this day, September 5, 2018, made a thorough examination of the water use system constructed by Dale Tuchscherer of 14629 481st Ave, Milbank SD 57252 holder of Permit No. 7498-3, bearing the priority of October 31, 2012 authorizing the diversion of 1.78 cu. ft. per second of the waters of ground water (Veblen Aquifer) for irrigation use purposes, in Grant County.

Inspection contact & relationship Dale Tuchscherer, owner

A. Works used to divert the water:

Well Information: West Well

- 1) Well Drilling Firm: Kranz Well and Excavation
- 2) No. of Wells 1
- 3) Depth(s) 38 feet
- 4) Well log is available Y If no, explain in comments
Comments: none

Casing:

- 1) Diameter 8 inches
- 2) Length 18 feet
- 3) Type plastic

Screen:

- 1) Type stainless steel
- 2) Length 20 feet
- 3) Static water level 15 feet

Pump:

- 1) Make Grundfos
- 2) Model submersible
- 3) Size NA
- 4) Capacity 485 GPM

Motor:

- 1) Make Grundfos
- 2) Model No. submersible
- 3) Horsepower rating 25 hp

Well Information: East Well

- 5) Well Drilling Firm: Kranz Well and Excavation
- 6) No. of Wells 1
- 7) Depth(s) 37 feet
- 8) Well log is available Y If no, explain in comments
Comments: none

Casing:

- 4) Diameter 12 inches
- 5) Length 19 feet
- 6) Type plastic

Screen:

- 4) Type stainless steel
- 5) Length 18 feet
- 6) Static water level 15 feet

Pump:

- 5) Make Grundfos
- 6) Model submersible
- 7) Size NA
- 8) Capacity 300 GPM

Motor:

- 4) Make Grundfos
- 5) Model No. submersible
- 6) Horsepower rating 25 hp

B. Works used to transport water to place of use:

- 1) Type aluminum
 - 2) Size 8 inches
 - 3) Length 150 feet
- Comments: none

C. Works used to apply water to beneficial use:

Center pivot:

- 1) Make T&L
- 2) Overall length 1760 feet
- 3) Number of towers 10
- 4) End gun Y
- 5) Capacity 550 GPM

Chemigation Equipment:

- 1) Does chemigate N

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by Y
If no, describe: none

- 2) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period Y

List any extended period of nonuse: none

- 3) Exceptions to compliance are: none

E. Condition and Location:

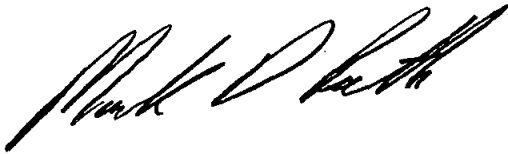
1. The system is in good condition with the point(s) of diversion located as follows: West well – from the SE corner of Sec 21 T121N-R47W 2635 ft N & 2455 ft W, latitude of 45.276013 and longitude of -96.56503, (NW ¼ SE 1/4); East well – from the SE corner of Sec 21 T121N-R47W 2635 ft N & 2355 ft W, latitude of 45.27603 and longitude of -96.56462, (NW ¼ SE 1/4).
2. The works are capable of diverting and conveying to the place of use 1.23 cu. ft. per second of water which is to be used for irrigation use. Water has been put to beneficial use to the maximum extent as follows:
All land is located in Sec 21 T121N-R47W

<u>NW ¼ SE ¼ - 40 ac</u>	<u>NE ¼ SE ¼ - 14 ac</u>	<u>SW ¼ SE ¼ - 10 ac</u>
<u>NW ¼ SW ¼ - 6 ac</u>	<u>NE ¼ SW ¼ - 38 ac</u>	<u>SE ¼ SW ¼ - 8 ac</u>

comprising a total of 116 acres of land and the license should be issued for 1.23.
3. All structures, wells and lands on map Y

F. Comments or other permit(s) associated with the project:

The permit authorized the construction of a single well into the Veblen Aquifer. The inspection found a second well had been constructed into the aquifer.



Mark D Rath
Natural Resources Engineer
DENR, Water Rights Program

Date report completed: 01-09-2019

From the SE corner of
 Sec 21 T121N-R47W
 West Well
 2635 ft N & 2455 ft W
 Lat 45.276013
 Long -96.56503
 East Well
 2635 ft N & 2355 ft W
 Lat 45.27603
 Long -96.56462

Irrigated land all in
 Sec 21 T121N-R47W
 NW 1/4 SW 1/4 - 6 ac
 NE 1/4 SW 1/4 - 38 ac
 SE 1/4 SW 1/4 - 8 ac
 NE 1/4 SE 1/4 - 14 ac
 NW 1/4 SE 1/4 - 40 ac
 SW 1/4 SE 1/4 - 10 ac

West
 Well

Eastt
 Well

Sec 21 T121N R47W



0 0.125 0.25 0.5 Miles

Mark D Rath

Mark D Rath
 Natural Resources Engineer
 January 8, 2019

Approval of Location Change and/or Additional Diversion Point(s)

NAME: Dale Tuchscherer

ADDRESS: 14629 481st Ave, Milbank SD 57252

DATE: 01-09-2018 COUNTY: Grant TELEPHONE: 605-949-2285 cell

GENERAL DESCRIPTION OF AUTHORIZED PROJECT:

The permit holder is authorized to develop one well into the Veblen Aquifer in the NW ¼ SE ¼ Sec 21 T121N-R47W to irrigate 116 acres. The inspection of the water permit found a second well into the Veblen aquifer located in the NW ¼ SE ¼ Sec 21 T121N-R47W had been developed for this project.

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 well was constructed into the Veblen Aquifer as permitted
- **If irrigation, no new land is irrigated**

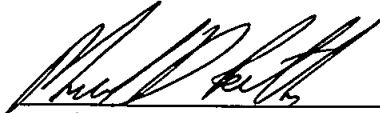
No additional acres beyond the 116 acres were developed

- **Review of Existing Diversions**

The nearest well into the same aquifer is located approximately 5000 ft south of this well, adverse impacts to the existing well is not expected.

RECOMMENDED ACTION

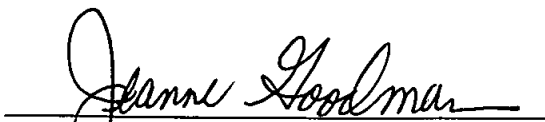
Based on the above criteria, it is recommended that the diversion point(s) be licensed as developed.



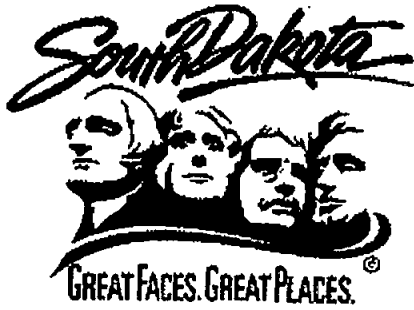
Mark D. Rath, Natural Resources Engineer
Water Rights Program

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

This change in location and/or additional diversion point(s) does not increase the potential for adverse effects to existing diversions.



Jeanne Goodman, Chief Engineer
Water Rights Program



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3182
<http://denr.sd.gov>

MAY 22 2019

7498-3

Dale Tuchscherer
14629 481st Ave
Milbank SD 57252

Dear Mr. Tuchscherer:

Enclosed is Water License No. 7498-3. This is the final water right document completing your process of obtaining a Water Right. Included with your license is a map prepared by the staff engineer who conducted the field investigation.

For your information SDCL 46-6-27 requires that if in the future, the owner of an existing well, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

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,

Jeanne Goodman, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

**STATE OF SOUTH DAKOTA
WATER LICENSE NO. 7498-3**

(1) Dale Tuchscherer, 14629 481st Ave., Milbank SD 57252 made Application No. 7498-3, October 31, 2012 for a water permit to divert 1.78 cubic feet of water per second (cfs) from ground water, one well (Veblen Aquifer), Grant County, South Dakota for irrigation purposes. Permit No. 7498-3, with a priority date of October 31, 2012 was approved January 28, 2013 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before January 28, 2018 and for the application to beneficial use of water on or before January 28, 2022.

An investigation conducted for licensing purposes found an additional well being used to supply the center pivot system. Pursuant to SDCL 46-5-13.1 and ARSD 74:02:01:14.01, the Chief Engineer made a finding that the additional diversion point did not increase the potential for adverse effects to existing diversions and the overall project, as developed, is consistent with the original application.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the water supply system and is entitled to divert 1.23 cubic feet of water per second for beneficial use. The location of the diversion points are as follows:

- West Well: 2,635'N & 2,455'W of the SE corner of Section 21, T121N, R47W (NW ¼ SE ¼)
Latitude 45.276013, Longitude -96.56503;
- East Well: 2,635'N & 2,355'W of the SE corner of Section 21, T121N, R47W (NW ¼ SE ¼)
Latitude 45.27603, Longitude -96.56462.

(3) The permit holder has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use to irrigate the following land:

T121N, R47W Section 21	NW ¼ SE ¼	40 acres	NW ¼ SW ¼	6 acres
	NE ¼ SE ¼	14 acres	NE ¼ SW ¼	38 acres
	SW ¼ SE ¼	10 acres	SE ¼ SW ¼	8 acres

Total – 116 acres

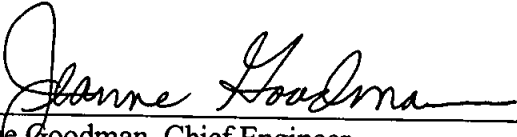
(4) Pursuant to South Dakota Water Law 46-5-30.1 Dale Tuchscherer, 14629 481st Ave., Milbank SD 57252 the holder and/or owner of Water Right No. 7498-3 is issued a license to appropriate water, the right to use 1.23 cubic feet of water per second from ground water, two wells (Veblen Aquifer) with a priority date of October 31, 2012 from the locations specified in (2) of this license for irrigation purposes.

This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Right No. 7498-3 and subject to the following 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.

continued

- The wells authorized by Permit No. 7498-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with the 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. ***Both wells were constructed in 2013 by Kranz Well and Excavation. Copies of the logs are on file with the Water Rights Program.***
- Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Permit No. 7498-3 authorizes a maximum diversion rate of 1.78 cfs for irrigation of 116 acres with an annual volume not to exceed 2 acre feet per acre per year. ***This qualification is no longer applicable. Based on the field investigation of the water use system, the irrigation system is capable of diverting 1.23 cfs.***
- This Permit is approved subject to the irrigation water use questionnaire being submitted each year.



Jeanne Goodman, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

MAY 22 2019

date

