

WATER PERMIT NO. 8059-3

Name of Applicant: Tim Trooien

Address: 19995 478th Ave, White SD 57276 Phone: 605 695-6821

Amount of Water Claimed: 1.55 cfs Total Acres: 120

Source of Water Supply: groundwater (2 wells)

Water to be used for: irrigation County: Brookings

Type of Waste Disposal System:

Location: 4 miles south of Bruce

PRIORITY Date Received: 10-31-14 Application/License Fee: \$950

Corrected Application Received: Period of Annual Use: May 1 – September 30

Remarks: Cancelled Water Permit No. 4305-3 was for irrigation of same acres

Diversion Point: SE 1/4 NW 1/4 Sec 31-T111N-
R50W

Land to be Irrigated: NW 1/4 Sec 31-T111N-
R50W

Depth of Well: 31- 38 feet deep

Well Driller:

Remarks:

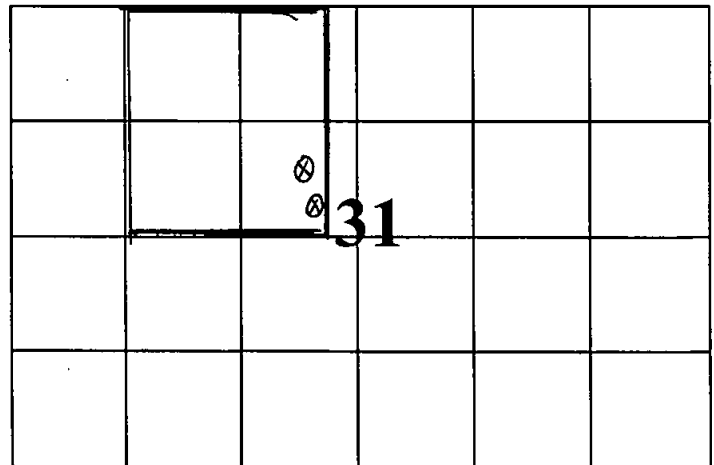
Type of Map: aerial

Prepared by:

Reviewed and the Number Assigned on: 11-3-14

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____



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

Mail to: PMB 2020 DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8059-3</u> (office use only) Hydrologic Unit <u>10170202</u>
	Basin <u>Sioux River</u>
	Newspaper <u>Brookings Register</u>
	<u>PO Box 177 57006 605-692-6271</u>

RECEIVED
OCT 31 2014
WATER RIGHTS
PROGRAM

Application For Permit To Appropriate Water For Irrigation

Type of Application: ☒ New ☐ Vested Right ☒ Amendment/Correction to Permit No. 4305-3
(Use predates Mar 2, 1955)

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

1. Name to Appear on Irrigation Permit Tim Trooien

(check one) ☐ Owner ☒ Tenant/lessee ☐ Owner's Legal Agent

(name and complete address if different than above name)

Mailing Address 19995 478th Ave White SD 57276
(Address) (City) (State) (Zip Code)

Home Phone _____ Cell 605 695-6821 Email _____

2. Amount of water claimed 1.55 *CFS or 700 **GPM ***AF Total Acreage 120 A
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply 2 wells SE 1/4 NW 1/4 Sec 31 - T111N - R50W

4. Location of point of diversion #1 well 300' from east side, 600' from south side
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)
#2 well 200' from east side, 300' from south side County Brookings

5. County or counties where water will be used Brookings

6. Annual period during which water is to be used May 1 - Sept 30

7. 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
NW 1/4 of the NW 1/4 Sec 31 111N 50W	27		
SW 1/4 of the NW 1/4 Sec 31 111N 50W	33		
NE 1/4 of the NW 1/4 Sec 31 111N 50W	27		
SE 1/4 of the NW 1/4 Sec 31 111N 50W	33		

8. Give a description of the project. (Attach sheet if more space is needed)

I, Tim Trooien, the applicant, certify that I have read this application, have examined the attached map, and that the matters stated are true.

SOUTH DAKOTA
WATER PERMIT NO. 8059-3

Date of first receipt of application October 31, 2014.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8059-3 to Tim Trooien, 19995 478th Ave, White SD 57276 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. 8059-3 appropriates 1.55 cubic feet of water per second from two proposed wells to be completed into the Big Sioux:Brookings Aquifer (31-38 feet deep) located in the SE 1/4 NW 1/4 Section 31 for irrigation of 120 acres located in the NW 1/4 Section 31; all in T111N-R50W.
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: May 1 – September 30.
3. The date from which applicant may claim right is October 31, 2014.
4. The date of approval of Permit No. 8059-3 is December 29, 2014.
5. One-fifth of the construction is to be completed on or before July 29, 2017.
6. All construction is to be completed on or before December 29, 2019.
7. Water is to be put to beneficial use on or before December 29, 2023.
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 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. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.
3. The wells authorized by Permit No. 8059-3 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.

WATER MANAGEMENT BOARD

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

JAN 22 2015

date



Supplemental Information

(type or print)

1. Well Information (check one or both as applicable) ☐ Drilling new well(s) ☐ Using existing well(s)

- a) If new wells, how many 2 Have test holes been drilled ☒ Yes ☐ No Drilled by _____
(if yes, please provide copies of logs)
- b) If existing wells, how many _____ Provide copy of log(s), if available. Drilled by _____
- c) Well Depth 31-38 Depth to Top of Water Bearing Material 34 ft Depth to Water from Surface 4 ft
- d) Distance to nearest existing domestic well:
On applicant's property 1300 ft On property owned by others _____

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

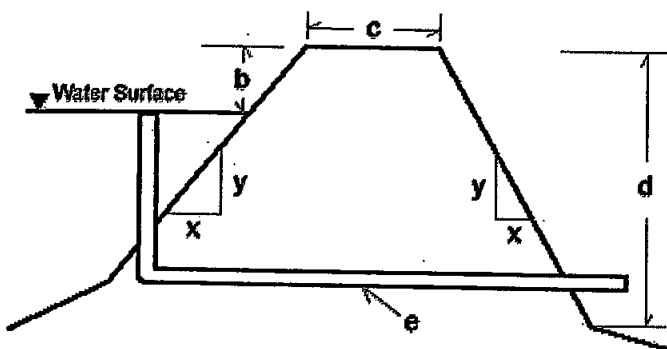
3. Dugout Information

- 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 (e.g. 3 to 1 is a typical slope)
Upstream _____
Downstream _____
- h) Surface Area of Impoundment _____
- i) Storage _____ Acre Feet
- j) Drainage Area Above Dam _____ Acres



PPLS:31_111N_50W

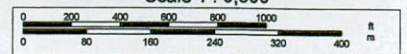
Data use subject to license.

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www.delorme.com



Scale 1 : 9,600



1" = 800.0 ft

Data Zoom 14-4

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 11/3, 20 14

RECEIVED OF Tim Trooien 19995 478th Ave White SD 57276

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

Fee for Application for Permit No. <u>8059-3</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>8059-3</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. **06975**

By *Jeanne Henderson*
Chief Engineer



**DEPARTMENT OF ENVIRONMENT
and NATURAL RESOURCES**

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



**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 8059-3, Tim Trooien**

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. 8059-3, Tim Trooien, 19995 478th Avenue, White SD 57276.

The Chief Engineer is recommending APPROVAL of Application No. 8059-3 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 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. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.
3. The wells authorized by Permit No. 8059-3 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.

See report on application for additional information.

Jeanne Goodman, Chief Engineer
December 10, 2014

REPORT TO THE CHIEF ENGINEER
ON
WATER PERMIT APPLICATION NO. 8059-3
TIM TROOEN
DECEMBER 2, 2014

Water Permit Application No. 8059-3 proposes to appropriate water from the Brookings management unit of the Big Sioux aquifer using two wells. The wells are to be located in the SE¼ NW¼ of Section 31, T111N-R50W. Water is to be diverted from the wells at a maximum diversion rate of 1.55 cubic feet of water per second (cfs) for the irrigation of 120 acres located in the NW¼ of Section 31, T111N-R50W, in Brookings County, SD.

AQUIFER: Brookings management unit of the Big Sioux aquifer (BS:B)

GEOLOGY AND AQUIFER CHARACTERISTICS:

A notation on the test hole data that was included with this application suggests that the test holes were not drilled in Section 31, T111N-R50W. This data had previously been submitted with the application for the now cancelled Water Permit No. 4305-3, along with a comment from Water Rights' staff that the land surveyor responsible for the application's map had incorrectly identified the legal location on the map. The land surveyor's error may have been transposed to the test hole report. Regardless, sufficient geologic and hydrologic data is available to evaluate an application at this site.

There are potentially three aquifers present at the well sites proposed by this application: a) the surficial Big Sioux aquifer; b) the intermediate Howard aquifer; and c) the basal Altamont aquifer (Hamilton, 1989). The Big Sioux aquifer will be considered the water source for this proposed application. The Big Sioux aquifer is an alluvium mantled glacial outwash deposit that consists of "well-sorted, very permeable glacial outwash sand and gravel, mostly medium to very coarse sand and very fine to medium gravel" (Hamilton, 1989). The aquifer is located primarily in the flood plain of the Big Sioux River and its tributaries. The well sites proposed by this application are located in the Brookings management unit of the Big Sioux aquifer very near the boundary between the Brookings and Northern Deer Creek management units (Hedges, 1982). The Brookings management unit of the Big Sioux aquifer extends from near the center of Hamlin County where it is differentiated from the North management unit, south to northern Moody County where the management unit is distinguished from the Moody management unit. The Brookings management unit underlies parts of Hamlin, Deuel, Brookings, Kingsbury and Moody Counties. The Big Sioux: Brookings underlies approximately 74,500 acres of Brookings Counties alone and contains an estimated 245,850 acre-feet of recoverable water in storage in the county (Hedges and others, 1982). The thickness of the aquifer averages 30 feet in Brookings County (Hamilton, 1989). The average hydraulic conductivity of the Big Sioux aquifer, based on four aquifer tests, ranges from 500-1,000 feet per day (ft/d) (Koch, 1980).

SOUTH DAKOTA CODIFIED LAW (SDCL) 46-2A-9

Pursuant to SDCL 46-2A-9, a permit to appropriate water may be issued only if there is 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.

WATER AVAILABILITY:

This application proposes to appropriate water from the Big Sioux: Brookings aquifer. If this application is approved, average annual water use will likely be less than 100 acre-feet annually (ac-ft/yr). 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 that 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.” If the source of the water is older or lower than the Greenhorn Formation and a public water system has applied for a permit, the Board need not consider the recharge/withdrawal issue. Here, a public water system is not involved and the aquifer is not older or lower than the Greenhorn Formation, therefore the withdrawal/recharge issue must be considered.

In applying SDCL 46-6-3.1, the Sixth Judicial Circuit Court ruled in 2005 that if the Water Management Board uses average annual recharge, then it should also use average annual withdrawals to determine if unappropriated water is available from the aquifer (*Hines v. South Dakota Dept. of Environ. and Nat'l. Resources, Hughes County 04-37*) (Memorandum Decision, April 29, 2005).

A 2012 First Judicial Circuit Court’s rulings basically stated that data must be presented to show it is probable the average annual recharge exceeds the average annual discharge by at least the amount requested by the water permit application being considered (*Hanson County Dairy v. Robert Bender and Stace Nelson*) (Memorandum Decision, April 11, 2012).

Later in 2012, the First Judicial Circuit Court stated that the determination whether or not it is probable that the quantity of water withdrawn will exceed the quantity of the average estimated annual recharge is to be based on to the best information reasonably available, and that nothing in South Dakota law requires a recharge study (*Longview Farms, LLP v. South Dakota Dept. of Environ. and Nat'l. Resources*), (Memorandum Decision, May 17, 2012).

Recharge:

Recharge to the Big Sioux: Brookings occurs through infiltration and percolation of precipitation falling on the surface of the outwash. Since the aquifer is hydraulically connected to some area lakes and the Big Sioux River, recharge is also provided to the aquifer during times of high runoff when surface water levels are higher than groundwater levels. Recharge rates calculated for the various management units of the Big Sioux aquifer range from “2.7 to 6.9 in/yr if flow-net analysis is ignored” (Hedges and others, 1985). Koch (1980) estimated average recharge to the Big Sioux aquifer in Brookings, Deuel, and Hamlin Counties by modeling to be 6.57 in/yr to the unconfined portions. Kume (1985) estimated recharge to the Big Sioux aquifer in Hamlin and Deuel Counties to be 5.11 in/yr. Hansen (1988) estimated recharge to the Big Sioux aquifer in Moody County by modeling to be on average 4.85 in/yr. Hedges and others (1985) estimated recharge specifically of the Brookings management unit by observation well analysis to be 4.0 in/yr; this is considered the best data available due to its emphasis on the management unit. Applying the recharge rate of this management unit to the area, recharge to the Big Sioux:

Brookings aquifer is estimated to be 107,000 acre-feet per year (ac-ft/yr). Given the area of the management unit in Brookings County, the average annual recharge to the aquifer in Brookings County alone is estimated to be 24,833 acre-feet per year.

Discharge:

Discharge from the Big Sioux: Brookings aquifer is by evapotranspiration, discharge to streams and lakes, and withdrawal from wells. There are a number of completion reports on file with the DENR-Water Rights Program for domestic use wells completed into the Big Sioux: Brookings aquifer (Water Rights, 2014c), and there are currently 264 Water Rights/Permits appropriating water from the Big Sioux: Brookings aquifer (Water Rights, 2014b). In addition, there are 10 future use permits reserving water from the aquifer. There are 116 Water Rights/Permits and five future use permits appropriating water from Brookings County alone (Water Rights, 2014b). Appropriations from Brookings County are for irrigation use (99 appropriations), municipal use (four appropriations), commercial use (five appropriations), industrial use (one appropriation), suburban housing development use (two appropriations), and rural water system use (five appropriations) (Water Rights, 2014b).

The amount of water that can be expected to be withdrawn through non-irrigation appropriative uses from the Big Sioux: Brookings aquifer can be estimated by assuming: 1) water rights/permits limited by an annual volume will pump the entire volume appropriated, 2) water rights/permits limited only by diversion rate will pump at the maximum permitted diversion rate 60 percent of the time, and 3) future use permits can be fully developed.

Non-irrigation water rights/permits limited by annual volume currently appropriate 4,795 ac-ft/yr of water, and non-irrigation water rights/permits limited by diversion rate currently appropriate water at a total maximum diversion rate of 18.939 cfs. There are a total of ten future use permits reserving a total of 7,717 ac-ft/yr of water from the aquifer (Water Rights, 2014b).

The municipalities of Clear Lake, Hayti, and Bruce currently use a rural water system as a primary source, and their water rights/permits are retained as a standby source for emergencies, such as fire protection. These water rights are all limited by diversion rate, totaling 2.81 cfs (Water Rights, 2014b).

Non-irrigation water appropriations/reservations are expected to account for approximately 20,000 ac-ft/yr to be withdrawn from the entire Big Sioux: Brookings aquifer (Water Rights, 2014b).

Irrigation withdrawals reported from the Big Sioux: Brookings aquifer are shown in Table 1.

Table 1. Irrigation from the Big Sioux: Brookings aquifer (Water Rights, 1980-2014)

YEAR	NO. OF PERMITS	APPROPRIATION (AC-FT/YR)	PUMPAGE REPORTED (AC-FT/YR)
2013	198	70084.9	15432.29
2012	177	63694.4	19482.51
2011	174	63494.4	8527.61
2010	172	62966.4	2713.39
2009	174	65098.4	9172.9
2008	166	62761.8	12505.85
2007	164	62374.8	14730.13
2006	161	61075.8	14325.04
2005	159	61435.8	11513.48
2004	156	60695.8	11809.91
2003	149	58970.8	11380.47
2002	149	59186.8	12410.94
2001	149	59312.8	8384.81
2000	153	60799.8	8933.72
1999	155	62181.3	7841.04
1998	157	63306.2	8109.71
1997	153	62281.7	5650
1996	154	62575.2	7220.95
1995	161	62961.2	3862.25
1994	160	64395.2	2854.62
1993	162	64963.7	1042.9
1992	162	64603.7	2331.6
1991	165	65534.97	7771.74
1990	175	71616.95	5862.92
1989	166	69391.27	13930.7
1988	167	74615.27	18521.4
1987	171	76624.07	10015
1986	179	80788.57	2854.7
1985	181	81385.57	4951.4
1984	188	84188.07	8177.6
1983	161	74854.57	8227.46
1982	155	77754.57	4551.86
1981	198	91361	9040
1980	187	87093	9837
1979	184	85701	6144
MIN	149	58970.8	1042.9
MAX	198	91361	19482.51
AVE	166	68575.14	8860.63

The annual irrigation appropriation from this aquifer has remained fairly steady until recently. Since the beginning of 2013, 17 irrigation water permits have been approved, authorizing irrigation of 2,284.13 acres (Water Rights, 2014b). While the maximum allowable application rate is two feet per acre per year (ft/ac/yr), in most instances irrigators in the geographic region apply less than one ft/ac/yr. To be realistic yet conservative, assuming an application rate of one ft/ac/yr results in an expected use of these newly approved and pending permits, if approved, of 2,284.13 ac-ft/yr.

While there are many domestic wells on file, many are no longer used as primary sources since rural water systems have been introduced in the area. Considering this, and the relatively small withdrawal ability of a domestic well, the annual quantity of water withdrawn due to domestic wells is not significant to the hydrologic budget of the aquifer (Water Rights, 2014c).

Comparison of the estimated average annual withdrawal from the entire Big Sioux: Brookings aquifer with the estimated average annual recharge for the aquifer indicated that in general the average annual withdrawals to the aquifer do not exceed the average annual recharge to the aquifer, and unappropriated water is available from the Big Sioux: Brookings aquifer. Specifically, unappropriated water is available for the estimated 100 acre-feet expected to be used if this appropriation is approved.

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 to the aquifer.”

The DENR-Water Rights Program monitors 80 observation wells completed into the Brookings management unit of the Big Sioux aquifer. Hydrographs for nearby observation wells are shown in Figures 1-8, and their locations relative to the well sites proposed by this application are shown on Figure 9.

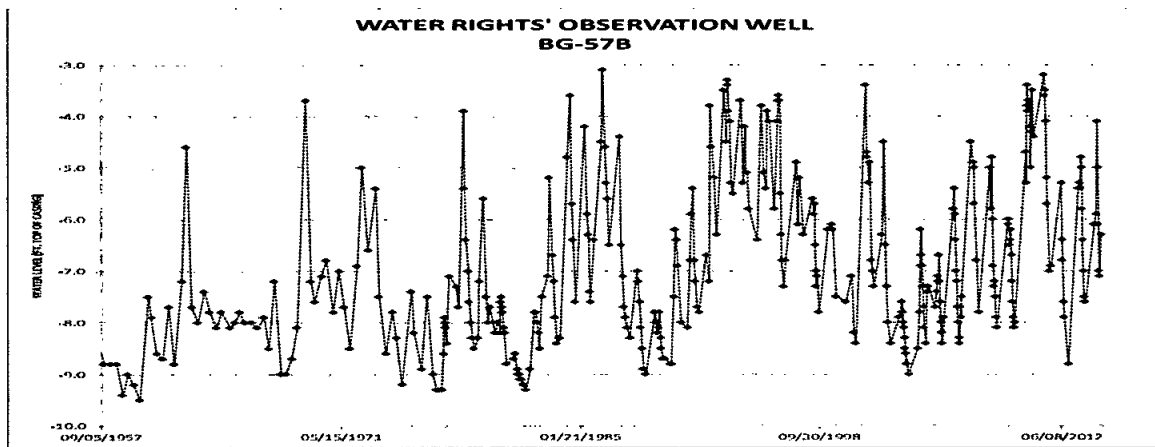


Figure 1. Hydrograph for observation well completed into the Big Sioux: Brookings aquifer. See Figure 9 for location.

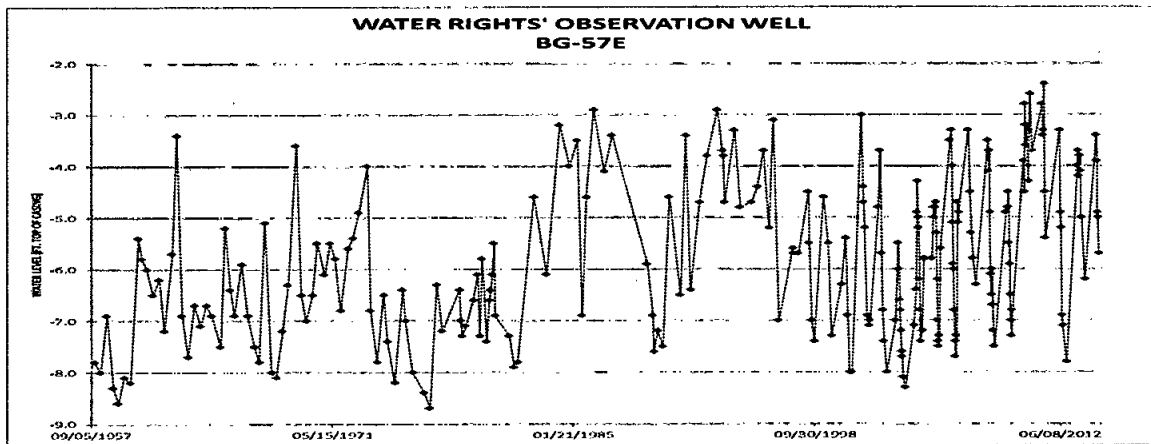


Figure 2. Hydrograph for observation well completed into the Big Sioux: Brookings aquifer. See Figure 9 for location.

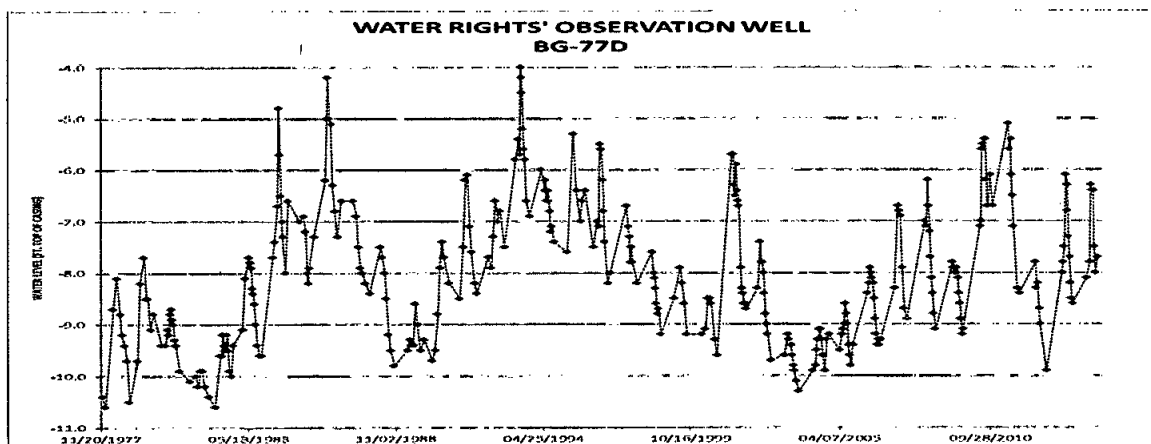


Figure 3. Hydrograph for observation well completed into the Big Sioux: Brookings aquifer. See Figure 9 for location.

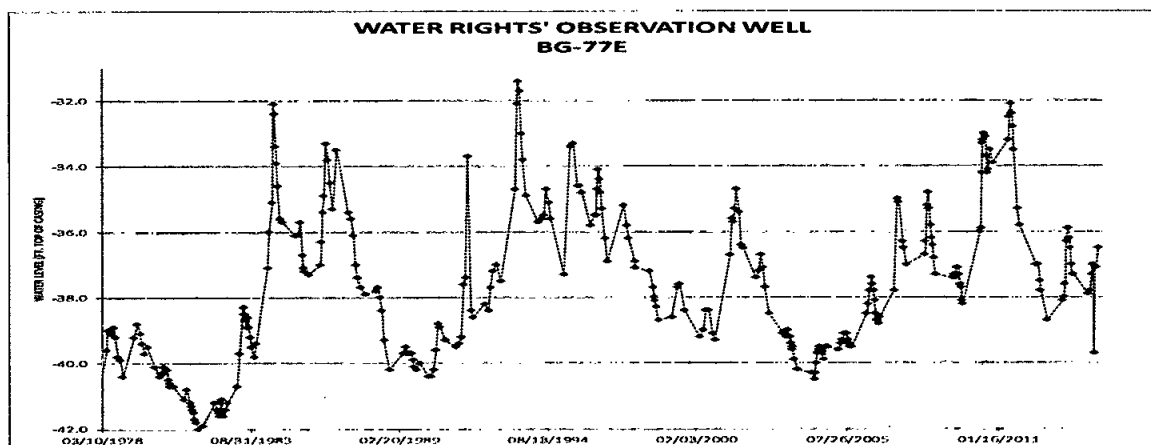


Figure 4. Hydrograph for observation well completed into the Big Sioux: Brookings aquifer. See Figure 9 for location.

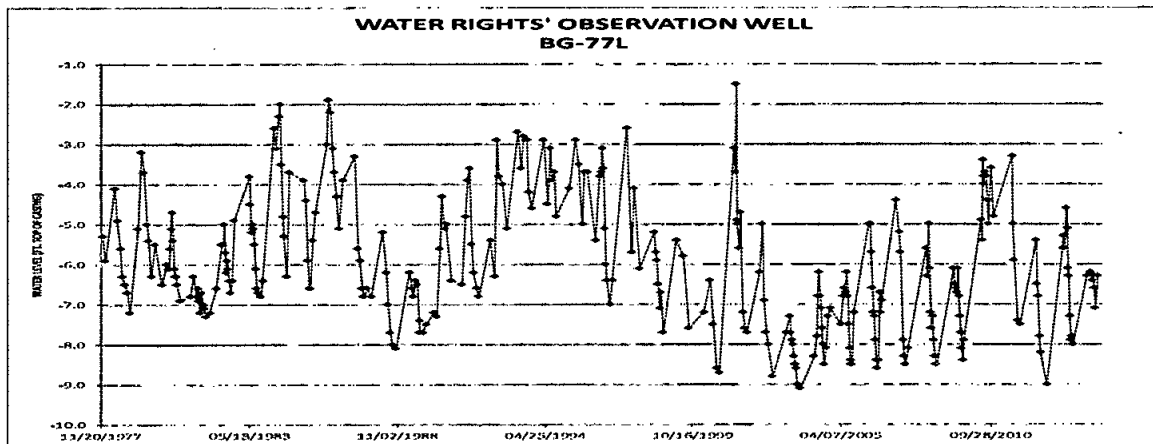


Figure 5. Hydrograph for observation well completed into the Big Sioux: Brookings aquifer. See Figure 9 for location.

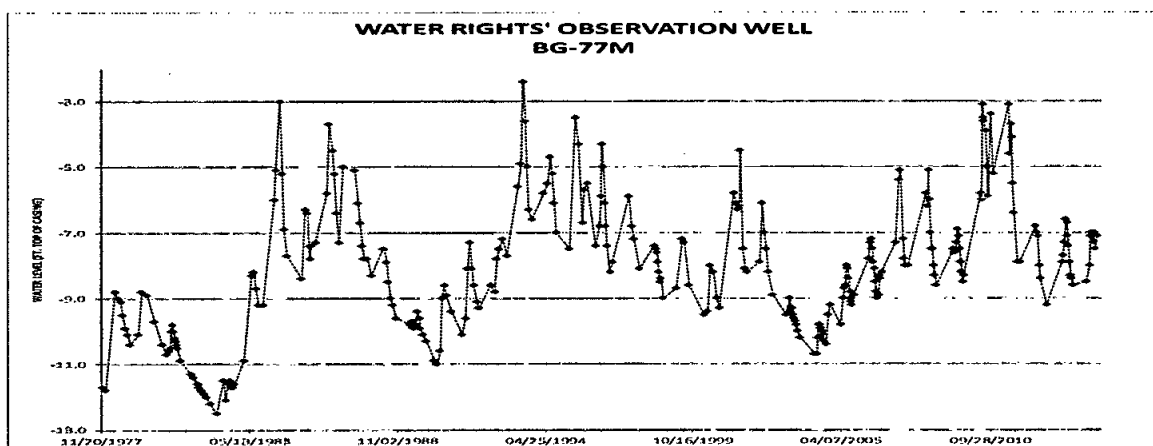


Figure 6. Hydrograph for observation well completed into the Big Sioux: Brookings aquifer. See Figure 9 for location.

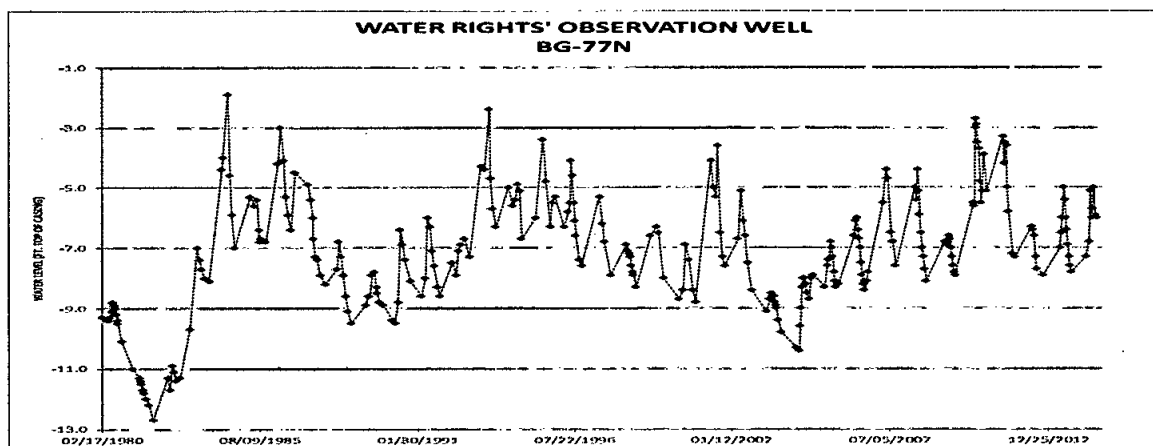


Figure 7. Hydrograph for observation well completed into the Big Sioux: Brookings aquifer. See Figure 9 for location.

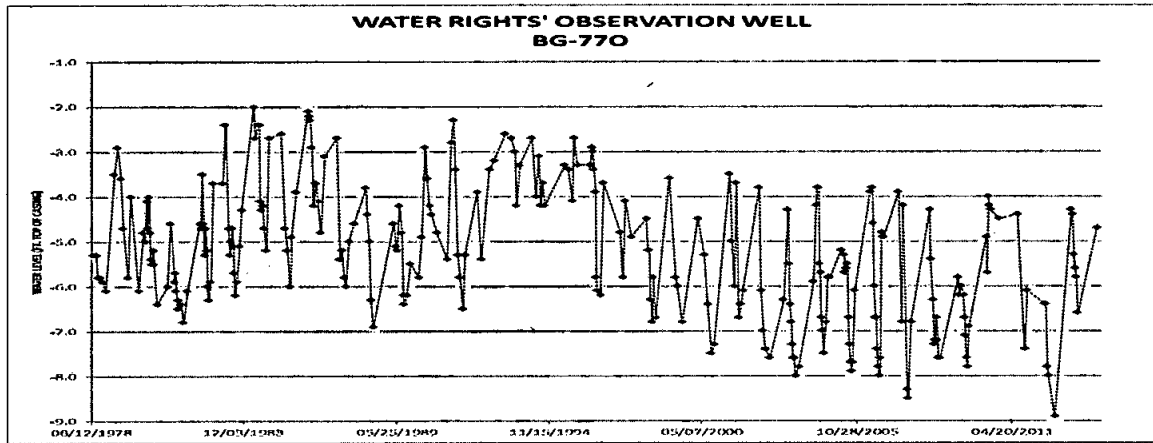


Figure 8. Hydrograph for observation well completed into the Big Sioux: Brookings aquifer. See Figure 9 for location.

The observation well data shows the aquifer responds well to climatic conditions with rising water levels during wet years and gradually declining water levels during dry years. The water level data verifies that over the period of record, withdrawals have not exceeded recharge. Most importantly, the observation well data shows that at the current level of development, climatic conditions greatly mask the temporal effects of well withdrawals. Therefore, recharge to and natural discharge from the Big Sioux: Brookings aquifer significantly exceeds pumping. Recognizing that natural discharge from the aquifer can be captured for pumping the hydrographs document that there is unappropriated water available from the aquifer to support these appropriations.

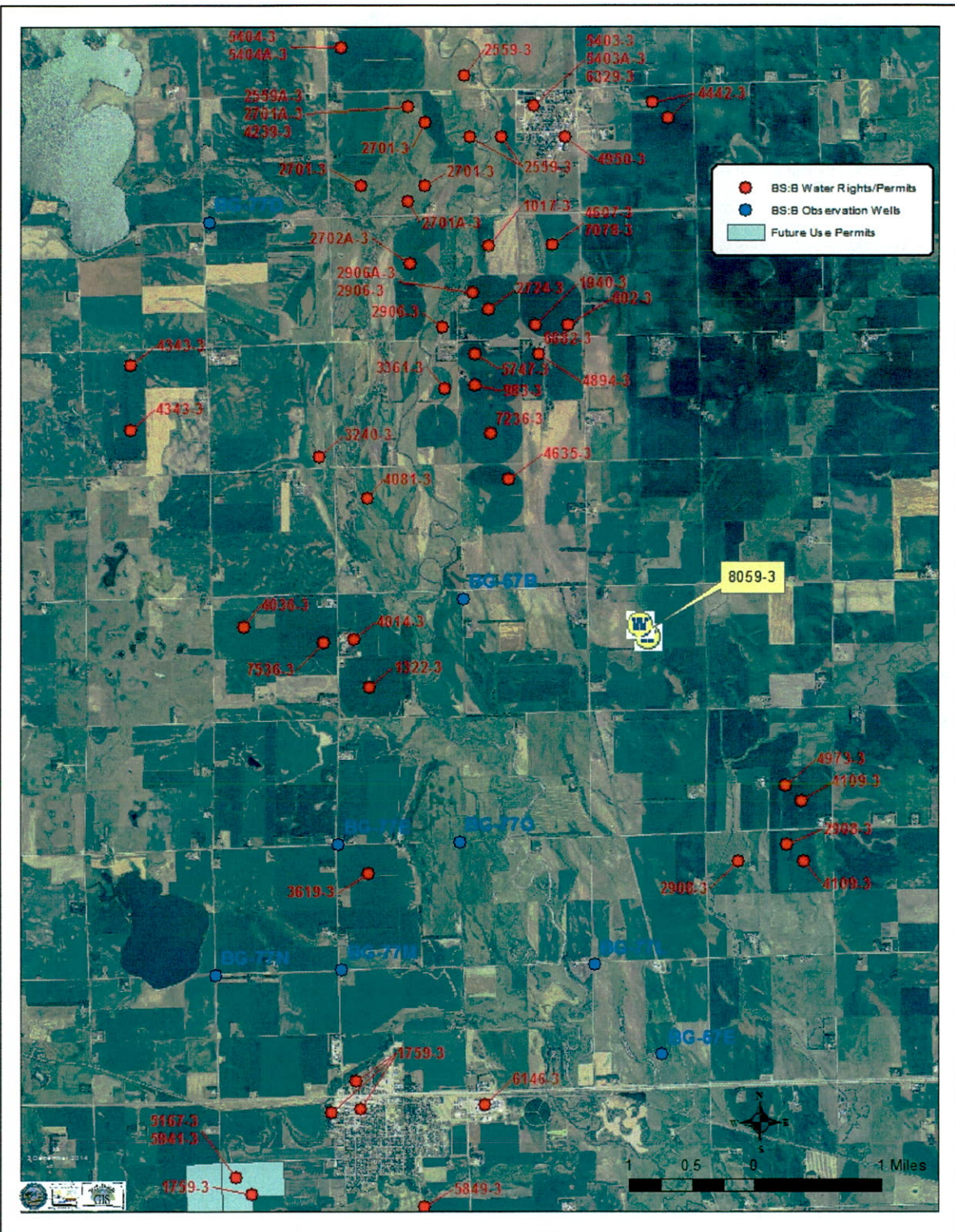


Figure 9. Vicinity map showing the location of the well sites proposed by Water Permit Application No. 8059-3, DENR-Water Rights' observation wells completed into the Big Sioux: Brookings aquifer and the approximate location of diversion points for existing water rights/permits appropriating water from the Big Sioux: Brookings aquifer, and the location of future use permits appropriating water from the Big Sioux: Brookings aquifer.

EXISTING WATER RIGHTS:

The approximate location of diversion points authorized by water rights/permits appropriating water from the Big Sioux aquifer in the vicinity of the well sites proposed by this application are shown in Figure 9 and identified in Table 1. In addition, there are a number of completion reports on file with the DENR-Water Rights Program for domestic wells in this area. There are two future use permits reserving water from the Big Sioux: Brookings aquifer in this area, both held by the City of Volga. They are:

Future use Permit No. 5875-3 reserving 572 ac-ft/yr

Future use Permit No. 6259-3 reserving 1,216 ac-ft/yr

Table 1. Water Rights/Permits in the vicinity of the well sites proposed by Application No. 8059-3.

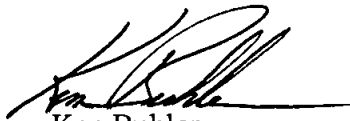
PERMIT NO	NAME	PRIOR DATE	STATUS	USE	CFS	ACRES
1017-3	WAYNE EIGHMY	02/11/1963	LC	IRR	1.79	125
1322-3	LAWRENCE VANDER WAL	10/21/1966	LC	IRR	1.96	138
1759-3	CITY OF VOLGA	06/15/1970	LC	MUN	1.49	0
1940-3	ELDON EIGHMY	04/18/1972	LC	IRR	1	70
2559-3	DUANE C PANKRATZ	02/12/1976	IL	IRR		
2559A-3	DUANE C PANKRATZ	02/12/1976	IL	IRR		
2701-3	DUANE C PANKRATZ	04/14/1976	IL	IRR		
2701A-3	DUANE C PANKRATZ	04/14/1976	LC	IRR	3.34	420
2702-3	DUANE C PANKRATZ	04/14/1976	IL	IRR		
2702A-3	VHS INVESTMENTS	04/14/1976	LC	IRR	1.78	184
2724-3	HARVEY CUNNINGHAM	04/26/1976	LC	IRR	0.86	60.1
2906-3	HARVEY CUNNINGHAM	04/28/1959	IL	IRR		
2906A-3	HARVEY CUNNINGHAM	04/28/1959	LC	IRR	0.85	60
2908-3	MARGARET A TOFTE	08/26/1976	IL	IRR		
3240-3	OSCAR E SAPP	10/25/1976	LC	IRR	1.89	132
3361-3	VANDERWAL YARDS INC	11/29/1976	LC	IRR	1	96.7
3619-3	MANS BROTHERS FARMS INC	02/04/1977	IL	IRR		
4014-3	LAWRENCE/DALE VANDERWAL	05/04/1977	LC	IRR	1.78	128
4036-3	EUGENE KLEINJAN	09/14/1977	LC	IRR	1.22	136
4081-3	KLEINJAN FARMS INC	01/16/1978	LC	IRR	1.46	88
4109-3	MARGARET A TOFTE	08/26/1976	IL	IRR		
4239-3	DUANE C PANKRATZ	04/14/1976	IL	IRR		
4343-3	DOUGLAS ALGRA	10/13/1978	LC	IRR	2.79	206
4442-3	LEROY G VANDE WEERD	08/30/1979	LC	IRR	1.78	136
4607-3	RICHARD ADEE	12/17/1980	IL	IRR		
4635-3	GERALD ODEGAARD	02/06/1981	LC	IRR	1.78	131
4894-3	RICHARD VANDE WEERD	03/26/1982	LC	IRR	1.23	86
4950-3	CITY OF BRUCE	03/11/1983	LC	MUN	0.27	0
4973-3	MARGARET A TOFTE	08/26/1976	LC	IRR	1.78	246
5167-3	CITY OF VOLGA	12/22/1987	LC	MUN	0.45	0
5403-3	GREG OSWALD	02/02/1990	LC	IRR	0.17	16
5403A-3	GREG OSWALD	05/09/2002	PE	COM	0	0
5404-3	MARVIN A RENTSCH	01/22/1990	IL	IRR		
5404A-3	MARVIN RENTSCH	01/22/1990	LC	IRR	2	194
5747-3	TERRY CUNNINGHAM	01/04/1993	LC	IRR	0.83	58
5849-3	MEADOW CREEK GOLF COURSE	02/07/1995	LC	IRR	0.89	84
5941-3	CITY OF VOLGA	07/26/1995	LC	MUN	0.89	0
602-3	ELDON EIGHMY	04/30/1959	LC	IRR	1.1	80
6146-3	SD SOYBEAN PROCESSORS	06/08/1999	LC	IND	0.144	0
6329-3	GREG OSWALD	06/17/2002	PE	COM	1.11	0
6682-3	RICHARD VANDE WEERD	01/03/2006	PE	IRR	0.1	44
7078-3	RICHARD ADEE	12/17/1980	LC	IRR	1.66	199
7236-3	DAVID ULVESTAD	03/07/2011	PE	IRR	1.78	160
7536-3	EUGENE KLEINJAN	11/30/2012	PE	IRR	1.33	160
983-3	HARVEY G CUNNINGHAM	04/09/1962	LC	IRR	1.1	77
LC= Water Right, PE= Water Permit, IL= Incorporated, IRR= Irrigation, MUN=Municipal, COM= Commercial, IND= Industrial						

The water table conditions of the aquifer in this area dictate that water level drawdown due to pumping will not extend far from the proposed well. However, precise drawdown cannot be quantified without aquifer testing. The Water Management Board has consistently recognized that to place water to maximum beneficial use a certain amount of drawdown may occur. Therefore, nearby adequate wells defined by ARSD 74:02:20(7) are not expected to be adversely impaired due to the proposed diversion.

Conditions occur where withdrawal exceeds the average annual recharge. The saturated thickness of this thin aquifer could be reduced. If the saturated thickness is reduced to the extent that water rights/permits can no longer pump at their developed or “historically established” diversion rates, this may be considered an adverse impact.

CONCLUSIONS:

1. This application proposes to divert groundwater at a maximum rate of 1.55 cfs from one well to be completed into the Big Sioux: Brookings aquifer for irrigation use.
2. Unappropriated water is available from the Big Sioux: Brookings aquifer to supply the proposed appropriation.
3. This proposed diversion is not expected to adversely impair existing nearby adequate wells.
4. If the saturated thickness is reduced in this thin aquifer with limited storage to the extent that water rights/permits can no longer pump at their developed or “historically established” diversion rates, this may be considered an adverse impact.



Ken Buhler
SD DENR-Water Rights Program

REFERENCES:

- Circuit Court of South Dakota, Sixth Judicial Circuit, 2005, April 29, 2005 Memorandum Decision
re: HU04-37 Hines v. SD Department of Environment and Natural Resources
- Circuit Court of South Dakota, First Judicial Circuit, 2012, April 12, 2012 Memorandum Decision
re: Hanson County Dairy v. Robert Bender and Stace Nelson
- Circuit Court of South Dakota, First Judicial Circuit, 2012, May 17, 2012 Memorandum Decision
re: Longview Farms, LLP v. South Dakota Dept. of Environ. and Nat'l. Resources
- Hamilton, L.J., 1989, Water Resources of Brookings and Kingsbury Counties, South Dakota:
U.S. Geological Survey Water-Resources Investigations Report 88-4185, 87 p.
- Hedges, L.S., Burch, S.L., Iles, D.L., Barari, R.A., 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
- Koch, N.C. 1980. Appraisal of the Water Resources of the Big Sioux Aquifer, Brookings, Deuel,
and Hamlin Counties, South Dakota. Water-Resources Investigations Report 80-100.
USGS, Huron, South Dakota.

Kume, J. 1985. Water Resources of Deuel and Hamlin Counties, South Dakota. Water-Resources Investigations Report 84-4069. USGS, Huron, South Dakota.

Water Rights, 2014a, Observation Well Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.

Water Rights, 2014b, Water Right/Permit Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.

Water Rights, 2014c, Water Well Completion Report Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.

Affidavit of Publication
State of South Dakota
County of Brookings

ss

RECEIVED
JAN 02¹⁰ 2015
WATER RIGHTS
PROGRAM

Exhibit "A"

Katherine Ishol of said county, first duly sworn, on oath, says: That she is the office clerk of THE BROOKINGS REGISTER, a daily newspaper, printed and published in the City of Brookings, in said County of Brookings, and State of South Dakota; that she has full and personal knowledge of the facts herein stated; that said newspaper is a legal newspaper and has a bona fide circulation of at least two hundred copies of each issue daily; that said newspaper has been published within the said County of Brookings and State of South Dakota, for more than one year prior to the first publication of Exhibit "A," hereto attached and herein mentioned, and was and is printed that the

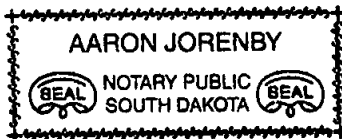
Leg#409 Application 8059-3

same was published, is hereto attached marked Exhibit
said newspaper for _____ 1 times, to-wit:

December 18, 2014

said Exhibit "A" inures to the sole benefit for the publishers of said newspaper; that no agreement or understanding for the division thereof has been made with any other person, and that no part thereof has been agreed to be paid to any person whomsoever; that the fees charged for the publication thereof are:

Twenty three dollars and seventy cents \$23.70



19th _____ day of

December

2014

Notary Public in and for the County of Brookings, South Dakota.
My Commission expires February 22, 2020.

Legal 409, 1x, 12/18
NOTICE OF APPLICA-
TION NO. 8059-3 to
Appropriate Water
Notice is given that Tim
Troien, 19995 478th
Ave, White SD 57276
has filed an application
for a water permit to
appropriate 1.55 cubic
feet of water per second
from two proposed wells
to be completed into the
Big Sioux:Brookings
Aquifer (31-38 feet
deep) located in the SE
1/4 NW 1/4 Section 31
for irrigation of 120
acres located in the NW
1/4 Section 31; all in
T111N-R50W.
Pursuant to SDCL 46-
2A-2, the Chief
Engineer recommends
APPROVAL of
Application No. 8059-3
because 1) unappropri-
ated 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 recom-
mended, unless a peti-
tion is filed opposing the
application or the appli-
cant files a petition con-
testing the Chief
Engineer's recommen-
dation. If a petition
opposing the applica-
tion 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 December 29, 2014. 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. Information concerning this application is available at <http://denr.sd.gov/public>. 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 total approximate cost of \$23.70.



DEPARTMENT OF ENVIRONMENT
and NATURAL RESOURCES

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



December 10, 2014

Brookings Register
PO Box 117
Brookings SD 57006

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 8059-3 to Appropriate Water. Please publish the notice once on December 18, 2014. 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 Tim Trooien, 19995 478th Ave, White SD 57276 (Ph # 605-695-6821).

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

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



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

December 10, 2014

Tim Trooien
19995 478th Ave
White SD 57276

Dear Mr. Trooien:

Water Permit Application No. 8059-3 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 Brookings Register printed at Brookings SD (Ph # 605-692-6271). 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 December 18, 2014. 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. 8059-3 to Appropriate Water

Notice is given that Tim Trooien, 19995 478th Ave, White SD 57276 has filed an application for a water permit to appropriate 1.55 cubic feet of water per second from two proposed wells to be completed into the Big Sioux:Brookings Aquifer (31-38 feet deep) located in the SE 1/4 NW 1/4 Section 31 for irrigation of 120 acres located in the NW 1/4 Section 31; all in T111N-R50W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8059-3 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 December 29, 2014.

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. Information concerning this application is available at <http://denr.sd.gov/public>. 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 total approximate cost of _____.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

JAN 22 2015

Tim Trooien
19995 478th Ave
White SD 57276

Dear Mr. Trooien:

Enclosed is Water Permit No. 8059-3 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 cursive script that reads "Jeanne Goodman".

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

enclosures

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

RECEIVED

APR 29 2015

WATER RIGHTS
PROGRAM

Mail to: PMB 2020 DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. _____	(office use only) Hydrologic Unit _____
	Basin _____	
	Newspaper _____	

Application For Permit To Appropriate Water For Irrigation

8059-3

Type of Application: ☒ New ☐ Vested Right ☒ Amendment/Correction to Permit No. 4305-3
(Use predates Mar 2, 1955)

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

1. Name to Appear on Irrigation Permit Tim Trooien
(check one) ☐ Owner ☒ Tenant/lessee ☐ Owner's Legal Agent
(name and complete address if different than above name)

Mailing Address 19995 478th Ave White SD 57276
(Address) (City) (State) (Zip Code)

Home Phone _____ Cell 605 695-6821 Email _____

2. Amount of water claimed _____ *CFS or 700 **GPM _____ ***AF Total Acreage 120 A
(*Cubic Feet per Second) (**Gallons per Minute) (***) Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply 2 wells

4. Location of point of diversion #1 well 300' from east side, 600' from south side
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)

#2 well 200' from east side, 300' from south side County Brookings

5. County or counties where water will be used Brookings

6. Annual period during which water is to be used May - Sept

7. 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
NW ¹ / ₄ of the NW ¹ / ₄ Sec 31 111N 50W	27		
SW ¹ / ₄ of the NW ¹ / ₄ Sec 31 111N 50W	33		
NE ¹ / ₄ of the NW ¹ / ₄ Sec 31 111N 50W	27		
SE ¹ / ₄ of the NW ¹ / ₄ Sec 31 111N 50W	33		

8. Give a description of the project. (Attach sheet if more space is needed)

You have this water permit #8059-3 for 2 wells
Tim is digging a dug out 100 ft x 150 ft x 20 ft in the
SW corner of NW¹/₄ sec 31 to be used instead of the wells

I, Tim Trooien by Dana Gullikson, the applicant, certify that I have read this application, have examined the attached map, and that the matters stated are true.

Supplemental Information

(type or print)

permit is for 2 wells not to be used

1. Well Information

(check one or both as applicable) ☐ Drilling new well(s) ☐ Using existing well(s)

- a) If new wells, how many 2 Have test holes been drilled ☒ Yes ☐ No Drilled by _____
(if yes, please provide copies of logs)
- b) If existing wells, how many _____ Provide copy of log(s), if available. Drilled by _____
- c) Well Depth 31-38 Depth to Top of Water Bearing Material 34 ft Depth to Water from Surface 4 ft
- d) Distance to nearest existing domestic well:
On applicant's property 1300 ft On property owned by others _____

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 _____

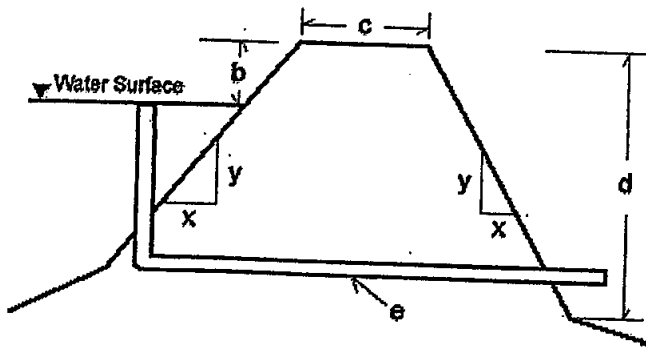
3. Dugout Information

- a) Surface Dimensions 100 x 150 ft 20 ft Depth Depth 20 ft
- b) Depth to water (ground surface to water level) 4 ft

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 (e.g. 3 to 1 is a typical slope)
Upstream _____
Downstream _____
- h) Surface Area of Impoundment _____
- i) Storage _____ Acre Feet
- j) Drainage Area Above Dam _____ Acres

Dug
347

WELL #1

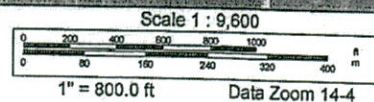
WELL #2

PPLS:31_111N_50W

Data use subject to license.

© DeLorme, XMap® 7.

www.delorme.com



File No. 8059-3

Approval of Change of Diversion Points

NAME: Tim Trooien

ADDRESS: 19995 478th Ave, White, SD 57276

DATE: May 7, 2015

COUNTY: Brookings

TELEPHONE: (605) 695-6821

Water Permit No. 8059-3 appropriates 1.55 cubic foot per second (cfs) from two wells completed into the Brookings Management Unit of the Big Sioux aquifer to irrigate 120 acres in Brookings County. These two wells were proposed to be constructed in the SE ¼ NW ¼ of Sec 31, T111N R50W. The descriptions of the acres irrigated are as follows: 27 acres in the NW ¼ NW ¼ of Section 31, 33 acres in the SW ¼ NW ¼ of Section 31, 27 acres in the NE ¼ NW ¼ of Section 31, and 33 acres in the SE ¼ NW ¼ of Section 31, all in T111N-R50W. The original permit was conditioned with the standard well interference, well completion, and irrigation questionnaire qualifications.

Tim Trooien submitted a request to the South Dakota DENR Water Rights Program (received on April 29, 2015) requesting a change in the location of the diversion point from two proposed (unconstructed) wells in the SE ¼ NW ¼ of Section 31 to a dugout located the SW ¼ NW ¼ of Section 31, all in T111N R50W. Mr. Trooien explained during a phone conversation with Bracken Capen on May 12, 2015 that the dugout will be approximately 150 feet by 150 feet with a depth of 20 feet. During the same phone conversation, Mr. Trooien specified the basis behind the change in diversion point was he believed the two proposed wells would not provide the appropriated 1.55 cfs and that the dugout was necessary to supply the appropriated rate of water. Given the surficial nature of the aquifer at this location and the depth of the proposed wells (31 to 38 feet), it is expected the dugout will divert water from the same aquifer, the Big Sioux: Brookings.

AUTHORITY:

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

- **Developed water source is the same as licensed source and no additional water is appropriated.**

The water source authorized by Water Permit No. 8059-3 is the Big Sioux: Brookings aquifer. The depth of the proposed wells as well as the depth of the new dugout which Tim Trooien proposes to construct is consistent with the known depth of the Big Sioux: Brookings aquifer.

No additional appropriation of water is authorized. Water Permit No. 8059-3 appropriates 1.55 cfs and no additional diversion rate authority is being requested.

Review of Existing Diversions

The well completion report and water rights databases were reviewed for the nearest production wells to the proposed site of the dugout. The nearest wells to the newly proposed diversion point was constructed under Water Right No. 4973-3, and is located approximately 1.8 miles to the southeast. This distance is expected to be sufficient in order to minimize potential impairment of existing wells as a result of constructing the new dugout. In addition, the new diversion point site is a greater distance from this nearby well than the originally authorized wells, effectively decreasing the risk of potential impairment.

The Water Rights Program is also aware of domestic wells completed into the Big Sioux: Brookings aquifer in the region. The construction of the dugout will not bring the diversion point appreciably closer to any existing domestic wells. Therefore, the potential for interference is not expected to increase with this change of diversion point location.

Observation Well Data

The Water Rights Program monitors a series of observation wells completed into the Big Sioux: Brookings aquifer. The closest of these observation wells completed into the Big Sioux: Brookings aquifer (BG-57B) is located approximately one mile to the northeast of the proposed site of the dugout. This well has been in place since 1957 and shows static water level fluctuations of three to 10 feet below the top of the casing. Historic water levels in BG-57B appear to be primarily climatically controlled with visible effects of pumping. Approval of a change in diversion point under Water Permit No. 8059-3 is not expected to increase the volume of water withdrawn from the aquifer annually and is therefore not expected to affect overall water levels in the aquifer.

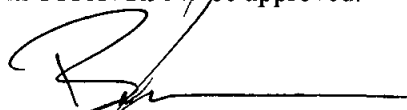
Given the recorded water levels for Observation Well BG-57B, and that the dugout is expected to be completed to approximately 20 feet below ground surface, it is not expected that water levels in the Big Sioux: Brookings aquifer will drop below the bottom of the dugout. However, a dugout does not meet the definition of an adequate well. Consequently, water levels in the dugout may not be protected under South Dakota Water Rights Law.

CONCLUSION:

- The new diversion point does not propose to appropriate additional water.
- The wells in the original application proposed to pump water from the same source as the proposed dugout to be completed in the Big Sioux: Brookings aquifer.
- Unlawful impairment of existing water rights/permits and domestic wells is not expected to occur as a result of the construction of the proposed dugout.

RECOMMENDED ACTION:

Based on the above criteria, it is recommended that the request for a change in diversion points, from two wells located in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 31 to a dugout located in the SW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 31, all in T111N R50W be approved.



Bracken Capen
Natural Resources Engineer

The Chief Engineer makes a finding pursuant to SDCL 46-5-13.1 and ARSD 74:02:01:14:01 that: The change in diversion point 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
PMB 2020
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3182
www.denr.sd.gov

May 14, 2015

8059-3

Tim Trooen
19995 478th Ave.
White, SD 57276

Dear Mr. Trooen:

Water Permit No. 8059-3 appropriates 1.55 cubic feet per second (cfs) from two wells to be completed into the Big Sioux: Brookings aquifer to irrigate 120 acres in Brookings County. These two wells were both proposed for the SE $\frac{1}{4}$ NW $\frac{1}{4}$ of Sec 31, T111N R50W. The descriptions of the acres irrigated are as follows: 27 acres in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 31, 33 acres in the SW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 31, 27 acres in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 31, and 33 acres in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 31, all in T111N-R50W. The original permit was conditioned with the standard well interference, well completion, and irrigation questionnaire qualifications.

You filed a request with the South Dakota DENR Water Rights Program to change your diversion point for Water Permit No. 8059-3 from two wells in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 31, T111N-R50W to a single dugout located in the SW $\frac{1}{4}$ NW $\frac{1}{4}$ of the same section. You explained in a phone conversation with Bracken Capen on May 12, 2015 that the flow of water through the aquifer material in this area may not be adequate to provide the appropriated rate of water (1.55 cfs) and that the dugout will be used instead of the wells.

Upon review of the request and pursuant to SDCL 46-5-13.1, the change in diversion point location is authorized without application or publication of a notice of hearing pursuant to SDCL 46-2A-4. No increase in the authorized diversion rate of 1.55 cfs under Water Permit No. 8059-3 has been requested or approved. If the total diversion rate increases, a new water permit will need to be obtained from the SD DENR Water Rights Program.

Given historic water levels in the nearest observation well monitored by the Water Rights Program (Observation Well BG-57B), water levels are not expected to fall below the bottom of the proposed 20 foot deep dugout. However, a dugout does not meet the definition of an adequate well. Consequently, water levels in the dugout may not be protected under South Dakota Water Rights Law.

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

Sincerely,

Jeanne Goodman
Chief Engineer
Water Rights Program

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 8059-3

I have this day, June 5, 2021, made a thorough examination of the water use system constructed by Tim Trooien, 19995 478th Ave, White, SD 57276 of Permit No. 8059-3, bearing the priority of October 31, 2014 authorizing the diversion of 1.55 cu. ft. per second of the waters of the Big Sioux: Brookings Aquifer for irrigation purposes, in Brookings County.

A. Works used to divert the water: no wells – shallow dugout used for water supply

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

1500-foot buried underground pipe used to move water from the dugout to the center pivot.

C. Works used to apply water to beneficial use:

Center pivot:

- 1) Make Valley
- 2) Overall length 1100 feet
- 3) Number of towers 6
- 4) End gun Y
- 5) Capacity 700 GPM

Chemigation Equipment:

- 1) Does chemigate N

D. Compliance with Permit Requirements:

Permit qualifications being abided by Y

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

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: From the NW corner of Sec 31 T111N-R50W 2580 ft S & 200 ft E, Lat 44.37727 Long -96.88629 (SW ¼ NW ¼ Sec 31).

2. The works are capable of diverting and conveying to the place of use 1.56 cu. ft. per second of water which is to be used for irrigation. Water has been put to beneficial use to the maximum extent as follows:

All land in Sec 31-T111N-R50W

NW1/4 NW 1/4 - 17ac

SE 1/4 NW 1/4 - 27 ac

NE 1/4 NW 1/4 - 29 ac

SW 1/4 NW 1/4 - 21 ac

comprising a total of 94 acres of land and the license should be issued for 1.34 cfs. (See Section F)

3. All structures, wells and lands on map Y

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

Note: Cancelled Water Permit No. 4305-3 was for irrigation of the same acres.

An approximately 120 by 160-foot dugout about 15 feet is being used a water source for the center pivot. The current water table is about 5 feet below the soil surface. An electric powered, floating pump station is used to pump water to a buried supply line that services the center pivot. Photos of the pumping system are available.

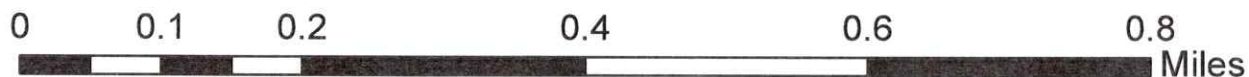
FSA maps and the ArcMAPS software were used to determine irrigated acres. The 94 irrigated acres are eligible for a 1.34 cfs (94/70) Water Permit.



Darrell W DeBoer
Water Rights Inspector
DANR, Water Rights Program

Date report completed: **June 9, 2021**

8059-3



Darrell DeBoer
 Water Right Inspector
 DNR-Water Rights Program

8059-3



8059-3





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 E. CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

8059-3

JUN 11 2021

Tim Trooien
19995 478th Ave
White SD 57276

Dear Mr. Trooisen:

Enclosed is Water License No. 8059-3. 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, State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Sincerely,

Eric Gronlund, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

NOTE: The investigation found your irrigation system is capable of diverting 1.56 cubic feet of water per second (cfs) which is equivalent to approximately 700 gallons per minute. The statutory limit for 94 acres is 1.34 cfs (equivalent to approximately 600 gpm). Diversion of water under this water license is limited to 1.34 cfs.

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 8059-3

(1) Tim Trooien, 19995 478th Ave., White SD 57276 made Application No. 8059-3, October 31, 2014 for a water permit to divert 1.55 cubic feet of water per second from ground water, two wells (Big Sioux Brookings Aquifer), Brookings County, South Dakota for irrigation purposes. Permit No. 8059-3, with a priority date of October 31, 2014 was approved December 29, 2014 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before December 29, 2019 and for the application to beneficial use of water on or before December 29, 2023.

May 14, 2015, pursuant to SDCL 46-5-13.1, authorization was given to change the point of diversion from two wells to be located in the SE ¼ NW ¼ Section 31, T111N, R50W to a single dugout to be located in the SW ¼ NW ¼ Section 31. The dugout is in the same water source as the proposed wells.

(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 1.34 cubic feet of water per second for beneficial use. The location of the dugout is as follows:

- 2,580'S and 200'E of the NW corner of Section 31, T111N, R50W (SW ¼ NW ¼ Sec 31)
Latitude 44.37727, Longitude -96.88629

(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:

T111N, R50W Section 31	NW ¼ NW ¼	17 acres
	NE ¼ NW ¼	29 acres
	SE 1/4NW ¼	27 acres
	SW ¼ NW ¼	21 acres
	Total	94 acres

(4) Pursuant to South Dakota Water Law 46-5-30.1 Tim Trooien, 19995 478th Ave., White SD 57276 the holder and/or owner of Water Right No. 8059-3 is issued a license to appropriate water, the right to use 1.34 cubic feet of water per second from ground water (dugout) into the Big Sioux Brookings Aquifer with a priority date of October 31, 2014 from the location 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. 8059-3 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. ***No wells were constructed. The water right holder shall control withdrawals from the dugout constructed into the water table of the Big Sioux Brookings Aquifer 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. 8059-3 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. *(No longer applicable – the proposed wells were not constructed. A dugout was authorized and constructed into the same water source.)*
- This Water Right is approved subject to the irrigation water use questionnaire being submitted each year.

Eric Gronlund

Eric Gronlund, Chief Engineer
Water Rights Program
Department of Agriculture and Natural Resources

JUN 11 2021

date

