

WATER PERMIT NO. 8459-3

Name of Applicant: **Paul Bremer**

Address: **31244 Bluff Rd, Vermillion SD 57069**

Phone: **605 677-9352**

Amount of Water Claimed: **no add'l**

Total Acres: **40**

Source of Water Supply: **existing well**

Water to be used for: **irrigation**

County: **Clay**

Type of Waste Disposal System:

Location: **5 miles north of Vermillion**

PRIORITY

Date Received: **11-18-20**

Application/License Fee: **\$ 700**

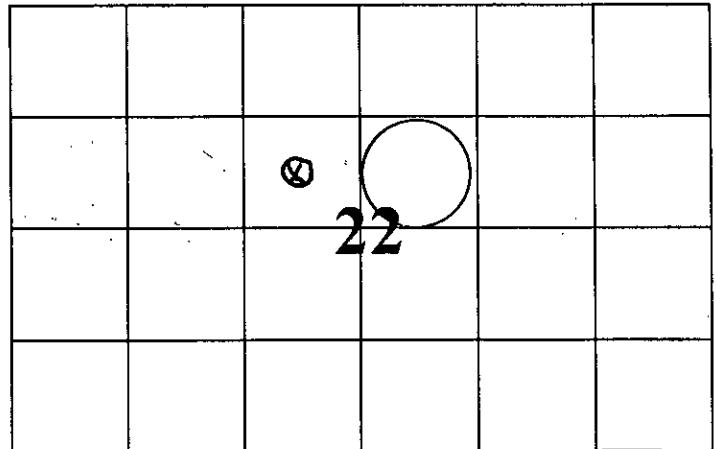
Corrected Application Received:

Period of Annual Use: **April 1 – Sept 30**

Remarks: **Will use the well authorized by Water Right No. 7230-3**

Diversion Point: **SE 1/4 NW 1/4 Sec 22-T93N-R52W**

Land to be Irrigated: **SW 1/4 NE 1/4 Sec 22-T93N-R52W**



Depth of Well: **197 feet deep**

Well Driller: **Hammond-Wetmore Drilling**

Remarks:

Type of Map: **aerial**

Prepared by:

Reviewed and the Number Assigned on: **11-19-20**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

SOUTH DAKOTA
WATER PERMIT NO. 8459-3

Date of first receipt of application November 18, 2020.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8459-3 to Paul Bremer, 31244 Bluff Rd, Vermillion SD 57069 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. 8459-3 authorizes irrigation of an additional 40 acres. Water Right No. 7230-3 authorizes 1.33 cubic feet of water per second (cfs) from one well completed into the Lower Vermillion Missouri Aquifer (192 feet deep) located in the SE 1/4 NW 1/4 Section 22 for irrigation of 71 acres located in the S 1/2 NW 1/4 Section 22 and SE 1/4 NE 1/4 Section 21; all in T93N-R52W. This permit authorizes irrigation of an additional 40 acres located in the SW 1/4 NE 1/4 Section 22-T93N-R52W from the existing well. This permit, and Water Right No. 7230-3 will authorize a total of 1.33 cfs for irrigation of 111 acres. This site is located approximately 5 miles north of Vermillion SD.
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 – September 30.
3. The date from which applicant may claim right is November 18, 2020.
4. The date of approval of Permit No. 8459-3 is January 25, 2021.
5. One-fifth of the construction is to be completed on or before July 25, 2023.
6. All construction is to be completed on or before January 25, 2026.
7. Water is to be put to beneficial use on or before January 25, 2030.
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 Water Permit No. 8459-3 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.

WATER MANAGEMENT BOARD

By: Eric Gronlund
Eric Gronlund, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

MAR 08 2021
date



RECEIVED

Mail to: DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8459-3</u>	(office use only) Hydrologic Unit <u>10170102</u>	NOV 18 2020
	Basin <u>Vermillion R.</u>	Newspaper <u>Plain Talk, Vermillion</u> <u>Daily Press & Dakotan, Yankton</u>	WATER RIGHTS PROGRAM

PAID

NOV 18 2020

Ck# 1163

Application For Permit To Appropriate Water For Irrigation

Type of Application: ☐ New ☐ Vested Right ☒ Amendment/Correction to Permit No. 7230-3
(Use predates Mar 2, 1955)

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

Add another pivot to irrigate 40 acres more, using the existing well1. Name to Appear on Irrigation Permit Paul Bremer

Note: The "Name to Appear on Irrigation Permit" must be the name in which the property to be irrigated is held in.

Mailing Address 31244 Bluff Rd. Vermillion S.D. 57069
(Address) (City) (State) (Zip Code)

Phone 605-677-9352 Mobile (no add'l) Email pbremer19@gmail.com

2. Amount of water claimed 1.33 *CFS or **GPM ***AF Total Acreage 47 40
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply existing well

4. Location of point of diversion SE 1/4 NW 1/4 Section 22 T93N-R52W
(example: 3 wells in SW 1/4 NE 1/4 section 12-T104N-R53W)

County clay5. County or counties where water will be used clay6. Annual period during which water is to be used April - 1 to September 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
<u>SE 1/4 NE 1/4 Section 21</u>	<u>37</u>		
<u>SE 1/4 NW 1/4 Section 22</u>	<u>40</u>		
<u>SE 1/4 NE 1/4 Section 22 -</u>	<u>40</u>		
<u>SW 1/4 T93N-R52W</u>			

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

Add additional 4 tower pivot to east of existing well dig in underground pipe and electric wires to connect pivot point to well

I, Paul A. Bremer Owner, the applicant, certify under
Name of Person Title (if applicable)

penalty of perjury that I have read this application, examined the attached map, and that the matters stated are true. I further certify, if acting on behalf of an entity or individual other than myself, that I am authorized to submit this application.

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 ____ Have test holes been drilled ☐ Yes ☐ No Drilled by ____
(if yes, please provide copies of logs)b) If existing wells, how many 1 Provide copy of log(s), if available. Drilled by Dick Hammond

For either Existing or Proposed Wells:

c) Well Depth (required) 170' Depth to Top of Water Bearing Material ____ Depth to Water from Surface ____d) Distance to nearest domestic well on applicant's property 1/4 mile 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)

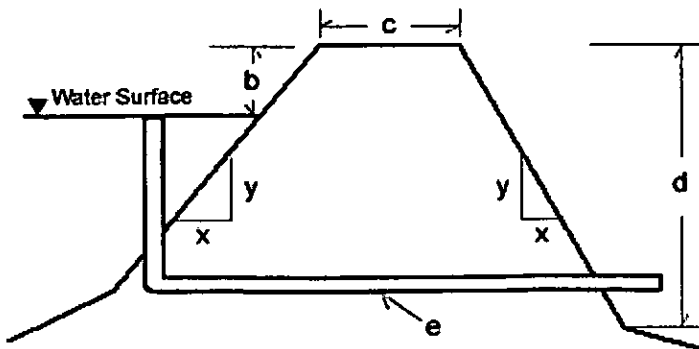
Upstream ____

Downstream ____

h) Surface Area of Impoundment ____

i) Storage ____ Acre Feet

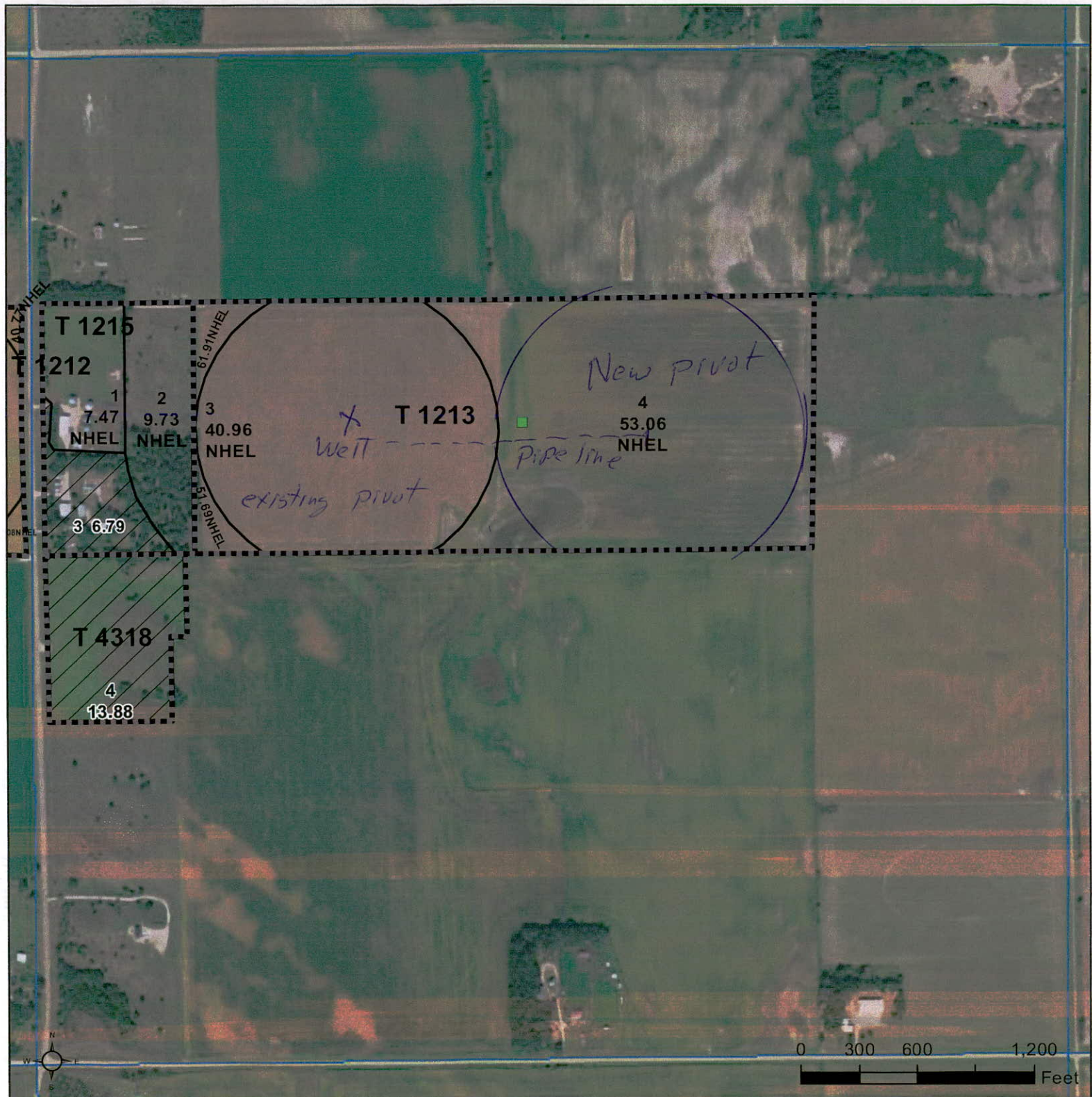
j) Drainage Area Above Dam ____ Acres





United States
Department of
Agriculture

Clay County, South Dakota



Common Land Unit

	Tract Boundary
	PLSS
	Non-Cropland
	Cropland

Wetland Determination Identifiers

- Restricted Use
- Limited Restrictions
- Exempt from Conservation
- Compliance Provisions

United States Department of Agriculture (USDA) Farm Service Agency (FSA) maps are for FSA Program administration only. This map does not represent a legal survey or reflect actual ownership; rather it depicts the information provided directly from the producer and/or National Agricultural Imagery Program (NAIP) imagery. The producer accepts the data 'as is' and assumes all risks associated with its use. USDA-FSA assumes no responsibility for actual or consequential damage incurred as a result of any user's reliance on this data outside FSA Programs. Wetland identifiers do not represent the size, shape, or specific determination of the area. Refer to your original determination (CPA-026 and attached maps) for exact boundaries and determinations or contact USDA Natural Resources Conservation Service (NRCS).

2020 Program Year

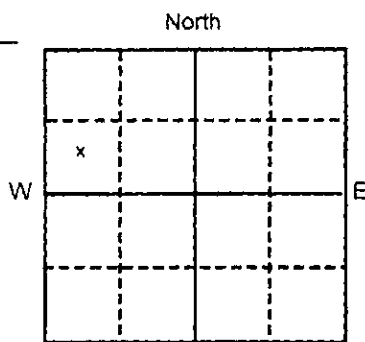
Map Created April 30, 2020

Farm 5796

22-93N-52W-Clay

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location sw 1/4 nw 1/4 Sec 22 Twp 93n Rg 52wCounty ClayPlease mark well
location with an "X"

Well Completion Date

May 3, 2011

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
2,500.0 ft. from septic tank (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

direct rotary

CASING DATA:

If other describe

☐ Steel ☒ Plastic ☐ Other

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	12.00 IN	0.0 FT	132.0 FT	17.00 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
bentonite	18	Lb/gal	0.0 Ft	125.0 Ft
		Lb/gal	Ft	Ft

Describe grouting procedure
tremie

SCREEN:

☐ Perforated pipe ☒ Manufactured
Diameter 12.00 Inches Length 60.0 FeetMaterial pvcSlot Size .060 Set From 132.0 Feet to 192.0 Feet

Other information

WAS A PACKER OR SEAL USED? ☐ Yes ☒ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? hth pellets☐ No, Why Not?Lab to which water
quality sample sent for analysisWell Owner: Paul Bremer7230-3Business Name: XAddress: 31244 Bluff RoadCity, State, Zip: Vermillion SD 57069

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
Clay, yellow brown, pebbly (Till)	0	25
Clay, gray-brown, pebbly, (Till)	25	114
Sand, green, coarse to med grained	114	197

STATIC WATER LEVEL 107.0 FEET

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other

Reduced flow rate _____ GPM

Can well be completely shut in?

WELL TEST DATA:

☒ Pumped Describe: pumped with submersible☐ Bailed☐ Other

Pumping Level Below Land Surface

120.0 Ft. After 5.0 Hrs. pumped 650.0 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: 600.0 GPM

REMARKS

RECEIVED

FEB - 1 2012

WATER RIGHTS
PROGRAMThis well was drilled under license # 666 and this
report is true and accurate.Drilling firm: Hammond Wetmore Drilling, LLC

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date: May 29, 2011

Water Rights Program - File Documentation

NAME: Paul Bremer

ADDRESS: Vermillion SD

DATE: 11-19-20

RE: Pending application

COMMENTS:

I called Paul Bremer ~~and~~ who clarified his application was just to irrigate 40 additional acres. He is requesting no additional water. He will use the existing well authorized by Water Right No. 7230-3, capable of 1.33 cfs. The system will be set up so only one pivot can be operated at a time.



Karen Schlaak
Water Rights Program

RECEIPT

WATER RIGHTS PROGRAM South Dakota Department of Environment and Natural Resources

Date November 19, 2020

RECEIVED OF Bremer Family Trust c/o Paul Bremer 31244 Bluff Rd. Vermillion SD 57069

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

Fee for Application for Permit No. <u>8459-3</u> to Appropriate Water, to construct and to put water to beneficial use	\$500.00
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>8459-3</u>	\$200.00
Fee for Filing Transfer Form _____	\$
Fee for _____	\$
Fee for Issuing New Well Driller's License No. _____	\$
Fee for Renewal of Well Driller's License No. _____	\$
Fee for Issuing Well Pump Installer's License No. _____	\$
Fee for Renewal of Well Pump Installer's License No. _____	\$
(Any Other Work Provided by Law)	
TOTAL	\$700.00

By *Eric Gronlund*
Chief Engineer *DM*



DENR
SOUTH DAKOTA

**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. 8459-3, Paul Bremer**

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. 8459-3, Paul Bremer, 31244 Bluff Rd., Vermillion SD 57069.

The Chief Engineer is recommending APPROVAL of Application No. 8459-3 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 Water Permit No. 8459-3 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.

See report on application for additional information.

Eric Gronlund, Chief Engineer
December 31, 2020

Report to the Chief Engineer
On Water Permit Application No. 8459-3

Paul Bremer

January 5, 2021

Water Permit Application No. 8459-3 proposes to irrigate 40 acres located in the SW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 22-T93N-R52W from an existing well (192 feet deep) completed into the Lower Vermillion Missouri aquifer and authorized under Water Right No. 7230-3.

The applicant holds Water Right No. 7230-3 which authorizes a maximum instantaneous diversion rate of 1.33 cubic feet of water per second (cfs) from one well completed into the Lower Vermillion Missouri aquifer and located in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 22 for the irrigation of 71 acres in the S $\frac{1}{2}$ NW $\frac{1}{4}$ of Section 22 and SE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 21; all in T93N-R52W.

If approved, Water Permit Application No. 8459-3 and Water Right No. 7230-3 will collectively authorize a maximum instantaneous diversion rate of 1.33 cfs for the irrigation of 111 acres. This site is located in Clay County approximately five miles north of Vermillion, South Dakota.

AQUIFER: Lower Vermillion Missouri (LVM)

HYDROGEOLOGY:

The Lower Vermillion Missouri aquifer is a buried glacial outwash that was deposited by meltwater streams beyond the margin of active glacial ice (Stephens, 1967). The aquifer materials range in size from a coarse sand to a coarse gravel (Niehus, 1994). The Lower Vermillion Missouri aquifer is hydraulically connected to the Upper Vermillion Missouri: South aquifer to the north, the Missouri: Elk Point aquifer to the south, the underlying Dakota aquifer and the Vermillion River (Buhler, 2014; Mathiowetz, 2018; Niehus, 1994; Stephens, 1967). The Lower Vermillion Missouri aquifer and the Missouri: Elk Point aquifer are essentially one continuous outwash deposit that were identified by Hedges and others (1982) at the aquifer boundary transition from primarily buried outwash (Lower Vermillion Missouri aquifer) to primarily unburied outwash (Missouri: Elk Point aquifer).

A boundary between the Upper Vermillion Missouri aquifer and Lower Vermillion Missouri aquifer has been delineated by Hedges and others (1982); however, more recent investigations have concluded the Upper Vermillion Missouri: South (UVM:S) aquifer extends an unspecified distance further south than what was delineated by Hedges and others (1982) (Buhler, 2014; Holmes and Filipovic, 2015). Figure 1 displays a map of the historic Lower Vermillion Missouri aquifer boundary approximated by Hedges and others (1982) with the portion of the Upper Vermillion Missouri: South aquifer estimated by Buhler (2014). The areal extent of the historic Lower Vermillion Missouri aquifer boundary delineated by Hedges and others (1982) is approximately 124,000 acres (Table 1).

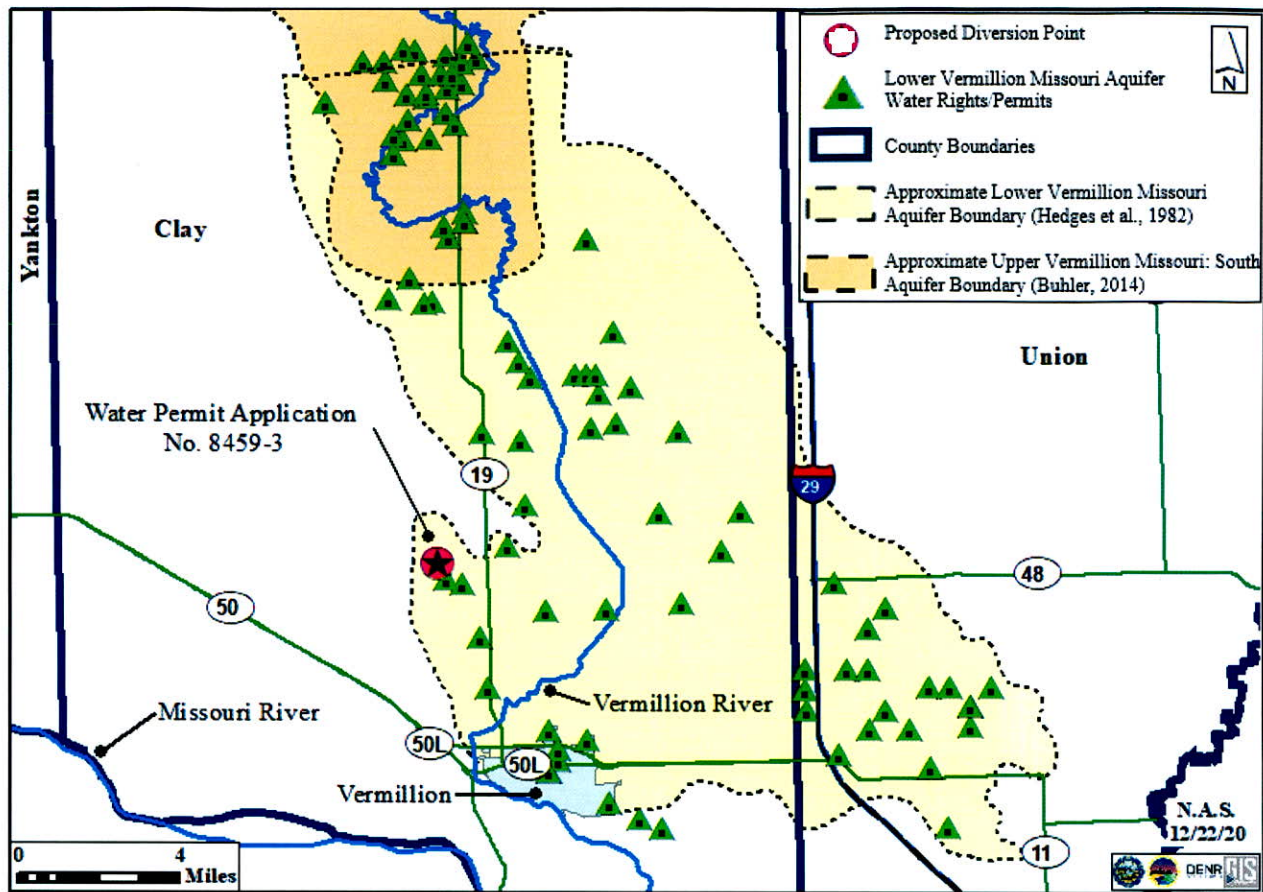


Figure 1. Map of the approximate LVM aquifer boundary delineated by Hedges and others (1982) with the portion of the UVM:S aquifer boundary estimated by Buhler (2014), the existing well for Water Permit No. 7230-3, and the LVM aquifer water rights/permits (Water Rights, 2020c)

Figure 2 displays the current aquifer boundary for the Lower Vermillion Missouri aquifer (modified from Mathiowetz, 2018). Mathiowetz (2018) delineated the current Lower Vermillion Missouri aquifer boundary essentially by subtracting Buhler's (2014) delineation of the Upper Vermillion Missouri: South aquifer from the historic aquifer boundary estimated by Hedges and others' (1982). Additionally, the first occurrence of aquifer materials maps for Clay and Union County were utilized in delineating the current aquifer boundary (Jensen, 2000; McCormick, 2004; Mathiowetz, 2020). The areal extent of the Lower Vermillion Missouri aquifer is approximately 106,000 acres (Table 1) (Mathiowetz, 2018).

The Lower Vermillion Missouri aquifer is primarily under confined conditions but can be locally unconfined, particularly near the Vermillion River floodplain (see Figure 2) (Niehus, 1994; Stephens, 1967). The alluvium, outwash, and sand and gravel deposits (0 to 50 feet below grade) mapped by Jensen (2000) along the Vermillion River are assumed to be unconfined portion of the Lower Vermillion Missouri aquifer (see Figure 2). In its entirety, the areal extent of the unconfined portion of the Lower Vermillion Missouri aquifer is approximately 23,000 acres (modified from Jensen, 2000; modified from Stonesifer, 2013). The unconfined portion of the Lower Vermillion Missouri aquifer that is located outside of Buhler's (2014) delineation of

Upper Vermillion Missouri: South aquifer is approximately 12,000 acres (Table 1) (modified from Jensen, 2000; modified from Stonesifer, 2013).

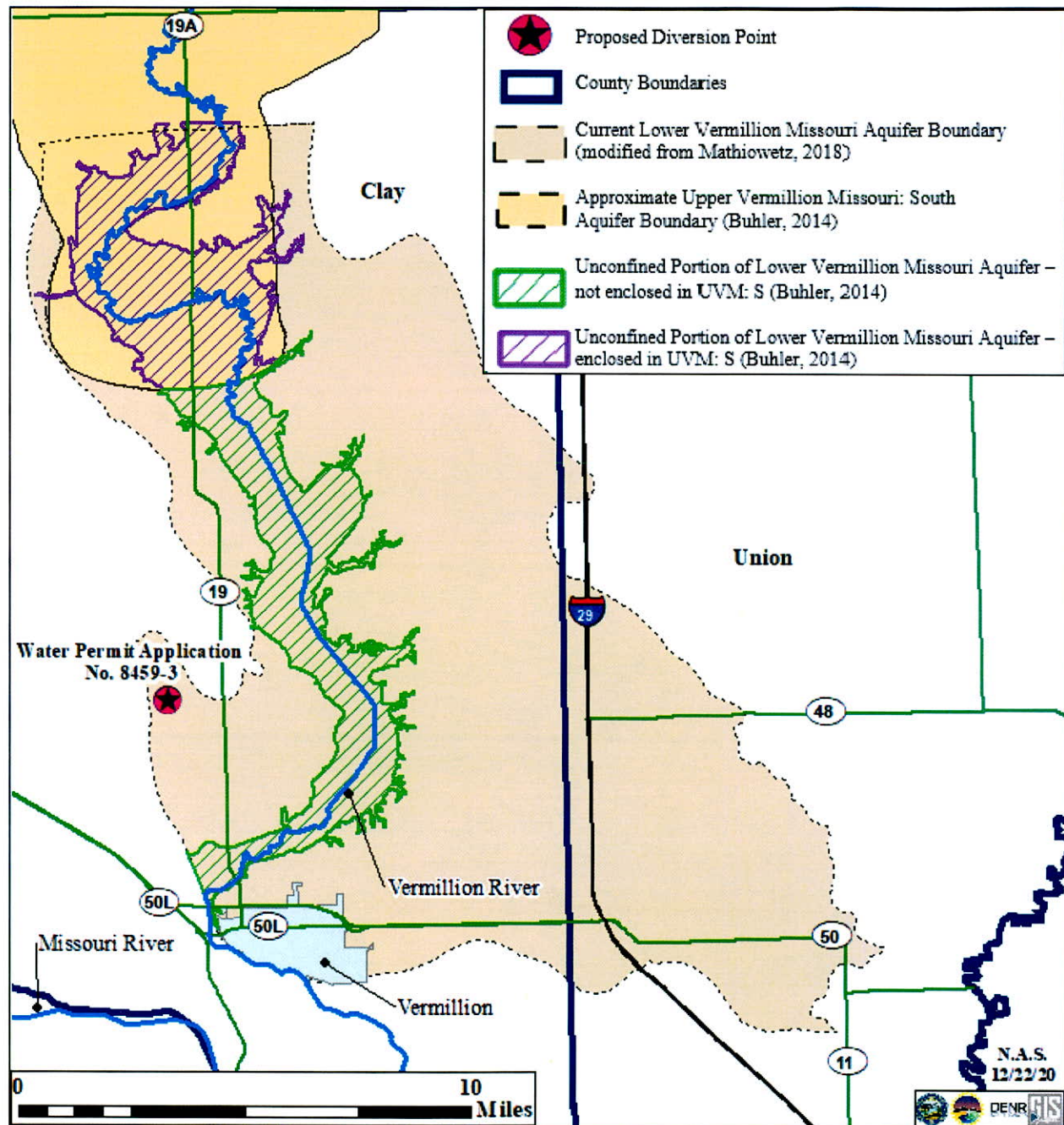


Figure 2. Map of the current LVM aquifer boundary (modified from Mathiowetz, 2018) with the portion of the UVM:S aquifer identified by Buhler (2014), the estimated unconfined portion of the LVM aquifer (modified from Jensen, 2000; modified from Stonesifer, 2013), and the existing well for Water Permit No. 7230-3

Table 1. Estimated areal extent for the historic LVM aquifer boundary (Hedges et al., 1982), the UVM:S aquifer boundary (Buhler, 2014), the unconfined portion of the LVM aquifer along the Vermillion River (modified from Jensen, 2000; modified from Stonesifer, 2013), and the current Lower Vermillion Missouri aquifer boundary (Mathiowetz, 2018)

Delineation	Estimated Areal Extent (acres)
Historic Lower Vermillion Missouri Aquifer (modified from Hedges et al., 1982)	124,000
Upper Vermillion Missouri: South Aquifer (UVM:S) (modified from Buhler, 2014) - portion that overlies LVM aquifer boundary estimated by Hedges and others (1982)	18,000
Unconfined Portion of Lower Vermillion Missouri Aquifer - enclosed in UVM:S (Buhler, 2014) (modified from Jensen, 2000; modified from Stonesifer, 2013)	11,000
Unconfined Portion of Lower Vermillion Missouri Aquifer - not enclosed in UVM:S (Buhler, 2014) (modified from Jensen, 2000; modified from Stonesifer, 2013)	12,000
Current Lower Vermillion Missouri Aquifer * (Mathiowetz, 2018)	106,000
* Estimated by subtracting UVM: S aquifer boundary (Buhler, 2014) from historic boundary (Hedges et al., 1982)	

In Clay County, the Lower Vermillion Missouri aquifer averages 100 feet thick and has a documented maximum thickness (known at that time from test holes) of 170 feet (Stephens, 1967). Additionally, the aquifer underlies about 75 percent of the land area of Clay County and contains an estimated five million acre-feet of recoverable water in storage (Stephens, 1967). The direction of groundwater movement in the Lower Vermillion Missouri aquifer is generally to the south (Niehus, 1994).

A water well completion report was submitted with Water Permit Application No. 8459-3 for an existing well (192 feet deep) authorized by Water Right No. 7230-3. The well completion report indicates the well is located in the SW ¼ NW ¼ of Section 22-T93N-R52W. However, the well is actually located in the SE ¼ NW ¼ of Section 22-T93N-R52W. The well completion report indicated “Clay, yellow brown, pebbly (Till)” from 0 to 25 feet below the ground surface, “Clay, gray-brown, pebbly (Till)” from 25 to 114 feet, and “Sand, green, coarse to med grained” from 114 to 197 feet below the ground surface. The well was screened from 132 to 192 feet below grade and had a static water level of 107 feet below the ground surface at the time of completion (May 3, 2011) (Water Rights, 2020d). Based on the submitted well completion report and lithologic logs on file for nearby observation wells, the Lower Vermillion Missouri aquifer is expected to be confined at the well location the applicant proposes to use (SDGS, 2020; Water Rights, 2020b and 2020d).

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 a reasonable probability that there is unappropriated water available for the applicant’s proposed use, that the diversion point 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 the potential for unlawful impairment of existing water rights within the Lower Vermillion Missouri aquifer.

WATER AVAILABILITY:

Water Permit Application No. 8459-3 proposes to appropriate water from the Lower Vermillion Missouri aquifer. The probability of unappropriated water being available from the 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. An application may be approved, however, for withdrawals of groundwater from any groundwater formation older than or stratigraphically lower than the greenhorn formation in excess of the average estimated annual recharge for use by water distribution systems.” The Lower Vermillion Missouri aquifer is not older than or stratigraphically lower than the Greenhorn Formation, and the applicant’s proposed use is not for use in a water distribution system as defined by SDCL 46-1-6(17). Therefore, the average annual recharge and average annual withdrawal rates to and from the Lower Vermillion Missouri aquifer must be considered.

HYDROLOGIC BUDGET:

Recharge

Recharge to the Lower Vermillion Missouri aquifer occurs through seepage from the Vermillion River, groundwater inflow from the Upper Vermillion Missouri aquifer, and leakage from the underlying Dakota aquifer (Niehus, 1994; Stephens, 1967). The Lower Vermillion Missouri aquifer may also receive some recharge from the infiltration of precipitation, particularly for the unconfined portion of the aquifer in the Vermillion River floodplain.

Using observation well analysis, Hedges and others (1985) estimated a recharge rate to the unconfined portion of the Lower Vermillion Missouri aquifer to be approximately 3.8 inches per year. Stonesifer (2013) recalculated Hedges and others (1985) estimated recharge rate to be approximately 4.58 inches per year using observation well analysis with additional years of data. Stonesifer (2013) noted recharge and discharge/withdrawals occur concurrently. This results in the calculated recharge rate estimated by using Hedges and other’s (1985) method, to be less than the actual recharge rate, because Hedges and others (1985) are only accounting for the recharge rate in excess of discharge plus withdrawals. The unconfined portion of the Lower Vermillion Missouri aquifer underlies approximately 12,000 acres (Jensen, 2000; Mathiowetz, 2018). Using Stonesifer’s (2013) recharge rate multiplied by the areal extent estimation, the average annual recharge rate to the unconfined portion of the Lower Vermillion Missouri aquifer is approximately 4,580 acre-feet per year.

For this analysis, it is assumed that the confined portion of the Lower Vermillion Missouri aquifer recharges at a similar rate and is hydraulically similar to the confined portion of the Upper Vermillion Missouri aquifer. Using regional flow-net analysis, Hedges and others (1985) estimated a recharge rate to the Upper Vermillion Missouri aquifer, which is primarily confined, to be approximately 0.25 inches per year. This recharge rate is lower than the average recharge rate estimated for other buried and confined aquifers in eastern South Dakota (Hedges et al., 1985). It is worth noting that recharge rates calculated using regional flow-net analysis are

suspect and conclusions based on this method are questionable (Hedges et al., 1985). The confined portion of the Lower Vermillion Missouri aquifer underlies approximately 94,000 acres. Using Hedges and others' (1985) recharge rate multiplied by the areal extent estimation, the average annual recharge rate to the confined portion of the Lower Vermillion Missouri aquifer is approximately 1,958 acre-feet per year. In its entirety, the average annual recharge rate to the Lower Vermillion Missouri aquifer is approximately 6,538 acre-feet per year.

Discharge

Discharge from the Lower Vermillion Missouri aquifer occurs through well withdrawals, groundwater outflow to the Missouri: Elk Point aquifer and seepage to the Vermillion River when the stage of the river is lower than the potentiometric surface of the aquifer (Niehus, 1994; Water Rights, 2020c)

There are 56 water rights/permits authorized to appropriate water from the Lower Vermillion Missouri aquifer within the boundaries of the aquifer currently delineated (Water Rights, 2020c). There are 28 water rights/permits within the Lower Vermillion Missouri aquifer boundary delineated by Hedges and others (1982) that are also within the Upper Vermillion Missouri: South aquifer identified by Buhler (2014), and are still labeled as withdrawing water from the Lower Vermillion Missouri aquifer.

Table 2 summarizes the four non-irrigation water rights/permits authorized to appropriate water from the Lower Vermillion Missouri aquifer within the current boundary delineated, and the estimated annual use for each water right/permit as determined by their limiting diversion rate or annual volume. Two non-irrigation water rights (Water Right Nos. 3905-3 and 5979-3) are completed within Hedges and others' (1982) historic Lower Vermillion Missouri aquifer boundary and Buhler's (2014) Upper Vermillion Missouri: South aquifer boundary. The amount of water that can be withdrawn was estimated by assuming the non-irrigation water rights/permits limited by an annual volume will withdraw the entire appropriated volume every year. It is estimated that the non-irrigation water rights/permits limited only by a diversion rate will pump at a maximum permitted diversion rate for 60 percent of the time.

Table 2. Estimated average annual water use from the non-irrigation water rights authorized to appropriate water from the LVM aquifer (Water Rights, 2020c)

Permit No.	Name	Use	Status	Diversion Rate (cfs)	Annual Limit (acre-feet)	Estimated Use (acre-feet/year)
1870-3	USD Facilities MGMT	INS	LC	0.03		13.0
6397-3	SD Dept of Transportation	INS	LC	0.033		14.3
8222-3	Southeast Farmers COOP	COM	PE	0.167	18.4	18.4
8257-3	Thein Well Co Inc	COM	PE	0.089	1	1
					Total:	46.8
3905-3*	Clay Rural Water System Inc	RWS	LC	2		868.8
5979-3*	Clay Rural Water System Inc	RWS	LC	2	307	307
					Total:	1,175.8
* Within aquifer boundary delineated by Hedges and others' (1982) and Buhler's (2014) UVM:S boundary						
LC: Licensed Water Right, PE: Water Permit, INS: Institutional, COM: Commercial, RWS: Rural Water System						

Currently, there are 78 water rights/permits authorized to appropriate water from the Lower Vermillion Missouri aquifer for irrigation use within Hedges and others' (1982) historic aquifer boundary (Table 3) (Water Rights, 2020c). The applicable portions of Water Right No. 6302-3 were incorporated into Water Right No. 7217-3 in February of 2020 which accounts for the additional permit listed as reporting in 2019 on Table 3 (Water Rights, 2020c). There are 26 irrigation water rights/permits within the Lower Vermillion Missouri aquifer boundary delineated by Hedges and others (1982) that are also within the Upper Vermillion Missouri: South aquifer identified by Buhler (2014) that are still labeled as withdrawing water from the Lower Vermillion Missouri aquifer (Water Rights, 2020c). The average annual withdrawal rate for the Lower Vermillion Missouri aquifer irrigation water rights/permits within the historic aquifer boundary that have reported over the period of record (1979 to 2019) is approximately 1,691.1 acre-feet per year (Table 3) (Hedges et al., 1982; Water Rights, 2020a).

There are 52 irrigation water rights/permits authorized to appropriate water from the Lower Vermillion Missouri aquifer within the current boundary of the aquifer, which was compiled by removing the water rights/permits that are within the Upper Vermillion Missouri: South aquifer identified by Buhler (2014) from the historic aquifer boundary estimated by Hedges and others (1982) (Table 3) (Water Rights, 2020c). The average annual withdrawal rate for the Lower Vermillion Missouri aquifer irrigation water rights/permits within the current aquifer boundary that have reported over the period of record (1979 to 2019) is approximately 1,190.5 acre-feet per year (Table 3) (Buhler, 2014; Water Rights, 2020a).

There are domestic wells completed into the Lower Vermillion Missouri aquifer that do not require a water right/permit, so the withdrawal amount is unknown (Water Rights, 2020d). Due to their relatively low diversion rates, withdrawals from domestic wells are not considered to be a significant portion of the hydrologic budget. Additionally, with the development of rural water systems in areas where the Lower Vermillion Missouri aquifer is the uppermost aquifer available; it is likely some domestic users may have transitioned to rural water. Therefore, the annual quantity of water withdrawn by domestic wells is estimated to be negligible to the overall hydrologic budget of the Lower Vermillion Missouri aquifer.

Table 3. Reported historic irrigation use from LVM aquifer for water rights/permits within the aquifer boundary delineated by Hedges and others (1985) and within the current aquifer boundary (Water Rights, 2020a)

Historical Boundary of LVM aquifer (Hedges et al., 1982)			Current Boundary of LVM based on UVM: S (Buhler, 2014)		
Year	No. of Permits	Reported Pumpage (acre-feet)	Year	No. of Permits	Reported Pumpage (acre-feet)
1979	49	1,163	1979	41	1,008.40
1980	47	2,417	1980	39	2,198.25
1981	49	1,543	1981	40	1,500
1982	37	870.04	1982	28	788.17
1983	38	716.3	1983	29	716.3
1984	47	691	1984	38	669
1985	46	1,328.20	1985	37	1,147.20
1986	45	1,047.50	1986	36	937.5
1987	37	1,115	1987	28	934
1988	38	2,083.80	1988	29	1,617.10
1989	38	2,301.20	1989	29	1,705.20
1990	38	2,113.20	1990	29	1,496.20
1991	39	1,670.10	1991	30	1,254.10
1992	39	168.8	1992	30	133.7
1993	39	0	1993	30	0
1994	39	517.28	1994	30	348.85
1995	37	506.61	1995	29	485.77
1996	36	997.6	1996	28	698.87
1997	36	1,085	1997	28	826
1998	36	1,032.91	1998	27	862.55
1999	38	900.63	1999	28	698.89
2000	38	2,041.72	2000	28	1,726.04
2001	38	2,036.96	2001	28	1,932.97
2002	40	1,762.32	2002	30	1,341.48
2003	40	1,800.56	2003	30	1,630.17
2004	39	1,747.48	2004	29	1,346.60
2005	45	1,410.24	2005	29	1,209.63
2006	43	2,674.51	2006	28	1,881.28
2007	50	2,909.12	2007	26	1,327.02
2008	55	4,301.25	2008	28	911.87
2009	58	482.64	2009	30	460.77
2010	59	144.56	2010	30	133.95
2011	62	2,195.06	2011	33	1,219.42
2012	61	7,759.51	2012	33	3,355.27
2013	71	4,109.10	2013	45	2,856.49
2014	75	1,576.28	2014	48	1,006.38
2015	78	1,925.76	2015	50	1,473.52
2016	79	2,187.54	2016	51	1,779.00
2017	79	3,156.60	2017	51	2,439.28
2018	79	427.68	2018	52	419.39
2019	79	339.6	2019	52	332.97
Min	36	0	Min	26	0
Max	79	7,759.5	Max	52	3,355.3
Avg	49.2	1,691.1	Avg	34	1,190.5

Hydrologic Budget Summary

The average annual recharge rate to the unconfined portion of the Lower Vermillion Missouri aquifer is approximately 4,580 acre-feet per year. The average annual recharge rate to the confined portion of the Lower Vermillion Missouri aquifer is approximately 1,958 acre-feet per year. In its entirety, the average annual recharge rate to the Lower Vermillion Missouri aquifer is approximately 6,538 acre-feet per year.

Based on the historic aquifer boundary delineation (Hedges et al., 1982), the average annual withdrawal rate from the Lower Vermillion Missouri aquifer totals approximately 2,954 acre-feet per year: non-irrigation: 1,222.6 acre-feet/year; irrigation: 1,691.1 acre-feet/year; Water Permit Application No. 8459-3 (assuming 12-inch application rate per acre), if approved, 40 acre-feet/year.

Based on the current aquifer boundary delineation, the average annual withdrawal rate from the Lower Vermillion Missouri aquifer totals approximately 1,277 acre-feet per year: non-irrigation: 46.8 acre-feet/year; irrigation: 1,190.5 acre-feet/year; Water Permit Application No. 8459-3 (assuming 12-inch application rate per acre), if approved, 40 acre-feet/year.

The average annual recharge rate to the Lower Vermillion Missouri aquifer is higher than the withdrawal rates estimated for the historic aquifer boundary and the current aquifer boundary. Based on the hydrologic budget, there is a reasonable probability unappropriated water is available from the Lower Vermillion Missouri aquifer for the proposed appropriation.

OBSERVATION WELL DATA:

Administrative Rule of South Dakota (ARSD) Section 74:02:05:07 requires that the Water Management Board shall rely upon the record of observation well measurements in addition to other data 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 ten observation wells completed into the Lower Vermillion Missouri aquifer, plus two other observation wells that are within the historic aquifer boundaries delineated by Hedges and others (1982) but are now within the Upper Vermillion Missouri South aquifer boundaries as defined by Buhler (2014) (Water Rights, 2020b). These observation wells provide data on how the aquifer reacts to regional climatic conditions and local pumping. The six closest observation wells to the well the applicant proposes to use are CL-80G (approximately 1.8 miles southeast), CL-57A (approximately 3.7 miles southeast), CL-80IR (approximately 4.6 miles north), CL-80H (approximately 5.9 miles northeast), CL-80F (approximately 6.75 miles east) and CL-66BR (approximately 7.9 miles southeast) (as shown in Figure 8) (Water Rights, 2020b and 2020c). The hydrographs for these observation wells are displayed in Figures 2 to 7 (Water Rights, 2020b). The data points utilized to construct the hydrographs are measurements of the static water level in the observation wells from the top of the well casing.

The hydrographs for the Lower Vermillion Missouri aquifer indicate that the aquifer responds well to climatic conditions because water levels are rising during wetter periods (early spring snowmelt and precipitation) and declining to a stable water level during drier periods. Additionally, the water levels in the observation wells display that the amount of recharge to and natural discharge from the aquifer greatly exceeds pumping with the aquifer returning to pre-pumping conditions between irrigation seasons. Aquifer recovery indicates that climatic conditions and therefore, the effects of recharge to and natural discharges from the aquifer governs the long-term fluctuations in water level of aquifer rather than the impacts of pumping from the Lower Vermillion Missouri aquifer. By recognizing that both recharge to and natural discharge from an aquifer can be captured for pumping, the observation well hydrographs demonstrate unappropriated water is available for the proposed appropriation.

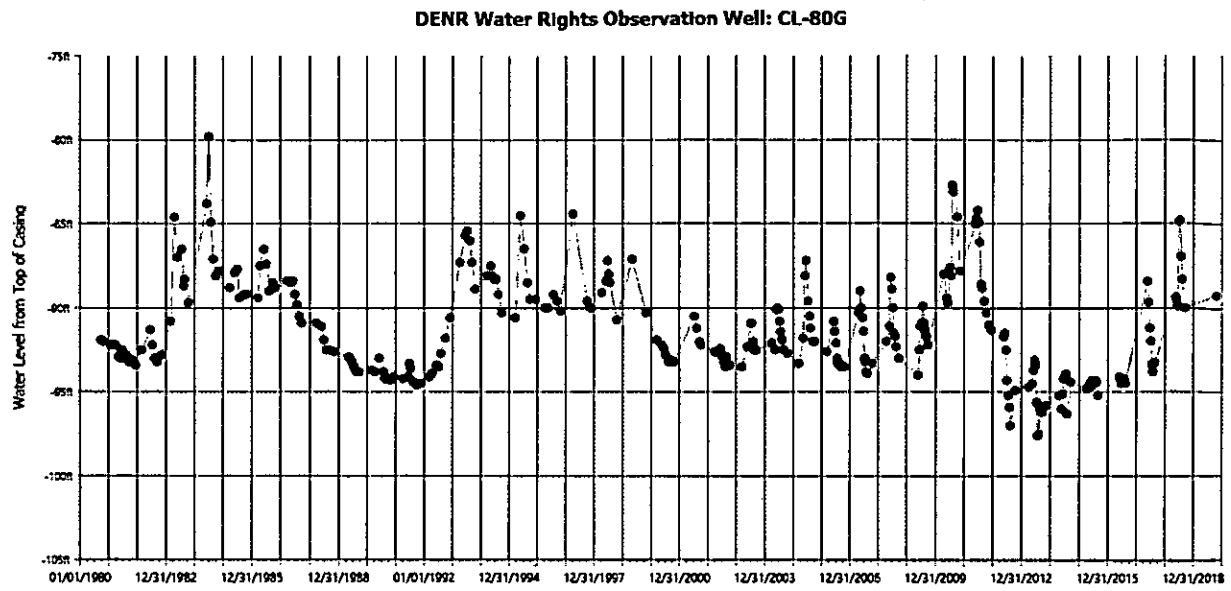


Figure 2. Hydrograph for observation well CL-80G (Water Rights, 2020b)

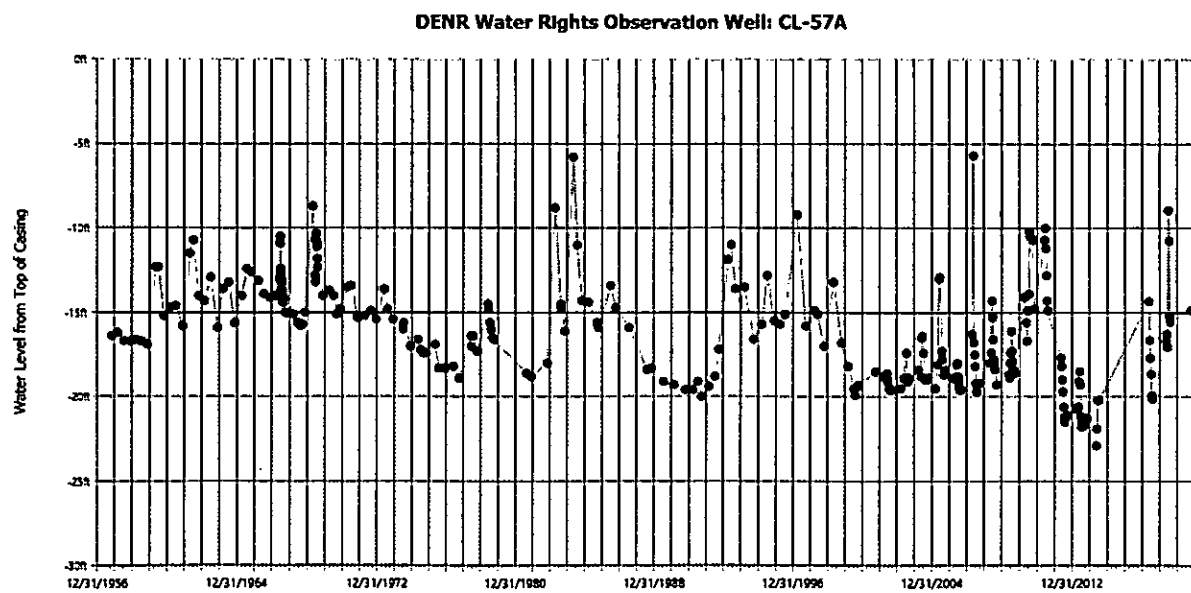


Figure 3. Hydrograph for observation well CL-57A (Water Rights, 2020b)

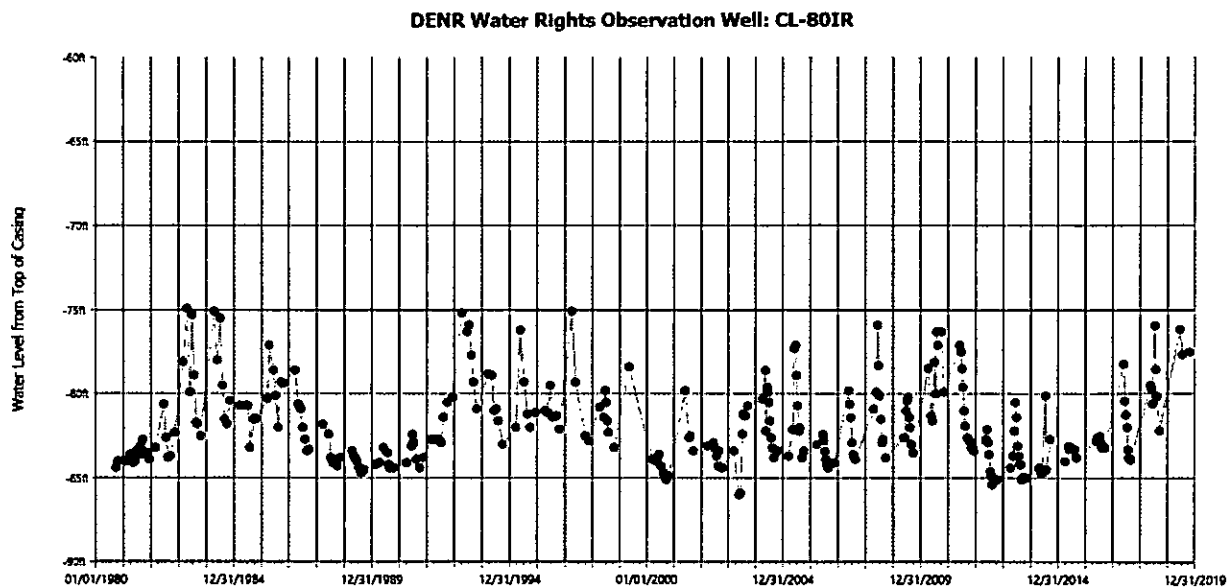


Figure 4. Hydrograph for observation well CL-80IR (Water Rights, 2020b)

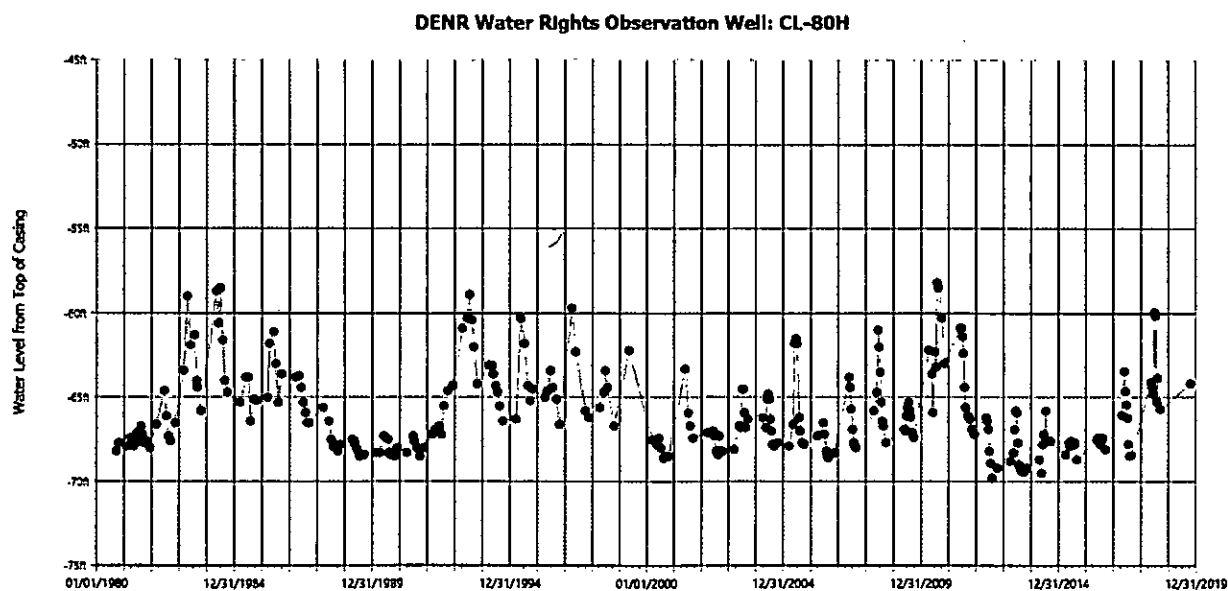


Figure 5. Hydrograph for observation well CL-80H (Water Rights, 2020b)

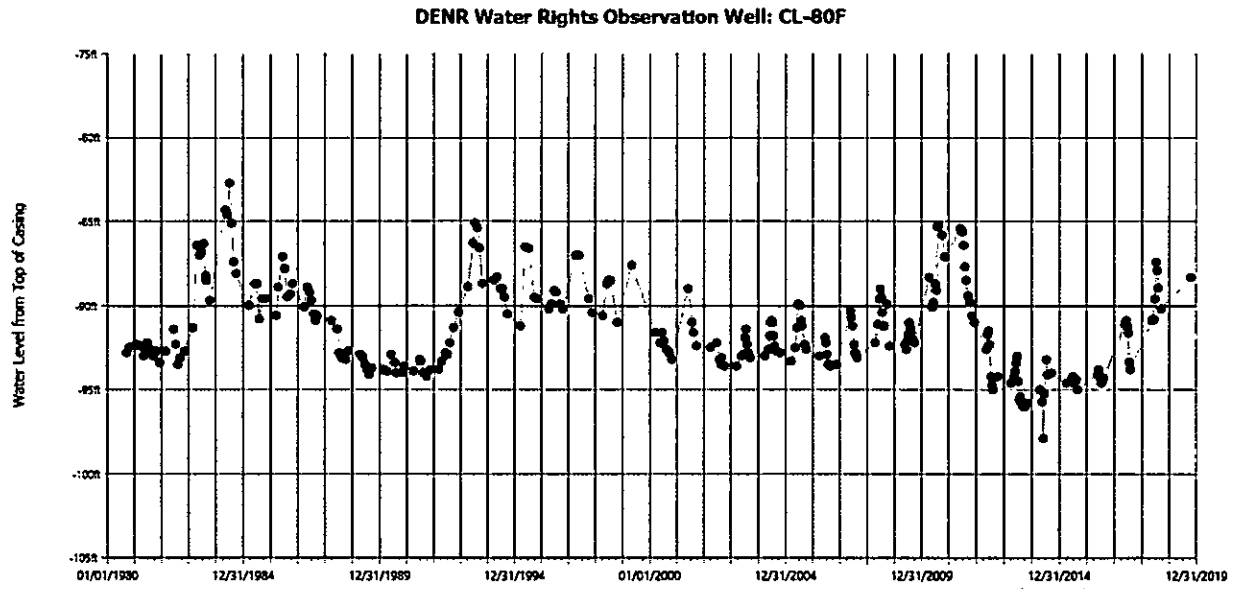


Figure 6. Hydrograph for observation well CL-80F (Water Rights, 2020b)

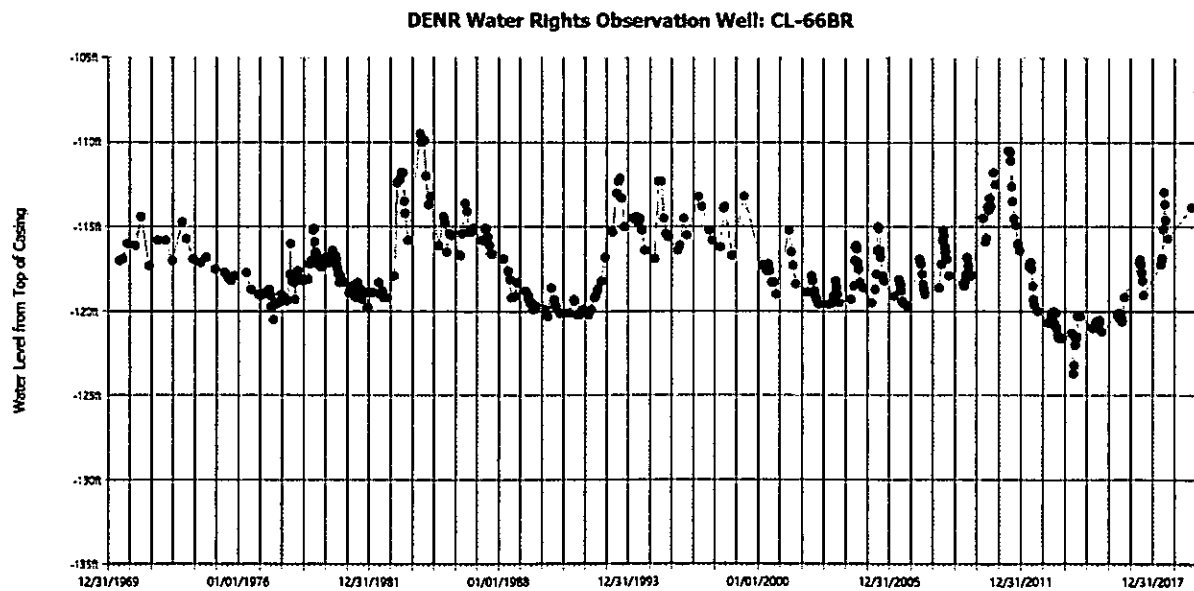


Figure 7. Hydrograph for observation well CL-66BR (Water Rights, 2020b)

POTENTIAL FOR UNLAWFUL IMPAIRMENT OF EXISTING WATER RIGHTS:

Currently, there are 56 water rights/permits authorized to appropriate water from the Lower Vermillion Missouri aquifer (Water Rights, 2020c). The closest water right/permit to the well the applicant proposes to use is Water Permit No. 6985-3 which is held by Nels J Sorenson for irrigation use. The diversion point for Water Right No. 6985-3 is located approximately 0.42 miles southeast of the existing well the applicant proposes to use (Table 4) (Figure 8) (Water Rights, 2020c).

There are domestic wells on file with the DENR-Water Rights Program that are completed into the Lower Vermillion Missouri aquifer, with the closest domestic well on file (not held by the applicant) approximately one mile southwest of the existing well the applicant proposes to use (Water Rights, 2020d). There are likely other domestic wells completed into the Lower Vermillion Missouri aquifer near the existing well the applicant proposes to use that are not on file with the DENR-Water Rights Program.

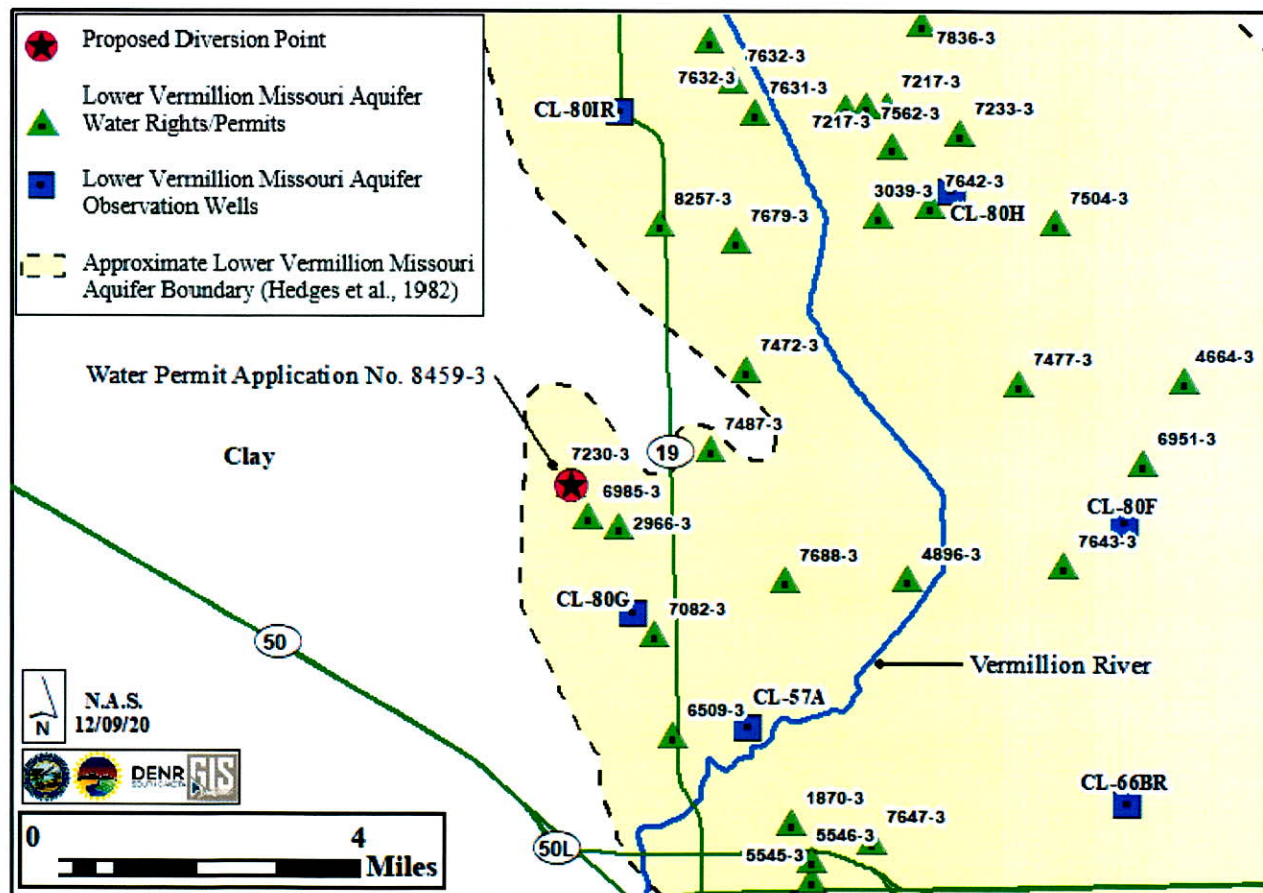


Figure 8. Location of the existing well the applicant proposes to use with the LVM aquifer water rights/permits within approximately 5 miles of the existing well (Water Rights, 2020c), and the observation wells used in this analysis (Water Rights, 2020b)

Table 4. Water rights/permits authorized to withdraw water from the LVM aquifer within approximately 5 miles of the existing well the applicant proposes to use, as shown in Figure 8 (Water Rights, 2020c)

Permit No.	Name	Status	Use	Diversion Rate (cfs)
1870-3	USD Facilities Mgmt	LC	INS	0.03
2966-3	Harold/Beverly Fischer	LC	IRR	1.05
3039-3	Ronald Alfred Johnson	LC	IRR	2
4664-3	William O'Connor	LC	IRR	1.7
4896-3	Margaret V Manning	LC	IRR	1.56
5545-3	USD Facilities Mgmt	LC	IRR	0.06
5546-3	USD Facilities Mgmt	LC	IRR	0.443
6303-3	Thelma R & Ronald Lind	LC	IRR	1.78
6509-3	Patti Bancroft	LC	IRR	0.22
6951-3	Verlyn Hybertson	LC	IRR	1.78
6985-3	Nels J Sorenson	LC	IRR	1.6
7082-3	Bottolfson Bros	LC	IRR	1.56
7217-3	Thelma R & Ronald Lind	LC	IRR	3.34
7230-3	Paul Bremer	LC	IRR	1.33
7233-3	Norman Kramer	PE	IRR	1.56
7472-3	Paul Bremer	LC	IRR	1.78
7477-3	Chad Heckathorn	LC	IRR	1.78
7487-3	Bottolfson Bros	LC	IRR	1.56
7504-3	Steven Andrews	PE	IRR	1.78
7562-3	John T Lindstrom	LC	IRR	1.33
7631-3	Gregoire Farms	LC	IRR	1.61
7632-3	Gregoire Farms	PE	IRR	4.44
7642-3	Tom Austin	LC	IRR	1.22
7643-3	Thomas & Jaclyn Corio	LC	IRR	1.33
7647-3	Heikes Family Farm LLC	PE	IRR	0.18
7679-3	Scott Heritage Farms LLP	PE	IRR	1.67
7688-3	Nicholas W Olson	LC	IRR	0.47
8257-3	Thein Well Co Inc	PE	COM	0.089
LC: Licensed Water Right, PE: Water Permit,				
INS: Institutional; IRR: Irrigation, COM: Commercial				

The Lower Vermillion Missouri aquifer is primarily under confined conditions but can be locally unconfined particularly near the Vermillion River floodplain (Niehus, 1994; Stephens, 1967). The Lower Vermillion Missouri aquifer is expected to be confined at the existing well the applicant proposes to use based on the submitted well completion report and lithologic logs on file for nearby observation wells (SDGS, 2020; Water Rights, 2020b and 2020d). The drawdown created by pumping a well generally does not extend far from the pumped well in an unconfined aquifer; however, in a confined aquifer, drawdown from pumping could extend a distance from the diversion point. The exact drawdown behavior of a well cannot be known without an aquifer performance test. Observation well CL-80IR (approximately 4.6 miles north of the existing well the applicant proposes to use) has seven high-yield irrigation wells within approximately two miles of it (Water Rights, 2020b and 2020c). The drawdown from pumping can be seen on the hydrograph for CL-80IR, along with the aquifer returning to pre-pumping conditions between irrigation seasons (Figure 4) (Water Rights, 2020b). The lithologic log on file for CL-80IR noted the well was drilled 182 feet deep with the top of aquifer is expected to be approximately 90 feet below the ground surface (SDGS, 2020). The lowest recorded static water level on the hydrograph is approximately 86 feet, which indicates there was still about four feet of artesian head pressure in CL-80IR even during drier periods when high-yield irrigation wells are expected to be pumping more water (Water Rights, 2020b).

In Clay County, the Lower Vermillion Missouri aquifer has an average saturated thickness of approximately 100 feet with depth to the top of aquifer materials around 114 feet below the ground surface according to the well completion report submitted with the application (Stephens, 1967; Water Rights, 2020d). This would allow for enough thickness for a pump to be placed 20 feet below the top of the aquifer, which is required for the well to be considered adequate under ARSD 74:02:04:20(6). Any drawdown as a result of the proposed diversion is not expected to unlawfully impair nearby adequate wells. In Clay and Union Counties, there are no complaints on file with the DENR-Water Rights Program regarding well interference for adequate wells completed into the Lower Vermillion Missouri aquifer (Water Rights, 2020e).

The Water Management Board recognizes that putting water to beneficial use requires a certain amount of drawdown to occur. The Board has developed rules to allow water to be placed to maximum beneficial use without the necessity of maintaining artesian head pressure for domestic use. The Water Management Board defined an “adversely impacted domestic well” in ARSD 74:02:04:20(7) as:

“A well in which the pump intake was set at least 20 feet below the top of the aquifer at the time of construction or, if the aquifer is less than 20 feet thick, is as near to the bottom of the aquifer as is practical and the water level of the aquifer has declined to a level that the pump will no longer deliver sufficient water for the well owner’s needs.”

The Water Management Board considered the delivery of water by artesian head pressure versus maximum beneficial use during the issuance of Water Right No. 2313-2 for Coca-Cola Bottling Company of the Black Hills. The Board adopted the Findings of Facts and Conclusions of Law that noted the reservation of artesian head pressure for delivery of water would be inconsistent with SDCL 46-1-4 which states, “general welfare requires that the water resources of the state be put to beneficial use to the fullest extent of which they are capable...” (Water Rights, 1995). Furthermore, the Water Management Board found if increased cost or decreased production as a result of impacts on artesian head pressure by legitimate users is to be considered as an unlawful impairment, it would also conflict with SDCL 46-1-4 (Water Rights, 1995). With that in mind, some existing well owners may need to lower pumps depending on the specific characteristics of the Lower Vermillion Missouri aquifer at their location. However, when considering the statutes (SDCL 46-1-4 and 46-6-6.1) and rules (ARSD 74:02:04:20(6) and (7)), the thickness of the Lower Vermillion Missouri aquifer at the applicant’s location, and the lack of well interference complaints, any drawdown created from the proposed diversion is not expected to cause an unlawful impairment on existing water rights/permits or domestic users with adequate wells. Additionally, the well the applicant proposes to use is an existing well that has been pumping for some time without any reported well interference complaints on file with the DENR-Water Rights Program (Water Rights, 2020c and 2020d). Therefore, there is a reasonable probability that development of this proposed appropriation will not impose unlawful impairments on existing users with adequate wells.

CONCLUSIONS:

1. Water Permit Application No. 8459-3 proposes to irrigate 40 acres from an existing well (192 feet deep) completed into the Lower Vermillion Missouri aquifer and authorized under Water Right No. 7230-3. The applicant holds Water Right No. 7230-3 which authorizes a maximum instantaneous diversion rate of 1.33 cfs from one well for the irrigation of 71 acres.
2. If approved, Water Permit Application No. 8459-3 and Water Right No. 7230-3 will collectively authorize a maximum instantaneous diversion rate of 1.33 cfs for the irrigation of 111 acres. This site is located in Clay County approximately five miles north of Vermillion, South Dakota.
3. Based on the hydrologic budget and observation well data, there is a reasonable probability that unappropriated water is available from the Lower Vermillion Missouri aquifer to supply the proposed appropriation.
4. There is a reasonable probability that the proposed diversion by Water Permit Application No. 8459-3 will not unlawfully impair adequate wells for existing water rights/permits and domestic users.

Nakaila Steen

Nakaila Steen
Natural Resources Engineer I
SD DENR - Water Rights Program

Reviewed by:

Adam Mathiowetz

Adam Mathiowetz, PE
Natural Resources Engineer III
SD DENR - Water Rights Program

References

- Buhler, K.A., 2014. Report to the Chief Engineer on 21 Water Permit Applications from the Upper Vermillion Missouri Aquifer. SD DENR – Water Rights Program, Joe Foss Bldg., Pierre, SD.
- 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.
- Hedges, L.S., Allen, J., 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; United States Army Corps of Engineers Contract DACW 45-80-C-0185.
- Holmes, S.L. and Filipovic, D., 2015. Hydrogeologic Investigations of the Upper Vermillion Missouri Aquifer. Open-File Report 93-UR. SD DENR - Geological Survey. Vermillion, SD.
- Jensen, A.R., 2000. First Occurrence of Aquifer Materials in Clay County, South Dakota. SD DENR- Geological Survey Aquifer Materials Map 1. Vermillion, SD.
- Mathiowetz, A., 2018. Report to the Chief Engineer on Water Permit Application 8335-3. SD DENR - Water Rights Program, Joe Foss Bldg., Pierre, SD.
- Mathiowetz, A., 2020. December 22. Personal Communication. Natural Resources Engineer III, DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- McCormick, K.A., 2004. First Occurrence of Aquifer Materials in Union County, South Dakota. SD DENR- Geological Survey Aquifer Materials Map 18. Vermillion, SD.
- Niehus, C.A., 1994. Water Resources of Lincoln and Union Counties, South Dakota. U.S. Geological Survey Water-Resources Investigations Report 93-4195. U.S. Geological Survey. Rapid City, SD.

- Stonesifer, J.R., 2013. Report to the Chief Engineer on Water Permit Application 7918-3. SD DENR - Water Rights Program, Joe Foss Bldg., Pierre, SD.
- Stephens, J.C., 1967. Geology and Water Resources of Clay County, South Dakota; Part II Water Resources. Bulletin 19. SD DENR - Geological Survey. Vermillion, SD.
- Water Rights, 1995. Findings of Fact, Conclusions of Law, and Final Decision in the Matter of Water Permit Application No. 2313-2, Coca-Cola Bottling Company of the Black Hills. SD-DENR-Water Rights Program file for Water Right No. 2313-2. Pierre, SD.
- Water Rights, 2020a. "1979-2019 Irrigation Summaries by Aquifer", SD DENR-Water Rights Program, Joe Foss Building, Pierre, SD.
- Water Rights, 2020b. Observation Well Data, SD-DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2020c. Water Right/Permit Files, SD-DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2020d. Well Completion Reports, SD-DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2020e. County Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.

Schlaak, Karen

From: Schlaak, Karen
Sent: Tuesday, January 5, 2021 11:28 AM
To: pbremer19@gmail.com
Subject: Water Permit Application No. 8459-3
Attachments: 0334.pdf

Attached is a copy of the report, chief engineer recommendation and information regarding the public notice for your water permit application. As stated in the letter, please contact the papers as soon as possible to authorize publication on January 15, 2021 and arrange for payment. This information is being mailed to you today.

Karen Schlaak
Water Rights Program
(605) 773-3352



DENR
SOUTH DAKOTA

AFFIDAVIT OF PUBLICATION

YANKTON DAILY PRESS AND DAKOTAN

RECEIVED

JAN 19 2021

WATER RIGHTS
PROGRAM

PAUL BREMER
31244 BLUFF RD
VERMILLION SD 57069

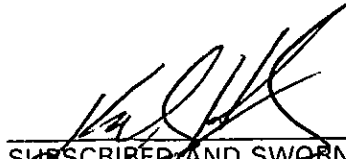
STATE OF SOUTH DAKOTA
COUNTY OF YANKTON

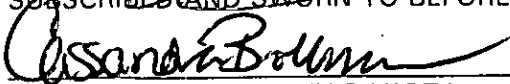
KELLY HERTZ, BEING FIRST DULY SWORN ON OATH DEPOSES
AND SAYS THAT (S)HE IS THE MANAGING EDITOR OF YANKTON
MEDIA INC, A CORPORATION, THE PRINTER AND THE PUBLISHER OF THE
YANKTON DAILY PRESS AND DAKOTAN, A LEGAL DAILY NEWSPAPER
PUBLISHED AND CIRCULATED IN THE CITY OF YANKTON, SAID COUNTY
AND STATE, AND ONE OF THE OFFICIAL NEWSPAPERS OF THE SAID
COUNTY OF FACTS STATED IN THIS AFFIDAVIT; THAT THE ANNEXED
1 + 15 NOTICE OF APPLICATIO

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE
NEWSPAPER ON THE 15th DAY OF January, 2021
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION
OF SAID NOTICE TO-WIT \$26.63 ENSURES TO THE
BENEFITS OF THE PUBLISHER OF SAID NEWSPAPER AND THAT NO
AGREEMENT AND 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.

PUBLISHED ON: 01/15/2021

FILED ON: 01/15/2021


SUBSCRIBED AND SWORN TO BEFORE ME THIS 15th DAY OF January, 2021


NOTARY PUBLIC, SOUTH DAKOTA
MY COMMISSION EXPIRES 07/04/2026

Ad text : 1 + 15

NOTICE OF APPLICATION NO. 8459-3 to Appropriate Water

RECEIVED

JAN 19 2021

WATER RIGHTS
PROGRAM

Notice is given that Paul Bremer, 31244 Bluff Rd, Vermillion SD 57069 has filed an application for a water permit to irrigate an additional 40 acres. Water Right No. 7230-3 authorizes 1.33 cubic feet of water per second (cfs) from one well completed into the Lower Vermillion Missouri Aquifer (192 feet deep) located in the SE 1/4 NW 1/4 Section 22 for irrigation of 71 acres located in the S 1/2 NW 1/4 Section 22 and SE 1/4 NE 1/4 Section 21; all in T93N-R52W. This application proposes to irrigate an additional 40 acres located in the SW 1/4 NE 1/4 Section 22-T93N-R52W from the existing well. This application, if approved, and Water Right No. 7230-3 will authorize a total of 1.33 cfs for irrigation of 111 acres. This site is located approximately 5 miles north of Vermillion SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8459-3 with qualifications 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. The Chief Engineers recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/public> or contact Ron Duvall for this information, or other information, at the Water Rights Program address provided below.

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 25, 2021.

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.

If the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the recommendation with no hearing held before the Water Management Board. 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.

Published once at the total approximate cost of \$26.63

AFFIDAVIT OF PUBLICATION

PLAIN TALK

RECEIVED

JAN 19 2021

WATER RIGHTS
PROGRAM

PAUL BREMER
31244 BLUFF RD
VERMILLION SD 57069

STATE OF SOUTH DAKOTA
COUNTY OF CLAY

JACKIE LAMMERS, BEING FIRST DULY SWORN ON OATH DEPOSES
AND SAYS THAT (S)HE IS THE CLASSIFIED MANAGER OF YANKTON
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AGREEMENT AND 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.

PUBLISHED ON: 01/15/2021

FILED ON: 01/15/2021



SUBSCRIBED AND SWORN TO BEFORE ME THIS 15th DAY OF January, 2021



NOTARY PUBLIC, SOUTH DAKOTA
MY COMMISSION EXPIRES 07/04/2026

RECEIVED

JAN 19 2021

WATER RIGHTS
PROGRAM

Notice is given that Paul Bremer, 31244 Bluff Rd, Vermillion SD 57069 has filed an application for a water permit to irrigate an additional 40 acres. Water Right No. 7230-3 authorizes 1.33 cubic feet of water per second (cfs) from one well completed into the Lower Vermillion Missouri Aquifer (192 feet deep) located in the SE 1/4 NW 1/4 Section 22 for irrigation of 71 acres located in the S 1/2 NW 1/4 Section 22 and SE 1/4 NE 1/4 Section 21; all in T93N-R52W. This application proposes to irrigate an additional 40 acres located in the SW 1/4 NE 1/4 Section 22-T93N-R52W from the existing well. This application, if approved, and Water Right No. 7230-3 will authorize a total of 1.33 cfs for irrigation of 111 acres. This site is located approximately 5 miles north of Vermillion SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8459-3 with qualifications 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. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/public> or contact Ron Duvall for this information, or other information, at the Water Rights Program address provided below.

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 25, 2021.

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.

If the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the recommendation with no hearing held before the Water Management Board. 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.

Published once at the total approximate cost of \$26.19.

Published January 15, 2021.

Schlaak, Karen

From: Schlaak, Karen
Sent: Tuesday, January 5, 2021 11:23 AM
To: Jackie Lammers (jackie.lammers@yankton.net)
Subject: 8459-3, Paul Bremer
Attachments: 8459-3public.short.docx; FORM8.FRM.doc

Attached is a notice to be published on January 15, 2021.

Paul Bremer, 31244 Bluff Rd, Vermillion SD 57069 (605 677-9352) has been notified to contact you to authorize publication and arrange for payment.

Please send the affidavit or return the attached Proof of Publication form ASAP to the Water Rights Program, 523 E Capitol, Pierre SD 57501.

Let me know if you have questions. Please acknowledge receipt of this email.

Karen Schlaak
Water Rights Program
(605) 773-3352



Schlaak, Karen

From: Schlaak, Karen
Sent: Tuesday, January 5, 2021 11:22 AM
To: 'classifieds@plaintalk.net'
Subject: 8459-3, Paul Bremer
Attachments: 8459-3public.short.docx; FORM8.FRM.doc

Attached is a notice to be published on January 15, 2021.

Paul Bremer, 31244 Bluff Rd, Vermillion SD 57069 (605 677-9352) has been notified to contact you to authorize publication and arrange for payment.

Please send the affidavit or return the attached Proof of Publication form ASAP to the Water Rights Program, 523 E Capitol, Pierre SD 57501.

Let me know if you have questions. Please acknowledge receipt of this email.

Karen Schlaak

Water Rights Program
(605) 773-3352





DENR
SOUTH DAKOTA

**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 NEWSPAPERS RIGHT AWAY.**

January 5, 2021

Paul Bremer
31244 Bluff Rd
Vermillion SD 57069

Dear Mr. Bremer:

Water Permit Application No. 8459-3 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 Plain Talk printed at Vermillion SD (Ph # 605 624-2695) and the Daily Press & Dakotan printed at Yankton SD (Ph # 605 665-7811). You will need to contact the newspapers 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 newspapers to authorize publication of your Notice and to arrange for payment. Early contact with the papers can eliminate delays. Upon receiving authorization from you, the publishers have been instructed to publish your notice. The newspapers have also been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the application.

Sincerely,

Karen Schlaak

Karen Schlaak
Water Rights Program
(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.

NOTICE OF APPLICATION NO. 8459-3 to Appropriate Water

Notice is given that Paul Bremer, 31244 Bluff Rd, Vermillion SD 57069 has filed an application for a water permit to irrigate an additional 40 acres. Water Right No. 7230-3 authorizes 1.33 cubic feet of water per second (cfs) from one well completed into the Lower Vermillion Missouri Aquifer (192 feet deep) located in the SE 1/4 NW 1/4 Section 22 for irrigation of 71 acres located in the S 1/2 NW 1/4 Section 22 and SE 1/4 NE 1/4 Section 21; all in T93N-R52W. This application proposes to irrigate an additional 40 acres located in the SW 1/4 NE 1/4 Section 22-T93N-R52W from the existing well. This application, if approved, and Water Right No. 7230-3 will authorize a total of 1.33 cfs for irrigation of 111 acres. This site is located approximately 5 miles north of Vermillion SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8459-3 with qualifications 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. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/public> or contact Ron Duvall for this information, or other information, at the Water Rights Program address provided below.

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 25, 2021.

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.

If the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the recommendation with no hearing held before the Water Management Board. 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.

Published once at the total approximate cost of__



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SOUTH DAKOTA

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

MAR 03 2021

Paul Bremer
31244 Bluff Rd
Vermillion SD 57069

Dear Mr. Bremer:

Enclosed is Water Permit No. 8459-3 authorizing construction of the 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, reading "Eric Gronlund".

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

enclosures

RECEIVED

JUN 25 2021

WATER RIGHTS
PROGRAM**NOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USE**Date 6/23/21

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

FROM: Paul Bremer
(name)
31244 Bluff Rd
(address)
Vermillion S.D. 57069 605-677-9352
(city, state, zip) (phone)

I have completed the construction of the water use system and I have put the water to beneficial use to the maximum extent it is going to be used.

Water Permit No. 8459-3 states that the water use system is to be constructed by 1/25/2026, and water is to be put to beneficial use by 1/25/2006.
(date) (date)

The water use system was completed on 6/1/2021.
(date)

Applying the water to beneficial use was completed on 6/1/2021.
(date)

You may schedule an investigation so that the water license may be issued.

Paul A Bremer
(signature)





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

June 28, 2021

8459-3

Paul Bremer
31244 Bluff Rd
Vermillion SD 57069

Dear Mr. Bremer:

I am writing to acknowledge receipt of the "Notice of Completion of Works" form that you sent in to let us know that you are completed with your irrigation system authorized under No. 8459-3. The permit was to add acreage to an existing system described in Water Right No. 7230-3.

The system is now ready for inspection. Inspections are done on a county-by-county basis as staff time permits. You have done everything you need to do and the intervening time between the completion of your project and the staff inspection has no bearing on your water permit.

Someone from our office will contact you prior to the inspection to set up a time that is convenient for you. If you have any questions, please contact me.

Sincerely,

Genny McMath
Water Rights Program
(605) 773-3352
email: genny.mcmath@state.sd.us

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 8459-3

I have this day, November 25, 2024, made a thorough examination of the water use systems owned by Paul Bremer, 31244 Bluff Rd, Vermillion, SD 57069, holder of Permit No. 8459-3, bearing the priority date of November 18, 2020. This permit authorizes irrigation of an additional 40 acres. Water Right No. 7230-3 authorizes 1.33 cubic feet of water per second (cfs) from one well completed into the Lower Vermillion Missouri Aquifer (192 feet deep) located in the SE1/4 NW1/4 Section 22 for irrigation of 71 acres located in the S1/2 NW1/4 Section 22 and SE1/4 NE1/4 Section 21; all in T93N-R52W. This permit authorizes irrigation of an additional 40 acres located in the SW1/4 NE1/4 Section 22-T93N-R52W from the existing well. This permit, and Water Right No. 7230-3 will authorize a total of 1.33 cfs for irrigation of 111 acres. This site is located approximately 5 miles north of Vermillion, SD and is located in Clay County.

Inspection contacts: Paul Bremer

A. Works used to divert the water:

Well Information (from Water Right No. 7230-3)

- 1) Well Drilling Firm: Hammond-Wetmore Drilling, LLC
- 2) No. of Wells: 1
- 3) Depth(s): 192 feet
- 4) Well log is available: Yes

Casing:

- 1) Diameter: 12 inches
- 2) Length: 132 feet
- 3) Type: PVC

Screen:

- 1) Diameter: 12 inches
- 2) Length: 60 feet
- 3) Type: PVC Manufactured
- 4) Static water level: 107 feet

Pump:

- 1) Make: Grundfos
- 2) Model: 625S 400-2
- 3) Capacity: 600 gpm

Motor:

- 1) Make: Franklin
- 2) Model No.: Submersible
- 3) Horsepower rating: 40 hp

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

- 1) Type: PVC Size: 8 inches Length: 1,350 feet (well to the east pivot)

C. Works used to apply water to beneficial use:**Center Pivot: (East Pivot)**

- 1) Make: Valley
- 2) Overall length: 658 feet
- 3) Number of towers: 4
- 4) End gun: Yes Range: 100 feet
- 5) Capacity: 600 gpm

Chemigation Equipment:

- 1) Does chemigate: Yes
- 2) Main line check valve: Yes
- 3) Inspection port/air relief: Yes
- 4) Low pressure drain: Yes
- 5) Discharge is 20' from source: No
- 6) Interlock type: Mechanical
- 7) Injection pump: Positive displacement
- 8) Injection check valve: Yes
- 9) Injection line check valve or positive displacement pump: Yes

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by: Yes
- 2) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period: Yes
- 3) Exceptions to compliance are: Acres authorized by 8459-3 developed outside permitted area.

E. Condition and Location:

- 1) The system is in good condition with the point(s) of diversion located as follows:
The well is 1,640 feet east and 2,000 feet south of the northwest corner of Section 22-T93N-R52W (Latitude 42.86097, Longitude -96.97809– SE1/4 of the NW1/4).
- 2) The works are capable of diverting and conveying to the places of use 1.34 cu. ft. per second of water from the well which is to be used for irrigation purposes. Water has been put to beneficial use to the maximum extent as follows: All in

Water Permit No. 8459-3 Combined with Water Right No. 7230-3**Section 21-T93N-R52W****SE1/4NE1/4 34 acres****Section 22-T93N-R52W****SW1/4NW1/4 11 acres****SE1/4NW1/4 36 acres****SW1/4NE1/4 27 acres**

comprising a total of 108 acres for combined Water Permit No. 8459-3 and Water Right No. 7230-3, and the license should be issued for the 108 acres and 1.33 cfs.

- 3) All structures, wells and lands on map: Yes

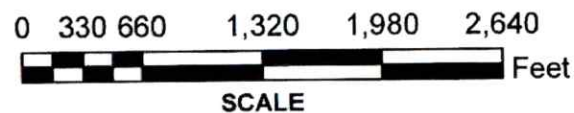
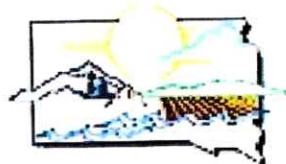
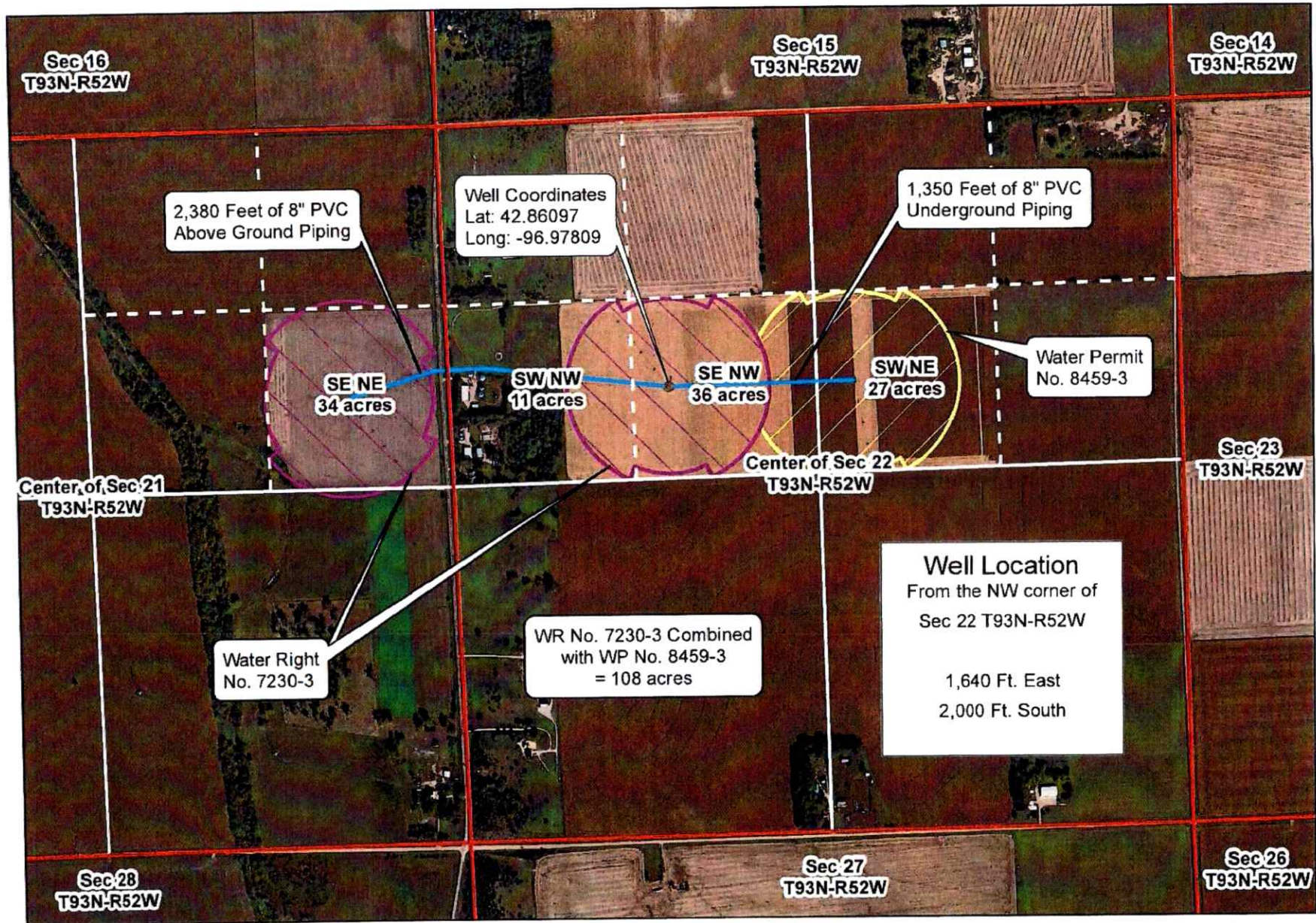
F. Comments or other permit(s) associated with the project: Water Permit No. 8459-3 should be combined with Water Right No. 7230-3 into one license. Also, the system is set up so that only one pivot operates at a time.



Keith DeJong, PE Ret.
Water Rights Inspector
DANR, Water Rights Program

Date report completed: November 26, 2024

Water Permit No. 8459-3



Keith DeJong
Keith DeJong, PE Ret.
Staff Engineer
November 25, 2024

Licensing of Acreage Outside of Permitted Area

NAME: Paul Bremer

ADDRESS: 31244 Bluff Rd, Vermillion, SD 57069

DATE: April 29, 2025 COUNTY: Clay

AUTHORITY

Pursuant to SDCL 46-5-30.5, acreage developed for irrigation outside of the area described on the permit may be licensed provided the following conditions are met:

NO INCREASE IN PERMITTED ACREAGE OR WATER APPROPRIATED:

The acreage developed for irrigation is 108 acres as compared to 111 acres authorized by the permit.

UNPERMITTED ACREAGE:

- **Contiguous to Permitted Acreage**

The permit holder relocated 9 acres into the SW ¼ NW ¼, Section 22, and 1 acre into the SE ¼ NW ¼, Section 22, immediately adjacent to permitted acres in the SW ¼ NE ¼ Section 22; all in T93N-R52W

- **Owned by Same Property Owner**

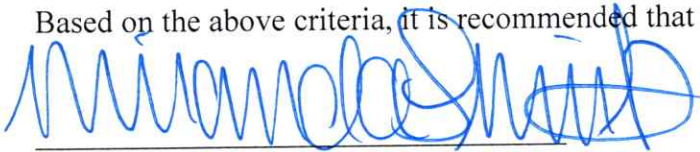
All the property involved is listed under Bremer Family Trust, according to the Clay County Regrid.

- **Developed Prior to Expiration of Construction Period**

The construction completion date is to be completed by January 25, 2026. The permit holder submitted a Notice of Completion of Works and Application of Water to Beneficial Use form on June 25, 2021. The Notice stated the diversion system was completed on June 1, 2021 and the water was placed to beneficial use on June 1, 2021.

RECOMMENDED ACTION

Based on the above criteria, it is recommended that the 10 acre area be included in the water license.



Miranda Smith, Program Assistant
Water Rights Program

The Chief Engineer makes a finding pursuant to SDCL 46-5-30.5 that:

This acreage change does not impair existing water rights and the overall project, as developed, is consistent with the original application. Licensing of the unpermitted acreage may occur without application or publication pursuant to SDCL 46-2A-4.



Mark Mayer, PE
Director of Office of Water



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

APR 30 2025

Paul Bremer
31244 Bluff Rd
Vermillion, SD 57069

No. 8459-3

Dear Mr. Bremer:

Enclosed is Water License No. 8459-3. 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.

So 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,

Mark Mayer, PE
Director of Office of Water
(605) 773-3352

Note: (The number of acres authorized for irrigation under Water Right No. 8459-3 has been reduced to 108, based on the system as constructed.)

enclosures

**STATE OF SOUTH DAKOTA
WATER LICENSE NO. 8459-3**

(1) Water Right No. 7230-3, held by Paul Bremer, 31244 Bluff Road, Vermillion, SD 57069, authorizes the diversion of 1.33 cubic feet of water per second from groundwater, one well (Lower Vermillion Missouri Aquifer), for irrigation of 71 acres, with a priority date of February 9, 2011. The applicable portions of Water Right No. 7230-3 are incorporated into this license and previously established priority dates will be retained.

On November 18, 2020, Paul Bremer made Application No. 8459-3, for a water permit to add an additional 40 acres, to what was already authorized under Water Right No. 7230-3, with no increase to the rate of diversion. Permit No. 8459-3, with a priority date of November 18, 2020, was approved January 25, 2021, and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before January 25, 2026, and for the application to beneficial use of water on or before January 25, 2030.

The permit holder submitted a Notice of Completion of Works and Application of Water to Beneficial Use form on June 25, 2021. The Notice stated the diversion system was completed on June 1, 2021 and the water was placed to beneficial use on June 1, 2021.

An investigation conducted for licensing purposes found acreage developed outside of the permitted area. Pursuant to SDCL 46-5-30.5 and ARSD 74:02:01:14.01, the Chief Engineer made a finding that the change in acreage did not impair existing water rights 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 construction of the water supply system and is entitled to divert 1.33 cubic feet of water per second for beneficial use. The location of the diversion point is:

- 1,640 feet E and 2,000 feet S from the NW corner of Section 22, T93N, R52W (SE $\frac{1}{4}$ NW $\frac{1}{4}$)
(Latitude 42.86097 and Longitude -96.97809)

(3) The amount of 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 – September 30.

(4) The permit holder has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use to irrigate to following land: *all in T93N, R52W*

Section 21
SE $\frac{1}{4}$ NE $\frac{1}{4}$ - 34 acres

Section 22
SW $\frac{1}{4}$ NW $\frac{1}{4}$ - 11 acres
SE $\frac{1}{4}$ NW $\frac{1}{4}$ - 36 acres
SW $\frac{1}{4}$ NE $\frac{1}{4}$ - 27 acres

Total – 108 acres

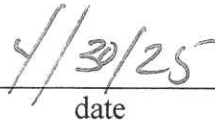
(5) Pursuant to South Dakota Water Law 46-5-30.1 Paul Bremer, the holder and/or owner of Water Right No. 8459-3 is issued a license to appropriate water, the right to use 1.33 cubic feet of water per second from groundwater, one well (Lower Vermillion Aquifer), with priority dates of February 9, 2011 (1.33 cfs & 71 acres) and November 18, 2020 (37 acres), 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. 8459-3 and subject to the following qualifications:

1. The well approved under Water Permit No. 8459-3 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 reeducation 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.



Mark Mayer, PE
Director of Office of Water


date