

WATER PERMIT NO. 8507-3

Name of Applicant: **Craig Vanderlei**

Address: **58908 312th St, Springfield SD 57062**

Phone: **605 661-2618**

Amount of Water Claimed: **1.78 cfs**

Total Acres: **140 acres**

Source of Water Supply: **groundwater (one well)**

Water to be used for: **irrigation**

County: **Bon Homme**

Type of Waste Disposal System:

Location: **5 miles southwest of Springfield**

PRIORITY

Date Received: **4-12-21**

Application/License Fee: **\$ 1050.00**

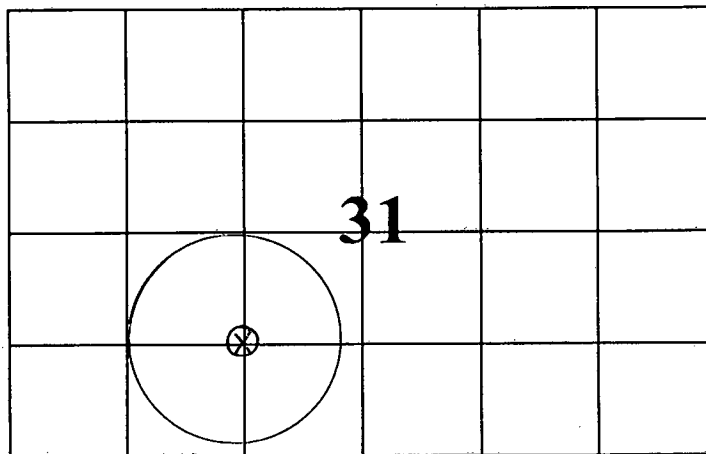
Corrected Application Received:

Period of Annual Use: **May 1 – October 31**

Remarks:

Diversion Point: **Center of SW 1/4 Sec 31-T93N-R60W**

Land to be Irrigated: **SW 1/4 Sec 31-T93N-R60W**



Depth of Well: **275 feet deep**

Well Driller:

Remarks:

Type of Map: **aerial**

Prepared by:

Reviewed and the Number Assigned on: **4-12-21**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

SOUTH DAKOTA
WATER PERMIT NO. 8507-3

Date of first receipt of application April 12, 2021.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8507-3 to Craig Vanderlei, 40908 312th St, Springfield SD 57062 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. 8507-3 appropriates 1.78 cubic feet of water per second from one well to be completed into the Niobrara Aquifer (approximately 275 feet deep) located in the center of the SW 1/4 Section 31 for irrigation of 140 acres located in the SW 1/4 Section 31; all in T93N-R60W. This site is located approximately 5 miles southwest of Springfield 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: May 1 – October 31.
3. The date from which applicant may claim right is April 12, 2021.
4. The date of approval of Permit No. 8507-3 is June 21, 2021.
5. One-fifth of the construction is to be completed on or before December 21, 2023.
6. All construction is to be completed on or before June 21, 2026.
7. Water is to be put to beneficial use on or before June 21, 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. 8507-3 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. The well authorized by Permit No. 8507-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. 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 Agriculture and Natural Resources

JUL 06 2021

date



APR 12 2021

WATER RIGHTS
PROGRAM

PAID

APR 12 2021

Ck# 2639

Mail to: DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8507-3</u> (office use only) Hydrologic Unit <u>10170101</u>
	Basin <u>Missouri River</u>
	Newspaper <u>Tyndall Tribune & Register</u> <u>Press & Dakotan</u>

Application For Permit To Appropriate Water For Irrigation

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

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

1. Name to Appear on Irrigation Permit Craig Vanderlei

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

Mailing Address 48908 312th St Springfield SD 57062
(Address) (City) (State) (Zip Code)Phone 605-666-2618 Mobile 605-666-2618 Email craigvanderlei@gmail.com2. Amount of water claimed 1.78 *CFS or 800 **GPM ***AF Total Acreage 140
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)3. Source of water supply aquifer4. Location of point of diversion 1 well center of SW 1/4 of section 31-T93N-R60W
(example - 3 wells in SW 1/4 NE 1/4 section 12-T104N(R33W))Springfield Twp County Ben Homme5. County or counties where water will be used Ben Homme6. Annual period during which water is to be used May 1 - Oct 317. 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 of SW 1/4</u>	<u>35</u>	<u>all in Sec 31-T93N-R60W</u>	
<u>SW 1/4 of SW 1/4</u>	<u>35</u>		
<u>NE 1/4 of SW 1/4</u>	<u>35</u>		
<u>NW 1/4 of SW 1/4</u>	<u>35</u>		

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

I, Craig Vanderlei, 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 1 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 _____

For either Existing or Proposed Wells:

c) Well Depth (required) 275 Depth to Top of Water Bearing Material 200 Depth to Water from Surface 205d) Distance to nearest domestic well on applicant's property no well Property owned by others 1/4 mile**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)

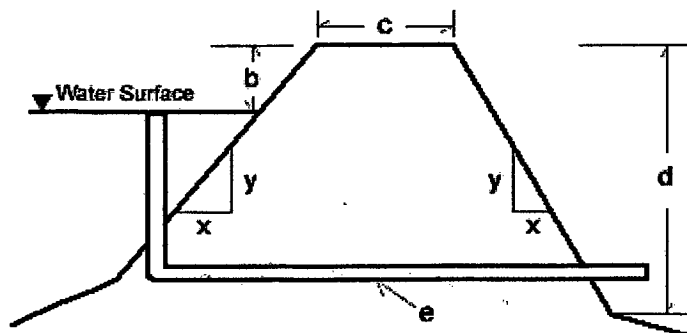
Upstream _____

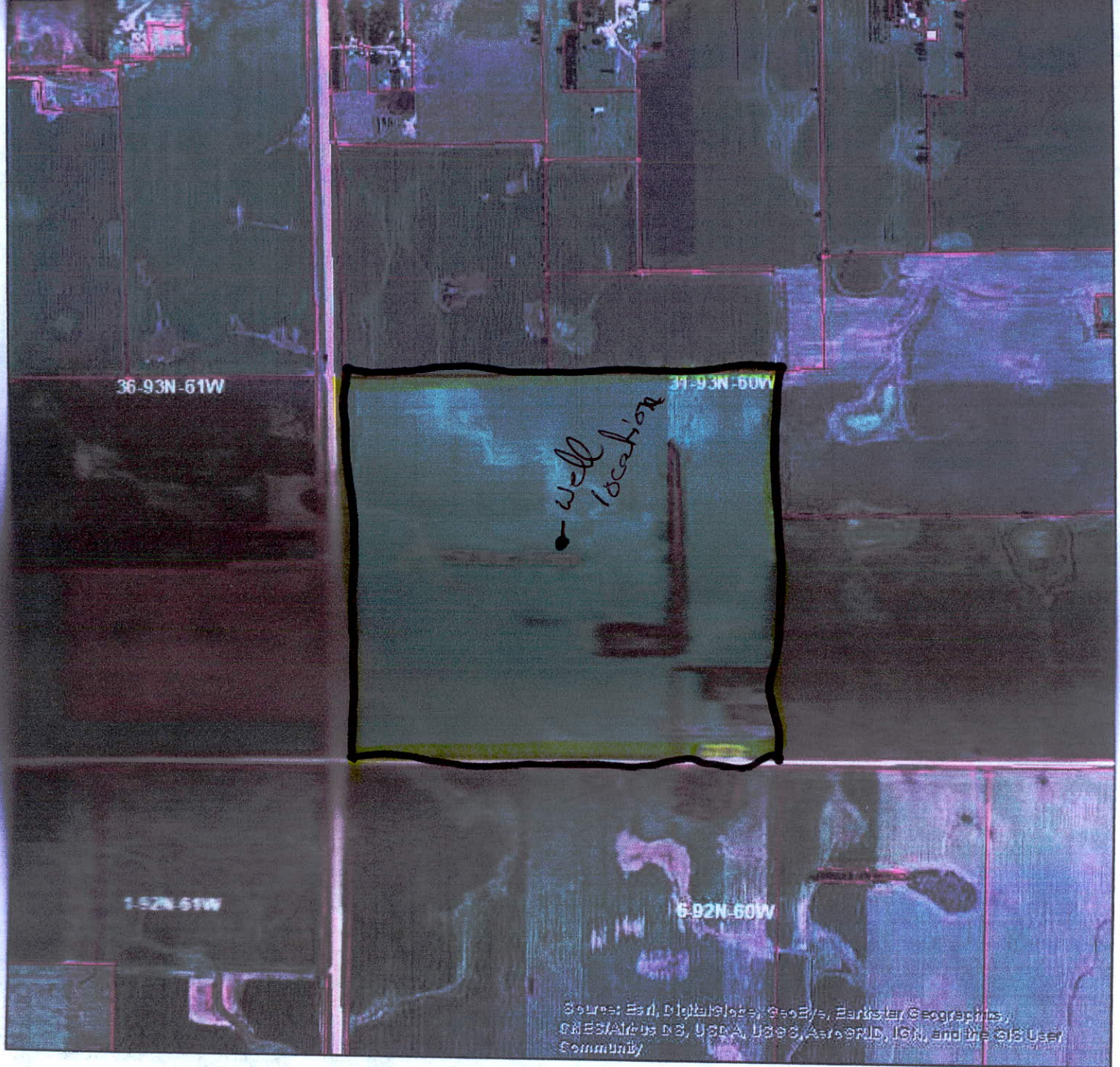
Downstream _____

h) Surface Area of Impoundment _____

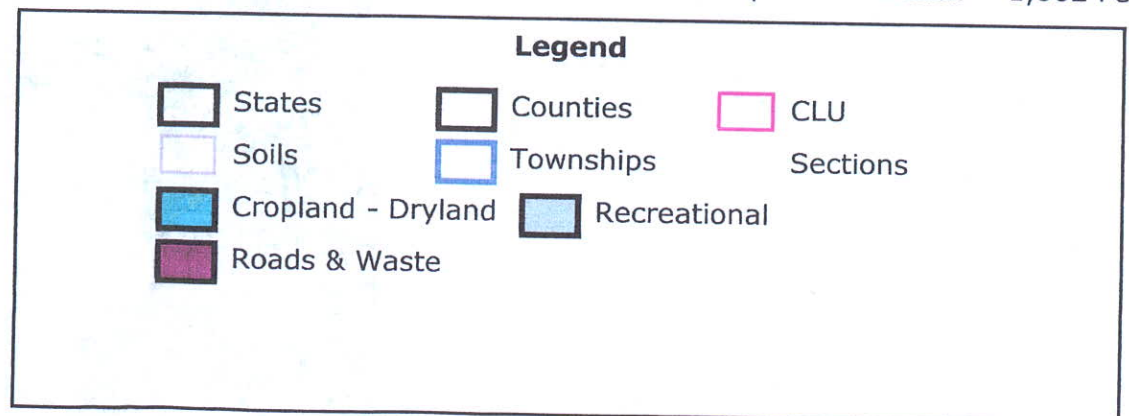
i) Storage _____ Acre Feet

j) Drainage Area Above Dam _____ Acres





Horizontal Map Scale: 1 Inch = 1,062 Feet



Date: December 23, 2020

**Water Rights Program
File Documentation**

NAME OF PERSON OR FILE: Craig Vanderlei

DATE: April 15, 2021 TELEPHONE: 605-661-2618

RE: Aquifer for irrigation application

COMMENTS:

I called Mr. Vanderlei on April 15, 2021 to determine if he had a specific aquifer in mind for a well for his irrigation application. Mr. Vanderlei stated that he intended to use the "Chalk" which is known as the Niobrara aquifer.



Adam Mathiowetz
Natural Resources Engineer
DENR-Water Rights Program

RECEIPT

WATER RIGHTS PROGRAM South Dakota Department of Environment and Natural Resources

Date April 12, 2021

RECEIVED OF Craig/Amy Vanderlei 40908 312th St Springfield SD 57062

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

Fee for Application for Permit No. <u>8507-3</u> to Appropriate Water, to construct and to put water to beneficial use	\$850.00
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>8507-3</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	\$1050.00

By Eric Gronlund
Chief Engineer
UM

Schlaak, Karen

From: Schlaak, Karen
Sent: Wednesday, June 2, 2021 8:51 AM
To: craigvanderlei@gmail.com
Subject: Water Permit Application No. 8507-3
Attachments: 1282.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 paper(s) as soon as possible to authorize publication and arrange for payment. This information is being mailed to you today.

Karen Schlaak

DANR - Water Rights Program

(605) 773-3352

Website: <https://danr.sd.gov>





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 8507-3, Craig Vanderlei**

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. 8507-3, Craig Vanderlei, 48908 312th St, Springfield SD 57062.

The Chief Engineer is recommending APPROVAL of Application No. 8507-3 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. 8507-3 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. The well authorized by Permit No. 8507-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. 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
June 1, 2021

Report to the Chief Engineer
On Water Permit Application No. 8507-3

Craig Vanderlei

June 2, 2021

Water Permit Application No. 8507-3 proposes to irrigate 140 acres located in the SW $\frac{1}{4}$ of Section 31 from one well at a maximum instantaneous diversion rate of 1.78 cubic feet of water per second (cfs) to be completed into the Niobrara aquifer (approximately 275 feet deep) in the center of the SW $\frac{1}{4}$ of Section 31; all in T93N-R60W. The site of interest is in Bon Homme County approximately five miles southwest of Springfield, South Dakota.

AQUIFER: Niobrara (NBRR)

HYDROGEOLOGY:

The Niobrara aquifer consists of the permeable and saturated portions of the late-Cretaceous-aged Niobrara formation (Fahrenbach et al., 2010). The Niobrara formation is a “white to dark-gray argillaceous chalk, marl, and shale” that ranges from 160 to 225 feet in thickness in South Dakota (Martin et al., 2004). The Niobrara formation is fine-grained with low porosity so water movement in the aquifer is often controlled by secondary porosity developed along fractures, faults, and solution cavities (Hedges et al., 1982). The interconnected nature of secondary porosity is highly variable and unpredictable. Weathering and glacial activity may also contribute to higher productive zones in the Niobrara aquifer; however, because these features are difficult to forecast in the subsurface, productivity of the Niobrara is nearly impossible to predict (Hedges et al., 1982). Locally, the Niobrara formation is also known as “chalk rock” and is extensive throughout South Dakota; however, characteristics of the Niobrara aquifer vary greatly across the state (Hedges et al., 1982).

Figure 1 displays a map of the approximate areal extent of the Niobrara Formation in eastern South Dakota (modified from Hedges et al., 1982). Some portions of the Niobrara formation are physically separate from the main body of the formation because the area between them eroded prior to being overlain with glacial till (Hedges et al., 1982). The proposed diversion point for Water Permit Application No. 8507-3 will be completed into an erosional remnant of the formation (see Figure 1). This erosional remnant underlies approximately 180,000 acres in Bon Homme and Yankton Counties (estimated from Tomhave and Schulz, 2004). This portion of the Niobrara Formation is around 200 feet thick (Johnson and McCormick, 2005; SDGS, 2021). The direction of groundwater flow in this remnant of the Niobrara aquifer is to the southeast (Jorgensen, 1971).

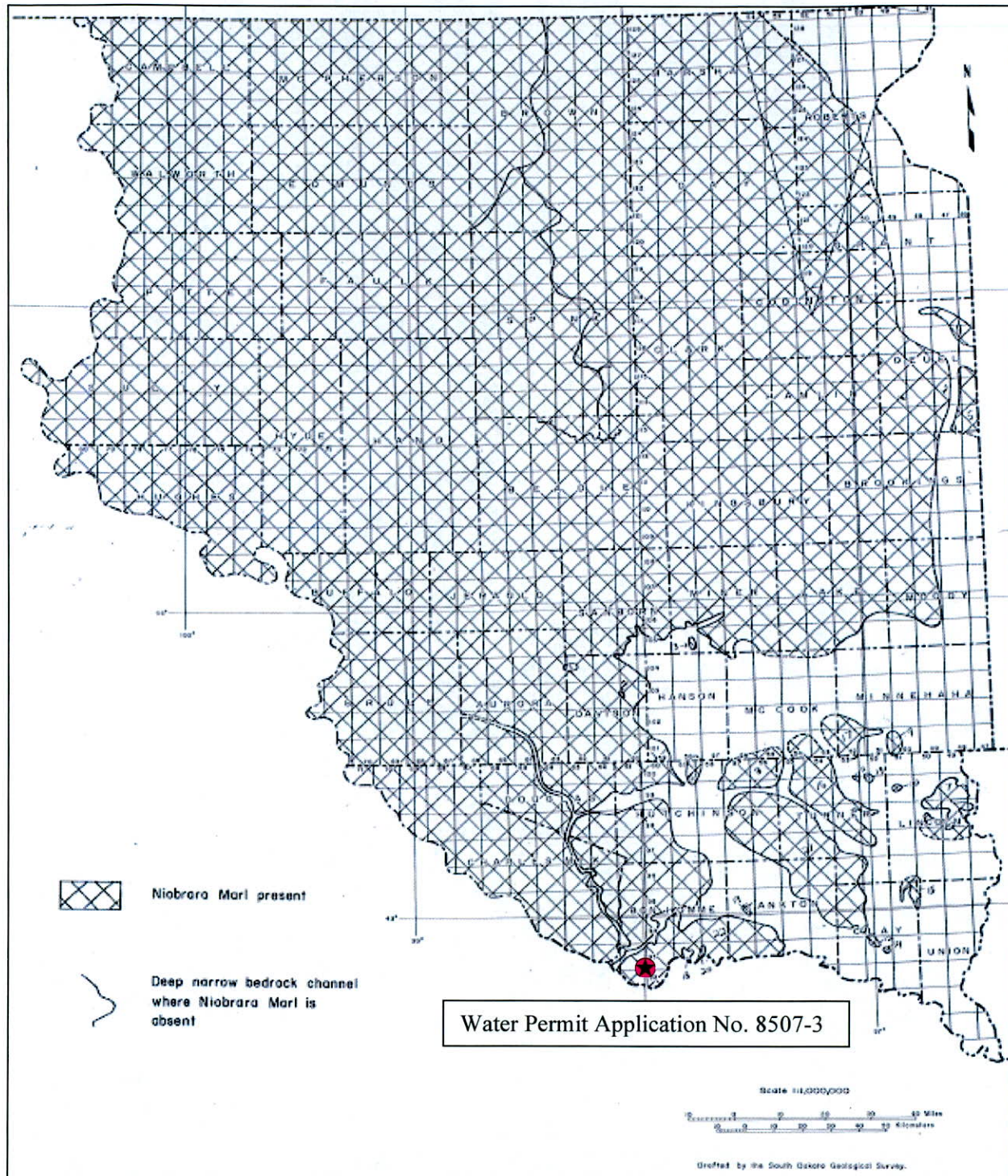


Figure 1. Map of the approximate areal extent of the Niobrara Formation in eastern South Dakota (modified from Hedges et al., 1982)

In Bon Homme and Yankton Counties, the Niobrara Formation has outcrops in many locations along the Missouri River, and the aquifer experiences some discharge through springs and seeps along and into the Missouri River (Bugliosi, 1986; Christensen, 1974; Jorgensen, 1971). This remnant of the Niobrara aquifer is in direct contact with several glacial outwash bodies and is likely in hydraulic connection with the Choteau: Tyndall, Choteau: West, and Lower James Missouri: Scotland aquifers (Water Rights, 2021b and 2021d). The potentiometric surfaces of those aquifers indicate a potential for leakage from the Niobrara aquifer to the Choteau: Tyndall aquifer, and the potential for leakage from the Choteau: West and Lower James Missouri: Scotland aquifers into the Niobrara aquifer (Water Rights, 2021b). This remnant of the Niobrara Formation overlies the Codell Sandstone Member of the Carlile Shale (Fahrenbach et al., 2010). The Codell Sandstone is generally overlain by 5 to 30 feet of impermeable shale, but where the shale layer is very thin or absent, there is likely leakage between the Codell aquifer and the Niobrara aquifers (Jorgensen, 1971). The potentiometric surfaces of the aquifers suggest leakage will likely be from the Niobrara aquifer into the Codell aquifer (Jorgensen, 1971).

No water well or test hole completion report was submitted with Water Permit Application No. 8507-3. Well completion reports on file with the DANR-Water Rights Program for wells completed into the Niobrara aquifer within approximately five miles of the proposed diversion point for this application have saturated aquifer thicknesses ranging from approximately 90 to 150 feet, with the depth to the top of aquifer materials ranging from approximately 150 to 200 feet below the ground surface, and static water levels at well completion varying from approximately 15 to 150 feet below the ground surface (SDGS, 2021; Water Rights, 2021b and 2021d). This remnant of the Niobrara aquifer can vary between confined and unconfined conditions (Jorgensen, 1971); however, the Niobrara aquifer is expected to be buried and unconfined at the proposed diversion point based on the well completion reports for nearby wells and lithologic logs on file for nearby observation wells (SDGS, 2021; Water Rights, 2021b and 2021d).

Figure 2 displays a map of the erosional remnant of the Niobrara aquifer (modified from Tomhave and Schulz, 2004) with the location of the proposed diversion point for Water Permit Application No. 8507-3, and the current Niobrara aquifer water rights/permits and observation wells completed into the erosional remnant (Water Rights, 2021b and 2021c).

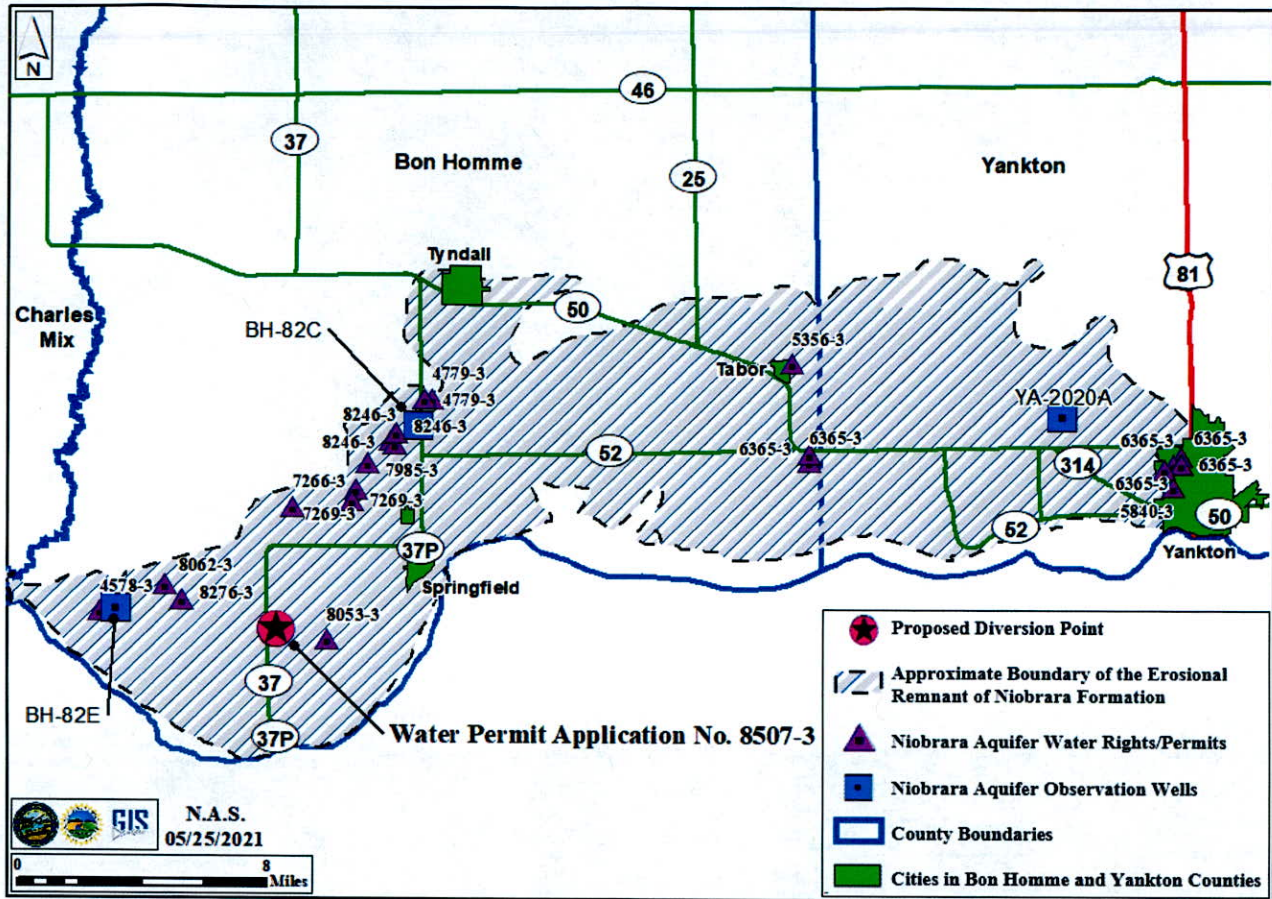


Figure 2. Approximate areal extent for the erosional remnant of the Niobrara aquifer (modified from Tomhave and Schulz, 2004), the location of the proposed diversion point for Water Permit Application No. 8507-3, and the Niobrara aquifer water rights/permits and observation wells completed into the erosional remnant (Water Rights, 2021b and 2021c)

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 Niobrara aquifer.

WATER AVAILABILITY:

Water Permit Application No. 8507-3 proposes to appropriate water from the Niobrara 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 Niobrara 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 Niobrara aquifer must be considered.

OBSERVATION WELL DATA:

Administrative Rule of South Dakota (ARSD) 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 DANR-Water Rights Program monitors three observation wells completed into the erosional remnant of the Niobrara aquifer (Water Rights, 2021b). These observation wells provide data on how this remnant of the aquifer reacts to regional climatic conditions and local pumping. These observation wells are BH-82E (approximately 5 miles west), BH-82C (approximately 8 miles northeast), and YA-2020A (approximately 26 miles northeast) (as shown in Figure 2).

Observation well YA-2020A was completed into the Niobrara aquifer in 2020 and does not have sufficient data available to be useful for review for this application (Water Rights, 2021b). The hydrographs for observation wells BH-82E and BH-82C are displayed in Figures 3 and 4 (Water Rights, 2021b). The data points utilized to construct the hydrographs are measurements of depth to the static water level in the observation wells from the top of the well casing.

The hydrographs for the observation wells completed into the erosional remnant of the Niobrara aquifer display stable to increasing water levels over their respective periods of record. The hydrographs 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 govern the long-term fluctuations of waters levels in the aquifer rather than the impacts of pumping from this remnant of the Niobrara 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.

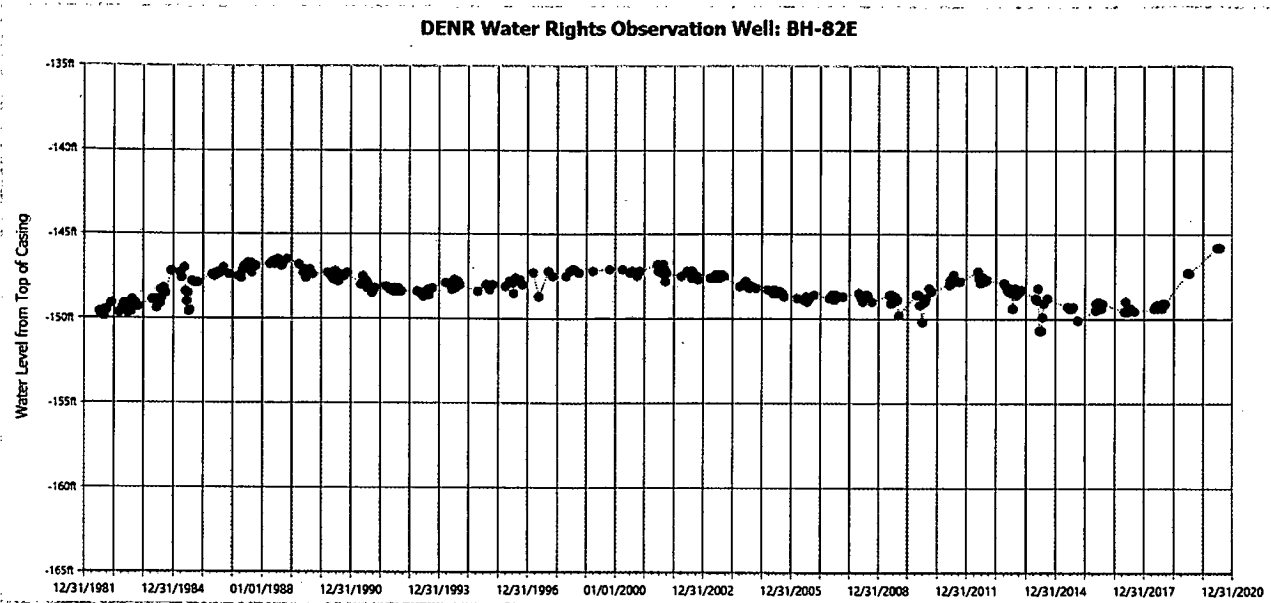


Figure 3. Hydrograph for observation well BH-82E (Water Rights, 2021b)

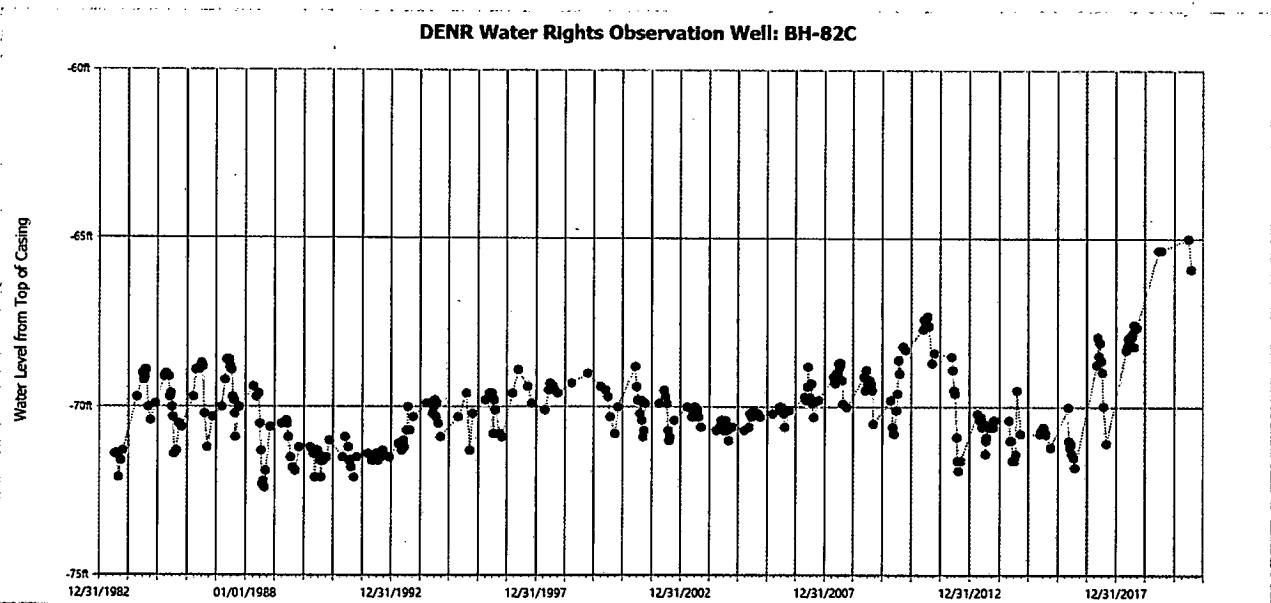


Figure 4. Hydrograph for observation well BH-82C (Water Rights, 2021b)

HYDROLOGIC BUDGET:

Recharge

Recharge to the Niobrara aquifer in Bon Homme County is primarily through subsurface inflow and by percolation through overlying till, outwash, or shale deposits (Jorgensen, 1971).

Additional recharge to the aquifer is likely through the infiltration of precipitation when the aquifer is at or near the land surface. There is also potential for leakage from the Choteau: West and Lower James Missouri: Scotland aquifers into the Niobrara aquifer (Water Rights, 2021b).

No average annual recharge rate has been estimated for this remnant of the Niobrara aquifer or the aquifer in its entirety, and a source (such as, Hedges and others, 1985) that normally gives an estimate of the porosity of other bedrock aquifer does not attempt to do so for the Niobrara aquifer, likely due to how variable the aquifer's characteristics are across South Dakota. Hedges and others (1985) also noted east of the Missouri River in South Dakota, the "Niobrara Formation" has such high storage with low use, it is unlikely that withdrawals are approaching or exceeding recharge from the aquifer. Additionally, there is no evidence of a significant decrease in artesian head pressure for the water right/permit holder wells and observation wells completed into Niobrara aquifer (Hedges et al., 1985; Water Rights, 2021b).

Discharge

Discharge from the Niobrara aquifer in Bon Homme County is primarily through well withdrawals, to the Missouri River, groundwater interflow to the Choteau: East and Codell aquifers when the hydraulic head in the Niobrara aquifer is higher than them, and by evapotranspiration where the water table is at or near land surface (Water Rights, 2021b, 2021c, and 2021d).

Currently, there are thirteen water rights/permits authorized to appropriate water from this remnant of the Niobrara aquifer (Table 1) (Water Rights, 2021c). The Town of Tabor holds Water Right No. 5356-3, but the town is connected to a rural water system and likely maintains the authorized wells for standby purposes (Friedeman, 2020; Water Rights, 2021c). Additionally, Water Right No. 6365-3 is for a non-consumptive geothermal use (Water Rights, 2021c). Therefore, the average annual water use rate for these water rights is estimated to be zero acre-feet per year.

Table 1. Summary of the water rights/permits authorized to appropriate from this remnant of the Niobrara aquifer (Water Rights, 2021c)

Permit No.	Name	County	Status	Use	Withdrawal Rate	Acres
4578-3	Darlene Nagel Revocable Trust	BH	LC	IRR	1.04	73
4779-3	Terry Balvin	BH	LC	IRR	3.9	287
5356-3	Town of Tabor	BH	LC	MUN	0.4	N/A
5840-3	City of Yankton	YA	LC	IRR	0.43	30
6365-3	City of Yankton	YA	LC	IRR	2.23	99.6
7176-3	Yankton School District	YA	LC	GEO	0.11	N/A
7266-3	Verlyn & Jeremie Jelsma	BH	LC	IRR	1.33	109
7269-3	Verlyn Jelsma	BH	LC	IRR	1.67	158
7985-3	William Chenoweth	BH	LC	IRR	0.95	230
8053-3	Blane Nagel	BH	LC	IRR	1.45	140
8062-3	Kenneth & Carol Guenther Revocable Trust	BH	LC	IRR	1.67	131
8246-3	Verlyn Jelsma	BH	LC	IRR	1.78	293
8276-3	Larry D & Jennifer J Bayer	BH	PE	IRR	1.85	130
LC: Licensed Water Right; PE: Water Permit; GEO: Geothermal; IRR: Irrigation; MUN: Municipal						

Currently, there are eleven irrigation water rights/permits authorized to appropriate water from this remnant of the Niobrara aquifer (Water Rights, 2021c). Irrigation water rights/permits have typically been required to report their annual usage on an irrigation questionnaire since 1979 but no water rights/permits were irrigating from this remnant of the Niobrara aquifer until 1981. The average annual withdrawal rate for irrigation water rights/permits within this remnant of the Niobrara aquifer that have reported over the period of record is approximately 367 acre-feet per year (Table 2) (Water Rights, 2021a). To reflect the current development of irrigation water rights/permits, the average annual withdrawal rate for irrigation water rights/permits within this remnant of the Niobrara aquifer that have reported over the period of record will be averaged over 2012 to 2019 on Table 2, since irrigation development for this remnant of the Niobrara aquifer has increased since 2012 (Water Rights, 2021a and 2021c). Water Permit Application No. 8507-3 requests to irrigate 140 acres. Generally, irrigators in eastern South Dakota apply less than one foot of water per acre per year. However, to account for the fluctuation in wet and dry cycles from year to year, a one foot of water per acre per year application rate will be used to liberally estimate the annual withdrawal rate for Water Permit Application No. 8507-3. By assuming an application rate of one foot per authorized acre, applied over the 140 acres requested to be irrigated, the estimated annual withdrawal rate for Water Permit Application No. 8507-3 (if approved) is approximately 140 acre-feet per year. Collectively, the average annual withdrawal rate for this remnant of the Niobrara aquifer irrigation water rights/permits that have reported over the period of record (1981 to 2019) and Water Permit Application No. 8507-3 is approximately 507 acre-feet per year. Collectively, the average annual withdrawal rate for this remnant of the Niobrara aquifer irrigation water rights/permits that have reported (from 2012 to 2019) and Water Permit Application No. 8507-3 is approximately 834 acre-feet per year.

Table 2. Reported historic irrigation use from the Niobrara aquifer (Water Rights, 2021a)

Year	No. of Permits	Annual Appropriation (acre-feet)	Reported Pumpage (acre-feet)
1981	3	800	99.7
1982	3	772	137
1983	4	1,040	290.3
1984	4	1,040	170
1985	4	1,040	171
1986	4	1,040	185
1987	4	1,040	266
1988	4	1,040	315
1989	4	1,394	324
1990	3	954	172
1991	3	954	310
1992	4	1,154	187
1993	4	1,154	192
1994	3	914	378
1995	4	994	267
1996	4	994	505
1997	4	994	307
1998	4	994	271
1999	4	994	259
2000	5	1,025	352
2001	5	1,025	374
2002	5	1,005	494
2003	6	1,205	549
2004	6	1,205	349
2005	5	1,005	330
2006	5	1,010	284
2007	5	1,010	296
2008	5	1,010	365
2009	4	979	118
2010	4	979	160
2011	4	979	266
2012	8	2,155	1,365
2013	8	2,155	613
2014	9	2,621	617
2015	11	2,825	767
2016	11	3,175	852
2017	13	4,013	1,025
2018	11	3,367	157
2019	11	3,367	160
Min	3	772	100
Max	13	4,013	1,365
Avg (1979 to 2019)	5	1,421	367
Avg (2012 to 2019)	10	2,960	694

The natural discharge from this remnant of the Niobrara aquifer is proportional to the gradient between the aquifer and the aquifer, or river, receiving the discharge. Aquifer characteristics, such as hydraulic conductivity, are generally site specific especially in bedrock aquifers such as the Niobrara aquifer. Exact values for aquifer characteristics can only be determined through aquifer testing. Aquifer transmissivity for this remnant of the Niobrara aquifer was estimated by Buhler (2015) along with an approximate discharge rate to the Missouri River from this portion of the Niobrara aquifer. Buhler's (2015) estimate of discharge to the Missouri River from this remnant of the Niobrara aquifer exceeds 11,000 acre-feet per year. There is insufficient data available to estimate the discharge from this remnant of the Niobrara aquifer into the underlying Codell aquifer and overlying glacial outwash aquifers. The amount of discharge to those aquifers from this remnant of the Niobrara aquifer may be significant.

There are domestic wells completed into the Niobrara aquifer that do not require a water right/permit, so the withdrawal amount from those wells is unknown (Water Rights, 2021d). 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 Niobrara aquifer is the uppermost aquifer available; it is likely some domestic users may have transitioned to rural water. Therefore, the quantity of water withdrawn by domestic wells is estimated to be negligible to the hydrologic budget for this erosional remnant of the Niobrara aquifer.

Additional pumping from this remnant of the Niobrara aquifer could induce more recharge from the Lower James Missouri: Scotland aquifer and potentially other aquifers, and the pumping would capture natural discharge that would be going to other aquifers and the Missouri River. There is no evidence of a significant decrease in artesian head pressure for wells completed into this remnant of the Niobrara aquifer even though irrigation development has increased in recent years (Water Rights, 2021a, 2021b, and 2021c). This indicates the increase in irrigation development is not stressing the aquifer. The estimated amount of discharge to the Missouri River from this remnant of the Niobrara aquifer is more than enough to supply existing water rights/permits and the request by Water Permit Application No. 8507-3 if captured. Therefore, there is a reasonable probability there is unappropriated water available from this remnant of the Niobrara aquifer for the proposed appropriation.

POTENTIAL FOR UNLAWFUL IMPAIRMENT OF EXISTING WATER RIGHTS:

Currently, there are 13 water rights/permits authorized to appropriate water from this remnant of the Niobrara aquifer (Water Rights, 2021c). The closest water right/permit to proposed diversion point is Water Right No. 8053-3, which is held by Blane Nagel. The diversion point for Water Right No. 8053-3 is located approximately 1.6 miles east of the proposed diversion point for this application (Figure 5) (Table 3) (Water Rights, 2021c).

There are domestic wells on file with the DANR-Water Rights Program that are completed into the Niobrara aquifer, with the closest domestic well on file (not held by the applicant) approximately 0.7 miles northwest of the proposed diversion point (Water Rights, 2021d). There are potentially other domestic wells completed into the Niobrara aquifer near the proposed diversion point that are not on file with the DANR-Water Rights Program.

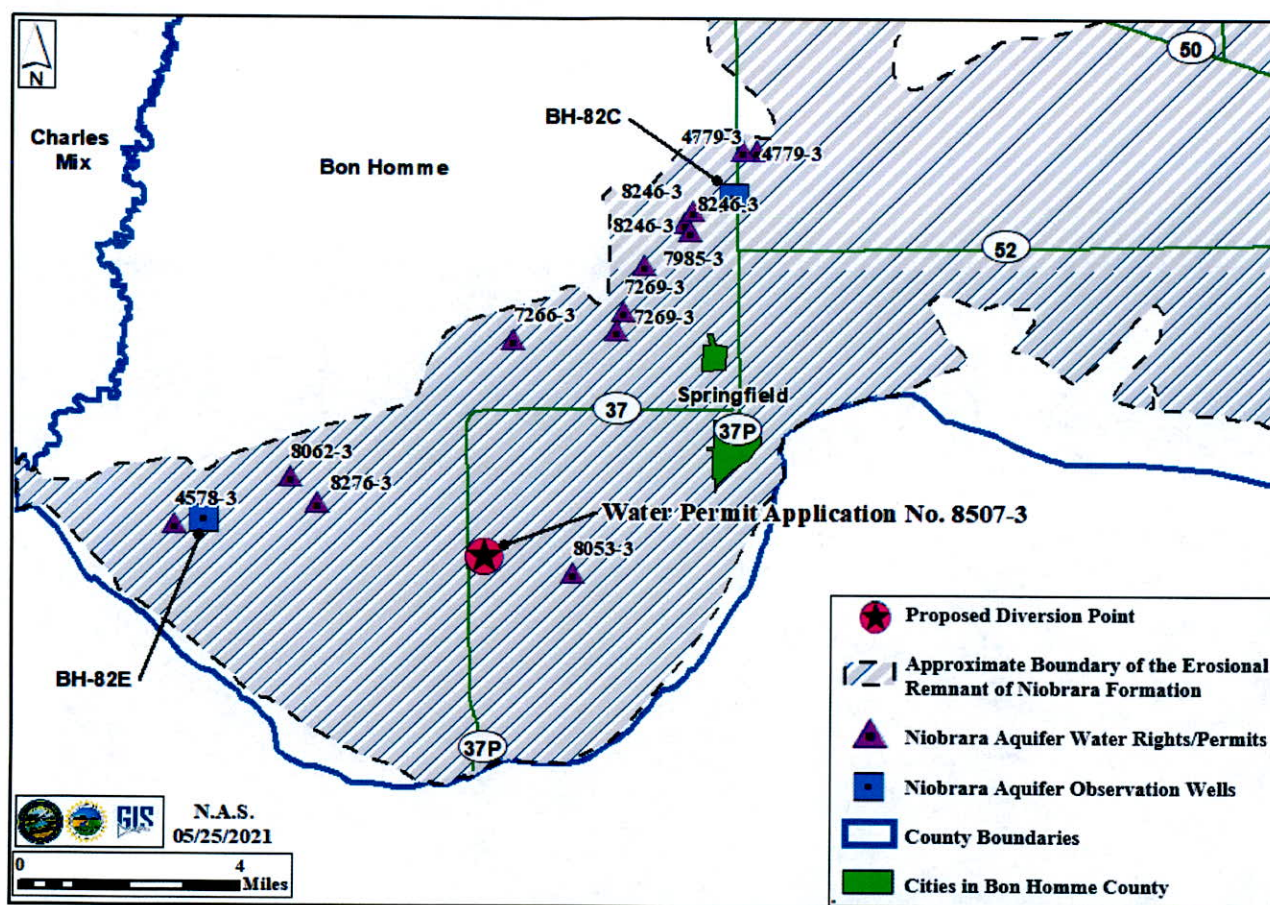


Figure 5. Location of the proposed diversion point for Water Permit Application No. 8507-3, the water rights/permits and observation wells completed into this remnant of the Niobrara aquifer within approximately fifteen miles of the well site (Water Rights, 2021b and 2021c)

Table 3. Water rights/permits and observation wells completed into this remnant of the Niobrara aquifer within approximately fifteen miles of the well site, as shown in Figure 5 (Water Rights, 2021c)

Permit No.	Name	County	Status	Use	Diversion Rate (cfs)
4578-3	Darlene Nagel Revocable Trust	BH	LC	IRR	1.04
4779-3	Terry Balvin	BH	LC	IRR	3.9
7266-3	Verlyn & Jeremie Jelsma	BH	LC	IRR	1.33
7269-3	Verlyn Jelsma	BH	LC	IRR	1.67
7985-3	William Chenoweth	BH	LC	IRR	0.95
8053-3	Blane Nagel	BH	LC	IRR	1.45
8062-3	Kenneth & Carol Guenther Revocable Trust	BH	LC	IRR	1.67
8246-3	Verlyn Jelsma	BH	LC	IRR	1.78
8276-3	Larry D & Jennifer J Bayer	BH	PE	IRR	1.85
LC: Licensed Water Right; PE: Water Permit; IRR: Irrigation					

In Bon Homme County, the Niobrara aquifer is generally under unconfined conditions with some variation in depth to the top of the aquifer and saturated aquifer thickness (Jorgensen, 1971; SDGS, 2021; Water Rights, 2021b, 2021c and 2021d). This remnant of the Niobrara aquifer is expected to be unconfined near the well location the applicant proposes to use based on the well completion reports for nearby wells and lithologic logs on file for nearby observation wells (SDGS, 2021; Water Rights, 2021b and 2021d). 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.

Within five miles of the proposed diversion point, this remnant of the Niobrara aquifer is expected have a saturated aquifer thickness ranging from approximately 90 to 150 feet and a static water level ranging from approximately 15 to 150 feet below the ground surface (SDGS, 2021; Water Rights, 2021b and 2021d). 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 because of the proposed diversion is not expected to unlawfully impair nearby adequate wells. In Bon Homme County, there has been one complaint filed with the DANR-Water Rights Program regarding well interference in a basal aquifer identified as the Choteau: West aquifer; however, after an investigation, the complaint was determined to be unsubstantiated (Water Rights, 2021e).

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.”

When considering the saturated aquifer thickness near the well location the applicant proposes to use, and the lack of well interference complaints for adequate wells completed into this remnant of the Niobrara aquifer in Bon Homme County, any drawdown by the proposed diversion is not expected to unlawfully impair existing water right/permit holders or domestic users with adequate wells.

CONCLUSIONS:

1. Water Permit Application No. 8507-3 proposes to irrigate 140 acres from one well at a maximum instantaneous diversion rate of 1.78 cfs to be completed into the Niobrara aquifer (approximately 275 feet deep). The site of interest is in Bon Homme County approximately five miles southwest of Springfield, South Dakota.
2. Based on the observation well data and hydrologic budget, there is a reasonable probability that unappropriated water is available from the erosional remnant of the Niobrara aquifer to supply the proposed appropriation.
3. There is a reasonable probability that the proposed diversion by Water Permit Application No. 8507-3 will not unlawfully impair adequate wells for existing water right/permit holders and domestic users.

Nakaila Steen

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

Reviewed by:

Adam Mathiowetz

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

References

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- Water Rights, 2021d. Well Completion Reports, SD DANR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2021e. County Files, SD DANR-Water Rights Program, Joe Foss Bldg, Pierre, SD.

Affidavit of Publication

RECEIVED

JUN 14 2021

WATER RIGHTS
PROGRAM

State of South Dakota }
County of Bon Homme } SS

Rebecca Tyndall Being first duly sworn
says that the **Tyndall Tribune & Register** is a legal
weekly newspaper for publication of legal and other official
notices as required by Chapter 298 of the Session
Laws of South Dakota, 1939; that it has bona fide paid
circulation of more than two hundred copies weekly;
that it is published in English language in the City of
Tyndall, Bon Homme County, South Dakota, and has
been admitted to the United States mail under second
class mailing privilege for more than one year prior to
the first publication of the notice herein mentioned, and
that it is printed in an office maintained at the place of
publication at Tyndall, South Dakota, and that deponent
is the publisher in charge of the advertising department
of said newspaper; that the advertisement headed

Not. of Application

8507-3 Appropriation of
49 @ 38 Water.

a printed copy of which is hereto attached, was printed
and published in said newspaper for *one* successive
weeks, upon the following dates:

<i>June 9, 2021</i>	20.....
.....20.....	20.....
.....20.....	20.....
.....20.....	20.....

That the full amount of the fee charged for the publica-
tion of said notice, *\$26.22*, inures to the benefit
of the publisher of said newspaper, that no agreement or
understanding for the division thereof has been made
with any other person, and that no part has been agreed
to be paid to any person whomsoever.

Rebecca Tyndall, Publisher
Subscribed and sworn to before me this
9 day of *June* 2021.
Reggie Schelke
Notary Public, South Dakota

My commission expires: 10-24-2021

**NOTICE OF APPLICATION
NO. 8507-3 to Appropriate Water**

Notice is given that Craig Vanderlei, 40908 312th St, Springfield SD 57062 has filed an application for a water permit to appropriate 1.78 cubic feet of water per second from one well to be completed into the Niobrara Aquifer (approximately 275 feet deep) located in the center of the SW 1/4 Section 31 for irrigation of 140 acres located in the SW 1/4 Section 31; all in T93N-R60W. This site is located approximately 5 miles southwest of Springfield SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8507-3 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 June 21, 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 an approximate cost of \$26.22

(June 9)

AFFIDAVIT OF PUBLICATION

YANKTON DAILY PRESS AND DAKOTAN

RECEIVED

JUN 14 2021

WATER RIGHTS
PROGRAM

CRAIG VANDERLEI
40908 312TH ST
SPRINGFIELD SD 57062

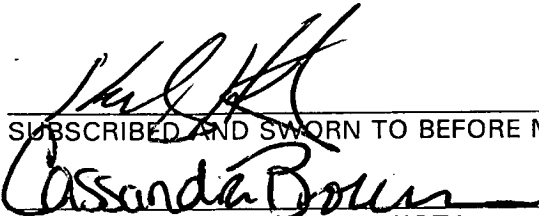
STATE OF SOUTH DAKOTA
COUNTY OF YANKTON

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
6+9 NOTICE OF APPLICATION

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE
NEWSPAPER ON THE 9th DAY OF June, 2021
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION
OF SAID NOTICE TO WIT, \$23.72 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: 06/09/2021

FILED ON: 06/09/2021


SUBSCRIBED AND SWORN TO BEFORE ME THIS 9th DAY OF June, 2021

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

Ad text : 6+9

NOTICE OF APPLICATION

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Published once at the total approximate cost of \$23.72

Schlaak, Karen

From: Schlaak, Karen
Sent: Wednesday, June 2, 2021 12:53 PM
To: tyndalltribune@gmail.com
Subject: FW: 8507-3, Craig Vanderlei
Attachments: FORM8.FRM.doc; 8507-3public.short.docx

Please disregard the attachment on my first email and use this notice. There was a correction in the mailing address in the first paragraph.

Craig Vanderlei, 40908 312th St, Springfield SD 57062

Thank you.
Karen

From: Schlaak, Karen
Sent: Wednesday, June 2, 2021 8:47 AM
To: tyndalltribune@gmail.com
Subject: 8507-3, Craig Vanderlei

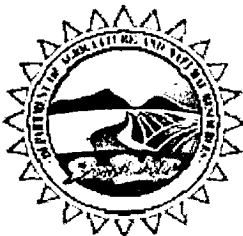
Attached is a notice to be published on June 9, 2021.

Craig Vanderlei, 48908 312th St, Springfield SD 57062 (605 661-2618) 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
DANR - Water Rights Program
(605) 773-3352
Website: <https://danr.sd.gov>



Schlaak, Karen

From: Schlaak, Karen
Sent: Wednesday, June 2, 2021 8:48 AM
To: Jackie Lammers (jackie.lammers@yankton.net)
Subject: 8507-3, Craig Vanderlei
Attachments: 8507-3public.short.docx; FORM8.FRM.doc

Attached is a notice to be published on June 9, 2021.

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Karen Schlaak

DANR - Water Rights Program
(605) 773-3352
Website: <https://danr.sd.gov>





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

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

June 2, 2021

Craig Vanderlei
40908 312th St
Springfield SD 57062

Dear Mr. Vanderlei:

Water Permit Application No. 8507-3 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 Tyndall Tribune & Register printed at Tyndall SD (Ph # 605 589-3242) and the 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. 8507-3 to Appropriate Water

Notice is given that Craig Vanderlei, 40908 312th St, Springfield SD 57062 has filed an application for a water permit to appropriate 1.78 cubic feet of water per second from one well to be completed into the Niobrara Aquifer (approximately 275 feet deep) located in the center of the SW 1/4 Section 31 for irrigation of 140 acres located in the SW 1/4 Section 31; all in T93N-R60W. This site is located approximately 5 miles southwest of Springfield SD.

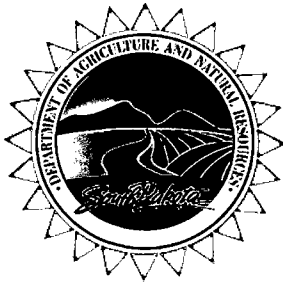
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Published once at the total approximate cost of _



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

JUL 06 2021

Craig Vanderlei
40908 312th St
Springfield SD 57062

Dear Mr. Vanderlei:

Enclosed is Water Permit No. 8507-3 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,

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

enclosures

RECEIVED

8507-3

DEC 16 2021

WATER RIGHTS
PROGRAMNOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USEDate 12-14-2021TO: Water Rights Program, DANR
523 E. Capitol
Pierre, SD 57501-3181FROM: Craig Vanderhei
(name)
40908 312th St
(address)
Springfield SD 57062 605-661-2618
(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. 8507-3 states that the water use system is to be constructed by 6/21/24, and water is to be put to beneficial use by 6/21/2030.
(date) (date)

The water use system was completed on 6-24-2021.
(date)

Applying the water to beneficial use was completed on 6-28-2021.
(date)

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

Craig Vanderhei
(signature)





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

December 20, 2021

8507-3

Craig Vanderlei
40908 312th St
Springfield SD 57062

Dear Mr. Vanderlei:

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.

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.

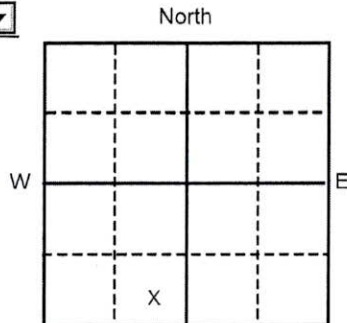
Sincerely,

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

8507-3

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SW 1/4 SW 1/4 Sec 31 Twp 93N Rg 60WCounty BON HOMME ☒Please mark well
location with an "X"

Well Completion Date

3/12/2021

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
3500 ft. from SEPTIC TANK (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

MUD ROTARY/AIR WITH FOAM

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	12 IN	0 FT	240 FT	18 IN
LB/FT	IN	240 FT	279 FT	9 7/8 IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
GROUT WELL	60	9.5 Lb/gal	0 Ft	240 Ft
DP		Lb/gal	Ft	Ft

Describe grouting procedure

TREMIE METHOD

SCREEN:

☐ Perforated pipe ☐ Manufactured

Diameter _____ Inches Length _____ Feet

Material _____

Slot Size _____ Set From _____ Feet to _____ Feet

Other information 240' - 279' OPEN HOLEWAS 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 TABLETS
☐ No, Why Not?
 Lab to which water
 quality sample sent for analysis
Well Owner: CRAIG VANDERLEI

Business Name:

Address: 40908 312TH STCity, State, Zip: SPRINGFIELD ☒ SD ☒ 57062

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
TOP SOIL	0	3
BROWN SILTY CLAY	3	34
BLUE SILTY CLAY - STICKY	34	70
BLUE SANDY CLAY	70	135
FINE SAND	135	220
FINE TO MEDIUM SAND	220	235
GRAY CHALK	235	279

STATIC WATER LEVEL 206.16 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:☐ Bailed☐ Other

Pumping Level Below Land Surface

211 Ft. After 1 Hrs. pumped 1000 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: 800 Grundfos GPM

REMARKS

ELEVATION 1488'LAT 42° 32.65' NLONG -97° 59' 9.70" W

WATER PERMIT #8507-3

This well was drilled under license # 810 and this report is true and accurate.Drilling firm: HEINE ELECTRIC & IRRIGATION, INC.

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

RECEIVED

Date:

FEB 06 2023

OFFICE OF
WATER



8507-3

**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**
JOE FOSS BUILDING
523 E. CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

JUN 16 2023

Craig Vanderlei
40908 312th St
Springfield SD 57062

8507-3

Dear Mr. Vanderlei:

Enclosed is Water License No. 8507-3. 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

STATE OF SOUTH DAKOTA
WATER LICENSE NO. 8507-3

(1) Craig Vanderlei; 40908 312th St, Springfield SD 57062, made Application No. 8507-3, April 12, 2021, for a water permit to divert 1.78 cubic feet of water per second from groundwater, one well (Niobrara Aquifer), Bon Homme County, South Dakota for irrigation purposes. Permit No. 8507-3, with a priority date of April 12, 2021, was approved June 21, 2021, and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before June 21, 2026, and for the application to beneficial use of water on or before June 21, 2030.

(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 1.78 cubic feet of water per second for beneficial use. The location of the diversion point is:

- 1,360 ft E & 1,340 ft N of the SW corner of Section 31, T93N, R60W (NW $\frac{1}{4}$ SW $\frac{1}{4}$)
(Latitude 42.82584 Longitude -97.98606)

(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:

Section 31, T93N, R60W	
NW $\frac{1}{4}$ SW $\frac{1}{4}$	32.0 acres
NE $\frac{1}{4}$ SW $\frac{1}{4}$	34.0 acres
SW $\frac{1}{4}$ SW $\frac{1}{4}$	32.0 acres
SE $\frac{1}{4}$ SW $\frac{1}{4}$	34.0 acres
TOTAL: 132.0 acres	

(4) Pursuant to South Dakota Water Law 46-5-30.1 Craig Vanderlei, the holder and/or owner of Water Right No. 8507-3 is issued a license to appropriate water, the right to use 1.78 cubic feet of water per second from groundwater, one well (Niobrara Aquifer) with a priority date of April 12, 2021, 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. 8507-3 and subject to the following qualifications:

1. The well approved under this water right will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this water right shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The well authorized by Permit No. 8507-3 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. *(The well was drilled by Heine Electric & Irrigation, Inc. in 2021. A copy of the well completion report is on file with the Water Rights Program.)*

continued

3. 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 16 2023

date



**Report of Examination of Works and/or Application of Water to Beneficial Use
For Permit No. 8507-3**

I have this day, June 15, 2022, made a thorough examination of the water use system owned by Craig Vanderlei, 40908 312th St., Springfield, SD 57062, holder of Permit No. 8507-3, bearing the priority date of April 12, 2021, authorizing the diversion of 1.78 cu. ft. per second of the waters of groundwater, Niobrara Aquifer for the irrigation of 140 acres, located in Bon Homme County.

Inspection contact: Craig Vanderlei

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: Heine Electric & Irrigation, Inc.
- 2) No. of Wells: 1
- 3) Depth(s): 279 feet
- 4) Well log is available: Yes

Casing:

- 1) Diameter: 12 inches
- 2) Length: 240 feet
- 3) Type: Plastic

Screen:

- 1) Diameter: Open hole
- 2) Length: 39 feet
- 3) Type: None
- 4) Static water level: 206 feet

Pump:

- 1) Make: Grundfos
- 2) Model: 800S100-4A
- 3) Capacity: 800 gpm

Motor:

- 1) Make: Wilo
- 2) Model No.: 304S2763397
- 3) Horsepower rating: 100 hp

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

- 1) Type: PVC Size: 8 inches Length: 100 feet

C. Works used to apply water to beneficial use:

North Center Pivot:

- 1) Make: T&L
- 2) Overall length: 1,294 feet
- 3) Number of towers: 8
- 4) End gun: Yes
- 5) Capacity: 800 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: Yes
- 6) Interlock type: Electrical
- 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: None

E. Condition and Location:

- 1) The system is in good condition with the point(s) of diversion located as follows:
The well is 1,360 feet east and 1,340 feet north of the southwest corner of Section 31-T93N-R60W
Latitude 42.82584, Longitude -97.98606 – (NW ¼ SW ¼).
- 2) The works are capable of diverting and conveying to the place of use 1.78 cu. ft. per second of water which is to be used for irrigation purposes. Water has been put to beneficial use to the maximum extent as follows:
All in:

<u>Section 31-T93N-R60W</u>	
<u>NW ¼ SW ¼</u>	<u>32 acres</u>
<u>NE ¼ SW ¼</u>	<u>34 acres</u>
<u>SW ¼ SW ¼</u>	<u>32 acres</u>
<u>SE ¼ SW ¼</u>	<u>34 acres</u>

comprising a total of 132 acres of land and the license should be issued for 1.78 cfs.
- 3) All structures, wells and lands on map: Yes

F. Comments or other permit(s) associated with the project: None.

Keith DeJong

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

Date report completed: June 6, 2023

Water Right No. 8507-3



Keith DeJong
Keith DeJong, PE Ret.
Staff Engineer
June 6, 2023

8507-3

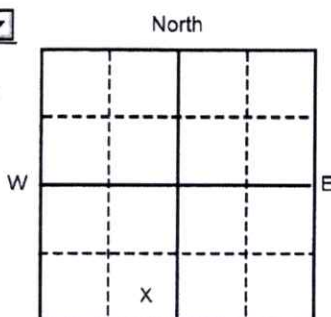
SD EForm - 1621LD V1

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SW 1/4 SW 1/4 Sec 31 Twp 93N Rg 60WCounty BON HOMME ☒

Please mark well location with an "X"



Well Completion Date

3/12/2021

1 Mile

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

3500 ft. from SEPTIC TANK (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

MUD ROTARY/AIR WITH FOAM

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	12 IN	0 FT	240 FT	18 IN
LB/FT	IN	240 FT	279 FT	9 7/8 IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
GROUT WELL 60	9.5	Lb/gal	0 Ft	240 Ft
DF		Lb/gal	Ft	Ft

Describe grouting procedure

TREMIE METHOD

SCREEN:

☐ Perforated pipe ☐ Manufactured

Diameter _____ Inches Length _____ Feet

Material _____

Slot Size _____ Set From _____ Feet to _____ Feet

Other information 240' - 279' OPEN HOLE

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 TABLETS
☐ No, Why Not?

Lab to which water quality sample sent for analysis

Well Owner: CRAIG VANDERLEI

Business Name:

Address: 40908 312TH STCity, State, Zip: SPRINGFIELD ☒ SD ☒ 57062

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Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

RECEIVED

Date:

FEB 06 2023

OFFICE OF
WATER