

WATER PERMIT NO. 8561-3

Name of Applicant: **Blane Nagel**

Address: **31196 412th Ave, Springfield SD 57062**

Phone: **605 464-1187**

Amount of Water Claimed: **1.33 cfs**

Total Acres: **65 acres**

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

Water to be used for: **irrigation**

County: **Bon Homme**

Type of Waste Disposal System:

Location: **2 1/2 miles west of Springfield**

PRIORITY

Date Received: **11-15-21**

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

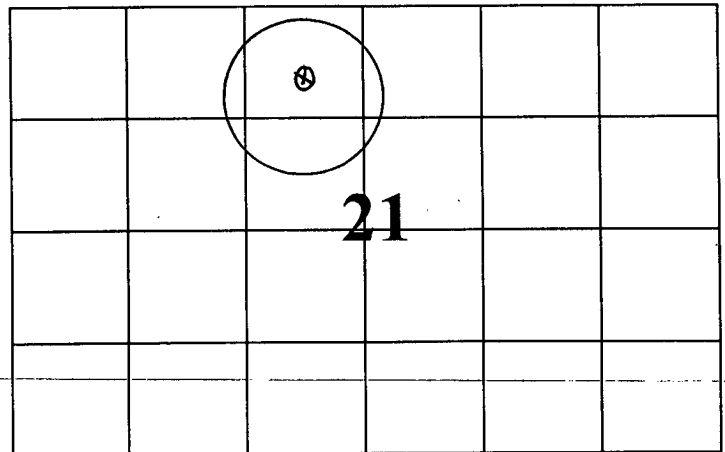
Corrected Application Received:

Period of Annual Use: **May 1 – September 30**

Remarks: **Requesting diversion rate greater than statutory limit**

Diversion Point: **NE1/4 NW 1/4 Sec 21-T93N-R60W**

Land to be Irrigated: **NW 1/4, W 1/2 NE 1/4 Sec 21-T93N-R60W**



Depth of Well: **140 feet deep**

Well Driller:

Remarks:

Type of Map: **aerial**

Prepared by:

Reviewed and the Number Assigned on: **11-15-21**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

**SOUTH DAKOTA
WATER PERMIT NO. 8561-3**

Date of first receipt of application November 15, 2021.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8561-3 to Blane Nagel, 31196 412th Ave, 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. 8561-3 appropriates 1.11 cubic feet of water per second (cfs) from one well to be completed into the Niobrara Aquifer (approximately 140 feet deep) located in the NE 1/4 NW 1/4 Section 21 for irrigation of 65 acres located in the NW 1/4, W 1/2 NE 1/4 Section 21; all in T93N-R60W. This site is located approximately 2 1/2 miles west 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 – September 30.
3. The date from which applicant may claim right is November 15, 2021.
4. The date of approval of Permit No. 8561-3 is January 31, 2022.
5. One-fifth of the construction is to be completed on or before July 31, 2024.
6. All construction is to be completed on or before January 31, 2027.
7. Water is to be put to beneficial use on or before January 31, 2031.
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. 8561-3 is located near domestic wells and other wells which may obtain water from the same aquifer. Water withdrawals under this Permit shall be controlled 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. 8561-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Permit No. 8561-3 authorizes a maximum diversion rate of 1.11 cfs for the irrigation of 65 acres with an annual volume not to exceed 2 acre feet of water per acre per year.
4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

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

MAR 30 2022
date



NOV 15 2021

Mail to: DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8561-3</u>	(office use only) Hydrologic Unit <u>10170101</u>	WATER RIGHTS PROGRAM
	Basin <u>Miss R</u>		
	Newspaper <u>Springfield Times</u>		
	<u>Press & Dakotan</u>		

PAID
NOV 15 2021
Ck# 6784

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 Blane Nagel

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

Mailing Address 31196 41st Ave Springfield SD 57062
(Address) (City) (State) (Zip Code)

Phone - Mobile 605-464-1187 Email -

2. Amount of water claimed 1.11 *CFS or 500 600 **GPM --- ***AF Total Acreage 65
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply Well

4. Location of point of diversion NW 1/4 of T-93-N R-60-W Section 21
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)
Springfield Township (NE 1/4 NW 1/4) County Bon Homme

5. County or counties where water will be used Bon Homme

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

7. List below each forty acre division, or lot, or fraction thereof and show number of acres to be irrigated in each.
(Attach sheet if more space is needed)

Land Description	Acres	Land Description	Acres
Sec 21 NW 1/4	55		
Sec 21 NE 1/4	10		
W 1/2			
all in T93N-R60W			

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

Well and T-L irrigation pivot
provided by Christensen Well + irrigation
of Hartington, NE. Check with FSA/soil conservation
office for ground determination (wetlands) or was
O.K.

I, Blane Nagel 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.

(type or print)

(check one or both as applicable)

☐ Using existing well(s)

b) If existing wells, how many ____ Provide copy of log(s), if available. Drilled by _____

c) Well Depth (required) 148' Depth to Top of Water Bearing Material _____ Depth to Water from Surface _____

d) Distance to nearest domestic well on applicant's property 1/2 mile Property owned by others no

a) Type of System (i.e. septic tank, drain field)

b) System Capacity (gallons) _____ Year Constructed _____

c) Connected to the City of Sanitary System

a) Surface Dimensions Depth

b) Depth to water (ground surface to water level)

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.

[illegible]

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)

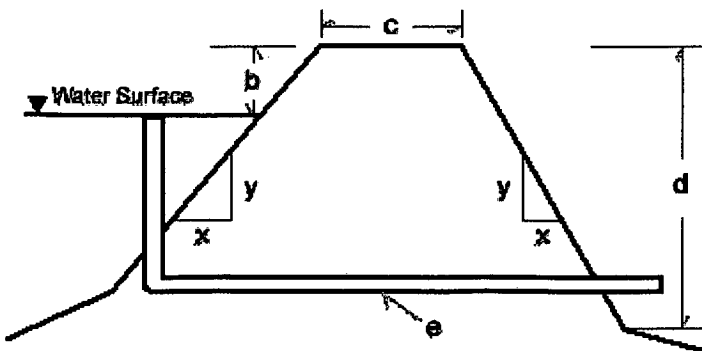
Upstream

Downstream

h) Surface Area of Impoundment

i) Storage	Acre Feet
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j) Drainage Area Above Dam	Acres
1	100
2	200
3	300
4	400
5	500
6	600
7	700
8	800
9	900
10	1000
11	1100
12	1200
13	1300
14	1400
15	1500
16	1600
17	1700
18	1800
19	1900
20	2000
21	2100
22	2200
23	2300
24	2400
25	2500
26	2600
27	2700
28	2800
29	2900
30	3000
31	3100
32	3200
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62	6200
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67	6700
68	6800
69	6900
70	7000
71	7100
72	7200
73	7300
74	7400
75	7500
76	7600
77	7700
78	7800
79	7900
80	8000
81	8100
82	8200
83	8300
84	8400
85	8500
86	8600
87	8700
88	8800
89	8900
90	9000
91	9100
92	9200
93	9300
94	9400
95	9500
96	9600
97	9700
98	9800
99	9900
100	10000



42 51 45.00
- 97 56 34.95

T-93-N R-60-W
Sec. 21
Springfield Township
NW Quarter and part
of NE Quarter



Blane Nagel 605-464-1187
31196 412nd Ave
Springfield, SD 57062

93N 60W
Section: 17

93N 60W
Section: 16

93N 60W
Section: 15

93N 60W
Section: 20

93N 60W
Section: 21

93N 60W
Section: 22

93N 60W
Section: 29

93N 60W
Section: 28

93N 60W
Section: 27



RECEIPT

WATER RIGHTS PROGRAM South Dakota Department of Agriculture and Natural Resources

Date November 15, 2021

RECEIVED OF Blane Nagel 31196 412th Avenue Springfield SD 57062

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

Fee for Application for Permit No. <u>8561-3</u> to Appropriate Water, to construct and to put water to beneficial use	\$ <u>500.00</u>
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>8561-3</u>	\$ <u>200.00</u>
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	\$ <u>700.00</u>

By Eric Gronlund
Chief Engineer
Em

WATER RIGHTS PROGRAM -- FILE DOCUMENTATION

NAME: Blane Nagel

ADDRESS: 31196 412th Ave, Springfield SD 57062

DATE: January 5, 2022

RE: Requested pump rate on Application No. 8561-3

COMMENTS:

I contacted Blane Nagel concerning the 600 gallons per minute diversion rate specified on Water Permit Application No. 8561-3. I informed Mr. Nagel that the diversion rate exceeded the statutory limit of 1 cubic foot of water per second per 70 acres and that it was possible to exceed that limit but justification was needed to do so. Mr. Nagel contacted Casey Christensen, his well driller and was informed the 65-acre center pivot could operate properly on 500 gpm and that less than that would not be ideal. I informed Mr. Nagel I would modify the application to reflect 500 gpm with his permission. Mr. Nagel agreed to the change.



Ron Duvall
Water Rights Permitting Administrator
Water Rights Program



**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. 8561-3, Blane Nagel**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Agriculture and Natural Resources concerning Water Permit Application No. 8561-3, Blane Nagel, 31196 412th Ave, Springfield SD 57062.

The Chief Engineer is recommending APPROVAL of Application No. 8561-3 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 domestic water uses and water rights, 3) the proposed use is a beneficial use and 4) it is in the public interest as it pertains to matters of public interest within the regulatory authority of the Water Management Board with the following qualifications:

1. The well approved under Water Permit No. 8561-3 is located near domestic wells and other wells which may obtain water from the same aquifer. Water withdrawals under this Permit shall be controlled 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. 8561-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
- 3. Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Permit No. 8561-3 authorizes a maximum diversion rate of 1.11 cfs for the irrigation of 65 acres with an annual volume not to exceed 2 acre feet of water per acre per year.
4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.

Eric Gronlund, Chief Engineer
January 5, 2022

Report to the Chief Engineer
On Water Permit Application No. 8561-3

Blane Nagel

December 27, 2021

Water Permit Application No. 8561-3 proposes to appropriate water at a maximum instantaneous diversion rate of 1.11 cubic feet per second (cfs) from one well to be completed into the Niobrara aquifer (approximately 140 feet deep) located in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 21 for the irrigation of 65 acres located in the NW $\frac{1}{4}$, W $\frac{1}{2}$ NE $\frac{1}{4}$ of Section 21; all in T93N-R60W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. The site is located in Bon Homme County approximately two and one-half miles west of Springfield, SD.

AQUIFER: Niobrara (NBRR)

HYDROGEOLOGY:

The Niobrara aquifer lies within the late Cretaceous aged Niobrara Formation (Johnson and McCormick, 2005). The Niobrara Formation is composed of a medium to dark gray calcareous marl that weathers to a light-yellow in the upper section and a gray chalky limestone that weathers to a white or cream in the lower section of the formation within Bon Homme County (Christensen, 1974). The Niobrara Formation is generally underlain by Carlile Shale and can be overlain by either Pierre Shale or glacial drift deposits (Bugliosi, 1986; Johnson and McCormick, 2005). The Carlile Shale Formation member that the Niobrara Formation overlies is the Codell Sandstone Member (Jorgensen, 1971). While there is an impermeable shale layer between where the Niobrara Formation overlies Codell Sandstone, there is likely leakage between the Niobrara and Codell aquifers where the layer of shale is thin or absent (Jorgensen, 1971). The Niobrara Formation is locally known as "Niobrara Chalk" or "Chalk Rock" as a result of the chalky appearance of the limestone layers within the Formation (Christensen, 1974). The Niobrara Formation is on average 160 feet thick in eastern South Dakota and has a maximum thickness of approximately 200 feet in northwestern Bon Homme County (Christensen, 1974; Johnson and McCormick, 2005). The Niobrara Formation outcrops extensively in Bon Homme County and is exposed in several locations along the Missouri River (Christensen, 1974).

The Niobrara aquifer is generally under artesian conditions; however, the aquifer can be under water table conditions (Bugliosi, 1986). Water table conditions of the Niobrara aquifer usually occur in areas where the aquifer is in hydraulic connection with the overlying Lower James Missouri aquifer (Bugliosi, 1986). The Niobrara aquifer is also in hydraulic connection with the Choteau: West and Chouteau: Tyndall aquifers (Jorgensen, 1971). The direction of groundwater movement in the area of the proposed diversion point is commonly to the south and towards the Missouri River (Bugliosi, 1986). The approximate areal extent of the Niobrara Formation within eastern South Dakota as well as the location of the proposed diversion point is displayed in Figure 1.

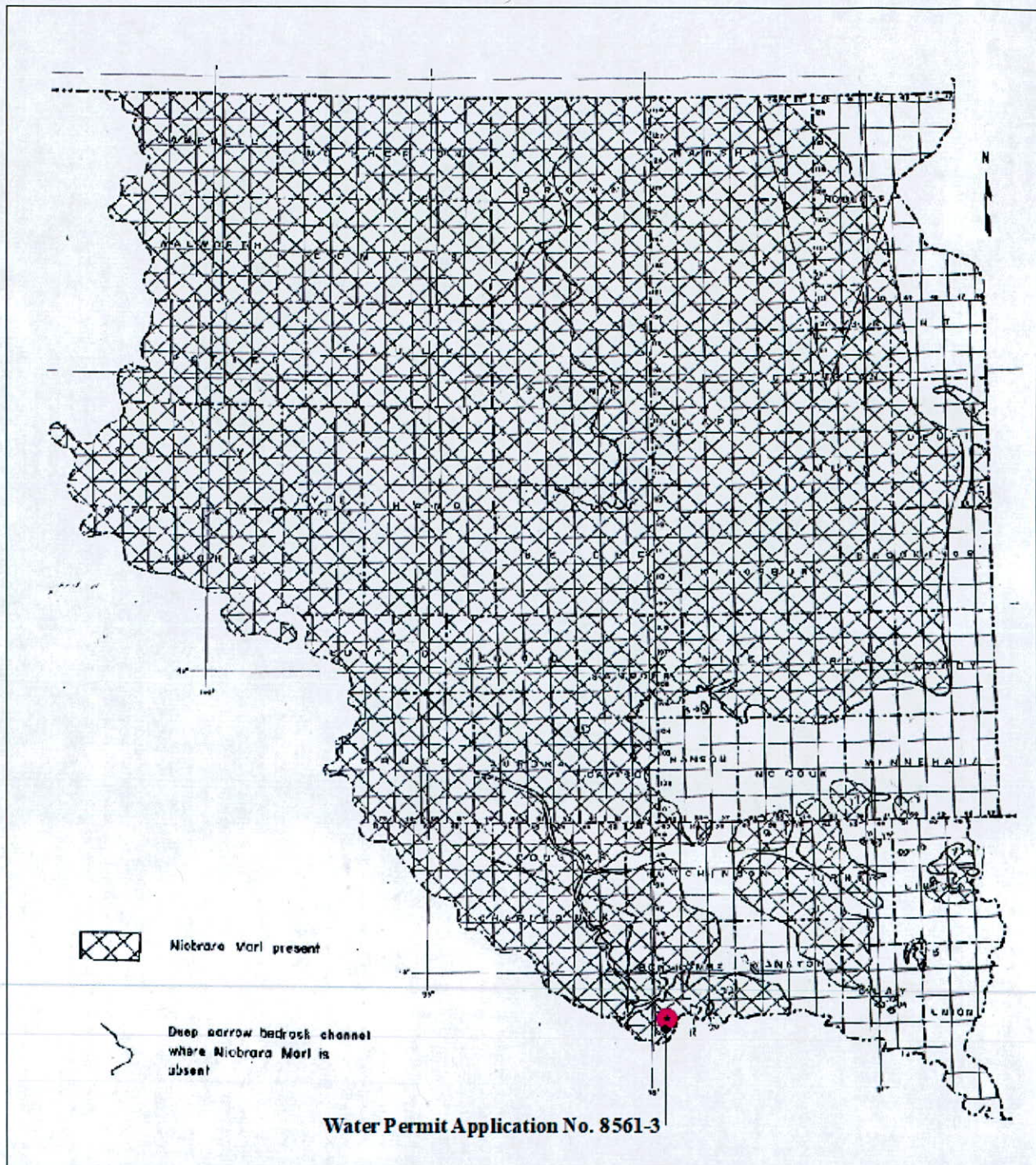


Figure 1: Map of the approximate areal extent of the Niobrara Formation including the proposed diversion point location of Water Permit Application No. 8561-3 (Modified from Hedges et al., 1982; Water Rights, 2021b and 2021c).

While the Niobrara Formation underlies most counties in eastern South Dakota, the formation is not continuous. The proposed diversion point for Water Permit Application No. 8561-3 lies within an erosional remnant of the Niobrara aquifer that is disconnected from the main body of

the Niobrara Formation. This separation occurred as a result of a combination of sub-erosion and glacial activity and then subsequently being overlain with glacial till (Hedges et al., 1982). The erosional remnant of the Niobrara aquifer where the proposed diversion point would be completed into underlies approximately 180,000 acres in Bon Homme and Yankton Counties which was estimated by Tomhave and Schulz (2004). The approximate areal extent of this erosional remnant of the Niobrara aquifer is displayed in Figure 2 along with the location of the proposed diversion point.

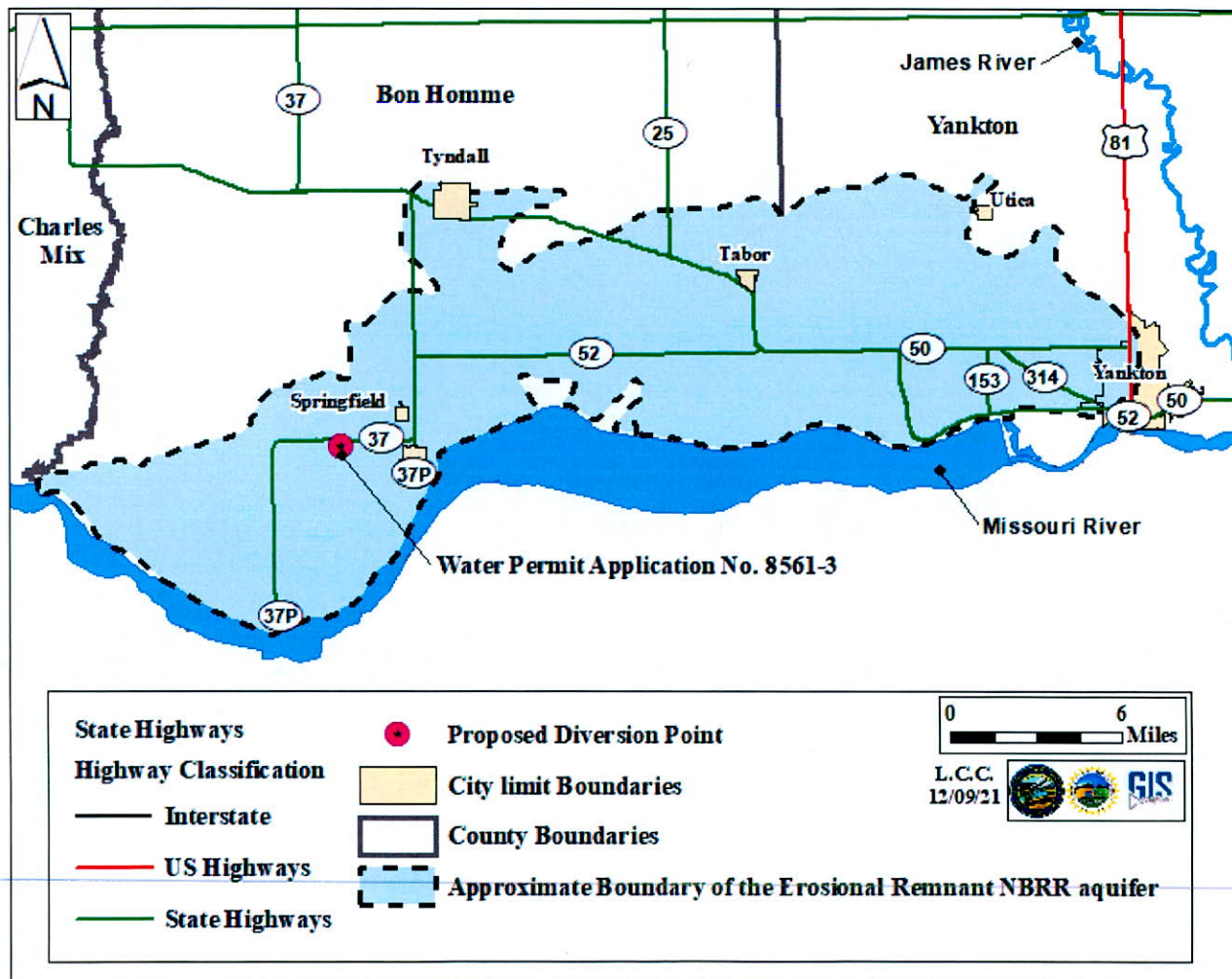


Figure 2: Map of the approximate areal extent of the erosional remnant of the Niobrara aquifer including the proposed diversion point location of Water Permit Application No. 8561-3 (Hedges et al., 1982; Water Rights, 2021b and 2021c).

No well completion report or test hole log was submitted with Water Permit Application No. 8561-3. Well completion reports on file with the DANR-Water Rights Program for wells completed into the Niobrara aquifer within approximately three miles of the proposed diversion point for this application have a saturated thickness ranging from approximately 15 to 196 feet, with the depth to the top of aquifer materials ranging from approximately 15 to 226 feet below land surface, and static water levels at well completion varying from 19 feet to 150 feet below

land surface (SDGS, 2021; Water Rights, 2021b and 2021d). The Niobrara aquifer is expected to be confined at the proposed diversion point based on lithologic logs on file for nearby observation wells and well completion reports for nearby wells (SDGS, 2021; Water Rights 2021b and 2021d).

South Dakota Codified Law (SDCL) 46-5-6

Pursuant to SDCL 46-5-6, the diversion rate for an irrigation appropriation cannot be in excess of 1 cfs for every 70 acres, or “the equivalent thereof.” The statute does provide that: “The Water Management Board may allow a greater diversion, in volume or rate or both, if the method of irrigation, any time constraints on diversion of water, or the type of soil so requires....” Water Permit Application No. 8561-3 proposes to divert water at a maximum rate of 1.11 cfs for the irrigation of 65 acres or at a rate of 1.20 cfs per 70 acres. The applicant is requesting a diversion rate greater than the statutory limit due to the irrigation method to be used. The center pivot to be used requires a greater diversion rate to operate properly. The request by the applicant is reasonable and has been historically accepted as a valid reason for exceeding the statutory limitation by the Water Rights Program and the Water Management Board.

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 domestic water uses and water rights, and that the proposed use is a beneficial use and in the public interest as it pertains to matters of public interest within the regulatory authority of the Water Management Board as defined by SDCL 46-2-9 and 46-2-11.” This report will address the availability of unappropriated water and the potential for unlawful impairment of existing domestic water uses and water rights within the Niobrara aquifer.

WATER AVAILABILITY:

Water Permit Application No. 8561-3 proposes to appropriate water from the Niobrara aquifer for irrigation. 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. However, an application may be approved for a water distribution system 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.” The Niobrara aquifer is not older than or stratigraphically lower than the Greenhorn Formation (Fahrenbach et al, 2010), 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.

HYDROLOGIC BUDGET:

Recharge

Recharge to the Niobrara aquifer is generally through precipitation infiltration through the overlying glacial deposits or where the aquifer is at or near land surface and subsurface inflow in Bon Homme County (Bugliosi, 1986; Jorgensen, 1971). Another source of recharge to the Niobrara aquifer is leakage from the Lower James Missouri: Scotland and Choteau: West aquifers (Bugliosi, 1986; Water Rights, 2021b). The recharge from the Lower James Missouri: Scotland and Choteau: West is likely minimal since this recharge would only occur in certain areas of the aquifer (Bugliosi, 1986).

The recharge rate has yet to be quantified for the Niobrara aquifer as well as within the erosional remnant that the proposed diversion point would be completed into. This is likely because of how extensive the Niobrara Formation is and the inconsistency of the porosity of the aquifer (Hedges et al., 1985). The water production from the Niobrara aquifer may be controlled by fractures or solution cavities that are somewhat controlled by flexures and faults (Hedges et al., 1985). This can create unpredictable subsurface conditions within the overall extent of the aquifer (Hedges et al., 1985). However, it should be noted that it is unlikely that the annual withdrawals from the Niobrara aquifer are exceeding the annual recharge to the aquifer as there is currently no evidence of a significant decrease in artesian head pressure within observation wells or water right/permits completed into the aquifer (Hedges et al, 1985; Water Rights, 2021b).

Discharge

Discharge from the Niobrara aquifer is primarily through leakage to the Choteau: Tyndall, Choteau: West, Codell aquifers, discharge to the Missouri River, and from well withdrawals (Bugliosi, 1986; Jorgensen, 1971). Currently, there are 83 water rights/permits authorized to appropriate water from the Niobrara aquifer (Water Rights, 2021c). There are fourteen water rights/permits within the erosional remnant the proposed diversion point would be completed into (Water Rights, 2021c). There are no future use permits reserving water from the Niobrara aquifer presently.

Table 1 summarizes the water rights/permits authorized to appropriate water from the erosional remnant of the Niobrara aquifer with the licensed acres each water right/permit is authorized. For non-irrigation water rights/permits, it is estimated that the water rights/permits limited only by a diversion rate will pump at their maximum permitted diversion rate for 60 percent of the time. One municipal water right (Water Right No. 5356-3) was identified as being connected to a rural water system and maintain its wells for standby purposes (Friedeman, 2020; Water Rights, 2021c); as such, the average annual water use for this water rights has been estimated to be zero acre-feet per year (ac-ft/yr) in Table 1.

Table 1: Water rights/permits authorized to appropriate water within the erosional remnant of the Niobrara aquifer (Water Rights, 2021c).

Permit No.	Name	Use	Status	Diversion Rate (cfs)	Permitted Acres
4578-3	Darlene Nagel Revocable Trust	IRR	LC	1.04	73
4779-3	Terry Balvin	IRR	LC	3.9	287
5356-3	Town of Tabor	MUN	LC	0.4	N/A
5840-3	City of Yankton	IRR	LC	0.43	30
6365-3	City of Yankton	IRR	LC	2.23	99.6
7176-3	Yankton School District 63-3	GEO	LC	0.11	N/A
7266-3	Verlyn & Jeremie Jelsma	IRR	LC	1.33	109
7269-3	Verlyn Jelsma	IRR	LC	1.67	158
7985-3	William Henoweth	IRR	LC	0.95	230
8053-3	Blane Nagel	IRR	LC	1.45	140
8062-3	Kenneth & Carol Guenther Revocable Trust	IRR	LC	1.67	131
8246-3	Verlyn Jelsma	IRR	LC	1.78	293
8276-3	Larry D & Jennifer J Bayer	IRR	PE	1.85	130
8507-3	Craig Vanderlei	IRR	PE	1.78	140
LC: Licensed Water Permit; PE: Permitted Water Permit					
IRR: Irrigation; MUN: Municipal; GEO: Geothermal					

Currently, there are twelve irrigation water rights/permits appropriating water from the erosional remnant of the Niobrara aquifer (Water Rights, 2021c). The reported annual irrigation withdrawals from the erosional remnant of the Niobrara aquifer are shown in Table 2. The average annual withdrawal rate for the erosional remnant of the Niobrara aquifer irrigation water rights/permits that have reported over the period of record is approximately 369.9 ac-ft/yr (Table 2) (Water Rights, 2021a).

Since the number of irrigation water rights/permits has continued to increase over the period of record, the estimated average annual withdrawal rate for irrigation appropriations for the entire period of record may not accurately reflect the current level of development. The average annual withdrawal rate for irrigation appropriations from 2012 to 2020 better represents the current level of irrigation development in the erosional remnant of the Niobrara aquifer. The average annual withdrawal rate for the erosional remnant of the Niobrara aquifer from 2012 to 2020 is approximately 672.6 ac-ft/yr (Table 2) (Water Rights, 2021a). Water Permit No. 8507-3 was approved in 2021 and has yet to report a respective annual withdrawal from the erosional remnant of the Niobrara aquifer. The estimated annual usage (assuming an application rate of 1 ft/ac) for Water Permit No. 8507-3 is 140 ac-ft/yr (Water Rights, 2021c).

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

Year	No. of Permits Reporting	Reported Pumpage (ac-ft)
1981	3	99.7
1982	3	137
1983	4	290.3
1984	4	170
1985	4	171
1986	4	185
1987	4	266
1988	4	315.1
1989	4	324
1990	3	172
1991	3	310
1992	4	187
1993	4	191.6
1994	3	378.1
1995	4	267
1996	4	504.7
1997	4	307
1998	4	270.8
1999	4	258.6
2000	5	352.1
2001	5	373.9
2002	5	494.5
2003	6	548.7
2004	6	349.2
2005	5	330.1
2006	5	284.2
2007	5	295.6
2008	5	365
2009	4	117.6
2010	4	160
2011	4	266.3
2012	8	1364.7
2013	8	612.5
2014	9	616.7
2015	11	766.8
2016	11	851.9
2017	13	1024.9
2018	11	156.6
2019	11	160
2020	11	499.2
MIN	3	99.7
MAX	13	1364.7
AVG	6	369.9
AVG (2012-2020)	10	672.6

There are domestic wells completed into the erosional remnant of the Niobrara aquifer that do not require a water right/permit, so the withdrawal amount from those wells is unknown (Water Rights, 2021d). Withdrawals from domestic wells on an average annual basis are not considered to be a significant portion of the hydrologic budget due to their relatively low diversion rates. 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 the erosional remnant of the Niobrara aquifer.

Hydrologic Budget Summary

The average annual withdrawal rate from the erosional remnant of the Niobrara aquifer totals approximately 785.4 ac-ft/yr (irrigation: 672.6 ac-ft/yr; non-irrigation: 47.8 ac-ft/yr; Water Permit Application No. 8561-3 (if approved) (assuming an application rate of 1 ft/ac): 65 ac-ft/yr (Water Rights 2021a and 2021c). Although the average annual recharge rate to the Niobrara aquifer or the erosional remnant of the Niobrara aquifer in which the proposed diversion point would be completed into has yet to be quantified, it should be noted that there is currently no evidence of any significant decrease in the water levels for observation wells completed into the erosional remnant of the Niobrara aquifer (Water Rights, 2021b). It is unlikely that the withdrawals from the erosional remnant of the Niobrara aquifer is exceeding the recharge to the aquifer. Therefore, there is a reasonable probability that unappropriated water is available for the appropriation proposed by this permit application

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 the aquifer reacts to regional climatic conditions and local pumping. There are two observation wells within approximately seven and one-half miles of the proposed diversion point. Observation well YA-2020A was completed into the erosional remnant of the Niobrara aquifer in 2020, so the period of record is not sufficient for evaluating the balance of recharge and withdrawal in the aquifer. The closest observation well to the diversion point is observation well BH-82C (approximately 5 miles northeast). The hydrographs for the two observation wells are displayed in Figures 3 through 4 (Water Rights, 2021b).

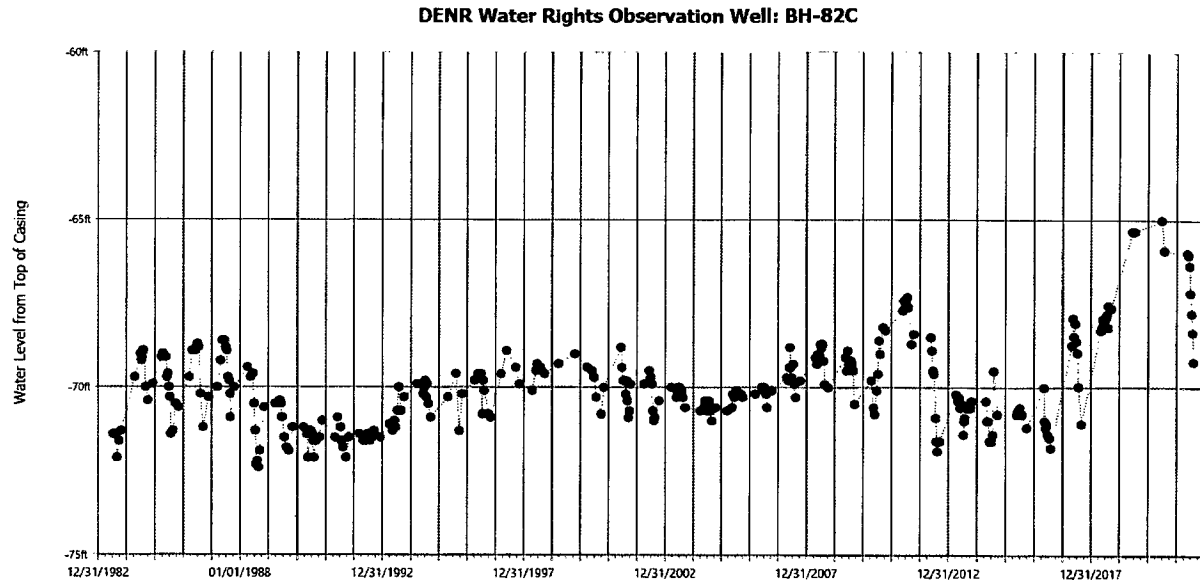


Figure 3: Hydrograph of the erosional remnant of the Niobrara aquifer observation well BH-82C, located approximately 5 miles northeast of the proposed diversion point (Water Rights, 2021b).

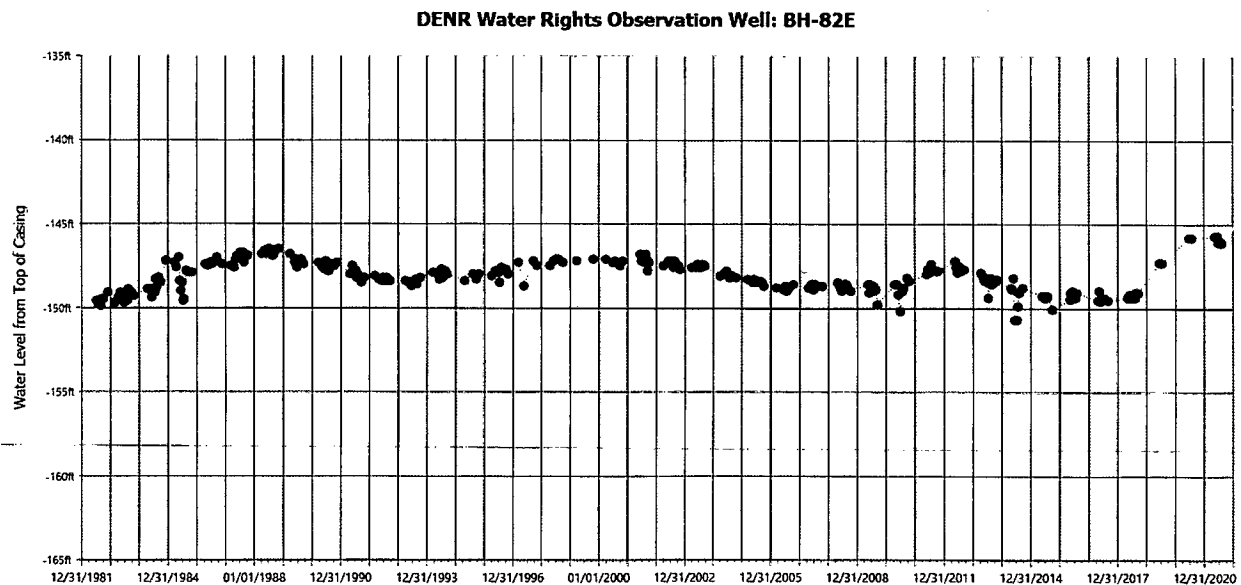


Figure 4: Hydrograph of the erosional remnant of the Niobrara aquifer observation well BH-82E, located approximately 7.5 miles southwest of the proposed diversion point (Water Rights, 2021b).

The hydrographs for the observation wells display stable to increasing water levels over their respective periods of record. The hydrographs for the erosional remnant of the Niobrara 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. This recovery of the aquifer 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 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.

POTENTIAL FOR UNLAWFUL IMPAIRMENT OF EXISTING WATER RIGHTS:

Currently, there are 83 water rights/permits authorized to appropriate water from the Niobrara aquifer (Water Rights, 2021c). There are fourteen water rights/permits authorized to appropriate water from the erosional remnant of the Niobrara aquifer and are within approximately eight miles of the diversion point (Water Rights, 2021c). The fourteen water rights/permits are shown in Figure 5 and identified in Table 1. The nearest water right/permit (not held by the applicant) to the diversion point completed into the same erosional remnant of the Niobrara aquifer is Water Right No. 7269-3 located approximately 1.7 miles northeast of the diversion point.

There are domestic wells on file with the DANR-Water Rights Program that are completed into the erosional remnant of the Niobrara aquifer, with the closest domestic well on file (not held by the applicant) approximately 0.6 miles northeast of the proposed diversion point (Water Rights, 2021d). There could potentially be other domestic wells completed into the erosional remnant of the Niobrara aquifer near the proposed diversion point that are not on file with the DANR-Water Rights Program.

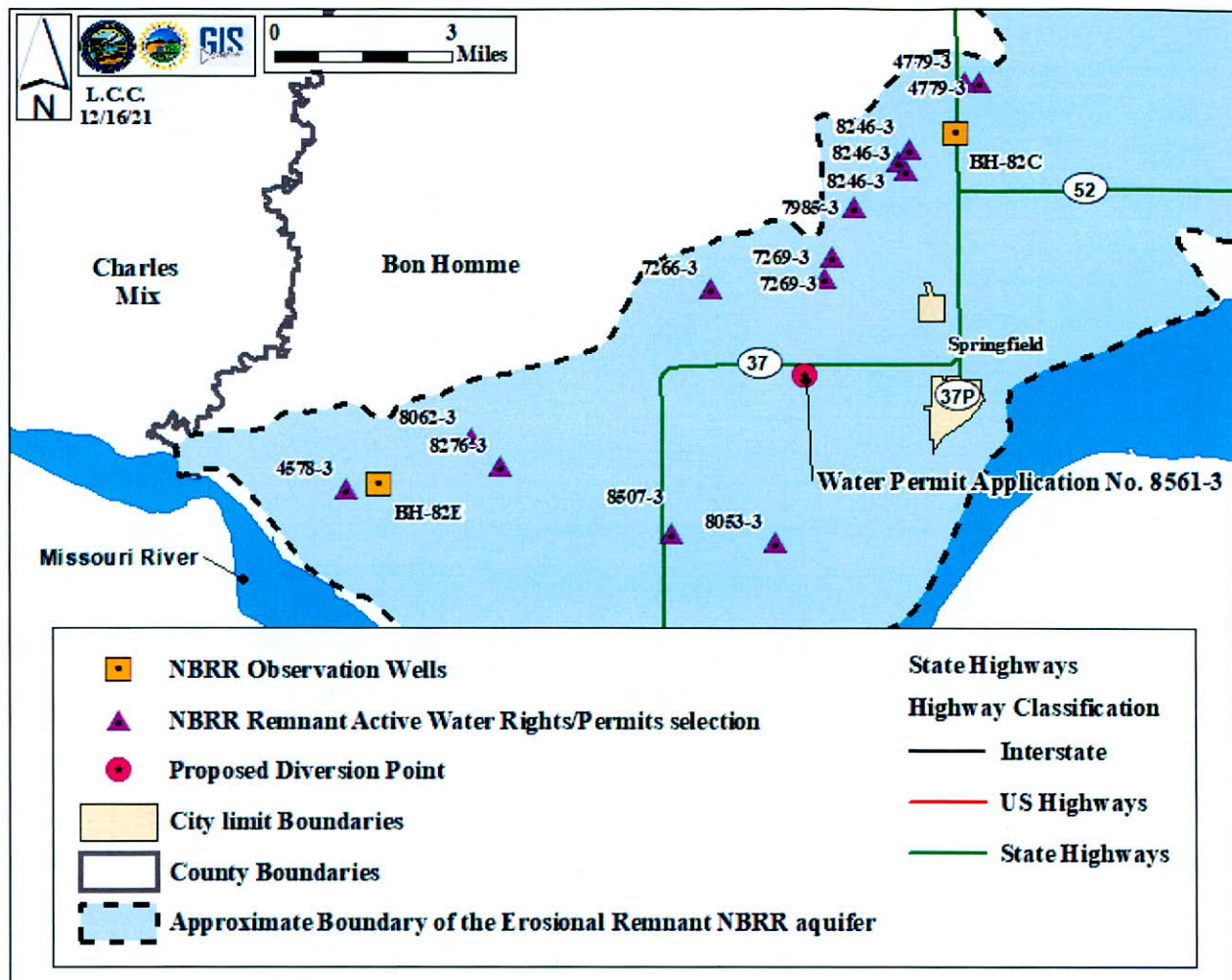


Figure 5: Map of the site location of Water Right Permit Application No. 8561-3, nearby observation wells, and nearby water rights/permits completed into the erosional remnant of the Niobrara aquifer (Water Rights, 2021b and 2021c).

The Niobrara aquifer is generally under unconfined or buried-unconfined conditions in Bon Homme County (Jorgensen, 1971; SDGS, 2021; Water Rights, 2021c and 2021d). The proposed diversion point is expected to be under confined conditions based on water levels and lithologic logs on file for the nearby observation wells (Water Rights, 2021d). Observation well data (see Figures 3 and 4) documents minimal drawdown from withdrawals of existing wells near the diversion point. Therefore, pumping from the diversion point is not expected to significantly lower water levels within the aquifer. The exact drawdown behavior cannot be known without an aquifer performance test. In Bon Homme County, there has been one complaint submitted to the DNR-Water Rights Program regarding potential well interference for adequate wells completed into the erosional remnant of the Niobrara aquifer (Water Rights, 2021). The potential well interference was regarding interference in a basal aquifer identified as the Choteau: West aquifer. After investigation, the complaint was determined to be unsubstantiated (Water Rights, 2021e). Within approximately two and one-half miles of the proposed diversion point for this application, the erosional remnant of the Niobrara aquifer has saturated aquifer thickness ranging

from approximately 22 to 80 feet, with the depth to the top of aquifer materials ranging from approximately 15 to 127 feet below land surface, and static water levels at well completion varying from approximately 19 to 140 feet below land surface (SDGS, 2021; Water Rights 2021b and 2021d). This would allow for sufficient saturated 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).

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:

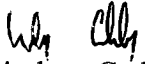
“A well in which the pump intake was set at least 20 feet below the top of the aquifer at the time of construction or, if the aquifer is less than 20 feet thick, is as near to the bottom of the aquifer as is practical and the water level of the aquifer has declined to a level that the pump will no longer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

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 install or lower pumps depending on the specific characteristics of the Niobrara aquifer at their location. However, when considering the statutes (SDCL 46-1-4 and 46-6-6.1), rules (ARSD 74:02:04:20(6) and (7)), the saturated thickness of the aquifer, the amount of artesian head pressure in observation wells, and appropriative user’s wells completed into the Niobrara aquifer, any drawdown created from the proposed diversion is not expected to cause an unlawful impairment on existing water right/permit holders or domestic users with adequate wells. Therefore, there is a reasonable probability that any interference from the proposed appropriation will not impose unlawful impairments on existing users with adequate wells.

CONCLUSIONS:

1. Water Permit Application No. 8561-3 proposes to appropriate water at a maximum instantaneous diversion rate of 1.11 cfs from one well completed into an erosional remnant of the Niobrara aquifer. The site is located in Bon Homme County approximately two and one-half miles west of Springfield, SD.
2. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres due to system requirements.

3. There is a reasonable probability that unappropriated water is available from the Niobrara aquifer for this proposed appropriation based on the hydrological budget and observation well data.
4. There is a reasonable probability this diversion will not unlawfully impair adequate wells authorized by existing water rights or domestic use wells.


Lindsey Cederberg
Natural Resources Engineer I
SD DANR - Water Rights Program

Reviewed by:


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

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- Water Rights, 2021c. Water Right/Permit Files, SD DANR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- 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.

RECEIVED

Affidavit of Publication JAN 24 2022

State of South Dakota }
County of Bon Homme } SS

PETROLEUM RELEASE FUND

Rebecca Ly Being first duly sworn says that the **Springfield Times** 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 Springfield, 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 Springfield, South Dakota, and that deponent is the publisher in charge of the advertising department of said newspaper; that the advertisement headed

Not. of Application

8561-3 Appropriate Water

107R399

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

<u>Jan. 19</u>20.....	20.....
.....20.....	20.....
.....20.....	20.....
.....20.....	20.....

That the full amount of the fee charged for the publication of said notice, \$ 42.69, 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 Ly, publisher

Subscribed and sworn to before me this

19 day of January, 2022

Peggy Schaefer

Notary Public, South Dakota

my Commission expires 10-24-2021

NOTICE OF APPLICATION

NO. 8561-3 to Appropriate Water

Notice is given that Blane Nagel, 31196 412th Ave, Springfield SD 57062 has filed an application for a water permit to appropriate 1.11 cubic feet of water per second (cfs) from one well to be completed into the Niobrara Aquifer (approximately 140 feet deep) located in the NE 1/4 NW 1/4 Section 21 for irrigation of 65 acres located in the NW 1/4, W 1/2 NE 1/4 Section 21; all in T93N-R60W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. This site is located approximately 2 1/2 miles west of Springfield SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8561-3 with qualifications because 1) unappropriated water is available, 2) existing domestic water uses and water rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest as it pertains to matters within the regulatory authority of the Water Management Board. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <https://danr.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 this application or recommendation shall allege that the application, upon approval, will cause injury to the person that is unique from any injury suffered by the public in general. The injury must concern a matter either within the regulatory authority found in SDCL 46-2A-9 for approval or denial of the application, or other matter concerning the application within the regulatory authority of the board to act upon as defined by SDCL 46-2-9 and 46-2-11, or both. Any person meeting the petitioner requirements and wishing to be a party of record in a contested case hearing shall file a written petition to oppose the application with BOTH the applicant and Chief Engineer. A petition opposing the application shall be filed on a form provided by the Chief Engineer. The petition form is available online at <https://danr.sd.gov/public> or by contacting the Chief Engineer. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501" or call (605) 773-3352. The applicant's mailing address is given above. If contesting the Chief Engineer's recommendation, the applicant shall also file a petition. A petition filed by either an interested person or the applicant must be filed by January 31, 2022.

The petition shall include a statement describing the unique injury upon approval of the application on the petitioner, the petitioner's reasons for opposing the application, and the name and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

Any interested person may file a comment on the application with the Chief Engineer. The comment shall be filed on a form provided by the Chief Engineer and is available online at <https://danr.sd.gov/public> or by calling (605) 773-3352 or writing the Chief Engineer at the address provided above. Filing a comment does not make the commenter a party of record or a participant in any hearing that may be held. Any comment must be filed by January 31, 2022.

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 \$42.69

AFFIDAVIT OF PUBLICATION

YANKTON DAILY PRESS AND DAKOTAN

RECEIVED

JAN 21 2022

WATER RIGHTS
PROGRAM

BLANE NAGEL
31196 412TH AVE
SPRINGFIELD SD 57062

STATE OF SOUTH DAKOTA
COUNTY OF YANKTON

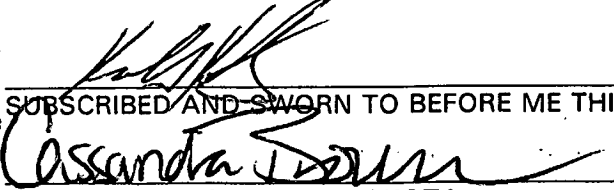
KELLY HERTZ, BEING FIRST DULY SWORN ON OATH DEPOSES
AND SAYS THAT (S)HE IS THE MANAGING EDITOR OF YANKTON
MEDIA INC, A CORPORATION, THE PRINTER AND THE PUBLISHER OF THE
YANKTON DAILY PRESS AND DAKOTAN, A LEGAL DAILY NEWSPAPER
PUBLISHED AND CIRCULATED IN THE CITY OF YANKTON, SAID COUNTY
AND STATE, AND ONE OF THE OFFICIAL NEWSPAPERS OF THE SAID
COUNTY OF FACTS STATED IN THIS AFFIDAVIT; THAT THE ANNEXED
1 + 19 NOTICE OF APPLICATIO

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE
NEWSPAPER ON THE 19th DAY OF January, 2022
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION
OF SAID NOTICE TO WIT \$39.52 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: 01/19/2022

FILED ON: 01/19/2022

SUBSCRIBED AND SWORN TO BEFORE ME THIS 19th DAY OF January, 2022


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

NOTICE OF APPLICATION NO. 8561-3 to Appropriate Water

Notice is given that Blane Nagel, 31196 412th Ave, Springfield SD 57062 has filed an application for a water permit to appropriate 1.11 cubic feet of water per second (cfs) from one well to be completed into the Niobrara Aquifer (approximately 140 feet deep) located in the NE 1/4 NW 1/4 Section 21 for irrigation of 65 acres located in the NW 1/4, W 1/2 NE 1/4 Section 21; all in T93N-R60W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. This site is located approximately 2 1/2 miles west of Springfield SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8561-3 with qualifications because 1) unappropriated water is available, 2) existing domestic water uses and water rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest as it pertains to matters within the regulatory authority of the Water Management Board. The Chief Engineers recommendation with qualifications, the application, and staff report are available at <https://danr.sd.gov/public> or contact Ron Duvall for this information, or other information, at the Water Rights Program address provided below.

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Published once at the total approximate cost of \$39.52.

Schlaak, Karen

From: Schlaak, Karen
Sent: Wednesday, January 12, 2022 11:25 AM
To: 'Sam Berres'
Subject: FW: 8561-3, Blane Nagel
Attachments: 8561-3public.short_final.docx; FORM8.FRM.doc

Attached is a notice to be published on January 19, 2022 in the Press & Dakotan.

Blane Nagel, 31196 412th Ave, Springfield SD 57062 (605 464-1187) 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, January 12, 2022 11:24 AM
To: Springfield Springfield Times (times@gwtc.net)
Subject: 8561-3, Blane Nagel
Attachments: 8561-3public.short_final.docx; FORM8.FRM.doc

Attached is a notice to be published on January 19, 2022 in the Springfield Times.

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





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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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.**

January 12, 2022

Blane Nagel
31196 412th Ave
Springfield SD 57062

Dear Mr. Nagel:

Water Permit Application No. 8516-3 for irrigation use have been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Springfield Times printed at Springfield (Ph # 605 369-2441) and the Press & Dakotan printed at Yankton (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. 8561-3 to Appropriate Water

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**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

MAR 30 2022

Blane Nagel
31196 412th Ave
Springfield SD 57062

Dear Mr. Nagel:

Enclosed is Water Permit No. 8561-3 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

A 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 information 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

8561-3

SD EForm - 1621LD V1

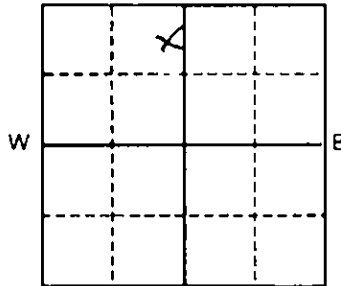
SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location NE 1/4 NW 1/4 Sec 21 Twp 013N Rg 060WCounty Ben Homme

North

Please mark well location with an "X"



Well Completion Date

3-17-2022

1 Mile

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

PROPOSED USE:

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

METHOD OF DRILLING:

Reverse Rotary

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>160</u> LB/FT	<u>16</u> IN	<u>0</u> FT	<u>60</u> FT	<u>28</u> IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
<u>Cement</u>	<u>130</u>	<u>0</u> Lb/gal	<u>0</u> Ft	<u>60</u> Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

Pumped down with pressure grouter

SCREEN:

☐ Perforated pipe ☐ Manufactured
Diameter 16 Inches Length 37 Feet

Material _____

Slot Size .085 Set From 60 Feet to 97 Feet

Other information _____

WAS A PACKER OR SEAL USED? ☒ Yes ☐ NoIf so, what material? ConcreteDescribe packer(s) and location 0-60

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? Chlorine
☐ No, Why Not?
 Lab to which water quality sample sent for analysis
Well Owner: Blane Nagel

Business Name: _____

Address: 3119 412nd AveCity, State, Zip Springfield SD 57062

WELL LOG:

DEPTH

FORMATION	FROM	TO
<u>Brown Top Soil</u>	<u>0</u>	<u>7</u>
<u>Coarse Sand</u>	<u>7</u>	<u>20</u>
<u>Gray Niobrara Chalk</u>	<u>20</u>	<u>59</u>
<u>Coarse Sand Stone</u>	<u>59</u>	<u>90</u>
<u>Niobrara Hard Gray Shale</u>	<u>90</u>	<u>100</u>
<u>Am 8/16/22 P-41:00</u>		

STATIC WATER LEVEL 15 FEET

If flowing: closed in pressure _____ PSI

GPM flow 750 through 6" Inch pipeControlled by ☐ Valve ☐ Reducers ☐ Other ☒

Reduced flow rate _____ GPM

Can well be completely shut in?

WELL TEST DATA:

☒ Pumped Describe: Pumped with Turbine Pump & Engine
☐ Bailed
☐ Other

Pumping Level Below Land Surface

23' Ft. After 5 Hrs. pumped 750 GPM

Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

This well was drilled under license # 444 and this report is true and accurate.Drilling firm: Christensen Well & Irrigation

Signature of License Representative:

Carly Christensen

RECEIVED

AUG 16 2022

Signature of Well Owner or Equitable Property Holder:

OFFICE OF
WATERDate: 8/15/22

*Emailed to
the State of SD
8-15-22*

8561-3

**Report of Examination of Works and/or Application of Water to Beneficial Use
For Permit No. 8561-3**

I have this day, June 30, 2023, made a thorough examination of the water use system owned by Blane Nagel, 31196 412th Ave, Springfield, SD 57062, holder of Permit No. 8561-3, bearing the priority date of November 15, 2021, authorizing the diversion of 1.11 cu. ft. per second of the waters of groundwater, Niobrara Aquifer for the irrigation of 65 acres, located in Bon Homme County.

Inspection contact: Blane Nagel

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: Christensen Well & Irrigation
- 2) No. of Wells: 1
- 3) Depth(s): 100 feet
- 4) Well log is available: Yes

Casing:

- 1) Diameter: 16 inches
- 2) Length: 60 feet
- 3) Type: Plastic

Screen:

- 1) Diameter: 16 inches
- 2) Length: 37 feet
- 3) Type: PVC
- 4) Static water level: 15 feet

Pump:

- 1) Make: Goulds
- 2) Model: 7TSLC
- 3) Capacity: 500 gpm

Motor:

- 1) Make: Goulds
- 2) Model No.: 7TSLC
- 3) Horsepower rating: 30 hp

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

- 1) Type: PVC Size: 8 inches Length: 320 feet

C. Works used to apply water to beneficial use:

Center Pivot:

- 1) Make: T & L
- 2) Overall length: 899 feet
- 3) Number of towers: 6
- 4) End gun: Yes
- 5) Capacity: 500 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: 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: None

E. Condition and Location:

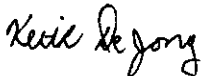
- 1) The system is in good condition with the point(s) of diversion located as follows:
The well is 2,390 feet east and 890 feet south of the northwest corner of Section 21-T93N-R60W (Latitude 42.86303, Longitude -97.94208 – NE1/4 of the NW1/4).
- 2) The works are capable of diverting and conveying to the place of use 1.11 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 21-T93N-R60W</u>	
<u>NW1/4NW1/4</u>	<u>2 acres</u>
<u>NE1/4NW1/4</u>	<u>33 acres</u>
<u>SW1/4NW1/4</u>	<u>1 acre</u>
<u>SE1/4NW1/4</u>	<u>18 acres</u>
<u>NW1/4NE1/4</u>	<u>8 acres</u>
<u>SW1/4NE1/4</u>	<u>3 acres</u>

comprising a total of 65 acres of land and the license should be issued for 1.11 cfs.

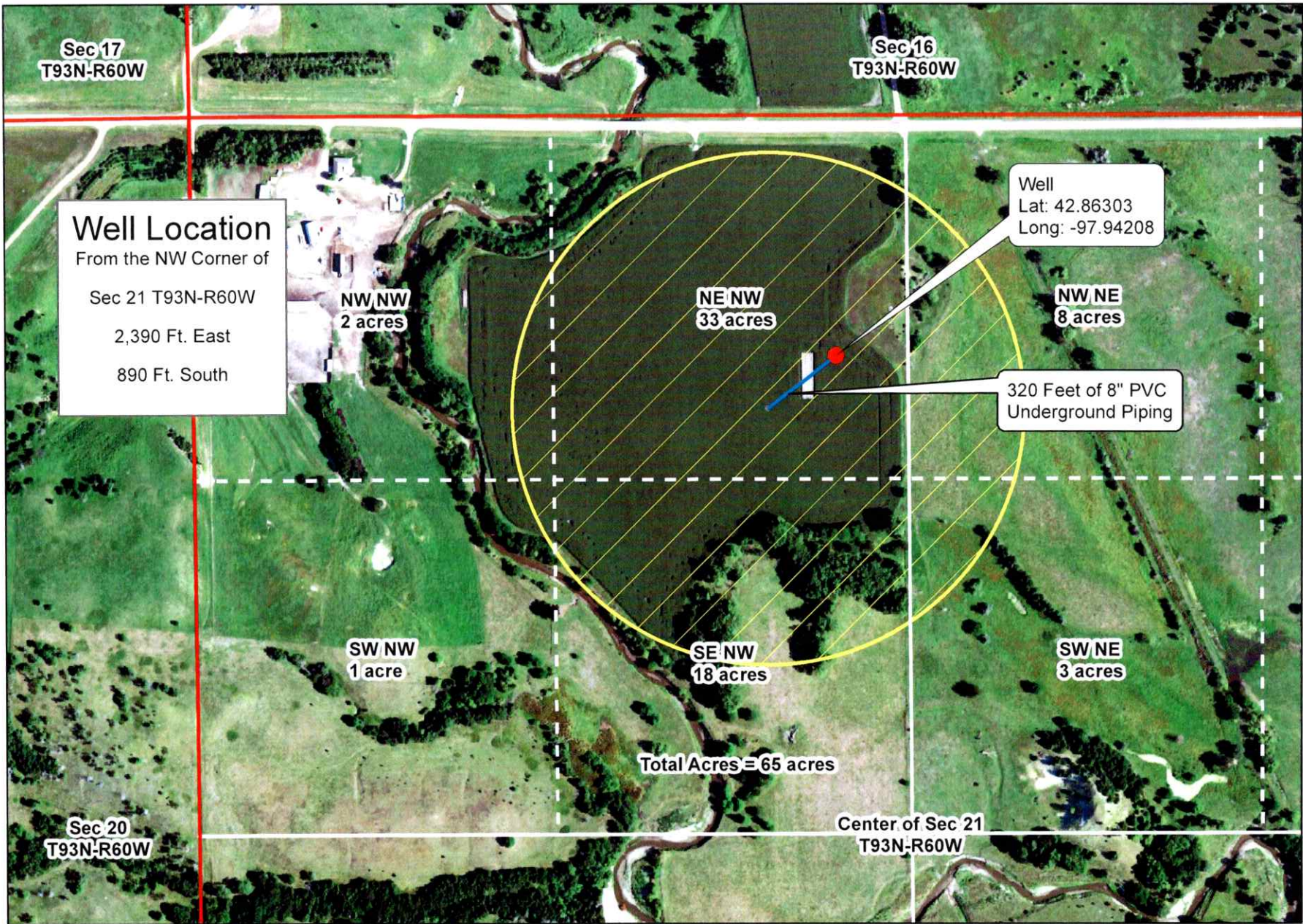
- 3) All structures, wells and lands on map Yes

F. Comments or other permit(s) associated with the project: The pump and motor information was obtained from Christensen Well and Irrigation.

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

Date report completed: July 28, 2023

Water Permit No. 8561-3



Keith DeJong
Keith DeJong, PE Ret.
Staff Engineer
July 11, 2023



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

JUL 31 2023

Blane Nagel
31196 412th Ave
Springfield SD 57062

8561-3

Dear Mr. Nagel:

Enclosed is Water License No. 8561-3. 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. 8561-3**

(1) Blane Nagel; 31196 412th Ave, Springfield SD 57062, made Application No. 8561-3, November 15, 2021, for a water permit to divert 1.11 cubic feet of water per second from groundwater, one well, Niobrara Aquifer, Bon Homme County, South Dakota for irrigation purposes. Permit No. 8561-3, with a priority date of November 15, 2021, was approved January 31, 2022, and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before January 31, 2027, and for the application to beneficial use of water on or before January 31, 2031.

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

- 2,390 ft E & 890 ft S of the NE corner of Section 21, T93N, R60W (NE ¼ NW ¼)
(Latitude 42.86303 Longitude -97.94208)

(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 21, T93N, R60W					
NE ¼ NW ¼	33.0 acres	SW ¼ NW ¼	1.0 acres	NW ¼ NE ¼	8.0 acres
NW ¼ NW ¼	2.0 acres	SE ¼ NW ¼	18.0 acres	SW ¼ NE ¼	3.0 acres
TOTAL: 65.0 acres					

(4) Pursuant to South Dakota Water Law 46-5-30.1 Blane Nagel, the holder and/or owner of Water Right No. 8561-3 is issued a license to appropriate water, the right to use 1.11 cubic feet of water per second from groundwater, one well (Niobrara Aquifer), with a priority date of November 15, 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. 8561-3 and subject to the following qualifications:

1. The well approved under Water Permit No. 8561-3 is located near domestic wells and other wells which may obtain water from the same aquifer. Water withdrawals under this Water Right shall be controlled 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. 8561-3 shall be constructed be 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. *(The well was drilled in 2022 by Christiansen Well & Irrigation. A copy of the well completion report is on file with the Water Rights Program.)*
3. Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Water Right No. 8561-3 authorizes a maximum diversion rate of 1.11 cfs for the irrigation of 65 acres with an annual volume not to exceed 2 acre feet of water per acre per year.

continued

4. The 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

JUL 31 2023

date

