

WATER PERMIT NO. 8472-3

Name of Applicant: **Roger Blake**

Address: **46362 295th St, Centerville SD 57014**

Phone: **605 957-5292**

Amount of Water Claimed: **0.22 add'l cfs**

Total Acres: **60 acres**

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

Water to be used for: **irrigation**

County: **Turner**

Type of Waste Disposal System:

Location: **8 miles north of Centerville**

PRIORITY

Date Received: **12-16-20**

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

Corrected Application Received: **1-8-21**

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

Remarks: **Will allow pivot authorized by No. 6969-3 to make a complete circle**

Diversion Point: **NW 1/4 NE 1/4 Sec 11-T97N-
R52W**

Land to be Irrigated: **E 1/2 NE 1/4 Sec 11-T97N-
R52W**

			11		

Depth of Well: **41 feet deep**

Well Driller:

Remarks:

Type of Map: **aerial**

Prepared by:

Reviewed and the Number Assigned on: **1-12-21**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

**SOUTH DAKOTA
WATER PERMIT NO. 8472-3**

Date of first receipt of application December 16, 2020.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8472-3 to Roger Blake, 46362 295th St, Centerville SD 57014 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. 8472-3 appropriates an additional 0.22 cubic feet per second (cfs) and to irrigate 60 additional acres to what is currently authorized by Water Right No. 6969-3. Water Right No. 6969-3 appropriates 1.34 cfs from one well completed into the Parker Centerville Aquifer (41 feet deep) located in the NW 1/4 NE 1/4 Section 11 to irrigate 60 acres located in the W 1/2 NE 1/4 Section 11; all in T97N-R52W. This permit authorizes an additional 0.22 cfs from the existing well to irrigate an additional 60 acres located in the E 1/2 NE 1/4 Section 11-T97N-R52W. The site of this project is approximately 8 miles north of Centerville 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: June 1 – September 30.
3. The date from which applicant may claim right is December 16, 2020.
4. The date of approval of Permit No. 8472-3 is March 29, 2021.
5. One-fifth of the construction is to be completed on or before September 29, 2023.
6. All construction is to be completed on or before March 29, 2026.
7. Water is to be put to beneficial use on or before March 29, 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. 8472-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

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

APR 19 2021

date



FORM 2: Application for irrigation in South Dakota

(type or print)

Mail to: DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8472-3</u> (office use only) Hydrologic Unit <u>10170102</u>
	Basin <u>Vermillion River</u>
	Newspaper <u>Viborg Enterprise</u> <u>Argus Leader</u>

PAID

DEC 16 2020

Ck# 7273

RECEIVED

DEC 16 2020

Application For Permit To Appropriate Water For Irrigation WATER RIGHTS PROGRAM

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.)

Add'l div rate and acres to water Right No. 6969-31. Name to Appear on Irrigation Permit Roger Blake

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

Mailing Address 46362 295th ST Centerville ☒ SD ☒ 57014
(Address) (City) (State) (Zip Code)

Phone 605-563-2101 Mobile 605-957-5292 Email rogerblakefarms@gmail.com

2. Amount of water claimed 0.27 *CFS or 700 ^(100 gpm additional) *GPM 600 ***AF Total Acreage 60
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable

3. Source of water supply aquafer

4. Location of point of diversion NW 1/4
W 1/2 NE 1/4 of 11-97-52 (existing well)
(example - 3 wells in SW 1/4 NE 1/4 section 12-T104N-R53W)

County Turner ☒5. County or counties where water will be used Turner6. Annual period during which water is to be used June, July, August, September

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
E 1/2 of NE 1/4 11-97-52	60		

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

We recently purchased this property and would like to use the same irrigator and well that is on permit #6969-3. We would change the pivot from a windshield wiper to a center pivot. The well will stay in place and we will be piping the water to the new center pivot location approximately in the center of the NE 1/4 of 11-97-52. The reason we only need 60 more acres is due to building site/acreage in the way so unable to irrigate all. See attached map as to how we plan to irrigate the NE 1/4 of 11-97-52 using existing permit 6969-3 and adding an additional 60 acres.

I, Roger Blake Roger Blake Owner _____, the applicant, certify under
Name of Person Title (if applicable)

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

Supplemental Information

(type or print)

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

a) If new wells, how many ____ Have test holes been drilled ☐ Yes ☐ No Drilled by ____
(if yes, please provide copies of logs)

b) If existing wells, how many 1 Provide copy of log(s), if available. Drilled by Lacey Well Driller

For either Existing or Proposed Wells:

c) Well Depth (required) 41 ft Depth to Top of Water Bearing Material ____ Depth to Water from Surface 7

d) Distance to nearest domestic well on applicant's property 1/2 mile Property owned by others ____

2. Wastewater Disposal System Information

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

b) System Capacity (gallons) ____ Year Constructed ____

c) Connected to the City of ____ Sanitary System

3. Dugout Information

a) Surface Dimensions ____ Depth ____

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

4. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below for each dam. The locations of the dams need to be shown on the map submitted with the application.

a) If a private engineering firm or government agency was involved in the design of this dam, please give their name and address:

b) Freeboard ____

c) Crest Width ____

Crest Length ____

d) Height ____

e) Primary Outlet Capacity ____

If pipe, diameter ____

f) Secondary Spillway Capacity ____

Spillway Width ____

g) X & Y Slope (e.g. 3 to 1 is a typical slope)

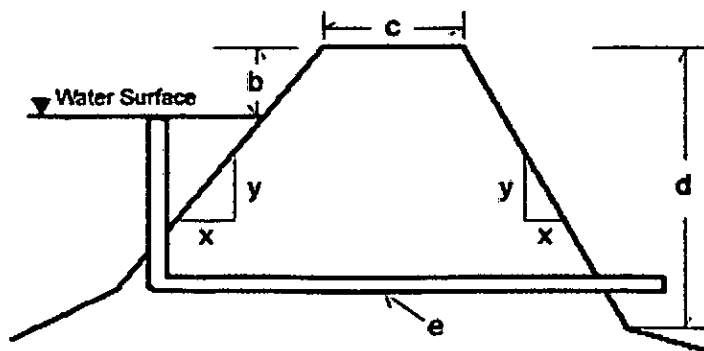
Upstream ____

Downstream ____

h) Surface Area of Impoundment ____

i) Storage ____ Acre Feet

j) Drainage Area Above Dam ____ Acres



Lindsay Manufacturing Co.



2707 North 108th Street
Omaha, NE 68164
800 - 829 - 5300 office

Farm: Field1

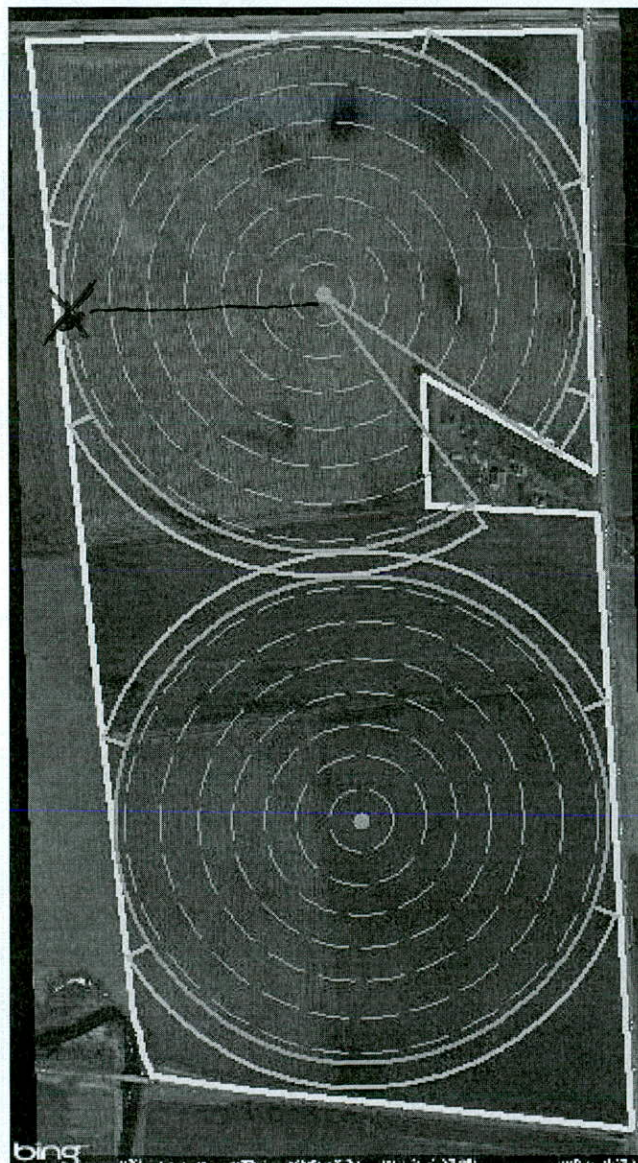
Grower: Roger Blake

12/14/2020

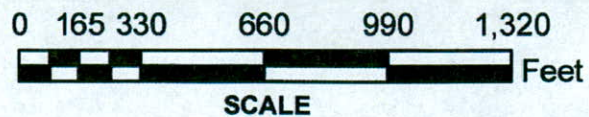
Systems:	Length	Spans	Total area including endgun
● Pivot 1	1259.75 ft	7 spans + 44 ft o.h.	121.36 acres
● Pivot 3	1194.25 ft	7 spans + 44 ft o.h.	118.79 acres

moving irrigator
to center of $\frac{1}{4}$
new acres on
East $\frac{1}{2}$ of $N\frac{1}{4}$

Existing well
to be used
Adding acres
to permit #
6969-3



6969-3



Harold Holoch
Harold Holoch, PE
Staff Engineer
January 10, 2018

97N 52W
Section: 03

97N 52W
Section: 02

97N 52W
Section: 01

97N 52W
Section: 10

97N 52W
Section: 11

97N 52W
Section: 12

97N 52W
Section: 15

97N 52W
Section: 14

97N 52W
Section: 13

Water Rights Program - File Documentation

NAME: Dick Hammond – Roger Blake application

ADDRESS:

DATE: 1-8-21

RE: Pending application

COMMENTS:

On December 16th, Dick called and asked me to hold up on the three applications for Nick and Roger Blake. He was helping them complete their applications and did not realize they had submitted them.

On January 8th, Dick called and we discussed the three applications.

On the application for Roger Blake to irrigate 60 acres located in the E 1/2 NE 1/4 Section 11-T97N-R52W, the total amount of water claimed should be changed from 600 gpm to **700 gpm**. Water Right No. 6969-3 authorized 1.34 cfs (600 gpm). This application requests an additional 0.22 cfs (100 gpm) for a total of 700 gpm from the existing well to irrigate a total 120 acres.



Karen Schlaak
Water Rights Program

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date December 16, 2020

RECEIVED OF Roger/Kathleen Blake 46362 295th St. Centerville SD 57014

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

Fee for Application for Permit No. <u>8472-3</u> to Appropriate Water, to construct and to put water to beneficial use	\$500.00
Fee for Application for Permit No. _____ to Appropriate Water for Future use	\$
Fee to retain Future Use Permit No. _____ after period of seven years.	\$
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. <u>8472-3</u>	\$200.00
Fee for Filing Transfer Form _____	\$
Fee for _____	\$
Fee for Issuing New Well Driller's License No. _____	\$
Fee for Renewal of Well Driller's License No. _____	\$
Fee for Issuing Well Pump Installer's License No. _____	\$
Fee for Renewal of Well Pump Installer's License No. _____	\$
(Any Other Work Provided by Law) TOTAL	\$700.00

By Eric Gronlund
Chief Engineer
vm



DENR
SOUTH DAKOTA

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING

523 EAST CAPITOL

PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 8472-3, Roger Blake**

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. 8472-3, Roger Blake, 46362 295th St, Centerville SD 57014.

The Chief Engineer is recommending APPROVAL of Application No. 8472-3 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. 8472-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.

Eric Gronlund, Chief Engineer
March 9, 2021

**Report to the Chief Engineer on
Water Permit Application Nos. 8471-3 and 8472-3**

Roger Blake
16 February 2021

Water Permit Application No. 8471-3 proposes to appropriate 1.78 cubic feet of water per second (cfs) from one well completed into the Parker-Centerville aquifer (approximately 41 ft deep) located in the approximate center of the SE ¼ Section 11 for irrigation of 160 acres located in the SE ¼ Section 11; all in T97N-R52W.

Water Permit Application No. 8472-3 proposes to appropriate an additional 0.22 cfs to irrigate 60 additional acres to what is authorized by Water Right No. 6969-3. Water Right No. 6969-3 appropriates 1.34 cfs from one well completed into the Parker-Centerville aquifer (41 ft deep) located in the NW ¼ NE ¼ Section 11 to irrigate 60 acres located in the W ½ NE ¼ Section 11; all in T97N-R52W. This application requests an additional 0.22 cfs from the existing well to irrigate an additional 60 acres located in the E ½ NE ¼ Section 11-T97N-R52W. The site of both applications is located approximately 8 miles north of Centerville, South Dakota.

Aquifer: Parker-Centerville (PAC)

Hydrogeologic Characteristics

The Parker-Centerville aquifer is a sand and gravel outwash that was deposited in an ancient river bed during the Quaternary period [1]. The aquifer can generally be encountered within 50 feet of ground surface with water levels typically within 30 feet of ground surface [2]. The sand and gravel in the aquifer is highly transmissive, as shown by multiple high-capacity wells in the aquifer [3]. Multiple estimates of the area and boundaries of the Parker-Centerville aquifer are available. The first report on the Parker-Centerville aquifer mostly interpreted aquifer boundaries by visual survey of the landscape [4]. That study is likely to be the source used by Hedges et al [5], although they do not explicitly list sources for county-level aquifer information in their report. The boundary interpreted by Hedges et al. [5] was used by the Water Rights Program until 2015, when it was superseded by a boundary interpreted by Holmes and Filipovic [1]. Lindgren and Hansen [6] also published a county study including boundaries for the Parker-Centerville aquifer that do not agree with Hedges et al. [5] or Holmes and Filipovic [1]. Mathiowetz [7] reinterpreted the boundaries of the Parker-Centerville aquifer in 2018 to include the old boundaries on the southern end of the aquifer that were mapped by Hedges, et al. [5], finding an approximate areal extent of 40,270 acres in Clay, Lincoln, and Turner Counties [1].

In his review for Water Permit Application Nos. 8466-3 and 8467-3, Farmer [8] determined that an area of buried sand and gravel previously categorized as Pleistocene: Unknown is hydrologically connected to the Parker-Centerville aquifer. That area of previously unmapped outwash extends over an area that appears to be less than a mile wide and extends over approximately 2,400 acres.

Based on where water rights/permits are interpreted as belonging to the Parker-Centerville aquifer, it does not appear that the boundaries interpreted by Lindgren and Hansen [6] were ever consistently used by the Water Rights Program [3]. Other geological information is available in the form of lithologic logs [8], well completion reports [9], and a map of the first occurrences of

aquifer materials in Turner county [10] that may justify reinterpretation of the Parker-Centerville aquifer boundaries. The northern boundary of the Parker-Centerville aquifer abuts the Vermillion East Fork: Montrose and Vermillion West Fork aquifers, which are made of the same material at the same elevation as the Parker-Centerville aquifer [8] [9] [6]. The Parker-Centerville aquifer directly overlies portions of the Upper Vermillion-Missouri aquifer [1], and they both blend into the Lower Vermillion-Missouri aquifer to the south [5] [9]. The Parker-Centerville aquifer also has some hydrologic connection to the Vermillion River [1] and possibly other surface water features. Generally, the direction of groundwater movement in the Parker-Centerville aquifer is from north to south [2].

The applicant submitted a well completion report for a test hole located in the NW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 11 T97N-R52W that encountered “top soil” from 0 to 5 feet below grade, sand and gravel with rock from 5 to 41 ft, sandy blue clay from 41 to 55 ft, and medium sand and small gravel from 55 to 60 ft below grade. The static water level was 9 ft below ground level at the time the test hole was completed on 16 February 2020. The well completed for Water Right No. 6969-3, which will be the well for Water Permit Application No. 8472-3, was completed on 9 June 2008. The driller for that well reported “black topsoil” from 0 to 3 feet, gray clay and sand streaks from 3 to 10 feet, brown sand from 10 to 12 feet, and very coarse gravel from 12 to 41 feet below grade. The static water level of that well at the time of drilling was 7 feet below ground level. Given the depths and types of materials encountered for both applications and given their locations, these applications are certainly withdrawing from the Parker-Centerville aquifer as it was delineated in 2018 [7]. Based on the water levels of these wells and aquifer materials encountered, the aquifer is under unconfined conditions at this location.

Applicable South Dakota Codified Law

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

Pursuant to SDCL 46-6-3.1, 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 the water to the groundwater source. An exception allows water distribution systems to withdraw from groundwater sources older or stratigraphically lower than the Greenhorn Formation regardless of the results of a hydrologic budget. These applications are not for a water distribution system as defined in SDCL 46-1-6, and the Parker-Centerville aquifer is younger and stratigraphically higher than the Greenhorn Formation. Therefore, it is necessary to find that recharge exceeds withdrawals to approve this application.

Availability of Water

Hydrologic Budget

Recharge

Recharge to the Parker-Centerville aquifer is by infiltration from precipitation, seepage from surface water features when the surface water level is higher than the potentiometric surface of the aquifer, and by groundwater inflow from adjacent aquifers when the potentiometric surface of those aquifers is higher than that of the Parker-Centerville aquifer [4]. Hedges, et al. [11] estimated the average annual recharge rate to the aquifer is 4.9 inches per year based on observation well analysis. Multiplying the Hedges, et al. [11] estimate of recharge rate over the most recent estimate of the aquifer's area [7], the estimated average annual recharge rate of the previously-mapped Parker-Centerville aquifer area is 16,444 ac-ft/yr. There is no precise recharge estimate available for the portion of the aquifer identified by Farmer [8], but Hedges, et al. [12] provide a recharge estimate for water management purposes for buried glacial aquifers ranging between 0.15 inches per year and 0.60 inches per year. Therefore, recharge to the newly-identified area is likely to range between 30 and 120 acre-feet per year.

Discharge

Natural discharge from the Parker-Centerville aquifer occurs through evapotranspiration when the potentiometric surface of the aquifer is at or near land surface, outflow to surface water features when the surface water level is lower than the potentiometric surface of the aquifer, groundwater outflow to the Lower Vermillion-Missouri and the Upper Vermillion-Missouri aquifers when the potentiometric surface of the Parker-Centerville aquifer is higher than that of those aquifers [1] [6]. The other form of discharge is withdrawals by domestic and appropriative well users. Given the prevalence of appropriative water distribution systems and the relatively low pump rate allowed for domestic well use, domestic well withdrawals are considered negligible for this hydrologic budget. There are 145 active water rights/permits authorized to withdraw water from the Parker-Centerville aquifer and two other water permit applications undergoing review that are likely to withdraw from the Parker-Centerville aquifer [3]. Due to the new lithologic information available as discussed in the Hydrogeological Characteristics section, six water rights/permits that were officially categorized as belonging to other aquifers are in the boundaries of the Parker-Centerville aquifer interpreted by Holmes and Filipovic [1] that were used to estimate the area of the aquifer and have similar well depths and aquifer materials as the Parker-Centerville aquifer. Because of that, a total of 151 water rights/permits will be considered to withdraw from the Parker-Centerville aquifer for this hydrologic budget [3]. The six additional water rights/permits are Water Permit Nos. 7312-3, 7495-3, 7596-3, 7597-3, and 7930-3 and Water Right No. 6491-3 and are all for irrigation [3].

There is also one future use permit, Future Use Permit No. 4798-3, for the City of Parker, that reserves 340 ac-ft/yr from wells "less than 100 ft deep" in Sections 7, 8, 9, 15, 16, 17, and 18 T99N-R53W. Some of those sections are within the boundaries of the Parker-Centerville aquifer [7], and some sections are within the boundaries of the Vermillion West Fork aquifer [5] [10].

Of the 145 water rights/permits officially categorized as being in the Parker-Centerville aquifer, 141 are for irrigation use [3]. Two water rights are for municipal use for the Town of Hurley and two are for commercial use [3]. The Town of Hurley purchases its water from another water

distribution system [12] and is assumed to keep its water rights for emergency purposes. Therefore, those permits are assumed to withdraw a negligible amount of water from the Parker-Centerville aquifer. The commercial permits are, Water Permit No. 8358-3 for Sonstegard Food Company appropriates 222.2 ac-ft/yr [3]. Sonstegard Food Company is also required to report their annual withdrawals to the Water Rights Program, but they acquired that permit in 2018 and reported no withdrawals that year. The other commercial permit is Water Permit No. 8428-3 for Knodel Contractors, LLC. They are also required to report their annual withdrawals but were approved too recently to have reported any. For the hydrologic budget, it is assumed they withdraw the full amount appropriated, 795.46 ac-ft/yr. The two other applications under review are Water Permit Application Nos. 8466-3 and 8467-3. They are for irrigation.

Irrigation withdrawal data is available for the period of record from 1979 through 2019 and shown in Table 1 (pg. 5). The average irrigation reported over the period of record for the 147 irrigation water rights/permits in this hydrologic budget is 9,955 ac-ft/yr [13]. After the drought of 2012, the number of permitted irrigation acres went from 16,077.84 to 18,230.34 acres in the aquifer, including the six water rights/permits not officially categorized as belonging to the Parker-Centerville aquifer, which is an increase of 2,152.5 acres since 2012 [3]. The two pending applications would add 260 acres to the permitted irrigated area if they are approved. Many of the newer permits in the aquifer are not represented by the average over the period of record. Conservatively assuming the 2,152.5 new acres permitted/licensed plus the 260 acres pending apply 12 inches of water per year, that would add 2,412.5 ac-ft/yr of withdrawals for irrigation to the 9,955 ac-ft/yr average. Therefore, the total estimated withdrawal due to irrigation is 12,367.8 ac-ft/yr.

Balance of Hydrologic Budget

The estimated average annual recharge to the Parker-Centerville aquifer is 16,444 ac-ft/yr. Two commercial permits in the aquifer appropriate 1,017.66 ac-ft/yr and the two municipal permits in the aquifer are assumed to withdraw a negligible amount. One future use permit reserves a total of 340 ac-ft/yr from the Parker-Centerville aquifer and/or the Vermillion West Fork aquifer. The average annual withdrawal for irrigation over the period of record is 9,955 ac-ft/yr, but some newer water rights/permits may not be represented by that average, so the total estimated average annual withdrawal for irrigation is 12,367.8 ac-ft/yr. The total estimated withdrawal in the aquifer for water rights/permits currently authorized to withdraw is approximately 13,385 ac-ft/yr. If Future Use Permit No. 4798-3 is fully developed in the Parker-Centerville aquifer, the total withdrawal would be 13,725 ac-ft/yr. Since irrigation applications may withdraw up to 2 acre-feet per acre and the total new acreage is 220 acres, the applicant may withdraw up to 440 ac-ft/yr. Therefore, based on a hydrologic budget, there is reasonable probability unappropriated water is available for this application.

Report on Water Permit App. Nos. 8471-3 and 8472-3

Table 1: Irrigation reported over the period of record for the Parker-Centerville aquifer and the four shallow glacial outwash water rights/permits within the boundaries interpreted by Holmes and Filipovic [1] [13].

Year	Parker-Centerville		Within Boundaries		Total	
	No. Permits	Irrigation Reported (ac-ft/yr)	No. Permits	Irrigation Reported (ac-ft/yr)	No. Permits	Irrigation Reported (ac-ft/yr)
1979	114	7,481	0	0	114	7,481
1980	110	7,675	0	0	110	7,675
1981	121	9,321	0	0	121	9,321
1982	111	6,494	0	0	111	6,494
1983	110	5,523	0	0	110	5,523
1984	111	5,152	0	0	111	5,152
1985	112	6,515	0	0	112	6,515
1986	113	6,120	0	0	113	6,120
1987	111	8,620	0	0	111	8,620
1988	108	13,558	0	0	108	13,558
1989	110	13,959	0	0	110	13,959
1990	110	12,201	0	0	110	12,201
1991	110	11,186	0	0	110	11,186
1992	111	3,909	0	0	111	3,909
1993	110	1,919	0	0	110	1,919
1994	111	10,724	0	0	111	10,724
1995	108	9,664	0	0	108	9,664
1996	107	10,897	0	0	107	10,897
1997	110	11,585	0	0	110	11,585
1998	108	10,072	0	0	108	10,072
1999	112	11,027	0	0	112	11,027
2000	113	12,955	0	0	113	12,955
2001	113	12,238	0	0	113	12,238
2002	114	13,865	0	0	114	13,865
2003	116	12,471	0	0	116	12,471
2004	117	14,668	1	44	118	14,712
2005	119	13,450	1	99	120	13,549
2006	117	15,304	1	33	118	15,337
2007	120	11,995	1	53	121	12,048
2008	123	13,224	1	71	124	13,294
2009	125	7,260	1	23	126	7,283
2010	123	392	1	0	124	392
2011	123	11,315	1	42	124	11,357
2012	123	19,045	2	122	125	19,168
2013	134	15,083	4	127	138	15,210
2014	136	11,269	4	66	140	11,336
2015	137	9,606	4	102	141	9,707
2016	139	11,934	4	135	143	12,069
2017	139	11,430	4	117	143	11,548
2018	138	3,808	4	15	142	3,823
2019	138	1,842	4	11	142	1,852
Average						9,947

Observation Wells

Administrative Rule of South Dakota (ARSD) 74:02:05:07 requires the Water Management Board to rely upon the record of observation wells in addition to other information to determine that the quantity of water withdrawn annually from the aquifer does not exceed the estimated average annual recharge to the aquifer. The Water Rights Program maintains 22 observation wells in the Parker-Centerville aquifer [2]. The nearest observation well to this application is Observation Well TU-77K, located approximately 0.8 miles west of the well for Water Permit Application No. 8472-3 and approximately 1.3 miles northwest of the proposed well for Water Permit Application No. 8471-3. Observation Well TU-78A is also nearby, located approximately 1.3 miles south of the proposed well for Water Permit Application No. 8471-3 and 1.8 miles south of the well for Water Permit Application No. 8472-3. [2]. Figure 1 shows water level data for those observation wells [2]. Observation Wells TU-77K and TU-78A are representative of the Parker-Centerville aquifer's behavior at other wells in the aquifer [2]. Some seasonal declines are observed, but springtime water levels in the aquifer are governed by the influence of climate more than pumping [14]. Therefore, based on observation well analysis, there is reasonable probability unappropriated water is available for this application.

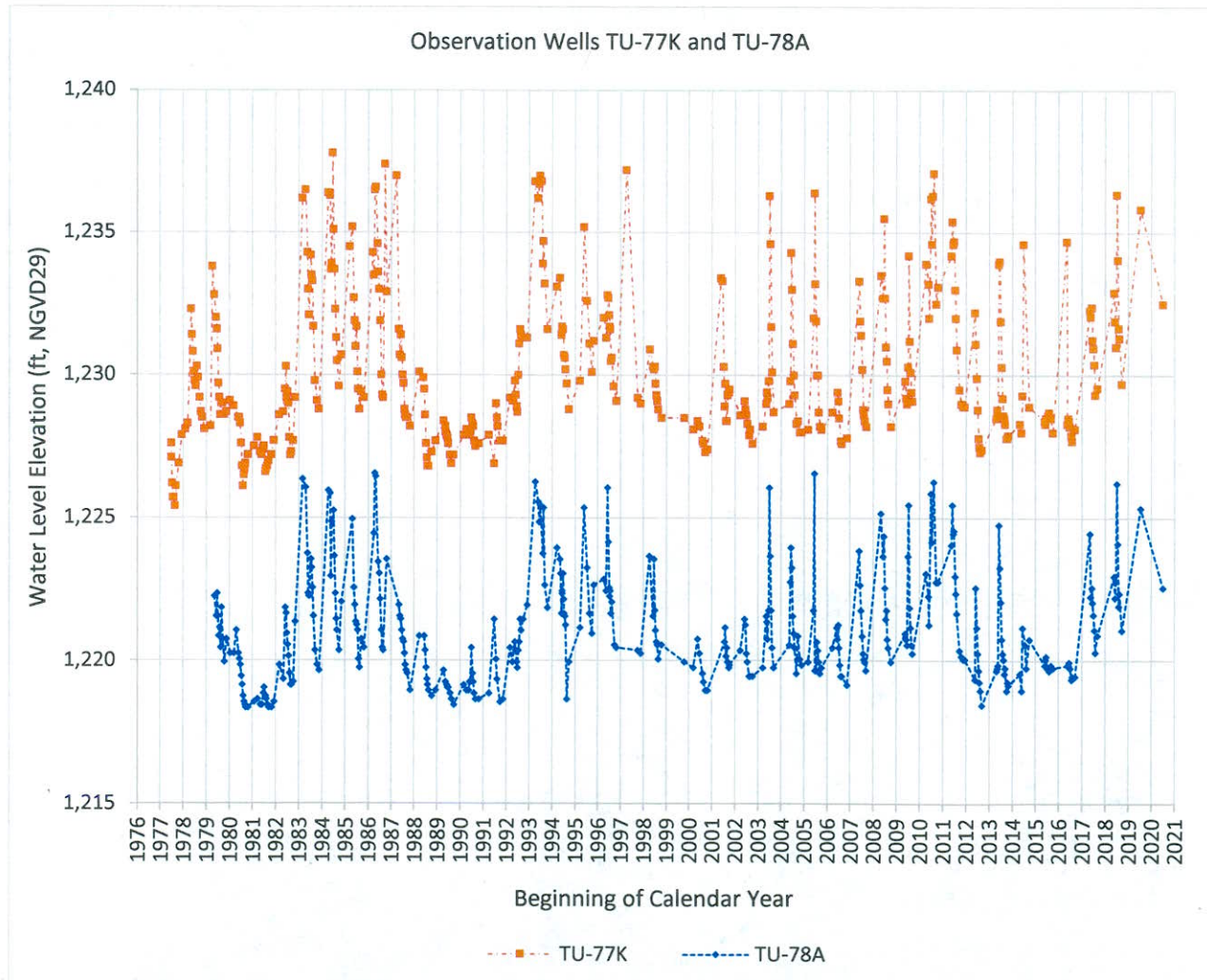


Figure 1: Water levels in Observation Wells TU-77K and TU-78A [2]

Potential for Unlawful Impairment of Existing Water Rights

The Water Rights Program has historically interpreted an unlawful impairment of existing water rights to occur if a junior water right/permit causes a nearby adequate well with a senior water right/permit to become unable to withdraw at the rate it is entitled to or, if a domestic well is impacted, the junior water right/permit causes the adequate domestic well to be unable to withdraw at the rate needed to supply reasonable domestic use of water. Administrative Rule of South Dakota (ARSD) 74:02:04:20(6) defines an adequate well as:

...a well constructed or rehabilitated to allow various withdrawal methods to be used, to allow the inlet to the pump to be placed not less than 20 feet into the saturated aquifer or formation material when the well is constructed, or to allow the pump to be placed as near to the bottom of the aquifer as is practical if the aquifer thickness is less than 20 feet

Figure 2 (pg. 8) shows the Parker-Centerville aquifer water rights/permits, DENR observation wells, and boundaries of the aquifer near these applications. Table 2 (pg. 8) shows the water rights/permits in Figure 2. The nearest water right/permit to these applications is Water Right No. 2201-3, which is located approximately 0.2 miles west of Water Permit Application No. 8472-3. The nearest water right/permit to Water Permit Application No. 8471-3 is Water Right No. 1388-3, which is located approximately 0.5 miles south of that application and approximately 1.1 mile north of Water Permit Application No. 8472-3. The nearest domestic well on file with DENR that is completed into the Parker-Centerville aquifer is located only to the nearest section, so it could be any distance up to 1 mile (given the irregular shape of the section) from either application. There is no record of well interference on file with the Water Rights Program in the Parker-Centerville aquifer in Turner or Lincoln counties [15]. Given the lack of complaints in this aquifer, the highly transmissive nature of the aquifer, the unconfined conditions of the aquifer at the applicant's location, and the distance from these applications to the nearest water rights/permits, there is reasonable probability these applications can be developed without unlawful impairment of existing water rights/permits.

Report on Water Permit App. Nos. 8471-3 and 8472-3

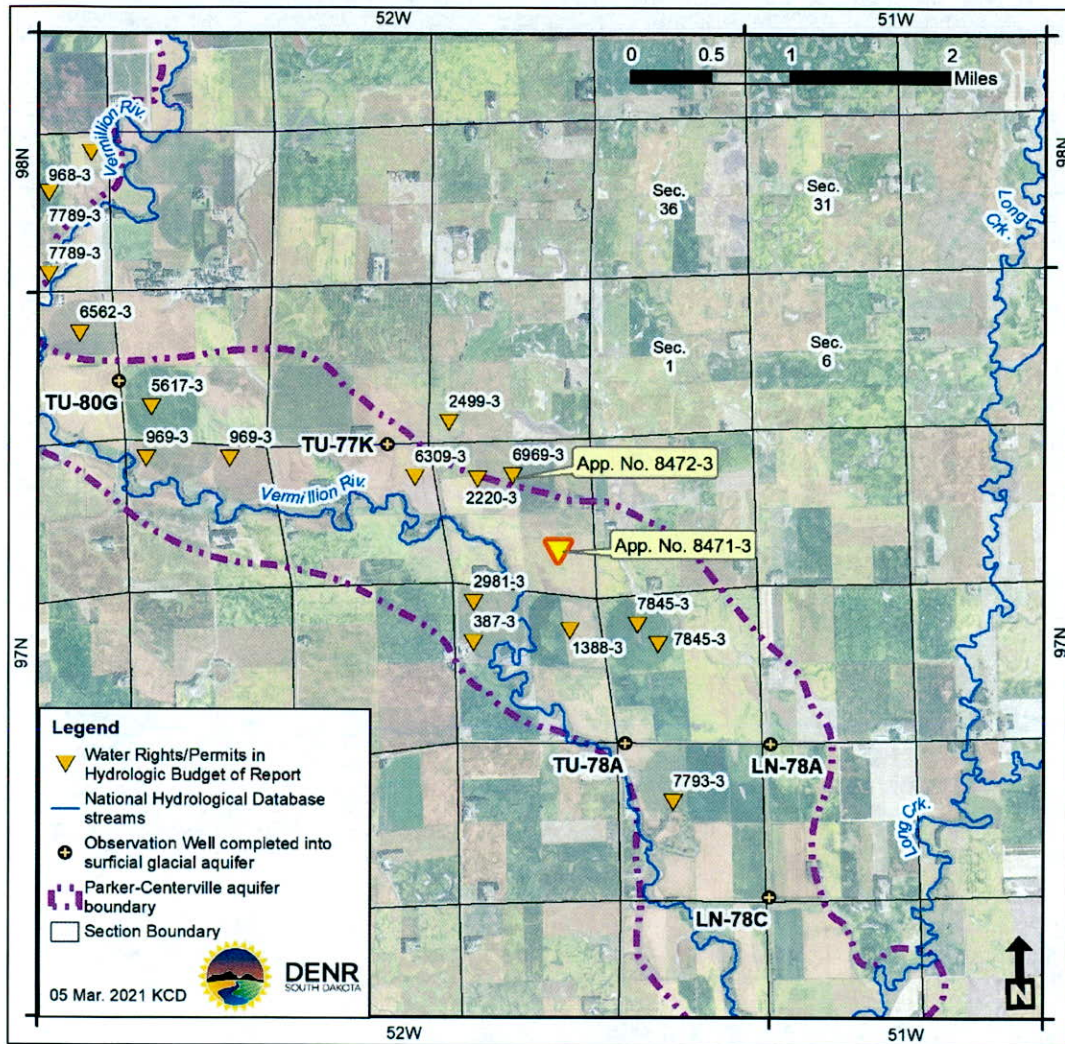


Figure 2: Parker-Centerville water rights/permits, observation wells, and boundary [3] [2] [7]

Table 2: Water rights/permits shown in Figure 2 [3]

Permit No.	Name/Business	Priority	Status	Use Type	Pump Rate (cfs)	Acres
387-3	Richard Vasgaard	1957-01-12	License	Irrigation	2.000	140
968-3	Gary/Rodney Knock	1962-05-22	License	Irrigation	0.560	40
969-3	Weeg Family Farms Llp	1956-10-13	License	Irrigation	3.960	284
1388-3	John L Vasgaard	1967-04-05	License	Irrigation	2.020	142
2220-3	Eldon Smit	1975-02-25	License	Irrigation	1.110	80
2499-3	Russell C Erickson	1975-12-24	License	Irrigation	1.110	140
2981-3	John L Vasgaard Jr	1976-08-26	License	Irrigation	4.000	460
5617-3	Arlan & Jonathan Hagena	1991-12-23	License	Irrigation	1.660	124
6309-3	Alan W Shade	2002-03-06	License	Irrigation	1.330	49
6562-3	Richard L Poppinga	2005-01-07	License	Irrigation	1.450	100
6969-3	Roger Blake	2008-02-01	License	Irrigation	1.340	60
7789-3	Jerome Hult	2013-03-12	Permit	Irrigation	3.680	150
7793-3	Darrell & Candice Osborn	2013-03-15	Permit	Irrigation	1.890	140
7845-3	Cleland Hagen Trust	2013-05-23	Permit	Irrigation	1.780	152

Conclusions

1. Water Permit Application No. 8471-3 proposes to appropriate 1.78 cubic feet of water per second (cfs) from one well completed into the Parker-Centerville aquifer located in the approximate center of the SE $\frac{1}{4}$ Section 11 for irrigation of 160 acres located in the SE $\frac{1}{4}$ Section 11; all in T97N-R52W.
2. Water Permit Application No. 8472-3 proposes to appropriate an additional 0.22 cfs to irrigate 60 additional acres to what is authorized by Water Right No. 6969-3, using the well authorized by Water Right No. 6969-3. Water Right No. 6969-3 appropriates 1.34 cfs from one well completed into the Parker-Centerville aquifer located in the NW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 11 to irrigate 60 acres located in the W $\frac{1}{2}$ NE $\frac{1}{4}$ Section 11; all in T97N-R52W.
3. Based on the hydrologic budget and record of observation well water levels, there is reasonable probability unappropriated water is available for these applications.
4. There is reasonable probability these applications can be developed without unlawful impairment of existing water rights/permits.



Kimberly C. Drennon
Natural Resources Engineer - DENR Water Rights Program

References

- [1] S. L. Holmes and D. Filipovic, "Hydrogeologic investigation of the Upper-Vermillion-Missouri aquifer," SD DENR Geological Survey Program, Vermillion, South Dakota, 2015.
- [2] SD Water Rights, "Observation wells," Pierre, South Dakota, 2021.
- [3] SD Water Rights, "Water right/permit files," Pierre, South Dakota, 2021.
- [4] M. J. Tipton, "Geology and hydrology of the Parker-Centerville outwash," SD DENR Geological Survey Program, Vermillion, South Dakota, 1957.
- [5] L. S. Hedges, S. L. Burch, D. L. Iles, R. A. Barari and R. A. Schoon, "Evaluation of ground-water resources eastern South Dakota and upper Big Sioux River, South Dakota and Iowa, Tasks 1-4," U.S. Army Corps of Engineers, Omaha, Nebraska, 1982.
- [6] R. J. Lindgren and D. S. Hansen, "Major aquifers in Hutchinson and Turner Counties, South Dakota," SD DENR Geological Survey Program, Vermillion, South Dakota, 1993.
- [7] A. Mathiowetz, "Report to the Chief Engineer on Water Permit Application No. 8358-3," SD DENR Water Rights Program, Joe Foss Bldg., Pierre, South Dakota, 2018.

- [8] J. Farmer, "Report to the Chief Engineer on Water Permit Application Nos. 8466-3 and 8467-3," SD DENR Water Rights Program, Joe Foss Bldg., Pierre, South Dakota, 2021.
- [9] SD Geological Survey, "Lithologic logs," Vermillion, South Dakota, 2020.
- [10] SD Water Rights, "Well completion reports," Pierre, South Dakota, 2021.
- [11] A. Jensen, "First occurrence of aquifer materials in Turner County, South Dakota," SD DENR Geological Survey Program, Vermillion, South Dakota, 2015.
- [12] L. S. Hedges, J. Allen and D. E. Holly, "Evaluation of ground-water resources eastern South Dakota and upper Big Sioux River - South Dakota and Iowa: Task 7: Ground water recharge," U.S. Army Corps of Engineers, Omaha, Nebraska, 1985.
- [13] SD Drinking Water Program, "Town of Hurley Drinking Water Report," SD DENR Drinking Water Program, Joe Foss Bldg., Pierre, South Dakota, 2021.
- [14] SD Water Rights, "Irrigation summaries," SD DENR Water Rights Program, Joe Foss Bldg., Pierre, SD, 2020.
- [15] NOAA National Centers for Environmental Education, "Climate at a glance: Divisional Time Series for South Dakota," 1 02 2021. [Online]. Available: <https://www.ncdc.noaa.gov/cag/>. [Accessed 24 02 2021].
- [16] SD Water Rights, "County Files," SD DENR Water Rights Program, Joe Foss Bldg., Pierre, SD, 2021.

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APR 06 2021

WATER RIGHTS
PROGRAM

AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA)

COUNTY OF TURNER)

:SS

Allyson M. Hill, being first duly sworn, on oath says the VIBORG ENTERPRISE is a WEEKLY newspaper published in VIBORG in said county of TURNER, State of South Dakota; and that she is authorized to and does make this affidavit on behalf of said VIBORG ENTERPRISE; that affiant has personal knowledge of all facts stated in this affidavit; that said newspaper is a legal newspaper as defined by SDCL 17-2-2.1 through 17-2-2.4 inclusive as amended, has a bona fide circulation of at least two hundred copies WEEKLY, has been published in the English language within said county and has been admitted to the United States mail under the second class mailing privilege, for at last one year continuously next prior to the publication of the notice herein mentioned and was and is printed wholly or in part in an office maintained at said place of publication; that said notice, a printed copy of which taken from the paper in which the same was published is hereto attached and is made part of this affidavit, was published in said newspaper

1 time(s) as follows: that the first publication of said

notice in said newspaper aforesaid was on Thursday

the 18 day of March, 2021,

and that the succeeding publications were severally

on Thursday, the ____ day of _____, 2021;

on Thursday, the ____ day of _____, 2021;

on Thursday, the ____ day of _____, 2021;

on Thursday, the ____ day of _____, 2021;

Affiant further says that the full amount of the fees charged for the publication of said notice inures to the benefit of the publishers of said newspaper; that no agreement of understanding for the division thereof has been made with any other person, that no part therefore has been agreed to be paid to any person whomsoever; and that the fees charged for the publication thereof are:

DOLLARS (\$ 28.41)

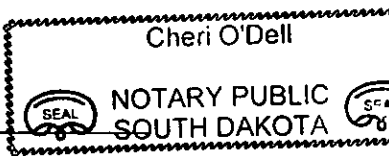
(x) Allyson M. Hill, Allyson M. Hill

Subscribed and sworn to before me this 30th day of

March, 2021

Cheri O'Dell
Notary Public

My commission expires 03/12/2025.



**NOTICE OF
APPLICATION NOS.
8471-3 and 8472-3 to
Appropriate Water**

Notice is given that Roger Blake, 46362 295th St, Centerville SD 57014 has filed the following applications for a water permit. Application No. 8471-3 proposes to appropriate 1.78 cubic feet of water per second (cfs) from one well to be completed into the Parker Centerville Aquifer (approximately 41 feet deep) located in the approximate center of the SE 1/4 Section 11 for irrigation of 160 acres located in the SE 1/4 Section 11; all in T97N-R52W.

Application No. 8472-3 proposes to appropriate an additional 0.22 cfs and to irrigate 60 additional acres to what is currently authorized by Water Right No. 6969-3. Water Right No. 6969-3 appropriates 1.34 cfs from one well completed into the Parker Centerville Aquifer (41 feet deep) located in the NW 1/4 NE 1/4 Section 11 to irrigate 60 acres located in the W 1/2 NE 1/4 Section 11; all in T97N-R52W. This application requests an additional 0.22 cfs from the existing well to irrigate an additional 60 acres located in the E 1/2 NE 1/4 Section 11-T97N-R52W. The site of these projects is approximately 8 miles north of Centerville SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application Nos. 8471-3 and 8472-3 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 recommendations with qualifications, the applications, and staff reports 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 the applications or recommendations must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendations. 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 March 29, 2021.

The petition may be informal but must include a statement describing the petitioner's interest in the applications, the petitioner's reasons for opposing or supporting the applications, 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 recommendations of the Chief Engineer and no petition to oppose the applications is received, the Chief Engineer shall act on the applications pursuant to the recommendations with no hearing held before the Water Management Board. If a petition opposing the applications or contesting the recommendation is filed, then a hearing will be scheduled, and the Water Management Board will consider the applications. Notice of the hearing will be given to the applicant and any person filing a petition.

Published once at the total approximate cost of \$ 28.41

Argus Leader

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MAR 29 2021

WATER RIGHTS
PROGRAM

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PO #: 0004640955

Lines : 127

Ad Total \$81.93

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of Affidavits: 1

ROGER BLAKE
46362 295TH ST
CENTERVILLE, SD 57014

Account No.: 6059575292ROGE
Ad No.: 0004640955

Argus Leader AFFIDAVIT OF PUBLICATION

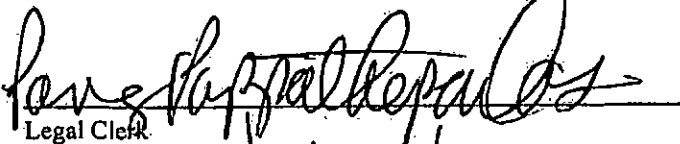
STATE OF SOUTH DAKOTA

COUNTY OF MINNEHAHA

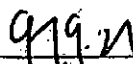
I being duly sworn, says: That The Argus Leader is, and during all the times hereinafter mentioned was, a daily legal newspaper as defined by SDCL 17-2-21, as amended published at Sioux Falls, Minnehaha County, South Dakota; that affiant is and during all of said times, was an employee of the publisher of such newspaper and has personal knowledge of the facts stated in this affidavit; that the notice, order or advertisement, a printed copy of which is hereto attached, was published in said newspaper upon

Thursday, March 18, 2021

Sworn to and subscribed before me this 29 day of March, 2021.


Legal Clerk


Notary Public, State of Wisconsin, County of Brown


My Commission expires

VICKY FELTY
Notary Public
State of Wisconsin

NOTICE OF APPLICA-
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to Appropriate Water

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The petition may be informal but must include a statement describing the petitioner's interest in the applications, the petitioner's reasons for opposing or supporting the applications, 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 recommendations of the Chief Engineer and no petition to oppose the applications is received, the Chief Engineer shall act on the applications pursuant to the recommendations with no hearing held before the Water Management Board. If a petition opposing the applications or contesting the recommendation is filed, then a hearing will be scheduled, and the Water Management Board will consider the applications. Notice of the hearing will be given to the applicant and any person filing a petition.

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Mar 18, 2021



DENR
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**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

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

March 9, 2021

Roger Blake
46362 295th St
Centerville SD 57014

Dear Mr. Blake:

Water Permit Application Nos. 8471-3 and 8472-3 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 Viborg Enterprise printed at Viborg SD (Ph # 605 766-7827) and the Argus Leader printed at Sioux Falls SD (Ph # 605 2200). You will need to contact the newspapers and authorize publication of this notice. For your information, a copy of the notice, the recommendations of the Chief Engineer and report on the applications 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 recommendations, 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 applications.

NOTICE OF APPLICATION NOS. 8471-3 and 8472-3 to Appropriate Water

Notice is given that Roger Blake, 46362 295th St, Centerville SD 57014 has filed the following applications for a water permit. Application No. 8471-3 proposes to appropriate 1.78 cubic feet of water per second (cfs) from one well to be completed into the Parker Centerville Aquifer (approximately 41 feet deep) located in the approximate center of the SE 1/4 Section 11 for irrigation of 160 acres located in the SE 1/4 Section 11; all in T97N-R52W.

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523 E. CAPITOL AVE
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APR 19 2021

Roger Blake
46362 295th St
Centerville SD 57014

Dear Mr. Blake:

Enclosed are Water Permit Nos. 8471-3 and 8472-3 authorizing construction of the water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permits.

Form 10's, *Notice of Completion of Works and Application of Water to Beneficial Use*, are enclosed. Please return the completed forms after you have finished the systems and have put the water to beneficial use. An investigation can then be scheduled so the water licenses 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