

**WATER PERMIT NO. 8595-3**

Name of Applicant: Kirk Sorensen

Address: 46113 Timber Rd, Vermillion SD 57069

Phone: 605 677-7979

Amount of Water Claimed: 1.33 cfs

Total Acres: 80

Source of Water Supply: groundwater (one well)

Water to be used for: irrigation

County: Clay

Type of Waste Disposal System:

Location: 1 mile west of Vermillion

PRIORITY

Date Received: 12-30-21

Application/License Fee: \$ 950

Corrected Application Received: 2-3-22

Period of Annual Use: May 1 – September 30

Remarks: Requesting diversion rate greater than the statutory limit

Diversion Point: NE 1/4 SW 1/4 Sec 15-T92N-R52W

Land to be Irrigated: SW 1/4 Sec 15-T92N-R52W

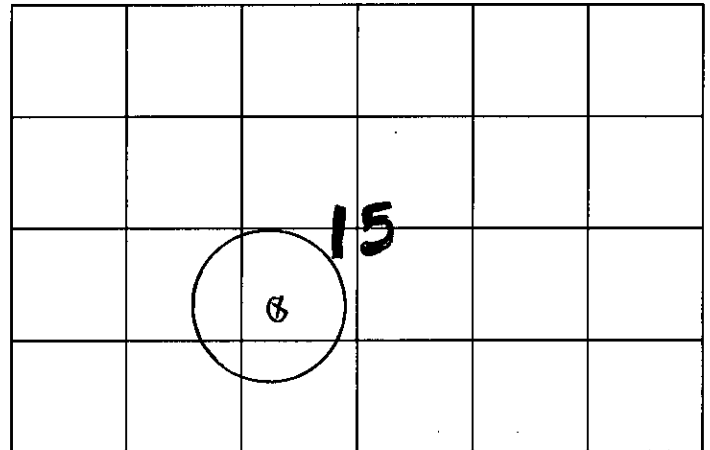
Depth of Well: 92 feet

Well Driller: Christenson Well Drilling & Irri

Remarks:

Type of Map: aerial

Prepared by:



Reviewed and the Number Assigned on: 2-16-22

By: **Karen Schlaak**

Notice of Hearing - date to intervene: \_\_\_\_\_

**SOUTH DAKOTA**  
**WATER PERMIT NO. 8595-3**

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Date of first receipt of application December 30, 2021.

Date of return to applicant for corrections, amendments or changes January 3, 2022.

Date of receipt of corrected application February 3, 2022.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8595-3 to Kirk Sorensen, 46113 Timber Rd, Vermillion SD 57069 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 8595-3 appropriates 1.33 cubic feet of water per second (cfs) from one well to be completed into the Missouri:Elk Point Aquifer (approximately 92 feet deep) located in the NE 1/4 SW 1/4 Section 15 for irrigation of 80 acres located in the SW 1/4 Section 15; all in T92N-R52W. This site is located approximately 1 mile west of Vermillion SD.
2. The amount of the appropriation may not exceed 2 acre feet annually for each acre of land to which water is actually and beneficially applied for irrigation. The water is to be used during the following described annual period: May 1 – September 30.
3. The date from which applicant may claim right is December 30, 2021.
4. The date of approval of Permit No. 8595-3 is April 18, 2022.
5. One-fifth of the construction is to be completed on or before October 18, 2024.
6. All construction is to be completed on or before April 18, 2027.
7. Water is to be put to beneficial use on or before April 18, 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 Permit No. 8595-3 is located near domestic wells and other wells which may obtain water from the same aquifer. Water withdrawals 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. 8595-3 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. 8595-3 authorizes a maximum diversion rate of 1.33 cfs for the irrigation of 80 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

APR 28 2022  
date



## FORM 2: Application for irrigation in South Dakota

(type or print)

RECEIVED

DEC 30 2021

|                                                                                                             |                                     |                                 |                                                                       |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------|-----------------------------------------------------------------------|
| Mail to:<br><br>DENR - Water Rights<br>523 E Capitol Ave<br>Pierre, SD 57501-3182<br><br>ph. (605) 773-3352 | No. <u>8595-3</u> (office use only) | Hydrologic Unit <u>10170102</u> | WATER RIGHTS<br>PROGRAM<br><br>PAID<br>DEC 30 2021<br>Ck# <u>7378</u> |
|                                                                                                             | Basin <u>Vermillion River</u>       |                                 |                                                                       |
|                                                                                                             | Newspaper <u>Plain Talk</u>         |                                 |                                                                       |
|                                                                                                             | <u>Press &amp; Dakotan</u>          |                                 |                                                                       |

## Application For Permit To Appropriate Water For Irrigation

Type of Application: ☒ New ☐ Vested Right ☐ Amendment/Correction to Permit No. \_\_\_\_\_

(Use predates Mar 2, 1955)

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

1. Name to Appear on Irrigation Permit Kirk Sorensen

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

Mailing Address 46113 Timber Rd. Vermillion SDak 57069  
(Address) (City) (State) (Zip Code)Phone 605-677-7979 Mobile 605-677-7979 Email \_\_\_\_\_2. Amount of water claimed 1.33 \*CFS or 600 \*\*GPM 0 \*\*\*AF Total Acreage 80  
(\*Cubic Feet per Second) (\*\*Gallons per Minute) (\*\*\*)Acre Feet - storage capacity of dam/dugout or annual use if applicable)3. Source of water supply Missouri Aquifer4. Location of point of diversion 1 well NE 1/4 SW 1/4 15 92N 52W  
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)County Clay5. County or counties where water will be used Clay6. Annual period during which water is to be used May 1 - Sept 307. List below each forty acre division, or lot, or fraction thereof and show number of acres to be irrigated in each.  
(Attach sheet if more space is needed)

| Land Description               | Acres     | Land Description | Acres |
|--------------------------------|-----------|------------------|-------|
| <u>SW 1/4 East</u>             | <u>40</u> |                  |       |
| <u>SW 1/4 West</u>             | <u>40</u> |                  |       |
| <u>SW 1/4 Sec 15-T92N-R52W</u> | <u>80</u> |                  |       |

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

Requesting diversion rate greater than statutory limit.I, Kirk Sorensen, the applicant, certify under  
Name of Person Title (if applicable)

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

## Supplemental Information

(type or print)

### 1. Well Information

(check one or both as applicable)



Drilling new well(s)



Using existing well(s)

a) If new wells, how many 1 Have test holes been drilled ☒ Yes ☐ No Drilled by Christensen Bros. Irr.  
(if yes, please provide copies of logs)

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

For either Existing or Proposed Wells:

c) Well Depth (required) 92 Depth to Top of Water Bearing Material 26 ft Depth to Water from Surface 26 ft

d) Distance to nearest domestic well on applicant's property 2850 Property owned by others 2850

### 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)

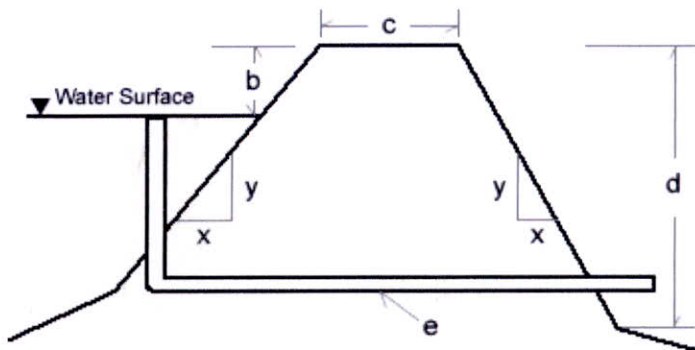
Upstream \_\_\_\_\_

Downstream \_\_\_\_\_

h) Surface Area of Impoundment \_\_\_\_\_

i) Storage \_\_\_\_\_ Acre Feet

j) Drainage Area Above Dam \_\_\_\_\_ Acres



88005 Hwy. 57  
Hartington, NE 68739  
Office 402-254-6809

ADDRESS \_\_\_\_\_

STATE \_\_\_\_\_ DATE \_\_\_\_\_ 20 \_\_\_\_\_

TEST HOLE ☐ FARM WELL ☐ IRRIGATION ☒

GPS Coordinates:  $\begin{array}{r} 42 \quad 47 \quad 01.92 \\ -96 \quad 58 \quad 37.32 \\ \hline \end{array}$

|  |  |
|--|--|
|  |  |
|  |  |

Quarter SWSection 15

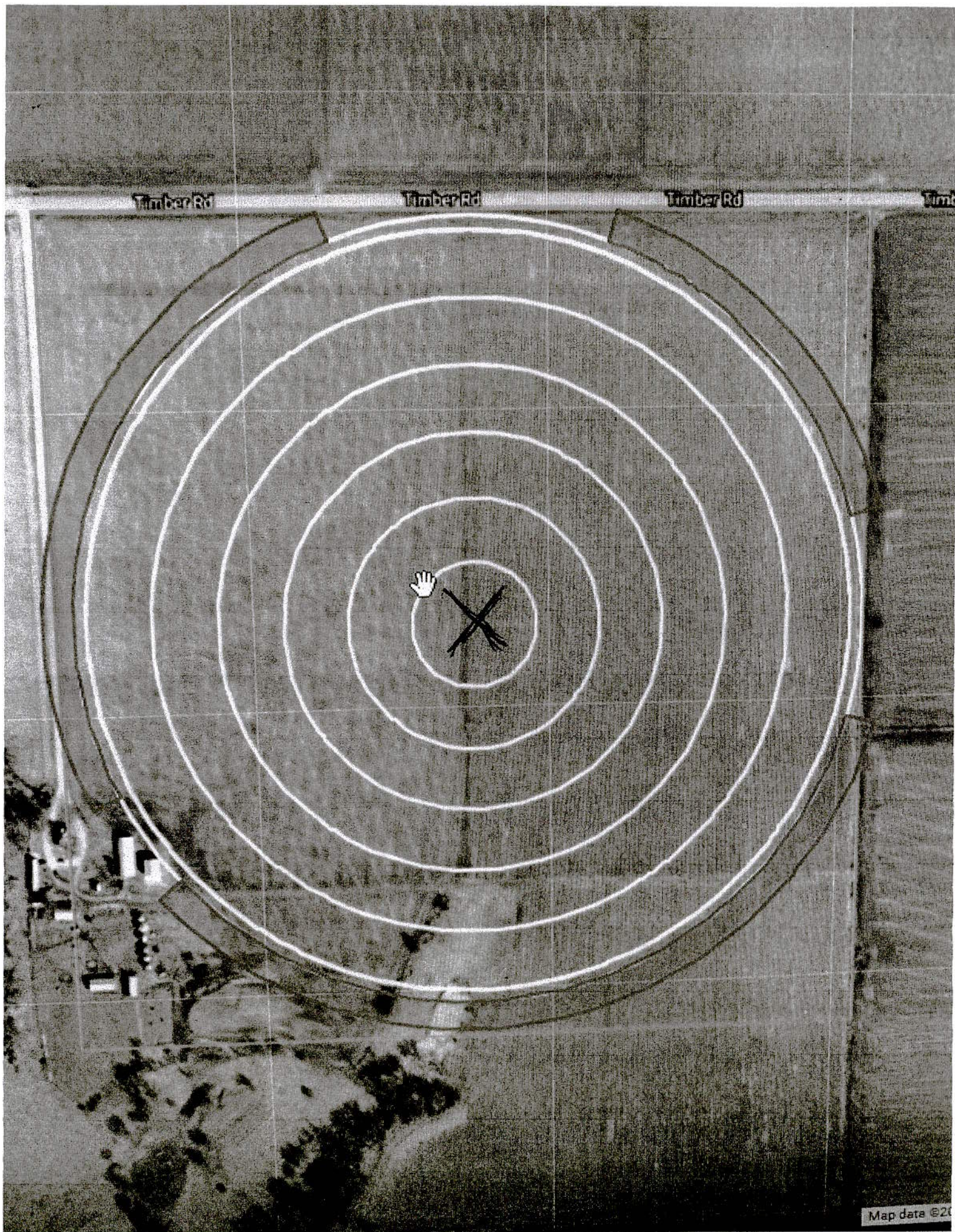
Township 92 N

Range 52 west

County CLAY

[illegible]

|                             |      |
|-----------------------------|------|
| STATIC WATER LEVEL          | 26   |
| PUMPING WATER LEVEL 850 gpm | 56   |
| SCREEN LENGTH               | 40'  |
| SLOT SIZE                   | .085 |
| TOTAL DEPTH                 | 92   |



92N 52W  
Section: 09

92N 52W  
Section: 10

92N 52W  
Section: 11

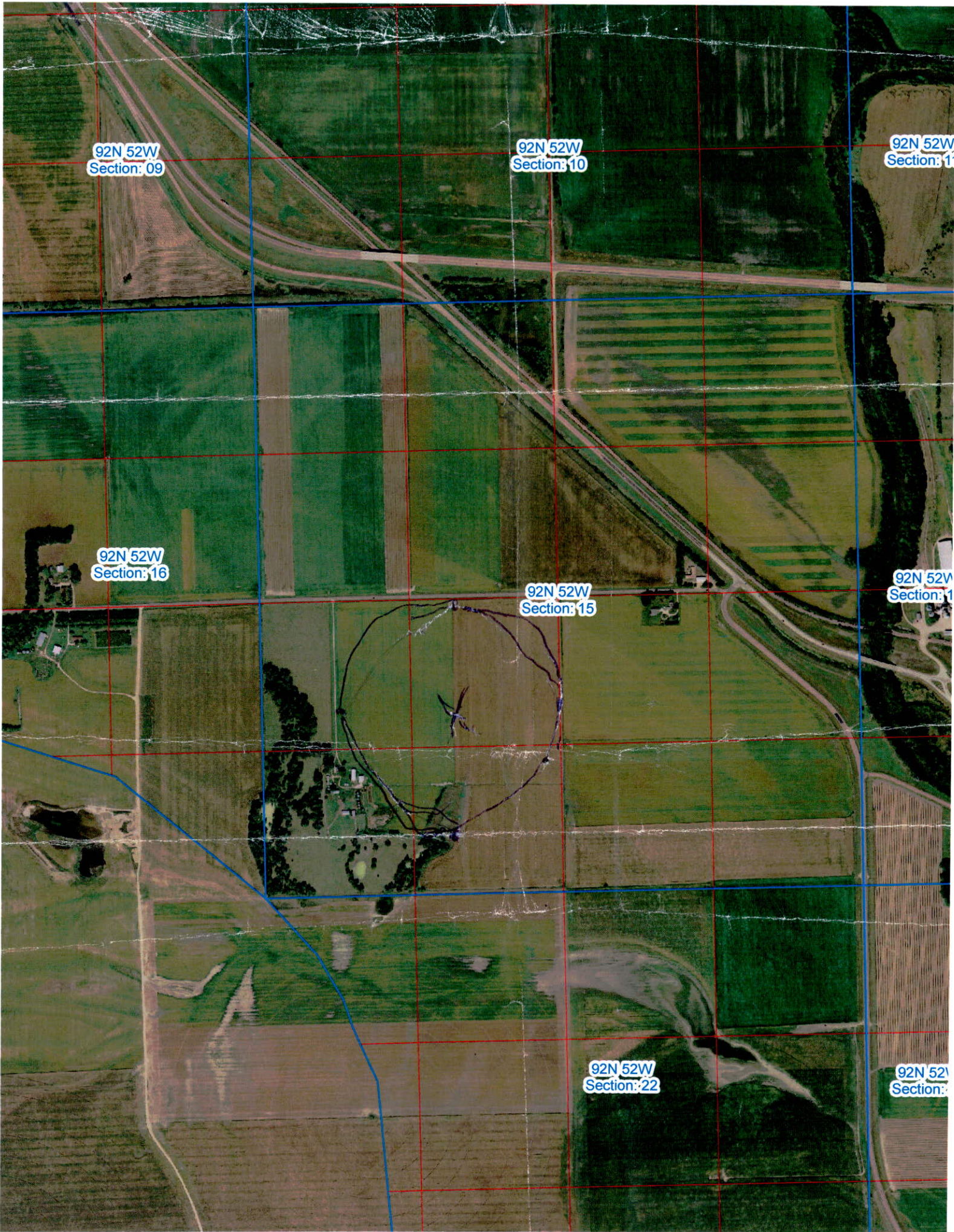
92N 52W  
Section: 16

92N 52W  
Section: 15

92N 52W  
Section: 14

92N 52W  
Section: 22

92N 52W  
Section: 21



# RECEIPT

## WATER RIGHTS PROGRAM South Dakota Department of Agriculture and Natural Resources

Date December 30, 2021

RECEIVED OF Kirk C. Sorensen 46113 Timber Rd. Vermillion SD 57069

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

|                                                                                                                        |                  |
|------------------------------------------------------------------------------------------------------------------------|------------------|
| Fee for Application for Permit No. <u>8595-3</u> to Appropriate Water, to construct and to put water to beneficial use | \$ <u>750.00</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>8595-3</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>950.00</u> |

By Eric Gronlund  
Chief Engineer  
EM



**DEPARTMENT of AGRICULTURE  
and NATURAL RESOURCES**

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

January 3, 2022

Kirk Sorensen  
46113 Timber Rd  
Vermillion SD 57069

Dear Mr. Sorensen:

Thank you for submitting the *Application for a Permit to Appropriate Water* for irrigation in Clay County. In order to complete the application, the following is required.

- A map needs to be submitted that references a government section corner or quarter corner including section, township and range. For your use, I have enclosed a map with those designations. Please outline the 80 acres to be irrigated and mark the proposed well location with an "X".

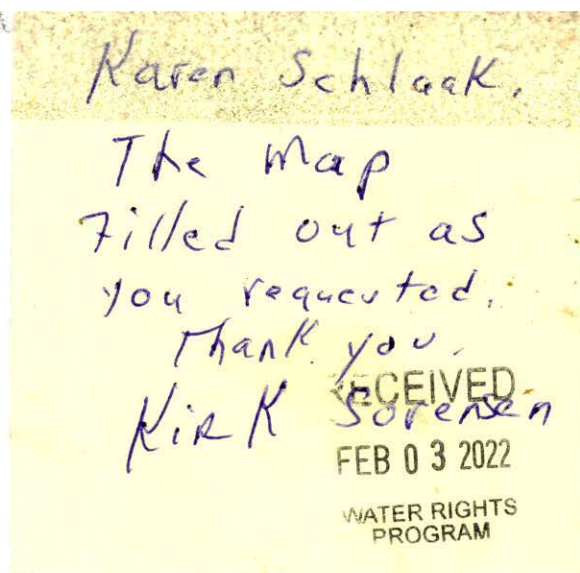
If you have any questions, please contact me.

Sincerely,

*Karen Schlaak*

Karen Schlaak  
Water Rights Program  
605 773-3352  
[karen.schlaak@state.sd.us](mailto:karen.schlaak@state.sd.us)

enclosure





**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. 8595-3, Kirk Sorensen**

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. 8595-3, Kirk Sorensen, 46113 Timber Road, Vermillion SD 57069.

The Chief Engineer is recommending APPROVAL of Application No. 8595-3 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 Permit No. 8595-3 is located near domestic wells and other wells which may obtain water from the same aquifer. Water withdrawals 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. 8595-3 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. 8595-3 authorizes a maximum diversion rate of 1.33 cfs for the irrigation of 80 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  
March 25, 2022

REPORT TO THE CHIEF ENGINEER  
ON  
WATER PERMIT APPLICATION NO. 8595-3  
KIRK SORENSEN  
MARCH 25, 2022

Water Permit Application No. 8595-3 proposes to irrigate 80 acres located in the SW ¼ Section 15 at a maximum instantaneous diversion rate of 1.33 cubic feet of water per second (cfs) from one well, approximately 92 feet deep, to be completed into the Missouri: Elk Point aquifer and located in the NE ¼ SW ¼ Section 15; all in T92N-R52W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. This site is located approximately one mile west of Vermillion, SD and approximately 6 miles southeast of the proposed well site for Application No. 8591-3, also requesting to appropriate water from the Missouri: Elk Point aquifer.

**AQUIFER: Missouri: Elk Point (M:EP)**

**Aquifer Characteristics:**

The Elk Point management unit of the Missouri aquifer, also known as the Missouri: Elk Point aquifer, is a deposit of glacial outwash lying within the Missouri River flood plain from the Yankton area down to the southeastern tip of South Dakota (Niehus, 1994; Stephens, 1967). Hansen (2021) described the aquifer in detail. In short, it underlies approximately 219,100 acres of Yankton, Clay, and Union counties with an estimated 3,287,100 ac-ft of recoverable water in storage (Hedges et al, 1982). The aquifer is generally under unconfined conditions, but confined conditions can locally be encountered (Water Rights, 2022c and 2022e).

The test well completion report submitted with the application identified fine sand, coarse gravel and coarse sand ranging from 35 feet to 92 feet below ground surface. The aquifer materials were overlain by “brown clay” from 3 to 35 feet below land surface. The reported static water level was 26 feet at the time of completion. Based on local lithologic information (SDGS, 2022), and other well completion reports (Water Rights, 2022e), the overlying clay appears to generally be silty and sand. Therefore it likely does not act as a confining layer. Thus, the Missouri: Elk Point aquifer is expected to be unconfined in the area of this application.

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

Pursuant to SDCL 46-2A-9, “A permit to appropriate water may be issued only if there is a reasonable probability that there is unappropriated water available for the applicant’s proposed use, that the diversion point can be developed without unlawful impairment of existing 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 from the Missouri: Elk Point aquifer.

**WATER AVAILABILITY:**

This application proposes to appropriate water from the Missouri: Elk Point aquifer. The probability of unappropriated water available from the aquifer can be evaluated by considering SDCL 46-6-3.1, which requires the amount of water withdrawn annually to not exceed the average estimated recharge unless the

aquifer is older or lower than the Greenhorn Formation and the applicant is a water distribution system. The Missouri: Elk Point aquifer is not stratigraphically lower/older than the Greenhorn Formation (Fahrenbach et al, 2010), and the applicant is not a water distribution system as defined in SDCL 46-1-6(17). Therefore, a comparison of average annual recharge and average annual withdrawals from the Missouri: Elk Point aquifer is required for this application.

## **Hydrologic Budget**

### *Recharge*

The Missouri: Elk Point aquifer is recharged by infiltration of precipitation, groundwater inflow from the Lower Vermillion Missouri and Lower James Missouri aquifers, and seepage from the Missouri, Vermillion, James, and Big Sioux Rivers (Bugliosi, 1986; Niehus, 1994). The recharge rate estimate for the Missouri: Elk Point aquifer includes an estimate of recharge induced from the Missouri River by the pumping operations of the Lewis and Clark Regional Water System. A thorough discussion of the recharge rate to the aquifer can be found in Hansen (2021). The estimated average annual recharge is approximately 92,000 ac-ft/yr (Hansen, 2021). It should be noted this does not account for any recharge induced from other domestic and appropriative wells in close vicinity to the Missouri River.

### *Discharge:*

Discharge from the Missouri: Elk Point aquifer occurs through evapotranspiration where the aquifer and water level are at or near land surface, well withdrawals, leakage to the underlying Dakota aquifer and outflow to the Missouri, James, Vermillion, and Big Sioux Rivers (Bugliosi, 1986; Niehus, 1994). Currently, there are 623 water rights/permits (584 irrigation, 39 non-irrigation) and 5 future use permits (Water Rights, 2022d).

Hansen (2021) estimated the average annual use by non-irrigation water rights/permits to be 48,361 ac-ft/yr. This value also includes the reported pumpage for irrigation by Water Permit No. 5998A-3 held by Clay Rural Water System Inc. and as reported with their permit for rural water system use Water Permit No. 7388-3 (Hansen, 2021). The five future use permits reserve 14,900 ac-ft/yr. Hansen (2021) has a thorough discussion of the exact details of the non-irrigation water use estimate. There have been no changes in number of permits or estimated use by the non-irrigation water rights/permits and the future use permits since Hansen (2021) completed his report.

The 2021 irrigation questionnaire data has not been fully reported or compiled yet (Water Rights, 2022b) and thus there is no new data beyond what was analyzed by Hansen (2021). The average annual irrigation pumpage from 1979 through 2020 is approximately 19,031 ac-ft/yr (Hansen, 2021). However, Hansen (2021) noted that it is not likely to be fully representative of current development due to a significant increase in the number of permits and permitted acreage that started in 2006. Hansen (2021) used methods developed and refined by Farmer (2021) to estimate current average annual irrigation use more appropriately from the Missouri: Elk Point aquifer. Farmer (2021) determined application rates of 0.343 ft/yr for crop irrigation and 0.97 ft/yr for turf irrigation per permitted acre based on the submitted irrigation questionnaire data (Water Rights, 2022b). The 584 irrigation water rights/permits authorize the irrigation of 80,564.54 crop acres and 744.6 turf acres. Using Farmer's (2021) application rate for the crop acres (0.343 ft/yr), yields an estimated average annual use of 27,634 ac-ft/yr. The estimated average annual turf irrigation water usage is shown in Table 1.

Table 1- Estimated average annual turf irrigation water use from the Missouri: Elk Point aquifer (Farmer, 2021; Water Rights, 2022d)

| Permit No.                                                           | Name                                          | Status  | County  | Acres | Estimated Use (ac-ft/yr) |
|----------------------------------------------------------------------|-----------------------------------------------|---------|---------|-------|--------------------------|
| 1294-3                                                               | RECREATION DEV ASSN INC                       | LICENSE | UNION   | 102   | 98.9                     |
| 2011-3                                                               | TR GOLF LLC                                   | LICENSE | UNION   | 95    | 92.2                     |
| 5786-3                                                               | DAKOTA DUNES GOLF COURSE                      | LICENSE | UNION   | 173   | 167.8                    |
| 5935-3                                                               | TED WAITT                                     | LICENSE | UNION   | 1     | 1.0                      |
| 5936-3                                                               | APPLIED ENGINEERING INC                       | LICENSE | YANKTON | 1.8   | 1.7                      |
| 5998A-3                                                              | CLAY RURAL WATER SYSTEM INC                   | PERMIT  | UNION   | 300   | n/a*                     |
| 8010-3                                                               | RYAN RUSHER                                   | LICENSE | YANKTON | 2.5   | 2.4                      |
| 8029-3                                                               | DAKOTA DUNES COMM IMPROVEMENT DISTRICT        | PERMIT  | UNION   | 17.8  | 17.3                     |
| 8040-3                                                               | HEINE ELECTRIC & IRRIGATION INC               | LICENSE | CLAY    | 1     | 1.0                      |
| 8354-3                                                               | TR GOLF LLC                                   | PERMIT  | UNION   | 30    | 29.1                     |
| 8407-3                                                               | GAYVILLE-VOLIN SCHOOL DISTRICT 63-1           | LICENSE | YANKTON | 4.5   | 4.4                      |
| 8530-3                                                               | NATIONAL FIELD ARCHERY ASSOCIATION FOUNDATION | LICENSE | YANKTON | 16    | 15.5                     |
| * = Accounted for in non-irrigation use with Water Permit No. 7388-3 |                                               |         | Total   | 744.6 | 431.3                    |

There are numerous domestic wells completed into the Missouri: Elk Point aquifer (Water Rights, 2022e). However, domestic users are not required to report their usage. Furthermore, with the prevalence of rural water systems in the areas where the aquifer is present, it is likely many domestic well users have converted to using rural water. These factors and the fact that domestic users have a limited diversion rate means domestic use is considered a negligible portion of the hydrologic budget.

#### *Balance of Hydrologic Budget*

Estimated average annual recharge to the Missouri: Elk Point aquifer is 92,000 ac-ft/yr. Estimated average annual withdrawals is 91,326 ac-ft/yr (future use: 14,900; non-irrigation: 48,361; crop irrigation: 27,634; turf irrigation: 431.3). Following the methods set out by Farmer (2021), Application No. 8591-3 requesting 80 acres and this application requesting 80 acres will use 54.9 ac-ft/yr, combined. Therefore, there is a reasonable probability unappropriated water is available for this proposed appropriation. The hydrologic budget is also supported by the observation well data as detailed in the next section of this report.

#### **Observation Well Data:**

Administrative Rule of South Dakota Section 74:02:05:07 requires that the Water Management Board shall rely upon the record of observation well measurements 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 Water Rights Program maintains 36 observation wells completed into the Missouri: Elk Point aquifer (Water Rights, 2022c). The nearest observation well, CL-80C, is approximately 3.5 miles southeast of the proposed well location. All other Missouri: Elk Point aquifer observation wells are greater than 5 miles away from the project area. The hydrograph for CL-80C is shown in Figure 1.

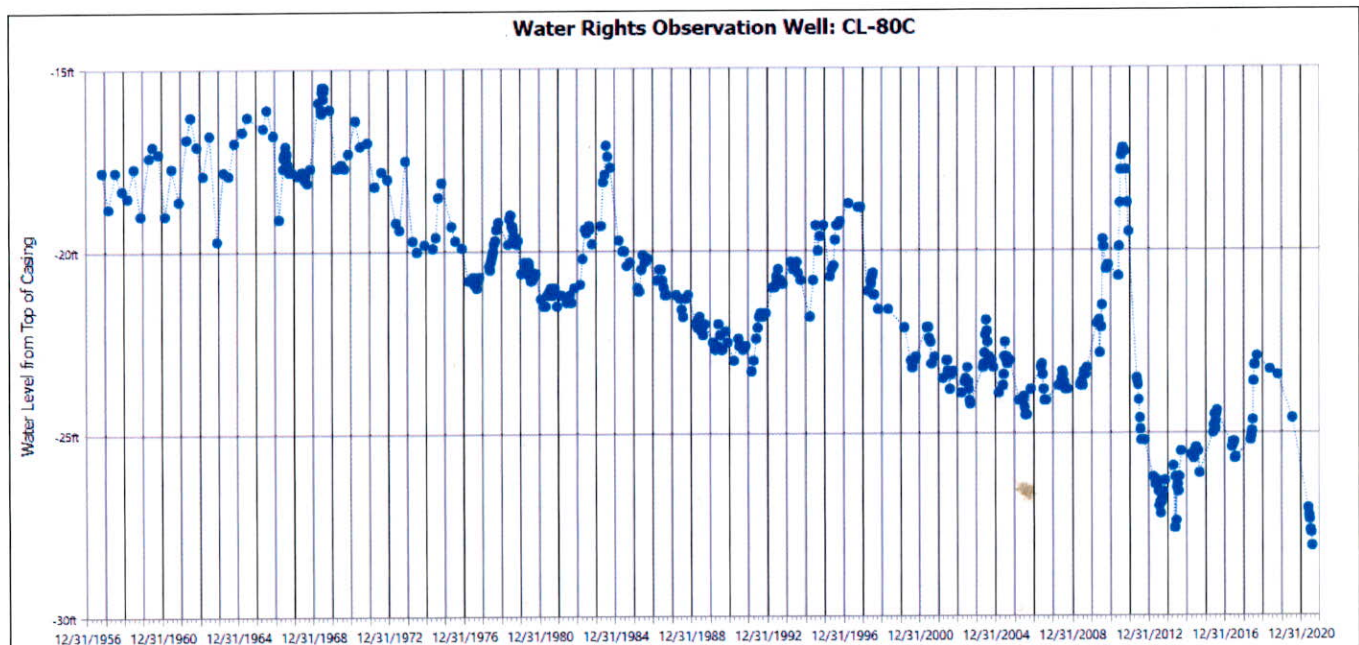


Figure 1- Missouri: Elk Point aquifer observation Well CL-80C hydrograph (Water Rights, 2021c)

The hydrograph for CL-80C is representative of the hydrographs for the other observation wells completed into the Missouri: Elk Point aquifer located close to the Missouri River. In general, the observation well hydrographs show water levels that are broadly stable but are responsive to climatic conditions. The water levels rise during wet periods and slowly decline to stable levels during drier periods. Furthermore, the hydrographs demonstrate that any drawdowns from pumping are temporary because the water levels typically recover to pre-pumping levels after the irrigation season if pumping drawdowns are even noticeable on the hydrograph. Several of the Missouri: Elk Point aquifer observation wells show a gradual long-term downward trend including CL-80C. These wells are located closer to the Missouri River and the downward trend is due to entrenchment of the Missouri River channel below Gavin's Point Dam in Yankton. Subsequently, this entrenchment has lowered the water level of the river and thus of the hydrologically connected aquifer and is easily noticed in the observation wells near the river. However, this lowering of the water level in the aquifer is not a sign of over appropriation of the aquifer. The observation well data and how it reacts to climatic conditions does not show any long-term effects from pumping. Therefore, the observation well hydrographs document there is unappropriated water available for this proposed appropriation.

#### **POTENTIAL FOR UNLAWFUL IMPAIRMENT OF EXISTING WATER RIGHTS:**

The Missouri: Elk Point aquifer is primarily under unconfined conditions in the area of this application (Water Rights, 2022c and 2022e). The nearest Missouri: Elk Point aquifer appropriative well is approximately 0.4 miles to the northwest of the applicant's proposed well site (Water Rights, 2022d). The proposed well site for Application No. 8595-3 is also within one-half mile of portions of the future use area for Future Use Permit No. 6869-3 for Lewis & Clark RWS (Water Rights, 2022d). The nearest domestic well on file with the Water Rights Program that appears to be completed into the Missouri: Elk Point aquifer and is not owned by the applicant is approximately 1.3 miles northwest (Water Rights,

2022e). It is likely there are other domestic wells in the vicinity of the applicant's proposed well site that are not on file with the DANR-Water Rights Program.

In general, drawdown does not extend far from a pumping well completed into an unconfined aquifer but can extend some distance from a well completed into a confined aquifer. The applicant's proposed well site appears to be under unconfined conditions. This is exemplified by the hydrograph for CL-80C (see Figure 1) that does not show any effect from pumping although it is surrounded by at least five high capacity wells, wells with a diversion rate greater than 0.2 cfs, within approximately one-half mile (Water Rights, 2022c and 2022d). Furthermore, there has not been a history of well interference complaints from wells completed into the Missouri: Elk Point aquifer (Water Rights, 2022a).

In order to balance interests between appropriative use and domestic water users, the Water Management Board defined an "adversely impacted domestic well" in Administrative Rule of South Dakota (ARSD) 74:02:04:20(7) as:

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

When considering the lack of drawdown caused by pumping, the fact drawdown does not extend far from pumping a well in an unconfined aquifer, the large saturated thickness of the aquifer, and the lack of complaints, there is a reasonable probability this proposed diversion can be developed without unlawfully impairing existing adequate domestic wells or adequate appropriative wells.

#### **SDCL 46-5-6:**

Pursuant to SDCL 46-5-6, the diversion rate for an irrigation appropriation cannot be in excess of one 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. 8595-3 proposes to divert water at a maximum rate of 1.33 cfs for the irrigation of 80 acres or at a rate of 1.16 cfs per 70 acres. The applicant did not provide a reason for the request. This application intends to use a smaller sized center pivot. In general, center pivot irrigation systems require a certain amount of flow rate to operate properly, and this flow rate is usually designed around a full quarter section pivot (approximately 136 acres). The request by the applicant is reasonable and acceptable to the Water Rights Program.

#### **CONCLUSIONS:**

1. Application No. 8595-3 proposes the irrigation of 80 acres at a maximum instantaneous diversion rate of 1.33 cfs from a well completed into the Missouri: Elk Point aquifer in Clay County.
2. Based on the observation well data and a hydrologic budget, there is a reasonable probability unappropriated water is available for this proposed appropriation.
3. There is a reasonable probability that pumping this proposed diversion will not unlawfully impair existing domestic water users and water rights with adequate wells.

4. Application No. 8595-3 has requested a diversion rate in excess of the statutory limit at the equivalent of 1.16 cfs per 70 acres. The limited size of the center pivot may still require a higher flow rate to properly operate. This is an acceptable reason.



Adam Mathiowetz, PE  
SD DANR-Water Rights Program

#### REFERENCES:

- Bugliosi, E.F. 1986. Water Resources of Yankton County, South Dakota. Water Resources Investigations Report 84-4241. U.S. Geological Survey, Huron, SD.
- Fahrenbach, M.D., Steece, F.V., Sawyer, J.F., McCormick, K.A., McGillivray, L.D., Schulz, L.D., and Redden, J.A. 2010. South Dakota Stratigraphic Correlation Chart. Oil and Gas Investigation 3. SD DANR-Geological Survey. Vermillion, South Dakota.
- Farmer, J. 2021. Report on Water Permit Application No. 8503-3: Sorensen Family Farm, LLC. SD DENR-Water Rights Program, Joe Foss Building, Pierre, SD.
- Hansen, B.M. 2021. Report to the Chief Engineer on Water Permit Application No. 8530-3 National Field Archery Association Foundation. SD DANR-Water Rights Program. Pierre, SD.
- Hedges, L.S., Burch, S.L., Iles, D.L., Barari, R.A., and Schoon, R.A. 1982. Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota, and Iowa. Tasks 1-4. Final Report. U.S. Army Corps of Engineers Contract DACW 45-80-C-0185. SD DANR-Geological Survey. Vermillion, South Dakota.
- Niehus, C.A. 1994. Water Resources of Lincoln and Union Counties, South Dakota. Water-Resources Investigations Report 93-4195. U.S. Geological Survey: Rapid City, SD.
- SDGS. 2022. *Lithologic Logs Database*. <<http://cf.sddenr.net/lithdb/index.cfm>>. Accessed March 18, 2022. SD DANR-Geological Survey Program. Vermillion, South Dakota.
- Stephens, J.C. 1967. Geology and Water Resources of Clay County, South Dakota, Part II: Water Resources. DANR-Geological Survey Bulletin 19. Vermillion, SD.
- Water Rights. 2022a. County Files. SD DANR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
- Water Rights. 2022b. Irrigation Questionnaire Files. SD DANR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
- Water Rights. 2022c. Observation Well Files. SD DANR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
- Water Rights. 2022d. Water Right/Permit Files. SD DANR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
- Water Rights. 2022e. Well Completion Reports. SD DANR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

# AFFIDAVIT OF PUBLICATION

PLAIN TALK

RECEIVED

APR 11 2022

WATER RIGHTS  
PROGRAM

KIRK SORENSON  
46113 TIMBER ROAD  
VERMILLION SD 57069

STATE OF SOUTH DAKOTA  
COUNTY OF CLAY

MICHELE SCHIEVELBEIN, BEING FIRST DULY SWORN ON OATH DEPOSES AND SAYS THAT (S)HE IS THE ADVERTISING DIRECTOR OF YANKTON MEDIA INC, A CORPORATION, THE PRINTER AND THE PUBLISHER OF THE PLAIN TALK, A LEGAL WEEKLY NEWSPAPER PUBLISHED AND CIRCULATED IN THE CITY OF VERMILLION, SAID COUNTY AND STATE, AND ONE OF THE OFFICIAL NEWSPAPERS OF THE SAID COUNTY OF FACTS STATED IN THIS AFFIDAVIT; THAT THE ANNEXED NOTICE OF APPLICATION NO.

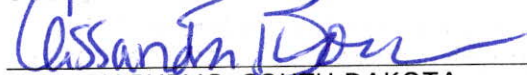
TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE NEWSPAPER ON THE 8th DAY OF April, 2022  
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION OF SAID NOTICE TO WIT \$39.36 ENSURES TO THE BENEFITS OF THE PUBLISHER OF SAID NEWSPAPER AND THAT NO AGREEMENT AND UNDERSTANDING FOR THE DIVISION 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: 04/08/2022

FILED ON: 04/08/2022



SUBSCRIBED AND SWORN TO BEFORE ME THIS 8th DAY OF April, 2022



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

Ad text : NOTICE OF APPLICATION NO. 8595-3 to Appropriate Water

Notice is given that Kirk Sorensen, 46113 Timber Rd, Vermillion SD 57069 has filed an application for a water permit to appropriate 1.33 cubic feet of water per second (cfs) from one well to be completed into the Missouri:Elk Point Aquifer (approximately 92 feet deep) located in the NE 1/4 SW 1/4 Section 15 for irrigation of 80 acres located in the SW 1/4 Section 15; all in T92N-R52W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. This site is located approximately 1 mile west of Vermillion SD.

RECEIVED

APR 11 2022

WATER RIGHTS  
PROGRAM

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8595-3 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 April 18, 2022.

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Published once at the total approximate cost of \$39.36.

Published April 8, 2022.

# AFFIDAVIT OF PUBLICATION

YANKTON DAILY PRESS AND DAKOTAN

RECEIVED

APR 11 2022

WATER RIGHTS  
PROGRAM

KIRK SORENSON  
46113 TIMBER ROAD  
VERMILLION SD 57069

STATE OF SOUTH DAKOTA  
COUNTY OF YANKTON

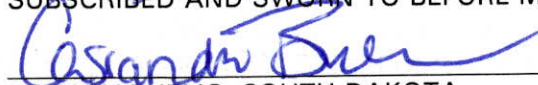
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4+8 NOTICE OF APPLICATION

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PUBLISHED ON: 04/08/2022

FILED ON: 04/08/2022

  
SUBSCRIBED AND SWORN TO BEFORE ME THIS 8th DAY OF April, 2022

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

Ad text : 4+8

NOTICE OF APPLICATION NO. 8595-3 to Appropriate Water

RECEIVED

APR 11 2022

WATER RIGHTS  
PROGRAM

Notice is given that Kirk Sorensen, 46113 Timber Rd, Vermillion SD 57069 has filed an application for a water permit to appropriate 1.33 cubic feet of water per second (cfs) from one well to be completed into the Missouri:Elk Point Aquifer (approximately 92 feet deep) located in the NE 1/4 SW 1/4 Section 15 for irrigation of 80 acres located in the SW 1/4 Section 15; all in T92N-R52W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. This site is located approximately 1 mile west of Vermillion SD.

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

## Schlaak, Karen

---

**From:** Schlaak, Karen  
**Sent:** Wednesday, March 30, 2022 8:47 AM  
**To:** Kelly Kronaizl  
**Subject:** 8595-3, Kirk Sorensen  
**Attachments:** 8595-3public.short\_final.docx; FORM8.FRM.doc

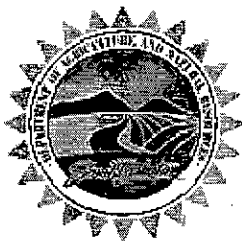
Attached is a notice to be published on April 8, 2022 in both the Plain Talk and the Press & Dakotan.

Kirk Sorensen, 46113 Timber Rd, Vermillion SD 67069 (605-677-7979) 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>





**DEPARTMENT of AGRICULTURE  
and NATURAL RESOURCES**

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

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

March 30, 2022

Kirk Sorensen  
46113 Timber Rd  
Vermillion SD 57069

Dear Mr. Sorensen:

Water Permit Application No. 8595-3 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 Plain Talk printed at Vermillion (Ph # 605 624-2695) 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. 8595-3 to Appropriate Water

Notice is given that Kirk Sorensen, 46113 Timber Rd, Vermillion SD 57069 has filed an application for a water permit to appropriate 1.33 cubic feet of water per second (cfs) from one well to be completed into the Missouri:Elk Point Aquifer (approximately 92 feet deep) located in the NE 1/4 SW 1/4 Section 15 for irrigation of 80 acres located in the SW 1/4 Section 15; all in T92N-R52W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. This site is located approximately 1 mile west of Vermillion SD.

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Published once at the total approximate cost of\_



**DEPARTMENT of AGRICULTURE  
and NATURAL RESOURCES**

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

APR 28 2022

Kirk Sorensen  
46113 Timber Rd  
Vermillion SD 57069

Dear Mr. Sorensen:

Enclosed is Water Permit No. 8595-3 authorizing construction of the water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

Form 10, *Notice of Completion of Works and Application of Water to Beneficial Use*, is enclosed. Please return this completed form after you have finished the system and have put the water to beneficial use. An investigation can then be scheduled so the water license may be issued, thus completing the acquisition of a water right.

An informational sheet *Common Water Right Questions* is also enclosed. This sheet is intended to answer some of the questions associated with obtaining and keeping a water right.

Sincerely,

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

enclosures

8595-3

SD EForm - 1621LD V1

## SOUTH DAKOTA WATER WELL COMPLETION REPORT

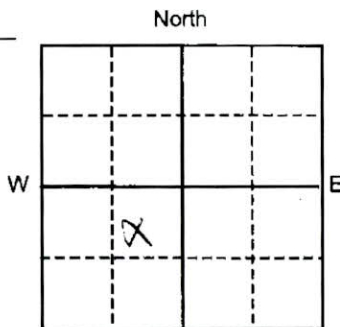
11-02

Location NE 1/4 SW 1/4 Sec 15 Twp 92 Rg 52WWell Owner: Kirk SorensenCounty CLAY

Business Name:

Address: 46113 Timber RDCity, State, Zip: Vermillion, SD 57069

Please mark well location with an "X"



Well Completion Date

12/3/21

1 Mile

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

1200' ft. from septic tank (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>52</u> FT | <u>28</u> IN  |
| <u>160</u> LB/FT | <u>16</u> IN | <u>52</u> FT | <u>92</u> FT | <u>28</u> IN  |
| <u>160</u> LB/FT | <u>16</u> IN | <u>92</u> FT | <u>92</u> FT | <u>28</u> IN  |

## GROUTING DATA:

| Grout Type    | No. of Sacks | Grout Weight    | From         | To           |
|---------------|--------------|-----------------|--------------|--------------|
| <u>Cement</u> | <u>70</u>    | <u>0</u> Lb/gal | <u>0</u> Ft  | <u>26</u> Ft |
|               |              | <u>0</u> Lb/gal | <u>26</u> Ft | <u>92</u> Ft |

Describe grouting procedure

Pumped down w/ pressure grouter

## SCREEN:

☐ Perforated pipe ☒ Manufactured
Diameter 16 Inches Length 40 FeetMaterial PVCSlot Size .085 Set From 52 Feet to 92 Feet

Other information

## WAS A PACKER OR SEAL USED?

☐ Yes ☒ No

If so, what material?

Describe packer(s) and location

## DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? chlorine
☐ No, Why Not?

Lab to which water quality sample sent for analysis

## WELL LOG:

## DEPTH

| FORMATION      | FROM | TO |
|----------------|------|----|
| black top soil | 0    | 3  |
| brown clay     | 3    | 35 |
| fine sand      | 35   | 48 |
| coarse gravel  | 48   | 68 |
| coarse sand    | 68   | 92 |
|                |      |    |
|                |      |    |
|                |      |    |
|                |      |    |

## STATIC WATER LEVEL

26

FEET

If flowing: closed in pressure

PSI

GPM flow through

Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other

Reduced flow rate GPM

Can well be completely shut in?

## WELL TEST DATA:

☒ Pumped Describe:pumped w/ turbine pump  
test pump w/ engine☐ Bailed☐ Other

Pumping Level Below Land Surface

56 Ft. After 1 Hrs. pumped 850 GPM56 Ft. After 1 Hrs. pumped 850 GPMIf pump installed, pump rate: 600 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:

Casper Christensen

Signature of Well Owner or Equitable Property Holder:

RECEIVED

FEB 02 2022

WATER RIGHTS PROGRAM

Date: 1/10/22emailed  
to SD Water  
Rights  
1-11-22



**DEPARTMENT of AGRICULTURE  
and NATURAL RESOURCES**

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

July 31, 2024

8595-3

Kirk Sorenson  
46113 Timber Rd  
Vermillion SD 57069

Dear Mr. Sorenson:

I am writing you today in regard to Water Permit No. 8595-3 which authorizes the diversion of 1.33 cubic feet of water per second (cfs) from groundwater, one well (NE  $\frac{1}{4}$  SW  $\frac{1}{4}$ ) completed into the Missouri: Elk Point Aquifer (92' deep), for the irrigation of 80 acres located in the SW  $\frac{1}{4}$ ; all in Section 15, T92N-R52W, Clay County.

In July 2024, a Water Rights Program staff engineer conducted an inspection of the irrigation system for the purpose of licensing. The inspection found that a second irrigation system had been developed in the SE  $\frac{1}{4}$  Section 15, T92N-R52W. (see enclosed map)

For your convenience I have enclosed a permit application for you to review, complete, and return to our office with the associated fees.

The licensing and inspection fees have already been paid under Permit No. 8595-3. Therefore, the required fees would be \$750.00. Checks can be made payable to "SD Water Rights Program". You may also submit the necessary fees over the phone by calling our Fiscal Office (605)773-5559.

Obtaining a water permit is in the interest of the permit holder, as it provides protections against loss of water availability due to junior water users.

If you have any questions concerning the application process or need help completing the application, please don't hesitate to call. My direct line is (605) 910-5187.

Sincerely,

Amanda Dewell  
Water Rights Program, Permitting Administrator  
605 773-3352  
Amanda.Dewell@state.sd.us

**NOTE:** It is my understanding that a portion of the S  $\frac{1}{2}$  SE  $\frac{1}{4}$  Section 15, T92N-R52W is owned by a neighbor. To apply for a permit for irrigation of acres not owned by yourself, our office would require that a signed statement be submit by your neighbor, authorizing irrigation of his property. The enclosed application does not include development of neighboring property.

*enclosures*

## Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 8595-3

I have this day, July 22, 2024, made a thorough examination of the water use systems owned by Kirk Sorensen, 46113 Timber Road, Vermillion, SD 57069, holder of Permit No. 8595-3, bearing the priority date of December 30, 2021. This permit authorizes the diversion of 1.33 cu. ft. per second of the waters of groundwater (Missouri: Elk Point Aquifer) authorizing the irrigation of 80 acres located in Clay County.

Inspection contacts: Josh Anglin

### A. Works used to divert the water:

#### Well Information

- 1) Well Drilling Firm: Christensen Well & Irrigation
- 2) No. of Wells: 1
- 3) Depth(s): 92 feet
- 4) Well log is available: Yes

#### Casing:

- 1) Diameter: 16 inches
- 2) Length: 52 feet
- 3) Type: Plastic

#### Screen:

- 1) Diameter: 16 inches
- 2) Length: 40 feet
- 3) Type: PVC
- 4) Static water level: 26 feet

#### Pump:

- 1) Make: Goulds
- 2) Model: 7THC
- 3) Capacity: 600 gpm

#### Motor:

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

Letter sent to permit holder dated 7/31/2024 for un-authorized irrigation system diverting from 8595-3 well. Wait for application + incorporate into one license.

(AD)

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

- 1) Type: Steel      Size: 6 inches      Length: 20 feet

### C. Works used to apply water to beneficial use:

#### Center Pivot

- 1) Make: T & L
- 2) Overall length: 950 feet
- 3) Number of towers: 6
- 4) End gun: Yes Range: 90 feet
- 5) Capacity: 500 gpm

**Chemigation Equipment:**

- 1) Does chemigate: No

**D. Compliance with Permit Requirements:**

- 1) Permit qualifications being abided by: Yes  
 2) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period: Yes  
 3) Exceptions to compliance are: None

**E. Condition and Location:**

- 1) The system is in good condition with the point(s) of diversion located as follows:  
The well is 1,640 feet north and 1,700 feet east of the southwest corner of Section 15-T92N-R52W (Latitude 42.78395, Longitude -97.97701– NE1/4 of the SW1/4).  
 2) The works are capable of diverting and conveying to the places of use 1.33 cu. ft. per second of water from the well which is to be used for irrigation purposes. Water has been put to beneficial use to the maximum extent as follows:

Section 15-T92N-R52W

|                   |                 |
|-------------------|-----------------|
| <u>NW1/4SW1/4</u> | <u>17 acres</u> |
| <u>NE1/4SW1/4</u> | <u>37 acres</u> |
| <u>SW1/4SW1/4</u> | <u>6 acres</u>  |
| <u>SE1/4SW1/4</u> | <u>18 acres</u> |

comprising a total of 78 acres of land and the license should be issued for 1.33 cfs.

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

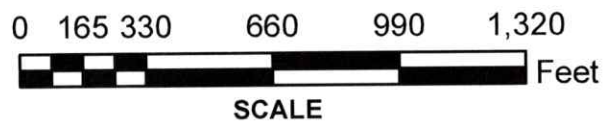
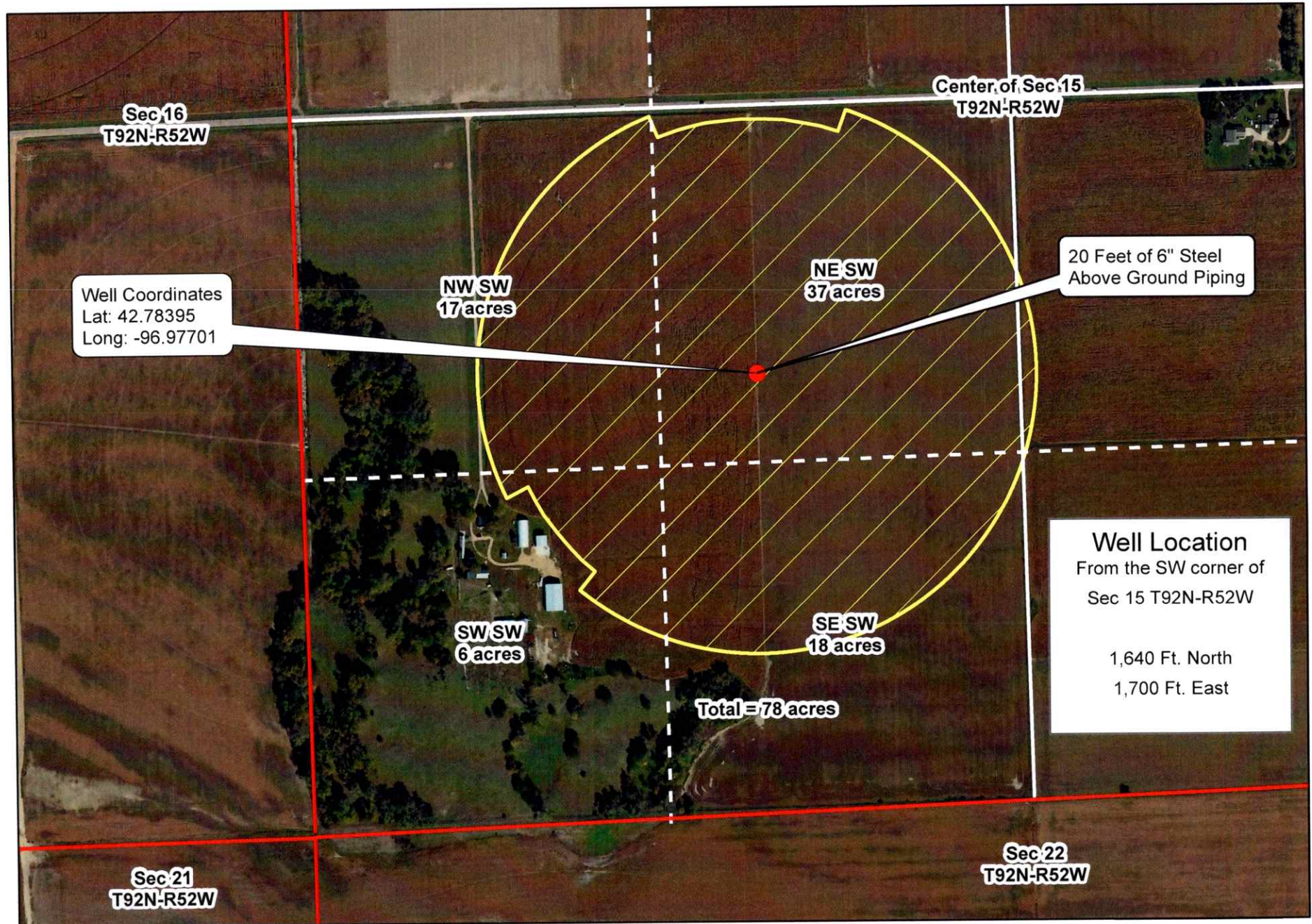
**F. Comments or other permit(s) associated with the project: The pump and motor information was obtained from Christensen Well & Irrigation.**

*Keith DeJong*

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

Date report completed: July 29, 2024

# Water Permit No. 8595-3



*Keith DeJong*  
Keith DeJong, PE Ret.  
Staff Engineer  
July 22, 2024

NOTICE OF COMPLETION OF WORKS AND  
APPLICATION OF WATER TO BENEFICIAL USE

Date July 22, 2024

MAIL TO: PMB 2020  
DANR - Water Rights Program  
523 E. Capitol Ave  
Pierre, SD 57501-3182  
  
Phone: (605) 773-3352

FROM: Kirk Sorensen  
(name)

46113 Timer Road  
(address)

Vermillion  
(city)

SD  
(state)

57069  
(zip)

605-677-7979  
(phone)

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

Water Permit No. 8595-3 states that the water use system is to be constructed by

April 18, 2027, and water is to be put to beneficial use by April 18, 2031.  
(date) (date)

The water use system was completed on November 2022.  
(date)

Applying the water to beneficial use was completed on November 2022.  
(date)

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

[Signature]  
(signature)

