

**WATER PERMIT NO. 7686-3**

Name of Applicant: Nicholas W Olson

Address: 2112 Augusta Dr, Vermillion SD 57069 Phone: 605 670-1024

Amount of Water Claimed: 1.0 cfs Total Acres: 70 acres

Source of Water Supply: groundwater (one well)

Water to be used for: irrigation County: Clay

Type of Waste Disposal System:

Location: miles northwest of Vermillion

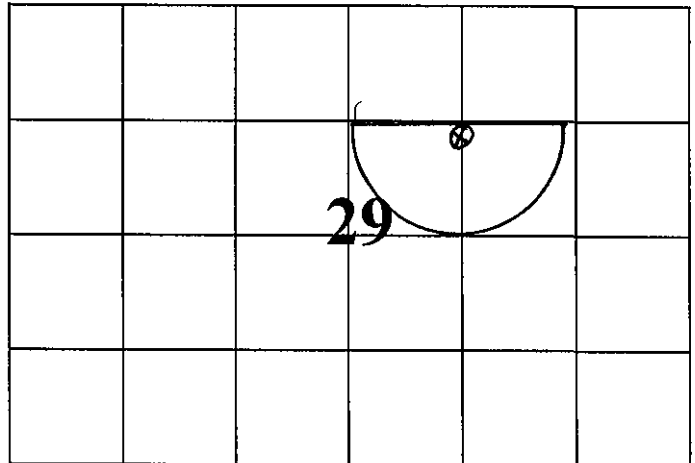
PRIORITY Date Received: 2-6-13 Application/License Fee: \$ 950

Corrected Application Received: Period of Annual Use: April 1 – October 31

Remarks:

Diversion Point: S 1/2 NE 1/4 Sec 29-T93N-R53W

Land to be Irrigated: S 1/2 NE 1/4 Sec 29-T93N-R53W



Depth of Well: 115 feet deep

Well Driller:

Remarks:

Type of Map: aerial

Prepared by:

Reviewed and the Number Assigned on: 2-7-13

By: Karen Schlaak

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

## FORM 2: Application for irrigation in South Dakota

(type or print)

|                                                                                                                 |                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Mail to:<br>PMB 2020<br>DENR - Water Rights<br>523 E Capitol Ave<br>Pierre, SD 57501-3182<br>ph. (605) 773-3352 | No. <u>7686-3</u> (office use only) Hydrologic Unit <u>10170102</u>                             |
|                                                                                                                 | Basin <u>Vermillion River</u> <u>605-624-2695</u>                                               |
|                                                                                                                 | Newspaper <u>Plain Talk</u> <u>201 W Cherry</u> <u>Vermillion</u> <u>57069</u>                  |
|                                                                                                                 | <u>Press &amp; Dakotan</u> <u>319 Walnut</u> <u>Yankton</u> <u>57078</u><br><u>605-665-7811</u> |

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FEB - 6 2013

WATER RIGHTS  
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## 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 Nicholas W. Olson(check one) ☒ Owner ☐ Tenant/lessee ☐ Owner's Legal Agent

(name and complete address if different than above name)

Mailing Address 2112 Augusta Dr Vermillion SD 57069

(Address)

(City)

(State)

(Zip Code)

Home Phone N/A Cell 605-670-1024 Email Nicholas-OLSON@angile.com2. Amount of water claimed 1.0 \*CFS or 450 \*\*GPM \*\*\*AF Total Acreage 70  
(\*Cubic Feet per Second) (\*\*Gallons per Minute) (\*\*\*)Acre Feet - storage capacity of dam/dugout or annual use if applicable)3. Source of water supply One well to Missouri Elk Point Aquifer [MEP]4. Location of point of diversion one well @ SW 1/4 NE 1/4 section 29-93N-53W  
(example - 3 wells in SW 1/4 NE 1/4 section 12-T104N-R53W)County Clay5. County or counties where water will be used Clay6. Annual period during which water is to be used April 1 - October 317. List below each forty acre division, or lot, or fraction thereof and show number of acres to be irrigated in each.  
(Attach sheet if more space is needed)

| Land Description                       | Acres     | Land Description | Acres |
|----------------------------------------|-----------|------------------|-------|
| <u>S 1/2 NE 1/4 section 29-93N-53W</u> | <u>70</u> |                  |       |
|                                        |           |                  |       |
|                                        |           |                  |       |
|                                        |           |                  |       |

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

Center pivot irrigation to improve crop production  
on the above listed property.

I, Nicholas W. Olson, the applicant, certify that I have read this application, have examined the attached map, and that the matters stated are true.

**SOUTH DAKOTA**  
**WATER PERMIT NO. 7686-3**

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Date of first receipt of application February 6, 2013.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 7686-3 to Nicholas W Olson, 2112 Augusta Dr, 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. 7686-3 appropriates 1.0 cubic feet of water per second (cfs) from one well to be completed into the Missouri:Elk Point Aquifer (115 feet deep) located in the SW 1/4 NE 1/4 Section 29 for irrigation of 70 acres located in the S 1/2 NE 1/4 Section 29; all in T93N-R53W.
2. The amount of the appropriation may not exceed 2 acre feet annually for each acre of land to which water is actually and beneficially applied for irrigation. The water is to be used during the following described annual period: April 1 – October 31.
3. The date from which applicant may claim right is February 6, 2013.
4. The date of approval of Permit No. 7686-3 is April 8, 2013.
5. One-fifth of the construction is to be completed on or before October 8, 2015.
6. All construction is to be completed on or before April 8, 2018.
7. Water is to be put to beneficial use on or before April 8, 2022.
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 this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The well authorized by Permit No. 7686-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

**WATER MANAGEMENT BOARD**

By: *Jeanne Goodman*  
Jeanne Goodman, Chief Engineer  
Water Rights Program  
Department of Environment and Natural Resources

MAY 20 2013

date



## Supplemental Information

(type or print)

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

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

b) If existing wells, how many 0 Provide copy of log(s), if available. Drilled by \_\_\_\_\_

c) Well Depth 115 ft Depth to Top of Water Bearing Material 60 ft Depth to Water from Surface 25 ft

d) Distance to nearest existing domestic well:

On applicant's property N/A On property owned by others Greater than 5000 ft

**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)

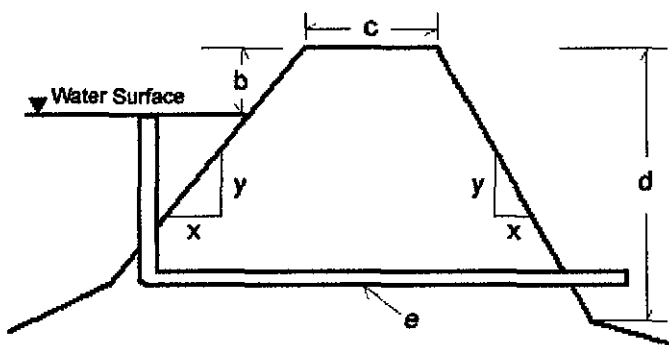
Upstream \_\_\_\_\_

Downstream \_\_\_\_\_

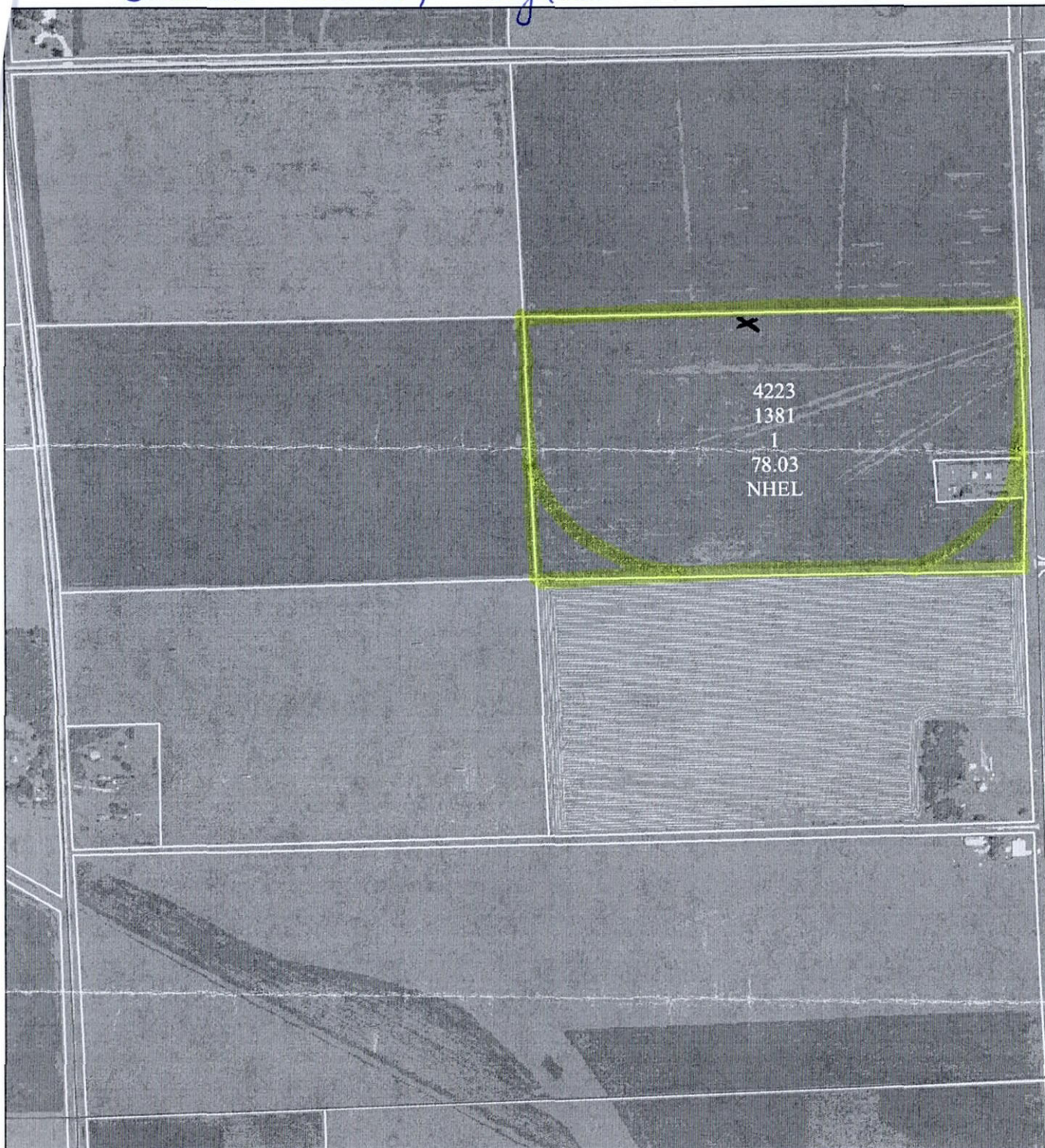
h) Surface Area of Impoundment \_\_\_\_\_

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

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



Debra Eilers, Clay Co. PT



United States Department of Agriculture  
Farm Service Agency

PLSS: 29\_93N\_53W **Clay County, SD**  
Farm: 4223  
1:8,430

March 11, 2010



**Wetland Determination Identifiers**

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

Disclaimer: Wetland identifiers do not represent the size, shape or specific determination of the area.  
Refer to your original determination (CPA-026 and attached maps) for exact wetland boundaries and determinations, or contact NRCS.

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Common Land Units

2008 Ortho-Photography - Not to Scale

**FEB - 6 2013**

**WATER RIGHTS  
PROGRAM**

# RECEIPT

## WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 2/7, 20 13

RECEIVED OF Nicholas Olson 8141 S Grass Creek Drt S Falls SD 57108

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

|                                                                                                                        |       |        |
|------------------------------------------------------------------------------------------------------------------------|-------|--------|
| Fee for Application for Permit No. <u>7686-3</u> to Appropriate Water, to construct and to put water to beneficial use | 750   | 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>7686-3</u>            | 200   | 00     |
| Fee for Filing Transfer Form _____                                                                                     |       |        |
| Fee for _____                                                                                                          |       |        |
| Fee for Issuing New Well Driller's License No. _____ for C.Y. _____                                                    |       |        |
| Fee for Renewal of Well Driller's License No. _____ for C.Y. _____                                                     |       |        |
| Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____                                                 |       |        |
| Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____                                              |       |        |
| (Any Other Work Provided by Law)                                                                                       | TOTAL | 950 00 |

No. 06104

By

[Signature]  
Chief Engineer



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

PMB 2020  
JOE FOSS BUILDING  
523 EAST CAPITOL  
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT  
APPLICATION NO. 7686-3, Nicholas W Olson**

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. 7686-3, Nicholas W Olson, 2112 Augusta Drive, Vermillion SD 57069.

The Chief Engineer is recommending APPROVAL of Application No. 7686-3 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 this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The well authorized by Permit No. 7686-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.

Garland Erbele, Chief Engineer  
March 14, 2013

REPORT TO THE CHIEF ENGINEER  
ON  
WATER PERMIT APPLICATION NOS. 7686-3, 7687-3, AND 7689-3  
NICHOLAS OLSON  
FEBRUARY 28, 2013

Water Permit Application No. 7686-3 proposes to appropriate up to 140 acre feet annually at a maximum diversion rate of 1.0 cubic feet of water per second (cfs) from one well to be completed into the Missouri: Elk Point aquifer located in the SW  $\frac{1}{4}$  NE  $\frac{1}{4}$  of Section 29 for irrigation of 70 acres located in the S  $\frac{1}{2}$  NE  $\frac{1}{4}$  of Section 29; all in T93W-R53W, Clay County. The well is expected to be 115 feet deep.

Water Permit Application No. 7687-3 proposes to appropriate up to 140 acre feet annually at a maximum diversion rate of 1.0 cubic feet of water per second (cfs) from one well to be completed into the Missouri: Elk Point aquifer located in the NW  $\frac{1}{4}$  SE  $\frac{1}{4}$  of Section 6 for irrigation of 70 acres located in the W  $\frac{1}{2}$  SE  $\frac{1}{4}$  of Section 6; all in T93W-R53W, Clay County. The well is expected to be 115 feet deep.

Water Permit Application No. 7689-3 proposes to appropriate up to 140 acre feet annually at a maximum diversion rate of 1.0 cubic feet of water per second (cfs) from one well to be completed into the Missouri: Elk Point aquifer located in the W  $\frac{1}{2}$  NE  $\frac{1}{4}$  of Section 24 for irrigation of 70 acres located in the W  $\frac{1}{2}$  NE  $\frac{1}{4}$  Section 29; all in T93W-R53W, Clay County. The well is expected to be 115 feet deep.

**AQUIFER: Elk Point management unit of the Missouri aquifer (M: EP)**

**GEOLOGY AND AQUIFER CHARACTERISTICS:**

Bugliosi (1986) refers to the Elk Point management unit of the Missouri aquifer as the southern portion of the Lower James- Missouri aquifer. For water management purposes, the Water Management Board and the SD DENR-Water Rights Program refer to this aquifer as the Missouri: Elk Point. The aquifer is an alluvium mantled glacial outwash composed of fine sand to coarse gravel material (Bugliosi, 1986). The aquifer generally lies below the flood plain of the Missouri River, lies directly over and is hydraulically connected to the Dakota aquifer, and is hydraulically connected to the Lower James Missouri and the Lower Vermillion Missouri aquifer as well as the Missouri and Vermillion Rivers (Bugliosi, 1986). The aquifer can be under either water-table or artesian conditions; artesian conditions exist in the area of this application. The Elk Point management unit of the Missouri aquifer encompasses regions of Clay, Union, and Yankton Counties. The Missouri: Elk Point aquifer underlies approximately 74,500 acres of Clay County alone and contains an estimated 1,117,500 acre-feet of recoverable water in storage in the county (Hedges and others, 1982). The transmissivity of the aquifer ranges from 20,700 to 24,700 square feet per day ( $\text{ft}^2/\text{d}$ ) (Bugliosi, 1986). The specific capacity of the aquifer ranges from approximately 124 to 173 gallons per minute per foot ( $(\text{gal}/\text{min})/\text{ft}$ ) (Bugliosi, 1986). Logs of wells completed into the Missouri: Elk Point aquifer within about one and one half miles of each proposed well show an average saturated thickness of 39 to 67 feet as shown in Tables 1 through 3 (Water Rights 2013a and 2013b).

| <b>Well Log Description</b>     | <b>Saturated Thickness (ft)</b> |
|---------------------------------|---------------------------------|
| Domestic Bartels                | 30                              |
| Domestic Dutcher                | 30                              |
| Domestic Walraven               | 44                              |
| Well Log of WR No. 6554-3       | 29                              |
| Well Log of WR No. 6610-3       | 35                              |
| Well Log of WR No. 6642-3       | 33                              |
| Well Log of WR No. 6744-3       | 32                              |
| Well Log of WR No. 6770-3       | 20                              |
| Well Log of WR No. 6966-3       | 40                              |
| Well Log of WR No. 7075-3       | 30                              |
| Well Log of WR No. 7175-3       | 75                              |
| Well Log of WR No. 7389-3       | 70                              |
| <b>Average Near App. 7686-3</b> | <b>39</b>                       |

Table 1. Saturated thickness for nearby wells and lithologic logs completed in the Missouri: Elk Point aquifer near proposed application 7686-3 (Water Rights, 2013a and 2013b).

| <b>Well Log Description</b>     | <b>Saturated Thickness (ft)</b> |
|---------------------------------|---------------------------------|
| Domestic Langlars               | 74                              |
| Domestic Anderson               | 30                              |
| Gayville Volin School District  | 43                              |
| Well Log for WR No. 4557-3      | 58                              |
| Well Log for WR No. 5118-3      | 40                              |
| Well Log for WR No. 6648-3      | 43                              |
| <b>Average Near App. 7687-3</b> | <b>48</b>                       |

Table 2. Saturated thickness for nearby wells and lithologic logs completed in the Missouri: Elk Point aquifer near proposed application 7687-3 (Water Rights, 2013a and 2013b).

| <b>Well Log Description</b>     | <b>Saturated Thickness (ft)</b> |
|---------------------------------|---------------------------------|
| Well Log for WR No. 475-3       | 45                              |
| Well Log for WR No. 3475-3      | 108                             |
| Well Log for WR No. 4689-3      | 44                              |
| Well Log for WR No. 5289-3      | 59                              |
| Well Log for WR No. 5853-3      | 72                              |
| Well Log for WR No. 6641-3      | 81                              |
| Well Log for WR No. 6645-3      | 82                              |
| Well Log for WR No. 6646-3      | 72                              |
| Well Log for WR No. 6647-3      | 82                              |
| Well Log for WR No. 6884-3      | 60                              |
| Well Log for WR No. 6901A-3     | 68                              |
| Well Log for WR No. 6901B-3     | 38                              |
| <b>Average Near App. 7687-3</b> | <b>67</b>                       |

Table 3. Saturated thickness for nearby wells and lithologic logs completed in the Missouri: Elk Point aquifer near proposed application 7689-3 (Water Rights, 2013a and 2013b).

In accordance with SDCL 46-2A-9, a permit may be issued to appropriate water only 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 review the availability of unappropriated water and existing rights within the Missouri: Elk Point aquifer.

#### **WATER AVAILABILITY:**

These applications propose to appropriate up to 420 acre-feet of water per year from the Missouri: Elk Point aquifer. If this application is approved, it is likely that the actual water use will be less than the appropriated amount. The probability of unappropriated water available from the aquifer can be evaluated using SDCL 46-6-3.1 which requires "No application to appropriate groundwater may be approved if, according to the best information reasonably available, it is probable that the quantity of water withdrawn annually from a groundwater source will exceed the quantity of the average estimated annual recharge of water to the groundwater source."

#### **Recharge versus Discharge:**

##### **Recharge:**

Recharge to the Missouri: Elk Point aquifer occurs through seepage from streams and by infiltration of precipitation (Bugliosi, 1986). Recharge is also provided to the aquifer from the Lower Vermillion-Missouri and Dakota aquifers as well as during times of high flow, from the Missouri River. The average annual recharge rate to the Missouri: Elk Point aquifer is estimated to be 3.8 in/yr based on observation well analysis (Hedges and others, 1985). Given the area of the management unit in Clay County of 74,500 acres, average annual recharge to the aquifer in Clay County alone is estimated to be 23,592 acre-feet per year.

##### **Discharge:**

Discharge from the Missouri: Elk Point aquifer in Clay County is by evapotranspiration, discharge to the Missouri River and underlying Dakota aquifer, and withdrawal from wells (Bugliosi, 1986). There are a number of completion reports on file with the SD DENR-Water Rights Program for domestic use wells completed into the Missouri: Elk Point aquifer (Water Rights, 2013b) and there are currently 507 water rights/permits appropriating water from the Missouri: Elk Point aquifer (Water Rights, 2013c). There are 120 water rights/permits appropriating water from this aquifer in Clay County alone (Water Rights, 2013c). The distribution of these appropriations and their types are shown in Table 4.

| <b>Water Rights/Permits</b>        | <b>Number</b> |
|------------------------------------|---------------|
| Domestic                           | 1             |
| Irrigation                         | 113           |
| Municipal                          | 4             |
| Rural Water System                 | 2             |
| <b>Future Use Permits</b>          | <b>Number</b> |
| Lewis and Clark Rural Water System | 4             |
| City of Vermillion                 | 1             |

Table 4. Water Rights from the Missouri: Elk Point aquifer in Clay County (Water Rights, 2013c).

The amount of water that can be expected to be withdrawn through water rights/permits authorizing water use for non-irrigation purposes at the current appropriation level can be estimated by assuming:

1. Water rights/permits limited by an annual volume will pump the entire volume appropriated.
2. Water rights/permits limited only by diversion rate will pump at the maximum permitted diversion rate 60 percent of the time.
3. Future use permits can be fully developed.

The expected water use for non-irrigation purposes, including that reserved for future use, from the Missouri: Elk Point aquifer in Clay County is less than 50,600 acre-feet per year based on current water appropriations.

The annual reported water use in Clay County from the Missouri: Elk Point aquifer for irrigation purposes is displayed in Table 5. The average pumpage reported over the 1979 to 2011 period of record is 2,706 acre-feet per year.

| Year           | Number of Permits | Appropriation (ac-ft/yr) | Pumpage Reported (ac-ft/yr) |
|----------------|-------------------|--------------------------|-----------------------------|
| 1979           | 31                | 17660                    | 1896                        |
| 1980           | 30                | 17660                    | 1788                        |
| 1981           | 38                | 19644                    | 2699                        |
| 1982           | 32                | 18221.2                  | 2279.53                     |
| 1983           | 33                | 18546.2                  | 2871.9                      |
| 1984           | 39                | 20120.2                  | 2448.1                      |
| 1985           | 39                | 20120.2                  | 2552.4                      |
| 1986           | 42                | 21178.2                  | 1732.8                      |
| 1987           | 36                | 19604.2                  | 2211                        |
| 1988           | 35                | 19120.2                  | 3780.2                      |
| 1989           | 37                | 20089.2                  | 2839                        |
| 1990           | 39                | 20499.2                  | 3242                        |
| 1991           | 42                | 19805.2                  | 3439.3                      |
| 1992           | 29                | 19721.2                  | 196.1                       |
| 1993           | 40                | 20135.2                  | 114.9                       |
| 1994           | 42                | 20863.2                  | 1322.31                     |
| 1995           | 41                | 20116.4                  | 2119.3                      |
| 1996           | 41                | 20746.4                  | 1790.32                     |
| 1997           | 41                | 20698.4                  | 2756                        |
| 1998           | 42                | 20856.4                  | 1939.36                     |
| 1999           | 41                | 20238.4                  | 2045.96                     |
| 2000           | 42                | 20478.4                  | 3436.29                     |
| 2001           | 42                | 20478.4                  | 3422.53                     |
| 2002           | 43                | 20702.4                  | 3795.69                     |
| 2003           | 43                | 20702.4                  | 3837.68                     |
| 2004           | 43                | 20702.4                  | 3849.75                     |
| 2005           | 48                | 21731.6                  | 3054.05                     |
| 2006           | 56                | 25393.6                  | 5860.14                     |
| 2007           | 65                | 27554.6                  | 7084.7                      |
| 2008           | 77                | 32059.6                  | 4907.57                     |
| 2009           | 84                | 33832.6                  | 1582.91                     |
| 2010           | 86                | 33128.6                  | 592.3                       |
| 2011           | 89                | 34722                    | 1802.64                     |
| <b>Max</b>     | <b>89</b>         | <b>34722</b>             | <b>7084.7</b>               |
| <b>Min</b>     | <b>29</b>         | <b>17660</b>             | <b>114.9</b>                |
| <b>Average</b> | <b>46</b>         | <b>22034</b>             | <b>2706</b>                 |

Table 5. Irrigation from the Missouri: Elk Point aquifer in Clay County (Water Rights, 1980-2012).

There are also new permits and pending applications for water use from the Missouri: Elk Point aquifer that are expected to significantly increase the total volume of water appropriated for irrigation. Since January 1, 2012 45 new permits were issued authorizing the irrigation of 5,546.1 acres. As of February 25, 2013, an additional 24 permit applications have been submitted for appropriation of water from the Missouri: Elk Point. The pending permits are shown in Table 6 and have a total diversion rate of 43.56 cfs, and 3,268.3 acres of coverage.

| Permit No.   | Diversion Rate | Acres         |
|--------------|----------------|---------------|
| 7447-3       | 1.78           | 160           |
| 7454-3       | 1.78           | 171           |
| 7460-3       | 3.11           | 264           |
| 7527-3       | 1.11           | 117.5         |
| 7552-3       | 0.61           | 49            |
| 7553-3       | 1.55           | 136           |
| 7554-3       | 1.89           | 136           |
| 7563-3       | 2.22           | 95            |
| 7565-3       | 1.89           | 160           |
| 7566-3       | 2.22           | 160           |
| 7576-3       | 3.33           | 400           |
| 7577-3       | 2              | 70            |
| 7578-3       | 2              | 80            |
| 7579-3       | 2              | 152           |
| 7580-3       | 2              | 60            |
| 7593-3       | 1.5            | 105           |
| 7606-3       | N/A            | 78.8          |
| 7608-3       | N/A            | 105           |
| 7621-3       | 1.89           | 160           |
| 7622-3       | 1.89           | 142           |
| 7624-3       | 2              | 120           |
| 7625-3       | 1.67           | 120           |
| 7627-3       | 1.78           | 67            |
| 7630-3       | 3.34           | 160           |
| <b>TOTAL</b> | <b>43.56</b>   | <b>3268.3</b> |

Table 6. List of pending permits and their appropriations from the Missouri: Elk Point aquifer (Water Rights, 2013c).

Lewis and Clark Rural Water System (LCRWS) currently reserves 13,000 acre feet per year for future use and has permits appropriating 32,165 acre feet per year (Water Rights, 2013b). This accounts for a significant portion of the annual water usage in Clay County, and most of the water from these wells will be induced from the Missouri River. That is, more recharge can be induced with more pumping, in particular from the Missouri River because it is hydraulically connected to the aquifer. Recognizing that LCRWS withdraws water from the Missouri: Elk Point aquifer that is induced from the Missouri River, and considering the remaining hydrologic budget, there is reasonable probability that unappropriated water is available for this application.

#### **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 to determine that the quantity of water withdrawn annually from the aquifer does not exceed the estimated average annual recharge to the aquifer”.

The DENR-Water Rights Program monitors 37 observation wells completed into the Missouri: Elk Point aquifer. There are four observation wells within about four miles of the well sites proposed by this application (Water Rights, 2013a). A hydrograph for each well is shown on Figures 1 through 4.

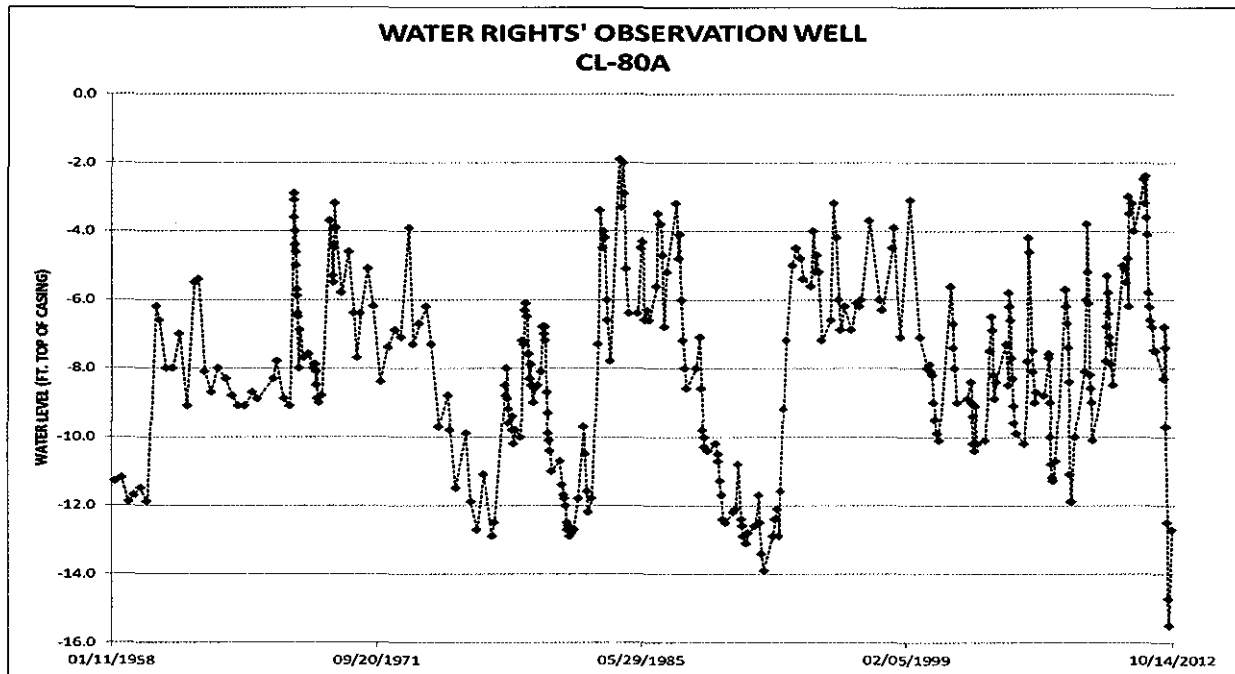


Figure 1. Hydrograph for DENR – Water Rights Observation well CL-80A completed into the Missouri: Elk Point aquifer approximately 1.3 miles north-northeast of the well site proposed by Water Permit Application 7689-3 (Water Rights, 2013a).

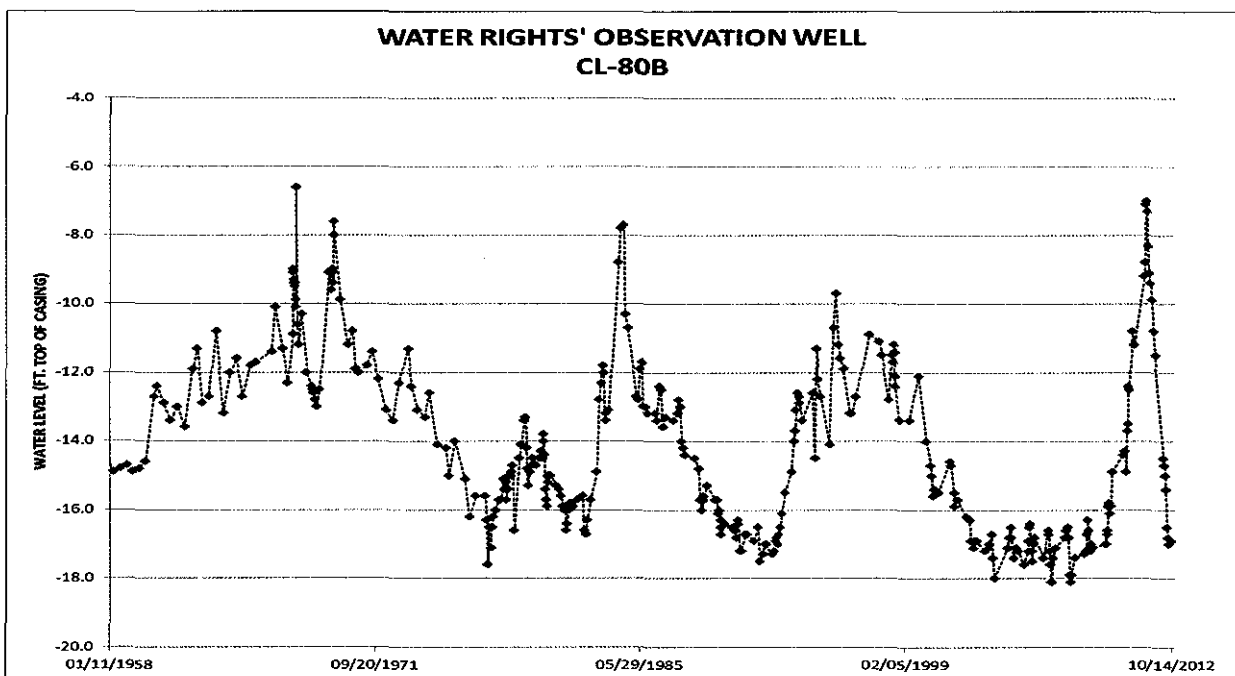


Figure 2. Hydrograph for DENR – Water Rights Observation well CL-80B completed into the Missouri: Elk Point aquifer approximately four miles south-southeast of the well site proposed by Water Permit Application 7686-3 (Water Rights, 2013a).

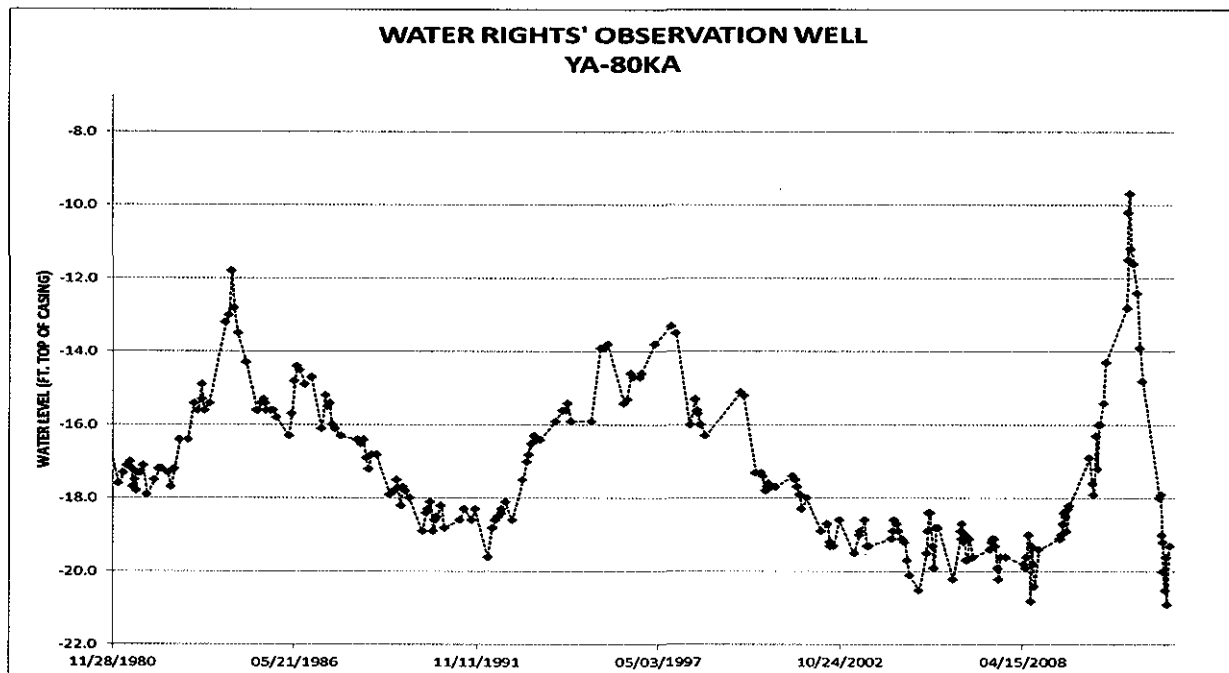


Figure 3. Hydrograph for DENR – Water Rights Observation well YA-80KA completed into the Missouri: Elk Point aquifer approximately 3.2 miles southwest of the well site proposed by Water Permit Application 7686-3 (Water Rights, 2013a).

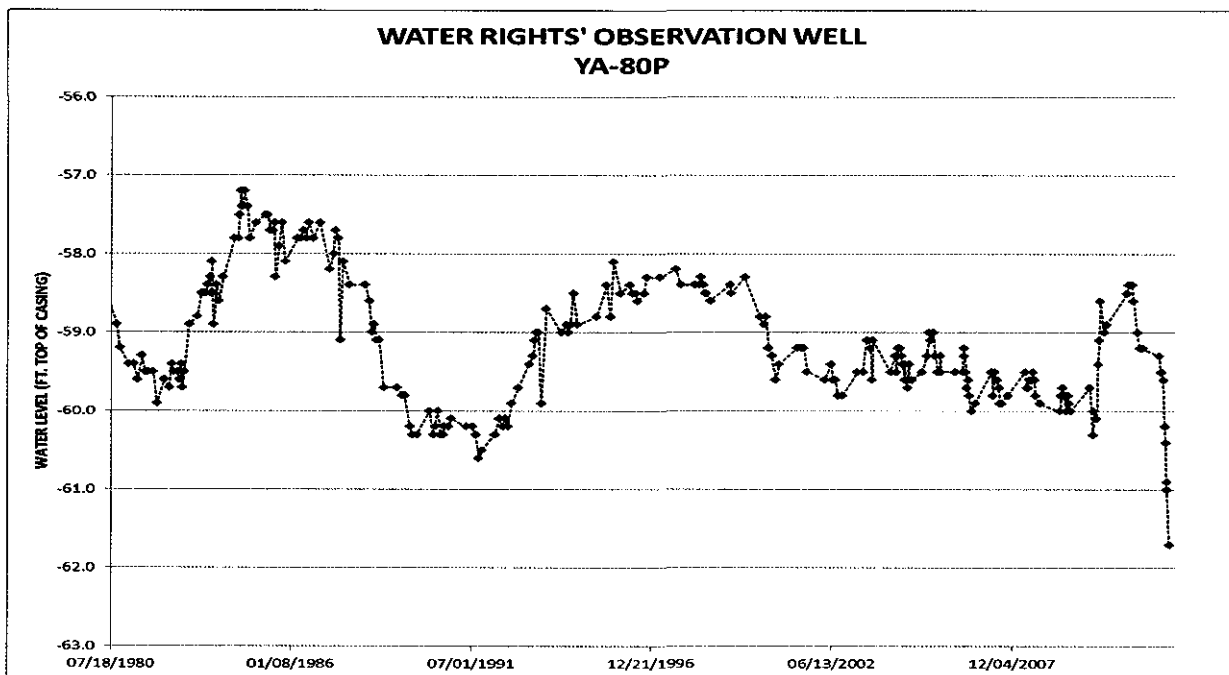


Figure 4. Hydrograph for DENR – Water Rights Observation well YA-80P completed into the Missouri: Elk Point aquifer approximately 3.8 miles north of the well site proposed by Water Permit Application 7687-3 (Water Rights, 2013a).

The observation well data shows the aquifer responds well to climatic conditions with rising water levels during wet years and gradually declining water levels during dry years; and that at the current level of development, climatic conditions mask the temporal effects of well withdrawals. The observation well data documents the hydraulic connection between the

Missouri: Elk Point aquifer and the Missouri River (e.g. in particular, high groundwater levels associated with flooding in 2011).

Because of this obvious hydraulic connection between Missouri: Elk Point aquifer and the Missouri River and the availability of water in the Missouri River, there is a reasonable probability that additional recharge to the Missouri: Elk Point will be induced from the Missouri River with additional pumping. Therefore, there is reasonable probability that unappropriated water is available from the aquifer to support this appropriation.

**EXISTING WATER RIGHTS:**

The well sites proposed by these applications are located near the middle of the Missouri: Elk Point aquifer. They are approximately six and one half to 11 ½ miles east of the James River, seven to 11 ½ miles west of the Vermillion River, and four to seven miles north of the Missouri River. There are several water rights/permits within a one and one half mile radius of the proposed well sites. Figures 5 through 7 show water rights/permits located within this one and one half mile radius. The locations of the water rights/permits were determined using the best data reasonably available.

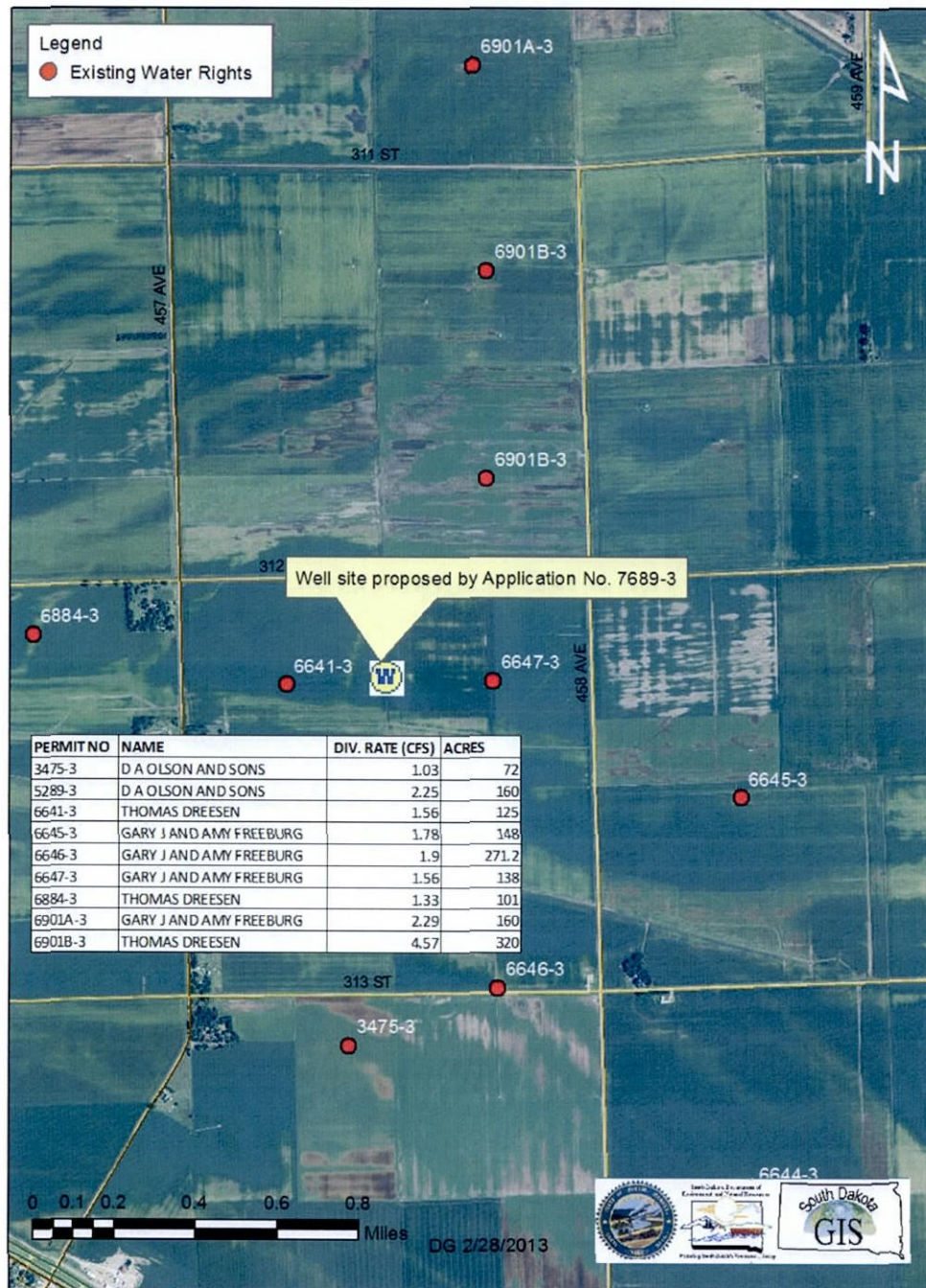


Figure 7. Water Rights / Permits within about one mile and one half of the well proposed by Water Permit No. 7689-3 (Water Rights, 2013c).

Additional drawdown caused by the proposed well could be measurable in wells shown within Figures 5 through 7. There are also several domestic wells and a mixed use domestic and commercial well on file with the DENR – Water Rights Program that could have measureable drawdown as well; these wells vary from 0.8 to 1.5 miles distant from the proposed well sites. The precise drawdown cannot be quantified without aquifer testing. With that in mind, a standard permit qualification to most groundwater permits/rights states that:

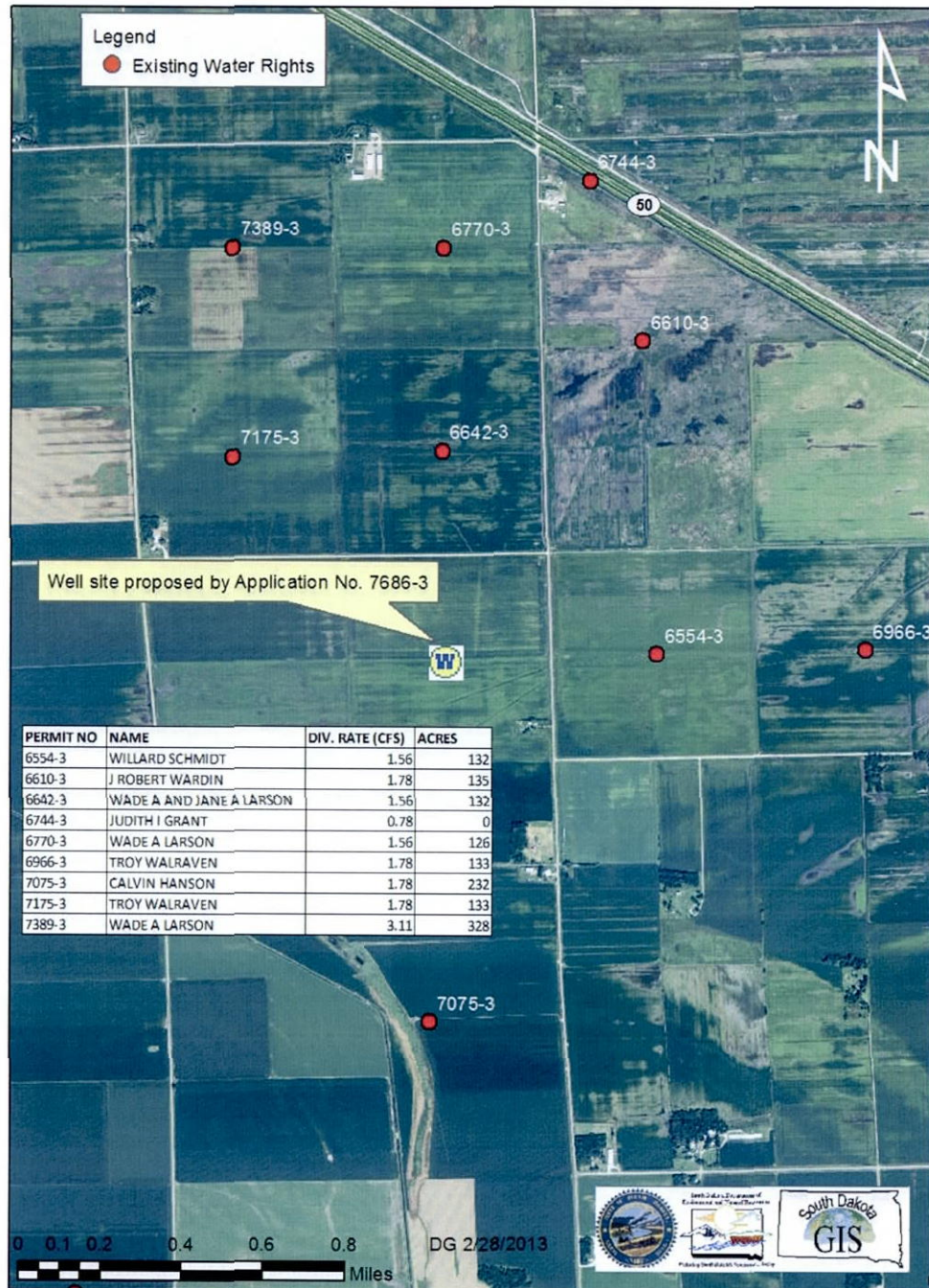


Figure 5. Water Rights / Permits within about one mile and one half of the well proposed by Water Permit No. 7686-3 (Water Rights, 2013c).



Figure 6. Water Rights / Permits within about one mile and one half of the well proposed by Water Permit No. 7687-3 (Water Rights, 2013c).

"The well approved under this permit 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 rights."

SDCL 46-6-6.1 does not protect artesian head pressure as a means of delivery and the Water Management Board has consistently recognized that to place water to maximum beneficial use, a certain amount of drawdown may occur. To balance interests between irrigation use and delivery of water by artesian pressure, the Water Management Board has defined an "adversely impacted domestic well" in ARSD 74:02:04:20(7) as:

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

In reality, the assurance of reasonable domestic use provided by SDCL 46-6-6.1 and ARSD 74:02:04:20(7) generally ensures that interference will not be adverse to domestic well users and those with existing appropriative rights. Depending on the characteristics of the Missouri: Elk Point aquifer at the proposed well site, some existing well owners may need to lower their pumps to accommodate for lower water levels. When considering SDCL 46-6-6.1 and ARSD 74:02:04:20(7) in combination with observation well measurements and the expected aquifer transmissivity, the proposed increase in diversion rate is not likely to lead to significant interference or adversely affect existing wells.

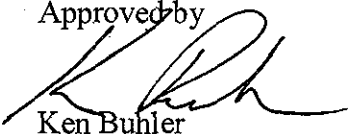
#### CONCLUSIONS:

1. Water Permit Application Nos. 7686-3, 7687-3, and 7689-3 propose to appropriate water at a maximum combined diversion rate of 3.0 cfs for irrigation of 210 acres from the Missouri: Elk Point aquifer.
2. There is reasonable probability that unappropriated water is available from the Missouri: Elk Point aquifer to supply these proposed appropriations.
3. The Missouri: Elk Point is under confined (artesian) conditions in the proposed areas. However, drawdown is not expected to be significant very far from a production well.
4. There is a reasonable probability that the well proposed by this application will not adversely impact existing water rights or domestic users.



Dan Gerhardt  
SD DENR-Water Rights Program

Approved by



Ken Buhler  
SD DENR-Water Rights Program

## REFERENCES:

- Bugliosi, E.F., 1986, Water Resources of Yankton County, South Dakota: U.S. Geological Survey Water-Resources Investigations Report 84-4241. 41 p.
- Hedges, L.S., Burch, S.L., Iles, D.L., Barari, R.A., Schoon, R.A., 1982, Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa, Task 1: Bedrock Topography and Distribution, Task 2: Extent of Aquifers, Task 3: Ground-Water Storage, Task 4: Computerized Data Base, Final Report; U.S. Army Corps of Engineers Contract DACW 45-80-C-0185
- Hedges, L.S., Allen, J., Holly D.E., 1985, Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa, Task 7: Ground Water Recharge; U.S. Army Corps of Engineers Contract DACW 45-80-C-0185
- Water Rights, 1980-2012, "Irrigation Questionnaire Summaries by County", SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2013a, Observation Well Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2013b, Water Well Completion Reports, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2013c, Water Right/Permit Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.

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APR - 5 2013

WATER RIGHTS  
PROGRAM

**AFFIDAVIT OF PUBLICATION**

PLAIN TALK

DENR  
Division of Environmental Services  
Water Rights Program  
Joe Foss Building, 523 East Capitol  
Pierre, SD 57501

STATE OF SOUTH DAKOTA  
COUNTY OF CLAY

**TERA SCHMIDT** BEING FIRST DULY SWORN ON OATH DEPOSES  
AND SAYS THAT SHE IS THE **CLASSIFIED MANAGER** 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 TO APPROPRIATE WATER**

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE  
NEWSPAPER ON THE 29 DAY OF MARCH 2013  
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION  
OF SAID **NOTICE** TO WIT **\$38.23** 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: 3/29/13

FILED ON: 3/29/13

SUBSCRIBED AND SWORN TO BEFORE ME THIS

1<sup>st</sup> DAY OF

April

NOTARY PUBLIC, SOUTH DAKOTA

MY COMMISSION EXPIRES

8/19/2015

**NOTICE OF APPLICATION**  
**NOS. 7686-3 thru 7689-3 to**  
**Appropriate Water**

Notice is given that Nicholas W Olson, 2112 Augusta Dr., Vermillion SD 57069 has filed the following applications for a water permit.

Application No. 7686-3 proposes to appropriate 1.0 cubic feet of water per second (cfs) from one well to be completed into the Missouri:Elk Point Aquifer (115 feet deep) located in the SW 1/4 NE 1/4 Section 29 for irrigation of 70 acres located in the S 1/2 NE 1/4 Section 29; all in T93N-R53W.

Application No. 7687-3 proposes to appropriate 1.0 cfs from one well to be completed into the Missouri:Elk Point Aquifer (115 feet deep) located in the NW 1/4 SE 1/4 Section 6 for irrigation of 70 acres located in the W 1/2 SE 1/4 Section 6; all in T93N-R53W.

Application No. 7688-3 proposes to appropriate 0.5 cfs from one well to be completed into the Lower Vermillion:Missouri Aquifer (165 feet deep) located in the NE 1/4 SE 1/4 Section 25 for irrigation of 40 acres located in the NE 1/4 SE 1/4 Section 25; all in T93N-R52W.

Application No. 7689-3 proposes to appropriate 1.0 cfs from one well to be completed into the Missouri:Elk Point Aquifer (115 feet deep) located in the W 1/2 NE 1/4 Section 24 for irrigation of 70 acres located in the W 1/2 NE 1/4 Section 24-T93N-R53W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application Nos. 7686-3, 7687-3, 7688-3 and 7689-3 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. In accordance with SDCL 46-2A-23, the Chief Engineer will act on these applications, as recommended, unless a petition is filed opposing the applications or the applicant files a petition contesting the Chief Engineer's recommendations. If a petition opposing the applications or contesting the recommendations is filed, then a hearing will be scheduled and the Water Management Board will consider these applications. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting these 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 April 8, 2013.

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. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to these applications. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

Published once at the total approximate cost of \$38.23.

**Published: March 29, 2013**

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APR - 3 2013

WATER RIGHTS  
PROGRAM

AFFIDAVIT OF PUBLICATION

YANKTON DAILY PRESS AND DAKOTAN

Department of Environment and Natural Resources  
PMB 2020  
Joe Foss Building  
523 East Capitol  
Pierre, SD 57501-3182

STATE OF SOUTH DAKOTA  
COUNTY OF YANKTON

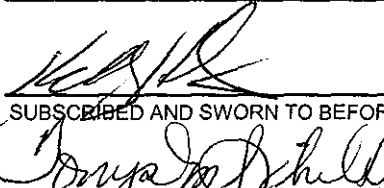
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Notice of Application Nos. 7686-3 thru 7689-3

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE  
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THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLIC  
OF SAID NOTICE TO WIT \$36.58 ENSURES TO THE  
BENEFITS OF THE PUBLISHER OF SAID NEWSPAPER AND THAT NO  
AGREEMENT AND UNDERSTANDING FOR THE DIVISION THEREOF  
BEEN MADE WITH ANY OTHER PERSON, AND THAT NO PART THE  
HAS BEEN AGREED TO BE PAID TO ANY PERSON WHOMSOEVER.

PUBLISHED ON: 3/29/2013

FILED ON: 3/29/2013

SUBSCRIBED AND SWORN TO BEFORE ME THIS 29th DAY OF March 2013

  
NOTARY PUBLIC, SOUTH DAKOTA  
MY COMMISSION EXPIRES 8/19/2015

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cations. Steven M. Pirner, Secre-  
tary, Department of Environment  
and Natural Resources.

Published once at the total ap-  
proximate cost of \$36.58.

NOTICE OF APPLICATION  
NOS. 7686-3 thru 7689-3 to  
Appropriate Water

Notice is given that Nicholas W  
Olson, 2112 Augusta Dr., Vermil-  
lion SD 57069 has filed the fol-  
lowing applications for a water  
permit.

Application No. 7686-3 proposes  
to appropriate 1.0 cubic feet of  
water per second (cfs) from one  
well to be completed into the Mis-  
souri:Elk Point Aquifer (115 feet  
deep) located in the SW 1/4 NE  
1/4 Section 29 for irrigation of 70  
acres located in the S 1/2 NE 1/4  
Section 29; all in T93N-R53W.

Application No. 7687-3 proposes  
to appropriate 1.0 cfs from one  
well to be completed into the Mis-  
souri:Elk Point Aquifer (115 feet  
deep) located in the NW 1/4 SE  
1/4 Section 6 for irrigation of 70  
acres located in the W 1/2 SE 1/4  
Section 6; all in T93N-R53W.

Application No. 7688-3 proposes  
to appropriate 0.5 cfs from one  
well to be completed into the  
Lower Vermillion:Missouri Aquif-  
er (165 feet deep) located in the  
NE 1/4 SE 1/4 Section 25 for irri-  
gation of 40 acres located in the  
NE 1/4 SE 1/4 Section 25; all in  
T93N-R52W.

Application No. 7689-3 proposes  
to appropriate 1.0 cfs from one  
well to be completed into the Mis-  
souri:Elk Point Aquifer (115 feet  
deep) located in the W 1/2 NE 1/4  
Section 24 for irrigation of 70  
acres located in the W 1/2 NE 1/4  
Section 24-T93N-R53W.

Pursuant to SDCL 46-2A-2, the  
Chief Engineer recommends AP-  
PROVAL of Application Nos.  
7686-3, 7687-3, 7688-3 and  
7689-3 because 1) unappropriated  
water is available, 2) existing  
rights will not be unlawfully im-  
paired, 3) it is a beneficial use of  
water, and 4) it is in the public in-  
terest. In accordance with SDCL  
46-2A-23, the Chief Engineer will  
act on these applications, as rec-  
ommended, unless a petition is  
filed opposing the applications or  
the applicant files a petition con-  
testing the Chief Engineer's rec-  
ommendations. If a petition op-  
posing the applications or contest-  
ing the recommendations is filed,  
then a hearing will be scheduled  
and the Water Management Board  
will consider these applications.  
Notice of the hearing will be  
given to the applicant and any  
person filing a petition.

Any person interested in opposing  
or supporting these applications or  
recommendations must file a writ-  
ten petition with BOTH the appli-  
cant and Chief Engineer. The ap-  
plicant must file a petition if con-  
testing the Chief Engineer's rec-  
ommendations. The Chief Engi-



DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES

PMB 2020  
JOE FOSS BUILDING  
523 EAST CAPITOL  
PIERRE, SOUTH DAKOTA 57501-3182

[denr.sd.gov](http://denr.sd.gov)

March 18, 2013

Plain Talk  
201 W Cherry St  
Vermillion SD 57069

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application Nos. 7686-3 thru 7689-3 to Appropriate Water. Please publish the notice once on March 29, 2013. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

The applicant must verify to you that the notice is to be published and arrange for payment. **Please BILL the APPLICANT for the cost of publication.** The APPLICANT is Nicholas W Olson, 2112 Augusta Dr, Vermillion SD 57069 (Ph # 605-670-1024).

**Please send the Water Rights Program an affidavit or the enclosed Proof of Publication form immediately.**

The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,

Eric Gronlund  
Natural Resources Engineer  
605 773-3352

enclosures



DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES

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PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

March 18, 2013

Press & Dakotan  
319 Walnut  
Yankton SD 57078

ATTENTION: Legal Public Notice

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Sincerely,

Eric Gronlund  
Natural Resources Engineer  
605 773-3352

enclosures



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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523 EAST CAPITOL  
PIERRE, SOUTH DAKOTA 57501-3182

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NOTE: TO BE SURE OF PUBLICATION ON  
THE CORRECT DATE, CONTACT  
THE NEWSPAPER(S) RIGHT AWAY.

March 18, 2013

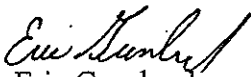
Nicholas W Olson  
2112 Augusta Dr  
Vermillion SD 57069

Dear Mr. Olson:

Water Permit Application Nos. 7686-3 thru 7689-3 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 SD (Ph # 605-624-2695) and the Press & Dakotan printed at Yankton SD (Ph # 605-665-7811). You will need to contact the newspaper(s) and authorize publication of this notice. For your information, a copy of the notice, the recommendations of the Chief Engineer and reports 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 newspaper(s) to authorize publication of your Notice and to arrange for payment. Early contact with the paper(s) can eliminate delays. Upon receiving authorization from you, the publisher has been instructed to publish your notice. The newspaper(s) has also been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the applications.

Sincerely,

  
Eric Gronlund  
Natural Resources Engineer  
(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 applications.

Instruction to Newspaper - Publish the Notice on March 29, 2013. The applicant is responsible for payment. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352 or email: Karen.schlaak@state.sd.us.

---

NOTICE OF APPLICATION NOS. 7686-3 thru 7689-3 to Appropriate Water

Notice is given that Nicholas W Olson, 2112 Augusta Dr., Vermillion SD 57069 has filed the following applications for a water permit.

Application No. 7686-3 proposes to appropriate 1.0 cubic feet of water per second (cfs) from one well to be completed into the Missouri:Elk Point Aquifer (115 feet deep) located in the SW 1/4 NE 1/4 Section 29 for irrigation of 70 acres located in the S 1/2 NE 1/4 Section 29; all in T93N-R53W.

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Published once at the total approximate cost of \_\_\_\_\_.



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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JOE FOSS BUILDING  
523 EAST CAPITOL  
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

**MAY 20 2013**

Nicholas W Olson  
2112 Augusta Dr  
Vermillion SD 57069

Dear Mr. Olson:

Enclosed are Water Permit Nos. 7686-3, 7687-3, 7688-3 and 7689-3 authorizing construction of your water diversion systems 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,

Jeanne Goodman, Chief Engineer  
Water Rights Program  
(605) 773-3352

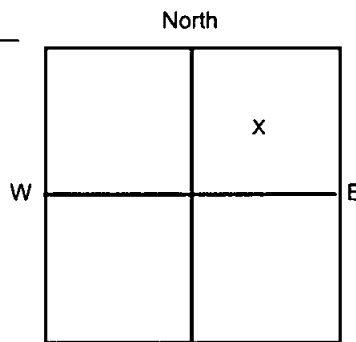
enclosures

7686-3

SD EForm - 1621LD V1

## SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SW 1/4 NE 1/4 Sec 29 Twp 93N Rg 53WCounty CLAYPlease mark well  
location with an "X"

Well Completion Date

April 7, 2014

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

## PROPOSED USE:

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

## METHOD OF DRILLING:

bucket method

## CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

| PIPEWEIGHT | DIAMETER | FROM   | TO      | HOLE DIAMETER |
|------------|----------|--------|---------|---------------|
| LB/FT      | 16.00 IN | 0.0 FT | 86.0 FT | 24.00 IN      |
| LB/FT      | IN       | FT     | FT      | IN            |
| LB/FT      | IN       | FT     | FT      | IN            |

## GROUTING DATA:

| Grout Type | No. of Sacks | Grout Weight | From   | To      |
|------------|--------------|--------------|--------|---------|
| BENTONITE  | 25           | 9.5 Lb/gal   | 0.0 Ft | 80.0 Ft |
|            |              | Lb/gal       | Ft     | Ft      |

Describe grouting procedure  
TREMIE METHOD

## SCREEN:

☐ Perforated pipe ☒ Manufactured  
 Diameter 16.00 Inches Length 20.0 Feet
Material PVCSlot Size .085 Set From 86.0 Feet to 106.0 Feet

Other information

## WAS A PACKER OR SEAL USED?

☐ Yes ☒ No

If so, what material?

Describe packer(s) and location

## DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? HTH TABLETS
☐ No, Why Not?
Lab to which water  
quality sample sent for analysisWell Owner: NICK OLSON

Business Name:

Address: 2112 AUGUSTA DRCity, State, Zip: VERMILLION SD 57069

## WELL LOG:

| FORMATION        | DEPTH |     |
|------------------|-------|-----|
|                  | FROM  | TO  |
| TOP SOIL         | 0     | 2   |
| BROWN CLAY       | 2     | 11  |
| SILTY CLAY       | 11    | 17  |
| CLAY             | 17    | 20  |
| GRAY CLAY - HARD | 20    | 83  |
| CLAY GRAVEL MIX  | 83    | 88  |
| GRAVEL           | 88    | 106 |
|                  |       |     |
|                  |       |     |

STATIC WATER LEVEL 17 FEET

If flowing: closed in pressure \_\_\_\_\_ PSI

GPM flow \_\_\_\_\_ through \_\_\_\_\_ Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other \_\_\_\_\_

Reduced flow rate \_\_\_\_\_ GPM

Can well be completely shut in?

## WELL TEST DATA:

☐ Pumped Describe: ☐ Bailed  
☐ Other

Pumping Level Below Land Surface

\_\_\_\_\_ Ft. After \_\_\_\_\_ Hrs. pumped \_\_\_\_\_ GPM

\_\_\_\_\_ Ft. After \_\_\_\_\_ Hrs. pumped \_\_\_\_\_ GPM

If pump installed, pump rate: \_\_\_\_\_ GPM

## REMARKS

RECEIVED

MAY - 5 2014

WATER RIGHTS  
PROGRAMThis well was drilled under license # 666 and this  
report is true and accurate.Drilling firm: HAMMOND-WETMORE DRILLING, LLC

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date: 5/1/2014

5-6-14

## **Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 7686-3**

I have this day, November 9, 2015, made a thorough examination of the water use system constructed by Nicholas W Olson, 2112 Augusta Dr, Vermillion, SD 57069 of Permit No. 7686-3, bearing the priority of February 6, 2013 authorizing the diversion of 1.0 cu. ft. per second of the waters of Missouri:Elk Point Aquifer for irrigation purposes, in Clay County.

Inspection contact & relationship     **Nicholas W Olson, permit holder**  
to permit holder, if applicable:

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

#### **Well Information:**

- 1) Well Drilling Firm: Hammond-Wetmore Drilling, LLC
- 2) No. of Wells 1
- 3) Depth(s) 106 feet
- 4) Well log is available Yes

#### **Casing:**

- 1) Diameter 16 inches
- 2) Length 86 feet
- 3) Type PVC

#### **Screen:**

- 1) Type PVC Manufactured
- 2) Length 20 feet
- 3) Static water level 17 feet

#### **Pump:**

- 1) Make Grundfos Submersible
- 2) Model 475S200-2
- 3) Capacity 450 GPM

#### **Motor:**

- 1) Make Grundfos
- 2) Model No. Submersible
- 3) Horsepower rating 20 hp

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

**Center pivot:**

- 1) Make Valley
- 2) Overall length 1280 feet
- 3) Number of towers 7
- 4) End gun Yes
- 5) Capacity 450 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, began irrigating in 2014.

List any extended period of nonuse: None

- 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: West 1340', South 1340' from NE Corner of Sec 29-T93N-R53W; Lat 42.84812/Long -97.12695; approximate center of NE ¼ Sec 29-T93N-R53W.

2. The works are capable of diverting and conveying to the place of use 1.0 cfs or 450 gpm of water which is to be used for irrigation. Water has been put to beneficial use to the maximum extent as follows:

All land is located in Sec 29-T93N-R53W.

SW ¼ NE ¼ - 33 ac

SE ¼ NE ¼ - 33 ac

comprising a total of 66 acres of land and the license should be issued for 1.0 cfs or 450 gpm.

3. All structures, wells and lands on map Yes

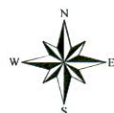
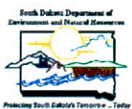
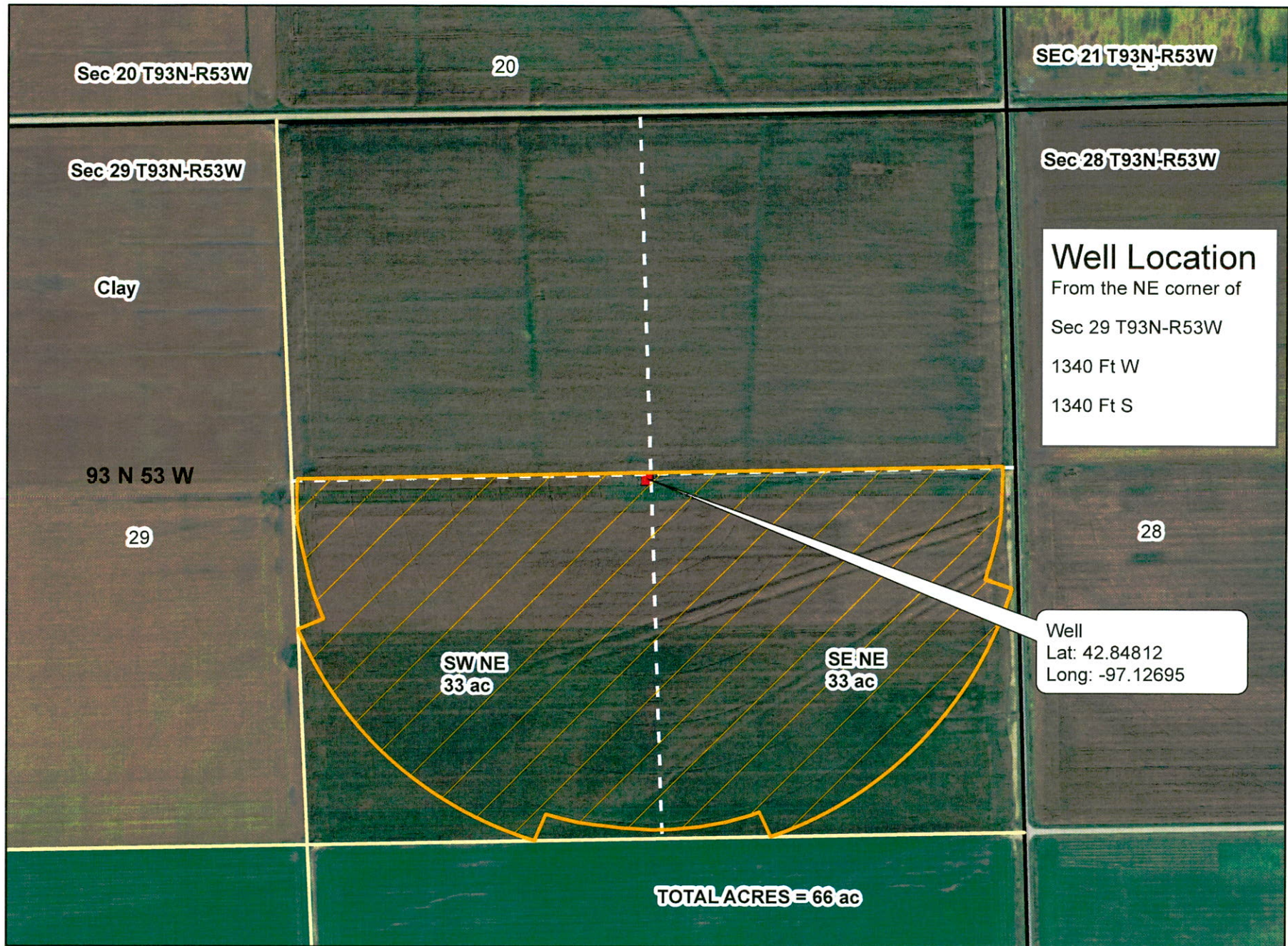
*0.94 cfs based on acreage  
Jm*

*Harold Holoch*

Harold Holoch, PE  
Engineer Water Rights Inspector  
DENR, Water Rights Program

Date report completed: March 11, 2016

7686-3



*Harold Holoch*  
Harold Holoch, PE  
Water Rights Inspector  
December 14, 2015

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

---

MAIL TO: PMB 2020

DENR - Water Rights Program

523 E Capitol Ave

Pierre, SD 57501-3182

ph. (605) 773-3352

Date 11-9-15

FROM:

Nicholas W. Olson

(name)

2112 Augusta Dr

(address)

Vermillion

(city)

SD

(state)

57069

(zip)

605-670-1024

(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. 7686-3 states that the water use system is to be constructed by

4-8-2018, and water is to be put to beneficial use by 4-8-2022

(date)

(date)

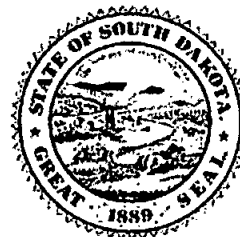
The water use system was completed on May 2014

(date)

Applying the water to beneficial use was completed on July 2014

(date)

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





DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES

JOE FOSS BUILDING  
523 EAST CAPITOL  
PIERRE SOUTH DAKOTA 57501-3182  
<http://denr.sd.gov>

MAR 22 2016

7686-3  
7687-3  
7688-3

Nicholas W Olson  
2112 Augusta Dr  
Vermillion SD 57069

Dear Mr. Olson:

Enclosed are Water License Nos. 7686-3, 7687-3 and 7688-3. These are the final water right documents completing your process of obtaining Water Rights. Included with each license is a map prepared by the staff engineer who conducted the field investigation.

For your information SDCL 46-6-27 requires that if the owner of an existing well, such as the wells authorized by Water Right No. 7686-3, 7687-3 and 7688-3, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

As long as you use the water beneficially, as stated in the Water Licenses, State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Sincerely,

Jeanne Goodman, Chief Engineer  
Water Rights Program  
(605) 773-3352

enclosures

**STATE OF SOUTH DAKOTA  
WATER LICENSE NO. 7688-3**

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(1) Nicholas W Olson, 2112 Augusta Drive, Vermillion SD 57069 made Application No. 7688-3, February 6, 2013 for a water permit to divert 0.50 cubic feet of water per second from ground water, one well (Lower Vermillion Missouri Aquifer), Clay County, South Dakota for irrigation purposes. Permit No. 7688-3, with a priority date of February 6, 2013 was approved April 8, 2013 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before April 8, 2018 and for the application to beneficial use of said water on or before April 8, 2022.

The Permit holder submitted a "*Notice of Completion of Works and Application of Water to Beneficial Use*" on November 9, 2015. The "*Notice*" stated the water use system was completed in May, 2014 and the water placed to beneficial use in July, 2014.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to divert 0.47 cubic feet of water per second for beneficial use. The location of the diversion point is 680 feet west and 1,990 feet north of the SE corner of Section 25, T93N, R52W (NE ¼ SE ¼).

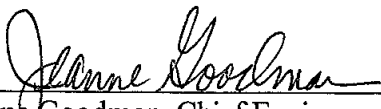
(3) The permit holder has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use to irrigate the following land:

T93N, R52W Section 25      NE ¼ SE ¼      33 acres

(4) Pursuant to South Dakota Water Law 46-5-30.1 Nicholas W Olson, 2112 Augusta Drive, Vermillion SD 57069 the holder and/or owner of Water Right No. 7688-3 is issued a license to appropriate water, the right to use 0.47 cubic feet of water per second from ground water, one well (Lower Vermillion Missouri Aquifer) with a priority date of February 6, 2013 from the location specified in (2) of this license for irrigation purposes.

This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Right No. 7688-3 and subject to the following qualifications:

- The well approved under this Permit 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.
- The well authorized by Permit No. 7688-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with the Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28. *The well was completed in February, 2014 by Hammond-Wetmore Drilling LLC. A copy of the log is on file with the Water Rights Program.*
- This Permit is approved subject to the irrigation water use questionnaire being submitted each year.



Jeanne Goodman, Chief Engineer  
Water Rights Program  
Department of Environment and Natural Resources

MAR 22 2016

date

