

WATER PERMIT NO. 8191-3

Name of Applicant: John Daly

Address: 34662 236th St, Pukwana SD 57370 Phone: 605 680-1354

Amount of Water Claimed: 1.68 cfs Total Acres: no additional

Source of Water Supply: groundwater (2 existing wells)

Water to be used for: irrigation County: Buffalo

Type of Waste Disposal System:

Location: 12 miles north of Chamberlain

PRIORITY Date Received: 12-1-15 Application/License Fee: \$ 500

Corrected Application Received: Period of Annual Use: May 1 – September 30

Remarks: Based on inspections by M Rath. Increases diversion authority for irrigation authorized by Nos. 1684-3, 7039-3 and 7039A-3

Diversion Point: SE 1/4 NE 1/4 Sec 28-T106N-R70W

Land to be Irrigated: S 1/2 Sec 17; NW 1/4, W 1/2 NE 1/4, Sec 20; SE 1/4 NW 1/4, S 1/2 NE 1/4, N 1/2 SE 1/4, NE 1/4 SW 1/4 Sec 28; all in T106N-R70W

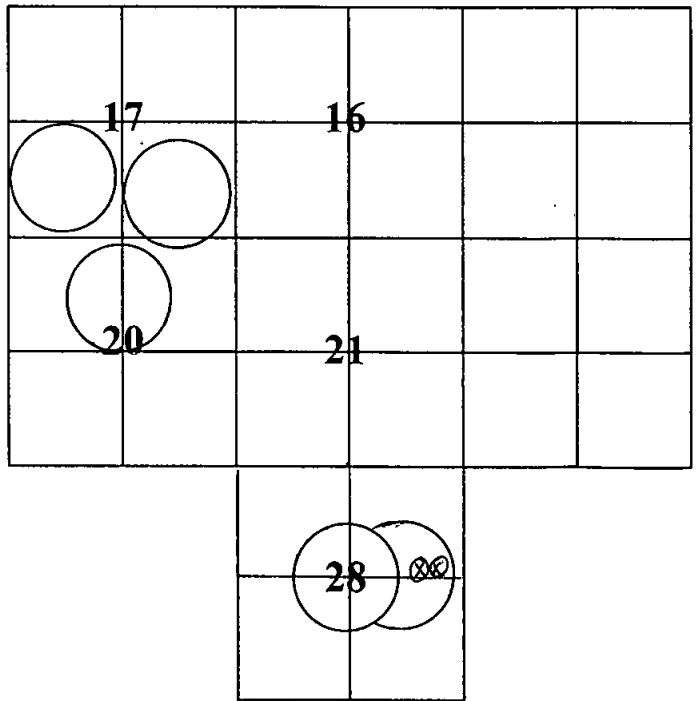
Depth of Well: 40 and 42 feet deep

Well Driller: Pullman Drilling & Hutmacher Drilling

Remarks:

Type of Map: aerial

Prepared by: Mark Rath



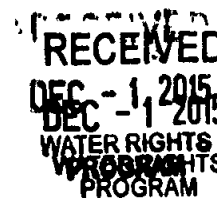
Reviewed and the Number Assigned on: 12-2-15

By: Karen Schlaak

Notice of Hearing - date to intervene: _____

FORM 2: Application for irrigation in South Dakota
(type or print)

Mail to: PMB 2020 DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8191-3</u> (office use only) Hydrologic Unit <u>10140105</u>
	Basin <u>Missouri River</u>
	Newspaper <u>Central Dakota Times-Chamberlain</u>
	<u>Plainsman, Huron</u>



Application For Permit To Appropriate Water For Irrigation

Type of Application: ☐ New ☐ Vested Right ☒ Amendment/Correction to Permit No. 7039A-3
(Use predates Mar 2, 1955)

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

Add additional diversion authority for irrigation authorized by Nos. 1684-3, 7039-3 and 7039A-3

1. Name to Appear on Irrigation Permit John Daly

(check one) ☒ Owner ☐ Tenant/lessee ☐ Owner's Legal Agent

(name and complete address if different than above name)

Mailing Address 34662 236th St (Address) Pukwana (City) SD (State) 57370 (Zip Code)

Home Phone 605-894-4192 Cell 605-680-1354 Email _____

2. Amount of water claimed 1.68 *CFS or **GPM ***AF Total Acreage
(*Cubic Feet per Second) (**Gallons per Minute) (**Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply groundwater, Crow Creek Aquifer

4. Location of point of diversion Two wells located in the SE 1/4 NE 1/4 of Sec 28 T106N-R70W
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)

County Buffalo

5. County or counties where water will be used Buffalo

6. Annual period during which water is to be used May 1 - September 30

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

Land Description	Acres	Land Description	Acres
S1/2 of Sec 17 T106N-R70W	258		
NW1/4 and W1/2 NE1/4 Sec 20 T106N-R70W	143		
SE1/4 NW1/4, S1/2 NE1/4 Sec 28 T106N-R70W	107		
N1/2 SE1/4, NE1/4 SW1/4 Sec 28 T106N-R70W	107		

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

Increase diversion authority 1.68 cfs from two existing wells.

I, John Daly, 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. 8191-3**

Date of first receipt of application December 1, 2015.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8191-3 to John Daly, 34662 236th St, Pukwana SD 57370 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. 8191-3 appropriates an additional 1.68 cubic feet of water per second (cfs) to what is currently authorized by Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3. Combined, these Water Rights appropriate 5.9 cfs from two wells completed into the Crow Creek Aquifer (40 and 42 feet deep) to be located in the SW 1/4 NE 1/4 and SE 1/4 NE 1/4 Section 28 developed to irrigate 615 acres located in the S 1/2 Section 17; NW 1/4, W 1/2 NE 1/4, NE 1/4 NE 1/4 Section 20; SE 1/4 NW 1/4, S 1/2 NE 1/4, N 1/2 SE 1/4, NE 1/4 SW 1/4 Section 28; all in 106N-R70W. An investigation of the permits found the system capable of diverting an additional 1.68 cfs from the two existing wells. This permit specifies that the location of both wells are in the SE 1/4 NE 1/4 Section 28-T106N-R70W. This permit and Nos. 1684-3, 7039-3 and 7039A-3 authorize a total diversion rate of 7.58 cfs for irrigation of 615 acres.
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 1, 2015 (1.68 cfs).
4. The date of approval of Permit No. 8191-3 is February 16, 2016.
5. 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 wells approved under Water Right No. 1684-3 and Water Permit Nos. 7039-3, 7039A-3 and 8191-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

By: _____

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

APR 12 2016

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 ____ Have test holes been drilled ☐ Yes ☐ No Drilled by _____
(if yes, please provide copies of logs)
- b) If existing wells, how many 2 Provide copy of log(s), if available. Drilled by Pullman, Hutmacher
- c) Well Depth 57, 53 Depth to Top of Water Bearing Material 10, 13 Depth to Water from Surface 16.7, 13
- d) Distance to nearest existing domestic well:
- On applicant's property _____ On property owned by others _____

2. Wastewater Disposal System Information

- a) Type of System (i.e. septic tank, drain field) _____
- b) System Capacity (gallons) _____ Year Constructed _____
- c) Connected to the City of _____ Sanitary System

3. Dugout Information

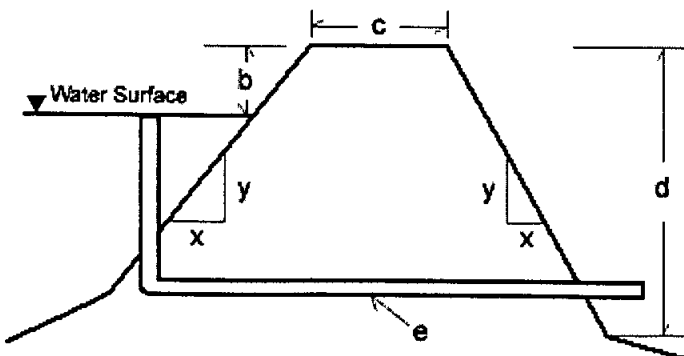
- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

4. Water Storage Dams

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

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

- b) Freeboard _____
- c) Crest Width _____
Crest Length _____
- d) Height _____
- e) Primary Outlet Capacity _____
If pipe, diameter _____
- f) Secondary Spillway Capacity _____
Spillway Width _____
- g) X & Y Slope (e.g. 3 to 1 is a typical slope)
Upstream _____
Downstream _____
- h) Surface Area of Impoundment _____
- i) Storage _____ Acre Feet
- j) Drainage Area Above Dam _____ Acres



SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location NE Sec 28 Twp 106N Rg 70W

County

Buffalo

North

Please mark well location with an "X"

W

E

Well Completion Date

9/30/2009

1 Mile

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

3,000.0 ft from septic (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Rotary

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
160.0 LB/FT	16.00 IN	0.0 FT	33.0 FT	20.00 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	12	9.2 Lb/gal	0.0 Ft	15.0 Ft
		Lb/gal	Ft	Ft

Describe grouting procedure
pressure thru tremie

SCREEN:

☐ Perforated pipe ☒ Manufactured
Diameter 16.00 Inches Length 20.0 FeetMaterial Stainless steelSlot Size .100 Set From 33.0 Feet to 53.0 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? Chlorine
☐ No. Why Not?
Lab sample sent to for
water quality analysisWell Owner John Daly

Business Name

Address 34662 236 St.City, State, Zip Pukwana SD 57370

WELL LOG:

DEPTH

FORMATION	FROM	TO
Clay	0	13
Gravel with few clay strips	13	46
Blue clay	46	53

STATIC WATER LEVEL 13.0 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

50.0 Ft After 1.0 Hrs pumped 150.0 GPM

_____ Ft After _____ Hrs pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS

RECEIVED

DEC 8 2009

WATER RIGHTS

PROGRAM
213

This well was drilled under license # _____

And this report is true and accurate

Drilling firm Hutmacher Drilling, Inc.

Signature of License Representative

Signature of Well Owner or Equitable Property Holder

Date _____

RECEIVED

DEC - 1 2015

WATER RIGHTS
PROGRAM

11-02

RECEIVED

DEC - 1 2015

WATER RIGHTS PROGRAM

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 12/1, 20 15

RECEIVED OF Daly Farm Partnership 34662 236th St Pukwana SD 57370

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

Fee for Application for Permit No. <u>8191-3</u> to Appropriate Water, to construct and to put water to beneficial use	500	00
Fee for Application for Permit No. _____ to Appropriate Water for Future use		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. _____		
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	500 00

No. 07550

By Jeanne Goodman
Chief Engineer



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
PMB 2020
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3182
www.denr.sd.gov

John Daly
34662 236th St
Pukwana SD 57370

June 1, 2015

Dear Mr. Daly:

This letter is in regards to our recent telephone conversation concerning the results of my May 18, 2015 water permit inspection.

As I explained during the call, your irrigation system covered by Water Right No. 1684-3 and Water Permit Nos. 7039-3 and 7039A-3, combined, authorize the irrigation of 698 acres with an authorized diversion rate of 6.0 cfs (2693 gpm). Based upon what you have developed, there are 615 acres irrigated; 125 acres under No. 1684-3 and 490 acres under Nos. 7039-3 and 7039A-3. You have a total developed combined pump capacity from the two wells of 7.58 cfs (3400 gpm). As we discussed over the telephone you will need to file a new permit application to pick up the additional diversion authority of 1.58 cfs (707 gpm) to bring your water permits into compliance.

We discussed the possibility of applying for additional irrigated acres with the same application you are applying for the increased diversion authority. If the new irrigation is going to be part of the existing system and supplied from current two wells, then the increased acres can be included in the same application as the request for additional diversion authority. However, if the new irrigation will have a different source of water from the current system, then this will be a new project and will take a separate application. I'm enclosing a map showing what is currently developed, water permit application forms and an instruction sheet. Please complete application and submit it along with the appropriate fee. The application filing fee for just additional diversion rate authority is \$500. If additional acres are requested, the fee will be based on the number of acres (see instruction sheet)

Also, Water Right No. 1684-3 is still listed under Paul Daly. I am including a partially completed transfer form. Please complete and submit it with a \$50 transfer fee.

If you have any questions, please contact Eric Gronlund or myself at phone (605) 773-3352.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark D. Rath'.

Mark D. Rath
Natural Resources Engineer
enclosures



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

September 29, 2015

John Daly
34662 236th St
Pukwana SD 57370

Dear Mr. Daly:

On June 1, 2015, you were sent applications forms for a permit to appropriate water based on an investigation of Water Right No. 1684-3 Water Permit Nos. 7039-3 and 7039A-3, by Mark Rath, an engineer with this office. Enclosed is a copy of that letter. The investigation showed that your systems were not developed as originally permitted. This application is necessary to obtain a permit which will reflect your water use.

To date, we have not received a response regarding the application.

Obtaining a water permit that accurately reflects your water use ultimately benefits you by protecting your right to use water. Except for domestic use, any water user without a water right is not entitled to receive protection in the event of interference by a new or future user who has a water right.

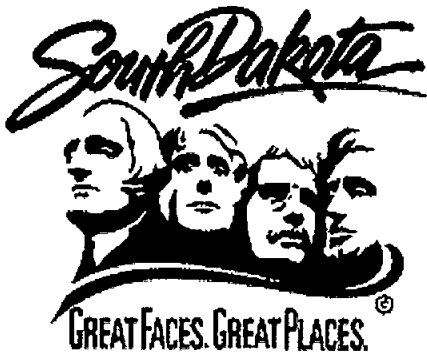
Also, Water Right No. 1684-4 is still listed under Paul Daly. Please complete and return the enclosed transfer form with the required \$50.00 fee.

If you need any the forms sent again, please let me know. If you have any questions, please contact Mark Rath or me.

Sincerely,

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

enclosure



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
PMB 2020
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3182
www.denr.sd.gov

John Daly
34662 236th St
Pukwana SD 57370

October 20, 2015

Dear Mr. Daly:

This letter is in regards to our recent telephone conversation concerning the results of my May, 2015 water permit inspection.

As I explained during the call, you have a total developed combined pump capacity from the two irrigation wells of 7.58 cfs (3400 gpm). Your irrigation system covered by Water Right No. 1684-3 and Water Permit Nos. 7039-3 and 7039A-3, combined, authorize the irrigation of 698 acres, of which 615 acres have been developed, with an authorized diversion rate of 5.9 cfs (2647 gpm). You will need to file a new permit application to pick up the additional diversion authority of 1.68 cfs (754 gpm) to bring your water permits into compliance.

I'm enclosing a partially completed application, two well logs and a map showing what is currently developed, water permit application forms and an instruction sheet. Please complete application and submit it, the map, well logs along with the appropriate fee. The application filing fee for just additional diversion rate authority is \$500

If you have any questions, please contact Eric Gronlund or myself at phone (605) 773-3352.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark D. Rath', written in a cursive style.

Mark D. Rath
Natural Resources Engineer
enclosures



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

denr.sd.gov

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 8191-3, John Daly**

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. 8191-3, John Daly, 34662 236th Street, Pukwana SD 57370.

The Chief Engineer is recommending APPROVAL of Application No. 8191-3 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 wells approved under Water Right No. 1684-3 and Water Permit Nos. 7039-3, 7039A-3 and 8191-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.

Jeanne Goodman, Chief Engineer
January 27, 2016

REPORT TO THE CHIEF ENGINEER
ON
WATER PERMIT APPLICATION NO. 8191-3
JOHN DALY
JANUARY 27, 2016

Water Permit Application No. 8191-3 proposes to appropriate 1.68 cubic feet of water per second (cfs) to irrigate lands currently authorized for irrigation by Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3. Combined Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3 authorize the diversion of 5.9 cfs from two wells completed into the Crow Creek aquifer located in the SW $\frac{1}{4}$ NE $\frac{1}{4}$ and the SE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 28 to irrigate 615 acres located in the S $\frac{1}{2}$ Section 17; NW $\frac{1}{4}$, W $\frac{1}{2}$ NE $\frac{1}{4}$, and the NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 20; SE $\frac{1}{4}$ NW $\frac{1}{4}$, S $\frac{1}{2}$ NE $\frac{1}{4}$, N $\frac{1}{2}$ SE $\frac{1}{4}$, and the NE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 28; all in T106N-R70W in Buffalo County. An inspection of the permits per SDCL 46-5-30 found the system capable of diverting an additional 1.68 cfs from the two existing wells. This application, if approved, and Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3 will authorize a total diversion of 7.58 cfs for the irrigation of 615 acres.

AQUIFER: Crow Creek (CC)

Aquifer Characteristics:

The Crow Creek aquifer underlies portions of Buffalo, Brule, Jerauld, and Hand Counties. However, there has not been extensive study of the aquifer in Buffalo County. The well logs on file with the DENR-Water Rights Program for Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3 indicate the aquifer is composed of gravel at the well sites (Water Rights, 2016c). The well logs agree with information in Hamilton's (1985) section on the Crow Creek aquifer in the *Water Resources of Aurora and Jerauld Counties, South Dakota*.

Hamilton (1985) estimated the Crow Creek aquifer has 270,000 ac-ft of water in storage in Jerauld County and underlies approximately 70 square miles (44,800 acres) of Jerauld County. Hedges' and others (1982) estimated the Crow Creek aquifer to underlie 41,500 acres of Hand and Jerauld Counties and an undetermined area of Buffalo County. They estimated the aquifer contained at least 115,000 acre-feet (ac-ft) of recoverable water in storage (Hedges and others, 1982). Hamilton's numbers are likely more reflective of the Crow Creek aquifer, at least the portion in Jerauld County, due to the smaller area of focus and the greater availability of data.

The aquifer is under unconfined conditions at the well sites. In general, the aquifer is under unconfined conditions, but artesian conditions do exist (Water Rights, 2016a and 2016c). The static water level at the well sites ranges from 13 feet below grade in September 2009 to 17 feet below grade in March 2012 (Water Rights, 2016c). The aquifer ranges from 30 to 50 feet thick at the well sites (Water Rights, 2016c). An aquifer pumping test was conducted for Water Right No. 1684-3 (Water Rights, 2016b). The pumping test determined the aquifer has a transmissivity ranging from 144,000 to 244,000 gallons per day per ft based on drawdown and recovery data in four observation wells within approximately 320 feet of the pumping well. The storage coefficient ranged from 0.03 to 0.08.

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 this 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 address the availability of unappropriated water and effects on existing rights from the aquifer that are pertinent to this application.

WATER AVAILABILITY:

This application proposes an increase over the diversion rate authorized by Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3 to match the system as constructed. An authorized increase in diversion rate will allow more center pivots to operate at the same time. Therefore, there will be more actual use of water.

Combined, Water Right No. 1684-3 and Water Permit Nos. 7039-3 and 7039A-3 authorize the irrigation of 615 acres. Table 1 shows the historic irrigation by Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3 from 1994 to present. The average of the total irrigation from 2012 through 2014 is 342.54 ac-ft/yr. That time period is the most representative of the irrigation system as constructed. Across South Dakota, irrigation application rates are generally less than 10 inches. Assuming the increase in diversion rate allows for the application rate to be 10 inches, the estimated annual pumpage would be 512.5 ac-ft/yr, which is an increase of 169.96 ac-ft/yr over the 2012-2014 irrigation average. This is based on a generous estimate for application rate and almost certainly greater than the actual increase in annual pumpage.

Year	1684-3 ac-ft/yr	7039-3 ac-ft/yr	7039A-3 ac-ft/yr	Total ac-ft/yr
1994	167.90			167.90
1995	178.98			178.98
1996	147.16			147.16
1997	34			34.00
1998	123.74			123.74
1999	67.17			67.17
2000	91.92			91.92
2001	106.06			106.06
2002	152.02			152.02
2003	197.98			197.98
2004	122.63			122.63
2005	119.32			119.32
2006	232.01			232.01
2007	119.32			119.32
2008	162.41			162.41
2009	105.18	0		105.18
2010	149.15	0		149.15
2011	89.49	0		89.49
2012	145.83	96.12	0	241.95
2013	112.69	274.65	0	387.34
2014	144.97	253.35	0	398.32
Avg.	131.90	104.02	0	161.62
2012-2014 Avg.	134.50	208.04	0	342.54

Table 1- Irrigation water use by Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3: 1994-2014 (Water Rights, 1980-2015)

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 DENR-Water Rights Program monitors nine observation wells completed into the Crow Creek aquifer (Water Rights, 2016b). Figure 1 shows a map with the location of the wells this application proposes to use, the water rights/permits authorized to withdraw water from the aquifer, and the Water Rights observation wells completed into the aquifer. The hydrographs for all of the observation wells show increasing water levels over the period of record. The hydrograph for BF-77A shows a much more reactive aquifer than all of the other hydrographs. This is because BF-77A is under confined conditions. However, the climatic effects on the water level still dominate the temporary impacts of well withdrawal in all of the observation wells. Thus, recharge to and natural discharge from the aquifer significantly exceeds pumping. Natural discharge from an aquifer can be captured for additional pumping. Therefore considering the hydrographs, there is a reasonable probability that unappropriated water is available for this application.

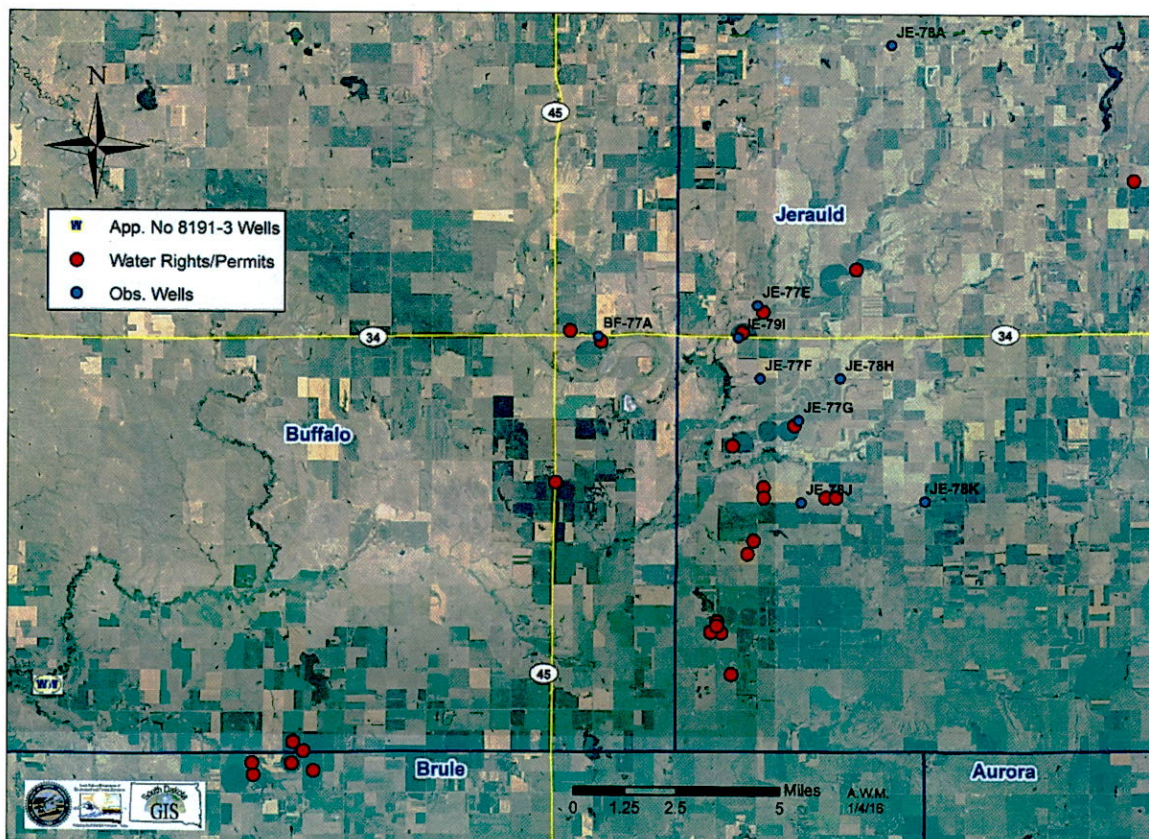


Figure 1- Map of the water rights/permits authorized to withdraw water from and the observation wells completed into the Crow Creek aquifer (Water Rights, 2016b and 2016c)

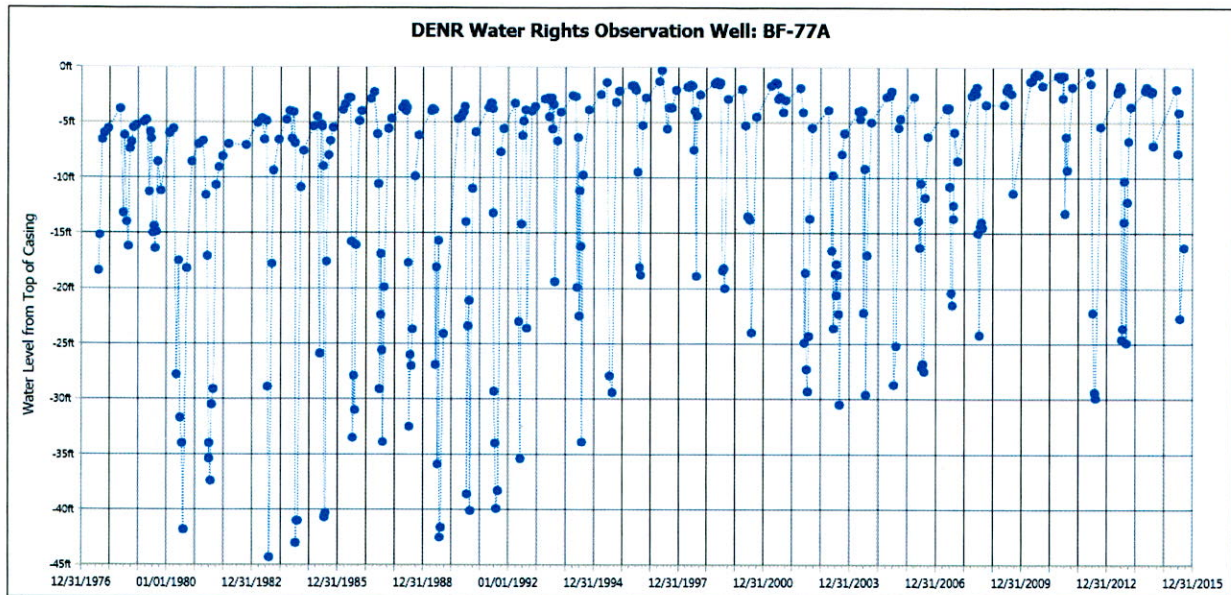


Figure 2- Observation well BF-77A hydrograph (Water Rights, 2016a)

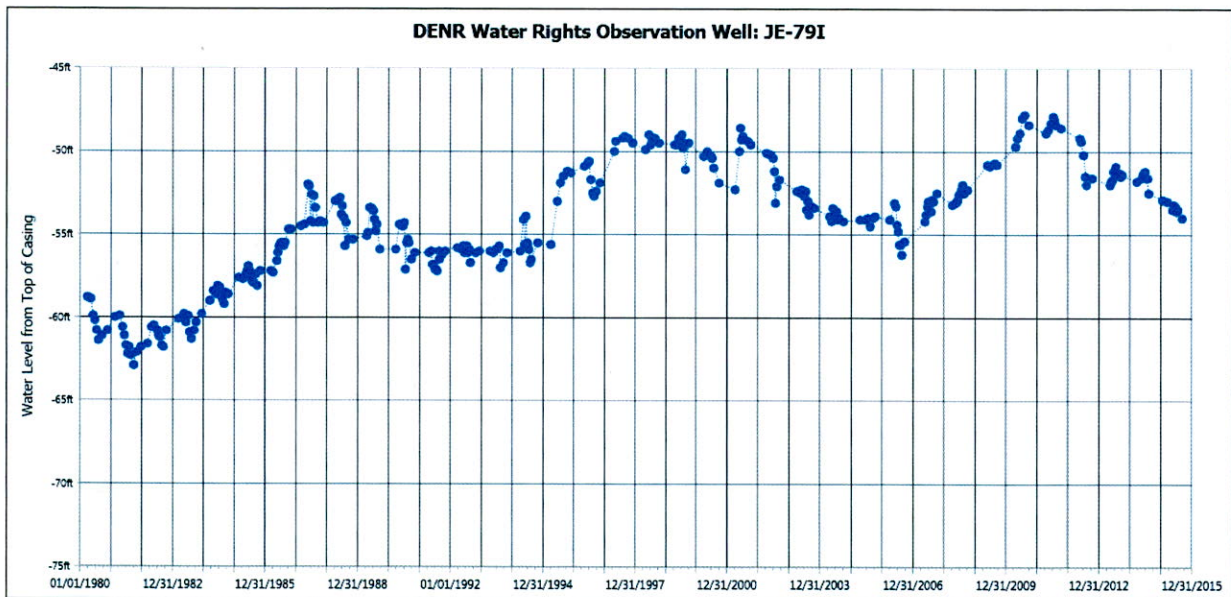


Figure 3- Observation well JE-79I hydrograph (Water Rights, 2016a)

Recharge and Discharge:

Recharge:

Recharge to the Crow Creek aquifer is primarily through direct infiltration of precipitation where the aquifer is near land surface (Hamilton, 1985). Hamilton (1985) estimated a recharge rate of 2.4 inches per year. Hedges and others (1985) estimated a recharge rate to the aquifer to be 3.8 inches per year using observation well analysis. The recharge rates equate to an average annual recharge to the aquifer ranging from approximately 8,300 to 14,190 ac-ft/yr.

Discharge:

Discharge from the aquifer occurs through groundwater outflow, evapotranspiration, and well withdrawals. Currently, there are 24 water rights/permits authorizing the withdrawal of water from the Crow Creek aquifer (Water Rights, 2016b). The amount of water that can be expected to be withdrawn by the only non-irrigation appropriation authorized to withdraw water from the aquifer, Water Permit No. 6748-3 for Brian and Ed Havlick, is estimated by assuming pumping at the maximum permitted diversion rate for 60 percent of the time. Therefore, Water Permit No. 6748-3 is expected to use approximately 74 ac-ft/yr. Average historic irrigation pumpage from the Crow Creek aquifer for 1979 through 2014 is 1,541 ac-ft/yr as shown in Table 2. There are a number of domestic wells completed into the Crow Creek aquifer (Water Rights, 2016c). However, the total use by domestic wells is insignificant when compared to the appropriative use from the aquifer.

Year	Number of Permits Reporting	Appropriation (ac-ft/yr)	Pumpage Reported (ac-ft/yr)
2014	27	11647.0	2162.27
2013	28	11884.0	3115.76
2012	27	11884.0	4004.14
2011	22	11004.0	1127.04
2010	22	11004.0	551.42
2009	22	11004.0	853.55
2008	21	9964.0	1874.96
2007	16	8384.0	1275.02
2006	13	6796	1756.10
2005	14	6474.0	1103.91
2004	15	6669.0	859.72
2003	15	6669.0	1461.01
2002	15	6669.0	1974.50
2001	15	6669.0	571.49
2000	15	6669.0	1163.43
1999	15	6669.0	793.47
1998	15	6669.0	262.07
1997	15	6669.0	246.00
1996	16	6969.0	1031.00
1995	16	7148.0	858.65
1994	17	7734.4	1162.99
1993	17	7758.4	842.00
1992	18	8353.4	827.00
1991	21	9764.4	2049.00
1990	23	10567.4	1699.00
1989	23	10567.4	2858.70
1988	23	10567.4	3954.30
1987	17	8408.4	1605.00
1986	17	8408.4	966.00
1985	17	8464.4	2055.00
1984	17	8464.4	1481.00
1983	15	7884.4	1705.25
1982	15	8104.4	1144.64
1981	23	12482.0	2370
1980	22	12162.0	2353
1979	22	12162.0	1343
Min	13	6474	246.00
Max	28	12482	4004.14
Avg.	19	8871	1541

Table 2- Irrigation water use from the Crow Creek aquifer (Water Rights, 1980-2015)

Hydrologic Budget:

The estimated annual appropriative use from the Crow Creek aquifer is 1,615 ac-ft/yr. The estimated average annual recharge rate ranges from 8,300 to 14,190 ac-ft/yr. The estimated maximum increase in average annual withdrawal that would be caused if this application were to be approved is 169.96 ac-ft/yr. Therefore, there is a reasonable probability that unappropriated water is available for this application.

EXISTING WATER RIGHTS:

The nearest water rights/permits authorizing wells to withdraw water from the Crow Creek aquifer to the well sites are approximately five miles east-southeast (Water Rights, 2016b). There are a number of domestic wells on file within approximately two miles of the well sites (Water Rights, 2016c). The well sites authorized to withdraw water and the observation wells completed into the Crow Creek aquifer are shown in Figure 1.

The hydrographs shown in Figures 2 and 3 are representative of the aquifer. The hydrograph for BF-77A represents the portions of the aquifer that are under confined conditions, and JE-79I represents the unconfined portions of the aquifer. The hydrograph for BF-77A is the only hydrograph that shows the temporal impacts of pumping on the water level. This is because BF-77A is the only observation well completed into the Crow Creek aquifer that is under confined conditions. However, there is approximately 10 feet of artesian head pressure below the lowest recorded water level in BF-77A, and the water levels in the observation wells have always recovered after the irrigation pumping season ends. Both observation wells BF-77A and JE-79I are within one mile of at least one high capacity well. While the water levels in BF-77A have shown drawdown during the irrigation season, the water levels in JE-79I have not. Climatic conditions still dominate the water level in BF-77A and all of the other observation wells completed into the aquifer. A domestic well in the area of the wells this application uses is not expected to be adversely impacted as defined in ARSD 74:02:04:20(7).

The Water Management Board defined an “adversely impacted domestic well” in ARSD 74:02:04:20(7) as:

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

In the past, the Water Management Board has recognized that to place water to maximum beneficial use, a certain amount of drawdown may occur. Since the aquifer is under unconfined conditions at the well sites, drawdown is not expected to extend far from the pumping wells. However, depending on the specific characteristics of the Crow Creek aquifer at the well sites some existing well owners may need to lower their pumps to accommodate for deeper water levels. When considering the statute (SDCL 46-6-6.1) and the rule (ARSD 74:02:04:20(7)), well interference from this proposed diversion rate is not likely to cause a significant impact. Therefore, there is a reasonable probability that any interference will not be adverse.

AREA CONTROVERSEY

This application proposes to appropriate diversion rate authority for an existing irrigation system that is authorized by Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3. At the time of its application by a prior owner, Water Right No. 1684-3 was opposed by several nearby landowners including members of the Crow Creek Tribe. The opposition believed the application for 4.26 cfs to irrigate 298 acres was “unreasonable, excessive, and would ultimately result in an uneven distribution of available water supply among adjoining landowners” (Water Rights, 1969). The applicant had already drilled the well and had an irrigation system set up before the Water Resources Commission meeting in July 1969. The applicant wished to test pump at 800 gpm and see what effect the pumping would have on nearby domestic wells. The Commission deferred action and authorized the test pumping, with the requirement that consent of the interested parties be obtained first. The applicant obtained permission to pump the irrigation well and measure water levels in four domestic wells. The wells ranged from one-eighth to three-quarter miles from the irrigation well. The applicant pumped the irrigation well for approximately 300 hours between July 22 and August 22, 1969. The largest measured change in water level from the beginning to the end of that period was 12 inches in the domestic well one-eighth mile from the irrigation well.

The USGS had made some preliminary investigation of the aquifer and had arranged for the installation of four observation wells from 80 to 320 feet away from the irrigation well. The USGS conducted a 57-hour pumping test with a 32-hour recovery period to determine aquifer characteristics and the potential impact to nearby domestic wells. The test was conducted after the end of the 1969 irrigation season. The pumping test analysis concluded the aquifer could probably support the well the applicant proposed to use as long as pumping was not continuous for more than 20 to 25 days. The analysis also determined, theoretically, at one-quarter mile away from the irrigation well the drawdown created by pumping the irrigation well completely dry would be approximately five feet. However, they went on to state in reality the irrigation well would need to stop pumping much sooner than pumping the well completely dry. The USGS report also stated the aquifer probably could not support additional high capacity wells. After the pumping test, the applicant reduced his request to 2.0 cfs and 200 acres and was granted a permit for the irrigation project by the Water Resources Commission. Since then in the immediate area of this application and Water Right No. 1984-3, Water Permit Nos. 7039-3 and 7039A-3 have been approved without opposition.

CONCLUSIONS:

1. During an inspection of Water Permit Nos. 7039-3 and 7039A-3, it was determined the system could divert more water than was authorized by those two permits and Water Right No. 1684-3. Water Permit Application No. 8191-3 proposes to increase the diversion rate authorized by Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3 by 1.68 cfs to match the system as constructed.
2. Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3 combined authorize the irrigation of 615 acres at a diversion rate of 5.9 cfs from the Crow Creek aquifer in Buffalo County.

3. If approved, this application, Water Right No. 1684-3, and Permit Nos. 7039-3 and 7039A-3 would authorize the irrigation of 615 acres with a diversion rate of 7.58 cfs from the Crow Creek aquifer in Buffalo County.
4. This application, if approved, does not authorize any increase in the total volume of water appropriated. However, an increase in diversion rate will allow more water to be used.
5. There is a reasonable probability that there is unappropriated water available for this application.
6. There is a reasonable probability that the diversion proposed by this application can be made without adversely impacting existing appropriative or domestic users.
7. There was opposition to Water Right No. 1684-3 at the time of application. There was no opposition to Water Permit Nos. 7039-3 and 7039A-3.



Adam Mathiowetz PE
SD DENR-Water Rights Program

Approved by:



Ken Buhler
SD DENR-Water Rights Program

REFERENCES:

- Hamilton, L.J. 1985. Water Resources of Aurora and Jerauld Counties, South Dakota. Water-Resources Investigations Report 84-4030. U.S. Geological Survey. Huron, South Dakota.
- Hedges, L.S., Allen, J., and 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.
- Hedges, L.S., S.L. Burch, D.L. Iles, R.A. Barari, and R.A. Schoon. 1982. Evaluation of Ground-water Resources in 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.
- Water Rights. 2016a. Observation Well Files. SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
- Water Rights. 2016b. Water Right/Permit Files. SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
- Water Rights. 2016c. Well Completion Reports. SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
- Water Rights. 1980-2015. "1979-2014 Irrigation Summaries by aquifer". SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
- Water Rights. 1969. Petition in file for Water Right No. 1684-3. SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

AFFIDAVIT OF PUBLICATION

RECEIVED

FEB 08 2016

WATER RIGHTS PROGRAM

State of South Dakota

County of Brule

Debi Ruiz of said county, being, first duly sworn, on oath, says: That she is the publisher of *Central Dakota Times*, a weekly newspaper, published in the City of Chamberlain, in said County of Brule, and State of South Dakota; that she has full and personal knowledge of the facts herein stated; that said newspaper is a legal newspaper as defined in SDCL 17-2-2.1 through 17-2-2.4 inclusive; that said newspaper has been published within the said County of Brule and State of South Dakota, for at least one year next prior to the first publication of the attached public notice, and that the

Notice of Application No. 8191-3

To Appropriate Water

a printed copy of which, taken from the paper in which the same was published, and which is hereto attached and made a part of this affidavit, was published in said newspaper for

one successive week(s) to wit:
February 3, 2016; _____, 20____;
 _____, 20____; _____, 20____;
 _____, 20____; _____, 20____;

That the full amount of the fee charged for the publication of the attached public notice inures to the sole benefit of the publisher or publishers; that no agreement or 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; that the fees charged for the publication thereof are:

\$27.90

Signed:

Debi Ruiz

Subscribed and sworn to before me this 4th day of February, 2016.

Janet L. Petrak

Notary Public in and for the County of Brule,
 South Dakota

JANET L. PETRAK
 Notary Public
 SEAL
 South Dakota

My commission expires June 5, 2016.

NOTICE OF APPLICATION NO. 8191-3 TO APPROPRIATE WATER

Notice is given that John Daly, 34662 236th Street, Pukwana, SD 57370 has filed an application for a water permit to appropriate an additional 1.68 cubic feet of water per second (cfs) to what is currently authorized by Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3. Combined, these water rights appropriate 5.9 cfs from two wells completed into the Crow Creek Aquifer (40 and 42 feet deep) to be located in the SW 1/4 NE 1/4 and SE 1/4 NE 1/4 Section 28 developed to irrigate 615 acres located in the S 1/2 Section 17; NW 1/4, W 1/2 NE 1/4, NE 1/4 NE 1/4 Section 20; SE 1/4 NW 1/4, S 1/2 NE 1/4, N 1/2 SE 1/4, NE 1/4 SW 1/4 Section 28; all in 106N-R70W. An investigation of the permits found the system capable of diverting an additional 1.68 cfs from the two existing wells. This notice also serves to specify the location of both wells are in the SE 1/4 NE 1/4 Section 28, T106N, R70W. This application, if approved and Nos. 1684-3, 7039-3 and 7039A-3 will authorize a total diversion rate of 7.58 cfs for irrigation of 615 acres.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8191-3 with qualifications because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water and 4) it is in the public interest. The Chief Engineer's recommendation with qualifications, the application and staff report are available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information or other information, at the Water Rights Program address provided below.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 East 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 Feb. 16, 2016.

The petition may be informal but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

If the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the recommendation with no hearing held before the Water Management Board. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider this application. Notice of the hearing will be given to the applicant and any person filing a petition.

Steven M. Pirner, Secretary
 Department of Environment and Natural Resources

(Published one week, February 3, 2016, at a total approximate cost of \$27.90.)

(February 3)

PRINTER'S AFFIDAVIT

STATE OF SOUTH DAKOTA,
COUNTY OF BEADLE: ss

RECEIVED

FEB 12 2016

WATER RIGHTS
PROGRAM

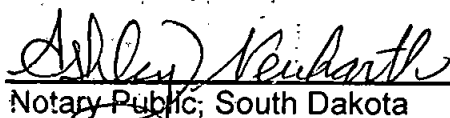
I, ELDON JACOBS, being duly sworn on oath say that the PLAINSMAN is a daily paper published at Huron, Beadle County, South Dakota, and that said newspaper has a bona fide circulation of at least 250 copies daily; that said newspaper has been published within said county for fifty-two consecutive weeks immediately prior to this date, that said newspaper is printed in whole or in part, in an office maintained at said place of publication; that I am Legal Advertising Coordinator of said newspaper and know the facts herein state. The annexed notice headed:

SD ENVIROMENTAL & NATURAL –
JOHN DALY WATER RIGHTS

was published for one day, in said newspaper, and not in any supplement of the said newspaper, the publication was of the 3RD Day FEB 2016. That the full amount of the fee charged for publishing is: **FORTY-THREE & 87/100** dollars insures to the benefit of the publisher of said newspaper; that no agreement or understanding for the division thereof has been made with any other person, and that no part thereof has been agreed to be paid to any person whom so ever.



Subscribed and sworn to me before this 3RD Day of FEB 2016.


Notary Public, South Dakota

My term expires 01/27/2018
Legal #2253

F.P. 02-03-16

NOTICE OF

APPLICATION NO. 8191-3
to Appropriate Water

Notice is given that John Daly, 34662 236th St. Pukwana SD 57370 has filed an application for a water permit to appropriate an additional 1.68 cubic feet of water per second (cfs) to what is currently authorized by Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3. Combined, these Water Rights appropriate 5.9 cfs from two wells completed into the Crow Creek Aquifer (40 and 42 feet deep) to be located in the SW 1/4 NE 1/4 and SE 1/4 NE 1/4 Section 28 developed to irrigate 615 acres located in the S 1/2 Section 17; NW 1/4, W 1/2 NE 1/4, NE 1/4 NE 1/4 Section 20; SE 1/4 NW 1/4, S 1/2 NE 1/4, N 1/2 SE 1/4, NE 1/4 SW 1/4 Section 28; all in 106N-R70W. An investigation of the permits found the system capable of diverting an additional 1.68 cfs from the two existing wells. This notice also serves to specify the location of both wells are in the SE 1/4 NE 1/4 Section 28, T106N, R70W. This application, if approved, and Nos. 1684-3, 7039-3 and 7039A-3 will authorize a total diversion rate of 7.58 cfs for irrigation of 615 acres.

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Steven M. Pimer
Secretary
Department of
Environment and
Natural Resources
No. 2253 (adv.)

Published once at the total approximate cost of \$43.87.

Schlaak, Karen

From: Schlaak, Karen
Sent: Thursday, January 28, 2016 7:47 AM
To: cdt@midstatesd.net
Subject: 8191-3, John Daly
Attachments: 8191-3publicnov2015.short1.docx; FORM8.FRM.doc

Attached is a notice to be published on February 3, 2016.

John Daly, 34662 236th St, Pukwana SD 57370 (605 894-4192 c-605 680-1354) 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.

Let me know if you have questions. Please acknowledge receipt of this email.

Karen Schlaak

Water Rights Program
523 E Capitol Ave
Pierre SD 57501
Phone: 605 773-3352

Schlaak, Karen

From: Schlaak, Karen
Sent: Thursday, January 28, 2016 7:33 AM
To: Ruby Crandall (rnewman.plainsman@midconetwork.com)
Subject: 8191-3, John Daly
Attachments: 8191-3publicnov2015.short1.docx; FORM8.FRM.doc

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Karen Schlaak
Water Rights Program
523 E Capitol Ave
Pierre SD 57501
Phone: 605 773-3352



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

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

January 27, 2016

John Daly
34662 236th St
Pukwana SD 57370

Dear Mr. Daly:

Water Permit Application No. 8191-3 for irrigation use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Central Dakota Times printed at Chamberlain SD (Ph # 605-234-0266) and the Plainsman printed at Huron SD (Ph # 605-353-7401). You will need to contact the newspaper(s) 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 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 has 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,

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 application.

NOTICE OF APPLICATION NO. 8191-3 to Appropriate Water

Notice is given that John Daly, 34662 236th St. Pukwana SD 57370 has filed an application for a water permit to appropriate an additional 1.68 cubic feet of water per second (cfs) to what is currently authorized by Water Right No. 1684-3 and Permit Nos. 7039-3 and 7039A-3. Combined, these Water Rights appropriate 5.9 cfs from two wells completed into the Crow Creek Aquifer (40 and 42 feet deep) to be located in the SW ¼ NE ¼ and SE ¼ NE ¼ Section 28 developed to irrigate 615 acres located in the S 1/2 Section 17; NW ¼, W 1/2 NE ¼, NE ¼ NE ¼ Section 20; SE ¼ NW ¼, S 1/2 NE ¼, N 1/2 SE ¼, NE ¼ SW ¼ Section 28; all in 106N-R70W. An investigation of the permits found the system capable of diverting an additional 1.68 cfs from the two existing wells. This notice also serves to specify the location of both wells are in the SE ¼ NE ¼ Section 28, T106N, R70W. This application, if approved, and Nos. 1684-3, 7039-3 and 7039A-3 will authorize a total diversion rate of 7.58 cfs for irrigation of 615 acres.

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Steven M. Pirner, Secretary, Department of Environment and Natural Resources. Published once at the total approximate cost of _____.

Permit No. 8191-3, 7039A-3, 7039-3 & 1684-3
Missouri River - Water District

Contact Person & Address: **John Daly, 34662 236th St, Pukwana SD 57370 - 605-680-1354, cell**

Report of Examination of Works

On, **May 18, 2015**, I made a thorough examination of the water use system constructed by **John Daly** holder of License No. **1684-3**, bearing the priority of **June 6, 1969** authorizing the diversion of **1.9** cu. ft. per second Permit No. **7039-3**, bearing the priority of **May 23, 2008** authorizing the diversion of **4.0** cu. ft. per second and Permit No. **7039A-3**, bearing the priority of **May 23, 2008** and authorizing the relocation of a diversion point and acres and Permit No. **8191-3**, bearing the priority of **December 1, 2015** authorizing the additional diversion of **1.68** cu. ft. per second for **irrigation** purposes, in **Buffalo** County.

The system is in the following condition **good**. The points of diversion are located; **Well #1 (Crow Creek Aquifer) from the NE corner of Sec 28-T106N-R70W: 2475 ft S & 1215 ft W** with latitude of **43.955217** and a longitude of **-99.231533** and **Well #2 (Crow Creek Aquifer) from the NE corner of Sec 28-T106N-R70W: 2330 ft S & 565 ft W** with latitude of **43.9555** and a longitude of **-99.229217** as determined using **GPS**. The works are capable of diverting and conveying to the place of use **7.58** cu. ft. per second 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 17-T106N-R70W**

<u>NW ¼ SE ¼ - 33 ac</u>	<u>NE ¼ SE ¼ - 33 ac</u>	<u>SE ¼ SE ¼ - 33 ac</u>	<u>SW ¼ SE ¼ - 33 ac</u>
<u>NW ¼ SW ¼ - 26 ac</u>	<u>NE ¼ SW ¼ - 26 ac</u>	<u>SE ¼ SW ¼ - 37 ac</u>	<u>SW ¼ SW ¼ - 37 ac</u>

All land is located in **Sec 20-T106N-R70W**

<u>NW ¼ NW ¼ - 3 ac</u>	<u>NE ¼ NW ¼ - 35 ac</u>	<u>SE ¼ NW ¼ - 35 ac</u>	<u>SW ¼ NW ¼ - 3 ac</u>
<u>NW ¼ NE ¼ - 33 ac</u>	<u>NE ¼ NE ¼ - 5 ac</u>	<u>SW ¼ NE ¼ - 29 ac</u>	

All land is located in **Sec 28-T106N-R70W**

<u>SE ¼ NW ¼ - 31 ac</u>	<u>SW ¼ NE ¼ - 40 ac</u>	<u>SE ¼ NE ¼ - 36 ac</u>	<u>NE ¼ SW ¼ - 31 ac</u>
<u>NW ¼ SE ¼ - 40 ac</u>	<u>NE ¼ SE ¼ - 36 ac</u>		

comprising a total of **615** acres of land.

Review of Permit Qualifications And Regulations:

- 1) Special qualifications to permit being abided by **yes**
- 2) All structures, wells and lands on map **yes**
- 3) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period **yes**.
- 4) Exceptions to compliance are: **none**

Report On the Specifics of the System

Diversion Point Information:

Well Information: Well #1 - west

1) Well Drilling Firm: Empire 2) No. of Wells 1 3) Depth(s) 41 feet 4) Well log is available yes

Casing:

1) Diameter 18 inches 2) Length 40 feet 3) Type steel

Screen:

1) Type steel 2) Length 15 feet 3) Static water level 14 feet

Pump:

1) Make MidAmerica 2) Model 13CH 3) Size 13 4) Capacity 1700 GPM

Motor:

1) Make GE 2) Model No. 5KE4444DII0013A 3) Horsepower rating 150 hp

Well Information: Well # 2 - east

1) Well Drilling Firm: Pullman 2) No. of Wells 1 3) Depth(s) 57 feet 4) Well log is available yes

Casing:

1) Diameter 16 inches 2) Length 42 feet 3) Type plastic

Screen:

1) Type PVC 2) Length 15 feet 3) Static water level 16.7 feet

Pump:

1) Make MidAmerica 2) Model 13CP 3) Size 13 4) Capacity 1700 GPM

Motor:

1) Make GE 2) Model No. 5KE4444BTT6013A 3) Horsepower rating 150 hp

BOOSTER PUMP

Pump:

1) Make Aurora 2) Model 411BF 3) Size 12 4) Capacity 2000 GPM

Motor:

1) Make US Electrical 2) Model No. 404TS 3) Horsepower rating 100 hp

DISTRIBUTION LINES OR CANALS:

1) Type PVC 2) Size 12, 11, 8 inches 3) Length 18000 feet

SYSTEM TYPE:

Center pivot: SW ¼ Sec 17 T106N-R70

- | | |
|------------------------------------|------------------------------------|
| 1) Make <u>Reinke</u> | 2) Overall length <u>1280</u> feet |
| 3) Number of towers <u>8</u> | 4) End gun <u>yes</u> |
| 5) High or low pressure <u>Low</u> | 6) Capacity <u>750</u> GPM |

Center pivot: SE ¼ Sec 17 T106N-R70

- | | |
|------------------------------------|------------------------------------|
| 1) Make <u>Reinke</u> | 2) Overall length <u>1280</u> feet |
| 3) Number of towers <u>8</u> | 4) End gun <u>yes</u> |
| 5) High or low pressure <u>Low</u> | 6) Capacity <u>750</u> GPM |

Center pivot: N ½ Sec 20 T106N-R70

- | | |
|------------------------------------|------------------------------------|
| 1) Make <u>Reinke</u> | 2) Overall length <u>1280</u> feet |
| 3) Number of towers <u>8</u> | 4) End gun <u>yes</u> |
| 5) High or low pressure <u>Low</u> | 6) Capacity <u>750</u> GPM |

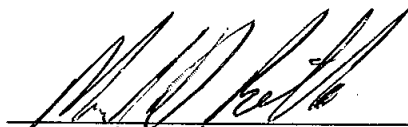
Center pivot: E 1/2 Sec 28 T106N-R70

- | | |
|------------------------------------|------------------------------------|
| 1) Make <u>Reinke</u> | 2) Overall length <u>1280</u> feet |
| 3) Number of towers <u>8</u> | 4) End gun <u>yes</u> |
| 5) High or low pressure <u>Low</u> | 6) Capacity <u>350</u> GPM |

CHEMIGATION EQUIPMENT:

- 1) Does chemigate no

Comments : none



Mark D. Rath
Natural Resources Engineer III
DENR, Water Rights Program

2-22-16

Date

Sec 17 T106N-R70W

NW ¼ SW ¼ - 33 ac
NE ¼ SW ¼ - 33 ac
NW ¼ SE ¼ - 26 ac
NE ¼ SE ¼ - 26 ac
NW ¼ SE ¼ - 37 ac
NE ¼ SE ¼ - 37 ac

Sec 20 T106N-R70W

NW ¼ NW ¼ - 3 ac
NE ¼ NW ¼ - 35 ac
SW ¼ NW ¼ - 3 ac
SE ¼ NW ¼ - 35 ac
NW ¼ NE ¼ - 33 ac
NE ¼ NE ¼ - 5 ac
SW ¼ NE ¼ - 29 ac

Sec 28 T106N-R70W

SE ¼ NW ¼ - 31 ac
SW ¼ NE ¼ - 40 ac
SE ¼ NE ¼ - 36 ac
NE ¼ SW ¼ - 31 ac
NW ¼ SE ¼ - 40 ac
NE ¼ SE ¼ - 36 ac

Well Locations

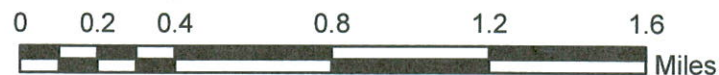
From the NE corner of
Sec 28 T106N-R70W

Well #1

Lat: 43.95522 Lon: -99.23153
2475 Ft S
1215 Ft W

Well #2

Lat: 43.95550 Lon: -99.22922
2330 Ft S
565 Ft W




Mark D Rath
Natural Resource Engineer
October 19, 2015

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 8191-3

(1) John Daly, 34662 236th St, Pukwana SD 57370 made Application No. 8191-3, December 1, 2015 for a water permit to divert 1.68 cubic feet of water per second (cfs) from two wells (Crow Creek Aquifer), Buffalo County, South Dakota for irrigation purposes. Permit No. 8191-3, with a priority date of December 1, 2015 was approved February 16, 2016 and issued to the applicant for diversion of water with construction of the described water supply system and the application to beneficial use of water completed.

Permits associated with this water use system:

Water Right No. 1684-3 with a priority date of June 6, 1969 authorizes diversion of 1.9 cfs from one well to irrigate 178 acres.

Water Permit No. 7039-3 with a priority date of May 23, 2008 authorizes diversion of 4.0 cfs from two wells to irrigate 520 acres.

Water Permit No. 7039A-3 with a priority date of May 23, 2008 transferred a portion of the irrigated acreage and point of diversion to other land.

The applicable portions of Nos. 1684-3, 7039-3 and 7039A-3 are incorporated into No. 8191-3.

(2) The water supply system has been completed and water applied to beneficial use in accordance with South Dakota State Law. Pursuant to South Dakota Codified Law 46-5-30.1, the holder and/or owner of Incorporated Water Right No. 8191-3 is issued a license, bearing priority dates of June 6, 1969 (1.9 cfs), May 23, 2008 (4.0 cfs) and December 1, 2015 (1.68 cfs) to appropriate 7.58 cubic feet of water per second from two wells (Crow Creek Aquifer) to irrigate 615 acres.

The diversion points are located: Well #1 – 2,475 feet S and 1,215 feet W of the NE corner of Section 28 and Well #2 – 2,330 feet S and 565 feet W of the NE corner of Section 28; all in T106N-R70W (SE 1/4 NE 1/4).

The acres authorized for irrigation are as follows: all in T106N-R70W

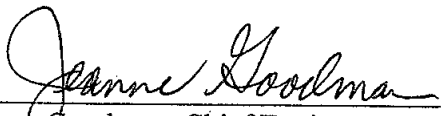
<u>Section 17</u>		<u>Section 20</u>		<u>Section 28</u>	
NW 1/4 SE 1/4	33 ac	NW 1/4 NW 1/4	3 ac	SE 1/4 NW 1/4	31 ac
NE 1/4 SE 1/4	33 ac	NE 1/4 NW 1/4	35 ac	SW 1/4 NE 1/4	40 ac
SE 1/4 SE 1/4	33 ac	SE 1/4 NW 1/4	35 ac	SE 1/4 NE 1/4	36 ac
SW 1/4 SE 1/4	33 ac	SW 1/4 NW 1/4	3 ac	NE 1/4 SW 1/4	31 ac
NW 1/4 SW 1/4	26 ac	NW 1/4 NE 1/4	33 ac	NW 1/4 SE 1/4	40 ac
NE 1/4 SW 1/4	26 ac	NE 1/4 NE 1/4	5 ac	NE 1/4 SE 1/4	36 ac
SE 1/4 SW 1/4	37 ac	SW 1/4 NE 1/4	29 ac		
SW 1/4 SW 1/4	37 ac				

Total 615 acres

(continued)

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 8191-3 including the following qualifications:

- The wells approved under Water Right No. 1684-3 and Water Permit Nos. 7039-3, 7039A-3 and 8191-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
- 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

APR 12 2016

date





DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

APR 12 2016

8191-3

John Daly
34662 236th St
Pukwana SD 57370

Dear Mr. Daly:

Enclosed are Water Permit and Water License No. 8191-3. The water license is the final document completing your process of obtaining a Water Right. Also, included with your license is a map prepared by the staff engineer who conducted the investigation.

For your information SDCL 46-6-27 requires that if the owner of an existing well, such as the well authorized by Water Right No. 8191-3, 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 License, the 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

Note: The applicable portions of Nos. 1684-3, 7039-3 and 7039A-3 are incorporated into Water License No. 8191-3.

Schlaak, Karen

From: Schlaak, Karen
Sent: Wednesday, September 13, 2017 4:56 PM
To: john24688@hotmail.com
Subject: FW: [EXT] Permit changes

The new well would be considered a replacement well if the following criteria is met: 1) it is located within the same quarter-quarter of the section, 2) is approximately the same depth as the existing wells (40-42 feet deep- Crow Creek Aquifer) and 3) there is no increase in the diversion rate.

Please have the driller note on the well completion report that it is a replacement well.

A new permit application will need to be filed for the additional 130 acres.

Karen

From: Schlaak, Karen
Sent: Wednesday, September 13, 2017 8:36 AM
To: 'john daly'
Subject: RE: [EXT] Permit changes

John,
You will need to file a water permit application for the additional well and for the additional acres and go thru the permitting process. Application forms can be found on our website which I know you are familiar with. If you would prefer, I can mail you the application forms. When completing the application, if you have questions, please contact Eric Gronlund or me.

Karen Schlaak
SD DENR, Water Rights Program
(605) 773-3352



From: john daly [<mailto:john24688@hotmail.com>]
Sent: Tuesday, September 12, 2017 3:01 PM
To: Schlaak, Karen
Subject: Fwd: [EXT] Permit changes

Sent from my iPad

Begin forwarded message:

From: John <john24688@hotmail.com>
Date: September 12, 2017 at 2:16:29 PM CDT
To: karenschlaak@state.sd.us
Subject: Permit changes

Dear water rights,

This letter is in regard to my irrigation permit no. 8191-3. I have found since installing the bigger pump in my older irrigation well, that it isn't able to pump the volume that the new well pumps. It appears the screen must be plugged and I would like to drill a new well in the near proximity of the existing well as to utilize the new pumps capacity.

I would also like to add 130 ac of irrigation on same system to run off of same pumps etc. this would be located in 106-70 sec 16.

Thanks for your consideration,
John daly.

Sent from my iPad