

WATER PERMIT NO. 8218-3

Name of Applicant: **Charlene E Schumacher**

Address: **19734 285th Ave, Pierre SD 57501** Phone: **605 280-1620**

Amount of Water Claimed: **4.0 cfs** Total Acres: **280**

Source of Water Supply: **groundwater (2 wells)**

Water to be used for: **irrigation** County: **Hughes**

Type of Waste Disposal System:

Location: **approximately 10 miles north of Pierre**

PRIORITY Date Received: **4-12-16** Application/License Fee: **\$ 1,250**

Corrected Application Received: Period of Annual Use: **May 1- October 31**

Remarks:

Diversion Point: **centers of the NW 1/4 and SW 1/4 Sec 12-T112N-R80W**

Land to be Irrigated: **W 1/2 Sec 12-T112N-R80W**

Depth of Well: **175 and 120 feet deep**

Well Driller: **Stretch's Well Service Inc.**

Remarks:

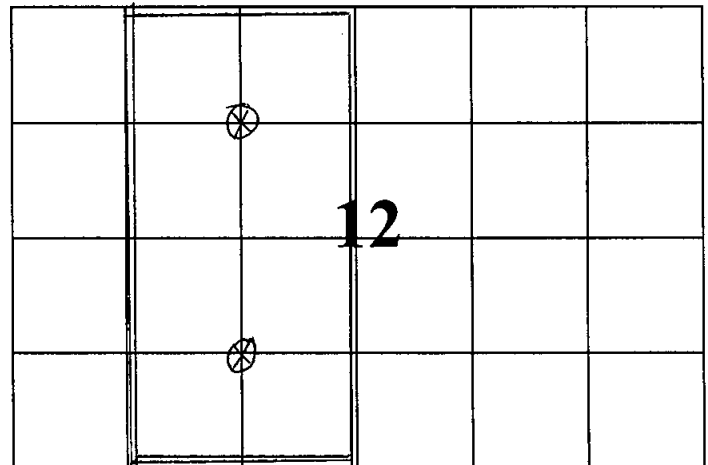
Type of Map: **aerial**

Prepared by:

Reviewed and the Number Assigned on: **4-12-16**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____



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

Mail to: DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8218-3</u>	(office use only) Hydrologic Unit <u>10130105</u>
	Basin <u>Missouri River</u>	
	Newspaper <u>Capital Journal - Pierre</u>	
	<u>605-224-7301</u>	

RECEIVED**APR 12 2016****WATER RIGHTS
PROGRAM****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.)

- Name to Appear on Irrigation Permit Charlene E Schumacher
Note: The "Name to Appear on Irrigation Permit" must be the name in which the property to be irrigated is held in.
Mailing Address 19734 285th Ave Pierre SD 57501
(Address) (City) (State) (Zip Code)
Phone 605-224-1420 Mobile 605-280-1620 Email cschum0427@aol.com
- Amount of water claimed 4.0 *CFS or 1800 **GPM ***AF Total Acreage 280
(*Cubic Feet per Second) (**Gallons per Minute) (***) Acre Feet - storage capacity of dam/dugout or annual use if applicable)
- Source of water supply wells
- Location of point of diversion approx center of NW 1/4 and SW 1/4 section 12
(example - 3 wells in SW 1/4 NE 1/4 section 12-T104N-R53W)
T112N - R80W County Hughes
- County or counties where water will be used Hughes
- Annual period during which water is to be used May 1 - Oct 31
- 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>W 1/2 12-112-80</u>	<u>280</u>		

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

2 wells will be drilled for irrigation pivots. One well is on NW 1/4 12-112-80. The other is SW 1/4 12-112-80.

I, Charlene E Schumacher, the applicant, certify under
Name of Person Title (if applicable)

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

**SOUTH DAKOTA
WATER PERMIT NO. 8218-3**

Date of first receipt of application April 12, 2016.

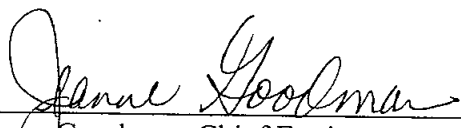
The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8218-3 to Charlene E Schumacher, 19734 285th Ave, Pierre SD 57501 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 8218-3 appropriates 4.0 cubic feet of water per second from two wells to be completed into the Gray Goose Aquifer (174 and 120 feet deep) located in the centers of the NW 1/4 and the SW 1/4 Section 12 for irrigation of 280 acres located in the W 1/2 Section 12; all in T112N-R80W.
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 – October 31.
3. The date from which applicant may claim right is April 12, 2016.
4. The date of approval of Permit No. 8218-3 is June 27, 2016.
5. One-fifth of the construction is to be completed on or before December 27, 2018.
6. All construction is to be completed on or before June 27, 2021.
7. Water is to be put to beneficial use on or before June 27, 2015.
8. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

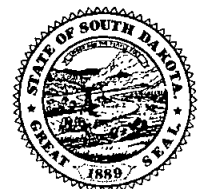
1. The wells approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The wells authorized by Permit No. 8218-3 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, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

JUL 01 2016

date



(type or print)

(check one or both as applicable)

☐ Using existing well(s)

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

For either Existing or Proposed Wells:

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

d) Distance to nearest domestic well on applicant's property 1 mile west Property owned by others unknown

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

b) System Capacity (gallons) _____ Year Constructed _____

c) Connected to the City of Sanitary System

a) Surface Dimensions Depth

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

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

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)

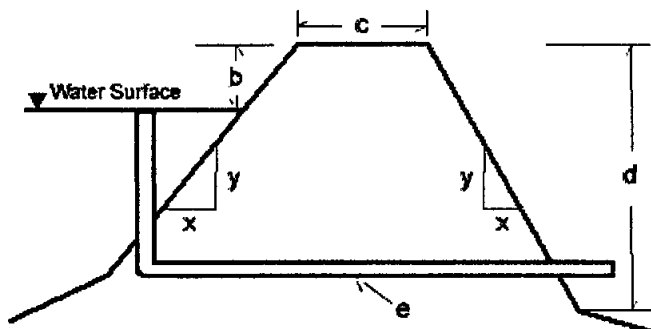
Upstream

Downstream

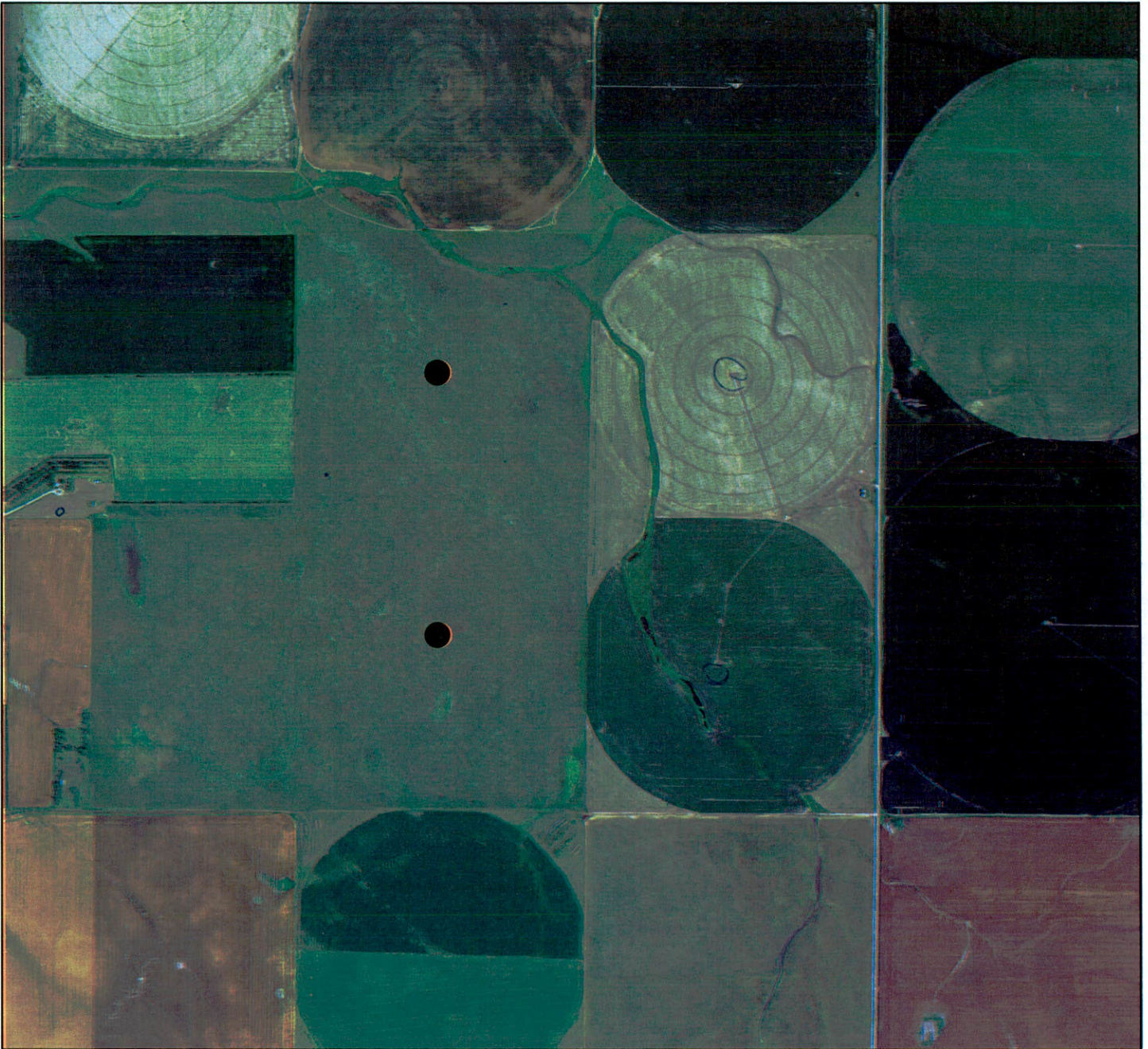
h) Surface Area of Impoundment

i) Storage	Acre Feet
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j) Drainage Area Above Dam	Acres
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Legal Description: W 1/2 12-112-80



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WATER RIGHTS
PROGRAM



Legend

Irrigation Well



on the well

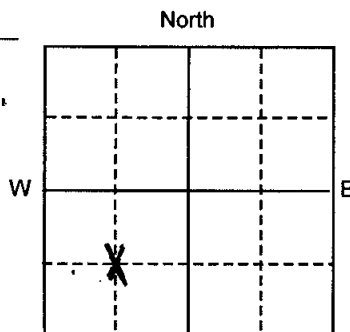
SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SW $\frac{1}{4}$ Sec 12 Twp 112 Rg 80

County Hughes

Please mark well location with an "X".



Well Completion Date

3/25/2016

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
None ft. from (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Mud Rotary

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
220 LB/FT	4 IN	0 FT	175 FT	6 3/4 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
#20	8	Lb/gal	0 Ft	130 Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

Tremie Pipe

SCREEN:

☐ Perforated pipe ☐ Manufactured
Diameter 4 Inches Length 38 Feet

Material PVC

Slot Size .025 Set From 137 Feet to 175 Feet

Other information

WAS A PACKER OR SEAL USED?

☒ Yes ☐ No

If so, what material? Enviro plug

Describe packer(s) and location

Above Slotted

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? Chlorine

☐ No, Why Not?

Lab to which water quality sample sent for analysis

Well Owner: Trevis Olson

Business Name:

Address: 106 Kourtney Rd.

City, State, Zip: Pierre SD 57501

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
Top Soil	0	1
Yellow Clay	1	17
Blue Clay	17	115
Fine Sand	115	135
Coarse Sand	135	175

STATIC WATER LEVEL 99 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: Submersible

☐ Bailed

☐ Other

Pumping Level Below Land Surface

100 Ft. After 4 Hrs. pumped 30 GPM

 Ft. After Hrs. pumped GPM

If pump installed, pump rate: GPM

REMARKS

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APR 12 2016

WATER RIGHTS PROGRAM

This well was drilled under license # 722 and this report is true and accurate.

Drilling firm: Stretch's Well Service Inc.

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date: 4/11/16

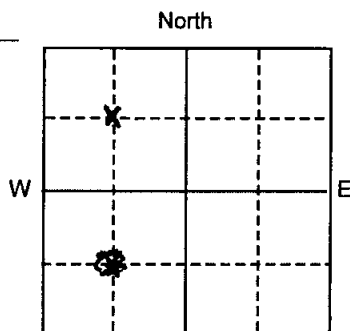
Low

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location NW $\frac{1}{4}$ Sec 12 Twp 112 R 80County Hughes

Please mark well location with an "X"



Well Completion Date

3/30/2016

1 Mile

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

None ft. from (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Mud Rotary

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
220 LB/FT	4 IN	0 FT	120 FT	6 3/4 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
#20	5	Lb/gal	0 Ft	80 Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

Tremie Pipe

SCREEN:

☐ Perforated pipe ☐ Manufactured
Diameter 4 Inches Length 40 FeetMaterial PVCSlot Size .025 Set From 80 Feet to 120 Feet

Other information

WAS A PACKER OR SEAL USED?

☒ Yes ☐ NoIf so, what material? Enviro plug

Describe packer(s) and location

Above Screen

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? Chlorine☐ No, Why Not?

Lab to which water quality sample sent for analysis

Well Owner: Travis Olson

Business Name:

Address: 106 Kourtney Rd.City, State, Zip: Pierre SD 57501

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
Top Soil	0	1
Yellow Clay	1	6
Gravel	6	21
Yellow Clay	21	44
Blue Clay	44	74
Sand Medium to coarse	74	120

STATIC WATER LEVEL 56 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: Submersible
☐ Bailed
☐ Other

Pumping Level Below Land Surface

57 Ft. After 3 Hrs. pumped 30 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

RECEIVED

APR 12 2016

WATER RIGHTS PROGRAM

This well was drilled under license # 722 and this report is true and accurate.Drilling firm: Stretch's Well Service Inc.

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date: 4/11/16

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 4/12, 20 16

RECEIVED OF Trevis Olson 106 Courtney Rd Pierre SD 57501

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

Fee for Application for Permit No. <u>8218-3</u> to Appropriate Water, to construct and to put water to beneficial use	1050	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>8218-3</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	1250 00

No. **07815**

By Jeanne Goodman
Chief Engineer



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

denr.sd.gov

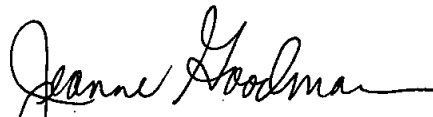
**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 8218-3, Charlene E Schumacher**

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. 8218-3, Charlene E Schumacher, 19734 285th Avenue, Pierre SD 57501.

The Chief Engineer is recommending APPROVAL of Application No. 8218-3 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 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 wells authorized by Permit No. 8218-3 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.


Jeanne Goodman, Chief Engineer
June 10, 2016

Report to the Chief Engineer
Water Right Application No. 8218-3
Charlene E. Schumacher
May 31, 2016

Water Permit Application No. 8218-3 proposes to appropriate water at a maximum diversion rate of 4.0 cubic feet per second (cfs) from two proposed wells (120 feet deep (NW $\frac{1}{4}$) and 175 (SW $\frac{1}{4}$) feet deep) to be completed into the Gray Goose aquifer located in the approximate centers of the SW $\frac{1}{4}$ and the NW $\frac{1}{4}$ Section 12 T112-R80W in Hughes County. The proposed water use is for the irrigation of 280 acres located in the W $\frac{1}{2}$ Section 12 T112-R80W in Hughes County.

Aquifer: Gray Goose (GG)

Hydrogeology and Aquifer Characteristics

The Gary Goose aquifer is a buried outwash deposit that partially fills a channel in the Pierre Shale (Hamilton, 1986). Hedges et al. (1982) estimates that the aquifer underlies about 33,400 acres of Hughes County and contains about 200,400 acre-feet of recoverable water in storage. Further work in Hamilton (1986) refined the areal extent of the aquifer in Hughes County to 70,400 acres and estimated 560,000 acre-feet of water in storage (estimate included unrecoverable water). The delineation of the Gray Goose aquifer in Hughes County by Hamilton (1986) is shown in Figure 1. Although the aquifer extends into Sully County, the areal extent of the aquifer in Sully County appears to be extremely limited (Water Rights, 2016a; Water Rights Program 2016; and Geologic Survey Program, 2016).

Hamilton (1986) notes a hydraulic connection between the Gray Goose aquifer and Lake Oahe. Of this hydraulic connection Hamilton (1986) notes, "Much of the inflow from the lake is bank storage that discharges back into the lake when the level of the lake declines." Hamilton (1986) refers to this area as a "zone of bank storage" and notes that water can move further southeast into the aquifer should the lake level maintain sufficient elevation for a sufficient length of time. This "zone of bank storage" extends about two and a half miles inland of the hydraulic connection between the aquifer and the lake (Hamilton, 1986). Groundwater flow in the aquifer is typically from northwest to southeast, but can vary locally especially in the "zone of bank storage" based on the water level of Lake Oahe (Hamilton, 1986).

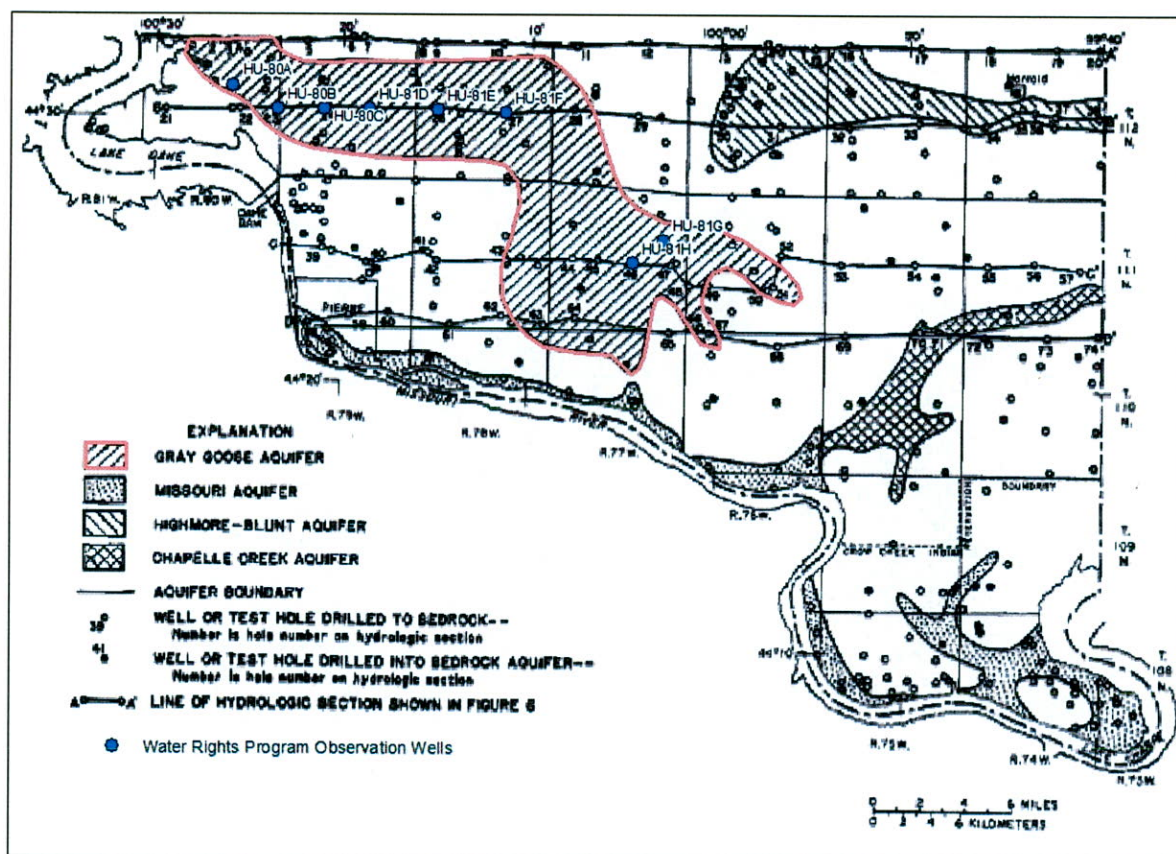


Figure 1: Major glacial aquifers in Hughes County, SD (modified from Hamilton, 1986) and Water Rights observation wells (Water Rights, 2016b)

The test hole/monitoring well completion reports for this application indicate aquifer materials from 135 to 175 feet below grade in the SW $\frac{1}{4}$ (south well location) and from 74 to 120 feet below grade in the NW $\frac{1}{4}$ (north well location). The differences in depth appear to be the result of change in elevation of the land surface. At the time of completion, the static water level at the south well location was 99 feet below grade (3/25/2016) and the static water level at the north well location was 56 feet below grade (3/30/2016). This indicates that the aquifer is under confined conditions in the area of these well sites. However in examining the hydrographs and lithologic information for nearby Observation Wells HU-80A and HU-80B (hydrographs shown in Figures 3 and 4), it appears that at the start of the period of record for these observation wells the area was under water table conditions and with the rising potentiometric surface in the aquifer, the area has shifted to artesian conditions (Water Rights, 2016b).

South Dakota Codified Law (SDCL) 46-2A-9

Pursuant to SDCL 46-2A-9, a permit to appropriate water may be issued only if there is a reasonable probability that there is unappropriated water available for the applicant's proposed use, that the 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 existing rights from the aquifer that are pertinent to this application.

Water Availability

Water Permit Application No. 8218-3 proposes to appropriate water from Gray Goose aquifer for irrigation use. The probability of unappropriated water being available from an aquifer can be evaluated by considering SDCL 46-6-3.1 which requires “No application to appropriate groundwater may be approved if, according to the best information reasonably available, it is probable that the quantity of water withdrawn annually from a groundwater source will exceed the quantity of the average estimated annual recharge of water to the groundwater source.” If the source of the water is older or lower than the Greenhorn Formation and the application is for a water distribution system defined pursuant to SDCL 46-1-6 (17), the Board need not consider the recharge/withdrawal issue. Here, a water distribution system is not involved and the Gray Goose aquifer is not older or lower than the Greenhorn Formation, therefore the withdrawal/recharge issue must be considered.

Hydraulic Budget

Recharge

Recharge to the aquifer is through the infiltration of precipitation and from Lake Oahe when the water level of the lake is at a higher elevation than the potentiometric surface of the aquifer (Hamilton, 1986). Hamilton (1986) estimated annual recharge to the aquifer at 0.3 inches using discharge calculations for 1981 and assuming no change in storage; however since this analysis was performed for only a single year this estimate likely does not actually represent average annual recharge to the aquifer. Hedges et al. (1985) estimated recharge to the aquifer by observation well analysis at approximately 3.2 inches per year utilizing 16 years of observation well data from seven observation wells. Given the amount of data utilized in the analysis, the recharge estimate of Hedges et al. (1985) can be considered to be the best available estimate for the average annual recharge rate to the aquifer. Utilizing the recharge estimate of Hedges et al. (1985) and the areal extent of the aquifer in Hughes County of 70,400 acres, the average annual recharge to the aquifer is estimated to be about 18,773 acre-feet per year. However, given the potential for Lake Oahe to impact water levels in the aquifer it is important to note the observation well data when considering the water availability in this aquifer.

Withdrawals

Discharge from the aquifer is from well withdrawals, outflow to Lake Oahe when the lake level is lower than the potentiometric surface of the aquifer, and evapotranspiration in the valley of Medicine Knoll Creek, at the southern end of the aquifer (Hamilton, 1986). There are currently 16 water rights/permit appropriating water from the aquifer, of which four are for non-irrigation use and 12 are for irrigation use.

The Water Rights Program collects and maintains irrigation water use information from across the state. The reported irrigation pumpage and appropriations for the Gray Goose aquifer is shown on an annual basis in Figure 2. Average yearly irrigation use over the period of record is 1,403 acre-feet, with a minimum of 606 acre-feet in 1979 and a maximum of 2,392.1 in 1988. Therefore average annual irrigation use for the aquifer is estimated to be about 1,403 acre-feet per year.

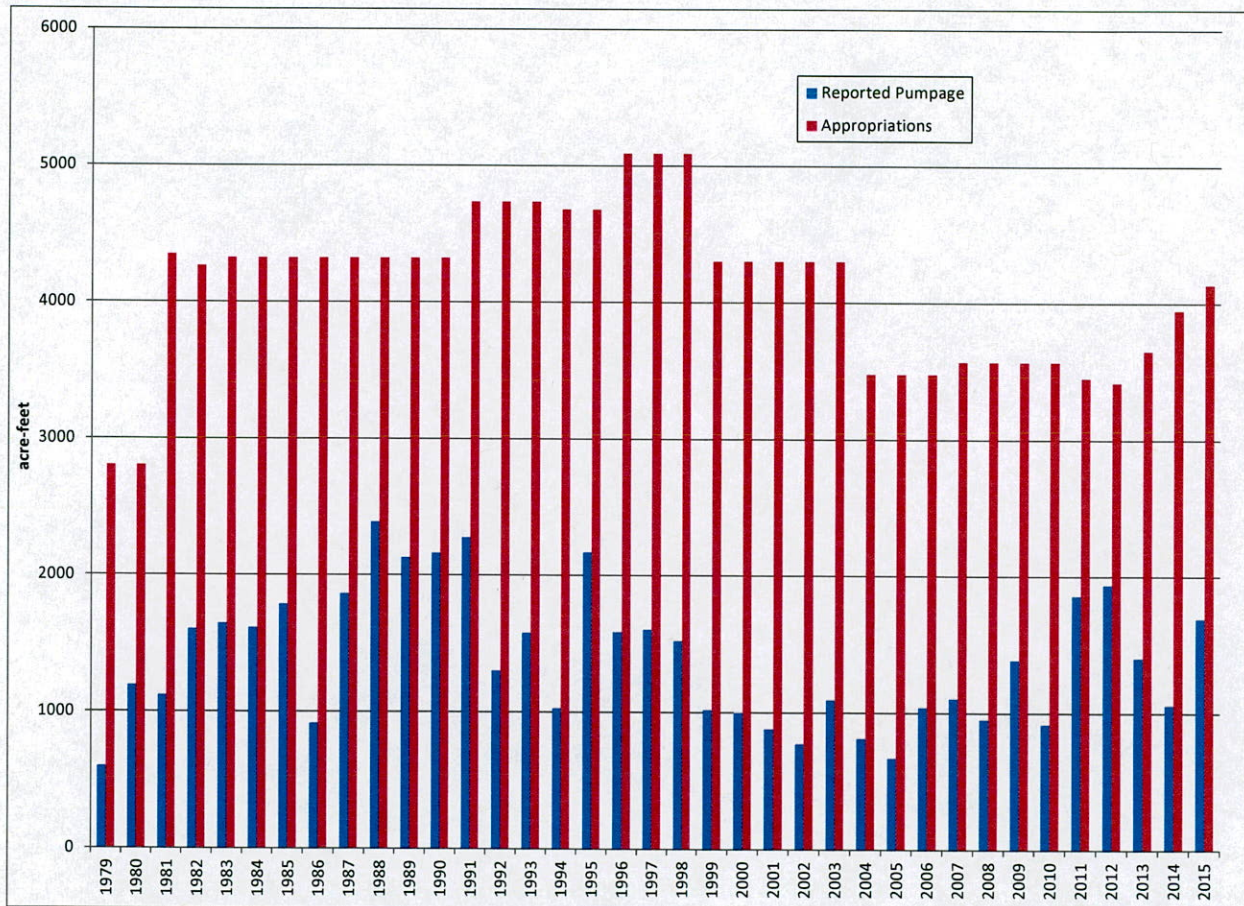


Figure 2: Reported irrigation pumpage and appropriations for the Gray Goose aquifer over the period of record (Water Rights, 1980-2016)

Water Rights/Permits for non-irrigation use are summarized in Table 1. Historically, water use by non-irrigation appropriations limited by instantaneous diversion rate has been less than 60% of full time pumping at the permitted authorized diversion rate. The total diversion rate for these water rights/permits is 1.405 cfs. In the case of Water Permit No. 8203-3 to maintain the water level of a dammed pond, average annual water use will likely be much less than 60% of the instantaneous diversion rate (480 acre-feet per year). Buhler (2016) estimated that the annual evaporation from the surface area of the pond under Water Permit 8203-3 would be approximately 5.8 acre-feet per year and noted that any seepage from the dam would increase the amount of water needed. While the Water Rights Program has a number of domestic well

completion reports on file that are like completed into the aquifer (Water Rights Program, 2016), due to the relatively low diversion rates and the introduction of rural water systems to the area domestic wells are not considered a significant portion of the hydraulic budget. Therefore the estimated average annual non-irrigation water use from the aquifer is expected to be less than 607 acre-feet per year.

Table 1: Non-irrigation Water Rights/Permit Appropriating Water from the Gray Goose Aquifer

Permit No.	Name	Status	Use	Rate (cfs)	Estimate Annual (acre-feet)
4580A-3	The Maschhoffs LLC	LC	COM/LCO	0.17	73.44
4917-3	Tom Olson	LC	COM/LCO	0.07	30.24
5943-3	Cow Creek Estates	PE	COM	0.055	23.76
8203-3	Milton Morris	PE	FWP/REC	1.11	479.52
Total				1.405	606.96

LC-Water Right, PE-Water Permit, COM-Commercial, LCO-Livestock Confinement Operation, FWP-Fish and Wildlife Production, REC-Recreation

Budget

The total average annual irrigation and non-irrigation appropriative withdrawals for the aquifer are estimated to be less than 2,010 acre-feet per year. Average annual recharge is estimated to be about 18,773 acre-feet per year. Aquifers in the eastern portion of the state, for which the application rate per irrigated acre has been quantified, have yielded application rates of less than ten inches per acre. In considering this average annual water use from this proposed permit, if approved, can be estimated to be less than 233 acre-feet per year. Therefore there is a reasonable probability that water is available to meet the proposed water use of this application.

Observation Wells

In determining the availability of unappropriated water for a permit application Administrative Rule 74:02:05:07 requires the Water Management Board to rely on 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 annual recharge. When considered together observation wells can offer insight into the overall hydraulic conditions in an aquifer, and when considered singularly or in spatial groups, can offer insights into localized hydraulic conditions.

The Water Rights Program monitors eight observation wells completed into the Gray Goose aquifer. The nearest observation wells are HU-80A and HU-80B located approximately 1.3 miles to the west southwest and 1.4 miles to the southeast of the proposed location of the south well, and the hydrographs for these wells are shown in Figure 3 and 4. The hydrographs for the other six observation wells are shown in Figures 4-10 (observation well locations are shown in Figure 1).

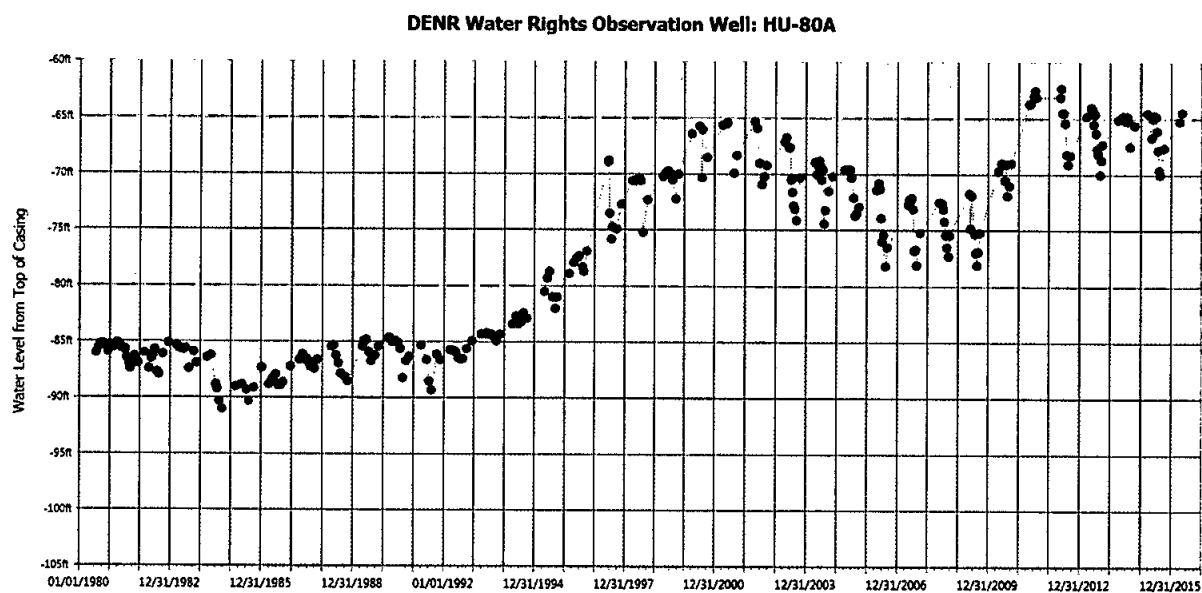


Figure 3: Hydrograph of Observation Well HU-80A (Water Rights, 2016b)

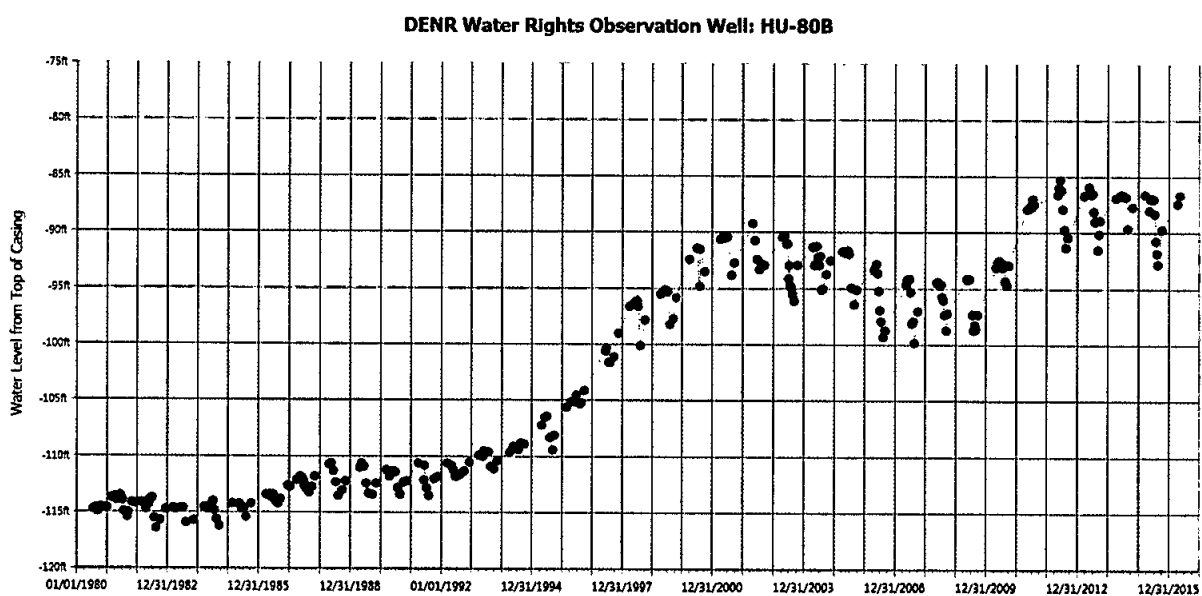


Figure 4: Hydrograph of Observation Well HU-80B (Water Rights, 2016b)

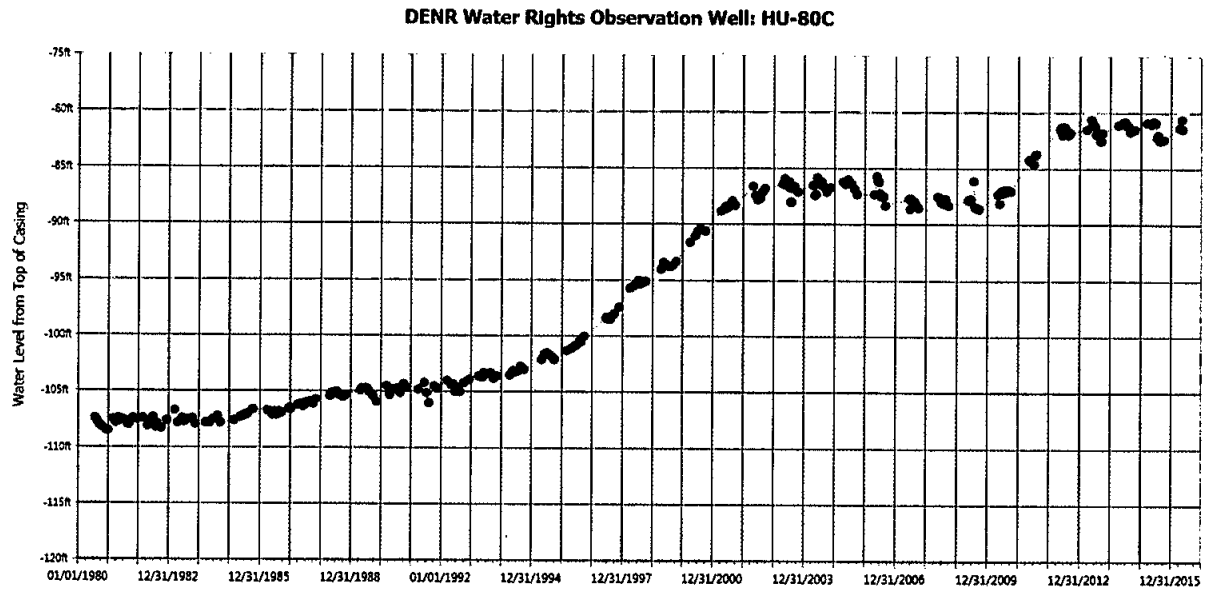


Figure 5: Hydrograph of Observation Well HU-80C (Water Rights, 2016b)

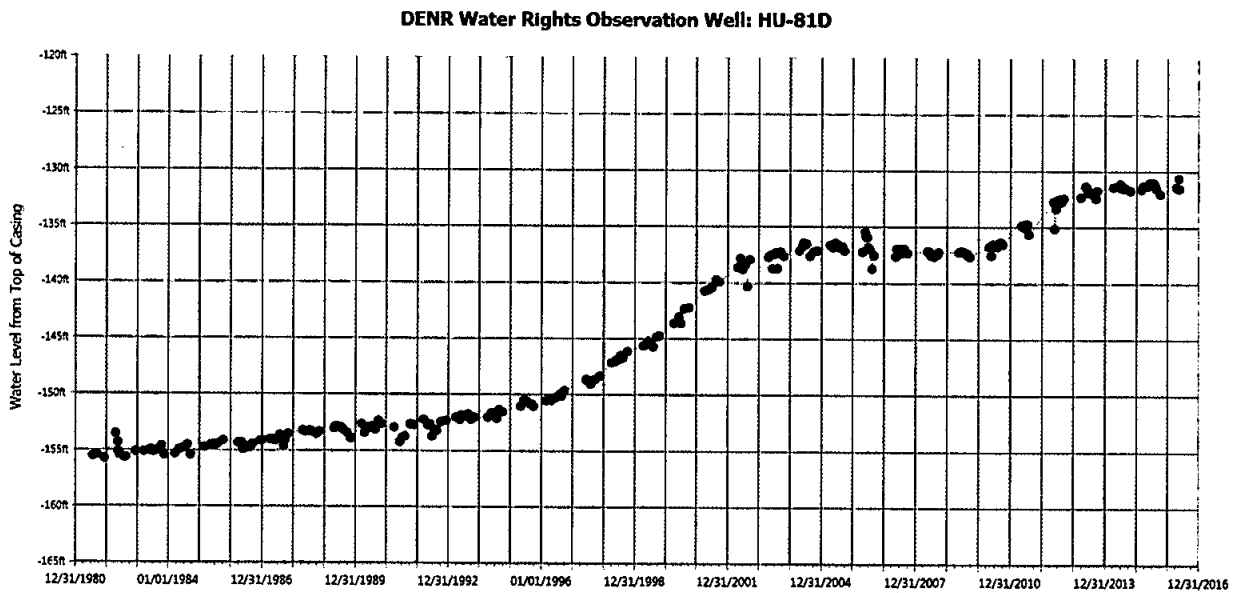


Figure 6: Hydrograph of Observation Well HU-81D (Water Rights, 2016b)

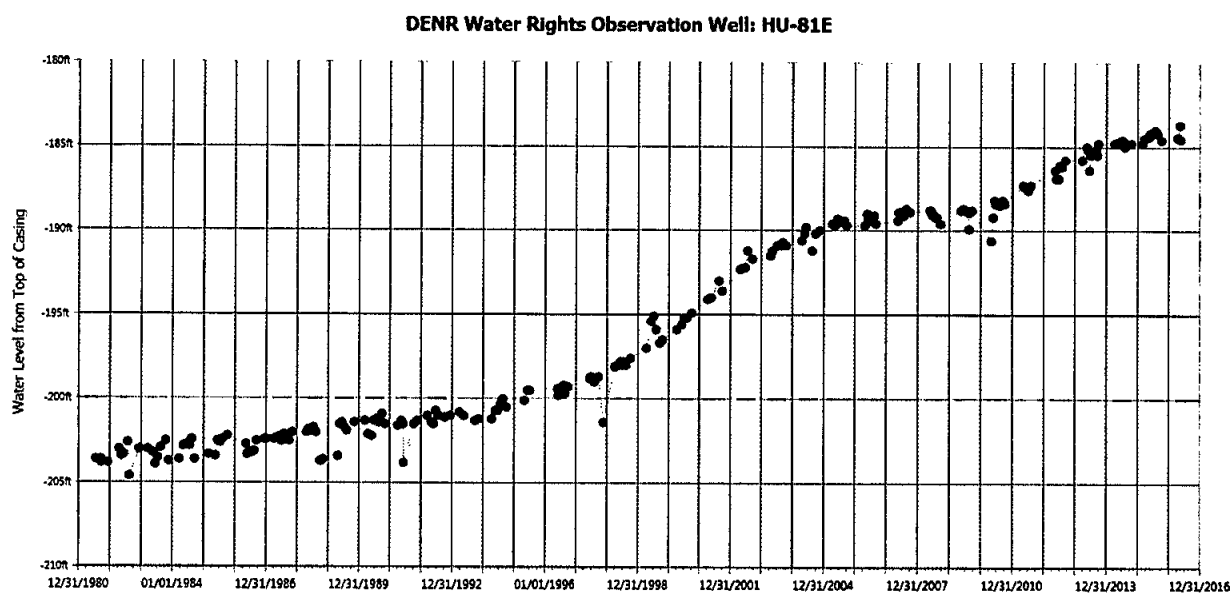


Figure 7: Hydrograph of Observation Well HU-81E (Water Rights, 2016b)

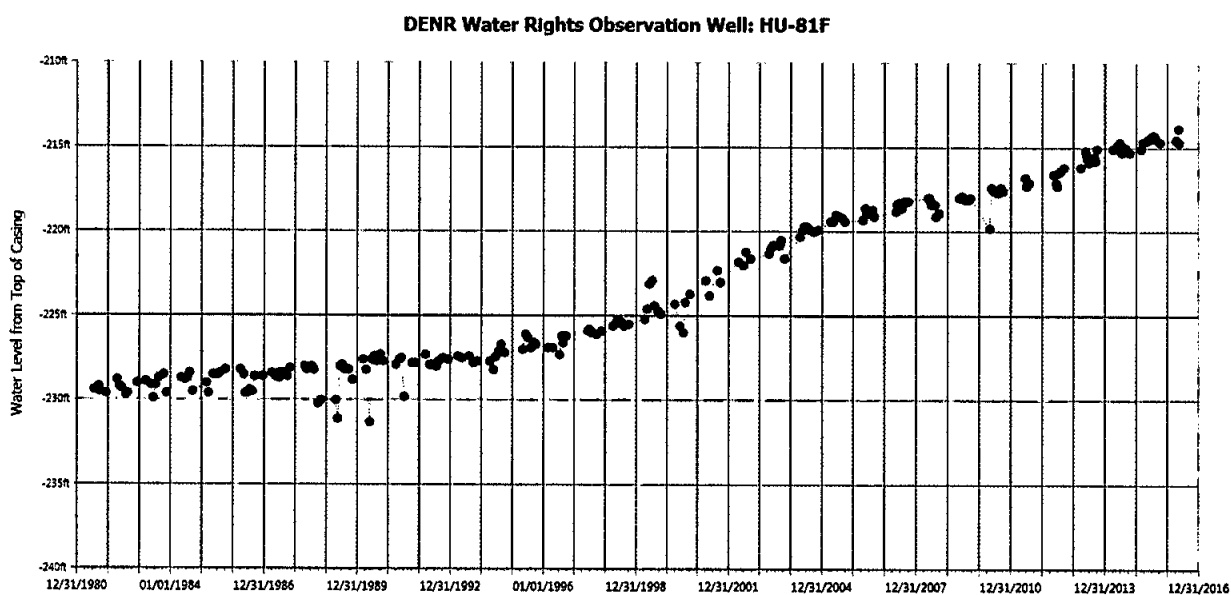


Figure 8: Hydrograph of Observation Well HU-81F (Water Rights, 2016b)

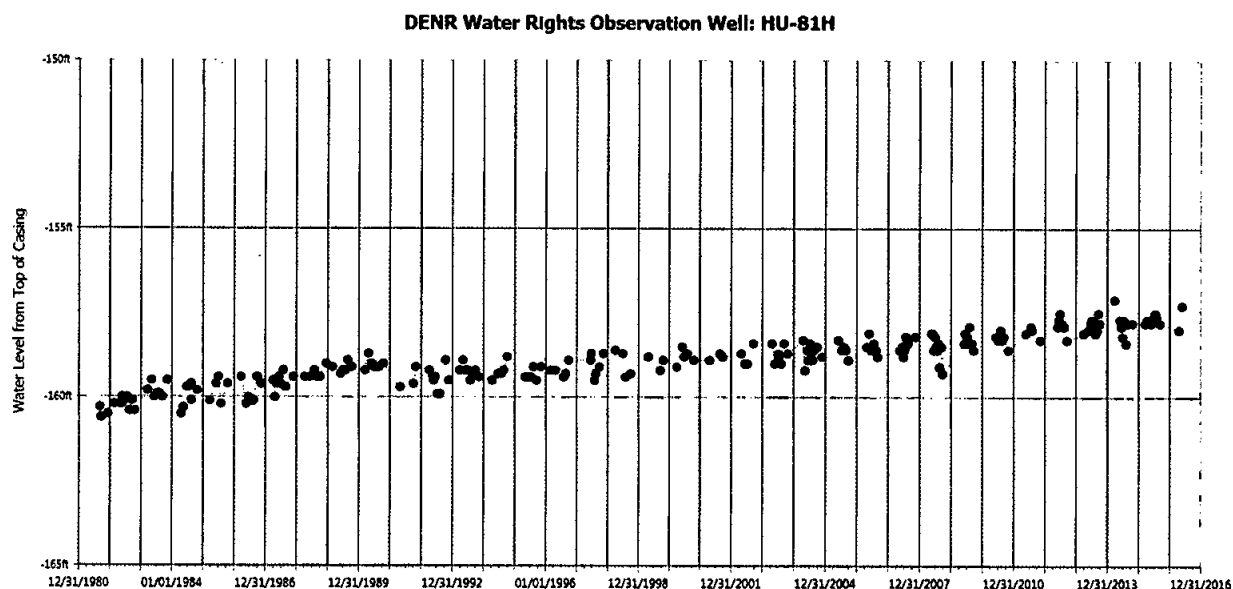


Figure 9: Hydrograph of Observation Well HU-81H (Water Rights, 2016b)

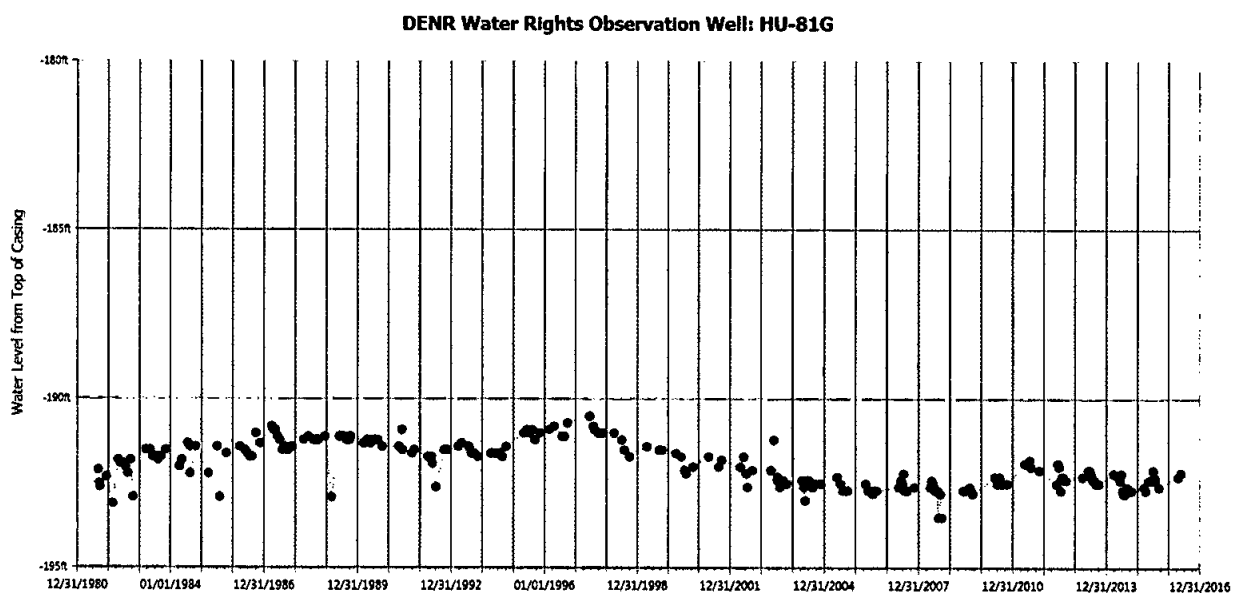


Figure 10: Hydrograph of Observation Well HU-81G (Water Rights, 2016b)

The water level changes in the observation wells monitoring this aquifer are the result of the aquifer responding to the effect of climate conditions on the aquifer. Increases in water levels occur during wetter periods (when recharge exceeds discharge), and decreases in water levels occur during drier periods (when discharge exceeds withdrawals). At the current level of development the effects on climatic conditions and the water level of Lake Oahe on the water levels in the aquifer west of observation well HU-81F exceeds the temporal impacts of pumping. Observation well HU-81F is located about 15 miles from the approximate area of the hydraulic connection between Lake Oahe. Outside of Hamilton's "zone of bank storage" lake levels have

maintained sufficient elevation for a sufficient length of time to allow for water movement further into the aquifer than the “zone of storage” and contributing recharge to the aquifer. Additionally the water rights/permits completed into this aquifer all have diversion points between observation well HU-81D and Lake Oahe, and since the groundwater movement in the aquifer is toward observation well HU-81D, the increase in water levels in observation wells HU-81D, HU-81E, and HU-81F over the period of record indicate that water is available for capture in the aquifer. Observation wells HU-81H and HU-81G are both located near the valley of Medicine Knoll Creek, an area noted by Hamilton (1986) as a natural discharge area for the aquifer. Given the distance that these two observation wells are from the nearest water right/permit in the aquifer (about 14 miles) and the increasing water levels over the period of record in the observation wells located between the nearest water right/permit and these wells (HU-81D, HU-81E, and HU-81F) it is likely the water levels in observation wells HU-81H and HU-81G are not a result of the development in the northwest portion of the aquifer. Therefore, there is a reasonable probability that water is available for the proposed appropriation by this application.

Existing Water Rights

The approximate diversion points for the existing water rights/permits completed into the aquifer in the vicinity of the proposed well locations for this application are shown in Figure 11. The nearest water rights/permits diversion points to these proposed well location are Water Right No. 4580-3 located about 0.4 miles to the north northeast of the proposed north well location for this application and Water Right No. 4521-3 located about 0.38 miles to the southeast of the proposed south well location. There are several well completion reports on file for domestic wells with the Water Rights Program in the area of the proposed wells for this application.

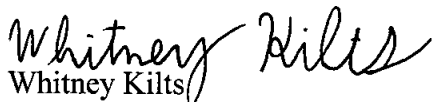
Observation wells HU-80A and HU-80B are located within a mile and a half of one or more high capacity irrigation wells and show very limited to no impacts from the pumping of nearby high capacity irrigation wells. Any impacts of pumping are temporary in nature. The Water Management Board has promulgated rules that allow water to be placed to maximum beneficial use without the necessity of maintaining artesian head pressure for domestic use. The board has defined an adversely impacted domestic well 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.” Additionally, should this area of the aquifer return to water table conditions any drawdown as a result of pumping would not be expected to be significant far from the well sites.

In the case of Water Permit Application No. 2313-2 for the Coca-Cola Bottling Company of the Black Hills the Water Management Board adopted findings that noted that if the increased costs or decreased production as a result of the impacts of legitimate users on artesian head pressure could be considered an adverse impact it would conflict with SDCL 46-1-4 (Water

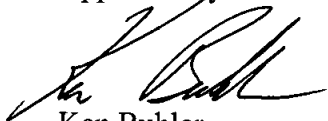
Rights, 1995). SDCL 46-1-4 requires the water resources of the state be put to beneficial use to the maximum extent of which they are capable (Water Rights, 1995).

Conclusions

1. Water Permit Application No. 8218-3 proposes to appropriate water at a maximum diversion rate of 4.0 cfs from two proposed wells to be completed into the Gray Goose aquifer located in the approximate centers of the SW $\frac{1}{4}$ and the NW $\frac{1}{4}$ Section 12 for the irrigation of 280 acres located in the W $\frac{1}{2}$ Section 12; all in T112-R80W in Hughes County.
2. There is a reasonable probability that there is water available in the aquifer to meet the proposed appropriation of this application.
3. There is a reasonable portability that this permit, if approved, would not adversely impact existing water rights/permits.


Whitney Kilts
SDDENR-Water Rights Program

Approved by


Ken Buhler
SDDENR-Water Rights Program

References

- Buhler, K. 2016. Report to the Chief Engineer on Water Permit Application No. 8203-3: Milton Morris. SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
- Hamilton, L.J. 1986. Water Resources of Hughes County, South Dakota. Water-Resources Investigations Report 84-4195. USGS. Huron, SD.
- Hedges, L.S., Burch, S. L., Iles, D. L., Barari, R. A., and Schoon, R. A. 1982. Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota, and Iowa. 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. 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.
- Geologic Survey Program. 2016. *Lithologic logs database*: South Dakota Department of Environment and Natural Resources. <http://cf.sddenr.net/lithdb/>. Retrieved June 2016.
- Water Rights. 1980-2016. "1979-2015 Irrigation Summaries by Aquifer": SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
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- Water Rights. 2016a. Water Right/Permit Files. SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
- Water Rights. 2016b. Water Rights Program Observation Well Files. SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.
- Water Rights Program. 2016. Well Completion Reports Database South Dakota Department of Environment and Natural Resources. <http://arcgis.sd.gov/server/denr/wellLogs/default.aspx>. Retrieved June 2016.

RECEIVED

JUN 20 2016

WATER RIGHTS
PROGRAM

Form 8

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)

County of Hughes) SS

I, Marylinn Baker

certify that the attached printed Notice was taken

from the Capital Journal

printed and published in Pierre

County of Hughes and

state of South Dakota. The notice was published

in the newspaper on the following date:

June 16, 2016

Cost of Printing \$25.27

Marylinn Baker
(Signature)

Bookkeeper
(Title)

6-16-16
(Date Signed)

800 Public Notice

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 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 June 27, 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.

SNAXLP 15008
15dy 6/16
NOTICE OF
APPLICATION
NO. 8218-3 to
Appropriate
Water

Notice is given that Charlene E. Schumacher, 19734 285th Ave., Pierre SD 57501 has filed an application for a water permit to appropriate 4.0 cubic feet of water per second from two wells to be completed into the Gray Goose Aquifer (174 and 120 feet deep) located in the total approximate centers of the NW 1/4 and the SW 1/4 Section 12, all in T112N-R80W.

Pursuant to SDCL 48-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8218-3 with qualifications because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a

Steven M. Primer
Secretary,
Department of
Environment and
Natural Resources
Published once at
the state cost of
\$25.27

Schlaak, Karen

From: Schlaak, Karen
Sent: Monday, June 13, 2016 7:52 AM
To: legals@capjournal.com
Subject: 8218-3, Charlene E Schumacher
Attachments: 8218-3publicnov2015.short1.docx; FORM8.FRM.doc

Attached is a notice to be published on June 16, 2016.

Charlene E Schumacher, 19734 285th Ave, Pierre SD 57501 (605 224-1420 or c – 605 280-1620) 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



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.**

June 10, 2016

Charlene E Schumacher
19734 285th Ave
Pierre SD 57501

Dear Ms. Schumacher:

Water Permit Application No. 8218-3 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 Capital Journal printed at Pierre SD (Ph # 605-224-7301). 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

cc: Trevis Olson, 106 Kourtney Rd, Pierre SD 57501

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. 8218-3 to Appropriate Water

Notice is given that Charlene E Schumacher, 19734 285th Ave, Pierre SD 57501 has filed an application for a water permit to appropriate 4.0 cubic feet of water per second from two wells to be completed into the Gray Goose Aquifer (174 and 120 feet deep) located in the centers of the NW 1/4 and the SW 1/4 Section 12 for irrigation of 280 acres located in the W 1/2 Section 12; all in T112N-R80W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8218-3 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 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 June 27, 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 once at the total approximate cost of _____.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

JUL 01 2016

Charlene E Schumacher
19734 285th Ave
Pierre SD 57501

Dear Ms. Schumacher:

Enclosed is Water Permit No. 8218-3 authorizing construction of the water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

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

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

Sincerely,

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

cc: Trevis Olson, 106 Kourtney Rd, Pierre SD 57501

enclosures

8218-3

RECEIVED

MAY 21 2018

WATER RIGHTS
PROGRAM

SD EForm - 1311LD V1

Form 10

**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

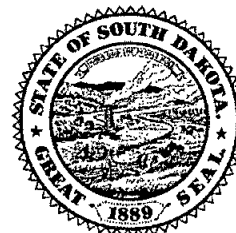
Date November 21 2018FROM: Charlene Schumacher
(name)19734 285th Ave
(address)Pierre SD 57501
(city) (state) (zip)

(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. 8218-3 states that the water use system is to be constructed byJune 27 2021, and water is to be put to beneficial use by June 27 2025
(date) (date)The water use system was completed on October 2017
(date)Applying the water to beneficial use was completed on October 2017
(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>

June 1, 2018

8218-3

Charlene Schumacher
19734 285th Ave
Pierre SD 57501

Dear Ms. Schumacher:

I am writing to acknowledge receipt of the "Notice of Completion of Works" form submitted on your behalf to let us know the irrigation system authorized under Water Permit No. 8218-3 has been completed.

The system is now ready for inspection. Inspections are done on a county-by-county basis as staff time permits. You have done everything you need to do and the intervening time between the completion of your project and the staff inspection has no bearing on your water permit.

Someone from our office will contact you prior to the inspection to set up a time that is convenient for you. If you have any questions, please contact me.

Sincerely,

Genny McMath
Water Rights Program
(605) 773-3352
email: genny.mcmath@state.sd.us

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 8218-3

I have this day, September 16, 2024, made a thorough examination of the water use system constructed by Charlene Schumacher of 19685 285th Ave, Pierre SD 57501 holder of Permit No. 8218-3, bearing the priority of April 12, 2016 authorizing the diversion of 4.0 cu. ft. per second and/or the storage of 280 acre-feet of the waters of Gray Goose for irrigation purposes, in Hughes County.

Inspection contact: Trever Olsen

A. Works used to divert the water:

Well Information (SW Well):

- 1) Well Drilling Firm: Stretch's Well Service Inc.
- 2) No. of Wells 1
- 3) Depth(s) 175 feet
- 4) Well log is available Yes

Casing:

- 1) Diameter 16 inches
- 2) Length 175 feet
- 3) Type Plastic

Screen:

- 1) Diameter 16 inches
- 1) Length 30 feet
- 2) Type Manufactured Stainless Steel
- 3) Static water level 101 feet

Pump:

- 1) Make Grundfos
- 2) Model Submersible
- 3) Capacity 800 GPM

Motor:

- 1) Make Grundfos
- 2) Model No. Unknown
- 3) Horsepower rating 60 hp

Well Information (NW Well):

- 1) Well Drilling Firm: Stretch's Well Service Inc.
- 2) No. of Wells 1
- 3) Depth(s) 115 feet
- 4) Well log is available Yes

Casing:

- 1) Diameter 16 inches
- 2) Length 115 feet
- 3) Type Plastic

Screen:

- 1) Diameter 16 inches
- 4) Length 30 feet
- 5) Type Manufactured Stainless Steel
- 6) Static water level 60 feet

Pump:

- 4) Make Grundfos
- 5) Model Submersible
- 6) Capacity 800 GPM

Motor:

- 4) Make Grundfos
- 5) Model No. Unknown
- 6) Horsepower rating 60 hp

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

- 1) Type Steel
- 2) Size 8 inches
- 3) Length 15 feet

C. Works used to apply water to beneficial use:

North Center pivot:

- 1) Make Reinke
- 2) Overall length 1280 feet
- 3) Number of towers 7
- 4) End gun Y

South Center pivot:

- 1) Make Reinke
- 2) Overall length 1280 feet
- 3) Number of towers 7
- 4) End gun Yes

Chemigation Equipment:

- 1) Does chemigate Yes
- 2) Main line check valve Yes
- 3) Inspection port/air relief Yes
- 4) Low pressure drain Yes
- 5) Discharge is 20' from source We talked about
- 6) Interlock type mechanical
- 7) Injection pump type electrical piston
- 8) Injection check valve Yes
- 9) Injection line check valve or positive displacement pump Yes

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by Yes
- 2) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period: 2017 is the first year the pivot is in use.

E. Condition and Location:

1. The system is in good condition with the point(s) of diversion located as follows: from the NW corner of Sec 12 T112N-R80W 1,320ft S and 1,320 ft E, latitude of 44.52970768 and longitude of -100.40604 , NW ¼ SE ¼, SW corner of Section 12 T112N-R80W 3,924 ft S and 1,320 ft E, latitude of 44.52258 and longitude of -100.40600028.
2. The works are capable of diverting and conveying to the place of use 3.57 cu. ft. per second of water from the well which is to be used for irrigation purposes. Water has been put to beneficial use to the maximum extent as follows: All land is located in Sec 12-T112N-R80W

NW Well (130 acres)

NW ¼ NW ¼ 30 acres

NE ¼ NW ¼ 33 acres

SW ¼ NW ¼ 33 acres

SE ¼ NW ¼ 34 acres

SW Well (130 acres)

NW ¼ SW ¼ 30 acres

NE ¼ SW ¼ 34 acres

SW ¼ SW ¼ 31 acres

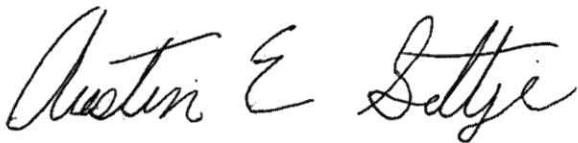
SE ¼ SW ¼ 35 acres

comprising a total of 260 acres of land and the license should be issued for 3.57 cfs.

3. All structures, wells, and lands on map Yes

F. Comments or other permit(s) associated with the project:

We talked about making sure chemigation discharge is at least 20' from water source.



Austin E Settje
Water Right Inspector
DANR, Water Rights Program

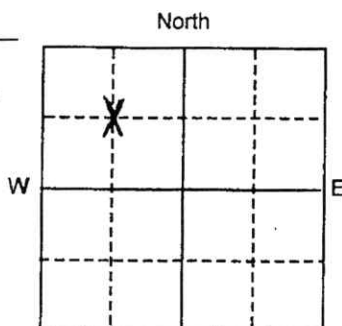
Date report completed: date: 10/8/2024

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location NW ¼ Sec 12 Twp 112 Rg 80

County Hughes

Please mark well
location with an "X"

Well Completion Date

10/20/2016

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
None ft. from (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Reverse Circulation

CASING DATA:

☐ Steel ☒ Plastic ☒ Other

If other describe Stainless Steel Screen

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
SDR26 LB/FT	16 IN	0 FT	85 FT	26 IN
SS LB/FT	16 IN	85 FT	115 FT	26 IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
#20	10	Lb/gal	0 Ft	80 Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

Tremie Pipe

SCREEN:

☐ Perforated pipe ☒ Manufactured

Diameter 16 Inches Length 30 Feet

Material Stainless Steel

Slot Size .050 Set From 85 Feet to 115 Feet

Other information

WAS A PACKER OR SEAL USED?

☒ Yes ☐ No

If so, what material? Enviro Plug

Describe packer(s) and location

Above Screen

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? Chlorine☐ No, Why Not?Lab to which water
quality sample sent for analysis

Well Owner: Trevis Olson

Business Name:

Address: 106 Kourtney Rd

City, State, Zip: Pierre SD

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
Top Soil	0	1
Yellow Clay	1	45
Blue Clay	45	80
Pea Rock	80	115

STATIC WATER LEVEL 60 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: Submersable☐ Bailed☐ Other

Pumping Level Below Land Surface

68 Ft. After 4 Hrs. pumped 700 GPM

Ft. After Hrs. pumped GPM

If pump installed, pump rate: GPM

REMARKS

GREG ROSE RB

This well was drilled under license # 722 and this report is true and accurate.

Drilling firm: Stretch's Well Service Inc.

Signature of License Representative:

Tom Bratjen

Signature of Well Owner or Equitable Property Holder:

J. Olson

Date: 12/1/16

#2 South well

8218-3

SD EForm - 1621LD V1

SOUTH DAKOTA WATER WELL COMPLETION REPORT

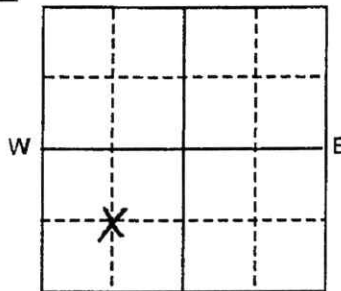
11-02

Location SW 1/4 Sec 12 Twp 112 Rg 80

County

North

Please mark well location with an "X"



Well Completion Date

11/15/2016

1 Mile

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

None ft. from (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Reverse Circulation

CASING DATA:

☐ Steel ☒ Plastic ☒ Other
 If other describe Stainless Steel

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
SDR26 LB/FT	16 IN	0 FT	145 FT	26 IN
SS SCH40 LB/FT	16 IN	145 FT	175 FT	26 IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
#20	15	Lb/gal	0 Ft	140 Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

Tremie Pipe

SCREEN:

☐ Perforated pipe ☒ Manufactured
 Diameter 16 Inches Length 30 Feet

Material Stainless Steel

Slot Size .050 Set From 145 Feet to 175 Feet

Other information

WAS A PACKER OR SEAL USED?

☒ Yes ☐ No

If so, what material? Enviro Plug

Describe packer(s) and location

Above Screen

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? Chlorine☐ No, Why Not?

Lab to which water quality sample sent for analysis

Well Owner: Trevis Olson

Business Name:

Address: 106 Kourtney Rd

City, State, Zip: Pierre SD 57501

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
Yellow Clay	0	70
Blue Clay	70	120
Fine Sand	120	145
Pea Rock	145	175
Shale	175	

STATIC WATER LEVEL 101 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: Submersable☐ Bailed☐ Other

Pumping Level Below Land Surface

115 Ft. After 4 Hrs. pumped 650 GPM

Ft. After Hrs. pumped GPM

If pump installed, pump rate: GPM

REMARKS

46 GPF

This well was drilled under license # 722 and this report is true and accurate.

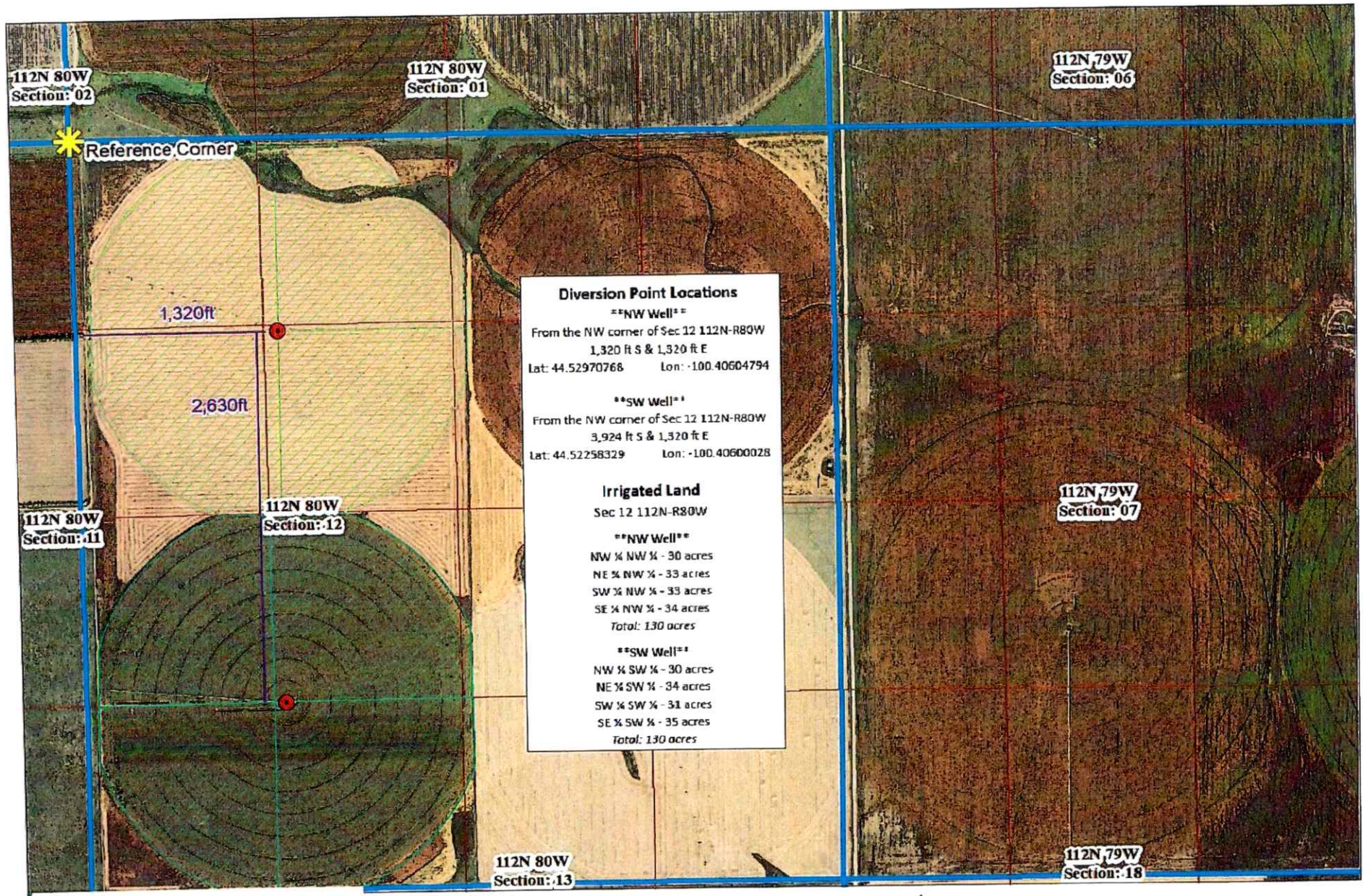
Drilling firm: Stretch's Well Service Inc.

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date: 12/1/16

Water Permit No. 8218-3 Charlene Schumacher



0



0.5 Miles



Austin E. Settje
Natural Resource Engineer I
October 08, 2024



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

APR 28 2025

Charlene Schumacher
19685 285th Ave
Pierre, SD 57501

No. 8218-3

Dear Ms. Schumacher:

Enclosed is Water License No. 8218-3. This is the final water right document completing your process of obtaining a Water Right. Included with your license is a map prepared by the staff engineer who conducted the field investigation.

For your information SDCL 46-6-27 requires that if in the future, the owner of an existing well, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

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

Sincerely,

Mark Mayer, PE
Director of Office of Water
(605) 773-3352

Note: (The number of acres authorized for irrigation under Water Right No. 8218-3 has been reduced to 260, based on the system as constructed.)

Note: (The maximum diversion rate authorized for irrigation under Water Right No. 8218-3 has been reduced to 3.57 cfs, based on the system as constructed.)

enclosures

STATE OF SOUTH DAKOTA
WATER LICENSE NO. 8218-3

(1) Charlene Schumacher, 19685 285th Ave, Pierre, SD 57501, made Application No. 8218-3, April 12, 2016, for a water permit to divert 4.0 cubic feet of water per second from groundwater, two wells (Gray Goose Aquifer), Hughes County, South Dakota for irrigation purposes. Permit No. 8218-3, with a priority date of April 12, 2016, was approved June 27, 2016, and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before June 27, 2021, and for the application to beneficial use of water on or before June 27, 2025.

(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 3.57 cubic feet of water per second for beneficial use. The location of the diversion points are:

- 1,320 feet S and 1,320 feet E from the NW corner of Section 12, T112N, R80W
(approx. center of NW $\frac{1}{4}$) (Latitude 44.52971 and -100.40604)
- 3,924 feet S and 1,320 feet E from the SW corner of Section 12, T112N, R80W
(approx. center of SW $\frac{1}{4}$) (Latitude 44.52258 and Longitude -100.406000)

(3) The amount of 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 – October 31.

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

Section 12, T112N, R80W

NE $\frac{1}{4}$ NW $\frac{1}{4}$ - 33 acres	NE $\frac{1}{4}$ SW $\frac{1}{4}$ - 34 acres
NW $\frac{1}{4}$ NW $\frac{1}{4}$ - 30 acres	NW $\frac{1}{4}$ SW $\frac{1}{4}$ - 30 acres
SW $\frac{1}{4}$ NW $\frac{1}{4}$ - 33 acres	SW $\frac{1}{4}$ SW $\frac{1}{4}$ - 31 acres
SE $\frac{1}{4}$ NW $\frac{1}{4}$ - 34 acres	SE $\frac{1}{4}$ SW $\frac{1}{4}$ - 35 acres

Total – 260 acres

(5) Pursuant to South Dakota Water Law 46-5-30.1 Charlene Schumacher, the holder and/or owner of Water Right No. 8218-3 is issued a license to appropriate water, the right to use 3.57 cubic feet of water per second from groundwater, two wells (Gray Goose Aquifer), with a priority date of April 12, 2016, 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. 8218-3 and subject to the following qualifications:

1. The wells 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 wells authorized by Permit No. 8218-3 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. *(The wells were drilled in 2016 by Stretch's Well Service Inc. Copies of the well completion reports are on file with the Water Rights Program.)*

3. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.



Mark Mayer, PE
Director of Office of Water

4/28/25

date

