

WATER PERMIT NO. 8210-3

Name of Applicant: **Craig Vanderlei**

Address: **40908 312th St, Springfield SD 57062**

Phone: **605 661-2618**

Amount of Water Claimed: **1.11 cfs**

Total Acres: **140 acres**

Source of Water Supply: **one well**

Water to be used for: **irrigation**

County: **Bon Homme**

Type of Waste Disposal System:

Location: **6 miles northwest of Springfield**

PRIORITY

Date Received: **3-25-16**

Application/License Fee: **\$ 1050**

Corrected Application Received:

Period of Annual Use: **May 1 – Sept 30**

Remarks:

Diversion Point: **SE 1/4 NE 1/4 Sec 34-T94N-R61W**

Land to be Irrigated: **NE 1/4 Sec 34-T94N-R61W**

Depth of Well: **203 feet**

Well Driller:

Remarks:

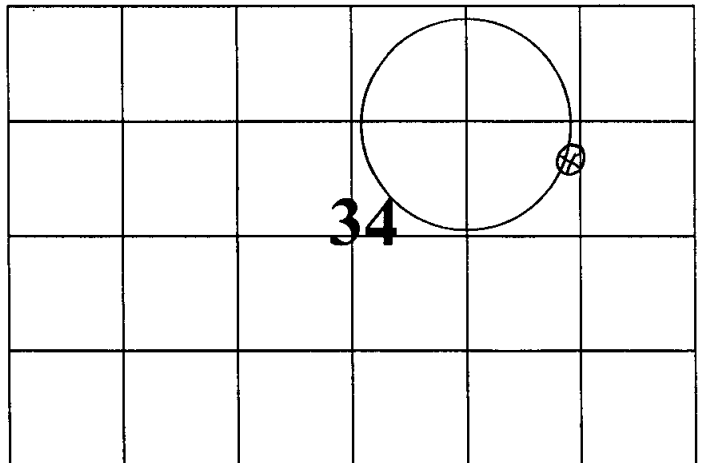
Type of Map: **aerial**

Prepared by:

Reviewed and the Number Assigned on: **3-28-16**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____



FORM 2: Application for irrigation in South Dakota
(type or print)RECEIVED
MAR 25 2016
WATER RIGHTS
PROGRAM

Mail to: DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8210-3</u>	(office use only) Hydrologic Unit <u>10170101</u>
	Basin <u>Missouri River</u>	
	Newspaper <u>Springfield Times</u>	<u>605-396-2441</u>
	<u>Dresser Dakotas - Yankton</u>	<u>605-665-7811</u>

Application For Permit To Appropriate Water For Irrigation

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

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

1. Name to Appear on Irrigation Permit Craig Vanderlei

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

Mailing Address 40908 312th St Springfield SD 57062
(Address) (City) (State) (Zip Code)Phone 605-2609 Mobile 605-661-2418 Email craigvanderlei@gmail.com2. Amount of water claimed 1.11 *CFS or 500 **GPM ***AF Total Acreage 140
(*Cubic Feet per Second) (**Gallons per Minute) (***) Acre Feet - storage capacity of dam/dugout or annual use if applicable)3. Source of water supply ground water aquifer4. Location of point of diversion 1 well in SE 1/4 NE 1/4 sec 34 Twp 94N Rg 61W
(example - 3 wells in SW 1/4 NE 1/4 section 12-T104N-R53W)
County Bon Homme5. County or counties where water will be used Bon Homme6. Annual period during which water is to be used May 1 - Sept 307. List below each forty acre division, or lot, or fraction thereof and show number of acres to be irrigated in each.
(Attach sheet if more space is needed)

Land Description	Acres	Land Description	Acres
NW 1/4 & NE 1/4	35	all in Sec. 34 - T94N - R61W	
NE 1/4 & NE 1/4	35		
SW 1/4 & NE 1/4	35		
SE 1/4 & NE 1/4	35		

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

one well along east side of field piped to center pivot

I, Craig Vanderlei, owner/operator, 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. 8210-3

Date of first receipt of application March 25, 2016.

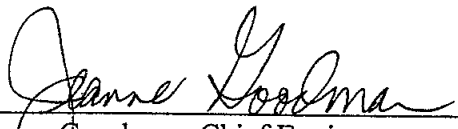
The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8210-3 to Craig Vanderlei, 40908 312th St, Springfield SD 57062 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 8210-3 appropriates 1.11 cubic feet of water per second from one well to be completed into the Niobrara Aquifer (203 feet deep) located in the SE 1/4 NE 1/4 Section 34 for irrigation of 140 acres located in the NE1/4 Section 34; all in T94N-R61W.
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 March 25, 2016.
4. The date of approval of Permit No. 8210-3 is May 31, 2016.
5. One-fifth of the construction is to be completed on or before December 1, 2018.
6. All construction is to be completed on or before May 31, 2021.
7. Water is to be put to beneficial use on or before May 31, 2025.
8. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. The well approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The well authorized by Permit No. 8210-3 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

JUN 27 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 1 Have test holes been drilled ☒ Yes ☐ No Drilled by Heine Electric & Irr.
(if yes, please provide copies of logs)b) If existing wells, how many Provide copy of log(s), if available. Drilled by

For either Existing or Proposed Wells:

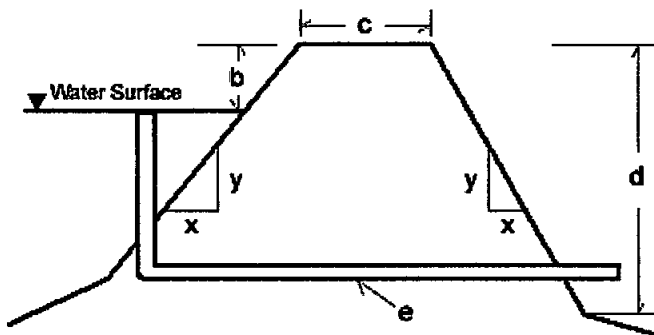
c) Well Depth (required) 203 Depth to Top of Water Bearing Material 146' Depth to Water from Surface 174'd) Distance to nearest domestic well on applicant's property none Property owned by others 1/2 mile**2. Wastewater Disposal System Information**a) Type of System (i.e. septic tank, drain field) b) 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 Feetj) Drainage Area Above Dam Acres



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Streets

Show Search Results

Sec 21
T094N
R61W

Sec 22
T094N
R61W

Sec 23
T094N
R61W

Sec 28
T094N
R61W

Sec 27
T094N
R61W

Sec 26
T094N
R61W

Sec 33
T094N
R61W

Sec 34
T094N
R61W

Sec 35
T094N
R61W

Sec 4
T093N
R61W

Sec 3
T093N
R61W

Sec 2
T093N
R61W

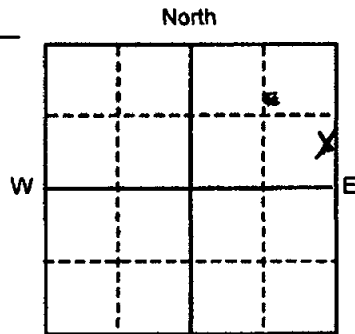
Sec 9
T093N
R61W

Sec 10
T093N
R61W

Sec 11
T093N
R61W

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location 1/2 ne 1/4 Sec 34 Twp 94n Rg 61wCounty Bon HommePlease mark well
location with an "X"

Well Completion Date

January 13, 2016

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
1,500.0 ft. from septic tank? (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Rotary

CASING DATA:

☐ Steel ☐ Plastic ☐ Other
If other describe none

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Bent Grout	6	9.4 Lb/gal	0.0 Ft	175.0 Ft
		Lb/gal	Ft	Ft

Describe grouting procedure
tremie through drill rods

SCREEN:

☐ Perforated pipe ☐ Manufactured

Diameter _____ Inches Length _____ Feet

Material _____

Slot Size _____ Set From _____ Feet to _____ 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? _____

☐ No, Why Not? _____
Lab to which water
quality sample sent for analysisWell Owner: Craig Vanderlei

Business Name: _____

Address: 40908 312th StreetCity, State, Zip: Springfield SD 57062

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
topsoil	0	3
clay, brown	3	33
clay, blue, sticky	33	97
clay, blue, with sand streaks	97	136
shale, gray	136	161
chalk, gray	161	175

STATIC WATER LEVEL

FEET

If flowing: closed in pressure _____

PSI

GPM flow _____ through _____

Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced flow rate _____ GPM

Can well be completely shut in?

WELL TEST DATA:

☐ Pumped Describe: _____

☐ Bailed

☐ Other

Pumping Level Below Land Surface

_____ Ft. After _____ Hrs. pumped _____ GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

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JAN 29 2016

WATER RIGHTS
PROGRAMThis well was drilled under license # 810 and this
report is true and accurate.Drilling firm: Heine Electric & Irrigation, Inc;

Signature of License Representative: _____

Signature of Well Owner or Equitable Property Holder: _____

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Date: _____

MAR 25 2016

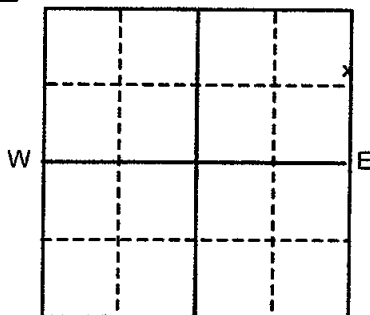
WATER RIGHTS
PROGRAM

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location ne 1/4 ne 1/4 Sec 34 Twp 94n Rg 61wCounty Bon Homme

North

Please mark well
location with an "X"

Well Completion Date

March 14, 2016

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

1,500.0 ft. from septic tank? (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Rotary

CASING DATA:

☐ Steel ☒ Plastic ☐ Other
If other describe none

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	<u>16.00</u> IN	<u>0.0</u> FT	<u>161.0</u> FT	<u>22.00</u> IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
<u>Bent Grout</u>	<u>36</u>	<u>9.4</u> Lb/gal	<u>0.0</u> Ft	<u>161.0</u> Ft
		Lb/gal	Ft	Ft

Describe grouting procedure
tremie

SCREEN:

☐ Perforated pipe ☐ Manufactured
Diameter 12.00 Inches Length 203.0 Feet

Material

Slot Size Set From Feet to FeetOther information open completion, no screen

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 liquid
☐ No, Why Not?
Lab to which water
quality sample sent for analysisWell Owner: Craig Vanderlei

Business Name:

Address: 40908 312th StreetCity, State, Zip: Springfield SD 57062

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
topsoil	0	3
clay, brown	3	33
clay, blue, sticky	33	97
clay, blue, with sand streaks	97	136
shale, gray	136	161
chalk, gray	161	203

STATIC WATER LEVEL 160.0 FEETIf flowing: closed in pressure PSIGPM flow through Inch pipeControlled 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

183.0 Ft. After 8.0 Hrs. pumped 500.0 GPM Ft. After Hrs. pumped GPMIf pump installed, pump rate: GPM

REMARKS

pump not yet installed

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MAR 23 2016

WATER RIGHTS
PROGRAM

NOBARRA

This well was drilled under license # 810 and this
report is true and accurate.Drilling firm: Heine Electric & Irrigation, Inc;

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date:

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date

3-28-16

Craig Vanderlei, 40908 312th St, Springfield SD 57062

RECEIVED OF

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

Fee for Application for Permit No. <u>8210-3</u> to Appropriate Water, to construct and to put water to beneficial use	850	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>8210-3</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	1050.00

No. 07797

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. 8210-3, Craig Vanderlei**

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. 8210-3, Craig Vanderlei, 40908 312th Street, Springfield SD 57062.

The Chief Engineer is recommending APPROVAL of Application No. 8210-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest with the following qualifications:

1. The well approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The well authorized by Permit No. 8210-3 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
May 9, 2016

**REPORT TO THE CHIEF ENGINEER
ON
WATER PERMIT APPLICATION NO. 8210-3
CRAIG VANDERLEI
2 APRIL 2016**

Water Permit Application No. 8210-3 proposes to appropriate water from the Niobrara aquifer to irrigate 140 acres located in the NE¼ Sec. 34, T94N-R61W. This application proposes to divert water from a well 203 feet deep, located in the SE¼NE¼ Sec. 34, T94N-R61W, at a maximum rate of 1.11 cubic feet of water per second (cfs).

AQUIFER: Niobrara aquifer (NBRR)

GEOLOGY AND AQUIFER CHARACTERISTICS:

The Niobrara Formation is upper Cretaceous age, calcareous marl that was deposited in a broad inland seaway that covered most of the area under present South Dakota. The extent of the Niobrara Formation in eastern South Dakota is shown in Figure 1. The Niobrara Formation is often referred to as “Niobrara Chalk” or Chalk Rock” by local well drillers. In Bon Homme County, the Niobrara consists of an upper section of medium to dark-gray calcareous marl and a lower section of gray-chalky limestone (Christensen, 1974). Although the Niobrara underlies approximately 470 square miles of Bon Homme County, 1100 square miles of Charles Mix County and 400 square miles of Douglas County (Hedges and others, 1982), it is not contiguous. The well site proposed by this permit application is located on an erosional remnant that is isolated from the main body of the formation by deep channels that have completely incised the Niobrara. This isolated portion of the Niobrara underlies an area of approximately 580 square miles in Bon Homme, Charles Mix and Douglas Counties (Tomhave and Schulz, 2004) (Figure 2). This erosional remnant has been partially eroded over much of its area. However, the entire section is present over approximately 280 square miles where the Pierre Shale overlies the Niobrara Formation (Tomhave and Schulz, 2004). The maximum thickness of the Niobrara Formation has been reported to be over 200 feet in northwestern Bon Homme County (Christensen, 1974). Test holes penetrating the entire section within this erosional remnant of the Niobrara have recorded a formation thickness of 130-140 feet (“Lithologic Logs search”).

The well completion report submitted with this application indicates the top of the Niobrara Formation is between 136-161 feet below grade and at its terminal depth, 203 feet; the wellbore was reportedly still in the Niobrara. Groundwater contained in this Niobrara Formation erosional remnant is found under both confined and unconfined conditions, depending on location. The aquifer is under unconfined conditions at the well this application proposes to use, and the well log reported a static water level of 160 feet below grade. Groundwater flow in the Niobrara aquifer is dictated primarily by secondary porosity and permeability features (i.e. fractures and solution cavities). Groundwater flow in the Niobrara aquifer in this area is toward the southeast (Jorgensen, 1971). The completion report submitted with this application indicates the well that is to be used to supply this appropriation produced 500 gallons per minute with 23 feet of drawdown. With a specific capacity of 21.74 gallons per minute per foot of drawdown, the transmissivity of the Niobrara aquifer at this site is estimated to be 32,610 gal/day/ft (“Transmissivity from Specific Capacity”).

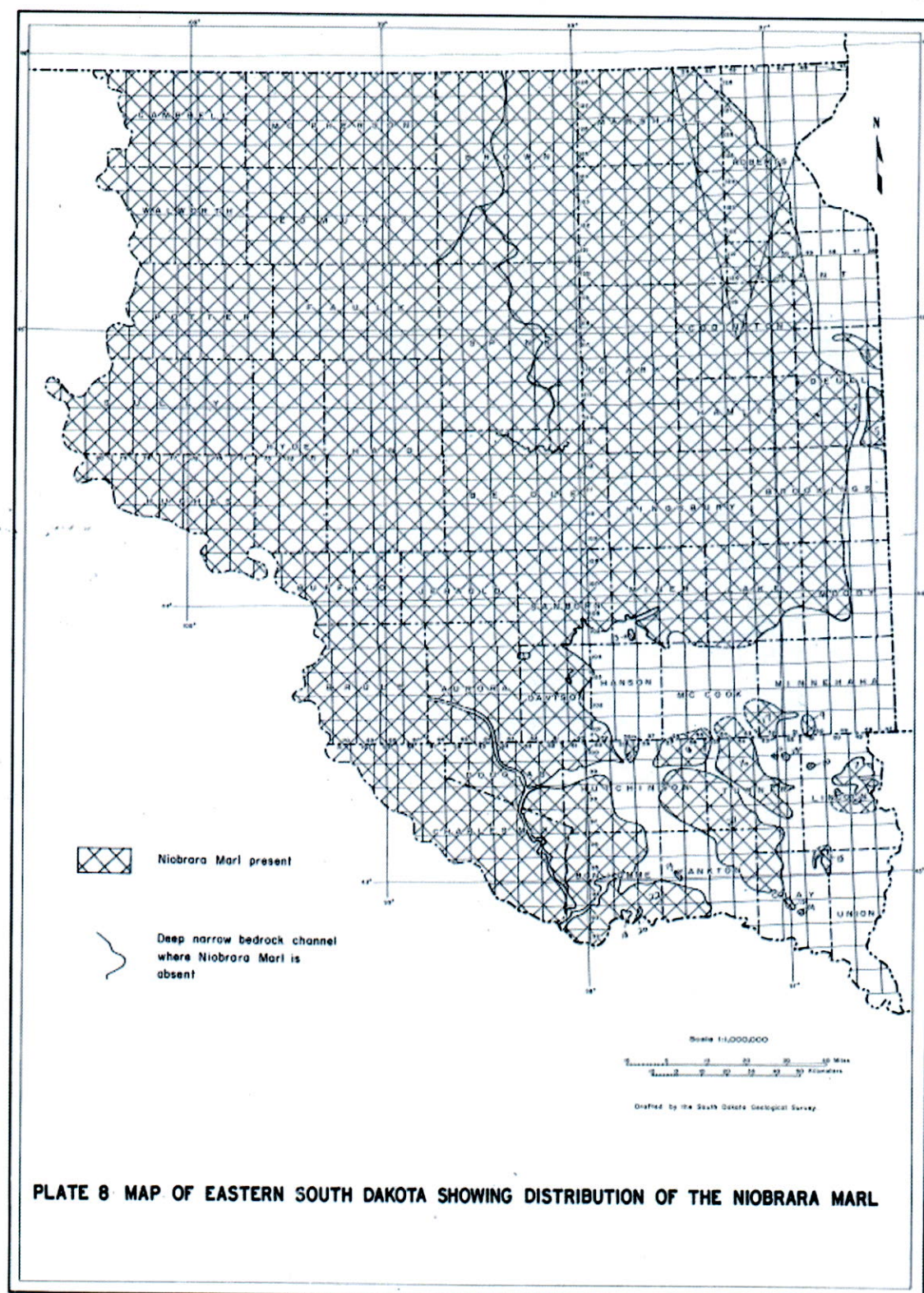


Figure 1. Area extent of the Niobrara Formation in eastern South Dakota (from Hedges, and others, 1982).

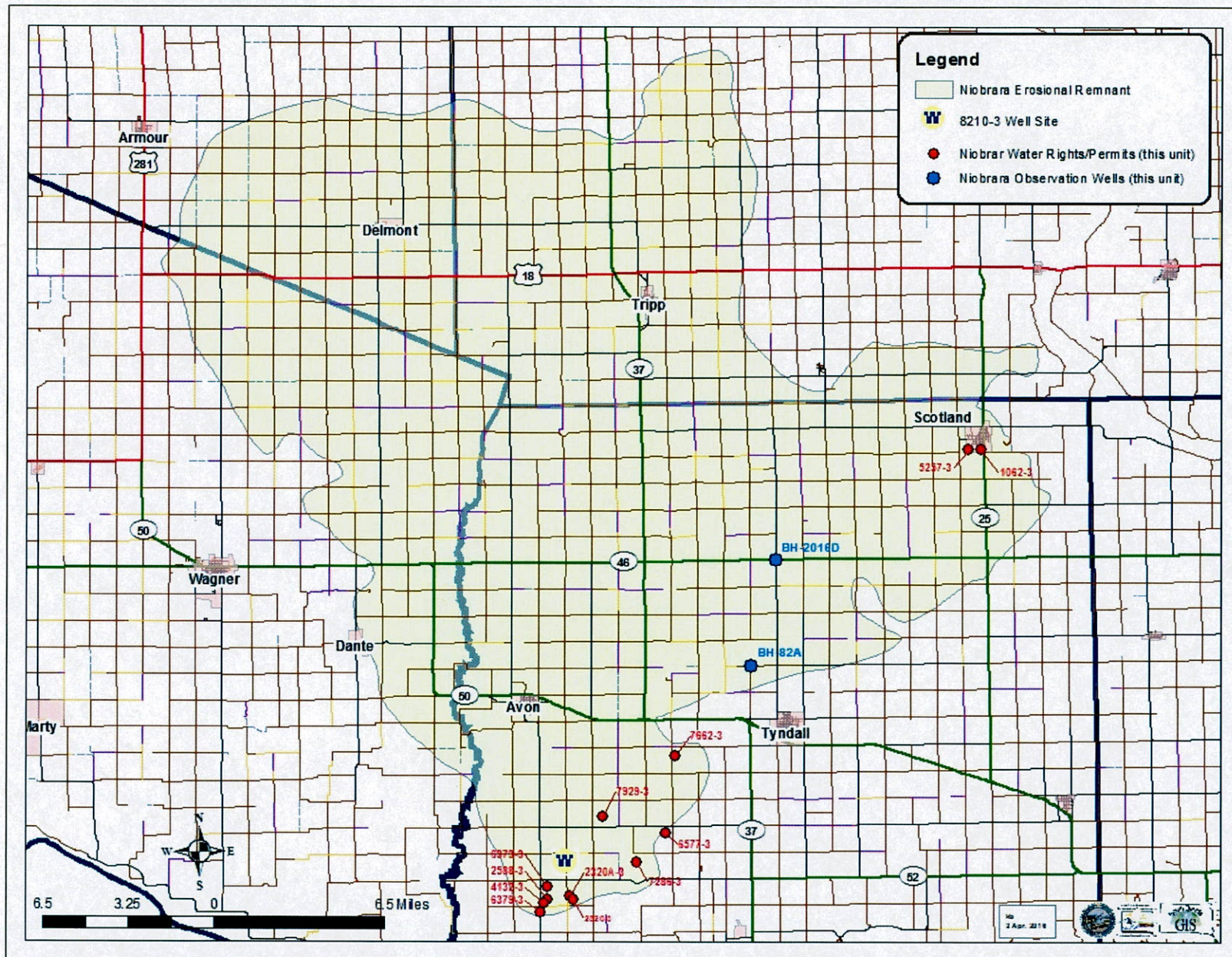


Figure 2. Map showing the location of the well site proposed to be used by this application, the Niobrara Formation erosional remnant this application proposes to appropriate from, Niobrara aquifer water rights/permits, and observation wells completed into the erosional remnant (Modified from Tomhave and Schulz, 2004) (Water Rights, 2016a, 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 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.

Water Availability:

This application proposes to appropriate water from the Niobrara aquifer. This application proposes a permit that would authorize the irrigation of 140 acres. Based on the historic average annual irrigation application rate in South Dakota, approval of this application would likely result in a withdrawal of less than 140 acre-feet per year. The probability of unappropriated water 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 a water distribution system has applied for a permit, the Board need not consider the recharge/withdrawal issue. Here, a water distribution system is not involved and the aquifer is not older or lower than the Greenhorn Formation, therefore the withdrawal/recharge issue must be considered.

Recharge and Discharges from this Erosional Remnant of the Niobrara aquifer:

Recharge to this erosional remnant is through groundwater inflow from hydrologically connected aquifers. Discharge from this aquifer is through groundwater outflow to hydrologically connected aquifers and well withdrawals.

In this area, the Niobrara Formation overlies the Codell Sandstone Member of the Carlile Shale. Although Jorgensen (1971) reports that "5-30 feet of impermeable shale" overlies the Codell Sandstone, well completion reports for the area document numerous places where the Niobrara directly overlies the Codell Sandstone (Water Rights, 2016b).

The West management unit of the Choteau aquifer overlies the western edge of this erosional remnant of the Niobrara Formation and the Tyndall management unit of the Choteau aquifer overlies portions of the southeastern portion of the erosional remnant (Hedges and others, 1982) (see Figure 3). Test hole logs ("Lithologic Logs") and well completion reports (Water Rights, 2016b and Water Rights 2016c) document a number of locations where the outwash deposits of the Tyndall and West management units directly overlie the Niobrara Formation.

Although current maps (Tomhave and Shulz, 2004, and Hedges and others, 1982), lithologic logs ("Lithologic Logs"), completion reports and test hole logs (Water Rights, 2016b) identify very limited hydraulic connection between the Niobrara aquifer and the Scotland management unit of the Lower James Missouri aquifer, Jorgensen (1971) suggests that "subsurface flow from the Niobrara probably discharges from the aquifer near Scotland".

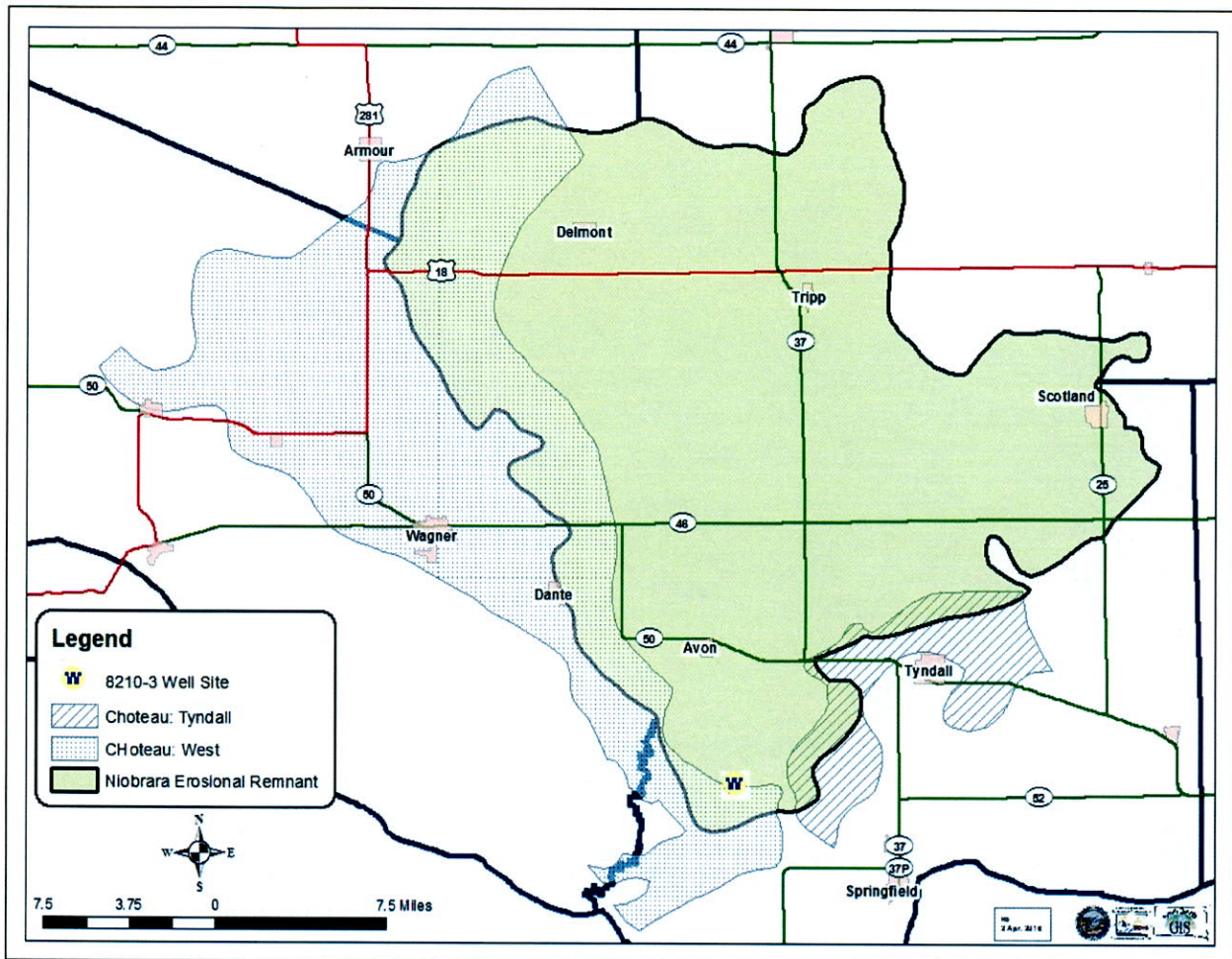


Figure 3. Map showing the location of the site of the well proposed to be used by this application, the approximate areal extent of the Niobrara Formation erosional remnant which this application proposes to appropriate from, the approximate areal extent of the Choteau: Tyndall aquifer and the approximate areal extent of the Choteau: West aquifer (Modified from Tomhave and Schulz, 2004; and Hedges others, 1982).

Where the Codell, Choteau: Tyndall, Choteau: West, and/or the Lower James Missouri: Scotland aquifers are hydrologically connected to the Niobrara aquifer, groundwater leaks between the aquifers from the aquifer with the higher potentiometric surface to the aquifer with the lower potentiometric surface. The rate of groundwater flow depends on the difference between the potentiometric surfaces and the characteristics of the aquifers.

Observation well data is limited for this isolated Niobrara aquifer, consisting of data from only one observation well (see Figure 4). Data is available for two observation wells completed into the Codell aquifer underlying this portion of the Niobrara Formation (Water Rights, 2016a). Lindgren and Hansen (1990) published potentiometric surface maps for the Niobrara and Codell aquifers for the portion of this erosional remnant in Hutchinson County. Jorgensen (1971) published potentiometric surface maps for the portion of this erosional remnant in Bon Homme County. Although Kume (1977) mapped the potentiometric surface for the Codell aquifer underlying this erosional remnant in Charles Mix and Douglas Counties, a potentiometric surface

of the Niobrara aquifer is not available for the counties. The potentiometric surfaces of the Niobrara and Codell aquifers are very similar however, considering all of the available data, a gradient between the aquifers cannot be determined.

Jorgensen, (1971) published potentiometric surface maps for both the Niobrara and the Choteau: Tyndall aquifers in Bon Homme County. Based on Jorgensen's interpretation of the data that was available at the time, the potentiometric surface of the Niobrara aquifer was represented slightly lower than the potentiometric surface of the Choteau: Tyndall aquifer, indicating a potential for leakage from the Choteau: Tyndall to the Niobrara. The DENR-Water Rights Program has installed several observation wells in the Choteau: Tyndall and two observation wells in the Niobrara aquifer since Jorgensen's evaluation of the data (note: observation well BH-2016D has just recently been added to the observation well network and water level records are not available for this well). The additional observation well data documents that the potentiometric surfaces of the aquifers are very similar. However, interpretation of the observation well data suggests that there is a potential for leakage from the Niobrara aquifer to the Choteau: Tyndall aquifer.

The potentiometric surfaces of the Niobrara and the Choteau: West aquifers appear to be very similar (Water Rights, 2016a). "It is likely that the sand and gravel [Choteau aquifer] provide a reservoir for recharge water to the Niobrara aquifer" (Goodman, 2003). Kume (1977) reported that "Perhaps some recharge [to the Choteau] comes from the Niobrara where the aquifer lies directly upon the marl." In the northwestern portion of this erosional remnant of the Niobrara Formation the potentiometric surface of the Choteau: West appears to be higher than that of the Niobrara aquifer, indicating the potential for groundwater flow from the Choteau: West to the Niobrara. Near the southern edge of this erosional remnant, the Niobrara potentiometric surface may be higher than the potentiometric surface of the Choteau: West indicating the potential for discharge from the Niobrara to the Choteau: West.

For unappropriated water to be available from this isolated Niobrara aquifer, groundwater inflows to the aquifer must exceed groundwater outflow from the aquifer plus well withdrawals. An equation for this hydrologic budget is shown below:

$$GWi_{(CDLL)} + GWi_{(CH:T)} + GWi_{(CH:W)} + GWi_{(LJM:S)} > GWO_{(CDLL)} + GWO_{(CH:T)} + GWO_{(CH:W)} + GWO_{(LJM:S)} + \text{Well Withdrawals}$$

Where:

$GWi_{(CDLL)}$ = Groundwater inflow from the Codell
 $GWi_{(CH:T)}$ = Groundwater inflow from the Choteau: Tyndall
 $GWi_{(CH:W)}$ = Groundwater inflow from the Choteau: West
 $GWi_{(LJM:S)}$ = Groundwater inflow from the Lower James Missouri: Scotland

And

$GWO_{(CDLL)}$ = Groundwater outflow from the Codell
 $GWO_{(CH:T)}$ = Groundwater outflow from the Choteau: Tyndall
 $GWO_{(CH:W)}$ = Groundwater outflow from the Choteau: West
 $GWO_{(LJM:S)}$ = Groundwater outflow from the Lower James Missouri: Scotland

Estimates of the amount of water that is exchanged between this erosional remnant of the Niobrara aquifer and the aquifers that are hydrologically connected to it (i.e. Codell, Choteau: Tyndall, Choteau: West and possibly the Lower James Missouri: Scotland aquifers) are not available. Considering the extent of likely hydrologically connected aquifers in this area, there is a potential for significant groundwater flow to and from the Niobrara aquifer.

Hydrographs for observation wells completed into the Codell aquifer underlying this erosional remnant of the Niobrara indicate the water levels are dominated by climatic conditions and water availability is not an issue for the aquifer in this area (see Figures 5. and 6. for representative hydrographs).

Hydrographs of observation wells completed into the Choteau: West aquifer (see Figure 7. for representative hydrograph) show cyclic water level fluctuations based on the effect of climatic conditions on the aquifer. Some of the hydrographs show the effects of seasonal pumping from nearby irrigation wells. However, at the current level of development the temporal effects of pumping are masked by climatic conditions. Water levels in the aquifer are dominated by natural conditions, recharge and natural discharge from the Choteau: West aquifer mask well withdrawals from it, consequently natural discharge can be captured and/or additional recharge can be induced.

Hydrographs of observation wells completed into the Choteau: Tyndall aquifer (see Figure 8. for representative hydrograph) have recently been interpreted as indicating “The combination of withdrawal and recharge have resulted in a decrease in the amount of water in storage in the Choteau: Tyndall aquifer. Therefore, average annual recharge is not keeping pace with average annual withdrawals” (Capen, 2014). The last application to appropriate water from the Choteau: Tyndall aquifer (Application No. 8060-3) was issued as a Temporary Use Permit pursuant to SDCL 46-5-39.

Due to the proximity of the well site proposed by Application No. 8210-3 to the Choteau: West aquifer relative to the Choteau: Tyndall aquifer, groundwater flow to/from the Choteau: West is likely to be an additional source of water to capture to the Niobrara (if needed) instead of groundwater flow to/from the Choteau: Tyndall. Since additional recharge from the Choteau: West aquifer could be induced and discharge to the Codell aquifer and overlying outwash aquifers would be captured with more well withdrawals from this isolated portion of the Niobrara aquifer, there is a reasonable probability that unappropriated water is available for appropriation. Approval of Water Permit No. 8210-3 will likely result in increased well withdrawals of less than 140 ac-ft/yr.

There are 10 water rights/permits that appropriate water from this isolated Niobrara aquifer. They are shown in Table 1 and Figure 2.

Table 1. Water permits/rights appropriating water from the erosional remnant of the Niobrara Formation that Application No. 8210-3 proposes to use as a source (Water Rights, 2016b)

PERMIT NO	NAME	PRIORITY DATE	STATUS	USE	CFS	ACRES
1062-3	CITY OF SCOTLAND	09/13/1963	LC	MUN	0.58	0
2320A-3	ERNEST R NAMMINGA	08/04/1975	LC	IRR	1.78	248
4132-3	HAROLD TJEERDSMA	01/27/1978	LC	IRR	2	164
5257-3	SCOTLAND GOLF CLUB INC	01/18/1989	LC	IRR	0.3	21
6379-3	LEON VANDERLEI	01/02/2003	LC	IRR	1.67	136
6577-3	DOUGLAS BOCHMAN	01/24/2005	LC	IRR	1.08	76
6373-3	ERNEST R NAMMINGA	12/23/2002	PE	IRR	1.78	128
7286-3	BRIAN KOZAK	12/14/2011	PE	IRR	1.44	196
7662-3	DANIEL SCHUURMANS	01/25/2013	PE	IRR	2.67	172
7929-3	BRAD BIEREMA	12/02/2013	PE	IRR	2	140

The City of Scotland currently receives 100% of its water from B-Y RWS (Friedeman). The Scotland Golf Course (Water Right No. 5257-3) has reported water use ranging from 0 to 46.4 acre-feet per year and averaged 15.37 acre-feet/year over the time period of 1994-2014 (Water Rights, 1995-2015). Irrigation permits, excluding the golf course, authorize the irrigation of 1260 acres (Water Rights, 2016b). Historically, the average annual irrigation application rate in South Dakota has been less than 12 inches per year. Although there are a number of domestic use wells completed into this aquifer, water use from domestic use wells is not expected to be significant to a hydrologic budget for the aquifer. Therefore, average annual use for this aquifer is estimated to be less than 1300 acre-feet per year.

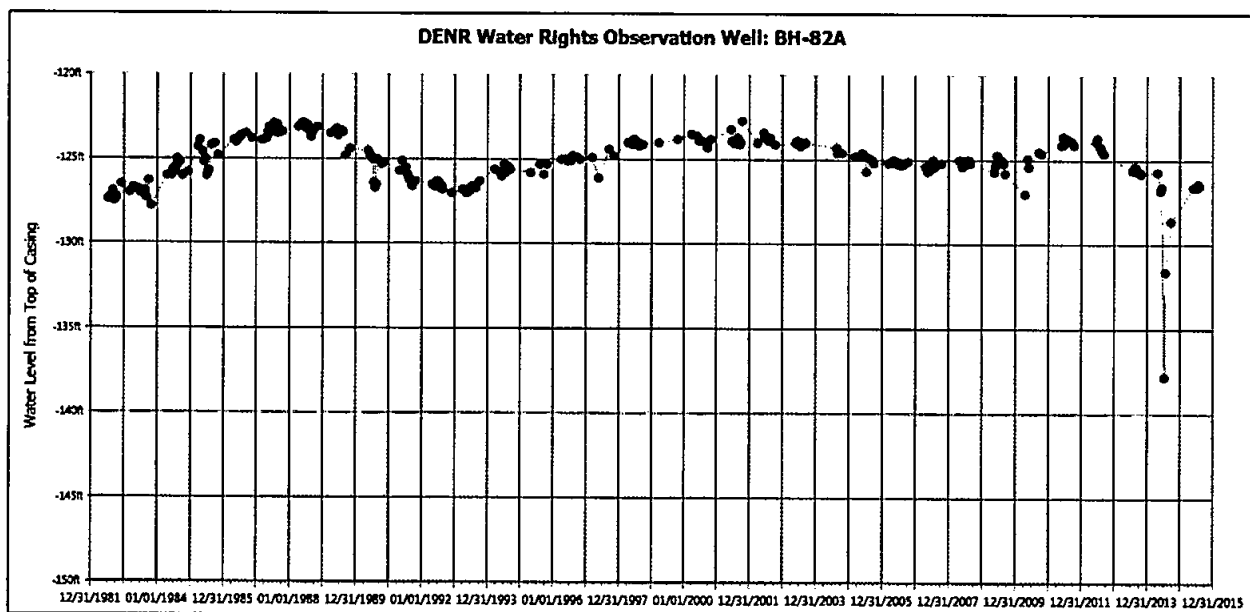


Figure 4. Observation well completed into the erosional remnant of Niobrara Formation this application proposes as a source (Water Rights, 2016a).

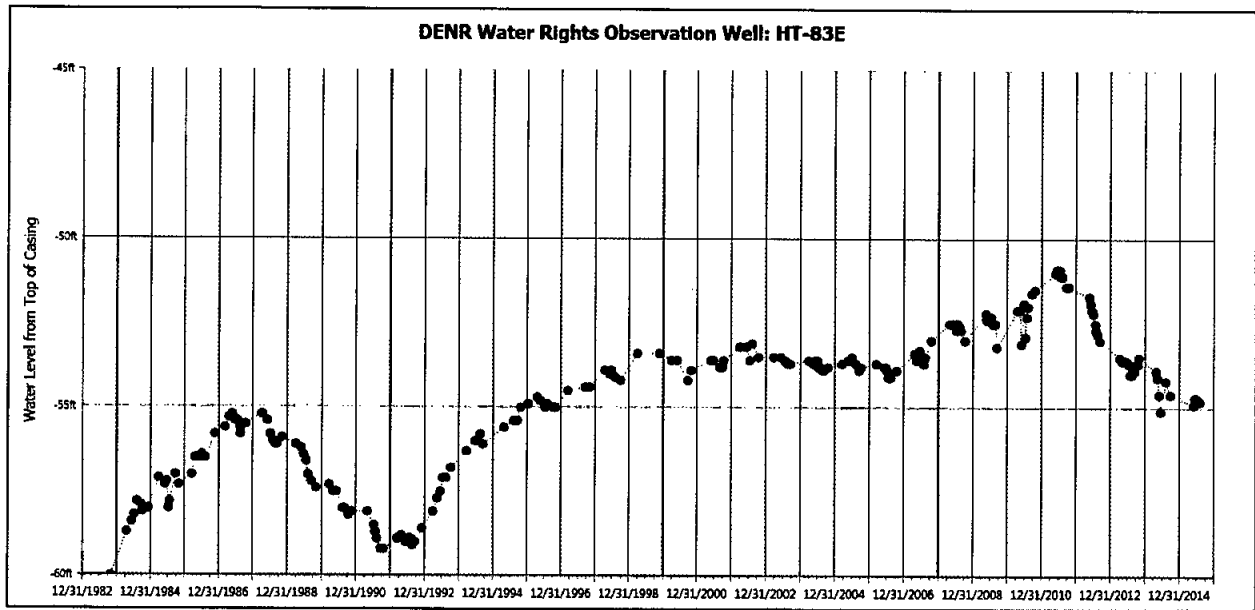


Figure 5. Observation well completed into the Codell aquifer where it underlies this erosional remnant of the Niobrara Formation (Water Rights 2016a).

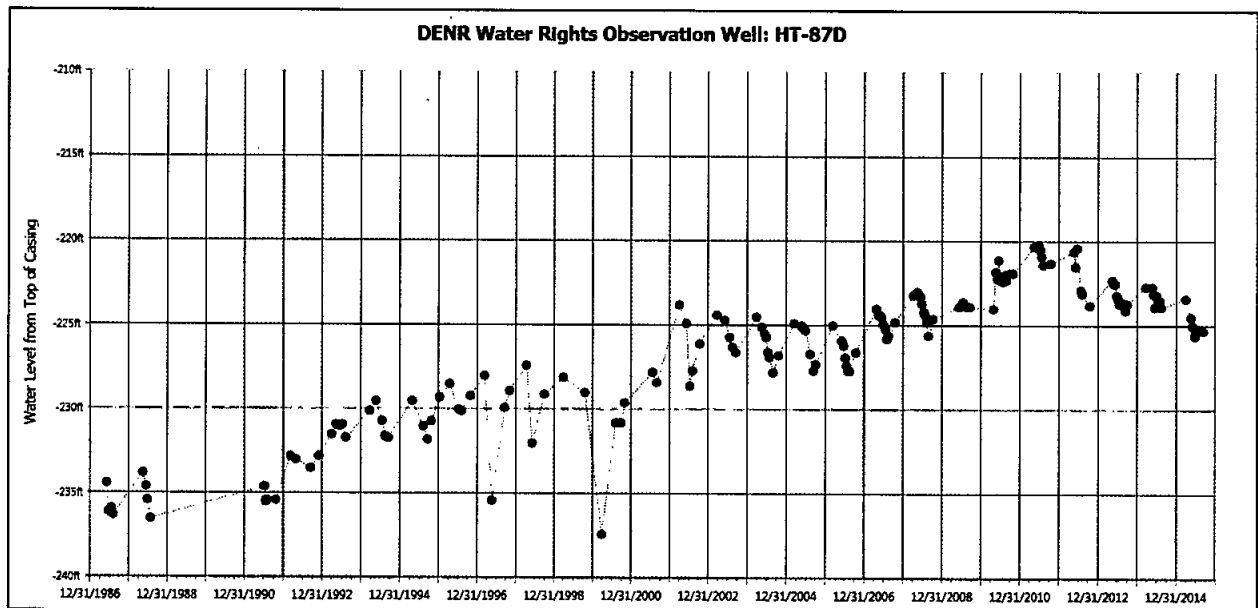


Figure 6. Observation well completed into the Codell aquifer where it underlies this erosional remnant of the Niobrara Formation (Water Rights 2016a).

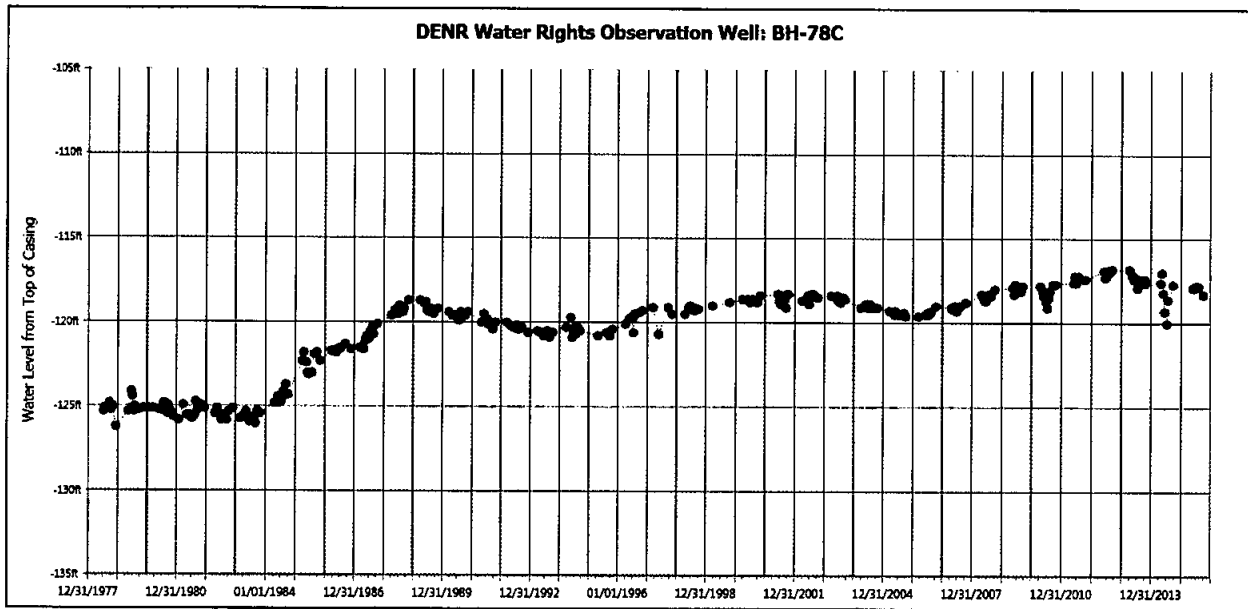


Figure 7. Observation well completed into the Choteau: West aquifer approximately 1.14 miles southwest of the well site proposed by this application (Water Rights, 2016a)

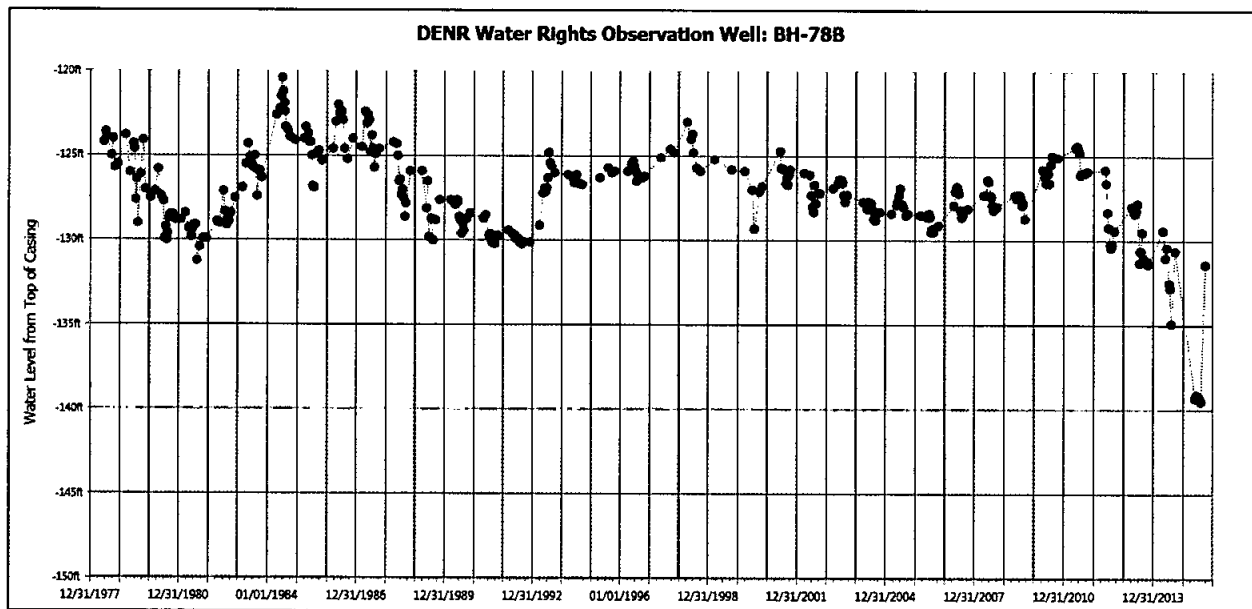


Figure 8. Observation well completed into the Choteau: Tyndall aquifer approximately 2.9 miles northeast of the well site proposed by this application (Water Rights, 2016a)

Existing Water Rights:

The water rights/permits appropriating water from this portion of the Niobrara are shown in Figure 2 and identified in Table 1. There are six water rights/permits appropriating water from the Niobrara aquifer from this erosional remnant within approximately 2.25 miles of the well site proposed by this application. This well site is located over one mile from the nearest Niobrara aquifer well authorized by a water permit/right (Water Permit No. 6373-3).

The Niobrara aquifer is under water table conditions in this area, consequently, drawdown is not expected to be significant far from a pumping well. In addition, the completion report for this existing well reported only 23 feet of drawdown after 8 hours of pumping at 500 gpm. Considering the unconfined conditions, the high specific capacity (i.e. 21.74 gpm/ft) and subsequent high transmissivity, drawdown from this proposed appropriation is not expected to be adversely impact existing users. Considering the proximity of irrigation wells completed into this isolated Niobrara aquifer in this area without a history of controversy, unlawful impairment of existing rights is not expected.

CONCLUSIONS:

1. This application proposes to appropriate water from an erosional remnant that is isolated from the main body of the Niobrara Formation by a deep channel that has completely incised the Niobrara.
2. The average annual withdrawal that can be expected if this application is approved will be less than 140 acre-feet per year.
3. This application proposes to divert water at a maximum diversion rate of 1.11 cfs (approximately 498 gallons per minute).
4. The aquifer is under unconfined conditions at the well site proposed by this application.
5. The well this application proposes to use has been constructed.
6. Recharge and/or natural discharge from this isolated Niobrara aquifer is through the aquifer's hydrologic connection with the Codell, Choteau: West, Choteau: Tyndall, and possibly Lower James Missouri: Scotland aquifers.
7. The hydrograph for an observation well completed into this isolated Niobrara aquifer documents that the hydrology of the aquifer is dominated by recharge and natural discharge from the aquifer.
8. Since the temporal impacts of well withdrawals are masked by recharge and natural discharge additional water is available for appropriation from this isolated Niobrara aquifer.
9. Withdrawals at this location are not expected to affect groundwater flow between the Choteau: Tyndall aquifer and this isolated Niobrara aquifer.
10. This well site is over one mile from existing wells supplying water rights/permits from the Niobrara aquifer.
11. Considering the proximity of irrigation wells completed into this isolated Niobrara aquifer in this area without a history of controversy, unlawful impairment of existing rights is not expected.
12. Adequate domestic wells will not be adversely impacted by well diversions proposed by this application.



Ken Buhler
SD DENR-Water Rights

REFERENCES:

- Capen, B., 2014, Report to the Chief Engineer, Water Permit Application No. 8060-3, Douglas Johnson, December 31, 2014: SD DENR-Water Rights Program Water Permit File 8060-3
- Christensen, C.M., 1974, Geology and Water Resources of Bon Homme County, South Dakota, Part I: Geology: South Dakota Geological Survey Bulletin 21(1), pg.8, Plate 1
- Friedeman, Barbara. "Personal Communication." Personal interview. 13Apr. 2016
- Goodman, J.A., 2003, Report on Water Permit No. 6373-3 For Ernest R. Namminga, January 6, 2003: SD DENR-Water Rights Program Water Permit File 6373-3
- 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.
- Jorgensen, D.G., 1971, Geology and Water Resources of Bon Homme County, South Dakota: Part II: Water Resources: South Dakota Geological Survey Bulletin 21(2), 61 p. 33 figs. 15 tables
- Kume, J., 1977, Geology and Water Resources of Charles Mix and Douglas Counties, South Dakota, Part II: Water Resources: South Dakota Geological Survey Bulletin 22 (2), 31 p., 23 figs. 8 tables.
- Lindgren, R.J., and Hansen, D.S., 1990, Water Resources of Hutchinson and Turner Counties, South Dakota: U.S. Geological Survey Water Resources Investigation Report 90-4093, 100 p.
- Lithologic Logs Search. (n.d.). Retrieved April 02, 2016, from <http://www.cf.sddenr.net/lithdb/>
- Tomhave, D.W., and Schulz, L.D., 2004, Bedrock Geologic Map Showing Configuration of the Bedrock Surface in South Dakota East of the Missouri River: South Dakota Geological Survey General Map 9, scale 1:500,000
- "Transmissivity from Specific Capacity." Aquifer Test Forum sponsored by HydroSOLVE, Inc. 11 April 2016< <http://www.aqtesolv.com/forum/transcap.asp>
- Water Rights, 1995-2015, Irrigation Water Use Summaries 1994-2014, South Dakota DENR-Water Rights Program, Joe Foss Building, Pierre, SD
- Water Rights Program, 2016a, "Water Permit/Right Files", South Dakota DENR-Water Rights Program, Joe Foss Building, Pierre, SD

Water Rights Program, 2016b, "Well Completion Report Files", South Dakota DENR-Water Rights Program, Joe Foss Building, Pierre, SD

Water Rights Program, 2016c, "Observation Well Database", South Dakota DENR-Water Rights Program, Joe Foss Building, Pierre, SD

Affidavit of Publication

RECEIVED

MAY 31 2016

State of South Dakota }
County of Bon Homme } SS

WATER RIGHTS
PROGRAM

Rebecca Ly Being first duly sworn
says that the **Springfield Times** is a legal weekly newspaper for publication of legal and other official notices as required by Chapter 298 of the Session Laws of South Dakota, 1939; that it has bona fide paid circulation of more than two hundred copies weekly; that it is published in English language in the City of Springfield, Bon Homme County, South Dakota, and has been admitted to the United States mail under second class mailing privilege for more than one year prior to the first publication of the notice herein mentioned, and that it is printed in an office maintained at the place of publication at Springfield, South Dakota, and that deponent is the publisher in charge of the advertising department of said newspaper; that the advertisement headed

Not. of Application # 8210-3

67 @ 38.0

a printed copy of which is hereto attached, was printed and published in said newspaper for one successive weeks, upon the following dates:

<u>May 18, 2016</u>	20.....
.....20.....	20.....
.....20.....	20.....
.....20.....	20.....

That the full amount of the fee charged for the publication of said notice, \$ 25.46, inures 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 has been agreed to be paid to any person whomsoever.

Rebecca Ly publisher
Subscribed and sworn to before me this

18 day of May 2016.
Peggy Schelske
Notary Public, South Dakota
my Commission expires 10-24-2021

NOTICE OF APPLICATION

NO. 8210-3 to Appropriate Water

Notice is given that Craig Vanderlei, 40908 312th St, Springfield SD 57062 has filed an application for a water permit to appropriate 1.11 cubic feet of water per second from one well to be completed into the Niobrara Aquifer (203 feet deep) located in the SE 1/4 NE 1/4 Section 34 for irrigation of 140 acres located in the NE1/4 Section 34; all in T94N-R61W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8210-3 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 May 31, 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 \$25.46

(May 18)

RECEIVED

MAY 23 2016

WATER RIGHTS
PROGRAM

AFFIDAVIT OF PUBLICATION

YANKTON DAILY PRESS AND DAKOTAN

CRAIG VANDERLEI
40908 312TH ST
SPRINGFIELD SD 57062

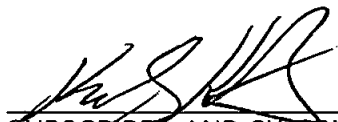
STATE OF SOUTH DAKOTA
COUNTY OF YANKTON

KELLY HERTZ, BEING FIRST DULY SWORN ON OATH DEPOSES
AND SAYS THAT (S)HE IS THE MANAGING EDITOR OF YANKTON
MEDIA INC, A CORPORATION, THE PRINTER AND THE PUBLISHER OF THE
YANKTON DAILY PRESS AND DAKOTAN, A LEGAL DAILY NEWSPAPER
PUBLISHED AND CIRCULATED IN THE CITY OF YANKTON, SAID COUNTY
AND STATE, AND ONE OF THE OFFICIAL NEWSPAPERS OF THE SAID
COUNTY OF FACTS STATED IN THIS AFFIDAVIT; THAT THE ANNEXED
5+18 NOTICE OF APPLICATI

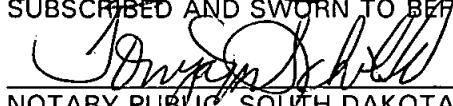
TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE
NEWSPAPER ON THE 18th DAY OF May, 2016
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION
OF SAID NOTICE TO WIT \$25.18 ENSURES TO THE
BENEFITS OF THE PUBLISHER OF SAID NEWSPAPER AND THAT NO
AGREEMENT AND UNDERSTANDING FOR THE DIVISION THEREOF HAS
BEEN MADE WITH ANY OTHER PERSON, AND THAT NO PART THEREOF
HAS BEEN AGREED TO BE PAID TO ANY PERSON WHOMSOEVER.

PUBLISHED ON: 05/18/2016

FILED ON: 05/19/2016



SUBSCRIBED AND SWORN TO BEFORE ME THIS 19th DAY OF May, 2016



NOTARY PUBLIC, SOUTH DAKOTA
MY COMMISSION EXPIRES 08/19/2021

Ad text : 5 + 18

NOTICE OF APPLICATION NO. 8210-3 to Appropriate Water

Notice is given that Craig Vanderlei, 40908 312th St, Springfield SD 57062 has filed an application for a water permit to appropriate 1.11 cubic feet of water per second from one well to be completed into the Niobrara Aquifer (203 feet deep) located in the SE 1/4 NE 1/4 Section 34 for irrigation of 140 acres located in the NE1/4 Section 34; all in T94N-R61W.

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Steven M. Pirner, Secretary, Department of Environment and Natural Resources.
Published once at the total approximate cost of \$25.18.

Schlaak, Karen

From: Schlaak, Karen
Sent: Tuesday, May 10, 2016 8:32 AM
To: times@gwtc.net
Subject: 8210-3, Craig Vanderlei
Attachments: 8210-3publicnov2015.short1.docx; FORM8.FRM.doc

Attached is a notice to be published on May 18, 2016.

Craig Vanderlei, 40908 312th St, Springfield SD 57062 (605 369-2609 c – 605 661-2618) 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: Tuesday, May 10, 2016 8:32 AM
To: 'Tera Schmidt'
Subject: 8210-3, Craig Vanderlei
Attachments: 8210-3publicnov2015.short1.docx; FORM8.FRM.doc

Attached is a notice to be published on May 18, 2016.

Craig Vanderlei, 40908 312th St, Springfield SD 57062 (605 369-2609 c – 605 661-2618) has been notified to contact you to authorize publication and arrange for payment.

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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.**

May 9, 2016

Craig Vanderlei
40908 312th St
Springfield SD 57062

Dear Mr. Vanderlei:

Water Permit Application No. 8210-3 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 Springfield Times printed at Springfield SD (Ph # 605-396-2441) and the Press & Dakotan printed at Yankton SD (Ph # 605-665-7811). You will need to contact the newspaper(s) and authorize publication of this notice. For your information, a copy of the notice, the 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.

Instruction to Newspaper - Publish the Notice on May 18, 2016. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 8210-3 to Appropriate Water

Notice is given that Craig Vanderlei, 40908 312th St, Springfield SD 57062 has filed an application for a water permit to appropriate 1.11 cubic feet of water per second from one well to be completed into the Niobrara Aquifer (203 feet deep) located in the SE 1/4 NE 1/4 Section 34 for irrigation of 140 acres located in the NE1/4 Section 34; all in T94N-R61W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8210-3 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 May 31, 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

JUN 27 2016

Craig Vanderlei
40908 312th St
Springfield SD 57062

Dear Mr. Vanderlei:

Enclosed is Water Permit No. 8210-3 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

enclosures

8210-3

RECEIVED

DEC 14 2016

WATER RIGHTS
PROGRAMNOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USEDate 12-10-16TO: Water Rights Program, DENR
523 E. Capitol
Pierre, SD 57501-3181

FROM:

Craig Vanderlei
(name)40908 312th St
(address)Springfield SD 57062
(city, state, zip)605-369-2609
(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.

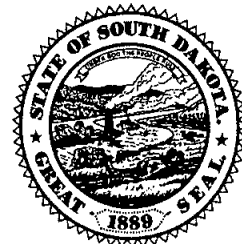
Water Permit No. 8210-3 states that the water use system is to be constructed by May 31, 2021, and water is to be put to beneficial use by May 31, 2025.
(date) (date)

The water use system was completed on 7-11-16.
(date)

Applying the water to beneficial use was completed on 7-11-16.
(date)

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

Craig Vanderlei
(signature)





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

December 15, 2016

8210-3

Craig Vanderlei
40908 312th St
Springfield SD 57062

Dear Mr. Vanderlei:

I am writing to acknowledge receipt of the "Notice of Completion of Works" form that you sent in to let us know that you are completed with your irrigation system.

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. 8210-3

I have this day, February 22, 2018, made a thorough examination of the water use system constructed by Craig Vanderlei, 40908 312 St., Springfield, SD 57062 of Permit No. 8210-3, bearing the priority of March 25, 2016 authorizing the diversion of 1.11 cu. ft. per second of the waters of ground water (Niobrara Aquifer) for irrigation purposes, in Bon Homme County.

Inspection contact: Craig Vanderlei, Owner

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: Heine Elecectric and Irrigation, Inc.
- 2) No. of Wells 1
- 3) Depth 203 feet
- 4) Well log is available Yes

Casing:

- 1) Diameter 16 inches
- 2) Length 161 feet
- 3) Type PVC

Screen:

- 1) Type PVC
- 2) Length 42 feet
- 3) Static water level 160 feet

Pump:

- 1) Make Grundfos
- 2) Model 475S500-5
- 3) Capacity 500 gpm

Motor:

- 1) Make Wilo
- 2) Model No. unknown
- 3) Horsepower rating 60 hp

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

- 1) Type PVC
- 2) Size 8 inches
- 3) Length 1,350 feet

C. Works used to apply water to beneficial use:

Center pivot:

- 1) Make T & L
- 2) Overall length 1,294 feet
- 3) Number of towers 8
- 4) End gun Yes
- 5) Capacity 500 gpm

Chemigation Equipment:

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

D. Compliance with Permit Requirements:

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

E. Condition and Location:

1. The system is in good condition with the point of diversion located as follows: Well: 1,790 feet south and 60 feet west of the NE corner of Section 34-T94N-R61W (Latitude 42.91840, Longitude -98.03056), in the SE1/4 of the NE1/4 of Section 34.

2. The works are capable of diverting and conveying to the place of use 1.11 cu. ft. per second of water which is to be used for irrigation purposes. Water has been put to beneficial use to the maximum extent as follows: All in Section 34-T94N-R61W

<u>NW1/4 NE1/4</u>	<u>33 acres</u>
<u>SW1/4 NE1/4</u>	<u>32 acres</u>

<u>NE1/4 NE1/4</u>	<u>33 acres</u>
<u>SE1/4 NE1/4</u>	<u>32 acres</u>

comprising a total of 130 acres of land and the license should be issued for 1.11 cfs.

3. All structures, wells and lands on map Yes

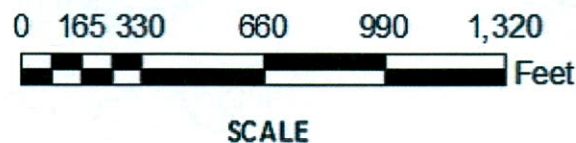
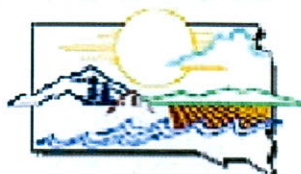
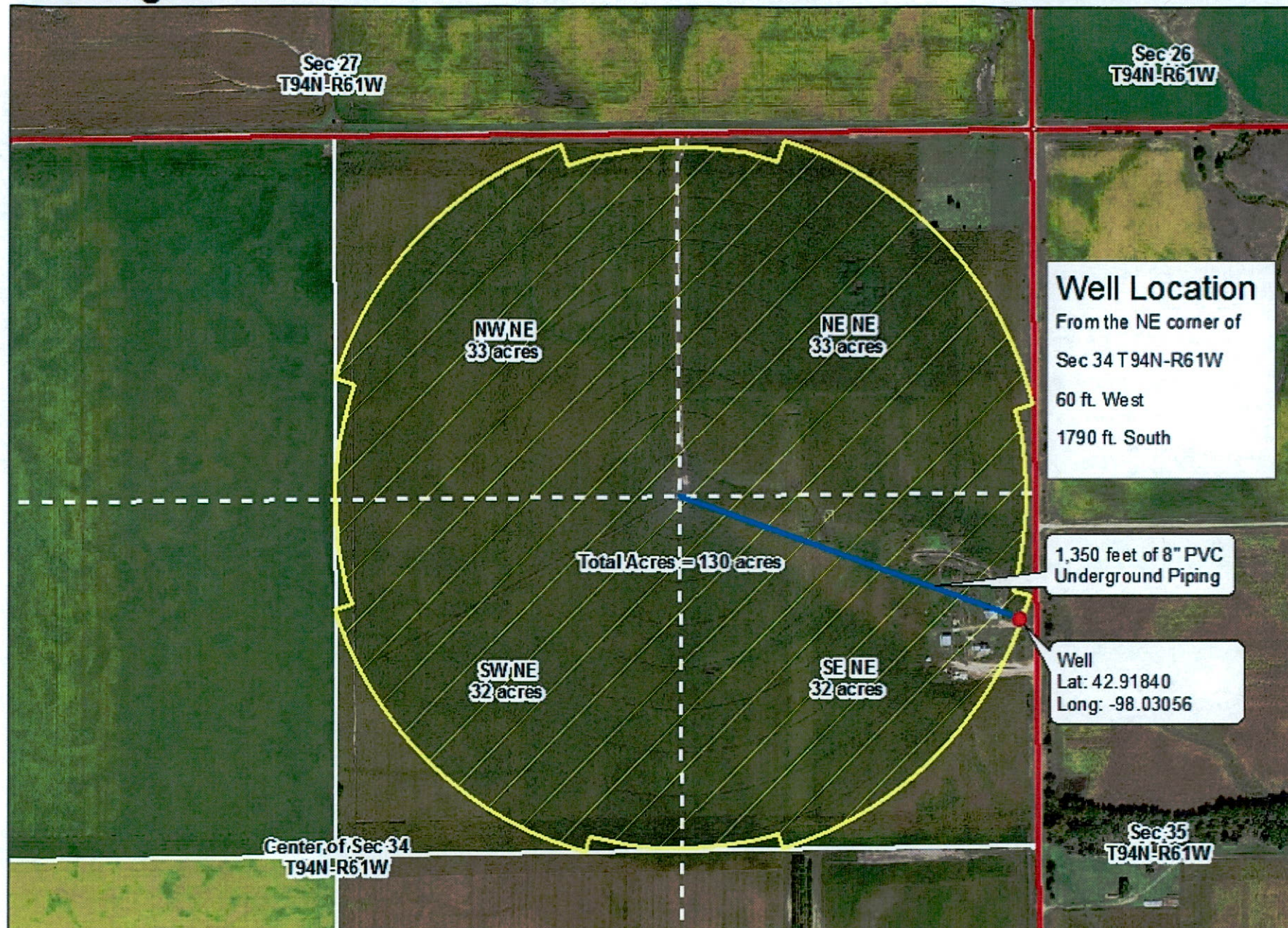
F. Comments or other permit(s) associated with the project: The old farmstead shown on the aerial location map has been removed and the center pivot makes a full circle.



Keith DeJong
Water Rights Inspector
DENR, Water Rights Program

Date report completed: March 23, 2018

Water Right No. 8210-3



Keith DeJong
Keith DeJong, PE
Staff Engineer
March 23, 2018

8210-3



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

MAY 21 2018

Craig Vanderlei
40908 312th St
Springfield SD 57062

RE: Water License Nos. 7195-3, 7402-3, 7403-3, 8210-3, 8272-3

Dear Mr. Vanderlei:

Enclosed are Water License Nos. 7195-3, 7402-3, 7403-3, 8210-3, 8272-3. They are the final water right documents completing your process of obtaining Water Rights. Included with each license is a map prepared by the staff engineer who conducted the field investigations.

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.

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

enclosures

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 8210-3

(1) Craig Vanderlei, 40908 312 St., Springfield, SD 57062 made Application No. 8210-3, March 25, 2016 for a water permit to divert 1.11 cubic feet of water per second from ground water, one well (Niobrara Aquifer), Bon Homme County, South Dakota for irrigation purposes. Permit No. 8210-3, with a priority date of March 25, 2016 was approved May 31, 2016 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before May 31, 2021 and for the application to beneficial use of said water on or before May 31, 2025.

The Permit holder submitted a "*Notice of Completion of Works and Application of Water to Beneficial Use*" on December 14, 2016. The "*Notice*" stated the water use system was completed and water placed to beneficial use on July 11, 2016.

(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 1.11 cubic feet of water per second for beneficial use. The location of the diversion point is:

- 1,790 feet south and 60 feet west of the NE corner of Section 34, T94N, R61W (SE ¼ NE ¼)
Latitude 42.91840, Longitude -98.03056

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

Section 34, T94N, R61W	NW ¼ NE ¼	33 acres
	NE ¼ NE ¼	33 acres
	SW ¼ NE ¼	32 acres
	SE ¼ NE ¼	32 acres
	Total	130 acres

(4) Pursuant to South Dakota Water Law 46-5-30.1 Craig Vanderlei, 40908 312 St., Springfield, SD 57062 the holder and/or owner of Water Right No. 8210-3 is issued a license to appropriate water, the right to use 1.11 cubic feet of water per second from ground water, one well (Niobrara Aquifer) with a priority date of March 25, 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. 8210-3 and subject to the following qualifications:

- The well approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.

continued

- The well authorized by Permit No. 8210-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with the Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28. ***The well was drilled in March, 2016 by Heine Electric & Irrigation Inc. A copy of the well completion report is on file with the Water Rights Program.***
- This Permit is approved subject to the irrigation water use questionnaire being submitted each year.



Jeanne Goodman, Chief Engineer
Water Rights Program

Department of Environment and Natural Resources

MAY 21 2018

date

