

WATER PERMIT NO. 8484-3

Name of Applicant: Dean Lindstrom and John Lindstrom

Address: 30524 466th Ave, Beresford SD 57004 Phone: 605 351-5937

Amount of Water Claimed: 1.78 cfs Total Acres: 120 acres

Source of Water Supply: groundwater (one well)

Water to be used for: irrigation County: Clay

Type of Waste Disposal System:

Location: 12 miles northeast of Vermillion

PRIORITY Date Received: 1-22-21

Application/License Fee: \$ 950

Corrected Application Received: 2-1-21

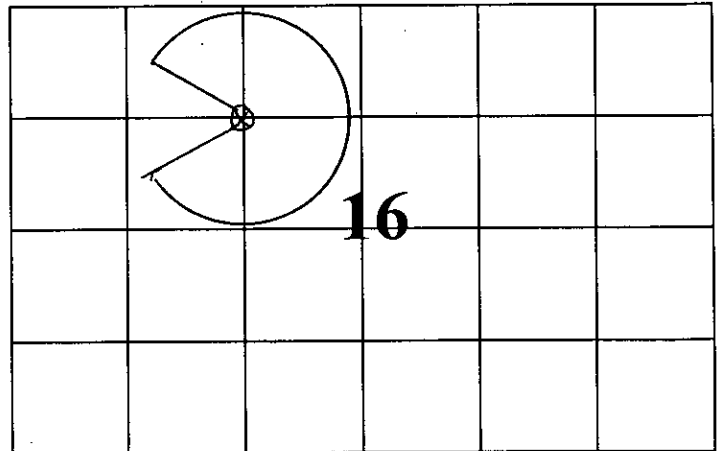
Period of Annual Use: April 1 – September 30

Remarks: Requesting diversion rate greater than statutory limit

Diversion Point: approximate center of NW 1/4

Sec 16-T94N-R51W

Land to be Irrigated: NW 1/4 Sec 16-T94N-R51W



Depth of Well: 125 feet deep

Well Driller:

Remarks:

Type of Map: aerial

Prepared by: 2-1-21

Reviewed and the Number Assigned on: XX

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

**SOUTH DAKOTA
WATER PERMIT NO. 8484-3**

Date of first receipt of application January 22, 2021.

Date of return to applicant for corrections, amendments or changes January 25, 2021.

Date of receipt of corrected application February 1, 2021.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8484-3 to Dean Lindstrom and John Lindstrom, 30524 466th Ave, Beresford SD 57004 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. 8484-3 appropriates 1.78 cubic feet of water per second (cfs) from one well to be completed into the Lower Vermillion Missouri Aquifer (125 feet deep) located in the approximate center of the NW 1/4 Section 16 for irrigation of 120 acres located in the NW 1/4 Section 16; all in T94N-R51W. This site is located approximately 12 miles northeast of Vermillion SD.
2. The amount of the appropriation may not exceed 2 acre feet annually for each acre of land to which water is actually and beneficially applied for irrigation. The water is to be used during the following described annual period: April 1 – September 30.
3. The date from which applicant may claim right is January 22, 2021.
4. The date of approval of Permit No. 8484-3 is April 12, 2021.
5. One-fifth of the construction is to be completed on or before October 12, 2023.
6. All construction is to be completed on or before April 12, 2026.
7. Water is to be put to beneficial use on or before April 12, 2030.
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 Water Permit No. 8484-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The well authorized by Permit No. 8484-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Permit No. 8484-3 authorizes a maximum diversion rate of 1.78 cfs for the irrigation of 120 acres with an annual volume not to exceed 2 acre feet of water per acre per year.
4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

By: Eric Gronlund
Eric Gronlund, Chief Engineer
Water Rights Program
Department of Agriculture and Natural Resources

APR 19 2021

date



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>8484-3</u>	(office use only) Hydrologic Unit <u>10170102</u>
	Basin <u>Vermillion River</u>	
	Newspaper <u>Plain Talk, Vermillion</u>	
	<u>Press & Dakotan, Yankton</u>	

PAID

JAN 22 2021

RECEIVED

JAN 22 2021

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.)

1. Name to Appear on Irrigation Permit Dean Lindstrom and John Lindstrom

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

Mailing Address 30524 466th Ave Beresford ☒ SD ☒ 57004
(Address) (City) (State) (Zip Code)Phone _____ Mobile 605-351-5937 Email johnlindstrom@hotmail.com2. Amount of water claimed 1.78 *CFS or 800 **GPM _____ ***AF Total Acreage 120
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)3. Source of water supply south management unit of the Upper Vermillion-Missouri aquifer (125' deep)4. Location of point of diversion SE 1/4 of NW 1/4, Section 16 of T94n R51W (approximate center)
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)County Clay ☒5. County or counties where water will be used Clay6. Annual period during which water is to be used April 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
nw1/4,nw1/4, Section 16, T94nR51w	28		
ne1/4,nw1/4, Section 16, T94nR51w	32		
sw1/4,nw1/4, Section 16, T94nR51w	32		
se1/4,nw1/4, Section 16, T94nR51w	28		

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

Center pivot irrigation of the above listed property. Greater than the statutory discharge limit requested due to windshield wipe application necessary because of farmstead within circle of irrigation.

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FEB 01 2021

WATER RIGHTS
PROGRAMX I, Dean Lindstrom

Name of Person

owner

Title (if applicable)

, the applicant, certify under

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

Supplemental Information

(type or print)

1. Well Information (check one or both as applicable) ☐ Drilling new well(s) ☐ Using existing well(s)a) If new wells, how many 1 Have test holes been drilled ☒ Yes ☐ No Drilled by Hammond Wetmore
(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:

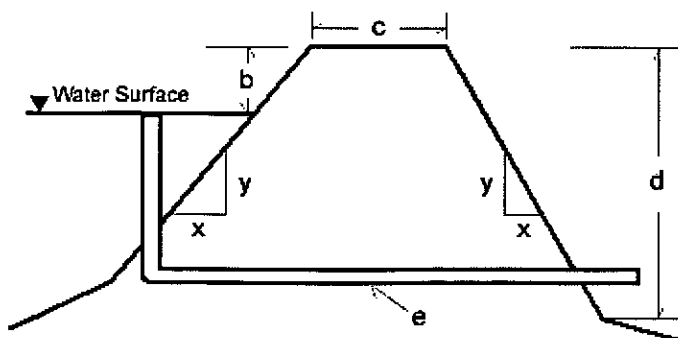
c) Well Depth (required) 125 Depth to Top of Water Bearing Material 61 Depth to Water from Surface 70d) Distance to nearest domestic well on applicant's property Property owned by others **2. Wastewater Disposal System Information**a) Type of System (i.e. septic tank, drain field) b) System Capacity (gallons) Year Constructed c) Connected to the City of Sanitary System **3. Dugout Information**a) Surface Dimensions Depth b) Depth to water (ground surface to water level) **4. Water Storage Dams**

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

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

b) Freeboard c) Crest Width Crest Length d) Height e) Primary Outlet Capacity If pipe, diameter f) Secondary Spillway Capacity Spillway Width

g) X & Y Slope (e.g. 3 to 1 is a typical slope)

Upstream Downstream h) Surface Area of Impoundment i) Storage Acre Feetj) Drainage Area Above Dam Acres

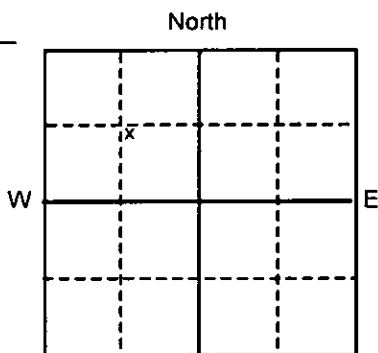
SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location se 1/4 nw 1/4 Sec 16 Twp 94n Rg 51w

County clay

Please mark well location with an "X"



Well Completion Date

September 29, 2014



Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
1,400.0 ft. from septic system (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

direct rotary

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>LB/FT</u>	<u>IN</u>	<u>FT</u>	<u>FT</u>	<u>8.00 IN</u>
<u>LB/FT</u>	<u>IN</u>	<u>FT</u>	<u>FT</u>	<u>IN</u>
<u>LB/FT</u>	<u>IN</u>	<u>FT</u>	<u>FT</u>	<u>IN</u>

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
<u>bentonite</u>	<u>14</u>	<u>9.5 Lb/gal</u>	<u>0.0 Ft</u>	<u>130.0 Ft</u>
		<u>Lb/gal</u>	<u>Ft</u>	<u>Ft</u>

Describe grouting procedure
tremie

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 analysis

Well Owner: John Lindstrom

Business Name:

Address: 30524 466th Ave.

City, State, Zip: Beresford, SD 57004

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
topsoil, dark brown	0	2
Clay, yellow-brown, silty, pebbly	2	44
gravel, coarse	44	46
Clay, yellow brown, silty, pebbly	46	50
clay, gray, soft silty	50	61
gravel, sand, very rocky	61	125
Shale, gray, soft, sticky	125	131

STATIC WATER LEVEL 70.0 FEET

If flowing: closed in pressure PSI

GPM flow through Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other

Reduced flow rate GPM

Can well be completely shut in?

WELL TEST DATA:

☐ Pumped Describe:
☐ Bailed
☐ Other

Pumping Level Below Land Surface

 Ft. After Hrs. pumped GPM

 Ft. After Hrs. pumped GPM

If pump installed, pump rate: GPM

REMARKS

This well was drilled under license # 666 and this report is true and accurate.

Drilling firm: Hammond Wetmore Drilling LLC

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date:

Lindstrom Irrigation

NW 1/4 of Sect 16, T94n R51w
Clay County SD

NW Corner, Sect 16

305th St

466th Ave

well

Google Earth

© 2020 Google



1000 ft



94N 51W
Section: 08

94N 51W
Section: 09

94N 51W
Section: 10

94N 51W
Section: 17

94N 51W
Section: 16

94N 51W
Section: 15

94N 51W
Section: 20

94N 51W
Section: 21

94N 51W
Section: 22

RECEIPT

WATER RIGHTS PROGRAM South Dakota Department of Environment and Natural Resources

Date January 22, 2021

RECEIVED OF John T Lindstrom 30524 466th Ave Beresford SD 57004

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

Fee for Application for Permit No. <u>8484-3</u> to Appropriate Water, to construct and to put water to beneficial use	\$750.00
Fee for Application for Permit No. _____ to Appropriate Water for Future use	\$
Fee to retain Future Use Permit No. _____ after period of seven years.	\$
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. <u>8484-3</u>	\$200.00
Fee for Filing Transfer Form _____	\$
Fee for _____	\$
Fee for Issuing New Well Driller's License No. _____	\$
Fee for Renewal of Well Driller's License No. _____	\$
Fee for Issuing Well Pump Installer's License No. _____	\$
Fee for Renewal of Well Pump Installer's License No. _____	\$
(Any Other Work Provided by Law)	
TOTAL	\$950.00

By Eric Gronlund
Chief Engineer
Eric



DENR
SOUTH DAKOTA

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

January 25, 2021

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FEB 01 2021

**WATER RIGHTS
PROGRAM**

Dean Lindstrom and John Lindstrom
30524 466th Ave
Beresford SD 57004

Dear Sirs:

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

- The application is being returned for a signature at the bottom of the application form. Please sign and return the application to us.

If you have any questions, please contact me.

Sincerely,

Karen Schlaak

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

enclosure



DENR
SOUTH DAKOTA

**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. 8484-3, Dean Lindstrom and John Lindstrom**

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. 8484-3, Dean Lindstrom and John Lindstrom, 30524 466th Ave, Beresford SD 57004.

The Chief Engineer is recommending APPROVAL of Application No. 8484-3 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 Water Permit No. 8484-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The well authorized by Permit No. 8484-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Permit No. 8484-3 authorizes a maximum diversion rate of 1.78 cfs for the irrigation of 120 acres with an annual volume not to exceed 2 acre feet of water per acre per year.
4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.

Eric Gronlund, Chief Engineer
March 22, 2021

Report to the Chief Engineer
On Water Permit Application No. 8484-3
Dean Lindstrom and John Lindstrom

March 22, 2021

Water Permit Application No. 8484-3 proposes to appropriate water at a maximum instantaneous diversion rate of 1.78 cubic feet of water per second (cfs) from one well to be completed into the Lower Vermillion Missouri aquifer (125 feet deep) and located in the approximate center of the NW ¼ of Section 16 for the irrigation of 120 acres located in the NW ¼ of Section 16; all in T94N-R51W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. The site is located in Clay County approximately twelve miles northeast of Vermillion, South Dakota.

AQUIFER: Lower Vermillion Missouri (LVM)

HYDROGEOLOGY:

The Lower Vermillion Missouri aquifer is a buried glacial outwash that was deposited by meltwater streams beyond the margin of active glacial ice (Stephens, 1967). The aquifer materials range in size from a coarse sand to a coarse gravel (Niehus, 1994). The Lower Vermillion Missouri aquifer is hydraulically connected to the Upper Vermillion Missouri: South aquifer to the north, the Missouri: Elk Point aquifer to the south, the underlying Dakota aquifer and the Vermillion River (Buhler, 2014; Mathiowetz, 2018; Niehus, 1994; Stephens, 1967). The Lower Vermillion Missouri aquifer and the Missouri: Elk Point aquifer are essentially one continuous outwash deposit that were identified by Hedges and others (1982) at the aquifer boundary transition from primarily buried outwash (Lower Vermillion Missouri aquifer) to primarily unburied outwash (Missouri: Elk Point aquifer).

A boundary between the Upper Vermillion Missouri aquifer and Lower Vermillion Missouri aquifer has been delineated by Hedges and others (1982); however, more recent investigations have concluded the Upper Vermillion Missouri: South (UVM:S) aquifer extends an unspecified distance further south than what was delineated by Hedges and others (1982) (Buhler, 2014; Holmes and Filipovic, 2015). Figure 1 displays a map of the historic Lower Vermillion Missouri aquifer boundary approximated by Hedges and others (1982) with a portion of the Upper Vermillion Missouri: South aquifer estimated by Buhler (2014). The areal extent of the historic Lower Vermillion Missouri aquifer boundary delineated by Hedges and others (1982) is approximately 124,000 acres (Table 1).

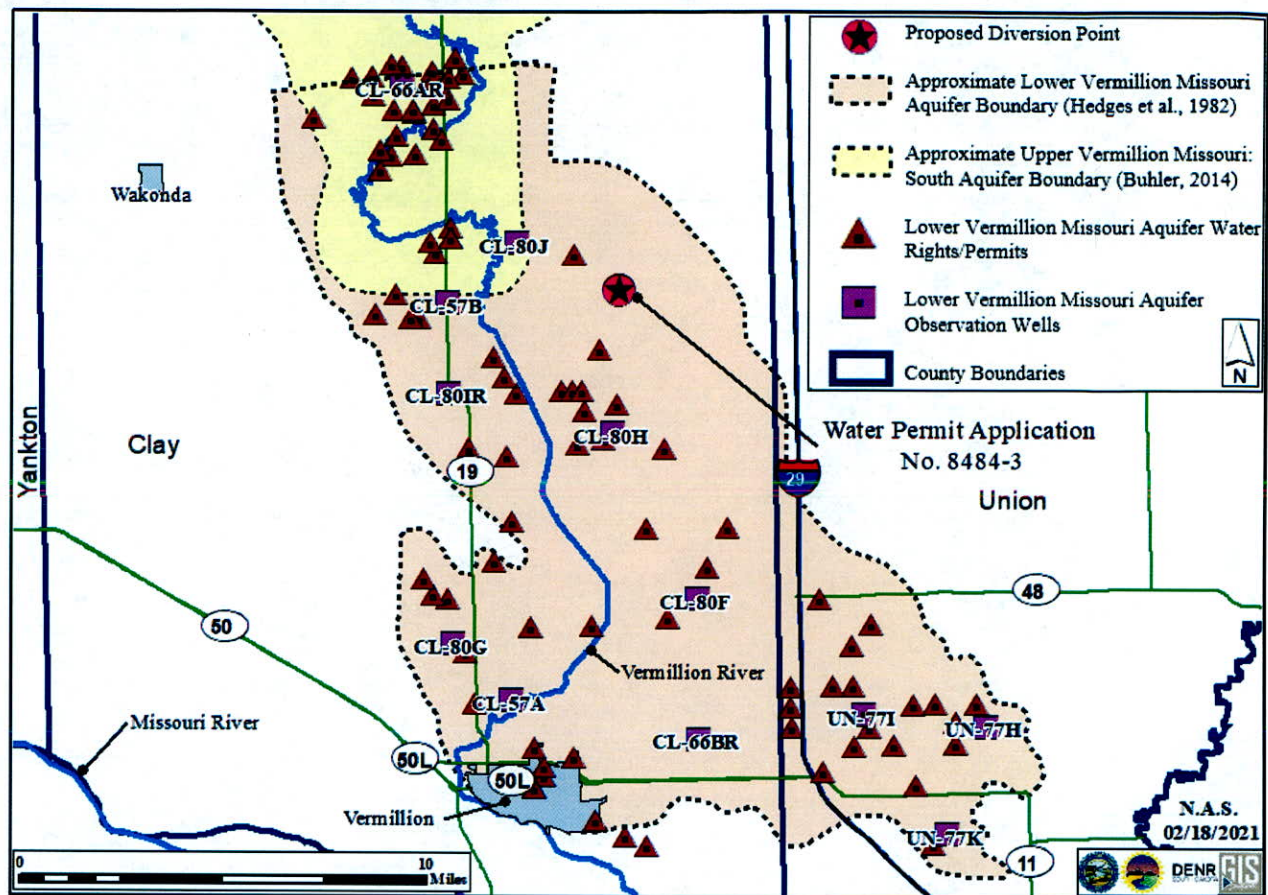


Figure 1. Map of the approximate LVM aquifer boundary delineated by Hedges and others (1982) with a portion of the UVM:S aquifer boundary estimated by Buhler (2014), the proposed diversion point for Water Permit Application No. 8484-3, and the LVM aquifer water rights/permits and observation wells (Water Rights, 2021b and 2021c)

Figure 2 displays the current aquifer boundary for the Lower Vermillion Missouri aquifer (modified from Mathiowetz, 2018). Mathiowetz (2018) delineated the current Lower Vermillion Missouri aquifer boundary essentially by subtracting Buhler's (2014) delineation of the Upper Vermillion Missouri: South aquifer from the historic aquifer boundary estimated by Hedges and others' (1982). Additionally, the first occurrence of aquifer materials maps for Clay and Union County were utilized in delineating the current aquifer boundary (Jensen, 2000; McCormick, 2004; Mathiowetz, 2020). The areal extent of the Lower Vermillion Missouri aquifer is approximately 106,000 acres (Table 1) (Mathiowetz, 2018).

The Lower Vermillion Missouri aquifer is primarily under confined conditions but can be locally unconfined, particularly near the Vermillion River floodplain (see Figure 2) (Niehus, 1994; Stephens, 1967). The alluvium, outwash, and sand and gravel deposits (0 to 50 feet below grade) mapped by Jensen (2000) along the Vermillion River are assumed to be unconfined portion of the Lower Vermillion Missouri aquifer (see Figure 2). In its entirety, the areal extent of the unconfined portion of the Lower Vermillion Missouri aquifer is approximately 23,000 acres (modified from Jensen, 2000; modified from Stonesifer, 2013). The unconfined portion of the Lower Vermillion Missouri aquifer that is located outside of Buhler's (2014) delineation of

Upper Vermillion Missouri: South aquifer is approximately 12,000 acres (Table 1) (modified from Jensen, 2000; modified from Stonesifer, 2013).

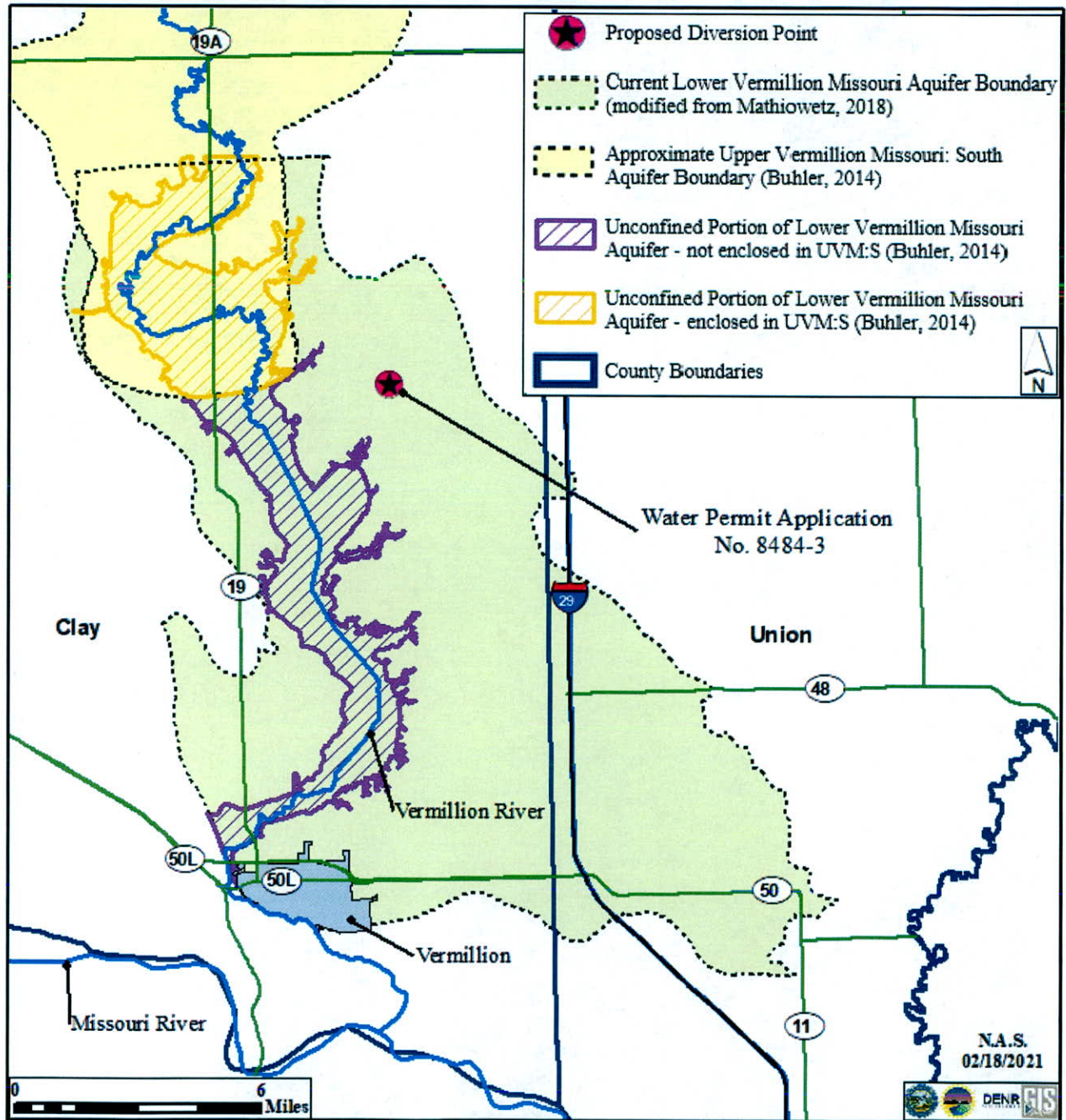


Figure 2. Map of the current LVM aquifer boundary (modified from Mathiowetz, 2018) with the portion of the UVM:S aquifer identified by Buhler (2014), the estimated unconfined portion of the LVM aquifer (modified from Jensen, 2000; modified from Stonesifer, 2013), and the proposed diversion point for Water Permit Application No. 8484-3

Table 1. Estimated areal extent for the historic LVM aquifer boundary (Hedges et al., 1982), the portion of the UVM: S (Buhler, 2014) aquifer that overlies the current LVM aquifer boundary, the current LVM aquifer boundary (Mathiowetz, 2018), and the unconfined portion of the LVM aquifer along the Vermillion River (modified from Jensen, 2000; modified from Stonesifer, 2013)

Delineation	Estimated Areal Extent (acres)
Historic Lower Vermillion Missouri Aquifer (modified from Hedges et al., 1982)	124,000
Upper Vermillion Missouri: South Aquifer (UVM:S) (modified from Buhler, 2014) - portion that overlies LVM aquifer boundary estimated by Hedges and others (1982)	18,000
Current Lower Vermillion Missouri Aquifer * (Mathiowetz, 2018)	106,000
Unconfined Portion of Lower Vermillion Missouri Aquifer - not enclosed in UVM:S (Buhler, 2014) (modified from Jensen, 2000; modified from Stonesifer, 2013)	12,000
* Estimated by subtracting UVM: S aquifer boundary (Buhler, 2014) from historic boundary (Hedges et al., 1982)	

In Clay County, the Lower Vermillion Missouri aquifer averages 100 feet thick and has a documented maximum thickness (known at that time from test holes) of 170 feet (Stephens, 1967). Additionally, the aquifer underlies about 75 percent of the land area of Clay County and contains an estimated five million acre-feet of recoverable water in storage (Stephens, 1967). The direction of groundwater movement in the Lower Vermillion Missouri aquifer is generally to the south (Niehus, 1994).

A test hole completion report was submitted with Water Permit Application No. 8484-3 for an existing test hole (drilled 131 feet deep on September 29, 2014) located in the SE ¼ NW ¼ of Section 16-T94N-R51W. The test hole completion report lists “topsoil, dark brown” from 0 to 2 feet below the ground surface, “Clay, yellow-brown, silty, pebbly” from 2 to 44 feet, “gravel, coarse” from 44 to 46 feet, “Clay, yellow brown, silty, pebbly” from 46 to 50 feet, “clay, gray, soft silty” from 50 to 61 feet, “gravel, sand, very rocky” from 61 to 125 feet, and “Shale, gray, soft, sticky” from 125 to 131 feet. A well completion report on file with the DENR-Water Rights Program for a Lower Vermillion Missouri aquifer well owned by the applicant and located approximately 0.2 miles southeast of the proposed diversion point lists “topsoil, dark brown” from 0 to 2 feet below the ground surface, “Clay, yellow-brown, silty, pebbly” from 2 to 30 feet, “Clay, gray, silty, pebbly” from 30 to 100 feet, “rocks” from 100 to 115 feet, “gravel, coarse” from 115 to 132 feet, and “Shale, gray, soft, sticky” from 132 to 142 feet (Water Rights, 2021d). The well was screened from 101 to 131 feet below the ground surface and had a static water level of 89 feet at the time of completion (September 26, 2014) (Water Rights, 2021d). Based on the submitted test hole completion report, nearby well completion reports, and lithologic logs on file for nearby observation wells, the Lower Vermillion Missouri aquifer is expected to be confined at the proposed diversion point (SDGS, 2021; Water Rights, 2021b and 2021d).

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

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

WATER AVAILABILITY:

Water Permit Application No. 8484-3 proposes to appropriate water from the Lower Vermillion Missouri aquifer. The probability of unappropriated water being available from the 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. An application may be approved, however, for withdrawals of groundwater from any groundwater formation older than or stratigraphically lower than the greenhorn formation in excess of the average estimated annual recharge for use by water distribution systems.” The Lower Vermillion Missouri aquifer is not older than or stratigraphically lower than the Greenhorn Formation, and the applicant’s proposed use is not for use in a water distribution system as defined by SDCL 46-1-6(17). Therefore, the average annual recharge and average annual withdrawal rates to and from the Lower Vermillion Missouri aquifer must be considered.

HYDROLOGIC BUDGET:

Recharge

Recharge to the Lower Vermillion Missouri aquifer occurs through seepage from the Vermillion River, groundwater inflow from the Upper Vermillion Missouri aquifer, and leakage from the underlying Dakota aquifer (Niehus, 1994; Stephens, 1967). The Lower Vermillion Missouri aquifer may also receive some recharge from the infiltration of precipitation, particularly for the unconfined portion of the aquifer in the Vermillion River floodplain.

Using observation well analysis, Hedges and others (1985) estimated a recharge rate to the unconfined portion of the Lower Vermillion Missouri aquifer to be approximately 3.8 inches per year. Stonesifer (2013) recalculated Hedges and others (1985) estimated recharge rate to be approximately 4.58 inches per year using observation well analysis with additional years of data. Stonesifer (2013) noted recharge and discharge/withdrawals occur concurrently. This results in the calculated recharge rate estimated by using Hedges and other’s (1985) method, being less than the actual recharge rate, because Hedges and others (1985) are only accounting for the recharge rate in excess of discharge plus withdrawals. The unconfined portion of the Lower Vermillion Missouri aquifer underlies approximately 12,000 acres (Jensen, 2000; Mathiowetz, 2018). Using Stonesifer’s (2013) recharge rate multiplied by the areal extent estimation, the

average annual recharge rate to the unconfined portion of the Lower Vermillion Missouri aquifer is approximately 4,580 acre-feet per year.

For this analysis, it is assumed that the confined portion of the Lower Vermillion Missouri aquifer recharges at a similar rate and is hydraulically similar to the confined portion of the Upper Vermillion Missouri aquifer. Using regional flow-net analysis, Hedges and others (1985) estimated a recharge rate to the Upper Vermillion Missouri aquifer, which is primarily confined, to be approximately 0.25 inches per year. This recharge rate is lower than the average recharge rate estimated for other buried and confined aquifers in eastern South Dakota (Hedges et al., 1985). It is worth noting that recharge rates calculated using regional flow-net analysis are suspect and conclusions based on this method are questionable (Hedges et al., 1985). The confined portion of the Lower Vermillion Missouri aquifer underlies approximately 94,000 acres. Using Hedges and others' (1985) recharge rate multiplied by the areal extent estimation, the average annual recharge rate to the confined portion of the Lower Vermillion Missouri aquifer is approximately 1,958 acre-feet per year. In its entirety, the average annual recharge rate to the Lower Vermillion Missouri aquifer is approximately 6,538 acre-feet per year.

Discharge

Discharge from the Lower Vermillion Missouri aquifer occurs through well withdrawals, groundwater outflow to the Missouri: Elk Point aquifer and seepage to the Vermillion River when the stage of the river is lower than the potentiometric surface of the aquifer (Niehus, 1994; Water Rights, 2021c)

There are 85 water rights/permits authorized to appropriate water from the Lower Vermillion Missouri aquifer within the historic aquifer boundary delineated by Hedges and others (1982) with 56 of those water rights/permits within the aquifer boundary currently delineated, plus one pending application – Water Permit Application No. 8479-3 requesting 1.84 acre-feet of water annually at a maximum instantaneous diversion rate of 0.133 cfs for industrial use (Water Rights, 2021c). This results in 29 water rights/permits within the Lower Vermillion Missouri aquifer boundary delineated by Hedges and others (1982) that are also within the Upper Vermillion Missouri: South aquifer boundary identified by Buhler (2014) that are still labeled as withdrawing water from the Lower Vermillion Missouri aquifer. It is worth noting, in the most recent previous Lower Vermillion Missouri aquifer report for Water Permit No. 8459-3, Water Right No. 4731-3 was included in the discharge analysis for the current aquifer boundary (Steen, 2020); however, it is now considered as withdrawing from the Upper Vermillion Missouri: South aquifer and will only be included in the discharge analysis for the historic aquifer boundary.

Table 2 summarizes the estimated annual use for the non-irrigation water rights/permits authorized to appropriate water from the Lower Vermillion Missouri aquifer within the historic and current aquifer boundary delineations, including the pending application (Hedges et al., 1982; Buhler, 2014). The estimated annual use for each water right/permit was determined by their limiting diversion rate or annual volume. The amount of water that can be withdrawn was estimated by assuming the non-irrigation water rights/permits limited by an annual volume will withdraw the entire appropriated volume every year. It is estimated that the non-irrigation water

rights/permits limited only by a diversion rate will pump at a maximum permitted diversion rate for 60 percent of the time. There are four non-irrigation water rights/permits authorized to appropriate water from the Lower Vermillion Missouri aquifer within the current boundary delineated, plus one pending water permit application. There are two non-irrigation water rights that are completed within Hedges and others' (1982) historic Lower Vermillion Missouri aquifer boundary and Buhler's (2014) Upper Vermillion Missouri: South aquifer boundary. The average annual withdrawal rate for the Lower Vermillion Missouri aquifer non-irrigation water rights/permits (including the pending application) within the historic aquifer boundary is approximately 1,224.4 acre-feet per year, and approximately 48.6 acre-feet per year within the current aquifer boundary (Table 2) (Water Rights, 2021c).

Table 2. Estimated average annual water use from the non-irrigation water rights authorized to appropriate water from the LVM aquifer (Water Rights, 2021c)

Permit No.	Name	Use	Status	Diversion Rate (cfs)	Annual Limit (acre-feet)	Estimated Use (acre-feet/year)
1870-3	USD Facilities MGMT	INS	LC	0.03		13.0
6397-3	SD Dept of Transportation	INS	LC	0.033		14.3
8222-3	Southeast Farmers COOP	COM	PE	0.167	18.4	18.4
8257-3	Thein Well Co Inc	COM	PE	0.089	1	1
8479-3	Concrete Materials	IND	<i>Pending</i>	0.133	1.84	1.84
					Total:	48.6
3905-3*	Clay Rural Water System Inc	RWS	LC	2		868.8
5979-3*	Clay Rural Water System Inc	RWS	LC	2	307	307
					Total:	1,175.8
*Within aquifer boundary delineated by Hedges and others' (1982) and Buhler's (2014) UVM:S boundary						
LC: Licensed Water Right, PE: Water Permit, INS: Institutional, IND: Industrial; COM: Commercial, RWS: Rural Water System						

There are 79 irrigation water rights/permits authorized to appropriate water from the Lower Vermillion Missouri aquifer within Hedges and others' (1982) historic aquifer boundary (Table 3) (Water Rights, 2021c). Water Permit No. 8459-3 was approved in December of 2020 and has not submitted an irrigation questionnaire form yet. Generally, irrigators using center pivots in eastern South Dakota apply less than one foot of water per acre per year. However, to account for the fluctuation in wet and dry cycles from year to year, the one foot of water per acre per year application rate will be used to liberally estimate the annual withdrawal rate for Water Permit No. 8459-3. When applying one foot of water over the 40 acres currently authorized to be irrigated under Water Permit No. 8459-3, the estimated annual withdrawal rate is approximately 40 acre-feet per year (Water Rights, 2021c). Additionally, the applicable portions of Water Right No. 6302-3 were incorporated into Water Right No. 7217-3 in February of 2020 which accounts for having 79 water right/permits listed as reporting in 2019 on Table 3 (Water Rights, 2021c). The average annual withdrawal rate for the Lower Vermillion Missouri aquifer irrigation water rights/permits within the historic aquifer boundary that have reported over the period of record (1979 to 2019) is approximately 1,731.1 acre-feet per year (Table 3) (Water Rights, 2021a).

There are 52 irrigation water rights/permits authorized to appropriate water from the Lower Vermillion Missouri aquifer within the current boundary, which was compiled by removing the water rights/permits that are within the Upper Vermillion Missouri: South aquifer identified by Buhler (2014) from the historic aquifer boundary estimated by Hedges and others (1982) (Table 3) (Water Rights, 2021c). The average annual withdrawal rate for the Lower Vermillion Missouri aquifer irrigation water rights/permits within the current boundary, that have reported over the period of record (1979 to 2019), including the estimated withdrawal rate of 40 acre-feet per year by Water Permit No. 8459-3, is approximately 1,242.5 acre-feet per year (Table 3) (Water Rights, 2021a).

There are domestic wells completed into the Lower Vermillion Missouri aquifer that do not require a water right/permit, so the withdrawal amount from these wells is unknown (Water Rights, 2021d). Due to their relatively low diversion rates, withdrawals from domestic wells are not considered to be a significant portion of the hydrologic budget. Additionally, with the development of rural water systems in areas where the Lower Vermillion Missouri aquifer is the uppermost aquifer available; it is likely some domestic users may have transitioned to rural water. Therefore, the annual quantity of water withdrawn by domestic wells is estimated to be negligible to the overall hydrologic budget of the Lower Vermillion Missouri aquifer.

Hydrologic Budget Summary

The average annual recharge rate to the unconfined portion of the Lower Vermillion Missouri aquifer is approximately 4,580 acre-feet per year. The average annual recharge rate to the confined portion of the Lower Vermillion Missouri aquifer is approximately 1,958 acre-feet per year. In its entirety, the average annual recharge rate to the Lower Vermillion Missouri aquifer is approximately 6,538 acre-feet per year.

Based on the historic aquifer boundary delineation (Hedges et al., 1982), the average annual withdrawal rate from the Lower Vermillion Missouri aquifer totals approximately 3,075.5 acre-feet per year: non-irrigation: 1,224.4 acre-feet/year; irrigation: 1,731.1 acre-feet/year; Water Permit Application No. 8484-3 (if approved, assuming one-foot application rate per acre), 120 acre-feet/year.

Based on the current aquifer boundary delineation, the average annual withdrawal rate from the Lower Vermillion Missouri aquifer totals approximately 1,411 acre-feet per year: non-irrigation: 48.6 acre-feet/year; irrigation: 1,242.5 acre-feet/year; Water Permit Application No. 8484-3 (if approved, assuming one-foot application rate per acre), 120 acre-feet/year.

The average annual recharge rate to the Lower Vermillion Missouri aquifer is higher than the withdrawal rates estimated for the historic aquifer boundary and the current aquifer boundary. Based on the hydrologic budget, there is a reasonable probability unappropriated water is available from the Lower Vermillion Missouri aquifer for the proposed appropriation.

Table 3. Reported irrigation use from LVM aquifer for water rights/permits within the historic aquifer boundary delineated by Hedges and others (1982) and within the current aquifer boundary (Water Rights, 2021a)

Historical Boundary of LVM aquifer (Hedges et al., 1982)			Current Boundary of LVM based on UVM: S (Buhler, 2014)		
Year	No. of Permits	Reported Pumpage (acre-feet)	Year	No. of Permits	Reported Pumpage (acre-feet)
1979	49	1,163	1979	41	1,008.40
1980	47	2,417	1980	39	2,198.25
1981	49	1,543	1981	40	1,500
1982	37	870.04	1982	28	798.35
1983	38	716.3	1983	29	716.3
1984	47	691	1984	38	691
1985	46	1,328.20	1985	37	1,192.20
1986	45	1,047.50	1986	36	937.5
1987	37	1,115	1987	28	947
1988	38	2,083.80	1988	29	1,668.50
1989	38	2,301.20	1989	29	1,759.20
1990	38	2,113.20	1990	29	1,528.20
1991	39	1,670.10	1991	30	1,284.10
1992	39	168.8	1992	30	133.7
1993	39	0	1993	30	0
1994	39	517.28	1994	30	348.85
1995	37	506.61	1995	29	495.71
1996	36	997.6	1996	28	741.29
1997	36	1,085	1997	28	871
1998	36	1,032.91	1998	27	862.55
1999	38	900.63	1999	28	699.72
2000	38	2,041.72	2000	28	1,737.97
2001	38	2,036.96	2001	28	1,935.62
2002	40	1,762.32	2002	30	1,364.02
2003	40	1,800.56	2003	30	1,636.80
2004	39	1,747.48	2004	29	1,358.53
2005	45	1,410.24	2005	29	1,212.61
2006	43	2,674.51	2006	28	1,891.44
2007	50	2,909.12	2007	26	1,333.65
2008	55	4,301.25	2008	28	922.71
2009	58	482.64	2009	30	461.43
2010	59	144.56	2010	30	133.95
2011	62	2,195.06	2011	33	1,223.29
2012	61	7,759.51	2012	33	3,370.52
2013	71	4,109.10	2013	45	2,867.10
2014	75	1,576.28	2014	48	1,007.71
2015	78	1,925.76	2015	50	1,473.52
2016	79	2,187.54	2016	51	1,785.84
2017	79	3,156.60	2017	51	2,451.95
2018	79	427.68	2018	52	419.39
2019	79	339.6	2019	52	332.97
Min	36	0	Min	26	0
Max	79	7,759.5	Max	52	3,370.5
Avg	49	1,691.1	Avg	34	1,202.5

OBSERVATION WELL DATA:

Administrative Rule of South Dakota (ARSD) 74:02:05:07 requires that the Water Management Board shall rely upon the record of observation well measurements in addition to other data to determine that the quantity of water withdrawn annually from the aquifer does not exceed the estimated average annual recharge of the aquifer.

The DENR-Water Rights Program monitors ten observation wells completed into the Lower Vermillion Missouri aquifer plus two other observation wells (CL-80J and CL-66AR) that are within the historic aquifer boundary delineated by Hedges and others (1982) but are now within the Upper Vermillion Missouri South aquifer boundary as defined by Buhler (2014) (Water Rights, 2021b). The Lower Vermillion Missouri aquifer observation wells that are completed within the current aquifer boundary are UN-77I, UN-77H, UN-77K, CL-80G, CL-57A, CL-66BR, CL-80F, CL-80H, CL-80IR, and CL-57B (Water Rights, 2021b). These observation wells provide data on how the aquifer reacts to regional climatic conditions and local pumping. The three closest observation wells to the proposed diversion point are CL-80H (approximately 3.5 miles south), CL-57B (approximately 4.2 miles west) and CL-80IR (approximately 5 miles southwest) (as shown in Figure 6) (Water Rights, 2021b and 2021c). The hydrographs for these observation wells are displayed in Figures 3 to 5 (Water Rights, 2021b). CL-80J is approximately 2.5 miles northwest of the proposed diversion point but since the observation well is within the Upper Vermillion Missouri: South aquifer boundary as defined by Buhler (2014), it will not be included in this analysis (as shown in Figure 6). The data points utilized to construct the hydrographs are measurements of the static water level in the observation wells from the top of the well casing.

The hydrographs for the Lower Vermillion Missouri aquifer indicate that the aquifer responds well to climatic conditions because water levels are rising during wetter periods (early spring snowmelt and precipitation) and declining to a stable water level during drier periods. Additionally, the water levels in the observation wells display that the amount of recharge to and natural discharge from the aquifer greatly exceeds pumping with the aquifer returning to pre-pumping conditions between irrigation seasons. Aquifer recovery indicates that climatic conditions and therefore, the effects of recharge to and natural discharges from the aquifer governs the long-term fluctuations in aquifer water level rather than the impacts of pumping from the Lower Vermillion Missouri aquifer. By recognizing that both recharge to and natural discharge from an aquifer can be captured for pumping, the observation well hydrographs demonstrate unappropriated water is available for the proposed appropriation.

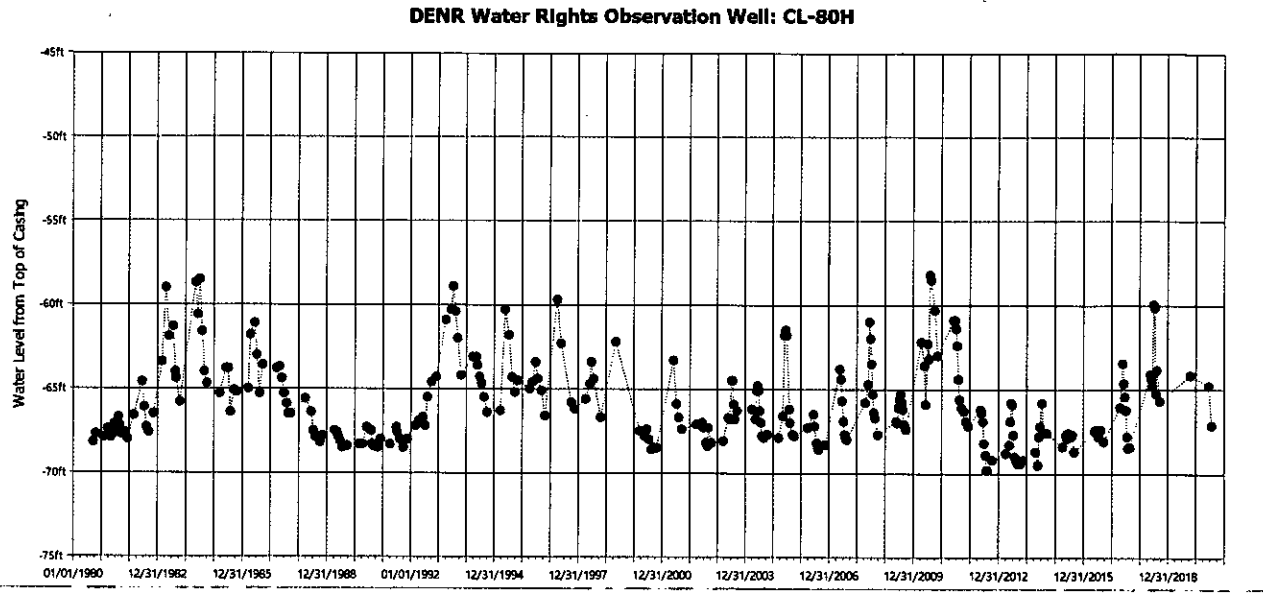


Figure 3. Hydrograph for observation well CL-80H (Water Rights, 2021b)

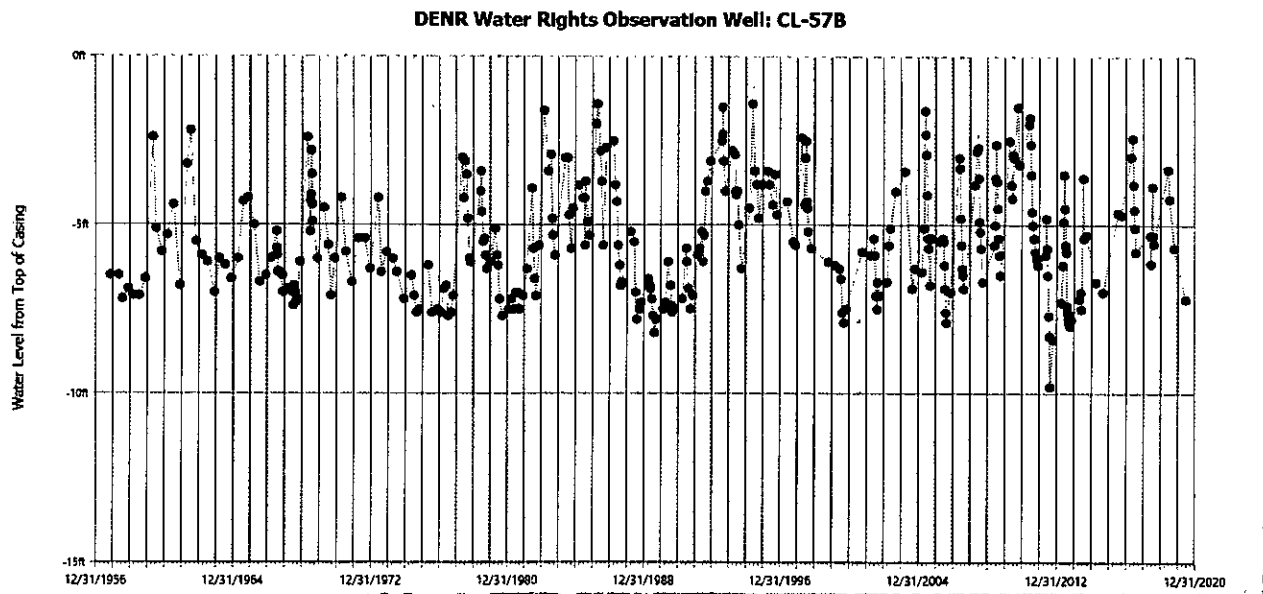


Figure 4. Hydrograph for observation well CL-57B (Water Rights, 2021b)

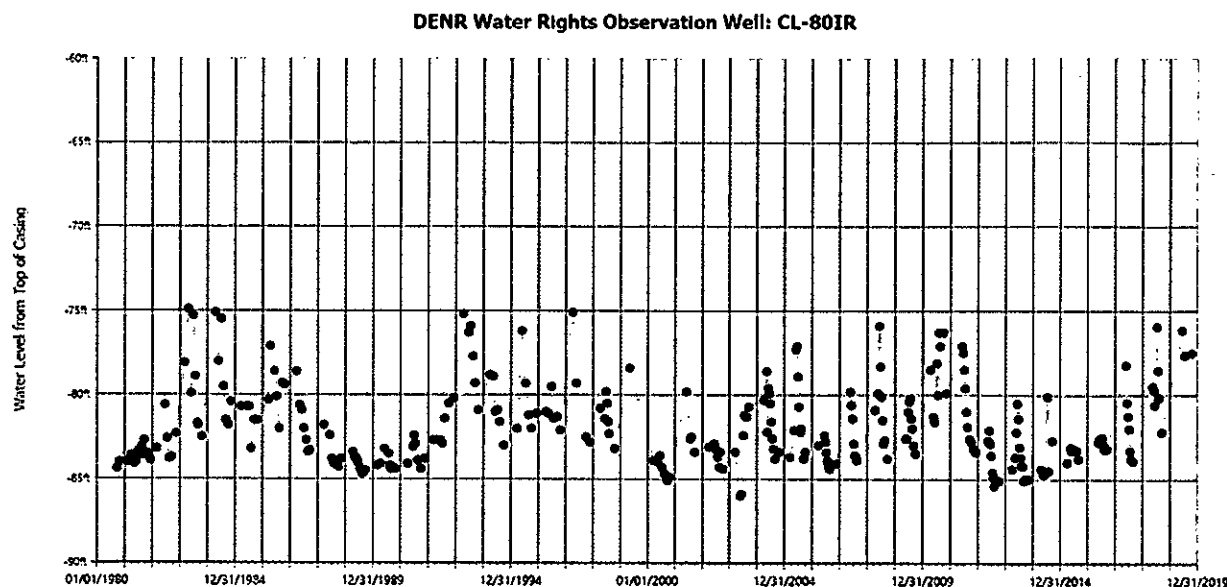


Figure 5. Hydrograph for observation well CL-801R (Water Rights, 2021b)

POTENTIAL FOR UNLAWFUL IMPAIRMENT OF EXISTING WATER RIGHTS:

Currently, there are 56 water rights/permits authorized to appropriate water from the Lower Vermillion Missouri aquifer, plus one pending application (Water Rights, 2021c). The closest water right/permit to proposed diversion point is Water Right No. 3571-3 which is held by Roy Johnson Estate. The diversion point for Water Right No. 3571-3 is located approximately 1.4 miles northwest of the proposed diversion point for this application (Table 4) (Figure 6) (Water Rights, 2021c). It is worth noting only the Lower Vermillion Missouri aquifer water rights/permits that are within the current aquifer boundary delineation were included as the nearby permits listed in Table 4.

There are domestic wells on file with the DENR-Water Rights Program that are completed into the Lower Vermillion Missouri aquifer, with the closest domestic well on file (not held by the applicant) approximately 1.5 miles southwest of the proposed diversion point (Water Rights, 2021d). There are potentially other domestic wells completed into the Lower Vermillion Missouri aquifer near the proposed diversion point that are not on file with the DENR-Water Rights Program.

Table 4. Water rights/permits authorized to withdraw water from the LVM aquifer within approximately five miles of the proposed diversion point, as shown in Figure 6 (Water Rights, 2021c)

Permit No.	Name	Status	Use	Diversion Rate (cfs)
2807-3	Abild-Wells Farms	LC	IRR	1.3
2978-3	Arden S Abild	LC	IRR	1.97
3037-3	Abild-Wells Farms	LC	IRR	1
3039-3	Ronald Alfred Johnson	LC	IRR	2
3571-3	Roy Johnson Estate	LC	IRR	3.54
6303-3	Thelma R & Ronald Lind	LC	IRR	1.78
7217-3	Thelma R & Ronald Lind	LC	IRR	3.34
7233-3	Norman Kramer	PE	IRR	1.56
7504-3	Steven Andrews	PE	IRR	1.78
7562-3	John T Lindstrom	LC	IRR	1.33
7631-3	Gregoire Farms	LC	IRR	1.61
7632-3	Gregoire Farms	PE	IRR	4.44
7642-3	Tom Austin	LC	IRR	1.22
7679-3	Scott Heritage Farms LLP	PE	IRR	1.67
7836-3	Craig L Nelson	LC	IRR	1.78
8257-3	Thein Well Co Inc	PE	COM	0.089
LC: Licensed Water Right, PE: Water Permit,				
IRR: Irrigation, COM: Commercial				

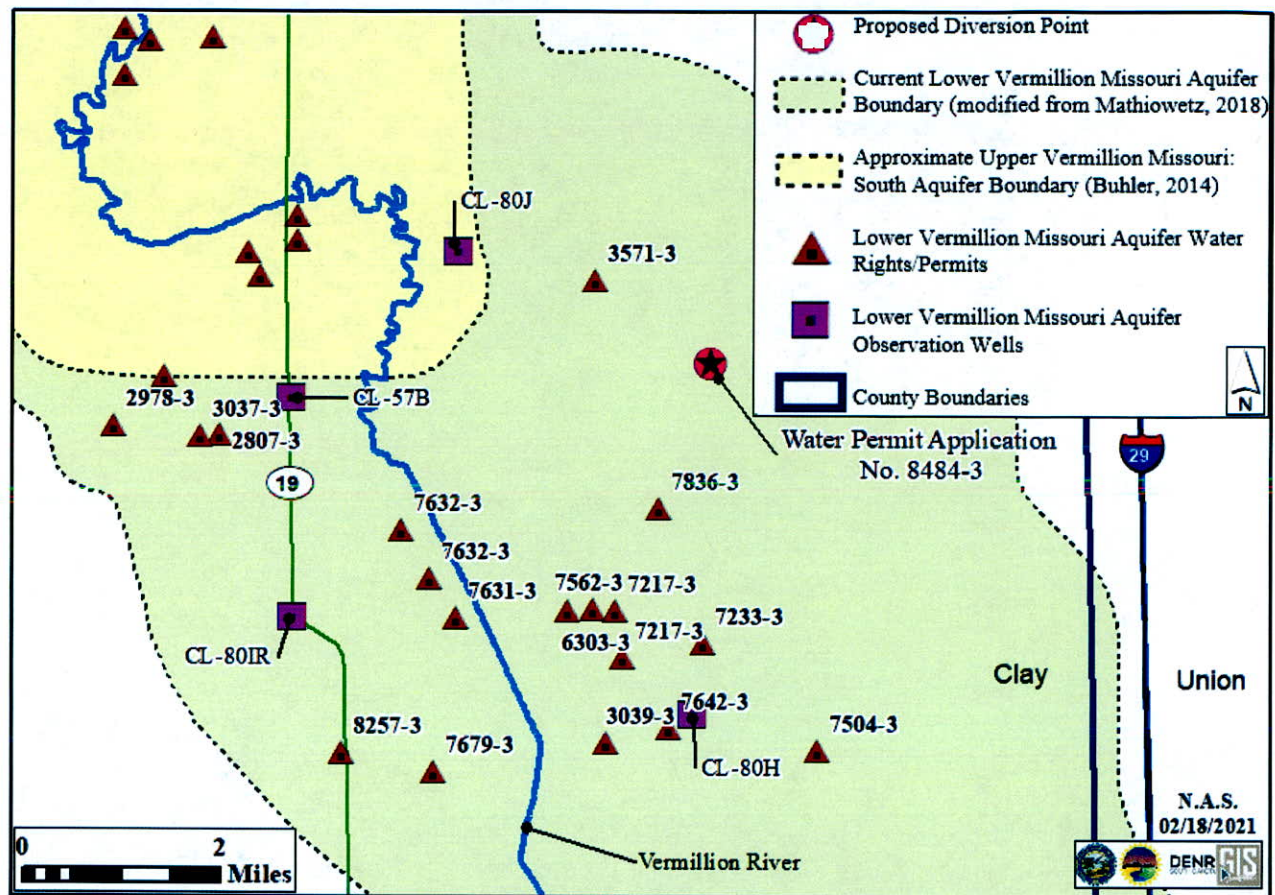


Figure 6. Location of the proposed diversion point for Water Permit Application No. 8484-3 with the LVM aquifer water rights/permits within approximately five miles of the proposed diversion point (Water Rights, 2021c), and the observation wells used in this analysis (Water Rights, 2021b)

The Lower Vermillion Missouri aquifer is primarily under confined conditions but can be locally unconfined particularly near the Vermillion River floodplain (Niehus, 1994; Stephens, 1967). The Lower Vermillion Missouri aquifer is expected to be confined at the proposed diversion point based on the submitted test hole completion report, nearby well completion reports, and lithologic logs on file for nearby observation wells (SDGS, 2021; Water Rights, 2021b and 2021d). The drawdown created by pumping a well generally does not extend far from the pumped well in an unconfined aquifer; however, in a confined aquifer, drawdown from pumping could extend a distance from the diversion point. The exact drawdown behavior of a well cannot be known without an aquifer performance test. Observation well CL-80IR (approximately 5 miles southwest of the proposed diversion point) has seven high-yield irrigation wells within approximately two miles of it (Water Rights, 2021b and 2021c). The drawdown from pumping can be seen on the hydrograph for CL-80IR, along with the aquifer returning to pre-pumping conditions between irrigation seasons (Figure 5) (Water Rights, 2021b). The lithologic log on file for CL-80IR noted the well was drilled 182 feet deep with the top of aquifer at 90 feet below the ground surface (SDGS, 2021). The lowest recorded static water level on the hydrograph is approximately 86 feet, which indicates there was still about four feet of artesian head pressure in

CL-80IR even during drier periods when high-yield irrigation wells are expected to be pumping more water (Water Rights, 2021b).

In Clay County, the Lower Vermillion Missouri aquifer has an average saturated thickness of approximately 100 feet with depth to the top of aquifer materials around 114 feet below the ground surface according to the test hole completion report submitted with the application (Stephens, 1967; Water Rights, 2021d). This would allow for enough thickness for a pump to be placed 20 feet below the top of the aquifer, which is required for the well to be considered adequate under ARSD 74:02:04:20(6). Any drawdown as a result of the proposed diversion is not expected to unlawfully impair nearby adequate wells. In Clay and Union Counties, there are no complaints on file with the DENR-Water Rights Program regarding well interference for adequate wells completed into the Lower Vermillion Missouri aquifer (Water Rights, 2021e).

The Water Management Board recognizes that putting water to beneficial use requires a certain amount of drawdown to occur. The Board has developed rules to allow water to be placed to maximum beneficial use without the necessity of maintaining artesian head pressure for domestic use. The Water Management Board defined an “adversely impacted domestic well” in ARSD 74:02:04:20(7) as:

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

The Water Management Board considered the delivery of water by artesian head pressure versus maximum beneficial use during the issuance of Water Right No. 2313-2 for Coca-Cola Bottling Company of the Black Hills. The Board adopted the Findings of Facts and Conclusions of Law that noted the reservation of artesian head pressure for delivery of water would be inconsistent with SDCL 46-1-4 which states, “general welfare requires that the water resources of the state be put to beneficial use to the fullest extent of which they are capable...” (Water Rights, 1995). Furthermore, the Water Management Board found if increased cost or decreased production as a result of impacts on artesian head pressure by legitimate users is to be considered as an unlawful impairment, it would also conflict with SDCL 46-1-4 (Water Rights, 1995). With that in mind, some existing well owners may need to install or lower pumps depending on the specific characteristics of the Lower Vermillion Missouri aquifer at their location. However, when considering the statutes (SDCL 46-1-4 and 46-6-6.1), rules (ARSD 74:02:04:20(6) and (7)), the saturated aquifer thickness of the Lower Vermillion Missouri aquifer in Clay County, and the lack of well interference complaints for adequate wells completed into the Lower Vermillion Missouri aquifer in Clay and Union Counties, any drawdown created from the proposed diversion is not expected to cause an unlawful impairment on existing water right/permit holders or domestic users with adequate wells. Therefore, there is a reasonable probability that any interference from the proposed appropriation will not impose unlawful impairments on existing users with adequate wells.

SDCL 46-5-6:

Pursuant to SDCL 46-5-6, the diversion rate for an irrigation appropriation cannot be in excess of 1.0 cfs per 70 acres, or "the equivalent thereof." The statute does provide that: "The Water Management Board may allow a greater diversion, in volume or rate or both, if the method of irrigation, any time constraints on diversion of water, or the type of soil so requires..." Water Permit Application No. 8484-3 proposes to divert water at a maximum rate of 1.78 cfs for the irrigation of 120 acres, from April 1 to September 30, or at a rate of 1.71 cfs per 70 acres. The applicant provided the reason for exceedance being due to the center pivot not making a full rotation because of a farmstead located within the circle of irrigation. This type of reason has been accepted by the Water Management Board in past.

CONCLUSIONS:

1. Water Permit Application No. 8484-3 proposes to appropriate water at a maximum instantaneous diversion rate of 1.78 cfs from one well to be completed into the Lower Vermillion Missouri aquifer (125 feet deep) for the irrigation of 120 acres. The site is located in Clay County approximately twelve miles northeast of Vermillion, South Dakota. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres to accommodate use of a center pivot swinging a partial circle.
2. Based on the hydrologic budget and observation well data, there is a reasonable probability that unappropriated water is available from the Lower Vermillion Missouri aquifer to supply the proposed appropriation.
3. There is a reasonable probability that the proposed diversion by Water Permit Application No. 8484-3 will not unlawfully impair adequate wells for existing water right/permit holders and domestic users.



Nakaila Steen
Natural Resources Engineer I
SD DENR - Water Rights Program

Reviewed by:



Adam Mathiowetz, PE
Natural Resources Engineer III
SD DENR - Water Rights Program

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Water Rights, 2021e. County Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.

Schlaak, Karen

From: Schlaak, Karen
Sent: Tuesday, March 23, 2021 8:10 AM
To: johnlindstrom@hotmail.com
Subject: Water Permit Application No. 8484-3
Attachments: 0931.pdf

Attached is a copy of the report, chief engineer recommendation and information regarding the public notice for your water permit application. As stated in the letter, please contact the papers as soon as possible to authorize publication and arrange for payment. This information is being mailed to you today.

Karen Schlaak

Water Rights Program
(605) 773-3352



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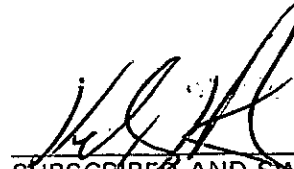
STATE OF SOUTH DAKOTA
COUNTY OF YANKTON

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
4+2 NOTICE OF APPLICATION

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE
NEWSPAPER ON THE 2nd DAY OF April, 2021
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION
OF SAID NOTICE TO WIT \$24.88 ENSURES TO THE
BENEFITS OF THE PUBLISHER OF SAID NEWSPAPER AND THAT NO
AGREEMENT AND UNDERSTANDING FOR THE DIVISION THEREOF HAS
BEEN MADE WITH ANY OTHER PERSON, AND THAT NO PART THEREOF
HAS BEEN AGREED TO BE PAID TO ANY PERSON WHOMSOEVER.

PUBLISHED ON: 04/02/2021

FILED ON: 04/02/2021


SUBSCRIBED AND SWORN TO BEFORE ME THIS 2nd DAY OF April, 2021


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

4+3 NOTICE

Ad text : 4 + 2

NOTICE OF APPLICATION NO. 8484-3 to Appropriate Water

Notice is given that Dean Lindstrom and John Lindstrom, 30524 466th Ave, Beresford SD 57004 have filed an application for a water permit to appropriate 1.78 cubic feet of water per second (cfs) from one well to be completed into the Lower Vermillion Missouri Aquifer (125 feet deep) located in the approximate center of the NW 1/4 Section 16 for irrigation of 120 acres located in the NW 1/4 Section 16; all in T94N-R51W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. This site is located approximately 12 miles northeast of Vermillion SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8484-3 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 Engineers recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/public> or contact Ron Duvall for this information, or other information, at the Water Rights Program address provided below.

Any person interested in opposing 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 April 12, 2021.

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.

Published once at the total approximate cost of \$24.88

AFFIDAVIT OF PUBLICATION

PLAIN TALK

RECEIVED

APR 06 2021

WATER RIGHTS
PROGRAM

DEAN LINDSTROM
30524 466TH AVENUE
BERESFORD SD 57004

STATE OF SOUTH DAKOTA
COUNTY OF CLAY

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

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE
NEWSPAPER ON THE 2nd DAY OF April, 2021
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION
OF SAID NOTICE TO WIT \$24.44 ENSURES TO THE
BENEFITS OF THE PUBLISHER OF SAID NEWSPAPER AND THAT NO
AGREEMENT AND UNDERSTANDING FOR THE DIVISION THEREOF HAS
BEEN MADE WITH ANY OTHER PERSON, AND THAT NO PART THEREOF
HAS BEEN AGREED TO BE PAID TO ANY PERSON WHOMSOEVER.

PUBLISHED ON: 04/02/2021

FILED ON: 04/02/2021

Jackie Lammers
SUBSCRIBED AND SWORN TO BEFORE ME THIS 2nd DAY OF April, 2021

Cassandra Brown
NOTARY PUBLIC, SOUTH DAKOTA
MY COMMISSION EXPIRES 07/04/2026
I HAVE THE HONORARY OF THE FEE CHARGED FOR THE PUBLICATION
OF SAID NOTICE TO WIT \$24.44 ENSURES TO THE
BENEFITS OF THE PUBLISHER OF SAID NEWSPAPER AND THAT NO
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BEEN MADE WITH ANY OTHER PERSON, AND THAT NO PART THEREOF
HAS BEEN AGREED TO BE PAID TO ANY PERSON WHOMSOEVER.

NOTICE OF PUBLICATION

THIS NOTICE IS PUBLISHED IN THE

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IN THE CITY OF VERMILLION, SAID COUNTY AND STATE, AND ONE OF
THE OFFICIAL NEWSPAPERS OF THE SAID COUNTY OF FACTS STATED IN
THIS AFFIDAVIT; THAT THE ANNEXED

Ad text : NOTICE OF APPLICATION NO. 8484-3 to Appropriate Water

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Published once at the total approximate cost of \$24.44.

Published April 2, 2021.

Schlaak, Karen

From: Schlaak, Karen
Sent: Tuesday, March 23, 2021 8:06 AM
To: Jackie Lammers (jackie.lammers@yankton.net)
Subject: 8484-3, Dean Lindstrom & John Lindstrom
Attachments: 8484-3public.short.docx; FORM8.FRM.doc

Attached is a notice to be published on April 2, 2021.

Dean Lindstrom and John Lindstrom, 30524 466th Ave, Beresford SD 57004 (605 351-5937) have been notified to contact you to authorize publication and arrange for payment.

Please send the affidavit or return the attached Proof of Publication form ASAP to the Water Rights Program, 523 E Capitol, Pierre SD 57501.

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

Karen Schlaak

Water Rights Program
(605) 773-3352



Schlaak, Karen

From: Schlaak, Karen
Sent: Tuesday, March 23, 2021 8:06 AM
To: 'classifieds@plaintalk.net'
Subject: 8484-3, Dean Lindstrom & John Lindstrom
Attachments: 8484-3public.short.docx; FORM8.FRM.doc

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Karen Schlaak
Water Rights Program
(605) 773-3352





DENR
SOUTH DAKOTA

**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 NEWSPAPERS RIGHT AWAY.**

March 23, 2021

Dean Lindstrom and John Lindstrom
30524 466th Ave
Beresford SD 57004

Dear Sirs:

Water Permit Application No. 8484-3 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 Plain Talk printed at Vermillion SD (Ph # 605 624-2695) and the Press & Dakotan printed at Yankton SD (Ph # 605 665-7811). You will need to contact the newspapers and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspapers to authorize publication of your Notice and to arrange for payment. Early contact with the papers can eliminate delays. Upon receiving authorization from you, the publishers have been instructed to publish your notice. The newspapers have also been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the application.

Sincerely,

Karen Schlaak

Karen Schlaak
Water Rights Program
(605) 773-3352

enclosures

NOTE: If you plan to contest any part of the Chief Engineer's recommendation, you must file a petition pursuant to the procedures outlined in the attached notice of hearing. The Water Management Board will then consider your concerns during a hearing on the application.

NOTICE OF APPLICATION NO. 8484-3 to Appropriate Water

Notice is given that Dean Lindstrom and John Lindstrom, 30524 466th Ave, Beresford SD 57004 have filed an application for a water permit to appropriate 1.78 cubic feet of water per second (cfs) from one well to be completed into the Lower Vermillion Missouri Aquifer (125 feet deep) located in the approximate center of the NW 1/4 Section 16 for irrigation of 120 acres located in the NW 1/4 Section 16; all in T94N-R51W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. This site is located approximately 12 miles northeast of Vermillion SD.

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Published once at the total approximate cost of_



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

APR 19 2021

Dean Lindstrom and John Lindstrom
30524 466th Ave
Beresford SD 57004

Dear Sirs:

Enclosed is Water Permit No. 8484-3 authorizing construction of the water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

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

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

Sincerely,

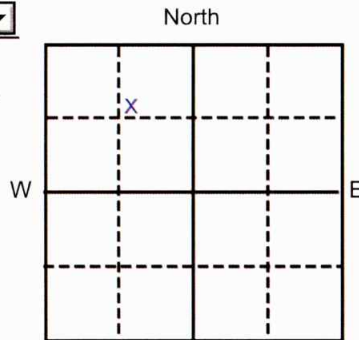
Eric Gronlund, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

8484-3

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 16 Twp 94N Rg 51WCounty CLAY ☐Please mark well
location with an "X"

Well Completion Date

9/9/21Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
>1000 ft. from SEPTIC SYSTEM (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
LB/FT	<u>16</u> IN	<u>0</u> FT	<u>100</u> FT	<u>22</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>GROUT WEL</u>	<u>21</u>	Lb/gal	<u>0</u> Ft	<u>70</u> Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

TREMMIE

SCREEN:

☐ Perforated pipe ☒ Manufactured
 Diameter 16 Inches Length 30 Feet
 Material SDR 26
 Slot Size .080 Set From 100 Feet to 130 Feet

Other information

WAS A PACKER OR SEAL USED?

☐ Yes ☐ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

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

Business Name:

Address: 30524 466TH AVENUECity, State, Zip: BERESFORD ☒ SD ☒ 57069

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
TOP SOIL	0	2
GLACIAL TILL	2	30
SANDY CLAY	30	80
MED-COARSE GRAVEL & SAND	80	130

STATIC WATER LEVEL

90 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: TEST PUMP☐ Bailed☐ Other

Pumping Level Below Land Surface

109 Ft. After2 Hrs. pumped500 GPM

Ft. After

Hrs. pumped

GPM

If pump installed, pump rate:

GPM

REMARKS

42°57'51.87" N-96°52'44.12" WThis well was drilled under license # 810 and this report is true and accurate.Drilling firm: HEINE ELECTRIC AND IRRIGATION

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

RECEIVED

SEP 27 2021

Date:

9-24-21WATER RIGHTS
PROGRAM

8484-3

RECEIVED

NOV 28, 2022

OFFICE OF
WATERNOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USEDate 11-23-22TO: Water Rights Program, DANR
523 E. Capitol
Pierre, SD 57501-3181

FROM:

John Lightbrom

(name)

30524 466th Ave

(address)

Brookings SD 57004

(city, state, zip)

605-351-5937

(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. 8484-3 states that the water use system is to be constructed by April 12, 2026 , and water is to be put to beneficial use by April 12, 2030 .

(date) (date)

The water use system was completed on 7-4-2022 .

(date)

Applying the water to beneficial use was completed on 7-4-2022 .

(date)

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

John Lightbrom

(signature)





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

November 29, 2022

8484-3

Dean & John Lindstrom
30524 466th Ave
Beresford SD 57004

Dear Sirs:

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



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

October 21, 2025

7562-3, 8589-3, 8484-3
8680-3, 8711-3

John Lindstrom
30536 466th Ave
Beresford SD 57004

Dear Mr. Lindstrom:

Enclosed is a "Notice" dated October 8, 2025, concerning the 2025 Irrigation Questionnaire.

The notice was originally mailed to you at 30524 466th Ave, Beresford SD 57004. The post office notified our office that your address has changed, and your records have been updated accordingly.

This is a time sensitive matter. Please complete and return the enclosed questionnaire or submit your report online at <https://danr.sd.gov/iq/> using this password **WWBPGH**.

If this change of address is in-correct, please contact our office immediately to update your contact information.

Sincerely,

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

enclosures

RECEIVED
OCT 21 2025
11:41 AM
STATE OF SOUTH DAKOTA
DEPARTMENT OF AGRICULTURE
AND NATURAL RESOURCES
PIERRE, SD 57501-3182
11/14/25