

WATER PERMIT NO. 8747-3

Name of Applicant: **Mark D. Nelson**

Address: **31079 467th Ave, Vermillion SD 57069**

Phone: **605-670-1256**

Amount of Water Claimed: **1.78 cfs**

Total Acres: **108.32**

Source of Water Supply: **Groundwater**

Water to be used for: **Irrigation**

County: **Clay**

Type of Waste Disposal System:

Location: **Approximately 6 miles north of Vermillion**

PRIORITY Date Received: **3-13-2023**

Application/License Fee: **\$950.00**

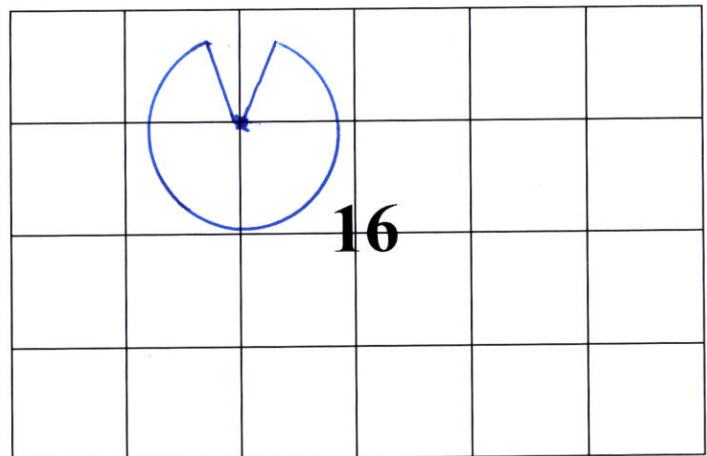
Corrected Application Received: **4-6-2023**

Period of Annual Use: **May 1 – Oct 31**

Remarks:

Diversion Point: **NW 1/4 Section 16 -T93N-R51W**

Land to be Irrigated: **NW 1/4 Section 16 -T93N-R51W**



Depth of Well: **125**

Well Driller:

Remarks:

Type of Map: **aerial**

Reviewed and the Number Assigned on: **4-11-2023**

By: **Rachel Rodriguez**

Notice of Hearing - date to intervene: _____

**SOUTH DAKOTA
WATER PERMIT NO. 8747-3**

Date of first receipt of application March 13, 2023.

Date of return to applicant for corrections, amendments or changes March 14, 2023.

Date of receipt of corrected application April 12, 2023.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8747-3 to Mark D. Nelson, 31079 467th Avenue, Vermillion SD 57069 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 8747-3 appropriates 1.78 cubic feet of water per second (cfs) from one well to be completed into the Lower Vermillion Missouri Aquifer (approximately 125 feet deep) located near the center of the NW 1/4 Section 16 for irrigation of 108.32 acres located in the NW 1/4 Section 16; all in T93N-51W. This site is located approximately 6 miles north 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: May 1 – October 31.
3. The date from which applicant may claim right is March 13, 2023.
4. The date of approval of Permit No. 8747-3 is July 3, 2023.
5. One-fifth of the construction is to be completed on or before January 3, 2026.
6. All construction is to be completed on or before July 3, 2028.
7. Water is to be put to beneficial use on or before July 3, 2032.
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. 8747-3 is located near domestic wells and other wells which may obtain water from the same aquifer. Water withdrawals shall be controlled 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. 8747-3 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. 8747-3 authorizes a maximum diversion rate of 1.78 cfs for the irrigation of 108.32 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

JUL 26 2023
date



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

Mail to: SD DANR, Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8747-3</u> Hydrologic Unit <u>10170102</u> Basin <u>Vermillion River</u> Newspaper <u>Plain Talk</u> <u>Press & Democrat</u> (office use only)
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PAID
MAR 13 2023
Ck# 14683
Rec't# _____

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.)

RECEIVED

MAR 13 2023

OFFICE OF
WATER

1. Name to Appear on Irrigation Permit MARK D NELSON

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

Mailing Address 31079 467th AVE VERMILION SD 57069
(Address) (City) (State) (Zip Code)

Phone _____ Mobile 605-670-1256 Email MDNELSON71@gmail.com

2. Amount of water claimed 1.78*CFS or 800**GPM ***AF Total Acreage 108.32
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply WELL

4. Location of point of diversion NW 1/4 SEC 16 T93N R51W
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)

County CLAY

5. County or counties where water will be used CLAY

6. Annual period during which water is to be used IRRIGATION SEASON May 1 - Oct 31

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

Land Description	Acres	Land Description	Acres
<u>NW 1/4 Sec 16-T93N-R51W</u>	<u>108.32</u>		

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

I, Mark D. Nelson OWNER, 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.

2021-08

Attachments: Attach Form 2A if diversion is from a well or dugout, or if storage of water is proposed. Also, attach map and any other technical information. (see instructions)

Supplemental Information

(type or print)

1. Well Information (check one or both as applicable)

☒ Drilling new well(s) ☐ Using existing well(s)

- a) If new wells, how many 1 Have test holes been drilled? ☐ Yes ☒ No Drilled by _____
(if yes, please provide copies of logs)
- b) If existing wells, how many _____ Provide copy of log(s), if available. Drilled by _____

For either existing or proposed wells:

- c) Well Depth (required) 125 FT Depth to Top of Water Bearing Material _____ Depth to Water from Surface _____
- d) Distance to nearest domestic well on applicant's property RURAL Property owned by others _____
WATER

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

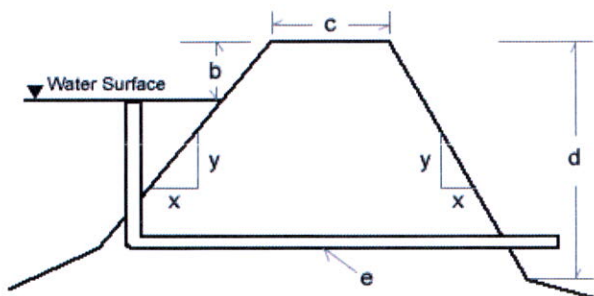
If the proposed water use system contains one or more storage dams, please furnish the information requested below for each dam. The locations of the dams need to be shown on the map submitted with the application.

- 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 _____

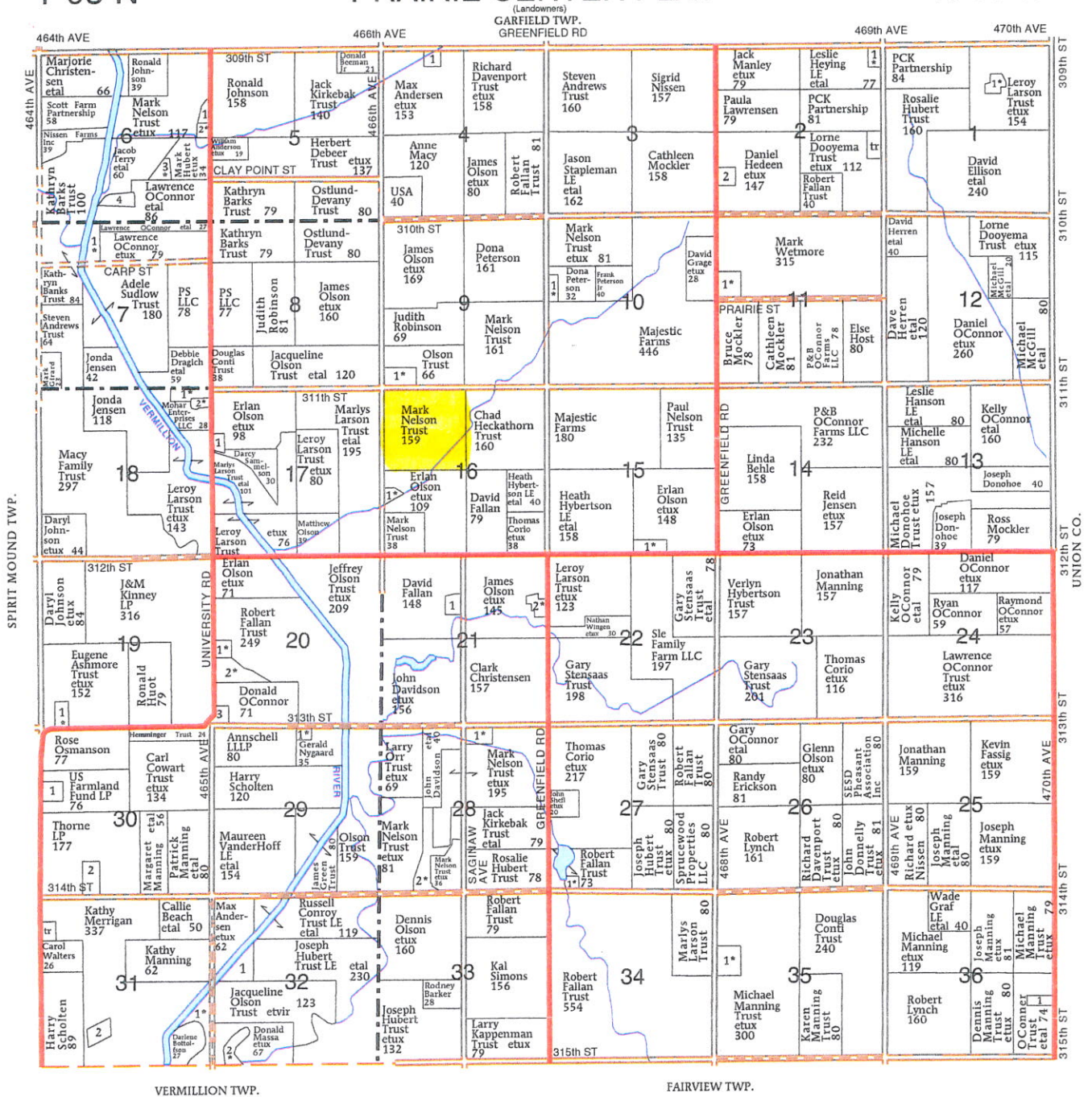
- f) Secondary Spillway Capacity _____
Spillway Width _____
- g) X & Y Slope (e.g. 3 to 1 is a typical slope)
Upstream _____
Downstream _____
- h) Area of Impoundment _____
- i) Storage _____ Acre Feet
- j) Drainage Area Above Dam _____ Acres



T-93-N

PRAIRIE CENTER PLAT

R-51-W



OLD HOME PLACE

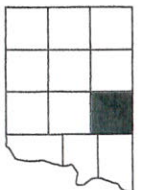
PRAIRIE CENTER TOWNSHIP	
SECTION 1	
1 COLLINS, JEFFREY ETUX	7
SECTION 2	
1 WOOD, ROBERT ETUX	6
2 JENSEN, BECKY	12
SECTION 4	
1 DANIELSON, CATHERINE	8
SECTION 6	
1 OUELLETTE, CHAD	7
2 OUELLETTE, CHAD ETUX	6
3 HUBERT, LORI ETVIR	10

4 MADSEN, ANGELA	8
SECTION 7	
1 OLSON TRUST, JEFFREY ETAL	12
SECTION 9	
1 SCHROEDER, TRAVIS ETAL	13
SECTION 10	
1 ADEN, JOHN ETUX	8
SECTION 11	
1 PORT, ANTHONY ETUX	5
SECTION 15	
1 HENDERSON, SCOTT ETUX	8

SECTION 16	
1 EGAN, TERESA ETAL	9
SECTION 17	
1 HUBERT, JERALD	5
SECTION 18	
1 OLSON, ERLAN ETUX	15
2 GRATZFELD, GARI ETAL	6
SECTION 19	
1 LOFTUS, KEVIN ETAL	10
SECTION 20	
1 ISAACSON, RANDY ETUX	8
2 ROLFES, CHAD ETUX	15
3 NELSON, GWENDOLEN	9

SECTION 21	
1 PARMENTER, PHYLLIS	9
2 MILLAGE, KEVIN ETUX	10
SECTION 27	
1 FALLAN, DAVID ETUX	6
SECTION 28	
1 KNUTSON, MATTHEW ETUX	17
2 STRICHERZ, MATHIAS ETUX	36
SECTION 29	
1 NYGAARD, GERALD ETUX	5
SECTION 30	
1 ERICKSON, RICHARD	5
2 MANNING, PATRICK	8

SECTION 31	
1 MASSA, DONALD ETUX	28
2 MILLER, MARLYS	9
SECTION 32	
1 OLSON, JEFFREY	12
2 OLSON TRUST, JEFFREY ETAL	13
SECTION 35	
1 GRIFFITH, LEONARD ETUX	16
SECTION 36	
1 HERRIG, JACOB	5



Design Detail & Summary



Prepared For:

Mark Nelson

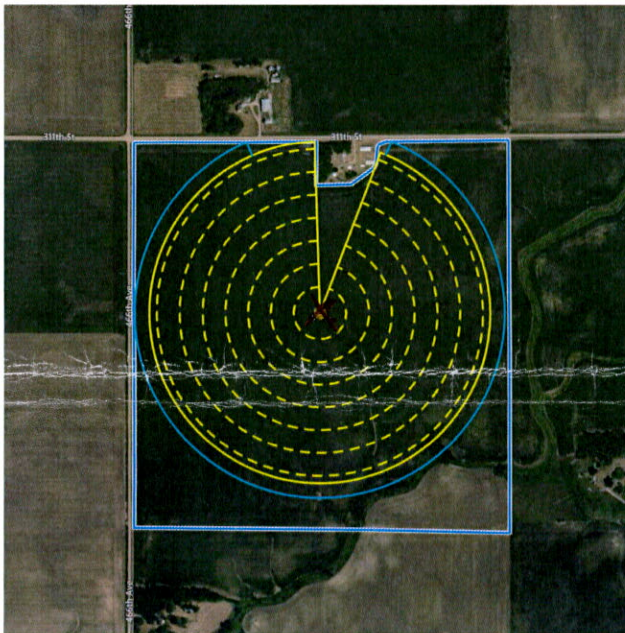
Mark Nelson



Nombre del sistema: Pivot 1

Tramo n.º	Diámetro	Longitud	Longitud acumulada y total
1	6 - 5/8" (168 mm)	180.17 ft	180.17 ft
2	6 - 5/8" (168 mm)	157.08 ft	337.25 ft
3	6 - 5/8" (168 mm)	157.08 ft	494.33 ft
4	6 - 5/8" (168 mm)	157.08 ft	651.42 ft
5	6 - 5/8" (168 mm)	157.08 ft	808.50 ft
6	6 - 5/8" (168 mm)	157.08 ft	965.58 ft
7	6 - 5/8" (168 mm)	157.08 ft	1122.67 ft
Voladizo:	5 - 9/16" (141 mm)	47.00 ft	1169.67 ft
Cañón final:	-	3.00 ft	1172.67 ft

Longitud del sistema total: 1172.67 ft
Cantidad de tramos: 7
Available Outlet Count: 163
Degree of Sweep: 337 Grados
Endgun Throw: 100.00 ft
System Wetted Area: 92.94 acres
Corner Wetted Area: NC
Área cubierta del cañón final: 15.37 acres
Área cubierta total: 108.32 acres



Center, Start, Stop Positions

Center Position		Start Position		Stop Position		Angle Degree From North	
Lat	Long	Lat	Long	Lat	Long	Start	Stop
42.877504°	-96.879831°	42.880511°	42.880511°	42.880720°	-96.879967°	20.8°	358.2°

Endgun Coverage Area

Primary Endgun	Angle Degree From North		Angle Degree From Start		Start Position		Stop Position		Total Coverage Area
	Start	Stop	Start	Stop	Lat	Long	Lat	Long	
Area 1	22.8°	336.5°	1.9°	315.7°	42.880471°	-96.878137°	42.880456°	-96.881572°	15.37

Second Endgun	Angle Degree From North		Angle Degree From Start		Start Position		Stop Position		Total Coverage Area
	Start	Stop	Start	Stop	Lat	Long	Lat	Long	

KEISER AG & IRRIGATION, LLC

301 West South Street; Hartington, 68739
Oficina: (402) 254-9557; Móvil: (605) 661-6941
juddkeiser@outlook.com
www.Lindsay.com

3/8/2023

1 of 2

Confidential

RECEIPT

WATER RIGHTS PROGRAM South Dakota Department of Agriculture and Natural Resources

Date March 13, 2023

RECEIVED OF Mark/Debralee Nelson 31079 467th Ave., Vermillion SD 57069

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

Fee for Application for Permit No. <u>8747-3</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>8747-3</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	\$1050.00

By Eric Gronlund
Chief Engineer
Em

Refund \$100.00

July 26, 2023

PAYMENT REQUEST FORM

PAYEE: Mark D. Nelson
31079 467th Avenue
Vermillion SD 57069

FROM: DANR-Water Rights Program
523 E. Capitol Ave
Pierre, SD 57501-3181

DESCRIPTION OF SERVICE, PRODUCE OR TRANSFER

Over payment of Application Fee

AMOUNT: \$200.00

FUNDING SOURCE: WR Fees

GENERAL:

FEDERAL:

OTHER:

COMMENTS:

AUTHORIZATION: *Eric Hummel* 7/26/2023

I declare and affirm under the penalties of perjury that this claim is in all things, true and correct. I further agree to comply with the provisions of the Civil Rights Act of 1964 and regulations issued thereunder relating to nondiscrimination in federal assisted programs.



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

RECEIVED

APR 11 2023

**OFFICE OF
WATER**

March 14, 2023

Mark D Nelson
31079 467th Ave
Vermillion SD 57069

Dear Mr. Nelson:

Thank you for submitting your two *Application for a Permit to Appropriate Water* for irrigation in Clay County. To complete the applications, the following is required.

- Enclosed are the aerial photo maps you submitted for the location of the irrigation. On the maps, please mark the well location on each map with an "X".
- On Item No. 6, Annual period during which water is to be used. We suggest changing the "irrigation season" to May 1- October 31. Do you agree?

If you have any questions, please contact me.

Sincerely,

Karen Schlaak

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

enclosures

Water Rights Program - File Documentation

NAME: Mark Nelson

ADDRESS: Vermillion SD

DATE: 4-6-23

RE: Pending Applications

COMMENTS:

Mark Nelson called and said he would be returning the maps with the proposed well locations marked. He also indicated the period of annual use should be May 1 – October 31.



Karen Schlaak
Water Rights Program



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 8747-3, Mark D. Nelson**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Agriculture and Natural Resources concerning Water Permit Application No. 8747-3, Mark D. Nelson, 31079 467th Avenue, Vermillion SD 57069.

The Chief Engineer is recommending APPROVAL of Application No. 8747-3 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 domestic water uses and water rights, 3) the proposed use is a beneficial use and 4) it is in the public interest as it pertains to matters of public interest within the regulatory authority of the Water Management Board with the following qualifications:

1. The well approved under Water Permit No. 8747-3 is located near domestic wells and other wells which may obtain water from the same aquifer. Water withdrawals shall be controlled 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. 8747-3 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. 8747-3 authorizes a maximum diversion rate of 1.78 cfs for the irrigation of 108.32 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
June 12, 2023

Report to the Chief Engineer
On Water Permit Application No. 8747-3

Mark D Nelson

June 1st, 2023

Water Permit Application No. 8747-3 proposes to appropriate 1.78 cubic feet of water per second (cfs) from one well to be completed into the Lower Vermillion Missouri aquifer (approximately 125 feet deep) located near the center of NW ¼ Section 16 for irrigation of 108.32 acres located in the NW ¼ Section 16; all in T93N-R51W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. The site of interest is located approximately 6 miles north of Vermillion, SD in Clay County.

AQUIFER: Lower Vermillion Missouri (LVM)

HYDROGEOLOGY:

The Lower Vermillion Missouri aquifer, referred to as the LVM aquifer for the remainder of this report, is a buried glacial outwash that was deposited by meltwater streams beyond the margin of active glacial ice (Stephens, 1967). The LVM aquifer materials range in size from a coarse sand to a coarse gravel (Niehus, 1994). The LVM aquifer is primarily confined but can be locally found under unconfined conditions such as in the flood plain of the Vermillion River (Niehus, 1994; Stephens, 1967). The LVM aquifer has an average thickness of approximately 100 feet in Clay County (Stephens, 1967). Table 1 shows the information related to the areal extent of the LVM aquifer, the area utilized for this report is approximately 106,000 acres (Mathiowetz, 2018).

Table 1. Estimated areal extent for the historic LVM aquifer boundary (Hedges and others, 1982), the portion of the UVM:S aquifer that overlies the historic LVM aquifer boundary (Buhler, 2014). 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 and others, 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 and others, 1982)	

The LVM aquifer is hydrologically connected to the Upper Vermillion Missouri: South (UVM:S) 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). Hedges and others (1982) delineated a boundary between the Upper Vermillion Missouri aquifer and LVM aquifer with portions of each boundary being modified by Buhler (2014) and Mathiowetz (2018) in response to additional study of the Upper Vermillion Missouri aquifer, as shown on Figure 1.

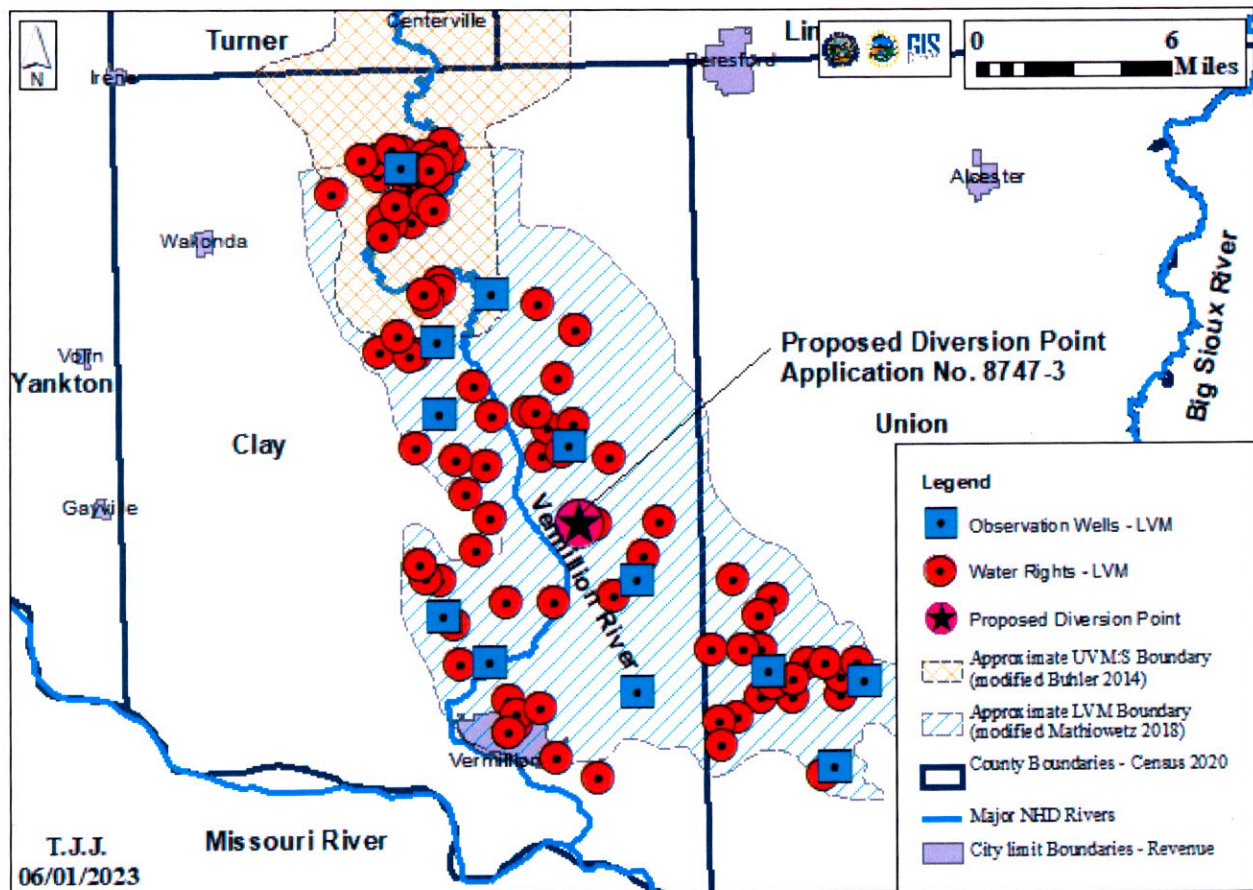


Figure 1. Map of the approximate LVM aquifer boundary delineated by Hedges and others (1982) with a portion of the UVM:S and LVM aquifer boundary estimated by Buhler (2014) and Mathiowetz (2018) respectively, and the location of proposed diversion point for Water Permit Application No. 8747-3, and LVM aquifer observation wells and Water Rights (Water Rights, 2023b and 2023c).

A water well completion report was not submitted with the application. The closest water well completion report is located 0.6 miles southeast of this application's proposed diversion point, the well was completed into the LVM aquifer on January 15th, 2013 (Water Rights, 2023b). The depth to the top of aquifer material is 73 feet below the ground surface, static water level is approximately 72 feet below the ground surface, and a saturated aquifer thickness of at least 85 feet at the day of completion (SDGS, 2023; Water Rights, 2023b). Based on water well completion reports near the proposed diversion point and this water well completion report, the LVM aquifer is expected to be confined at the diversion point but may become unconfined

during drier conditions due to the limited artesian head (SDGS, 2023; Water Rights, 2023b and 2023d).

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 unappropriated water is available for the applicant’s proposed use, the proposed diversion can be developed without unlawful impairment of existing domestic water uses and water rights, the proposed use is a beneficial use, and the permit is in the public interest as it pertains to matters of public interest within the regulatory authority of the Water Management Board as defined by §§ 46-2-9 and 46-2-11.” This report will address the availability of unappropriated water and the potential for unlawful impairment of existing domestic uses and water rights within the LVM aquifer.

WATER AVAILABILITY:

Water Permit Application No. 8747-3 proposes to appropriate water from the LVM 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 LVM 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 LVM aquifer must be considered.

HYDROLOGIC BUDGET:

Recharge

Recharge to the LVM aquifer is received primarily through infiltration of precipitation where the aquifer is at or near land surface, groundwater inflow from the Upper Vermillion Missouri: South aquifer, seepage from Vermillion River, and leakage from the underlying Dakota aquifer (Niehus, 1994; Stephens, 1967). Using observation well analysis, Hedges and others (1985) estimated a recharge rate of 3.8 inches per year for the unconfined portion of the LVM aquifer. However, Stonesifer (2013) recalculated the recharge rate to be an estimated 4.58 inches per year using the same method but with additional observation well data. The unconfined area for this primarily confined aquifer is approximately 12,000 acres (Table 1; modified from Jensen, 2000; modified from Stonesifer, 2013). Therefore, the estimated average annual recharge rate for the unconfined portion of the LVM aquifer is approximately 4,580 acre-feet/year (based on Stonesifer, 2013 and modified from Jensen, 2000).

It is assumed that the confined portion of the LVM aquifer is hydrologically similar to the confined portion of the Upper Vermillion Missouri aquifer and recharges at a similar rate.

However, further study conducted on the Upper Vermillion Missouri aquifer concluded the Hedges and others (1985) recharge rate estimate to the confined portion of the Upper Vermillion Missouri aquifer is likely underestimated (Holmes & Filipovic, 2015; Buhler, 2014)). Using regional flow-net analysis, Hedges and others (1985) estimated the recharge rate of the, primarily confined, Upper Vermillion Missouri aquifer to be approximately 0.25 inches per year. The confined portion of the LVM aquifer is approximately 94,000 acres, this was found by subtracting the unconfined area from the current total area on Table 1. Using the Hedges and others (1985) confined recharge rate multiplied by the confined portion areal extent, the average annual recharge rate for the confined portion of the LVM aquifer is approximately 1,960 acre-feet per year; keeping in mind that this estimate is likely lower than the actual rate based on Holmes & Filipovic (2015) investigation and Buhler's (2014) report. Combining average annual recharge rate for both the confined and unconfined portions of the LVM aquifer (within the LVM aquifer within Hedges and others (1982) historical aquifer boundary minus Buhler (2014) delineation of the UVM:S aquifer boundary), the average annual recharge rate is approximately 6,540 acre-feet per year.

Discharge

Discharge from the LVM aquifer in South Dakota primarily occurs through well withdrawals, seepage to surface water features, and evapotranspiration in areas where the aquifer is at or near land surface. There are 97 water rights/permits authorized to appropriate water from the LVM aquifer within the historical aquifer boundary delineated by Hedges and others (1982) (Water Rights, 2023c). However, 61 water rights/permits are in both the LVM aquifer boundary delineated by Hedges and others (1982) and the Upper Vermillion Missouri: South aquifer boundary delineated by Buhler (2014). Of the 61 water rights/permits, 29 are currently withdrawing water from the Upper Vermillion Missouri: South aquifer and are still labeled as withdrawing water from the LVM aquifer. Therefore, by excluding the 29 water rights/permits that are withdrawing from the Upper Vermillion Missouri: South aquifer from the 97 water rights/permits, there are 68 water rights/permits authorized to appropriate water from the LVM aquifer within the current aquifer boundary delineated by Mathiowetz (2018). There are three other pending applications (Application Nos. 8731-3, 8745-3, and 8746-3) for the LVM aquifer beside this application. There are no future use permits reserving water from the LVM aquifer (Water Rights, 2023c).

Table 2 summarizes the 7 non-irrigation water rights/permits authorized to appropriate water from the LVM aquifer with the estimated annual use for each water right/permit as determined by their limiting diversion rate or annual volume. The data on Table 2 is broken up into two sets of water rights/permits 1) those that are located in the historic aquifer boundary by Hedges and others (1982) but not in the Upper Vermillion Missouri: South aquifer boundary delineated by Buhler (2014) and 2) water rights/permits that are located within both boundaries. The amount of water withdrawn was estimated by assuming the non-irrigation water rights/permits limited by an annual volume will withdraw their entire appropriated volume every year. It is estimated that the non-irrigation water rights/permits limited only by a diversion rate will pump at their maximum permitted diversion rate for 60 percent of the time. This is a standard method developed by the

DANR-Water Rights Program for estimating average annual withdrawals by non-irrigation appropriations limited solely by diversion rate. It is likely an overestimate of water withdrawn by water rights/permits only limited by diversion rate. Application No. 8745-3 is requesting 564 acre-feet of water to be appropriated for a one-time use with the following years of water use being non-consumptive by re-injecting the pumped water back into the aquifer (Water Rights, 2023c). Therefore, the average annual use for this application that will be accounted for in the hydrologic budget for the LVM aquifer will be 0 ac-ft/yr. Overall, the estimated average annual withdrawal rate for the LVM aquifer non-irrigation water rights/permits within the historic aquifer boundary (Hedges and others, 1982) is approximately 1,224.4 acre-feet/year, and approximately 48.6 acre-feet/year excluding water rights/permits that are in the Upper Vermillion Missouri: South delineation by Buhler (2014) (Table 2) (Water Rights, 2023c).

Table 2. Estimated average annual use for non-irrigation water rights/permits authorized to appropriate water from the LVM aquifer within the historic aquifer boundary by Hedges and others (1982) but not the UVM:S aquifer delineation by Buhler (2014), and non-irrigation water rights within aquifer boundary delineated by Hedges and others (1982) and Buhler's (2014) UVM:S boundary (Water Rights, 2023c).

Permit No.	Name	Uses	Status	Authorized Diversion Rate (cfs)	Authorized Annual Volume (acre-feet)	Estimated Use (acre-feet/year)
1870-3	USD FACILITIES MGMT	INS	LC	0.03	NA	13.0
6397-3	SD DEPT OF TRANSPORTATION	INS	LC	0.033	NA	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	KNIFE RIVER	IND	PE	0.133	1.84	1.84
					Total:	48.6
3905-3*	CLAY RURAL WATER SYSTEM INC	RWS	LC	2	NA	868.8
5979-3*	CLAY RURAL WATER SYSTEM INC	RWS	LC	2	307	307
					Total:	1175.8
*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, COM Commercial, RWS Rural Water System						

There are 90 irrigation water rights/permits appropriating water from the LVM aquifer within Hedges and others (1982) historical aquifer boundary (Water Rights, 2023c). Irrigation water rights/permits have been typically required to report their annual usage on an irrigation questionnaire since 1979. However, due to changes in farming practices, new equipment, and an increase in the number of permits from 43 in 2006 to 71 in 2013, the average over the entire period of record may not be an accurate reflection of average annual irrigation withdrawal at the present time. The average annual withdrawal rate for the LVM aquifer within Hedges and others (1982) historical boundary for irrigation water rights/permits that have reported over the past ten

years of record (2012 to 2021) is approximately 3,015 acre-feet per year (Table 3) (Water Rights, 2023a).

There are 61 irrigation water rights/permits appropriating water from the LVM aquifer within Hedges and others (1982) historical aquifer boundary excluding rights/permits within delineation UVM:S aquifer by Buhler (2014) (Water Rights, 2023c). However, due to changes in farming practices and an increase in the number of permits from 27 in 2006 to 45 in 2013, the average over the entire period of record may not be an accurate reflection of actual average annual withdrawal at the present time. The average annual withdrawal rate for the LVM aquifer irrigation water rights/permits that have reported over the past ten years of record (2012 to 2021) is approximately 1,866 acre-feet per year (Table 3) (Water Rights, 2023a).

There are ten irrigation water permits approved in 2022 and early 2023 (Nos. 8632-3, 8589-3, 8641-3, 8672-3, 8680-3, 8692-3, 8693-3, 8711-3, 8725-3, and 8726-3) and three other pending irrigation applications in 2023 (Nos. 8731-3, 8746-3, and 8747-3) that were not included in the irrigation questionnaire compilation and need to be accounted for. The new permits are authorized to irrigate 1,093 acres, while the pending applications (Nos. 8731-3, 8746-3, and 8747-3 (this application)), propose to irrigate approximately 386 acres. All together a total of approximately 1,479 acres are planned to be irrigated (Water Rights, 2023c). Assuming one foot of water per acre per year, the withdrawal rate for these water permits/applications is approximately 1,479 acre-feet per year. The average annual withdrawal rate for irrigation appropriations from 2012 to 2021 combined with 2022 and 2023 permits and new applications within Hedges and others (1982) historical aquifer boundary, is approximately 4,494 acre-feet per year (Table 3) (Water Rights, 2023a). The average annual withdrawal rate for irrigation appropriations from 2012 to 2021 combined with 2022 and 2023 permits and new applications within Hedges and others (1982) historical aquifer boundary excluding water rights/permits within delineation UVM:S aquifer by Buhler (2014), is approximately 3,345 acre-feet per year (Table 3) (Water Rights, 2023a).

There are domestic wells completed into the LVM aquifer that do not require a water right/permit, so the withdrawal amount from those wells is unknown (Water Rights, 2023d). 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 LVM aquifer is the uppermost aquifer available; it is likely some domestic users may have transitioned to rural water. Therefore, the quantity of water withdrawn by domestic wells is estimated to be negligible to the hydrologic budget for the LVM aquifer.

Table 3. Reported irrigation uses from the LVM aquifer for water right/permits within the historical boundary of LVM aquifer excluding delineation UVM:S aquifer (Buhler, 2014) (Water Rights, 2023a)

Historical Boundary of LVM aquifer (Hedges and others, 1982)			Historical Boundary of LVM aquifer (Hedges and others, 1982), Excluding UVM:S Aquifer Boundary (Buhler, 2014)		
Year	Number of Permit/License	Annual Pumpage (ac-ft/yr)	Year	Number of Permit/License	Annual Pumpage (ac-ft/yr)
1979	49	1163.0	1979	40	810.5
1980	47	2417.0	1980	38	1995.0
1981	49	1543.0	1981	39	1205.4
1982	37	870.0	1982	27	758.3
1983	38	716.3	1983	28	644.7
1984	47	691.0	1984	37	549.0
1985	46	1328.2	1985	36	927.2
1986	45	1047.5	1986	35	807.5
1987	37	1115.4	1987	27	794.4
1988	38	2083.8	1988	28	1442.4
1989	38	2301.2	1989	28	1522.2
1990	38	2113.2	1990	28	1288.2
1991	39	1670.1	1991	29	1044.1
1992	39	168.8	1992	29	116.7
1993	39	0.0	1993	29	0.0
1994	39	517.3	1994	29	308.7
1995	37	506.6	1995	28	368.2
1996	36	997.6	1996	27	572.9
1997	36	1085.0	1997	27	645.0
1998	36	1032.9	1998	26	736.6
1999	38	900.6	1999	27	698.9
2000	38	2041.7	2000	27	1574.9
2001	38	2037.0	2001	27	1781.8
2002	40	1762.3	2002	29	1123.2
2003	40	1800.6	2003	29	1470.6
2004	39	1747.5	2004	28	1167.6
2005	45	1410.2	2005	28	1071.1
2006	43	2674.5	2006	27	1734.3
2007	50	2909.1	2007	26	1327.0
2008	55	4301.3	2008	28	911.9
2009	58	482.6	2009	30	460.8
2010	59	144.6	2010	30	134.0
2011	62	2195.1	2011	33	1219.4
2012	61	7759.5	2012	33	3355.3
2013	71	4109.1	2013	45	2856.5
2014	75	1576.3	2014	48	1006.4
2015	78	1925.8	2015	50	1473.5
2016	79	2187.5	2016	51	1779.0
2017	79	3156.6	2017	52	2439.3
2018	79	427.7	2018	52	419.4
2019	79	339.6	2019	52	333.0
2020	78	3353.2	2020	51	1972.5
2021	80	5316.2	2021	54	3026.7
Average 1979-2021		1812.2	Average 1979-2021		1159.9
Average 2012-2021		3015.2	Average 2012-2021		1866.2

Hydrologic Budget Summary

The average annual recharge rate for the unconfined portion of the LVM aquifer not enclosed in the UVM:S aquifer (Buhler, 2014) is approximately 4,580 acre-feet/year. The average annual recharge rate for the current confined portion LVM aquifer (Mathiowetz, 2018) is approximately 1,960 acre-feet/year. Combining average annual recharge rate for both the current confined and unconfined portions of the LVM aquifer not enclosed in the UVM:S aquifer, the average annual recharge rate is approximately 6,540 acre-feet per year.

The average annual withdrawal rate from the LVM aquifer within Hedges and others (1982) historical aquifer boundary (the non-irrigation appropriations (1,224 acre-feet/year); the average annual withdrawal rate for irrigation appropriations from 2012 to 2021, 2022-2023 water permits, and pending applications, including this one, (4,494 acre-feet/year)) is approximately 5,718 acre-feet per year, also shown on Table 4 (Water Rights, 2023a).

The average annual withdrawal rate from the LVM aquifer within Hedges and others (1982) historical aquifer boundary excluding rights/permits within delineation UVM:S aquifer by Buhler (2014) (the non-irrigation appropriations (49 acre-feet/year); the average annual withdrawal rate for irrigation appropriations from 2012 to 2021, 2022-2023 water permits, and new applications, including this one, (3,345 acre-feet/year)) is approximately 3,394 acre-feet per year, also shown on Table 4 (Water Rights, 2023a).

Application No. 8745-3 proposes a one-time use of 564 acre-feet/year with an ongoing non-consumptive use of water due to reinjection of pumped water into the aquifer. Therefore, the one-time use is not included in the average annual use because the annual use will be 0 acre-feet/year.

Collectively, the average annual recharge rate for both the confined and unconfined portions of the LVM aquifer is greater than the average annual withdrawal rate from both the LVM aquifer within Hedges and others (1982) historical aquifer boundary and the LVM aquifer within Buhler (2014) and Mathiowetz (2018) boundary delineated portions of the UVM:S and LVM aquifers. Furthermore, the average annual recharge to the aquifer exceeds the average annual withdrawals plus the one-time use for Application No. 8745-3. Based on the hydrologic budget, there is a reasonable probability unappropriated water is available from the LVM aquifer for the proposed appropriation.

Table 4. List of water rights/permits withdrawals, new applications (if approved), and one-time use for application withdrawals from both the historic boundary of the LVM and current boundary of the LVM excluding the UVM:S delineated areas made by Buhler (2014) (Water Rights, 2023a)

	Historical Boundary of the LVM Aquifer (Hedges and others, 1982) Pumpage (ac-ft/yr)	Historic Boundary of the LVM Aquifer (Hedges and others, 1982), Excluding UVM:S Aquifer Boundary (Buhler 2014) Pumpage (ac-ft/yr)
Non-Irrigation Appropriation	1,224	49
Irrigation Appropriation (2012-2022)	3,015	1,866
New Permits (2022-2023)	1,093	1,093
Pending Applications	386	386
Total	5,718	3,494
Application No. 8745-3 one-time use (2023)	564	564

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 DANR-Water Rights Program monitors ten observation wells completed into the LVM aquifer with two additional observation wells (CL-80J and CL-66AR) that are within both the historic aquifer boundary delineated by Hedges and others (1982) and Upper Vermillion Missouri: South aquifer boundary as defined by Buhler (2014), with observation wells in the area of this application shown on Figure 5 (Water Rights, 2023b). These observation wells provide data on how the aquifer reacts to regional climatic conditions and local pumping. The three closest observation wells to the diversion point are CL-80H (approximately 2.4 miles north), CL-80F (approximately 2.5 miles southeast), and CL-80IR (approximately 5.5 miles northwest) (Water Rights, 2023b). The hydrographs for these observation wells are displayed in Figures 2, 3, and 4 respectively (Water Rights, 2023b). 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. It is worth noting the hydrograph titles display DENR Water Rights Observation Well on the hydrographs when the titles should display DANR Water Rights Observation Well on the hydrographs.

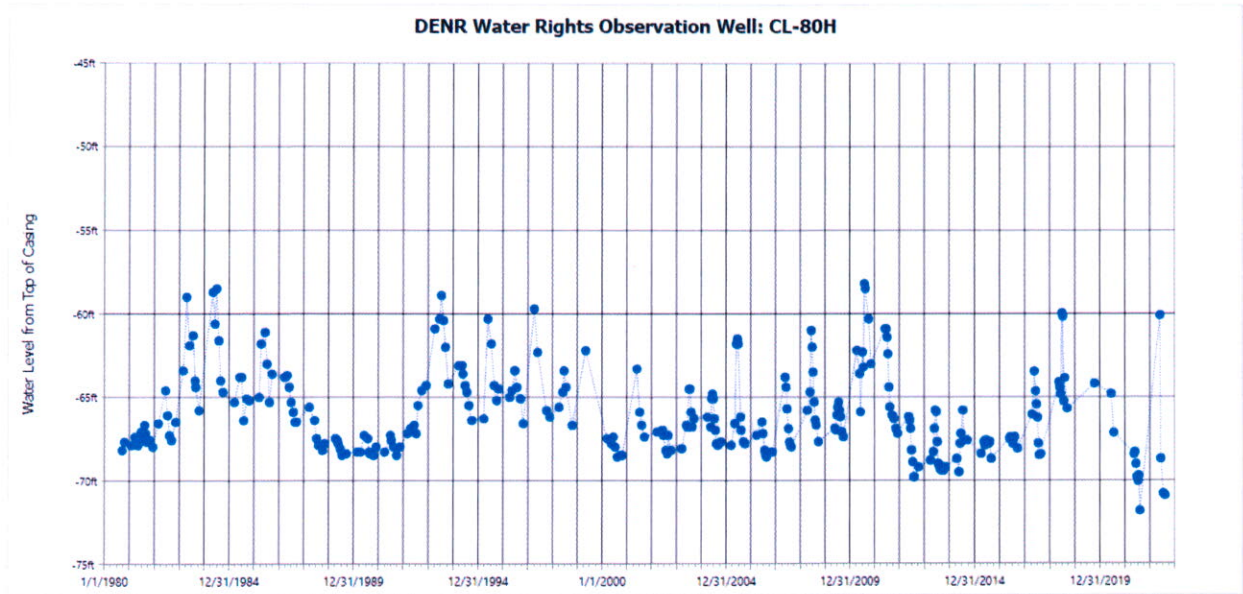


Figure 2. Hydrograph for observation well CL-80H (Water Rights, 2023b)

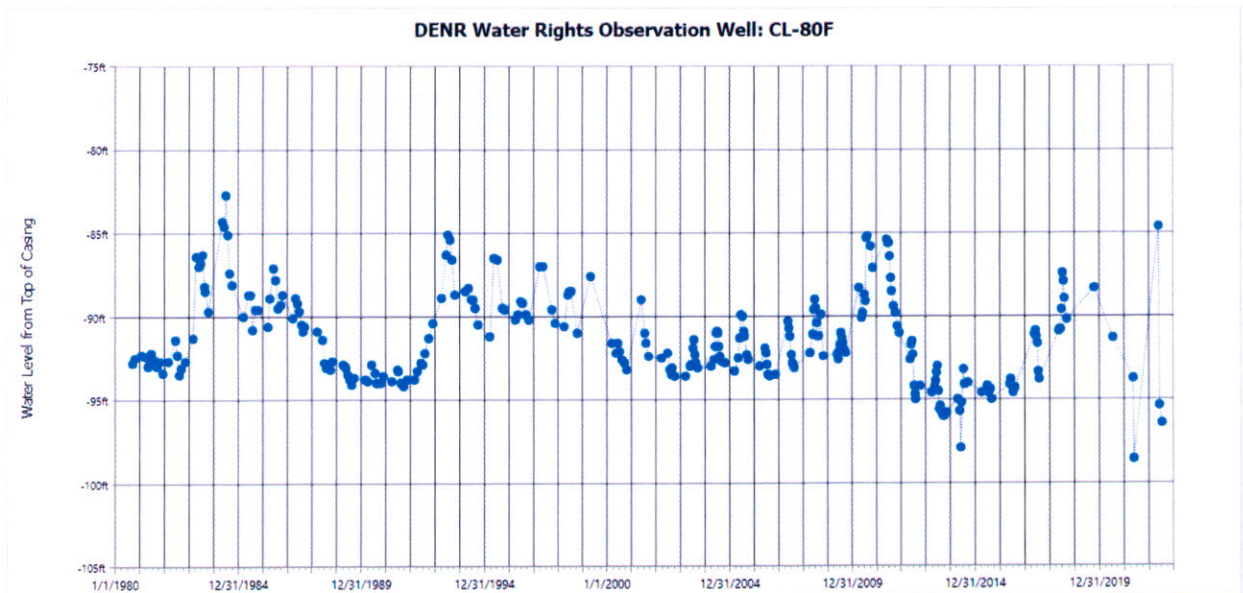


Figure 3. Hydrograph for observation well CL-80F (Water Rights, 2023b)

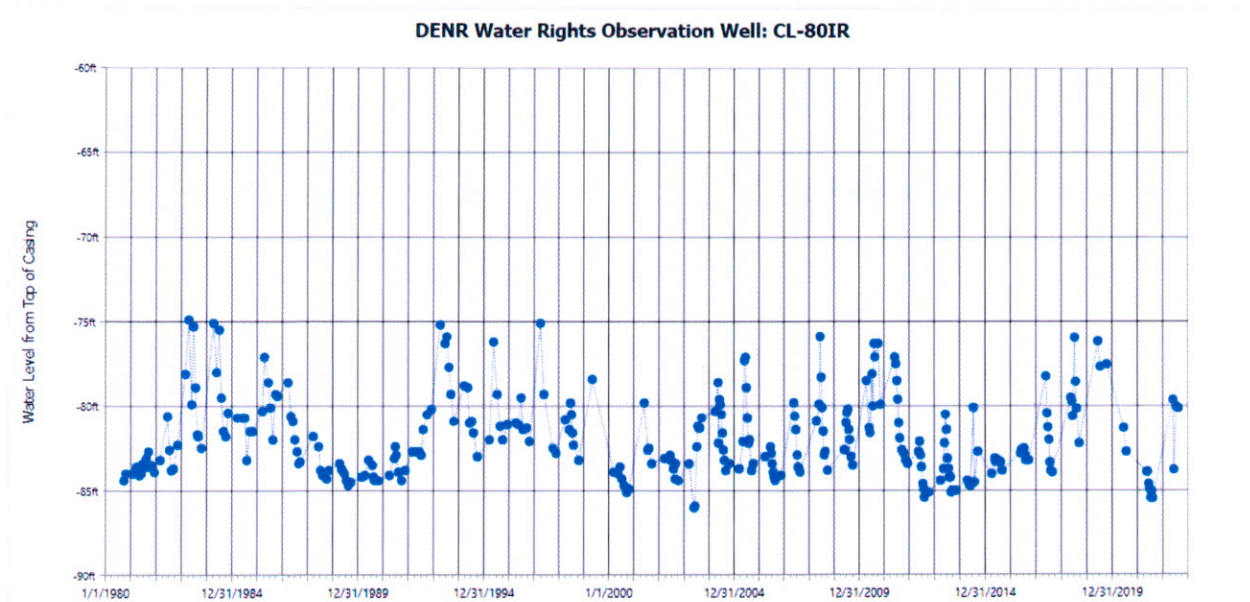


Figure 4. Hydrograph for observation well CL-80IR (Water Rights, 2023b)

A majority of the observation wells in the LVM aquifer have a stable trend in the water level, as seen in Figure 4. The data shown on Figures 2 and 3 shows a slight declining trend in recent years. There is a lot of localized pumping surrounding observation well CL-80H which could be the reason the water level was declining in recent years. Currently, there is no readily apparent reason for Figure 3 recent water level decline at this time. The hydrographs for the LVM aquifer observation wells 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 with water levels 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 govern the long-term fluctuations of water levels in the aquifer rather than the impacts of pumping from the LVM 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.

POTENTIAL FOR UNLAWFUL IMPAIRMENT OF EXISTING WATER RIGHTS:

Water rights/permits in the general vicinity of the proposed well site for this application are shown in Figure 5 and summarized in Table 5. The closest water right/permit to the diversion point for this application, not held by the applicant, is Water Right No. 7477-3 which is held by Chad Heckathorn. The diversion point for Water Right No. 7477-3 is located approximately 0.5 miles east of the proposed diversion point for this application (Water Rights, 2023c). There are domestic wells on file with the DANR-Water Rights Program that are completed into the LVM aquifer, with the closest domestic well on file (not held by the applicant) approximately 0.6 miles southeast of the diversion point based on the legal description provided by the well driller on the

well completion report (Water Rights, 2023d). There could potentially be other domestic wells completed into the LVM aquifer near the diversion point that are not on file with the DANR-Water Rights Program. Another recent pending application (No. 8746-3), also held by the Mark D Nelson, is located approximately 0.5 mile northwest of this application's proposed diversion point.

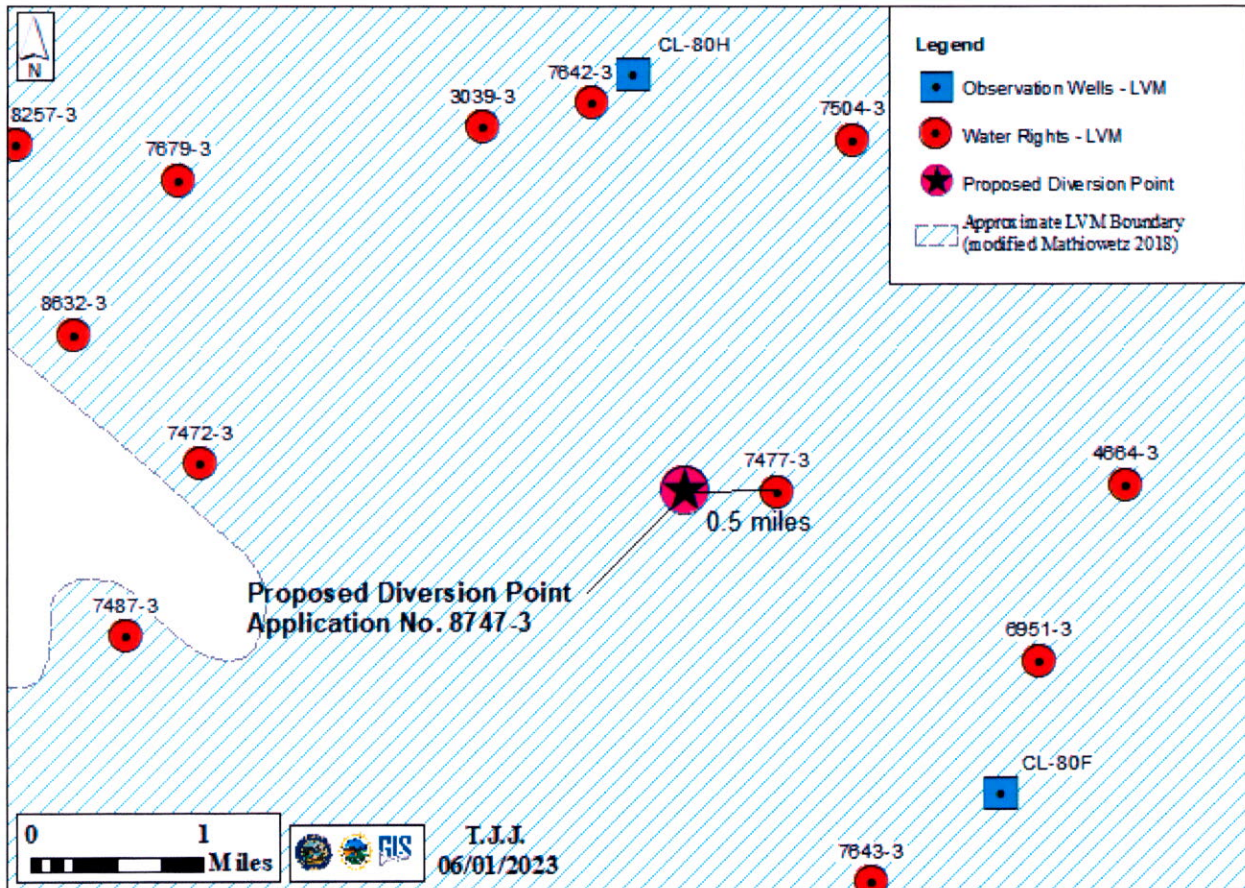


Figure 5. Map of the proposed diversion point for Water Permit Application No. 8747-3, nearby LVM aquifer water rights/permits, and observation wells within 4 miles of the proposed diversion point (Water Rights, 2023b and 2023c).

Table 5. List of water rights/permits shown in Figure 5 (Water Rights, 2023c).

Permit	Name/Business	Priority	Status	Use Type	CFS	Acres
3039-3	Ronald Alfred Johnson	09/01/1976	License	Irrigation	2.0	140
4664-3	William O'Connor	03/05/1981	License	Irrigation	1.7	120
6951-3	Verlyn Hybertson	01/22/2008	License	Irrigation	1.78	132
7472-3	Paul Bremer	10/22/2012	License	Irrigation	1.78	134
7477-3	Chad Heckathorn	10/22/2012	License	Irrigation	1.78	115
7487-3	Bottolfson Brothers	10/29/2012	License	Irrigation	1.56	140
7504-3	Steven Andrews	11/05/2012	Permit	Irrigation	1.78	160
7642-3	Tom Austin	01/16/2013	License	Irrigation	1.22	63
7643-3	Thomas & Jaclyn Corio	01/16/2013	License	Irrigation	1.33	115
7679-3	Scott Heritage Farms LLP	02/04/2013	Permit	Irrigation	1.67	124.6
8257-3	Thein Well Co Inc	12/27/2016	Permit	Commercial	0.089	0
8632-3	Bottolfson Brothers	02/03/2022	Permit	Irrigation	1.78	122.04

Based on the well completion reports near the proposed diversion point for this application, the LVM aquifer is expected to be under confined conditions at the proposed well site. In a confined aquifer, drawdown from a pumping well can extend some distance from the well. 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 LVM 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)), history of irrigation in the area without any recent complaints of well interference (Water Rights, 2023e), the lack of well interference complaints, the saturated aquifer thickness near the diversion point, any drawdown created from the 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...”

If approved, Water Permit Application No. 8747-3 would authorize a maximum instantaneous diversion rate of 1.78 cfs from one well for the irrigation of 108.32 acres. The map and application submitted by the applicant indicates the center pivot is only doing a partial rotation.

A center pivot typically requires a certain diversion rate, 1.78 cfs in this case, to operate properly regardless of swinging a partial or full circle, so the statutory rate limit might be exceeded when a pivot is not completing a full circle. This reasoning has been accepted by the Water Rights Program and the Water Management Board in the past.

CONCLUSIONS:

1. Water Permit Application No. 8747-3 proposes to appropriate 1.78 cfs from one well to be completed into the Lower Vermillion Missouri aquifer (approximately 125 feet deep) located near the center of NW ¼ Section 16 for irrigation of 108.32 acres located in the NW ¼ Section 16; all in T93N-R51W. The site of interest is located approximately 6 miles north of Vermillion, SD in Clay County.
2. Based on observation well data and the hydrologic budget, there is a reasonable probability that unappropriated water is available from the LVM aquifer to supply the proposed appropriation.
3. There is a reasonable probability that the diversion by Water Permit Application No. 8747-3 will not unlawfully impair adequate wells for existing water rights/permits and domestic uses.
4. The applicant is requesting a diversion rate greater than statutory limit of 1 cfs per 70 acres to accommodate a center pivot doing a partial rotation. This is reasonable and has been accepted by the Water Management Board and the Water Rights Program in the past.



Tyler Jensen
Natural Resources Engineer I
SD DANR - Water Rights Program

Reviewed by:



Adam Mathiowetz, PE
Natural Resources Engineer IV
SD DANR - Water Rights Program

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**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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**NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATES, CONTACT
THE NEWSPAPERS RIGHT AWAY.**

June 13, 2023

Mark D Nelson
31079 467th Ave
Vermillion SD 57069

Dear Mr. Nelson:

Water Permit Application Nos. 8746-3 and 8747-3 for irrigation use have been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Plain Talk printed at Vermillion SD (Ph # 605 624-2695) and the Daily 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,

Rachel Rodriguez

Rachel Rodriguez
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 NOS. 8746-3 & 8747-3 to Appropriate Water

Notice is given that Mark D. Nelson, 31079 467th Ave, Vermillion SD 57069 has filed the following applications for a water permit. Application No. 8746-3 proposes to appropriate 1.78 cubic feet of water per second (cfs) from one well to be completed into the Lower Vermillion Missouri Aquifer (approximately 125 feet deep) located near the center of the SE 1/4 Section 9 for irrigation of 115.89 acres located in the SE 1/4 Section 9; all in T93N-R51W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. This site is located approximately 7 miles north of Vermillion SD.

Application No. 8747-3 proposes to appropriate 1.78 cubic feet of water per second (cfs) from one well to be completed into the Lower Vermillion Missouri Aquifer (approximately 125 feet deep) located near the center of the NW 1/4 Section 16 for irrigation of 108.32 acres located in the NW 1/4 Section 16; all in T93N-51W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres. This site is located approximately 6 miles north of Vermillion SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application Nos. 8746-3 and 8747-3 with qualifications because 1) unappropriated water is available, 2) existing domestic water uses and water rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest as it pertains to matters within the regulatory authority of the Water Management Board. The Chief Engineer's recommendations with qualifications, the applications, and staff report are available at <https://danr.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 these applications or recommendations shall allege that the applications, upon approval, will cause injury to the person that is unique from any injury suffered by the public in general. The injury must concern a matter either within the regulatory authority found in SDCL 46-2A-9 for approval or denial of the applications, or other matter concerning the applications within the regulatory authority of the board to act upon as defined by SDCL 46-2-9 and 46-2-11, or both. Any person meeting the petitioner requirements and wishing to be a party of record in a contested case hearing shall file a written petition to oppose the applications with BOTH the applicant and Chief Engineer. A petition opposing the applications shall be filed on a form provided by the Chief Engineer. The petition form is available online at <https://danr.sd.gov/public> or by contacting the Chief Engineer. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501" or call (605) 773-3352. The applicant's mailing address is given above. If contesting the Chief Engineer's recommendations, the applicant shall also file a petition. A petition filed by either an interested person or the applicant must be filed by July 3, 2023.

The petition shall include a statement describing the unique injury upon approval of the applications on the petitioner, the petitioner's reasons for opposing the applications, and the name and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

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Published once at the total approximate cost of _

Rodriguez, Rachel

Plain Talk

From: Rodriguez, Rachel
Sent: Tuesday, June 13, 2023 2:27 PM
To: Kelly Kronaizl
Subject: 8746-3 & 8747-3 Mark D Nelson - Public Notice
Attachments: 8746-3 & 8747-3 public.short_final.docx; FORM8.FRM.doc

Attached is a notice to be published on June 23, 2023.

Mark D. Nelson, 31079 467th Ave, Vermillion SD 57069, (605-670-1256) 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 to the Water Rights Program, 523 E Capitol, Pierre SD 57501.

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

Thank you,

Rachel Rodriguez
DANR | Program Assistant
Rachel.Rodriguez@state.sd.us



Rodriguez, Rachel

Press & Dakota

From: Rodriguez, Rachel
Sent: Tuesday, June 13, 2023 2:28 PM
To: Michael Pietz
Subject: 8746-3 & 8747-3 Mark D Nelson - Public Notice
Attachments: 8746-3 & 8747-3 public.short_final.docx; FORM8.FRM.doc

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

Thank you,

Rachel Rodriguez
DANR | Program Assistant
Rachel.Rodriguez@state.sd.us



AFFIDAVIT OF PUBLICATION

RECEIVED

JUL 05 2023

OFFICE OF
WATER

PLAIN TALK

MARK NELSON
31079 467TH AVE
VERMILLION SD 57069

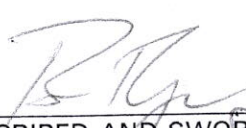
STATE OF SOUTH DAKOTA
COUNTY OF CLAY

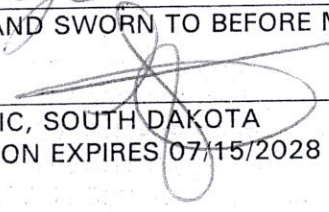
BETH RYE, BEING FIRST DULY SWORN ON OATH DEPOSES
AND SAYS THAT (S)HE IS THE ADVERTISING DIRECTOR OF YANKTON
MEDIA INC, A CORPORATION, THE PRINTER AND THE PUBLISHER OF THE
PLAIN TALK, A LEGAL WEEKLY NEWSPAPER PUBLISHED AND CIRCULATED
IN THE CITY OF VERMILLION, SAID COUNTY AND STATE, AND ONE OF
THE OFFICIAL NEWSPAPERS OF THE SAID COUNTY OF FACTS STATED IN
THIS AFFIDAVIT; THAT THE ANNEXED
NOTICE OF APPLICATION NOS

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE
NEWSPAPER ON THE 23rd DAY OF June, 2023
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION
OF SAID NOTICE TO WIT \$46.88 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: 06/23/2023

FILED ON: 06/23/2023


SUBSCRIBED AND SWORN TO BEFORE ME THIS 23rd DAY OF June, 2023


NOTARY PUBLIC, SOUTH DAKOTA
MY COMMISSION EXPIRES 07/15/2028

Ad text : NOTICE OF APPLICATION NOS. 8746-3 & 8747-3 to Appropriate Water

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Published once at the total approximate cost of \$46.88 and can be viewed free of charge at www.sdpublicnotices.com

Published June 23, 2023.

AFFIDAVIT OF PUBLICATION

YANKTON DAILY PRESS AND DAKOTAN

RECEIVED

JUN 26 2023

OFFICE OF
WATER

MARK NELSON
31079 467TH AVE
VERMILLION SD 57069

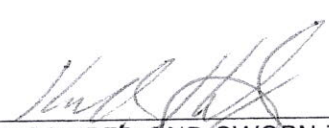
STATE OF SOUTH DAKOTA
COUNTY OF YANKTON

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PUBLISHED ON: 06/23/2023

FILED ON: 06/23/2023


SUBSCRIBED AND SWORN TO BEFORE ME THIS 23rd DAY OF June, 2023

NOTARY PUBLIC, SOUTH DAKOTA
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Published on June 23, 2023.

Rodriguez, Rachel

From: Rodriguez, Rachel
Sent: Tuesday, June 13, 2023 2:34 PM
To: 'mdnelson71@gmail.com'
Subject: 8746-3 & 8747-3 Mark D Nelson - Public Notice
Attachments: 8746-3rec.pdf; 8747-3rec.pdf; Letter&Public Notice.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 paper(s) as soon as possible to authorize publication and arrange for payment. This information is being mailed to you today.

Thank you,

Rachel Rodriguez
DANR | Program Assistant
Rachel.Rodriguez@state.sd.us





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

JUL 26 2023

Mark D. Nelson
31079 467th Avenue
Vermillion SD 57069

Dear Mr. Nelson:

Enclosed are Water Permit Nos. 8746-3 and 8747-3 authorizing construction of your water diversion systems and beneficial use of the water, not exceeding the limits as specified in the Water Permits.

An application/license filing fee of \$1,050.00 was submitted per application. The correct fee for each permit is \$950.00. Therefore, 200.00 will be refunded to you. The refund check should be received within the next couple of weeks.

Form 10's, *Notice of Completion of Works and Application of Water to Beneficial Use*, are enclosed. Please return the completed forms after you have finished the systems and have put the water to beneficial use. An investigation can then be scheduled so the water licenses may be issued, thus completing the acquisition of a water right.

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

Sincerely,

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

enclosures



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

**Affidavit of Public Notice
on DANR Website**

Pursuant to SDCL § 46-2A-4, public notice of the following application was posted on the DANR web site at <https://danr.sd.gov/public>. The posted public notice is the same notice as published in the pertinent newspaper(s) and a copy of the public notice is maintained in the application file. If the application is contested, the posting is moved to the DANR contested case website at <https://danr.sd.gov/public/ContestedCase.aspx> until final action is taken on the application pursuant to SDCL § 46-2A-4.

Application No.: 8747-3

Name of Applicant: Mark D. Nelson

Date of Posting: 6/21/2023

Date of Removal: 7/26/2023



Ron Duvall, Water Rights Permitting Administrator

7/21/23

Date

Subscribed and sworn to before me, a notary public, this 31 day of July, 2023.



Notary Public - South Dakota
My commission expires:
Rachel Rodriguez
My Commission Expires
May 16, 2029

(SEAL)



8747-3

RECEIVED

JUL 18 2025

OFFICE OF
WATERNOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USEDate July 12, 2025TO: Water Rights Program, DANR
523 E. Capitol
Pierre, SD 57501-3181

FROM:

Mark D. Nelson
(name)31079 467th Ave.
(address)Vermillion, SD 57069 1-605-670-1256
(city, state, zip) (phone)

I have completed the construction of the water use system and I have put the water to beneficial use to the maximum extent it is going to be used.

Water Permit No. 8747-3 states that the water use system is to be constructed by July 3, 2028, and water is to be put to beneficial use by July 3, 2032.
(date) (date)

The water use system was completed on June 19th, 2025.
(date)

Applying the water to beneficial use was completed on June 19th, 2025.
(date)

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

Mark D. Nelson
(signature)



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

November 6th, 2025

8747-3

Matt Olson
46562 312th St
Vermillion, SD 57069

Dear Mr. Olson:

Each year, the State of South Dakota sends out Water Management Irrigation Questionnaires to collect information based on annual water use from our state's waters.

This year we received word from Mark Nelson that you now operate the property covered under Water Permit #8747-3.

Permit No.8747-3 authorizes the irrigation of 108.32 acres in the NW1/4 Sec 16, T93N, R51W.

If you would please contact our office with your phone number and email address, we will update our records to have next year's Irrigation Questionnaire for this permit sent to you.

Please let us know if you have any questions or concerns.

Sincerely,

Shannon Konst
Water Rights Program
605 773-3352
Shannon.konst@state.sd.us