

WATER PERMIT NO. 8124-3

Name of Applicant: **Dwight Warkenthien**

Address: **18596 425th Ave, Willow Lake SD 57278** Phone: **605 881-9414**

Amount of Water Claimed: **0.89 cfs** Total Acres: **60 acres**

Source of Water Supply: **groundwater (one well)**

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

Type of Waste Disposal System:

Location: **13 miles south of Clark**

PRIORITY Date Received: **4-6-15** Application/License Fee: **\$ 700**

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

Remarks: **Requesting diversion rate greater than statutory limit**

Diversion Point: **N 1/2 Sec 17-T114N-R57W**

Land to be Irrigated: **NE 1/4 NW 1/4, N1/2 NE**
Sec 17-T114N-R57W

Depth of Well: **36 feet deep**

Well Driller:

Remarks:

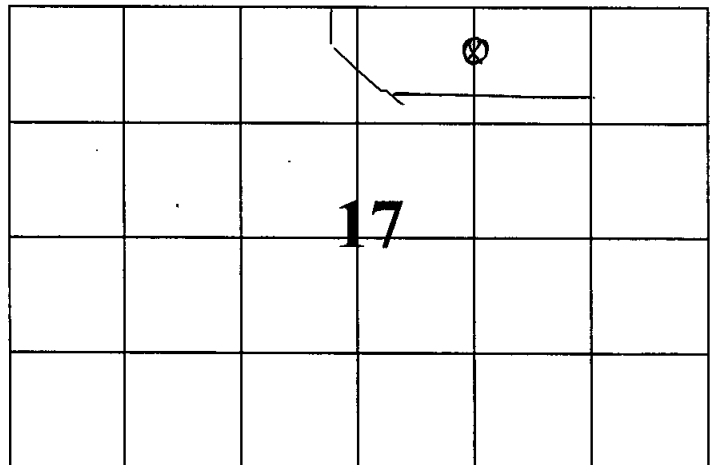
Type of Map: **aerial**

Prepared by:

Reviewed and the Number Assigned on: **4-6-15**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____



SD EForm - 0499LD V4

FORM 2: Application for Irrigation in South Dakota

(type or print)

Mail to:
PMB 2020
DENR - Water Rights
523 E Capitol Ave
Pierre, SD 57501-3182
ph. (605) 773-3352

(office use only)
No. 8124-3 Hydrologic Unit 10170201
Basin Big Sioux River 605-532-3654
Newspaper Clark Co. Courier 1191st Ave E 57225
605-886-
Public Opinion, Box 10, Watertown 57201 4288

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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 Dwight Warkenthien

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

(name and complete address if different than above name)

Mailing Address 18596 425th Ave Willow Lake SD 57278
(Address) (City) (State) (Zip Code)

Home Phone _____ Cell 605 881-9414 Email _____

2. Amount of water claimed 0.89 *CFS or 400 **GPM ***AF Total Acreage 60
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply groundwater - one well

4. Location of point of diversion N 1/2 Sec 17-T114N-R57W

(example - 3 wells in SW 1/4 NE 1/4 section 12-T104N-R33W)

County Clark

5. County or counties where water will be used Clark

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

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

Land Description	Acres	Land Description	Acres
NE 1/4 NW 1/4 Sec 17-T114N-R57W	10		
NW 1/4 NE 1/4 Sec 17-T114N-R57W	25		
NE 1/4 NE 1/4 Sec 17-T114N-R57W	25		

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

Requesting diversion rate greater than statutory limit.

Dwight Warkenthien by Dave Hultstrom, the applicant, certify that I have read this application, have examined the attached map, and that the matters stated are true.

**SOUTH DAKOTA
WATER PERMIT NO. 8124-3**

Date of first receipt of application April 6, 2015.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8124-3 to Dwight Warkenthien, 18596 425th Ave, Willow Lake SD 57278 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. 8124-3 appropriates 0.89 cubic feet of water per second from one well to be completed into the Vermillion East Fork:Willow Lake Management Unit Aquifer (36 feet deep) located in the approximate center of the N 1/2 NE 1/4 Section 17 for irrigation of 60 acres located in the NE 1/4 NW 1/4, N 1/2 NE 1/4 Section 17; all in T114N-R57W.
2. The amount of the appropriation may not exceed 2 acre feet annually for each acre of land to which water is actually and beneficially applied for irrigation. The water is to be used during the following described annual period: May 1 – September 30.
3. The date from which applicant may claim right is April 6, 2015.
4. The date of approval of Permit No. 8124-3 is May 8, 2015.
5. One-fifth of the construction is to be completed on or before November 8, 2017.
6. All construction is to be completed on or before May 8, 2020.
7. Water is to be put to beneficial use on or before May 8, 2024.
8. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. The well approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The well authorized by Permit No. 8124-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

By: 

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

MAY 27 2015

date



PPLS:8_114N_57W

TH CA-75-78

WELL

Begeman State Public Shooting Area

well

well

PPLS:17_114N_57W

Data use subject to license.

© DeLorme. XMap® 7.

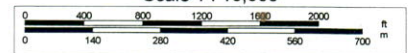
www.delorme.com



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Scale 1 : 16,000



1" = 1,333.3 ft

Data Zoom 13-6



Sec 6
T114N
R57W

Sec 5
T114N
R57W

Sec 4
T114N
R57W

Sec 3
T114N
R57W

Sec 7
T114N
R57W

Sec 8
T114N
R57W

Sec 9
T114N
R57W

Sec 10
T114N
R57W

Sec 18
T114N
R57W

Sec 17
T114N
R57W

Sec 16
T114N
R57W

Sec 15
T114N
R57W

Sec 19
T114N
R57W

Sec 20
T114N
R57W

Sec 21
T114N
R57W

SOUTH DAKOTA WATER WELL COMPLETION REPORT

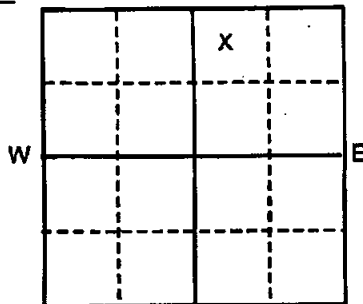
11-02

Location NW ¼ NE ¼ Sec 17 Twp 114N Rg 57W

Well Owner: DWIGHT WARKENTHIEN

County Clark

North

Please mark well
location with an "X"

Business Name:

Address: 18596 425TH AVE

City, State, Zip: WILLOW LAKE SD 57278

WELL LOG:

DEPTH

FORMATION	FROM	TO
TOP SOIL	0	2
CLAY	2	6
GRAVEL	6	36
CLAY	36	100

Well Completion Date

March 25, 2015

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
1,100.0 ft. from FEEDLOT (identify source)

PROPOSED USE:

☐ Domestic/Stock ☐ Municipal ☐ Business ☒ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☐ Monitoring well
METHOD OF DRILLING:
ROTARYCASING DATA: ☐ Steel ☐ Plastic ☐ Other

If other describe NONE

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

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
BENTONITE	7	9.5 Lb/gal	0.0 Ft	100.0 Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

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

STATIC WATER LEVEL 10.0 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

300 - 400 gals sec 17

This well was drilled under license # 805 and this report is true and accurate.

Drilling firm: SAM HEINE WELL COMPANY, LLC

Signature of License Representative: _____

Signature of Well Owner or Equitable Property Holder: _____

RECEIVED

APR - 6 2015

Date: _____

WATER RIGHTS
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RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 2/19, 20 15

RECEIVED OF Farmer's Implement for D Warkenthein PO Box 29 Brookings SD 57006

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

Fee for Application for Permit No. _____ 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. _____	200	00
Fee for Filing Transfer Form _____		
Fee for _____		
Fee for Issuing New Well Driller's License No. _____ for C.Y. _____		
Fee for Renewal of Well Driller's License No. _____ for C.Y. _____		
Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____		
Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____		
(Any Other Work Provided by Law)	TOTAL	950 00

No. **07281**

By

J.earne Goodman
Chief Engineer

Schlaak, Karen

From: Schlaak, Karen
Sent: Monday, April 06, 2015 11:57 AM
To: daveg@farmersii.com
Subject: Two applications for D Warkenthien
Attachments: 8124-3.pdf; 8125-3.pdf

Enclosed are the two applications as amended for Dwight Warkenthien. Please review them carefully and make sure that I understood how the systems have changed since you first submitted the applications.

The application fee for irrigation of 60 acres in Section 17-T114N-R57W will be \$700.

The application fee for irrigation of 280 acres in Sections 8 and 9; all in T114N-R57W will be \$1,250.

The total in fees already submitted is \$2,000. This means \$50 will need to be refunded once the applications have been processed. I will be returning the \$200 check we received with the amended applications back to you since it is not needed.

Again let me know if these application are correct. They will then need to be signed and returned ASAP. Just the front page of the application needs to be returned or you can email the signed copy back to me. Whatever works best for you.

Let me know if you got questions.

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

Water Rights Program - File Documentation

NAME: Dave Gullickson for Dwight Warkenthien

ADDRESS: Farmers Implement, Brookings

DATE: 4-6-15 **COUNTY:** Clark **TELEPHONE:**

RE: Amending applications

COMMENTS:

On April 6, 2015, Dave Gullickson amended the two applications he submitted on behalf of Dwight Warkenthien, Willow Lake SD.

Dave Gullickson stated the applications were being changed based on the test holes which were recently drilled. Regarding the application for irrigation in Section 9-T114N-R57W, they did not find sufficient water in Section 9 so they would like the acres to be irrigated in S 1/2 NW 1/4, N 1/2 SW 1/4 Section 9 (140 acres) added to the application for irrigation in the SW 1/4 Section 8 (140 acres). The well located in the NE 1/4 SW 1/4 Section 8-T114N-R57W will supply water to both pivots.

Mr. Warkenthien would also like to install a half circle pivot irrigate 60 acres in the NE 1/4 NW 1/4, N 1/2 NE 1/4 Section 17-T114N-R57W from a well located in the approximate center of the N 1/2 NE 1/4 Section 17.

I prepared and emailed draft of the two amended applications as described to Mr. Gullickson for his review and signature. Mr. Gullickson stated they were correct.

Since numbers were already given for two applications, the amended applications will be assigned those numbers. Application No. 8125-3 for irrigation in Sections 8 and 9, will retain the February 19, 2015 priority date. The application for irrigation in Section 17 is new, therefore, Application No. 8124-3 will receive a priority date of April 6, 2015.



Karen Schlaak
Water Rights Program

May 22, 2015

PAYMENT REQUEST FORM

PAYEE: Dwight Warkenthien
18596 425th Ave
Willow Lake SD 57278

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

DESCRIPTION OF SERVICE, PRODUCE OR TRANSFER

refund on Water permit No. 8124-3 (overpayment)

AMOUNT: \$50.00

FUNDING SOURCE:

GENERAL: X

FEDERAL:

OTHER:

COMMENTS:

AUTHORIZATION:  5-27-15

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 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. 8124-3, Dwight Warkenthien**

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. 8124-3, Dwight Warkenthien, 18596 425th Avenue, Willow Lake SD 57278.

The Chief Engineer is recommending APPROVAL of Application No. 8124-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest with the following qualifications:

1. The well approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The well authorized by Permit No. 8124-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.

Jeanne Goodman, Chief Engineer
April 17, 2015

REPORT TO THE CHIEF ENGINEER
WATER PERMIT APPLICATION NOS. 8124-3 and 8125-3
Dwight Warkenthien
March 25, 2015

Water Permit Application No. 8124-3 proposes to appropriate water from the Vermillion East Fork aquifer at a maximum diversion rate of 0.89 cubic feet per second (cfs). Water Permit Application No. 8124-3 proposes to construct a single well located in the N $\frac{1}{2}$ NE $\frac{1}{4}$ of Section 17, T114N-R57W in order to supply the proposed diversion rate. The well is expected to be completed to a depth of approximately 36 feet below ground surface and will be used to irrigate 10 acres in the NE $\frac{1}{4}$ NW $\frac{1}{4}$, 25 acres in the NW $\frac{1}{4}$ NE $\frac{1}{4}$, and 25 acres in the NE $\frac{1}{4}$ NE $\frac{1}{4}$, all in Section 17, T114N-R57W for a total of 60 acres in Section 17, T114N-R57W of Clark County.

Water Permit Application No. 8125-3 proposes to appropriate water from the Vermillion East Fork aquifer at a maximum diversion rate of 2.67 cubic feet per second (cfs). Water Permit Application No. 8125-3 proposes to construct a single well located in the NE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 8, T114N-R57W in order to supply the proposed diversion rate. The well is expected to be completed to a depth of approximately 44 feet below ground surface and will be used to irrigate 35 acres in the SW $\frac{1}{4}$ SW, 35 acres in the NW $\frac{1}{4}$ SW $\frac{1}{4}$, 35 acres in the NE $\frac{1}{4}$ SW $\frac{1}{4}$, 35 acres in the SE $\frac{1}{4}$ SW $\frac{1}{4}$, all in Section 8, T114N-R57W as well 35 acres in the SW $\frac{1}{4}$ NW, 35 acres in the SE $\frac{1}{4}$ NW $\frac{1}{4}$, 35 acres in the NW $\frac{1}{4}$ SW $\frac{1}{4}$, and 35 acres in the NE $\frac{1}{4}$ SW $\frac{1}{4}$, all in Section 9, T114N-R57W for a total of 280 acres in Sections 8 and 9, T114N-R57W of Clark County.

AQUIFER: Vermillion East Fork aquifer (VEF)

GEOLOGY AND AQUIFER CHARACTERISTICS:

The Vermillion East Fork aquifer is referred to by Hamilton (1978; 1986) as the Coteau 1 aquifer. Hamilton (1978) describes the aquifer as generally occurring from five to 30 feet below ground surface and being comprised of silty, fine to coarse sand to gravel with an average thickness of 20 feet. The Vermillion East Fork is under unconfined conditions with water levels ranging from six to 40 feet below ground surface at the time the report was written. Water flow in the Vermillion East Fork aquifer is generally to the south (Hamilton, 1986).

The Reid Lake, Antelope Lake, Willow Lake, and Spirit Lake management units of the Vermillion East Fork aquifer were delineated in Clark and Kingsbury Counties based on hydro geologic features, including groundwater flow divides, aquifer constrictions, and surface water connections (Stonesifer, 2014). Because the Vermillion East Fork aquifer is generally a surficial outwash, first occurrence of aquifer material maps completed in Clark, Kingsbury, Lake, and Miner Counties contribute to further delineation of the Vermillion East Fork aquifer (Stonesifer, 2014).

Test hole logs submitted with the two applications show water bearing material from six to 36 feet below ground surface in Section 17 and from three to 110 feet below ground surface in Section 8, these depths are consistent with the known depth of the Vermillion East Fork aquifer. The portion of the Vermillion East Fork aquifer the applicant proposes to divert from is within the area of the Willow Lake Management Unit (Water Rights, 2015b; Hedges and others, 1982).

The Willow Lake Management Unit of the Vermillion East Fork aquifer underlies approximately 13,100 acres and contains an estimated 29,480 acre-feet of recoverable water in storage (Hedges and others, 1982). The various management units within the Vermillion East Fork aquifer are shown in Figure 1, modified to include recharge rates for each management unit (Stonesifer, 2014).

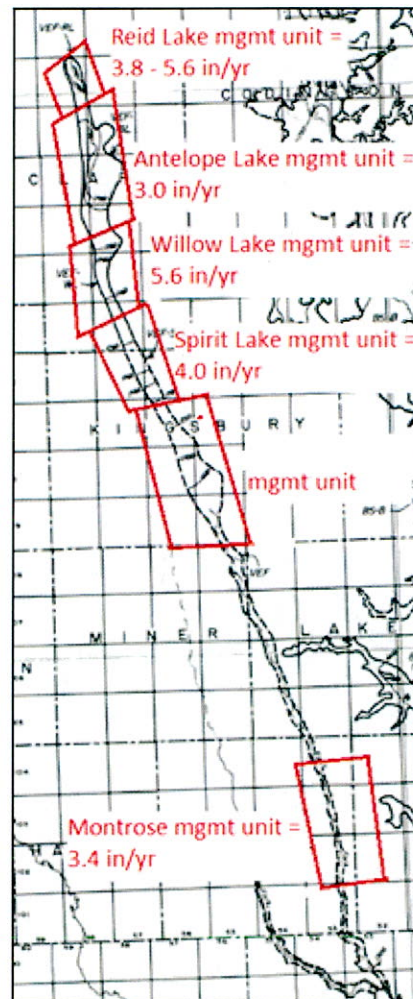


Figure 1: Recharge rates of various management units of the Vermillion East Fork aquifer (modified from Stonesifer, 2014).

SDCL 46-2A-9:

Pursuant to SDCL 46-2A-9, a permit to appropriate water may be issued only if there is a reasonable probability that there is unappropriated water available for the applicant's proposed use, that the proposed diversion can be developed without unlawful impairment of existing rights and that the proposed use is a beneficial use and in the public interest. This report will address the availability of unappropriated water and existing rights from the Vermillion East Fork: Willow Lake aquifer that are pertinent to this application.

WATER AVAILABILITY:

The probability of unappropriated water available from an aquifer can be evaluated by considering SDCL 46-6-3.1, which requires "No application to appropriate groundwater may be approved if, according to the best information reasonably available, it is probable the quantity of

water withdrawn annually from a groundwater source will exceed the quantity of the average estimated annual recharge of water to the groundwater source.” If the source of the water is older or lower than the Greenhorn Formation and a public water system has applied for a permit, the Board need not consider the recharge/withdrawal issue. Here, a public water system is not involved. Therefore, withdrawal/recharge issue must be considered.

In applying SDCL 46-6-3.1, the Sixth Judicial Circuit Court ruled in 2005 that if the Water Management Board uses average annual recharge, then it should also use average annual withdrawals to determine if unappropriated water is available from the aquifer (*Hines v. South Dakota Dept. of Environ. and Nat'l. Resources, Hughes County 04-37*) (Memorandum Decision, April 29, 2005).

A 2012 First Judicial Circuit Court’s rulings basically stated that data must be presented to show it is probable the average annual recharge exceeds the average annual discharge by at least the amount requested by the water permit application being considered (*Hanson County Dairy v. Robert Bender and Stace Nelson*) (Memorandum Decision, April 11, 2012).

Later in 2012, the First Judicial Circuit Court stated that in deciding whether or not it is probable that the quantity of water withdrawn will exceed the quantity of the average estimated annual recharge is to be based according to the best information reasonably available, and that nothing in South Dakota law requires a recharge study (*Longview Farms, LLP v. South Dakota Dept. of Environ. and Nat'l. Resources*), (Memorandum Decision, May 17, 2012).

Recharge:

Recharge to the Vermillion East Fork aquifer occurs through infiltration of precipitation, and inflow from adjacent till (Hamilton, 1986). Hedges and others (1985) estimated the recharge rate for various management units of the Vermillion East Fork aquifer through observation well analysis, shown in Figure 1. The recharge rate estimated by Hedges (1985) for the Willow Lake Management Unit is 5.6 inches per year (in/yr). Applying this rate to Hedges and others’ (1982) area of the management unit (13,100 acres), a recharge rate of 6,113 ac-ft/yr was calculated.

Discharge:

Discharge from the Vermillion East Fork aquifer occurs through evapotranspiration, outflow to adjacent and underlying till, outflow to lakes, and well withdrawals (Hamilton, 1989). While there are several domestic wells completed into the Willow Lake Management Unit on file with the Water Rights Program, many are no longer used as primary sources since rural water systems have been introduced in the area. Considering this, and the relatively small withdrawals made by domestic wells, the annual quantity of water withdrawn from domestic wells is not considered significant to the hydrologic budget of the aquifer.

In addition to domestic well withdrawals, there are currently 15 water rights/permits appropriating water from the Willow Lake Management Unit of the Vermillion East Fork aquifer (Water Rights, 2015b). Fourteen of the 15 water rights/permits appropriating water from this management unit are for irrigation purposes with the remaining water right held by the City of Willow Lake for municipal purposes. Annual withdrawals under irrigation rights/permits are

listed in Table 1 and average 8.9 water permits/rights over the period of record with withdrawals and total appropriation averaging 487 ac-ft/yr and 4,532.8 ac-ft/yr, respectively. However, the number of water permits/rights and the total amount of water appropriated under those permits/rights has increased in recent years. In 2013 and 2014 a record 14 water permits/rights appropriated 5,640.4 ac-ft/yr and withdrew 1,238.8 ac-ft/yr (in 2013), the latter of which is the maximum over the period of record. As of 2014, all water permits/rights completed into the Willow Lake Management Unit of the Vermillion East Fork aquifer were reporting water use and were therefore developed and online. The percentage of actual water withdrawn compared to the amount appropriated over the historic period of record is 10.6 percent. Applying this percentage to the current appropriation level, it is expected that at the current level of development average annual withdrawals for irrigation will equal approximately 599.4 ac-ft/yr.

The City of Willow Lake is not connected to a rural water system and still relies on Water Right No. 1601-3 for its water supply. In 2013 the City of Willow Lake reported to the Drinking Water Program that 13,751,500 gallons or 42.2 ac-ft had been pumped in the preceding year under Water Right No. 1601-3 (Drinking Water, 2015).

Water Balance:

Total expected average annual withdrawals from the Willow Lake Management Unit of the Vermillion East Fork aquifer including irrigation and municipal use equal 513.4 ac-ft/yr (Water Rights, 1980-2015; Water Rights, 2015b). However, the number of Water Permits/Rights appropriating water from the Vermillion East Fork: Willow Lake aquifer since 2013 increased over 50 percent above the historic average. If the number of water permits/rights currently in operation is seen as more representative of the future of the region, the level of appropriation for the past two years multiplied by the historic ratio of actual usage to appropriation may be more representative of expected future use. This rate was calculated to be 599.4 ac-ft/yr or 641.4 ac-ft/yr when non-irrigation use is included. Both these withdrawal rates (the historic average and the estimate based on recent development) are below the estimated recharge rate presented by Hedges and others (1985). Therefore, there is a reasonable probability that unappropriated water is available from the Vermillion East Fork: Willow Lake aquifer for the uses proposed in Water Permit Application Nos. 8124-3 and 8125-3.

Year	Number of Water Permis/Rights	Appropriation (ac-ft/yr)	Reported Usage (ac-ft/yr)
1979	7	5502	99
1980	8	6164	540
1981	8	6164	611
1982	9	4931.6	627.54
1983	8	3995.6	900.23
1984	8	4089	607
1985	8	4088	304
1986	8	3995.6	190
1987	8	3995.6	289
1988	8	3995.6	666.7
1989	8	3995.6	549
1990	8	3983.6	922
1991	8	3983.6	260
1992	8	3983.6	193
1993	8	3983.6	81
1994	8	4088.4	120.34
1995	7	3908.4	81.75
1996	8	4228.4	364.39
1997	8	4228.4	225
1998	9	4588.4	246.22
1999	9	4588.4	281.36
2000	9	4588.4	346.93
2001	9	4452.4	387.99
2002	9	4452.4	607.26
2003	9	4452.4	618.12
2004	10	4452.4	451.67
2005	10	4452.4	552.7
2006	10	4452.4	668.69
2007	9	4452.4	599.63
2008	9	4452.4	834.31
2009	10	4492.4	77.56
2010	11	4812.4	288.73
2011	11	4812.4	664.66
2012	12	5092.4	997.68
2013	14	5640.4	1238.79
2014	14	5640.4	1040.20
Max	14	6164	1238.79
Min	7	3908.4	77.56
Average	9.0	4532.8	487.0

Table 1: Historic irrigation water use from the Vermillion East Fork: Willow Lake aquifer (Water Rights, 1980-2015)

Observation Well Data:

Administrative Rule of South Dakota Section 74:02:05:07 requires that “the [Water Management Board] shall rely upon the record of observation well measurements... 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 five observation wells in the Willow Lake Management Unit of the Vermillion East Fork aquifer, the hydrographs for which are shown in Figures 2 through 6. Of these wells, Observation Well CK-78K is the closest to the proposed well sites proposed in Water Permit Application Nos. 8124-3 and 8125-3 at approximately 0.25 to the east and 0.75 miles to the southeast, respectively. The hydrograph for Observation Well CK-78K shows little to no visible effects of pumping in water levels that are primarily climatically controlled. All five observation wells completed into the management unit show increasing trend lines over the period of record with water levels in CK-78K rising 10 feet since 1978 (Water Rights, 2015a). Rising water levels in some observation levels indicate the amount of water in storage in the Vermillion East Fork: Willow Lake has increased over the period of record. Ultimately, observation well data shows climatic conditions mask temporal effects, indicating natural recharge and discharge eclipse anthropogenic discharge in the aquifer. Therefore, unappropriated water is available for the proposed use.

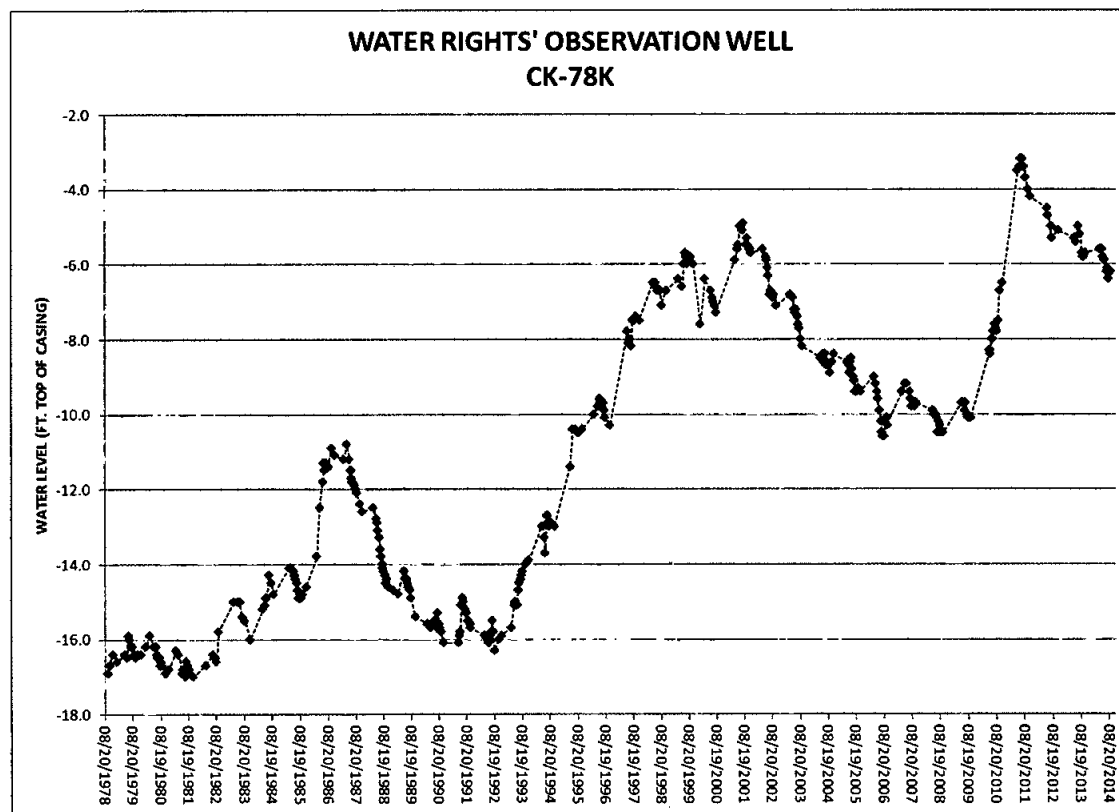


Figure 2: Historic Water Levels in Observation Well CK-78K (Water Rights 2015a).

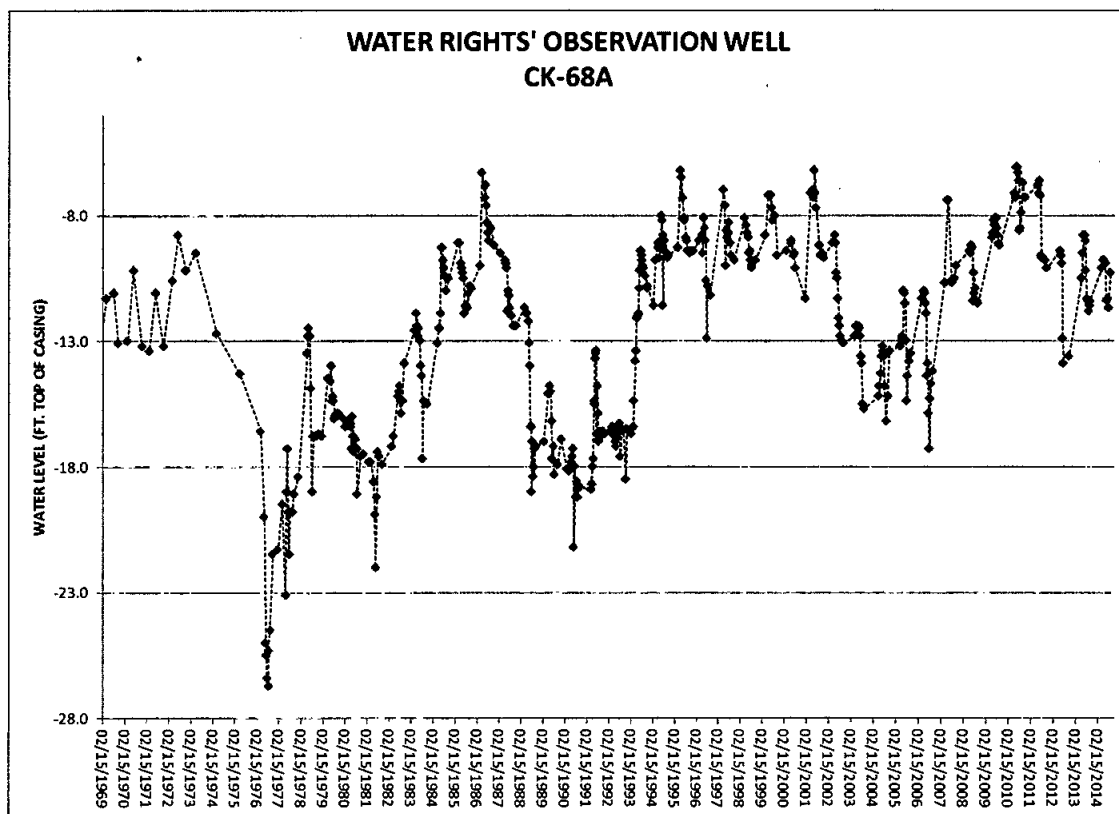


Figure 3: Historic Water Levels in Observation Well CK-68A (Water Rights 2015a).

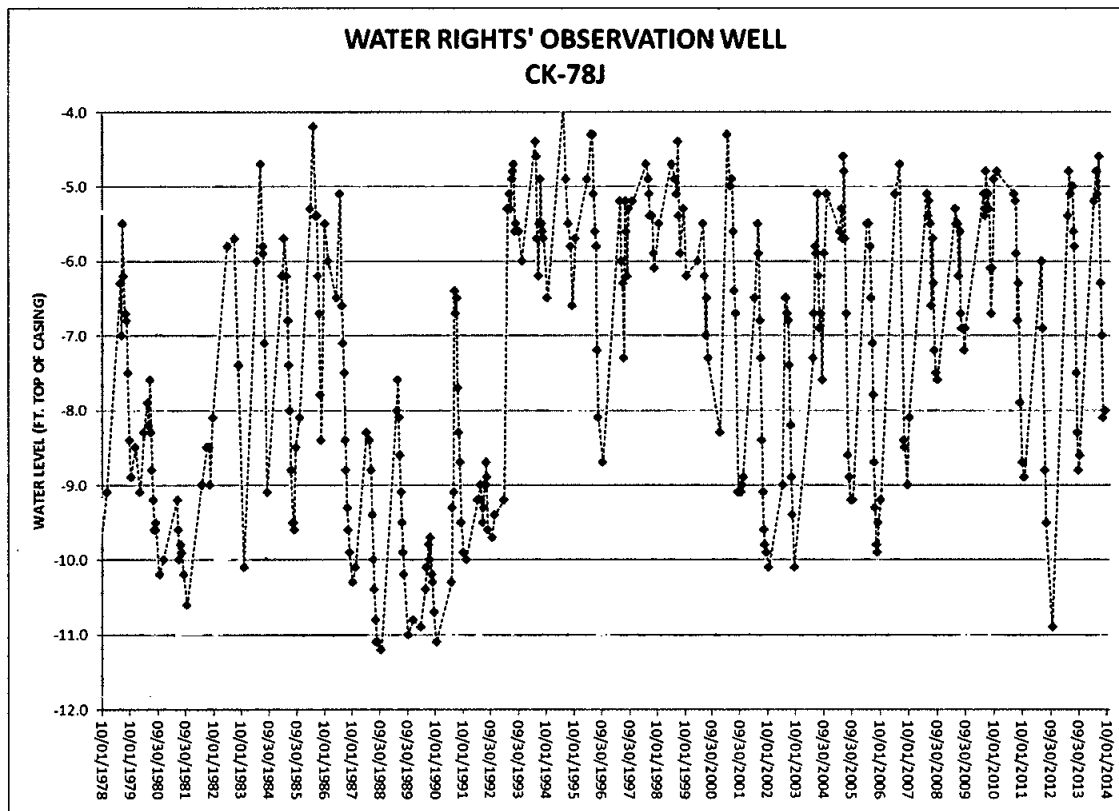


Figure 4: Historic Water Levels in Observation Well CK-78J (Water Rights 2015a).

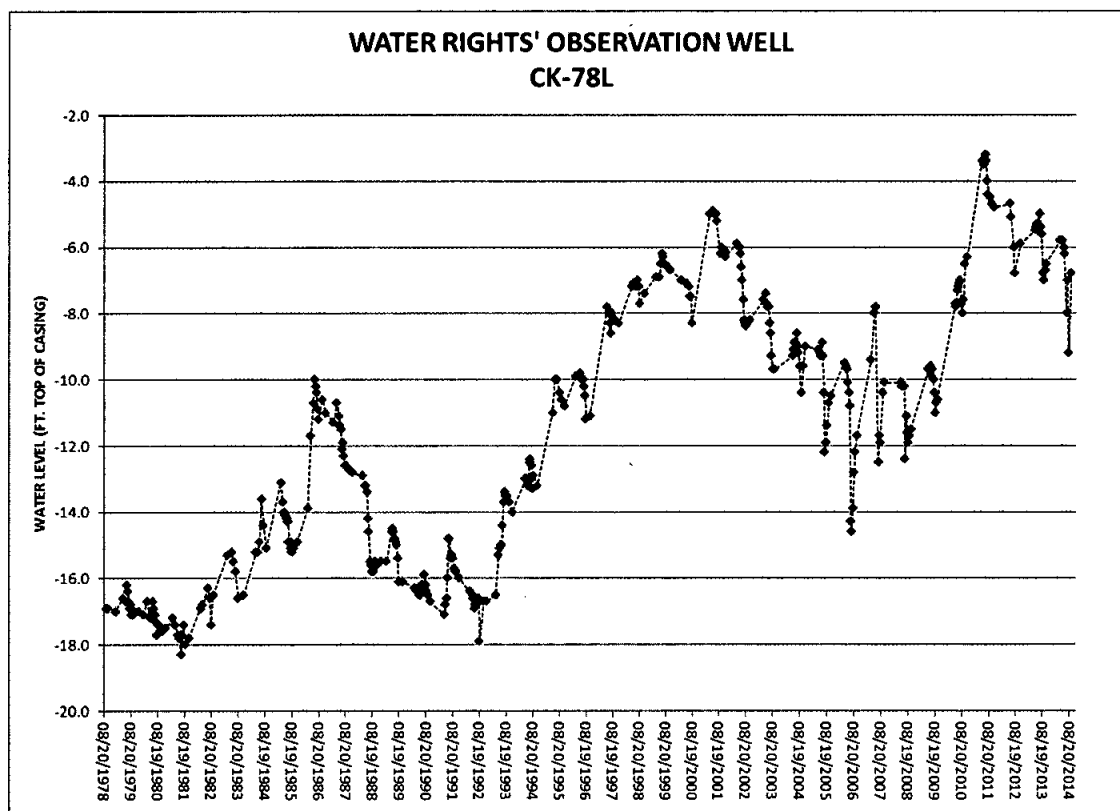


Figure 5: Historic Water Levels in Observation Well CK-78L (Water Rights 2015a).

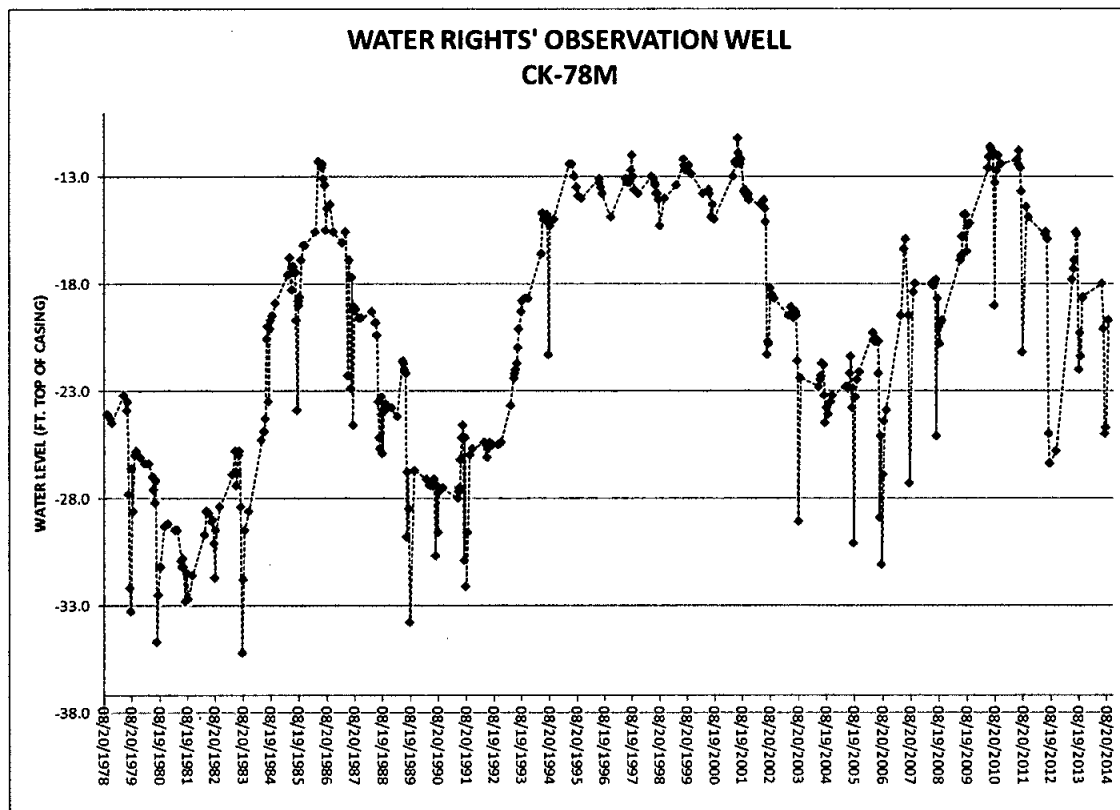


Figure 6: Historic Water Levels in Observation Well CK-78M (Water Rights 2015a).

EXISTING WATER RIGHTS:

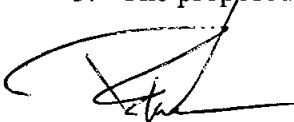
Currently, there are 15 water permits/rights appropriating water from the Willow Lake Management Unit of the Vermillion East Fork aquifer (Water Rights, 2015b). Of these, the two water rights authorizing wells closest to the proposed well sites in these applications are Water Rights Nos. 3145-3 and 3146-3, both held by the current applicant. Interference with wells controlled by the same entity is seen by the Water Rights program as a management issue for the holder of the corresponding water permits/rights.

The closest well and water right not held by the applicant is Water Right No. 2322-3, located approximately 2.3 and 1.75 miles north of the well sites proposed by Water Permit Application Nos. 8124-3 and 8125-3, respectively. From pump tests performed on production wells in the area associated with Water Permit and Water Right Nos. 7406-3, 7346-3, and 5857A-3, located approximately 4.0, 4.5, and 3.0 miles to the south of the proposed well sites in this application, (Water Rights, 2015c) a transmissivity of 132,000 to 27,000 gallons per minute per day was calculated. Assuming the applicant will apply approximately one acre foot of water per acre of irrigated land over the course of the growing season, the average rate of withdrawal over this season would be approximately 0.17 cfs (8124-3) and 0.78 cfs (8125-3). Given the range of transmissivities listed above, the approval of both applications would result in a combined drawdown of no greater than 0.3 feet at a distance of 1.75 miles.

The Water Rights Program is aware of numerous domestic wells completed into the Vermillion East Fork: Willow Lake aquifer. Assuming adequate construction as defined by South Dakota Well Construction Standard 74:02:04:06, drawdown is not expected be sufficient to cause unlawful impairment of nearby domestic wells.

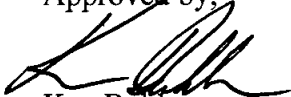
CONCLUSIONS:

1. Water Permit Application Nos. 8124-3 and 8125-3 propose to withdraw groundwater at a maximum diversion rate of 0.89 and 2.67 cfs, each from one well to be completed into the Willow Lake Management Unit of the Vermillion East Fork aquifer in Clark County for the irrigation of 60 and 280 acres, respectively.
2. There is a reasonable probability that unappropriated water is available from the Willow Lake Management Unit of the Vermillion East Fork aquifer to supply the proposed appropriations.
3. The proposed wells are not expected to adversely impair nearby adequate wells.



Bracken Capen
SD DENR-Water Rights Program

Approved by,



Ken Buhler
SD DENR-Water Rights Program

REFERENCES:

- Hamilton, L.J. 1978. Major Aquifers in Clark County, South Dakota. SD DENR-Geological Survey- Information Pamphlet No. 16. Vermillion, South Dakota
- Hamilton, L.J. 1986. Geology and Water Resources of Clark County, South Dakota. Part II: Water Resources. SD DENR-Geological Survey- Bulletin 29. Vermillion, South Dakota
- Hamilton, L.J. 1989. Water Resources of Brookings and Kingsbury Counties, South Dakota. Water-Resources Investigations Report 88-4185, 82 p. USGS, Huron, South Dakota.
- Hedges, L.S., Burch, S.L., Iles, D.L., Barari, R.A., and Schoon, R.A. 1982. Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa, Task 1: Bedrock Topography and Distribution, Task 2: Extent of Aquifers, Task 3: Ground-Water Storage, Task 4: Computerized Data Base, Final Report. U.S. Army Corps of Engineers Contract DACW 45-80-C-0185.
- Hedges, L.S., Allen, J., and Holly, D.E. 1985. Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa. Task 7: Ground Water Recharge. U.S. Army Corps of Engineers Contract DACW 45-80-C-0185.
- In the Matter of Water Permit Application No. 7209-3, Longview Farms, LLP v. South Dakota DENR, South Dakota First Judicial Court Civ. No. 11-146 (Memorandum Decision, May 17, 2012).
- In the Matter of Water Permit Application No. 7239-3, Hanson County Dairy v. Robert Bender and Stace Nelson, South Dakota First Judicial Court Civ. No. 11-54 (Memorandum Decision, April 11, 2012).
- In the Matter of Water Permit Application No. 6431-3, Phillip W. Hines v. South Dakota DENR, South Dakota Sixth Judicial Court Civ. No. HU04-37 (Memorandum Decision, April 11, 2012).
- Jensen, A.R. 2001. First Occurrence of Aquifer Materials in Clark County, South Dakota. SD DENR-Geological Survey-Aquifer Materials Map 2. Vermillion, South Dakota.
- Jensen, A.R. 2002a. First Occurrence of Aquifer Materials in Lake County, South Dakota. SD DENR-Geological Survey-Aquifer Materials Map 11. Vermillion, South Dakota.
- Jensen, A.R. 2002b. First Occurrence of Aquifer Materials in Miner County, South Dakota. SD DENR-Geological Survey-Aquifer Materials Map 12. Vermillion, South Dakota.
- Schulz, L.D. 2007. First Occurrence of Aquifer Materials in Kingsbury County, South Dakota. SD DENR-Geological Survey-Aquifer Materials Map 24. Vermillion, South Dakota.

Stonesifer, J.R. 2014. Report on Water Permit Application No. 7981-3 for Farron Pratt: SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

Water Rights. 1980-2015. "Annual Irrigation Summary by Aquifer": SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

Water Rights. 2015a. Observation Well Files, SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

Water Rights. 2015b. Water Right/Permit Files, SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

Water Rights. 2015c. Water Well Completion Reports, SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

**NOTICE OF APPLICATION NOS.
8124-3 and 8125-3 to Appropriate Water**

Notice is given that Dwight Warkenthien, 18596 425th Ave, Willow Lake SD 57278 has filed the following applications for a water permit.

Application No. 8124-3 proposes to appropriate 0.89 cubic feet of water per second (cfs) from one well to be completed into the Vermillion East Fork: Willow Lake Management Unit Aquifer (36 feet deep) located in the approximate center of the N 1/2 NE 1/4 Section 17 for irrigation of 60 acres located in the NE 1/4 NW 1/4, N 1/2 NE 1/4 Section 17; all in T114N-R57W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres.

Application No. 8125-3 proposes to appropriate 2.67 cfs from one well to be completed into the Vermillion East Fork: Willow Lake Management Unit Aquifer (160 feet deep) located in the NE 1/4 SW 1/4 Section 8 for irrigation of 280 acres located in the SW 1/4 Section 8 and the S 1/2 NW 1/4, N 1/2 SW 1/4 Section 9; all in T114N-R57W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application Nos. 8124-3 and 8125-3 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. In accordance with SDCL 46-2A-23, the Chief Engineer will act on the applications, as recommended, unless a petition is filed opposing the applications or the applicant files a petition contesting the Chief Engineer's recommendations. If a petition opposing the applications or contesting the

recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the applications. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting the applications or recommendations must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by May 8, 2015.

The petition may be informal, but must include a statement describing the petitioner's interest in the applications, the petitioner's reasons for opposing or supporting the applications, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Information concerning these applications is available at <http://denr.sd.gov/public>. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to these applications. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

Published once at the total approximate cost of \$30.80.

4-29-1t

Affidavit of Publication

State of South Dakota

County of Clark

RECEIVED
\$ MAY 04 2015

WATER RIGHTS
PROGRAM

William J. Krikac of said county, being first sworn, on oath says that he is the publisher of the **Clark County Courier**, a weekly newspaper printed and published in Clark in said County of Clark and has a full and personal knowledge of all the facts therein stated; that said newspaper is a legal newspaper and has a bona-fide circulation of at least two hundred copies weekly, and has been published within said County for fifty-two successive weeks next prior to the publication of the notice herein mentioned, and was and is printed wholly or in part in an office maintained at said place of publication; that the

**SD DNR
Water rights
-Dwight Warkenthien**

a printed copy of which taken from the paper in which same was published, is attached to this sheet, and is made a part of this Affidavit, was published in said newspaper at least once in each week for

One

successive week(s), on the day of each week on which said newspaper was regularly published, to wit:

April 29, 2015

that the full amount of the fees for the publication of the annexed notice is

\$30.80

William J. Krikac

Subscribed and sworn to before me this

30th day of April, 2015

Anna D. Zelke

Notary Public
Clark County, South Dakota

My Commission expires: 06/04/2019

RECEIVED

MAY 04 2015

WATER RIGHTS
PROGRAM

Form 8

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County of Codington) SS

I, Monica K. Saathoff

certify that the attached printed Notice was
taken

from the Watertown Public Opinion

printed and published in Watertown

County of Codington and

state of South Dakota. The notice was
published

in the newspaper on the following date:

April 29th, 2015

Cost of Printing 68.91

Monica K Saathoff
(Signature)

Bookkeeper

(Title)

April 29th, 2015

(Date Signed)

SOUTH DAKOTA

NOTICE OF APPLICATION NOS. 8124-3 and 8125-3 to Appropriate Water

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(April 29, 2015)

All legal notices in the Public Opinion and other South Dakota newspapers can be found at www.sdpublicnotices.com



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

April 20, 2015

Clark County Courier
119 1st Ave E
Clark SD 57225

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 8124-3 and 8125-3 to Appropriate Water. Please publish the notice once on April 22, 2015. The text of the notice has been e-mailed to your paper.

The applicant must verify to you that the notice is to be published and arrange for payment. **Please BILL the APPLICANT for the cost of publication.** The APPLICANT is Dwight Warkenthien, 18596 425th Ave, Willow Lake SD 57278 (Ph # 605 881-9414).

Please send the Water Rights Program an affidavit or the enclosed Proof of Publication form immediately.

The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

April 20, 2015

Public Opinion
PO Box 10
Watertown SD 57201

ATTENTION: Legal Public Notice

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Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures



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.**

April 20, 2015

Dwight Warkenthien
18596 425th Ave
Willow Lake SD 57278

Dear Mr. Warkenthien:

Water Permit Application Nos. 8124-3 and 8125-3 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 Clark County Courier printed at Clark SD (Ph # 605 532-3654) and the Public Opinion printed at Watertown SD (Ph # 605 886-4280). 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 newspaper has also been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the application.

Sincerely,

Eric Gronlund
Natural Resources Engineer
(605) 773-3352

enclosures

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

c: Dave Gullickson, Farmers Implement and Irrigation

Instruction to Newspaper - Publish the Notice on April 29, 2015. The applicant is responsible for payment. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352 or email: Karen.schlaak@state.sd.us.

NOTICE OF APPLICATION NOS. 8124-3 and 8125-3 to Appropriate Water

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Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application Nos. 8124-3 and 8125-3 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. In accordance with SDCL 46-2A-23, the Chief Engineer will act on the applications, as recommended, unless a petition is filed opposing the applications or the applicant files a petition contesting the Chief Engineer's recommendations. If a petition opposing the applications or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the applications. Notice of the hearing will be given to the applicant and any person filing a petition.

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Published once at the total approximate cost of _____.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

May 22, 2015

Dwight Warkenthien
18596 425th Ave
Willow Lake SD 57278

Dear Mr. Warkenthien:

Enclosed are Water Permit Nos. 8124-3 and 8125-3 authorizing construction of the water diversion systems and beneficial use of the water, not exceeding the limits as specified in the Water Permits.

The applications were submitted with fees totaling \$2,000.00. The application /license fee for Permit No. 8124-5 is \$700.00 and Permit No. 8125-3 is \$1,250.00. Therefore, \$50.00 will be refunded to you. The refund check should be received within a couple of weeks.

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

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

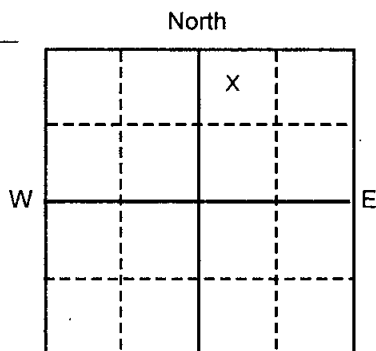
Sincerely,

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

enclosures

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location NW ¼ NE ¼ Sec 17 Twp 114N Rg 57WCounty ClarkPlease mark well
location with an "X"

Well Completion Date

March 25, 2015

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

1,100.0 ft. from FEEDLOT (identify source)

PROPOSED USE:

☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes
☒ Irrigation ☐ Industrial ☐ Institutional ☐ Monitoring well
METHOD OF DRILLING:
REVERSE ROTARY

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	<u>16.00</u> IN	<u>0.0</u> FT	<u>15.0</u> FT	<u>28.00</u> IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
<u>BENTONITE</u>	<u>16</u>	<u>9.5</u> Lb/gal	<u>0.0</u> Ft	<u>12.0</u> Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

SCREEN:

☒ Perforated pipe ☐ Manufactured
Diameter 16.00 Inches Length 40.0 FeetMaterial pvcSlot Size 85 Set From 15.0 Feet to 50.0 Feet

Other information

WAS A PACKER OR SEAL USED?

☐ Yes ☒ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? CHLORINE TABLETS
☐ No, Why Not?
Lab to which water
quality sample sent for analysisWell Owner: DWIGHT WARKENTHIEN

Business Name:

Address: 18596 425TH AVECity, State, Zip: WILLOW LAKE SD 57278

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
TOP SOIL	0	2
CLAY	2	6
GRAVEL	6	36
CLAY	36	50

STATIC WATER LEVEL 10.0 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: TURBINE PUMP AND ENGINE
☐ Bailed
☐ Other

Pumping Level Below Land Surface

28.0 Ft. After 2.0 Hrs. pumped 600.0 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

RECEIVED

JUN 15 2015

WATER RIGHTS
PROGRAMThis well was drilled under license # 805 and this report is true and accurate.Drilling firm: SAM HEINE WELL COMPANY, LLC

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date: 3-25-15

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 8124-3

I have this day, june 8, 2023, made a thorough examination of the water use system constructed by Dwight Warkenthein, 18596 425th Ave, Willow Lake, SD 57278 of Permit No. 8124-3, bearing the priority of April 6, 2015 authorizing the diversion of 0.89 cu. ft. per second of the waters of the Vermillion East Fork: Willow Lake Management unit Aquifer for irrigation purposes, in Clark County.

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: Sam Heine Well Company
- 2) No. of Wells 1
- 3) Depth(s) 50 feet
- 4) Well log is available Y If no, explain in comments

Casing:

- 1) Diameter 16 inches
- 2) Length 15 feet
- 3) Type Plastic

Screen:

- 1) Type PVC
- 2) Length 40 feet
- 3) Static water level 10 feet

Pump:

- 1) Make Submersible
- 2) Model Unknown
- 3) Size Unknown
- 4) Capacity 400 GPM

Motor:

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

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

- 1) Type Buried PVC
- 2) Size 6 inches
- 3) Length 2050 feet

C. Works used to apply water to beneficial use:

Center pivot:

- 1) Make Valley
- 2) Overall length 1050 feet
- 3) Number of towers 7
- 4) End gun Y
- 5) Capacity 400 GPM

Chemigation Equipment:

- 1) Does chemigate Y

Comments: Uses commercially available injection equipment

D. Compliance with Permit Requirements:

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

E. Condition and Location:

1. The system is in good condition with the point(s) of diversion located as follows: WELL LOCATION
From the NW corner Sec 17 T114N R57W WELL #3: 40 ft S & 1400 ft E, Lat 44.68876 Long -
97.71006 (NE ¼ NW ¼)
2. The works are capable of diverting and conveying to the place of use 0.89 cu. ft. per second of water which is to be used for irrigation. Water has been put to beneficial use to the maximum extent as follows:
legal description/acreage
All land in Sec 17 T114N R57W
NE NW – 4.5 acres
NW NE – 30.0 acres
NE NE – 5.5 acres

comprising a total of 40.0 acres of land and the license should be issued for 0.57 cfs (acres control).

3. All structures, wells and lands on map Y

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

The irrigated acreage was estimated with the aid of FSA imagery and ArcMAPS software.

The pump rate reported in a recent Irrigation Questionnaire was used to establish the system flow capacity.

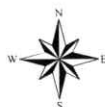
The mailing address and the telephone number in the permit materials are current

I talked to Dwight Warkenthein during the field inspection visit.

A handwritten signature in black ink, appearing to read 'Darrell W DeBoer', written over a horizontal line.

Darrell W DeBoer
Water Rights Inspector
DANR, Water Rights Program

Date report completed: **June 29, 2023**



0 0.125 0.25 0.5 0.75 1 Miles



Darrell DeBoer
Water Right Inspector
DANR-Water Rights Program

Approval of Location Change and/or Additional Diversion Point(s)

NAME: Dwight Warkenthien

ADDRESS: 18596 425th Ave, Willow Lake SD 57278

DATE: October 11, 2023

COUNTY: Clark

GENERAL DESCRIPTION OF AUTHORIZED PROJECT:

The permit holder is authorized to construct one 36 foot deep well into the Vermillion East Fork: Willow Lake Management Unit Aquifer in the N $\frac{1}{2}$ NE $\frac{1}{4}$ of Section 17 for irrigation of 60 acres in the NE $\frac{1}{4}$ NW $\frac{1}{4}$, N $\frac{1}{2}$ NE $\frac{1}{4}$ Section 17: all in T114N-R57W.

AUTHORITY:

Pursuant to SDCL 46-5-13.1, the location of a diversion point may be changed, or additional diversion points may be licensed provided the following conditions are met and the potential for interference with other existing diversions is not increased:

- **Developed water source same as permitted source and no additional water appropriated.**

The permit holder constructed one 50 foot well into the Vermillion East Fork: Willow Lake Management Unit Aquifer in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 17 T114N-R57W

- **If irrigation, no new land is irrigated.**

The permit holder developed 40 acres NE $\frac{1}{4}$ NW $\frac{1}{4}$, N $\frac{1}{2}$ NE $\frac{1}{4}$ Section 17 T114N-R57W

- **Review of Existing Diversions**

There are 5 existing water permits/rights within a mile from where the this well was developed. All of permits/rights are held by Mr. Warkenthien. At the time this and the other permits/rights were issued there was reasonable probability any well interference due to pumping of this well would not adversely or unlawfully impair existing rights. The same would be expected for the well constructed in the new location.

RECOMMENDED ACTION

Based on the above criteria, it is recommended that the diversion point(s) be licensed as developed.



Mark D. Rath, Natural Resources Engineer
Water Rights Program

The Chief Engineer makes a finding pursuant SDCL 46-5-13.1 and ARSD 74:02:01:14.01 that:

This change in location and/or additional diversion point(s) does not increase the potential for adverse effects to existing diversions.



Eric Gronlund, Chief Engineer
Water Rights Program

**STATE OF SOUTH DAKOTA
WATER LICENSE NO. 8124-3**

(1) Dwight Warkenthien, 18596 425th Ave, Willow Lake SD 57278, made Application No. 8124-3, April 6, 2015, for a water permit to divert 0.89 cubic feet of water per second from groundwater, one well (Vermillion East Fork: Willow Lake Aquifer), Clark County, South Dakota for irrigation purposes. Permit No. 8124-3, with a priority date of April 6, 2015, was approved May 8, 2015, and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before May 8, 2020, and for the application to beneficial use of water on or before May 8, 2024.

An investigation conducted for licensing purposes found the diversion point developed outside of the permitted area. Pursuant to SDCL 46-5-13.1 and ARSD 74:02:01:14.01, the Chief Engineer made a finding that the change in the diversion point location did not increase the potential for adverse effects to existing diversions.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to divert 0.57 cubic feet of water per second for beneficial use. The location of the diversion point is:

- 40 ft S & 1,400 ft E of the NW corner of Section 17, T114N, R57W (NE $\frac{1}{4}$ NW $\frac{1}{4}$)
(Latitude 44.68876 & Longitude -97.71006)

(3) The amount of appropriation may not exceed 2.0 acre feet annually for each acre of land to which water is actually and beneficially applied for irrigation. The water is to be used during the following described annual period: May 1 – September 30.

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

Section 17, T114N, R57W
NE $\frac{1}{4}$ NE $\frac{1}{4}$ 5.5 acres
NW $\frac{1}{4}$ NE $\frac{1}{4}$ 30 acres
NE $\frac{1}{4}$ NW $\frac{1}{4}$ 4.5 acres
TOTAL: 40.0 acres

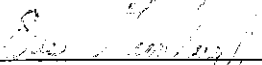
(5) Pursuant to South Dakota Water Law 46-5-30.1 Dwight Warkenthien, the holder and/or owner of Water Right No. 8124-3, is issued a license to appropriate water, the right to use 0.57 cubic feet of water per second from groundwater, one well (Vermillion East Fork: Willow Lake Aquifer), with a priority date of April 6, 2015, from the location specified in (2) of this license for irrigation purposes.

This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Right No. 8124-3 and subject to the following qualifications:

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

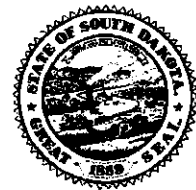
continued

2. The well authorized by Water Right No. 8124-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28. *(The well was drilled by Sam Heine Well Co. in 2015. A copy of the Well Completion Report is on file with the Water Rights Program.)*
3. This Water Right is approved subject to the irrigation water use questionnaire being submitted each year.


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

OCT 16 2012

date





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

OCT 16 2023

8124-3

Dwight Warkenthien
18596 425th Ave
Willow Lake SD 57278

Dear Mr. Warkenthien:

Enclosed is Water License No. 8124-3. This is the final water right document completing your process of obtaining a Water Right. Included with your license is a map prepared by the staff engineer who conducted the field investigation.

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

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

Sincerely,

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

enclosures

NOTE: The investigation found your irrigation system is capable of diverting 0.89 cubic feet of water per second (cfs) which is equivalent to approximately 400 gallons per minute. The statutory limit for 40.0 acres is 0.57 cfs (approximately 255 gpm). Diversion of water under this water license is limited to 0.57 cfs.

**Water Rights Program
File Documentation**

DATE: Sept. 25, 2025

RE: Warkenthien Feedlot Wastewater Discharge in Well

COMMENTS:

Initial discussion of the discharge, see letter dated August 29, 2025 from Troy Roth administrator of the DANR-Livestock Services Program indicated the well in which there was a wastewater discharge was authorized under Water Permit No. 8125-3.

Subsequent contact from the permit holder's attorney, John Taylor, determined the affected well is authorized under Water Right No. 8124-3. The following letter, emails, and other documents have subsequently been removed from the file of Water Permit No. 8125-3 and placed in the file for Water Right No. 8124-3 as well all following documentation relating to the discharge issue.

Adam Mathiowetz
Natural Resources Engineer
DANR-Water Rights Program

**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

August 29, 2025

Dwight Warkenthien
Dwight Warkenthien Feedlot
18596 425th Avenue
Willow Lake, SD 57278-9532

Dear Mr. Warkenthien:

On August 28, 2025, John Taylor, acting on your behalf, contacted the Department of Agriculture and Natural Resources (DANR) and reported that your operation may have had a discharge to ground water due to the failure of a check valve in your center pivot irrigation system. Information provided to DANR indicated that while applying wastewater through the center pivot, a representative of your operation began filling a water tank from the irrigation well and noticed the water was discolored. The representative of your operation then shut down the pump from the holding pond and immediately began pumping water from the well through the irrigation system.

Because you reported a potential discharge, we are requiring you to submit a written response by September 15, 2025, providing general information on the potential discharge to allow DANR to determine if a discharge occurred.

1. A description of the cause of the discharge, including all relevant information about how the potential discharge was discovered;
2. The time period of potential discharge, including exact dates and times;
3. The estimated volume of wastewater discharged;
4. Please describe the actions taken to cleanup the discharged wastewater;
5. Please mark the enclosed aerial photos showing the location of the check valve, well, water tank, and where water pumped through the irrigation system was applied;
6. Please list the steps taken or planned to reduce, eliminate, and prevent reoccurrence of similar discharges from occurring.

DANR is also requiring that you hire a consulting firm to collect a sample of the water in the well after pumping from the well to remove any potential wastewater is complete. Please retain the services of a consulting firm familiar with collecting well water samples to collect this sample and have it analyzed. The consulting firm who handles the routine sampling of the monitoring wells at

Dwight Warkenthien
Dwight Warkenthien Feedlot
August 29, 2025
Page 2 of 2

your facility may be able to assist you with this. The sample must be tested for the parameters noted below.

- | | |
|-------------------------|-------------------------------------|
| 1. Chlorides (mg/L) | 5. Total Dissolved Solids (mg/L) |
| 2. Ammonia as N (mg/L) | 6. Water Levels (Nearest 0.01-foot) |
| 3. Nitrates as N (mg/L) | 7. Fecal Coliform (#/100 mL) |
| 4. Sulfates (mg/L) | |

Once the sample results for the listed parameters are available, please submit the results to DANR.

After the well has been sampled, DANR recommends the well be properly disinfected following the disinfection procedures for new well installation. Please contact Adam Mathiowetz with Water Rights at (605) 773-3352 for information about disinfecting the well.

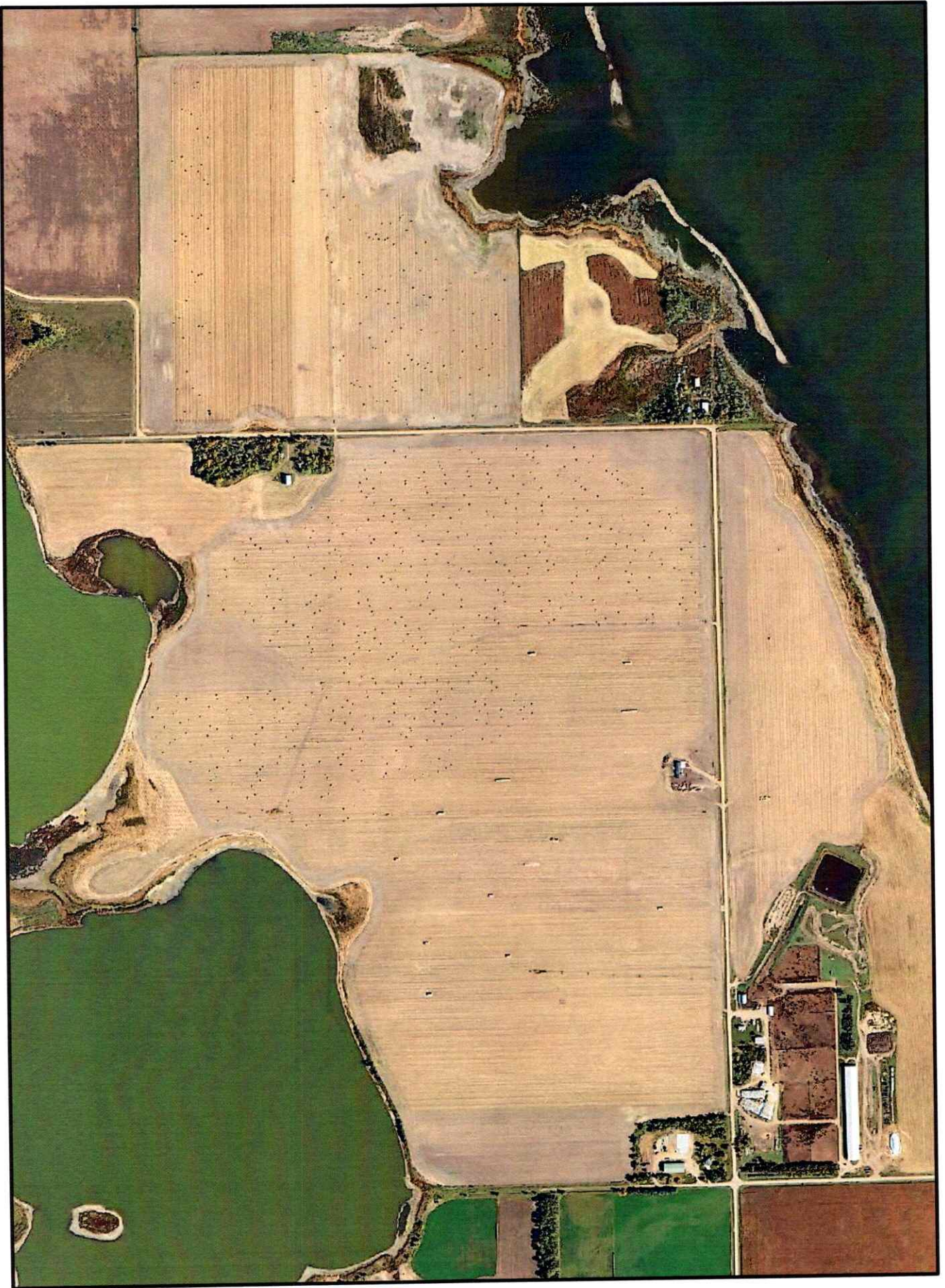
Please be aware that the U.S. Environmental Protection Agency Region 8 has regulatory authority over Underground Injection Control wells and may have additional requirements. If you have any questions, please feel free to contact me at (605) 773-4647.

Sincerely,



Troy Roth, PE, Administrator
Livestock Services Program

Cc: John E. Taylor, Taylor Law Firm, PC (email)
Adam Mathiowetz, DANR – Water Rights Program (email)







Irrigated Field - irrigator is equipped with row shutoffs to stop outer nozzles from reaching the water body





From: [John Taylor](#)
To: [Roth, Troy](#)
Cc: [Roggow, Jason](#); [Mathiowetz, Adam \(DENR\)](#); [Jeremy Duff](#)
Subject: Re: [EXT] Dwight Warkenthien Feedlot Reporting Requirements Letter
Date: Thursday, September 25, 2025 10:35:27 AM
Attachments: [Warkenthien Irrigated Field.pdf](#)
[Warkenthien Pump & Well Locations.pdf](#)
[WellTest.pdf](#)

Troy,

I wanted to provide an update on the Warkenthien Farms irrigation well contamination and corrective action. As conveyed earlier, the butterfly / check valve assembly on the wastewater pond line was replaced and pressure checked. The system held 60PSI for four hours without any pressure loss or leaks. If you or any associates at DANR would like to physically test or examine the old check valve assembly, Phil Warkenthien has offered to make it available to the Department.

Water samples were collected by Dakota Environmental and analyzed by Midcontinent Testing Laboratories. A copy of the results are attached. Jeremy Duff and Adam Mathiowetz discussed the test results and Mr. Mathiowetz provided a well disinfectant procedure.

Phil Warkenthien coordinated with well driller Sam Heine to obtain the appropriate calcium hypochlorite tablets, however the incorrect tablets were sent by the supplier. I understand the correct tablets for the application are expected to arrive yet today or tomorrow. Keep in mind that region received around 4" of rain recently and the ground is saturated. The Warkenthien's will finish up the decontamination procedure once conditions are appropriate. Thereafter Dakota Environmental will perform a subsequent water quality test and we will share those results with the Department.

Lastly, attached are the aerial photos included in DANR's August 29th correspondence labeled with the locations of the lagoon pump, irrigation well, and check valve, and the field that is irrigated from the well or with nutrient-rich water. I understand the water tank we discussed on August 28th is a mobile trailer-mounted tank and is not depicted on the enclosed imagery.

Please don't hesitate to reach out if there's any additional information you need going forward.

Thank you,

John

On Sep 12, 2025, at 3:45 PM, Roth, Troy <Troy.Roth@state.sd.us> wrote:

John,

The department has reviewed your request for an extension to the reporting deadline is granting your request. Please submit the written response by September 25, 2025.

If you have any questions, please feel free to contact me.

Troy Roth, P.E.
Administrator
Livestock Services Program
Department of Agriculture and Natural Resources
523 E. Capitol Ave. Pierre SD, 57501
605.773.4647
danr.sd.gov

From: John Taylor <john.taylor@taylorlawsd.com>
Sent: Friday, September 12, 2025 1:50 PM
To: Roth, Troy <Troy.Roth@state.sd.us>
Cc: Roggow, Jason <Jason.Roggow@state.sd.us>; Mathiowetz, Adam (DENR) <Adam.Mathiowetz@state.sd.us>; Jeremy Duff <jeremy.duff@taylorlawsd.com>
Subject: Re: [EXT] Dwight Warkenthien Feedlot Reporting Requirements Letter

Troy,

I wanted to provide you an update on the Warkenthien Farms matter. Dakota Environmental has sampled the well, but the results are not yet available. Today Phillip Warkenthien is working with Dritz irrigation to remove the old butterfly valve and install a new assembly on the irrigation well. The pressure check of the mechanism is in-progress this afternoon, so far it's held 60PSI for 4 hours. Pictures attached.

I anticipate having more information for the Department next week, but not by the September 15th. Can you grant a 10 day extension of the response deadline?

Thank you,

John

John E. Taylor
Attorney

Taylor Law Firm, PC
4820 E 57th St
Sioux Falls, SD 57108

john.taylor@taylorlawsd.com
605-906-0000

<http://www.taylorlawsd.com>

The information contained in this message is confidential, protected from disclosure and may be legally privileged. If you have received this communication in error, please notify the sender immediately by replying to this message and destroy the material in its entirety, whether in electronic or printed format.

On Aug 29, 2025, at 4:35 PM, Roth, Troy <Troy.Roth@state.sd.us> wrote:

John:

Please find attached the letter outlining the reporting requirements for the Dwight Warkenthien Feedlot potential discharge.

If you have any questions, please feel free to contact me.

Troy Roth, P.E.
Administrator
Livestock Services Program
Department of Agriculture and Natural Resources
523 E. Capitol Ave. Pierre SD, 57501
605.773.4647
danr.sd.gov









