

WATER PERMIT NO. 8125-3

Name of Applicant: **Dwight Warkenthien**

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

Amount of Water Claimed: **2.67 cfs** Total Acres: **280 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: **2-19-15**

Application/License Fee: **\$ 1250**

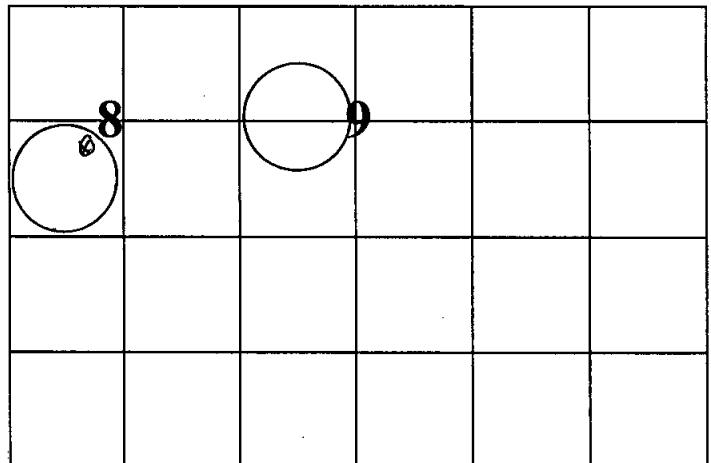
Corrected Application Received: **4-6-15**

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

Remarks:

Diversion Point: **NE 1/4 SW 1/4 Sec 8-T114N-R57W**

Land to be Irrigated: **SW 1/4 Sec 8 and S 1/2 NW 1/4 and N 1/2 SW 1/4 Sec 9; all in T114N-R57W**



Depth of Well: **44 feet deep**

Well Driller:

Remarks:

Type of Map: **aerial**

Prepared by:

Reviewed and the Number Assigned on: **2-24-15**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

SD EForm - 0499LD V4

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

773-4668

Originally received
Feb 19, 2015

Mail to: PMB 2020 DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8125-3</u>	(office use only) Hydrologic Unit <u>10170201</u>
	Basin <u>Big Sioux River</u>	
	Newspaper <u>Clark Co. Courier</u>	
	<u>Public Opinion</u>	

Application For Permit To Appropriate Water For Irrigation

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

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

1. Name to Appear on Irrigation Permit 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 56278-6104
(Address) (City) (State) (Zip Code)

Home Phone _____ Cell 605 881-9414 Email _____

2. Amount of water claimed 2.67 *CFS or 1200 **GPM ***AF Total Acreage 280
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acres - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply groundwater - one well

4. Location of point of diversion NE 1/4 SW 1/4 Sec 8-T114N-R57W

(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)

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
SW 1/4 SW 1/4 Sec 8-T114N-R57W	35	SW 1/4 NW 1/4 Sec 9-T114N-R57W	35
SE 1/4 SW 1/4 Sec 8-T114N-R57W	35	SE 1/4 NW 1/4 Sec 9-T114N-R57W	35
NW 1/4 SW 1/4 Sec 8-T114N-R57W	35	NW 1/4 SW 1/4 Sec 9-T114N-R57W	35
NE 1/4 SW 1/4 Sec 8-T114N-R57W	35	NE 1/4 SW 1/4 Sec 9-T114N-R57W	35

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

Dwight Warkenthien, Dave Gullikson, 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. 8125-3

Date of first receipt of application April 6, 2015.

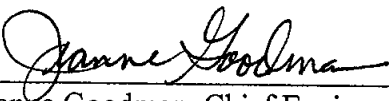
The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 8125-3 to Dwight Warkenthien, 18596 425th Ave, Willow Lake SD 57278 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 8125-3 appropriates 2.67 cubic feet of water per second 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.
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. 8125-3 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. 8125-3 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



Supplemental Information

(type or print)

1. Well Information

(check one or both as applicable)

☒ Drilling new well(s)

☐ Using existing well(s)

license # 805

a) If new wells, how many 1 Have test holes been drilled ☒ Yes ☐ No Drilled by Sam Haine well Co
(if yes, please provide copies of logs)

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

c) Well Depth 160 Depth to Top of Water Bearing Material 10ft Depth to Water from Surface 10ft

d) Distance to nearest existing domestic well:

On applicant's property 800 ft

On property owned by others None

2. Wastewater Disposal System Information

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

b) System Capacity (gallons) Year Constructed

c) Connected to the City of Sanitary System

3. Dugout Information

a) Surface Dimensions Depth

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

4. Water Storage Dams

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

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

b) Freeboard

c) Crest Width

Crest Length

d) Height

e) Primary Outlet Capacity

If pipe, diameter

f) Secondary Spillway Capacity

Spillway Width

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

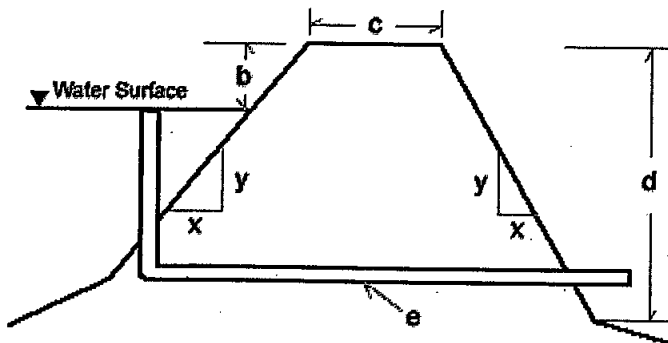
Upstream

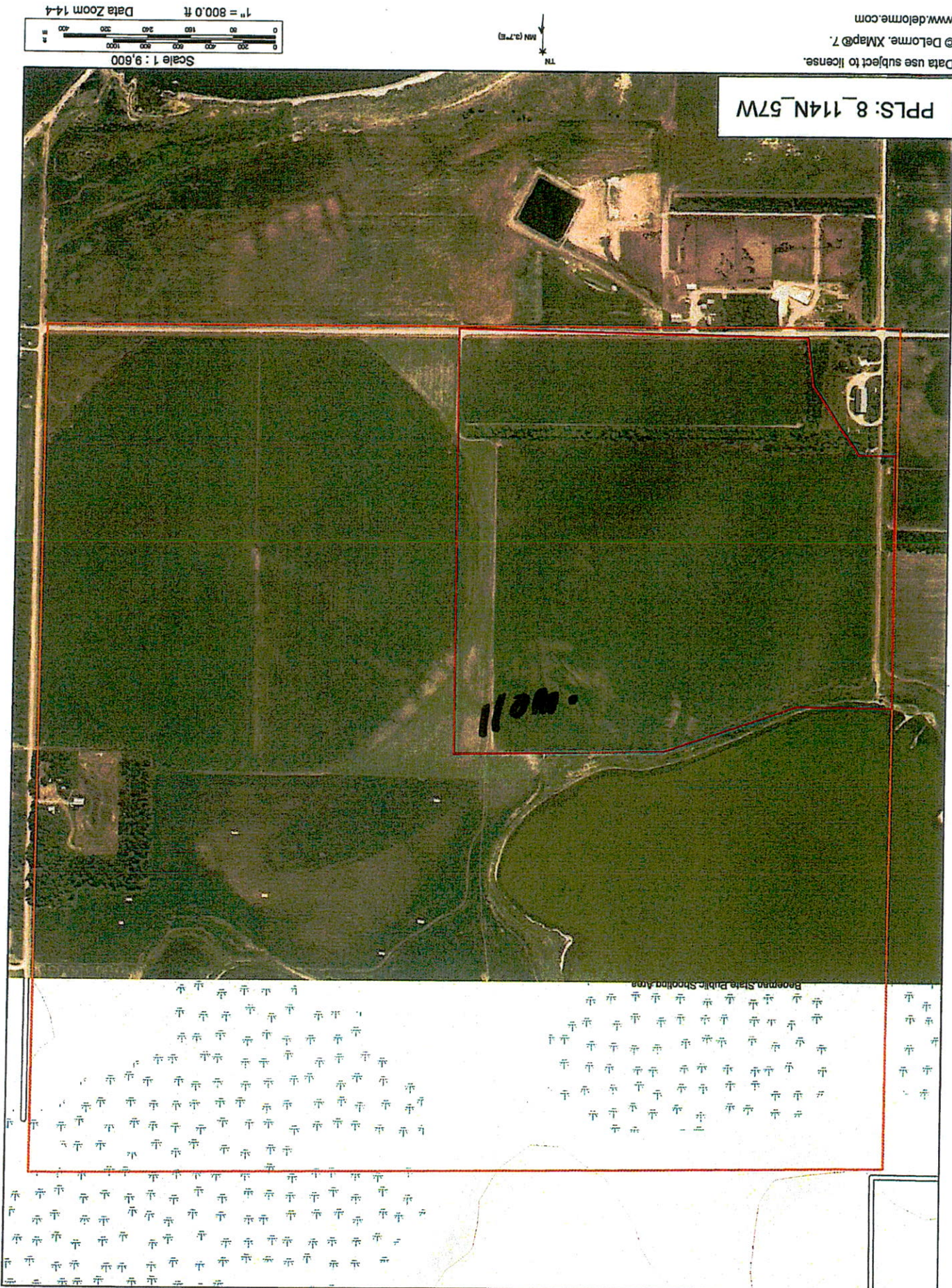
Downstream

h) Surface Area of Impoundment

i) Storage Acre Feet

j) Drainage Area Above Dam Acres





Data use subject to license.

© DeLorme, XMap® 7.

www.delorme.com



PPLS: 9_114N_57W

Data use subject to license.

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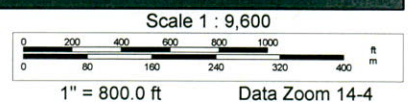
www.delorme.com



RECEIVED

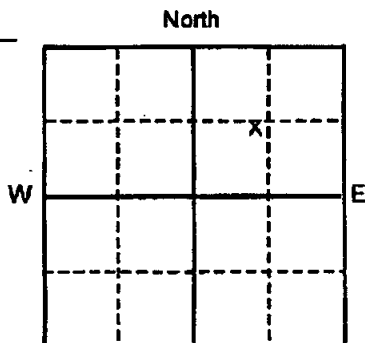
FEB 19 2015

WATER RIGHTS
PROGRAM



SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SW ¼ NE ¼ Sec 8 Twp 114N Rg 57WCounty ClarkPlease mark well
location with an "X"

Well Completion Date

March 25, 2015

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
2,300.0 ft. from SEPTIC TANK (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

ROTARY

CASING DATA:

☐ Steel ☐ Plastic ☐ Other
 If other describe NONE

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

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
<u>BENTONITE</u>	<u>12</u>	<u>9.5</u> Lb/gal	<u>0.0</u> Ft	<u>180.0</u> 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?

 Lab to which water
 quality sample sent for analysis
Well Owner: DWIGHT WARKENTHIEN

Business Name:

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

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
TOP SOIL	0	3
SAND/GRAVEL	3	77
GRAVEL	77	110
CLAY/MED SAND	110	120
MED SAND	120	135
CLAY/ MED SAND	135	160
CLAY BLUE	160	180

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

1000 to 1200 gals
 This well will water sec 8
 and sec 9

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

Date:

APR - 6 2015

WATER RIGHTS
PROGRAM

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	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. _____	200	00
Fee for Filing Transfer Form _____		
Fee for _____		
Fee for Issuing New Well Driller's License No. _____ for C.Y. _____		
Fee for Renewal of Well Driller's License No. _____ for C.Y. _____		
Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____		
Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____		
(Any Other Work Provided by Law) TOTAL	1050	00

No. 07280

By Jeanne 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



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. 8125-3, 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. 8125-3, Dwight Warkenthien, 18596 425th Avenue, Willow Lake SD 57278.

The Chief Engineer is recommending APPROVAL of Application No. 8125-3 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. 8125-3 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).

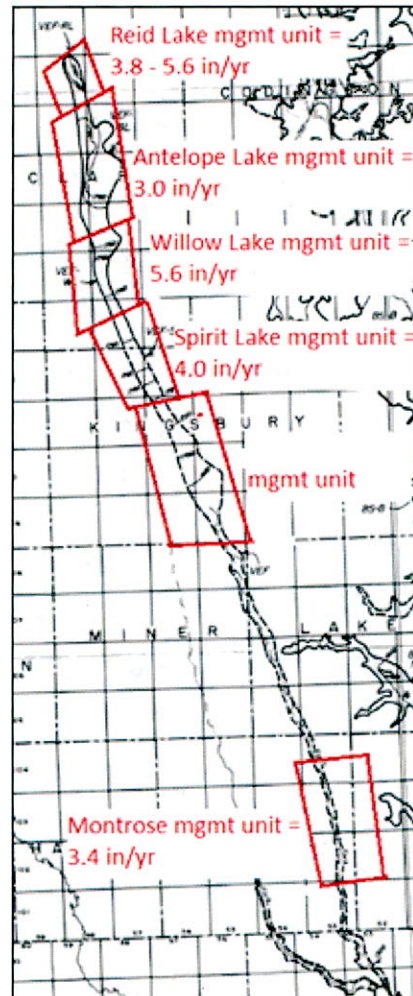


Figure 1: Recharge rates of various management units of the Vermillion East Fork aquifer (modified from Stonesifer, 2014).

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.

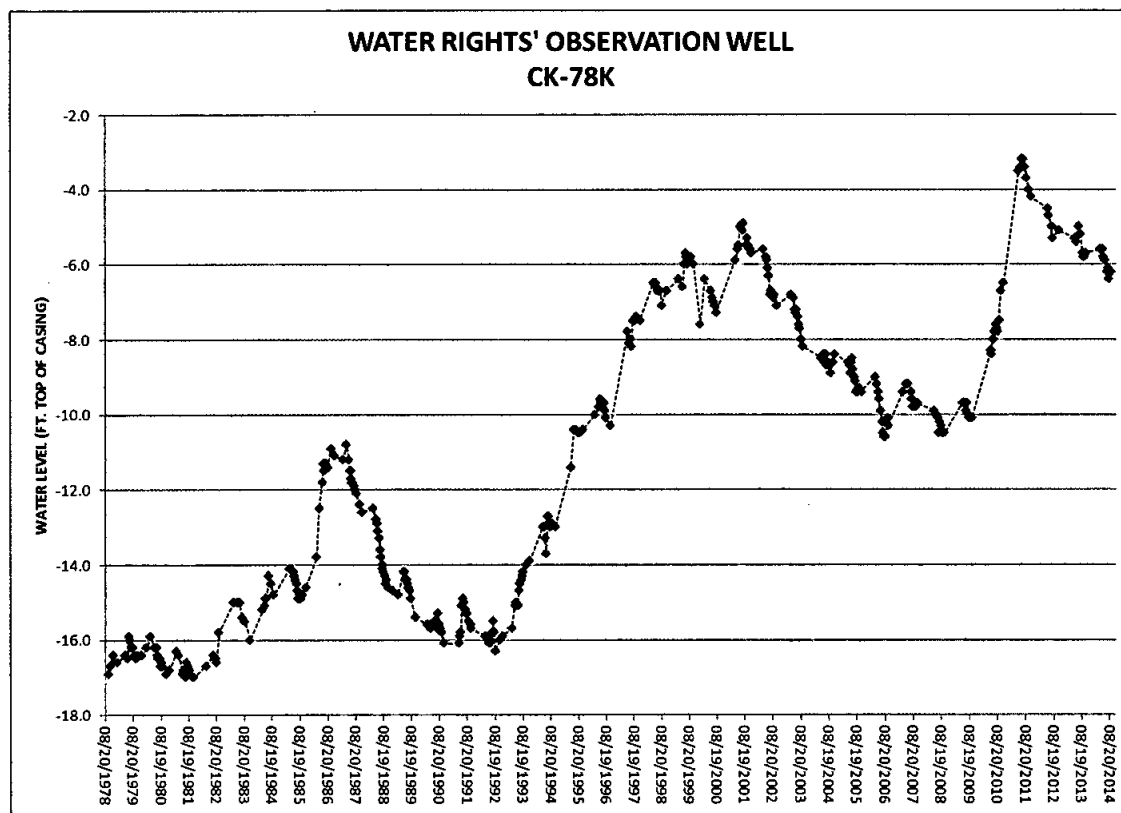


Figure 2: Historic Water Levels in Observation Well CK-78K (Water Rights 2015a).

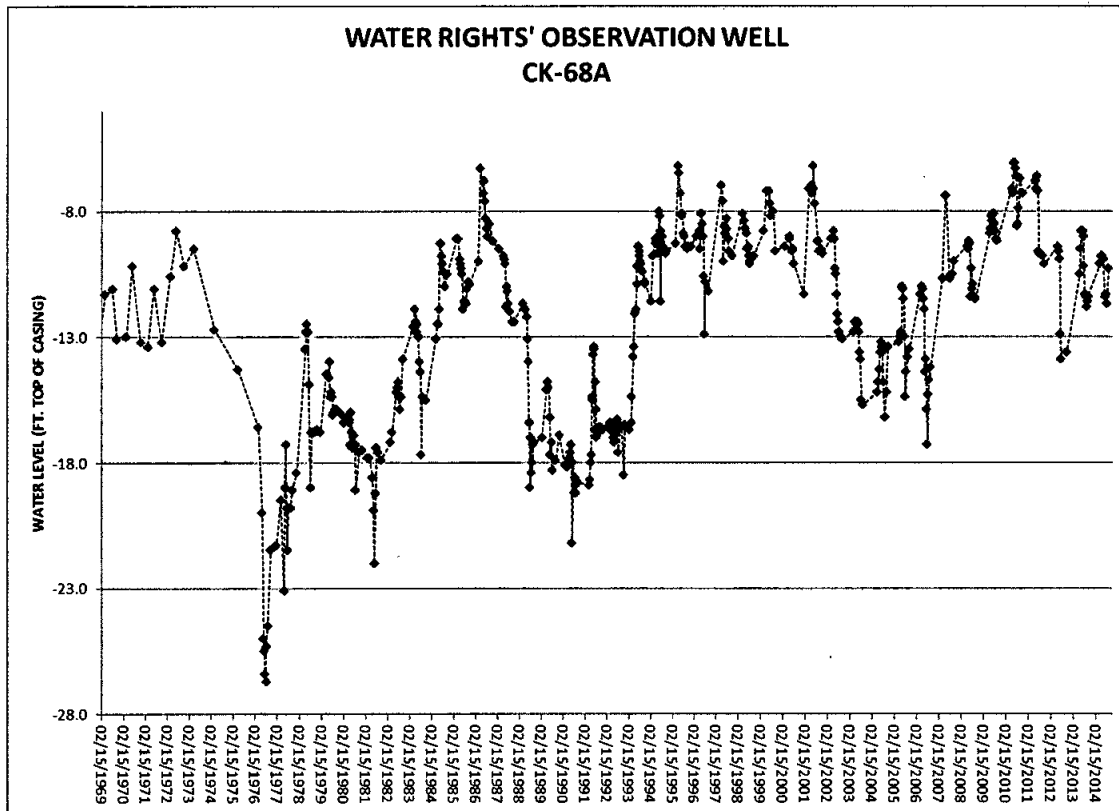


Figure 3: Historic Water Levels in Observation Well CK-68A (Water Rights 2015a).

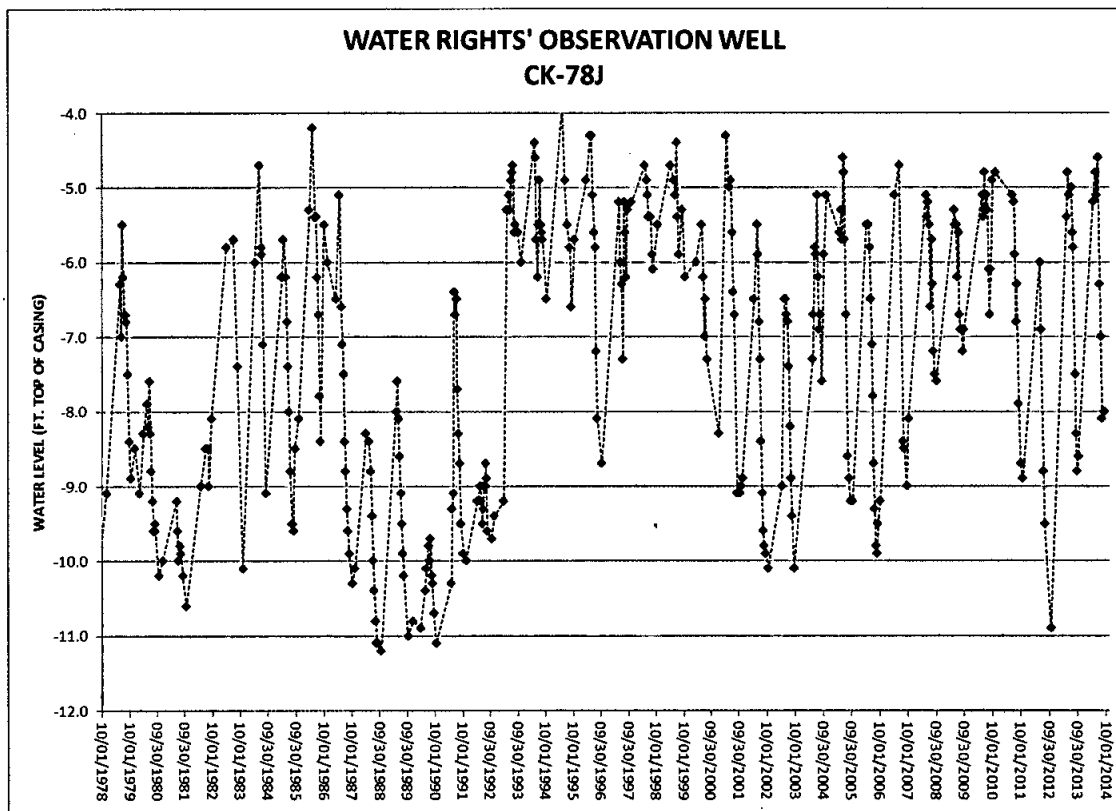


Figure 4: Historic Water Levels in Observation Well CK-78J (Water Rights 2015a).

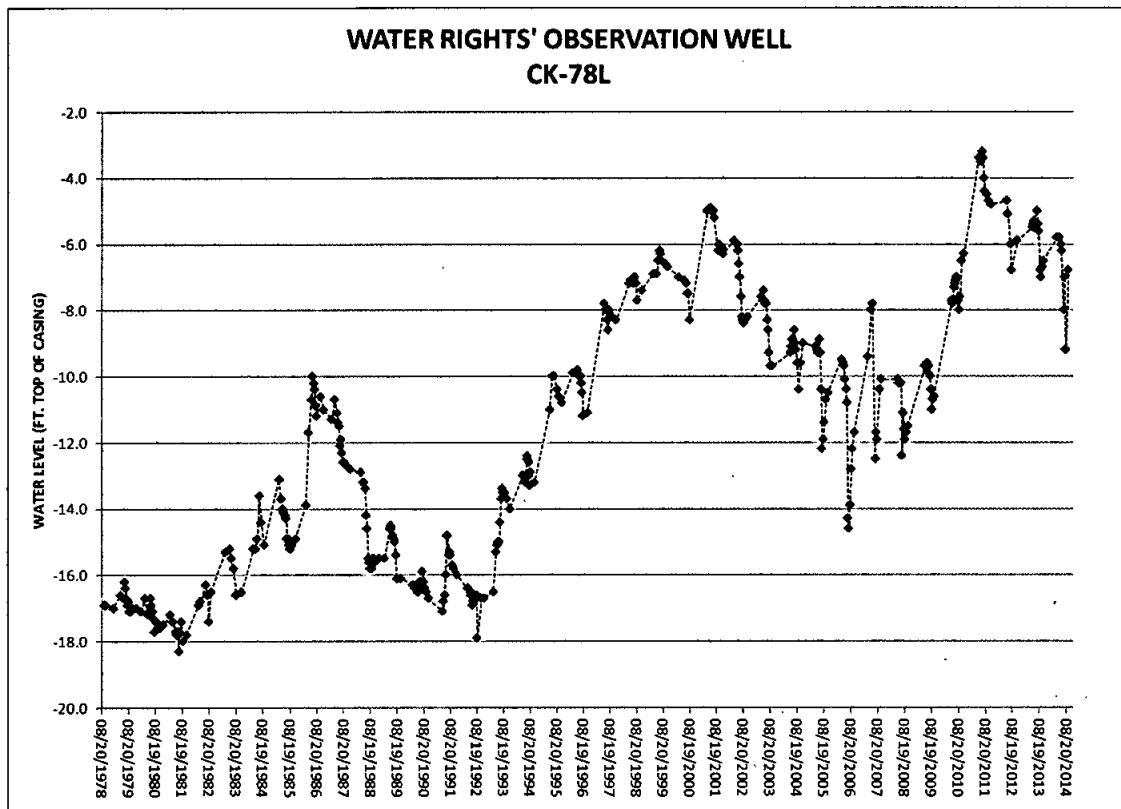


Figure 5: Historic Water Levels in Observation Well CK-78L (Water Rights 2015a).

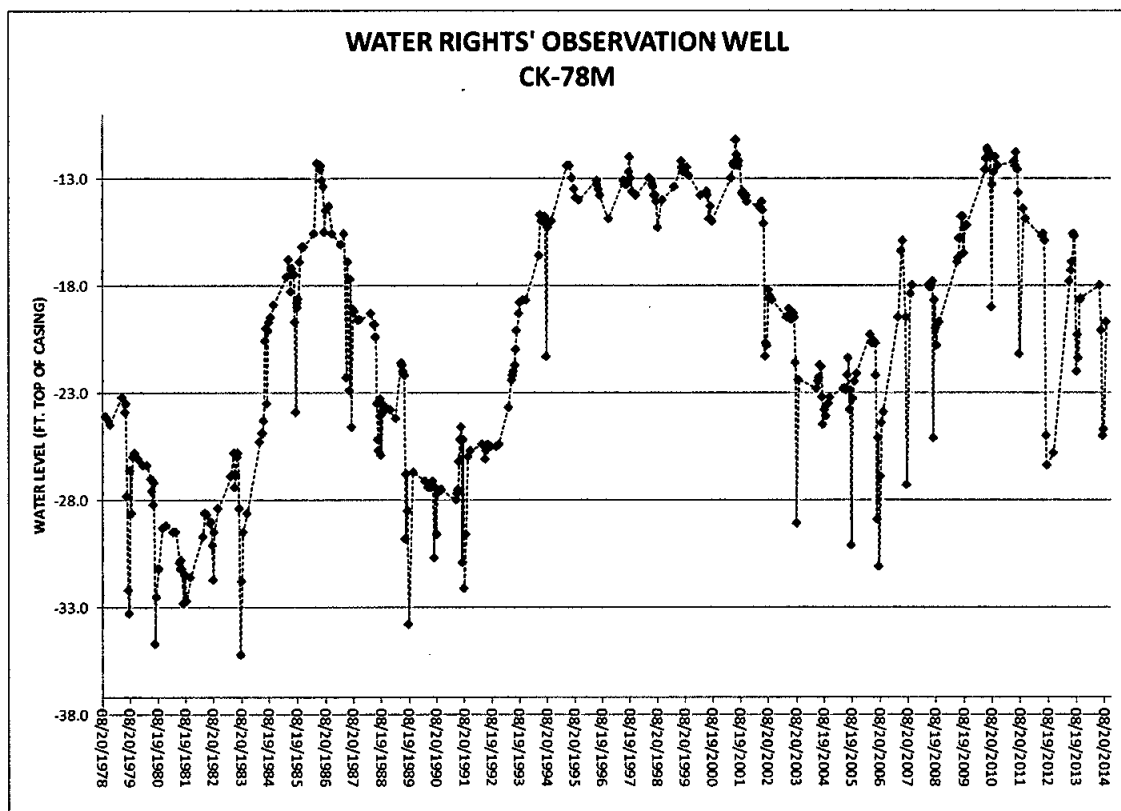


Figure 6: Historic Water Levels in Observation Well CK-78M (Water Rights 2015a).

EXISTING WATER RIGHTS:

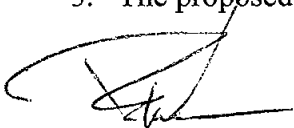
Currently, there are 15 water permits/rights appropriating water from the Willow Lake Management Unit of the Vermillion East Fork aquifer (Water Rights, 2015b). Of these, the two water rights authorizing wells closest to the proposed well sites in these applications are Water Rights Nos. 3145-3 and 3146-3, 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 to be sufficient to cause unlawful impairment of nearby domestic wells.

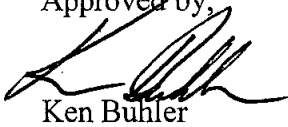
CONCLUSIONS:

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.
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- 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.
4-29-15

Affidavit of Publication

State of South Dakota

County of Clark

William J. Krikac of said county, being first duly 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 Helke

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)
) SS
County of Codington)

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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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.

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(April 29, 2015)

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

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.

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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_____.



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



8125-3 3
3145-3

**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

October 12, 2023

Dwight Warkenthien
18596 425th Ave
Willow Lake SD 57278

Dear Mr. Warkenthien:

In June of this year, staff engineer Darrel DeBoer conducted a field inspection for the licensing of your Water Permit No. 8125-3, authorizing the irrigation (from one well) of 280 acres within Sections 8 & 9, T114N, R57W.

Some parts of the acreage in Section 8 are also authorized for irrigation under Water Right No. 3145-3 (outlined in orange on the enclosed map). I have enclosed copies of Permit No. 8125-3 and Right No. 3145-3 for you to reference.

The inspection lists the irrigated acres as follows: for a total of 308.5 irrigated acres.

Section 8, T114N, R57W
SW ¼ NE ¼ 38.5 - 11 = 27.5 ac
SE ¼ NE ¼ 18.0 - 9 = 9.0 ac
SE ¼ NW ¼ 7.0 ac
NE ¼ SW ¼ 39.5 - 2 = 37.5 ac
NW ¼ SW ¼ 29.5 ac
SW ¼ SW ¼ 28.0 ac
SE ¼ SW ¼ 35.0 ac

Section 9, T114N, R57W
SW ¼ NW ¼ 35.0 ac
SE ¼ NW ¼ 33.5 ac
NW ¼ SW ¼ 35.0 ac
NE ¼ SW ¼ 31.5 ac

308.5 - 280 = 28.5 ac

Permit No. 8125-3 only authorizes 280 acres, leaving 28.5 acres irrigated without the proper authorization. For your convenience I have enclosed a partially completed Water Permit Application to cover the 28.5 acres. The fee for Inspection/Licensing would be waived, as it's already been paid under Permit No. 8125-3, leaving a balance due of \$500.00.

If you have any questions or concerns, I'd be happy to help.

Sincerely,

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



8125-3 & 3145-3

**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

October 12, 2023

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18596 425th Ave
Willow Lake SD 57278

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If you have any questions or concerns, I'd be happy to help.

Sincerely,

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

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 8125-3

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. 8125-3, bearing the priority of April 6, 2015 authorizing the diversion of 2.67 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 Co.
- 2) No. of Wells 1
- 3) Depth(s) 160 feet
- 4) Well log is available Y

Casing: (SEE Section F)

- 1) Diameter _____ inches
- 2) Length _____ feet
- 3) Type _____

Screen:

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

Pump:

- 1) Make Submersible
- 2) Model Unknown
- 3) Size Unknown
- 4) Capacity 1000 GPM

Motor:

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

*emailed for
well log 3/10/11
pump rate*

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

280 permitted

for Application of Water to Beneficial Use
 nit No. 8125-3

ation of the water use system constructed by Dwight
78 of Permit No. 8125-3, bearing the priority of April 6,
 of the waters of the Vermillion East Fork: Willow Lake
Clark County.

SEC 8

SE NW	7.0
SW NE	27.5
SE NE	9.0
NW SW	29.5
SW SW	28.0
NE SW	37.5
SE SW	35.0

SEC 9

SW NW	35.0
SE NW	33.5
NW SW	35.0
NE SW	31.5

<u>308.5</u>	
<u>- 280</u>	
<u>28.5</u>	

2 for
 4 3/4 pump rate
 10/11

Capacity 1000 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 8 inches 3) Length 7400 feet

C. Works used to apply water to beneficial use:

Center pivot:

- 1) Make 3- Valleys
- 2) Overall length 1300 feet
- 3) Number of towers 7
- 4) End gun Y
- 5) Capacity 1000 each GPM

Chemigation Equipment:

- 1) Does chemigate Y

Comments: Uses commercially available injection equipment

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by N

If no, describe: **Permit is for 280 acres; actual irrigated area is 330.5 acres**

- 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 SW corner Sec 8 T114N R57W WELL #1: 4040 ft N & 2370 ft E, Lat 44.69997 Long - 97.70618 (NE ¼ NW ¼)
2. The works are capable of diverting and conveying to the place of use 2.22 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

Land in Sec 8 T114N R57W

NW SW – 29.5 acres
NE SW – 39.5 acres
SE SW – 35.0 acres
SW SW – 28.0 acres
SE NW – 7.0 acres
SW NE – 38.5 acres
SE NE – 18.0 acres

legal description/acreage

Land in Sec 9 T114N R57W

SW NW – 35.0 acres
SE NW – 33.5 acres
NE SW – 31.5 acres
NW SW – 35.0 acres

comprising a total of 330.5 acres of land and the license should be issued for 2.22 cfs (WELL CONTROLS)

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 Warkenthien during the field inspection visit.

The details for WELL # 1 are not available at this time. I wrote Sam Heine a letter on July 10, 2023 requesting a Well Completion Report but have not received a response as of today. It should be very similar to WELL #2 as they are very close to each other. Eric suggested I forward what I have completed and let your office follow up as needed.



Darrell W DeBoer
Water Rights Inspector
DANR, Water Rights Program

Date report completed: October 6, 2023

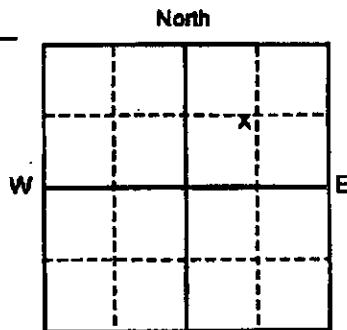
SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SW ¼ NE ¼ Sec 8 Twp 114N Rg 57W

County Clark

Please mark well location with an "X"



Well Completion Date

March 25, 2015

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
2,300.0 ft. from SEPTIC TANK (Identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

ROTARY

CASING DATA:

☐ Steel ☐ Plastic ☐ Other

If other describe NONE

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

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
BENTONITE	12	9.5 Lb/gal	0.0 Ft	180.0 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 _____

Well Owner: DWIGHT WARKENTHIEN

Business Name:

Address: 18596 425TH AVE.

City, State, Zip: WILLOW LAKE SD 57278

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
TOP SOIL	0	3
SAND/GRAVEL	3	77
GRAVEL	77	110
CLAY/MED SAND	110	120
MED SAND	120	135
CLAY/ MED SAND	135	160
CLAY BLUE	160	180

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

1000 to 1200 gals
 This well will water sec 8
 and sec 9

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

Date:

APR - 6 2015

WATER RIGHTS
PROGRAM

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.

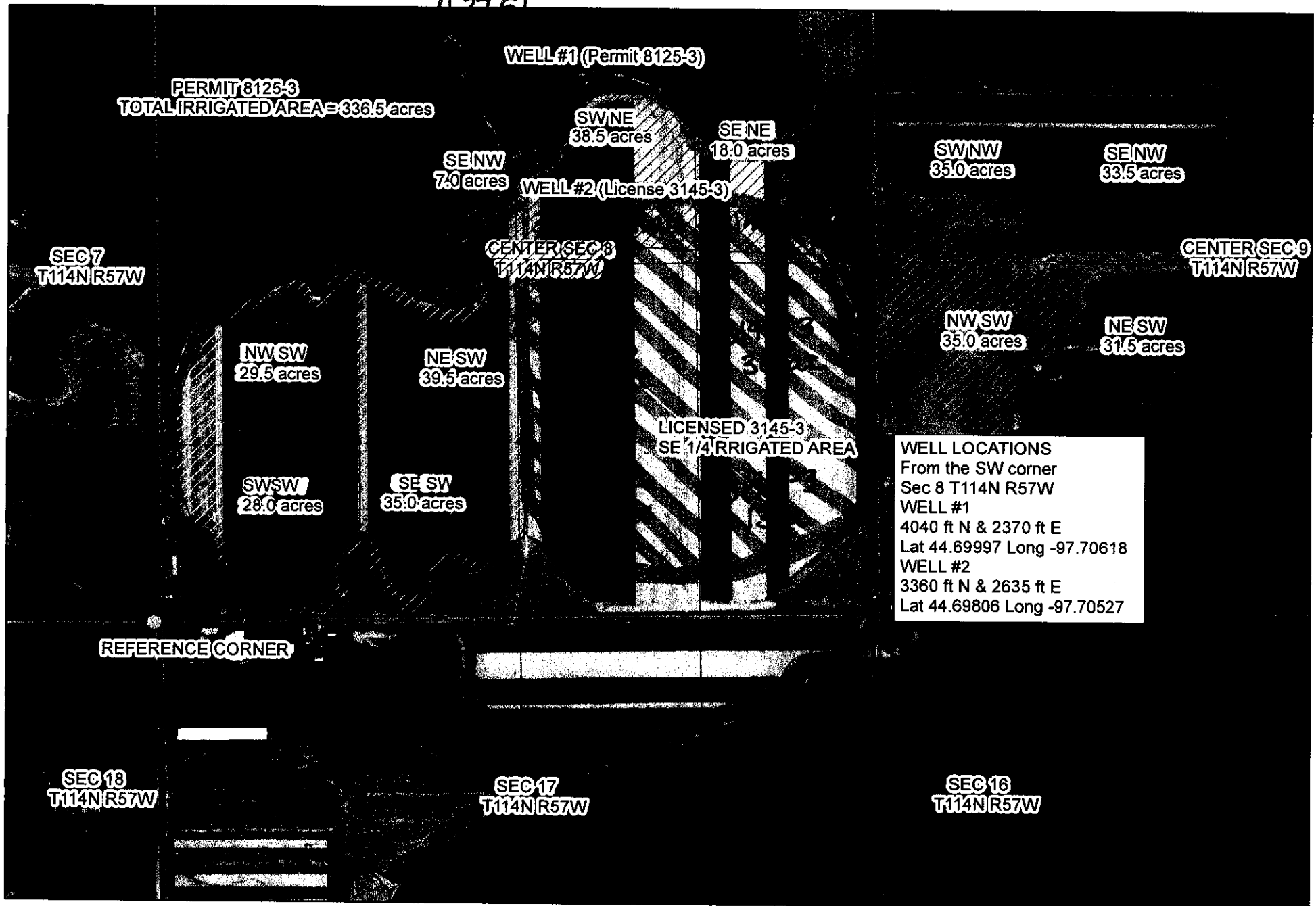
Since numbers were already given for two applications, the amended applications will be assigned those numbers. Application No. 8125-3 for irrigation in Sections 8 and 9, will retain the February 19, 2015 priority date. The application for irrigation in Section 17 is new, therefore, Application No. 8124-3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



Karen Schlaak
Water Rights Program

38.6 ac
- 11 (under 3145-3)
1276

8125-3



0 0.125 0.25 0.5 0.75 1 Miles



Danell DeBoer
Water Right Inspector
DNR Water Rights Program