

WATER PERMIT NO. 7510-3

Name of Applicant: Howard A Kathol

Address: 30918 450th Ave, Gayville SD 57031 Phone: 605 267-4507

Amount of Water Claimed: 0.28 cfs Total Acres: 95 acres

Source of Water Supply: groundwater (one existing well)

Water to be used for: irrigation County: Clay

Type of Waste Disposal System:

Location: 15 miles northwest of Vermillion

PRIORITY Date Received: 11-13-2012 Application/License Fee: \$ 950

Corrected Application Received: Period of Annual Use: May 1 – Aug 31

Remarks:

Diversion Point: SE 1/4 NW 1/4 Sec 27-T94N-
R53W

Land to be Irrigated: NW 1/4 Sec 27 and E 1/2 NE
1/4 Sec 28; all in T94N-R53W

Depth of Well: 162 feet deep

Well Driller: Hammond Wetmore Drilling

Remarks:

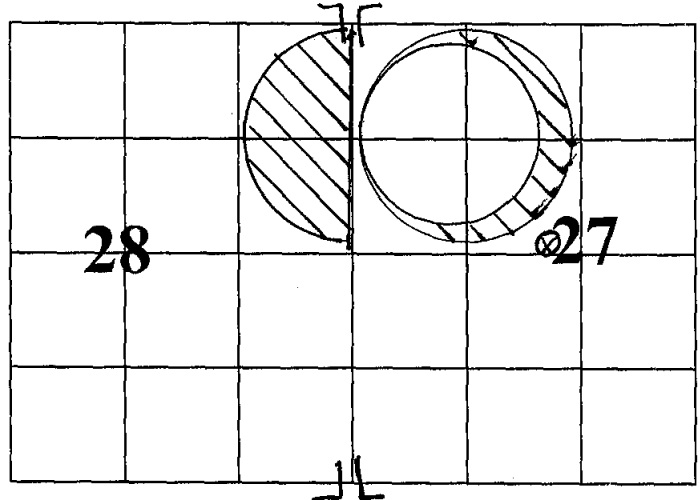
Type of Map: aerial

Prepared by:

Reviewed and the Number Assigned on: 11-14-12

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____



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

No. 7510-3 (office use only)
Hydrologic Unit 10170102
Basin Vermillion River 605-624-2695
Newspaper Plain Talk 201 W Cherry St Vermillion SD 57069
605-665-7811
Press & Dakotan 319 Walnut Yorkton SD 57078

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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 Howard A. Kathol
(check one) ☒ Owner ☐ Tenant/lessee ☐ Owner's Legal Agent
(name and complete address if different than above name)

Mailing Address 30918 450 Ave Gayville SD 57031
(Address) (City) (State) (Zip Code)

Home Phone 605-267-4507 Cell 605-661-0508 Email hkathol@iw.net

2. Amount of water claimed 0.28*CFS or 725 ^{125 gpm add} **GPM ***AF Total Acreage 95
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply Existing well as per Permit 7030-3

4. Location of point of diversion
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)

1 well in SE 1/4 NW 1/4 Section 27-94N-53W Except A County Clay

5. County or counties where water will be used Clay

6. Annual period during which water is to be used Summer May 1 to Aug 31

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

Land Description	Acres	Land Description	Acres
NE 1/4 NW 1/4 Sec 27-94N-53W Except A	11.25	N 1/2 NE 1/4 NE 1/4 Sec 28-94N-53W	32.5
SE " "	11.25	SE 1/4 NE 1/4 " "	32.5
SW " "	3.75		
NW " "	3.75		

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

- 1) Move Existing Center Pivot east 180' also add another 180' tower to water a total of 145 Acres
- 2) using existing well supply water to new pivot on adjacent property (80 acres)
via 8" underground pipe watering 65 total acres.

I, Howard A. Kathol, 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. 7510-3**

Date of first receipt of application November 13, 2012.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 7510-3 to Howard A Kathol, 30918 450 Ave, Gayville SD 57031 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. 7510-3 appropriates an additional 0.28 cubic feet of water per second (cfs) and irrigates 95 additional acres to what is currently authorized by Water Right No. 7030-3. Water Right No. 7030-3 appropriates 1.34 cfs from one well completed into the Lower James:Missouri Aquifer (162 feet deep) located in SE 1/4 NW 1/4 Section 27 to irrigate 115 acres located in the NW 1/4 Section 27; all in T94N-R53W. This permit authorizes diversion of an additional 0.28 cfs from the existing well to irrigate 95 additional acres located in the NW 1/4 Section 27 and E 1/2 NE 1/4 Section 28; all in T94N-R53W. This permit and Water Right No. 7030-3 authorize a total diversion of 1.62 cfs for irrigation of 210 acres.
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 – August 31.
3. The date from which applicant may claim right is November 13, 2012.
4. The date of approval of Permit No. 7510-3 is February 11, 2013.
5. One-fifth of the construction is to be completed on or before August 11, 2015.
6. All construction is to be completed on or before February 11, 2018.
7. Water is to be put to beneficial use on or before February 11, 2022.
8. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. The well approved under Water Right No. 7030-3 and 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. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

By: Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

MAR 28 2013
date



Supplemental Information

(type or print)

1. Well Information

(check one or both as applicable)

☐ Drilling new well(s)

☒ Using existing well(s)

a) If new wells, how many _____ Have test holes been drilled ☐ Yes ☐ No Drilled by _____
(if yes, please provide copies of logs)

b) If existing wells, how many 1 Provide copy of log(s), if available. Drilled by Dick Hamm

c) Well Depth 162' Depth to Top of Water Bearing Material 127' Depth to Water from Surface 90'

d) Distance to nearest existing domestic well:

On applicant's property NA

On property owned by others 1000' owned By Frank Orr

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)

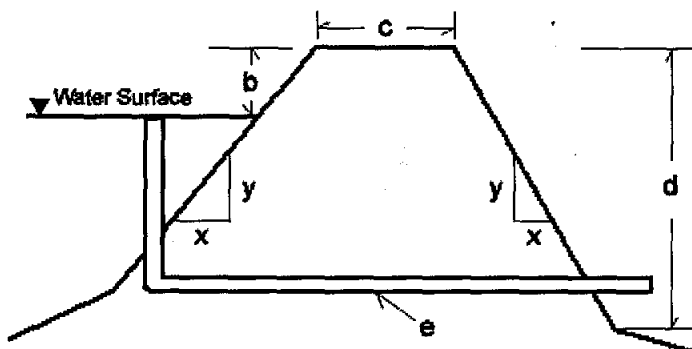
Upstream _____

Downstream _____

h) Surface Area of Impoundment _____

i) Storage _____ Acre Feet

j) Drainage Area Above Dam _____ Acres



Watering
Fields
Red Pushpins

Proposed
Existing Pivot
Adding 180' tower
+ moving center
180' to East
to water 145'
total acres.

Existing well to be used for both Pivots

New underground 8" Line to feed new pivot.

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Permit No. 7030-3
Howard Kathol



Hayes Haas

Hayes Haas
Natural Resources Engineer
DENR Water Rights Program
September 2009

2,100
Feet

South Dakota Department of
Environment and Natural Resources



Protecting South Dakota's Tomorrow... Today

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location se $\frac{1}{4}$ nw $\frac{1}{4}$ Sec 27 Twp 94n Rg 53w

County

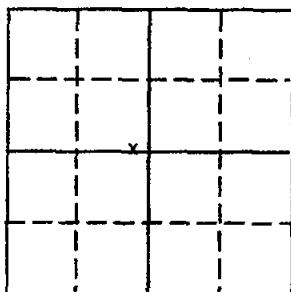
Clay

North

Please mark well location with an "X"

W

E



1 Mile

Well Completion Date

7/25/2008

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

? 2,550.0 ft. from septic tank (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Direct Rotary

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT LB/FT	DIAMETER IN	FROM FT	TO FT	HOLE DIAMETER IN
	16.00	0.0	131.0	22.00

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight Lb/gal	From Ft	To Ft
bent grt	29	9.5	0.0	125.0

Describe grouting procedure
tremie

SCREEN:

☐ Perforated pipe ☒ ManufacturedDiameter 16.00 Inches Length 30.0 FeetMaterial pvcSlot Size 0.080 Set From 131.0 Feet to 161.0 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? HTH tablets☐ No, Why Not?Lab sample sent to for
water quality analysisWell Owner: Howard Kathol

Business Name:

Address: 30918 450th AveCity, State, Zip: Gayville SD 57031

WELL LOG:

DEPTH

FORMATION	FROM	TO
Clay, brown silty, pebbly	0	24
Clay, gray, silty pebbly	24	127
Sand, med to coarse, pebbly	127	161
Shale, dk gray	161	167

STATIC WATER LEVEL 91.0 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

115.0 Ft. After 1.0 Hrs. pumped 700.0 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

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This well was drilled under license #

666

And this report is true and accurate.

Drilling firm: Hammond Wetmore Drilling

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date:

12/10/00

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 11/14, 20 12

RECEIVED OF Howard A Kathol 30918 450th Ave Gayville SD 57031

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

Fee for Application for Permit No. <u>7510-3</u> to Appropriate Water, to construct and to put water to beneficial use	750	00
Fee for Application for Permit No. _____ to Appropriate Water for Future use		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. <u>7510-3</u>	200	00
Fee for Filing Transfer Form _____		
Fee for _____		
Fee for Issuing New Well Driller's License No. _____ for C.Y. _____		
Fee for Renewal of Well Driller's License No. _____ for C.Y. _____		
Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____		
Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____		
(Any Other Work Provided by Law)	TOTAL	950 00

No. **05686**

By

Robert Enchele
Chief Engineer



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 7510-3, Howard A. Kathol**

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. 7510-3, Howard A. Kathol, 30918 450th Avenue, Gayville SD 57031.

The Chief Engineer is recommending APPROVAL of Application No. 7510-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest with the following qualifications:

1. The well approved under Water Right No. 7030-3 and 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. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.

Garland Erbele, Chief Engineer
January 23, 2013

**REPORT TO THE CHIEF ENGINEER
ON
WATER PERMIT APPLICATION NO. 7510-3
HOWARD A. KATHOL
JANUARY 8, 2013**

Water Permit Application No. 7510-3 proposes to appropriate up to 190 acre-feet of water per year (ac-ft/yr) at a maximum diversion rate of 0.28 cubic feet per second (cfs) from one existing well authorized by Water Right No. 7030-3 to irrigate 95 acres located in the NW¼ of Section 27 and E½ NE¼ of Section 28, all in T94N-R53W in Clay County. Water Right No. 7030-3 appropriates up to 230 ac-ft/yr at a maximum diversion rate of 1.34 cfs from one existing well 162 feet deep completed into the Lower James Missouri aquifer located in the SE¼ NW¼ of Section 27 for irrigation of 115 acres located in the NW¼ of Section 27, all in T94N-R53W. If approved, this permit plus Water Right No. 7030-3 will result in an existing well diverting at a total maximum diversion rate of 1.62 cfs to irrigate a total of 210 acres.

AQUIFER: Lower James Missouri aquifer (LJM)

GEOLOGY AND AQUIFER CHARACTERISTICS:

The glacial outwash deposits in Clay County were collectively named the Lower Vermillion Missouri aquifer by Stephens (1967). These deposits, while continuous and hydraulically connected, were differentiated by Hedges and others (1982) into the Lower James Missouri, Missouri, and Lower Vermillion Missouri aquifers, which are shown in Figure 1. The Lower James Missouri aquifer corresponds with an area in the west central part of the county where aquifer materials generally occur greater than 100 feet below ground surface, shown in Figure 2 (Jensen, 2000).

The Lower James Missouri aquifer is a buried glacial outwash consisting of sand and gravel that can be under water table or artesian conditions depending on location (Bugliosi, 1986). The Lower James Missouri aquifer extends from a small portion of Clay County northwest into Yankton County and further northwest into Hutchinson County, as shown in Figure 1. In total, the Lower James Missouri aquifer is estimated to underlie 191,700 acres and contain 2,785,400 acre-feet (ac-ft) of recoverable water in storage. In Clay County, the Lower James Missouri aquifer is estimated to underlie 5,400 acres and contain 81,000 ac-ft of recoverable water in storage (Hedges and others, 1982). The aquifer is hydraulically connected to several glacial bedrock aquifers, and the James and Missouri Rivers (Bugliosi, 1986; Lindgren and Hansen, 1990).

The well completion report of the existing well authorized by Water Right No. 7030-3 documents clay from ground surface to 127 feet below ground surface, sand from 127 to 161 feet below ground surface, and shale from 161 to 167 feet below ground surface, with a July 2008 static water level of 91 feet below ground surface.

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 aquifer and pertinent to this application.

WATER AVAILABILITY:

Water Permit Application No. 7508-3 proposes to appropriate an additional 190 ac-ft/yr from the Lower James Missouri aquifer. If this application is approved, the actual water use will likely be less than the appropriation. 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."

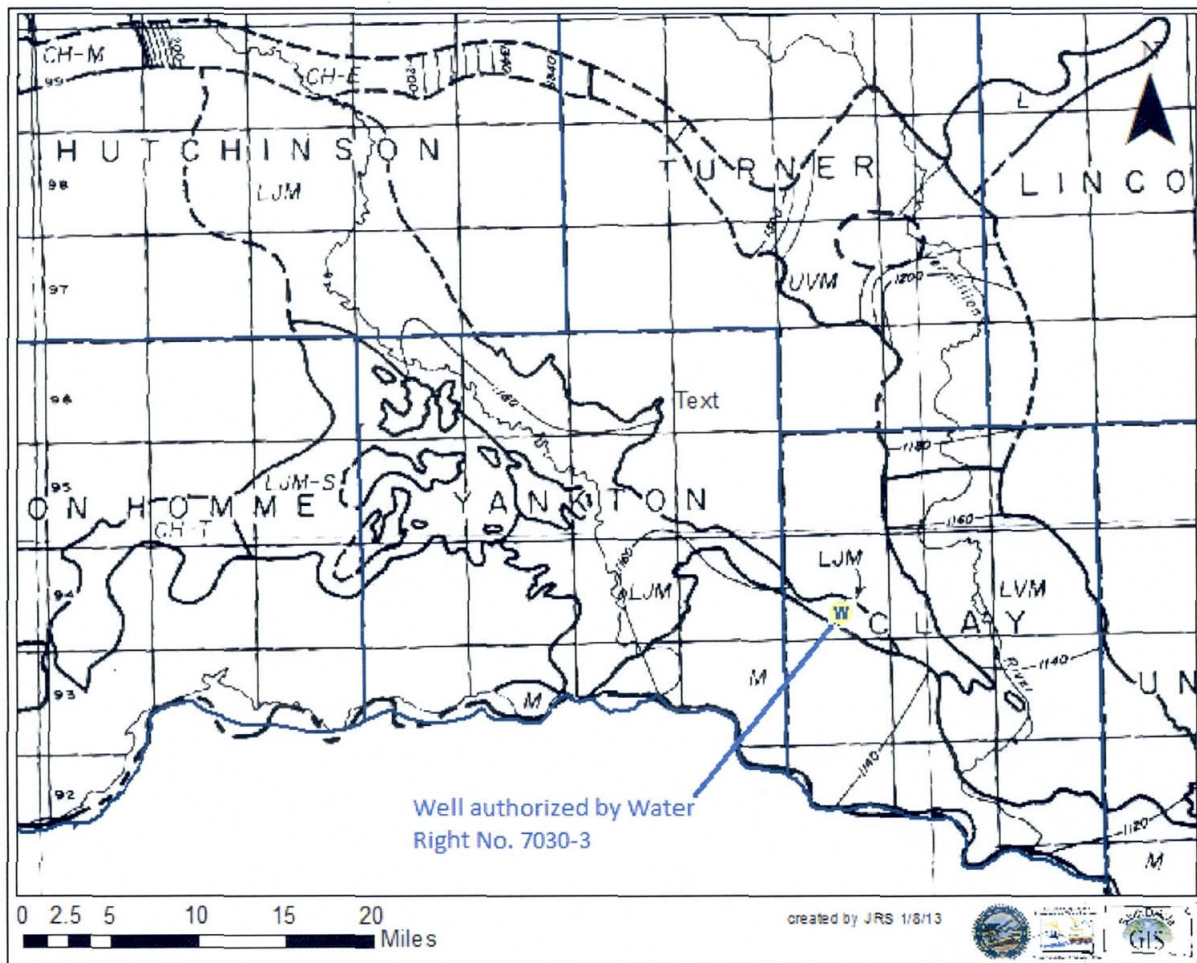


Figure 1: Areal extent of basal aquifers in southeastern South Dakota and location of well authorized by Water Right No. 7030-3 (Hedges and others, 1982; Water Rights, 2013b)

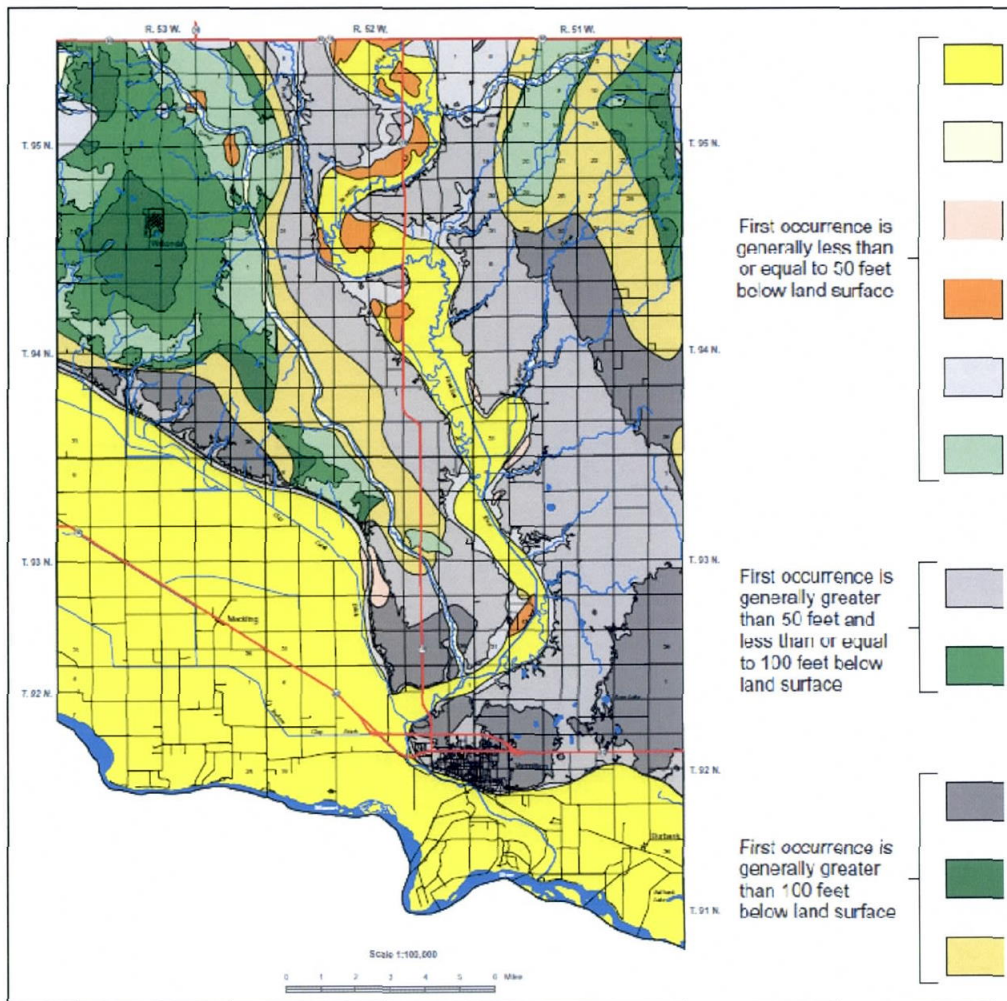


Figure 2: First occurrence of aquifer materials in Clay County (modified from Jensen, 2000)

HYDROLOGIC BUDGET:

Recharge:

Recharge to the Lower James Missouri aquifer occurs due to infiltration of precipitation where the aquifer is at or near land surface, upward leakage from the bedrock aquifers, and inflow from the surrounding glacial aquifers (Bugliosi, 1986). In Clay County, the aquifer is generally recharged by inflow from the aquifer in Yankton and Hutchinson Counties. Hedges and others (1985) estimated the recharge rate, based on a regional flow-net analysis, of the aquifer to be 1.5 inches per year. Using this recharge rate and the total area of the aquifer, recharge for the Lower James Missouri aquifer is estimated to equal 23,963 ac-ft/yr. The recharge rate for the aquifer in Clay County alone is estimated to equal 675 ac-ft/yr.

Discharge:

Discharge from the Lower James Missouri aquifer occurs due to evapotranspiration in areas where the aquifer is at or near land surface, seepage to the James River, and well withdrawals (Bugliosi, 1986). In Clay County, discharge generally discharges by well withdrawals. Currently there are 103 water rights/permits appropriating water from the Lower James Missouri aquifer.

Four water rights/permits are authorized for commercial use, one for geothermal use, one for industrial use, and the remainder are for irrigation use. Nine of these water rights/permits are located in Clay County, all authorized for irrigation use (Water Rights, 2013b). There are also several pending water permit applications for the Lower James Missouri aquifer.

From the entire Lower James Missouri aquifer, the maximum diversion rate for non-irrigation use totals 2.275 cfs. The amount of water that can be expected to be withdrawn by the non-irrigation use water rights/permits at the current appropriation amount can be estimated by assuming water rights/permits limited only by diversion rate will pump at the maximum permitted diversion rate 60 percent of the time. Therefore, the total annual withdrawal from the Lower James Missouri aquifer by non-irrigation use is expected to total less than 989 ac-ft/yr (Water Rights, 2013b).

Figure 2 shows the entire Lower James Missouri aquifer's historic irrigation data. The development of this aquifer increased over the past few years. The annual withdrawal due to irrigation use fluctuates greatly, which is probably due mostly to annual growing season climatic conditions. The average pumpage reported equals 1,479 ac-ft/yr (Water Rights, 1979-2013). Based on the trend of irrigation data, the development of this aquifer will probably continue to increase. The maximum pumpage reported was in 1990 and 2008 for 2,837 ac-ft/yr and the minimum was reported in 1993 for 246 ac-ft/yr (Water Rights, 1979-2013).

Figure 3 shows the Lower James Missouri aquifer's historic irrigation data in Clay County alone. The aquifer in Clay County has recently become more developed with a jump in 2008. The average pumpage reported equals 39 ac-ft/yr (Water Rights, 1979-2013). The maximum pumpage reported was in 2008 for 255 ac-ft/yr and several years, generally prior to 1998, reported no pumpage (Water Rights, 1979-2013).

There are also many completion reports on file with the SD DENR-Water Rights Program for domestic wells that appear to be completed into the Lower James Missouri aquifer (Water Rights, 2013c). The annual withdrawal due to domestic use is not significant to the hydrologic budget of the aquifer.

Hydrologic Budget:

The total annual withdrawal from the Lower James Missouri aquifer is estimated to be at maximum 3,826 ac-ft/yr, but the actual annual pumpage will often be much less. Using potential maximum withdrawal creates the most conservative estimate. This potential maximum annual withdrawal is much less than the estimated annual recharge. Therefore, there is a reasonable probability that unappropriated water is available from the Lower James Missouri aquifer for the proposed appropriation of 190 ac-ft/yr.

Localized Hydrologic Budget:

The annual withdrawal from the Lower James Missouri aquifer Clay County is estimated to be at maximum 255 ac-ft/yr, but the actual annual pumpage will often be much less. In this area of the aquifer, the potential maximum annual withdrawal is also less than the estimated annual recharge. Therefore, there is a reasonable probability that unappropriated water is available from the Lower James Missouri aquifer for the proposed appropriation of 190 ac-ft/yr.

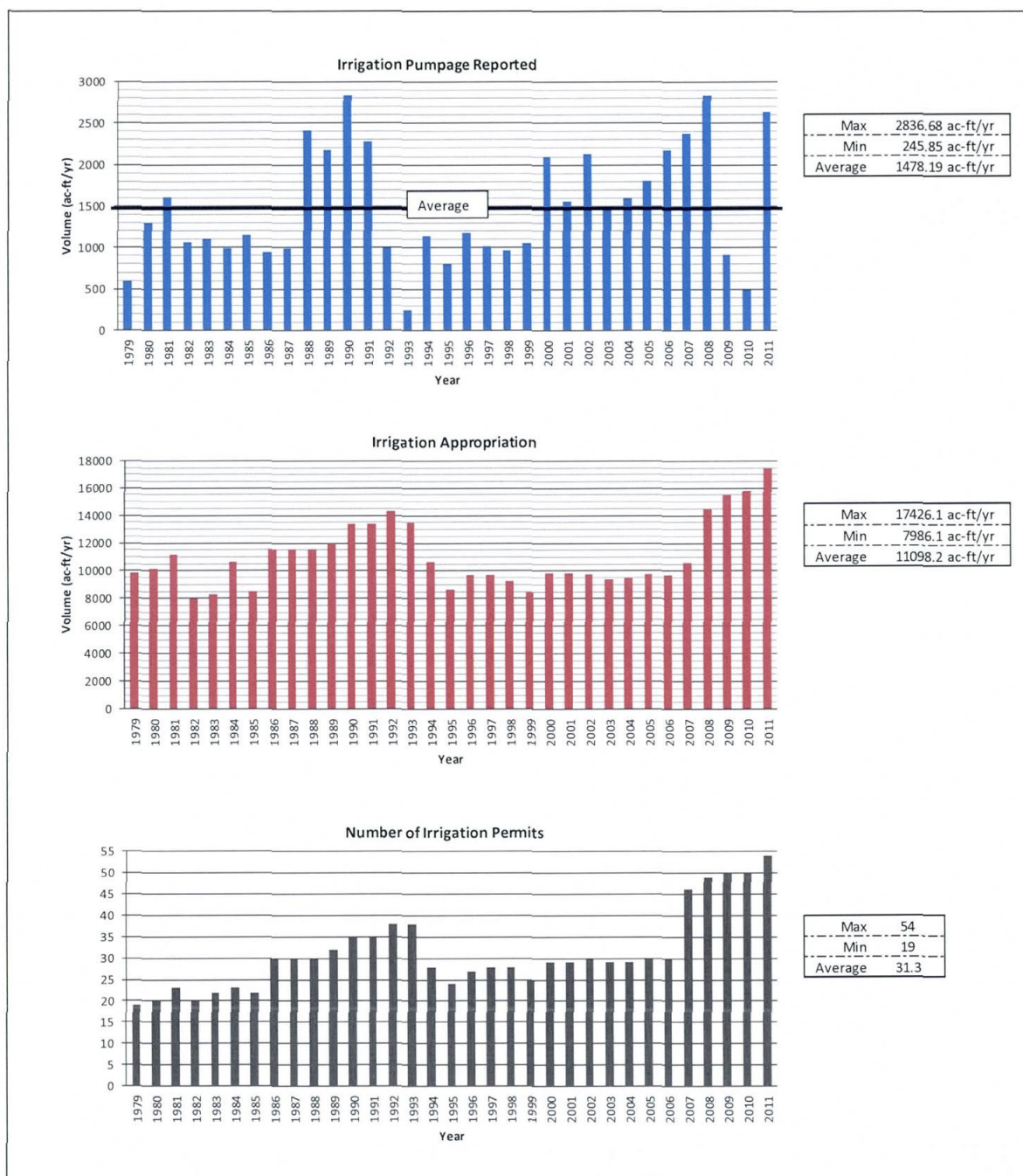


Figure 3: Historic irrigation water use from the entire Lower James Missouri aquifer (Water Rights, 1979-2013)

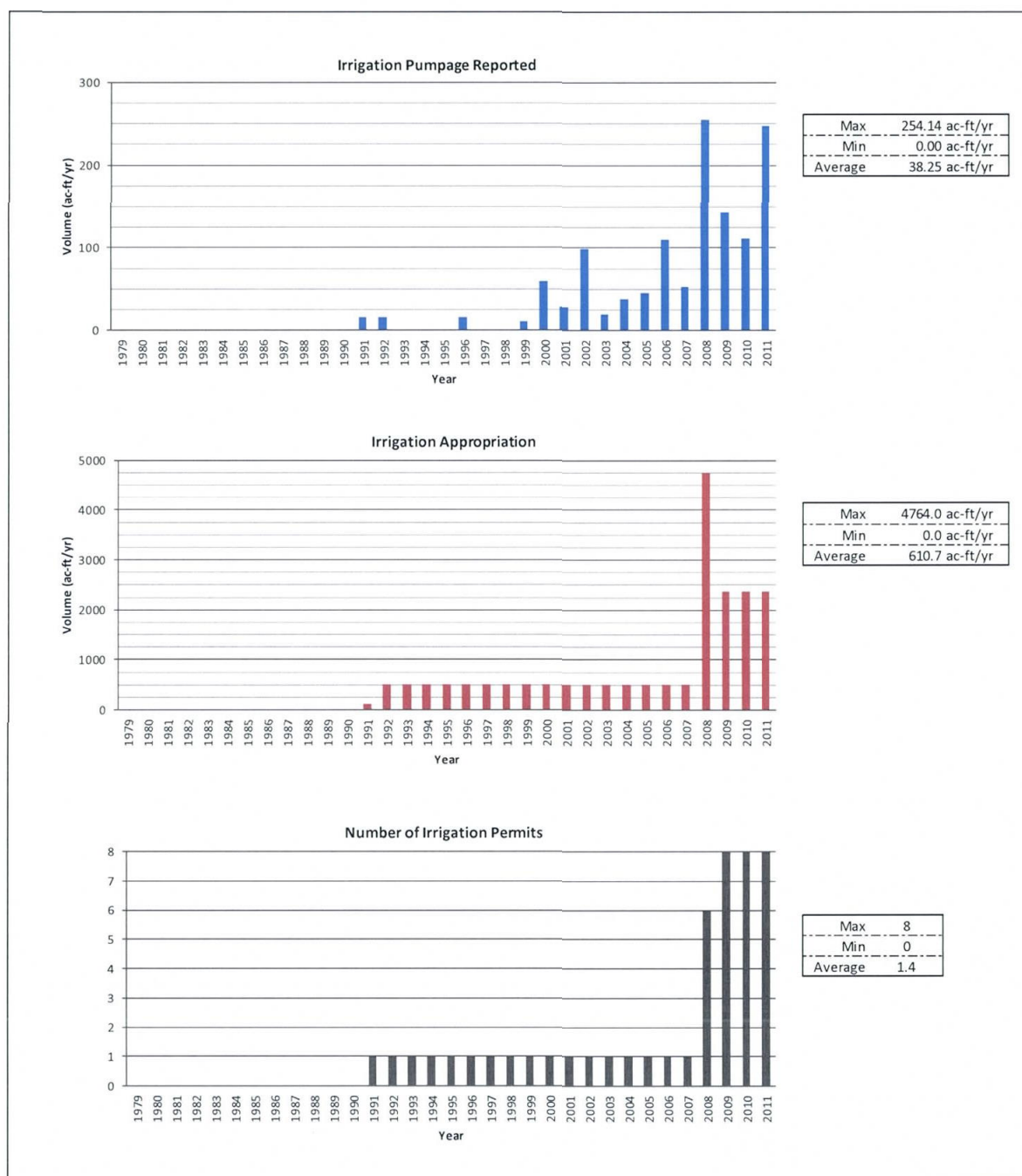


Figure 4: Historic irrigation water use from the Lower James Missouri aquifer in Clay County (Water Rights, 1979-2013)

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 SD DENR-Water Rights Program monitors 32 observation wells completed into the Lower James Missouri aquifer (Water Rights, 2013a). The nearest observation wells are located further than nine miles from the existing well authorized by Water Right No. 7030-3, as shown in Figure 5. Because the aquifer narrows at the Yankton and Clay County line, the observation well that could best represent the water levels in the area of the well site is YA-80FA, located approximately eleven miles from the existing well. The hydrograph of this well is shown in Figure 6. Due to the distance, this observation well cannot precisely indicate the local characteristics of the aquifer or possible effects of nearby pumping in the area of the existing well. However, this observation well data can provide representative general characteristics of the Lower James Missouri aquifer in this area and the groundwater available.

The Missouri: Elk Point and Lower James Missouri aquifers consist of the same glacial outwash in Clay County and are continuous and hydraulically connected; however, are differentiated by Hedges and others (1982) because the Missouri: Elk Point is unconfined and the Lower James Missouri is buried by till and generally confined. Observation well CL-80A, shown in Figure 5 and located approximately four and a half miles from the existing well, is considered to be completed into the Missouri: Elk Point aquifer because it is located on the flood plain of the Missouri River, even though the aquifer is buried at this location. Therefore, the hydrograph of this observation well, shown in Figure 7, is probably representative of the Lower James Missouri aquifer in this area.

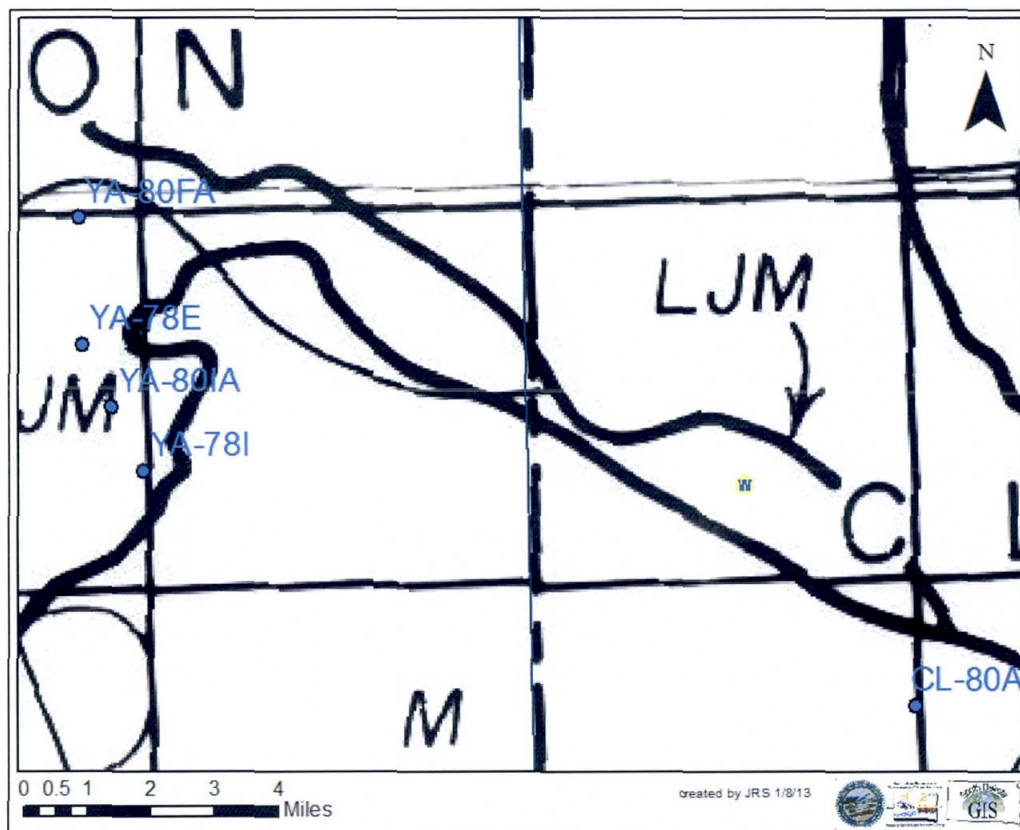


Figure 5: Nearest observation wells completed into the Lower James Missouri aquifer to the well authorized by Water Right No. 7030-3 and observation well CL-80A completed into the Missouri: Elk Point aquifer (Hedges and others, 1982; Water Rights, 2013b)

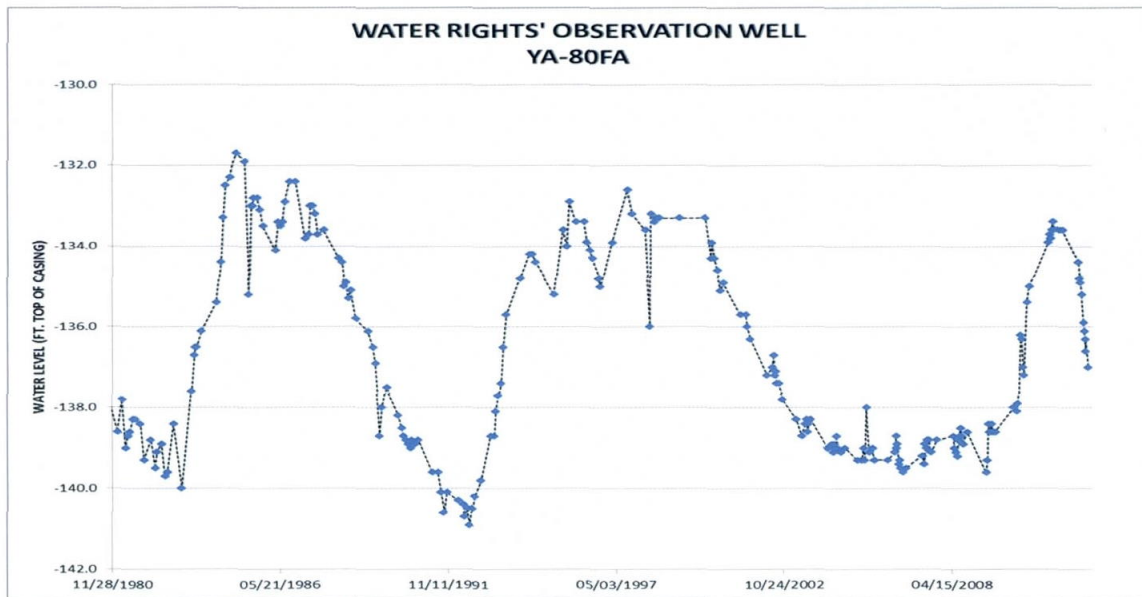


Figure 6: Hydrograph for SD DENR-Water Rights' observation well YA-80FA (Water Rights, 2013a)

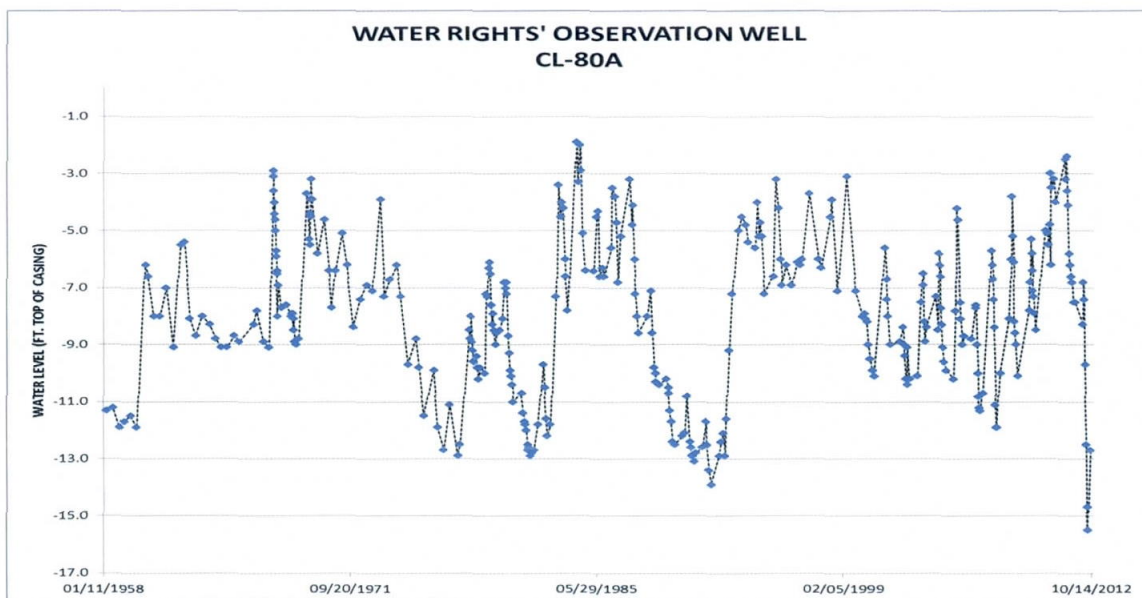


Figure 7: Hydrograph for SD DENR-Water Rights' observation well CL-80A (Water Rights, 2013a)

The observation wells data are similar even though the wells are completed into technically different aquifers. Note that observation well YA-80FA is under water table conditions and CL-80A is under artesian conditions. The hydrographs document cyclic conditions of water levels, recharging during wet years and declining during dry years. Temporal well withdrawal near these wells is masked by climatic conditions, indicating that recharge to and natural discharge from the aquifer greatly exceeds well withdrawal. Therefore, hydrographs indicate that unappropriated water is available from the Lower James Missouri aquifer to support the proposed appropriation of 190 ac-ft/yr.

EXISTING WATER RIGHTS:

There are currently nine water rights/permits appropriating water from the Lower James Missouri aquifer in Clay County (Water Rights, 2013b). In addition, there are several well completion reports on record with the SD DENR-Water Rights Program for domestic wells that appear to be completed into the Lower James Missouri aquifer in Clay County (Water Rights, 2013c). There is only one well within one mile of the existing well authorized by Water Right No. 7030-3. This well is authorized by Water Permit No. 7089-3 Franklin and Gwen Orr and is located approximately one quarter mile southwest. There are four water rights/permits within two miles, but further than one mile from the existing well. Because the Lower James Missouri aquifer is under artesian conditions in this area, some drawdown due to pumping is likely. Recognize that from the well completion report of the existing well authorized by Water Right No. 7030-3, there is approximately 36 feet of artesian head pressure in the aquifer at this location.

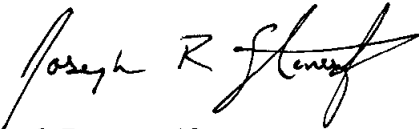
As previously discussed, the hydrographs for observation wells completed into the Lower James Missouri aquifer document the effects of pumping. However, these are minimal relative to climatic conditions. Over the period of record, water levels in these observation wells fluctuated at maximum 20 feet (Water Rights, 2012a). This amount of fluctuation is a probable worst case scenario for this aquifer.

From the well test completed with the well completion report submitted for Water Right No. 7030-3, the specific capacity of this well was approximately 29.2 gallons per minute per foot. Assuming a storativity of 0.001, the transmissivity of the aquifer in this area equals approximately 58,333 gallons per day per foot ("Transmissivity from Specific Capacity"). Assuming the proposed well diverts water at the proposed rate of 1.62 cfs for 185 days, the estimated drawdown equals approximately 10.4 feet at a distance of one quarter mile from the existing well and 6.4 feet one mile from the existing well ("Theis Equation Calculator"). This estimate of distance-drawdown is based on the maximum pumpage proposed on the application, creating the most conservative estimate. Actual diversion rate and pumpage will likely be less than that proposed, and therefore, drawdown will likely be less.

Considering that SDCL 46-6-6.1 does not protect artesian head pressure as a means of delivery and the Water Management Board has consistently recognized that to place water to maximum beneficial use a certain amount of drawdown may occur, a nearby adequate well defined by ARSD 74:02:20(7), which states that the pump intake must be set 20 feet below the top of the aquifer or, if the aquifer is less than 20 feet thick, as near to the bottom of the aquifer as is practical, is not expected to be adversely or unlawfully impaired. Therefore, there is a reasonable probability that any well interference from the proposed appropriation will not adversely or unlawfully impair existing users.

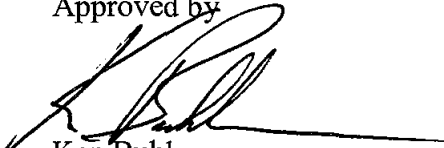
CONCLUSIONS:

1. Water Permit Application No. 7510-3 proposes to appropriate up to 190 ac-ft/yr at a maximum additional diversion rate of 0.28 cubic feet per second (cfs) from one existing well authorized by Water Right No. 7030-3.
2. If approved, the permit plus Water Right No. 7030-3 will result in one well diverting at a total maximum diversion rate of 1.62 cfs to irrigate a total of 210 acres. However, the actual water use will likely be less than the appropriation.
3. There is a reasonable probability that unappropriated water is available from the Lower James Missouri aquifer, on the whole and locally in Clay County, to supply the proposed appropriations.
4. There is a reasonable probability that the proposed additional diversion rate and irrigated acres will not cause a significant impact to existing nearby wells, and therefore, will not adversely or unlawfully impair existing users.



Joseph R Stonesifer
SD DENR-Water Rights Program

Approved by



Ken Buhler
SD DENR-Water Rights Program

REFERENCES:

- Bugliosi, E.F. 1986. Water Resources of Yankton County, South Dakota. Water Resources Investigations Report 84-4241. U.S. Geological Survey, Huron, SD.
- 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. South Dakota DENR-Geological Survey, Vermillion, SD.
- Jensen, A.R. 2000. Aquifer Materials Map 1. South Dakota DENR-Geological Survey, Vermillion, SD.
- Lindgren, R.J. and Hansen, D.S. 1990. Water Resources of Hutchinson and Turner Counties, South Dakota. Water-Resources Investigations Report 90-4093. U.S. Geological Survey. Huron, SD.
- Stephens, J.C. 1967. Geology and Hydrogeology of Clay County, South Dakota, Part II: Water Resources. South Dakota DENR-Geological Survey Bulletin 19, 62 p.
- "Theis Equation Calculator." I-calcul8 Calculators and Tools. 8 January 2013
< <http://www.icalcul8.com/theis.php>>
- "Transmissivity from Specific Capacity." Aquifer Test Forum sponsored by HydroSOLVE, Inc.
8 January 2013 < <http://www.aqtesolv.com/forum/transcap.asp>>
- Water Rights. 1979-2013. "Annual Irrigation Summary by Aquifer": SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, SD.
- Water Rights. 2013a. Observation Well Files, SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, SD.
- Water Rights. 2013b. Water Right/Permit Files, SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, SD.
- Water Rights. 2013c. Water Well Completion Reports, SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, SD.

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FEB 11 2013

WATER RIGHTS
PROGRAM

AFFIDAVIT OF PUBLICATION

PLAIN TALK

DENR

Division of Environmental Services

Air Quality Program

Joe Foss Building, 523 East Capitol

Pierre, SD 57501

STATE OF SOUTH DAKOTA

COUNTY OF CLAY

TERA SCHMIDT BEING FIRST DULY SWORN ON OATH DEPOSES
AND SAYS THAT SHE IS THE **CLASSIFIED MANAGER** OF YANKTON
MEDIA INC., A CORPORATION, THE PRINTER AND THE PUBLISHER OF THE
PLAIN TALK, A LEGAL WEEKLY NEWSPAPER PUBLISHED AND CIRCULATED
IN THE CITY OF VERMILLION, SAID COUNTY AND STATE, AND ONE OF THE
OFFICIAL NEWSPAPERS OF THE SAID COUNTY OF FACTS STATED IN THIS
AFFIDAVIT; THAT THE ANNEXED
NOTICE OF APPLICATION FOR AIR QUALITY CONSTRUCTION PERMIT

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE
NEWSPAPER ON THE 1 DAY OF **FEBRUARY** 2013
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION
OF SAID **NOTICE** TO WIT **\$31.93** ENSURES TO THE
BENEFITS OF THE PUBLISHER OF SAID NEWSPAPER AND THAT NO
AGREEMENT AND UNDERSTANDING FOR THE DIVISION THEREOF HAS
BEEN MADE WITH ANY OTHER PERSON, AND THAT NO PART THEREOF
HAS BEEN AGREED TO BE PAID TO ANY PERSON WHOMSOEVER.

PUBLISHED ON: 2/1/13

FILED ON: 2/1/13

Tera A. Schmidt

SUBSCRIBED AND SWORN TO BEFORE ME THIS

4th

DAY OF

February

NOTARY PUBLIC/SOUTH DAKOTA

MY COMMISSION EXPIRES

8/19/2015

ing the application, and the signa-
ture and mailing address of the
petitioner or the petitioner's legal
counsel, if legal counsel is ob-
tained. Contact Eric Gronlund at
the above Water Rights Program
address to request copies of infor-
mation pertaining to this applica-
tion. Steven M. Pirner, Secretary,
Department of Environment and
Natural Resources.

Published once at the total ap-
proximate cost of \$31.93

Published: February 1, 2013

2010

Legal and Public
Notices

NOTICE OF APPLICATION

NO. 7510-3 to Appropriate

Water

Notice is given that Howard A
Kathol, 30918 450th Ave, Gay-
ville SD 57031 has filed an appli-
cation for a water permit to appro-
priate an additional 0.28 cubic
feet of water per second (cfs) and
irrigate 95 additional acres to
what is currently authorized by
Water Right No. 7030-3. Water
Right No. 7030-3 appropriates
1.34 cfs from one well completed
into the Lower James:Missouri
Aquifer (162 feet deep) located in
SE 1/4 NW 1/4 Section 27 to irri-
gate 115 acres located in the NW
1/4 Section 27; all in
T94N-R53W. This application
proposes to divert an additional
0.28 cfs from the existing well to
irrigate 95 additional acres located
in the NW 1/4 Section 27 and E
1/2 NE 1/4 Section 28; all in
T94N-R53W. This application, if
approved, and Water Right No.
7030-3 will authorize a total di-
version of 1.62 cfs for irrigation
of 210 acres.

Pursuant to SDCL 46-2A-2, the
Chief Engineer recommends AP-
PROVAL of Application No.
7510-3 because 1) unappropriated
water is available, 2) existing
rights will not be unlawfully im-
paired, 3) it is a beneficial use of
water, and 4) it is in the public in-
terest. In accordance with SDCL
46-2A-23, the Chief Engineer will
act on this application, as recom-
mended, unless a petition is filed
opposing the application or the
applicant files a petition contest-
ing the Chief Engineer's recom-
mendation. If a petition opposing
the application or contesting the
recommendation is filed, then a
hearing will be scheduled and the
Water Management Board will
consider this application. Notice
of the hearing will be given to the
applicant and any person filing a
petition.

Any person interested in oppos-
ing or supporting this application
or recommendation must file a
written petition with BOTH the
applicant and Chief Engineer. The
applicant must file a petition if
contesting the Chief Engineer's
recommendation. The Chief Engi-
neer'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 inter-
ested person or the applicant must
be filed by February 11, 2013.

The petition may be informal,
but must include a statement de-
scribing the petitioner's interest in
the application, the petitioner's
reasons for opposing or support-

RECEIVED

FEB - 7 2013

WATER RIGHTS
PROGRAM

AFFIDAVIT OF PUBLICATION

YANKTON DAILY PRESS AND DAKOTAN

2+1

NOTICE OF APPLICATION
NO. 7510-3 to Appropriate Water

Notice is given that Howard A. Kathol, 30918 450th Ave, Gayville SD 57031 has filed an application for a water permit to appropriate an additional 0.28 cubic feet of water per second (cfs) and irrigate 95 additional acres to what is currently authorized by Water Right No. 7030-3. Water Right No. 7030-3 appropriates 1.34 cfs from one well completed into the Lower James-Missouri Aquifer (162 feet deep) located in SE 1/4 NW 1/4 Section 27 to irrigate 115 acres located in the NW 1/4 Section 27; all in T94N-R53W. This application proposes to divert an additional 0.28 cfs from the existing well to irrigate 95 additional acres located in the NW 1/4 Section 27 and E 1/2 NE 1/4 Section 28; all in T94N-R53W. This application, if approved, and Water Right No. 7030-3 will authorize a total diversion of 1.62 cfs for irrigation of 210 acres.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7510-3 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 this application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider this application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by February 11, 2013.

The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal

Department of Environment and Natural Resources
PMB 2020
Joe Foss Building
523 East Capitol
Pierre, SD 57501

STATE OF SOUTH DAKOTA
COUNTY OF YANKTON

KELLY HERTZ BEING FIRST DULY SWORN ON OATH DEPOSES AND SAYS THAT HE IS THE MANAGING EDITOR OF, YANKTON MEDIA INC, A CORPORATION, THE PRINTER AND THE PUBLISHER OF THE YANKTON DAILY PRESS AND DAKOTAN, A LEGAL DAILY NEWSPAPER PUBLISHED AND CIRCULATED IN THE CITY OF YANKTON, SAID COUNTY AND STATE, AND ONE OF THE OFFICIAL NEWSPAPERS OF THE SAID COUNTY OF FACTS STATED IN THIS AFFIDAVIT; THAT THE ANNEXED Notice of Application No. 7510-3

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE NEWSPAPER ON THE 1st DAY OF February 2013 THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION OF SAID NOTICE TO WIT \$30.45 ENSURES TO THE BENEFITS OF THE PUBLISHER OF SAID NEWSPAPER AND THAT NO AGREEMENT AND UNDERSTANDING FOR THE DIVISION THEREOF HAS BEEN MADE WITH ANY OTHER PERSON, AND THAT NO PART THEREOF HAS BEEN AGREED TO BE PAID TO ANY PERSON WHOMSOEVER.

PUBLISHED ON: 2/1/2013

FILED ON: 2/4/2013

SUBSCRIBED AND SWORN TO BEFORE ME THIS 4th DAY OF February 2013

NOTARY PUBLIC, SOUTH DAKOTA

MY COMMISSION EXPIRES

8/19/2015

counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.
Published once at the total approximate cost of \$30.45.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

January 23, 2013

Plain Talk
201 W Cherry St
Vermillion SD 57069

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 7510-3 to Appropriate Water. Please publish the notice once on February 1, 2013. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

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 Howard A Kathol, 30918 450th Ave., Gayville SD 57031 (Ph# 605-267-4507).

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

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

January 23, 2013

Press & Dakotan
319 Walnut
Yankton SD 57078

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 7510-3 to Appropriate Water. Please publish the notice once on February 1, 2013. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

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Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATE, CONTACT
THE NEWSPAPER(S) RIGHT AWAY.

January 23, 2013

Howard A Kathol
30918 450th Ave
Gayville SD 57031

Dear Mr. Kathol:

Water Permit Application No. 7510-3 for irrigation use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Plain Talk printed at Vermillion SD (Ph # 605-624-2695) and the Press & Dakotan printed at Yankton SD (Ph # 605-665-7811). You will need to contact the newspaper(s) and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

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

Sincerely,

Eric Gronlund
Natural Resources Engineer
(605) 773-3352

enclosures

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

Instruction to Newspaper - Publish the Notice on February 1, 2013. 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 NO. 7510-3 to Appropriate Water

Notice is given that Howard A Kathol, 30918 450th Ave, Gayville SD 57031 has filed an application for a water permit to appropriate an additional 0.28 cubic feet of water per second (cfs) and irrigate 95 additional acres to what is currently authorized by Water Right No. 7030-3. Water Right No. 7030-3 appropriates 1.34 cfs from one well completed into the Lower James:Missouri Aquifer (162 feet deep) located in SE 1/4 NW 1/4 Section 27 to irrigate 115 acres located in the NW 1/4 Section 27; all in T94N-R53W. This application proposes to divert an additional 0.28 cfs from the existing well to irrigate 95 additional acres located in the NW 1/4 Section 27 and E 1/2 NE 1/4 Section 28; all in T94N-R53W. This application, if approved, and Water Right No. 7030-3 will authorize a total diversion of 1.62 cfs for irrigation of 210 acres.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7510-3 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 this application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider this application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by February 11, 2013.

The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

Published once at the total approximate cost of _____.



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and NATURAL RESOURCES

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denr.sd.gov

MAR 28 2013

Howard A Kathol
30918 450th Ave
Gayville SD 57031

Dear Mr. Kathol:

Enclosed is Water Permit No. 7510-3 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

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

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

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

NOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USE

RECEIVED

JUN 21 2013

WATER RIGHTS
PROGRAMDate 6-18-2013TO: Water Rights Program, DENR
523 E. Capitol
Pierre, SD 57501-3181

FROM:

Howard Kathol

(name)

30918 450th Ave

(address)

Gayville, SD, 57031

(city, state, zip)

605-267-4507

(phone)

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

Water Permit No. 7510-3 states that the water use system is to be constructed by Feb 11, 2018, and water is to be put to beneficial use by Feb 11, 2022.

(date)

(date)

The water use system was completed on 6-13-2013.

(date)

Applying the water to beneficial use was completed on 6-13-2013.

(date)

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

Howard Kathol

(signature)





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
PMB 2020
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3182
<http://denr.sd.gov>

June 25, 2013

7510-3

Howard Kathol
30918 450th Ave
Gayville SD 57031

Dear Mr. Kathol:

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

The system is now ready for inspection. Inspections are done on a county-by-county basis as staff time permits. You have done everything you need to do and the intervening time between the completion of your project and the staff inspection has no bearing on your water permit.

Someone from our office will contact you prior to the inspection to set up a time that is convenient for you. If you have any questions, please contact me.

Sincerely,

A handwritten signature in black ink that reads "Genny McMath". The signature is written in a cursive, flowing style.

Genny McMath
Water Rights Program
(605) 773-3352
email: genny.mcmath@state.sd.us

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 7510-3

I have this day, **October 27, 2016**, made a thorough examination of the water use system constructed by **Howard A Kathol, 30918 450th Ave, Gayville, SD 57031** of Permit No. **7510-3**, bearing the priority of **November 13, 2012** authorizing the diversion of an additional **0.28** cu. ft. per second and irrigates **95** additional acres to what is currently authorized by Water Right No. 7030-3. Water Right No. 7030-3 authorizes 1.34 cfs from one well completed into the **Lower James:Missouri Aquifer** for **irrigation** purposes, of 115 acres, in **Clay** County. This permit and Water Right No. 7030-3 authorize a total diversion of 1.62 cfs for irrigation of 210 acres.

Inspection contact & relationship **Howard Kathol, permit holder**
to permit holder, if applicable:

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: **Hammond-Wetmore Drilling, LLC**
- 2) No. of Wells **1**
- 3) Depth(s) **161** feet
- 4) Well log is available **Yes**

Comments: **Existing well was completed in 2008. Information from well log, Water Right 7030-3, and this inspection.**

Casing:

- 1) Diameter **16** inches
- 2) Length **131** feet
- 3) Type **PVC**

Screen:

- 1) Type **PVC Manufactured**
- 2) Length **30** feet
- 3) Static water level **91** feet

Pump:

- 1) Make **American Marsh**
- 2) Model **625S-300**
- 3) Capacity **600** GPM

Motor:

- 1) Make Unknown
- 2) Model No. Submersible
- 3) Horsepower rating 40 hp

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

- 1) Type PVC
- 2) Size 8 inches
- 3) Length 2830 feet new and 1310 feet existing

Comments: See map for approximate location of existing and new water pipe.

C. Works used to apply water to beneficial use:

Center pivot (NW ¼ Sec 27-T94N-R53W):

- 1) Make Valley 8000
- 2) Overall length 1297 feet
- 3) Number of towers 7
- 4) End gun Yes
- 5) Capacity 600 GPM

Center pivot (E ½ NE ¼ Sec 28-T94N-R53W):

- 1) Make Valley 8000
- 2) Overall length 1282 feet
- 3) Number of towers 7
- 4) End gun Yes
- 5) Capacity 600 GPM

Comments: Water Permit 7510-3 and Water Right 7030-3 appropriated 1.62 cfs or 730 gpm, however only 1.34 cfs or 600 gpm were developed. The existing center pivot in NW ¼ Sec 27-T94N-R53W was moved east and an additional leg was added to the system to irrigate additional acres along with the addition of a second center pivot in NE ¼ Sec 28-T94N-R53W. System is set up so that only one center pivot can be operated at a time.

Chemigation Equipment:

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

Comments: Permit holder was not chemigating at time of inspection, but provided the above answers to questions asked. Permit holder indicated he uses chemigation primarily to apply liquid nitrogen to corn crop. A copy of the chemigation rules and Appendix A were reviewed with the permit holder.

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by Yes
- 2) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period Yes, began irrigating in 2008.
- 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: East 2154', South 2554' from NW Corner of Sec 27-T94N-R53W; Lat 42.93177/Long -97.09357; SE ¼ NW ¼ Sec 27-T94N-R53W.
2. The works are capable of diverting and conveying to the place of use 1.34 cfs or 600 gpm of water which is to be used for irrigation. Water has been put to beneficial use to the maximum extent as follows:

Water Permit 7510-3/83 ac
NW ¼ NW ¼ Sec 27-T94N-R53W – 1 ac
NE ¼ NW ¼ Sec 27-T94N-R53W – 8 ac
SE ¼ NW ¼ Sec 27-T94N-R53W – 8 ac
SW ¼ NW ¼ Sec 27-T94N-R53W – 1 ac
NE ¼ NE ¼ Sec 28-T94N-R53W – 32 ac
SE ¼ NE ¼ Sec 28-T94N-R53W – 33 ac

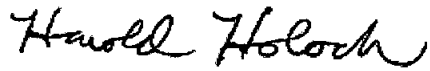
Water Right 7030-3/115 ac
NW ¼ NW ¼ Sec 27-T94N-R53W – 32.5 ac
NE ¼ NW ¼ Sec 27-T94N-R53W – 25.0 ac
SE ¼ NW ¼ Sec 27-T94N-R53W – 25.0 ac
SW ¼ NW ¼ Sec 27-T94N-R53W – 32.5 ac

comprising a total of 198 acres of land and the license should be issued for 1.34 cfs or 600 gpm.

3. All structures, wells and lands on map Yes

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

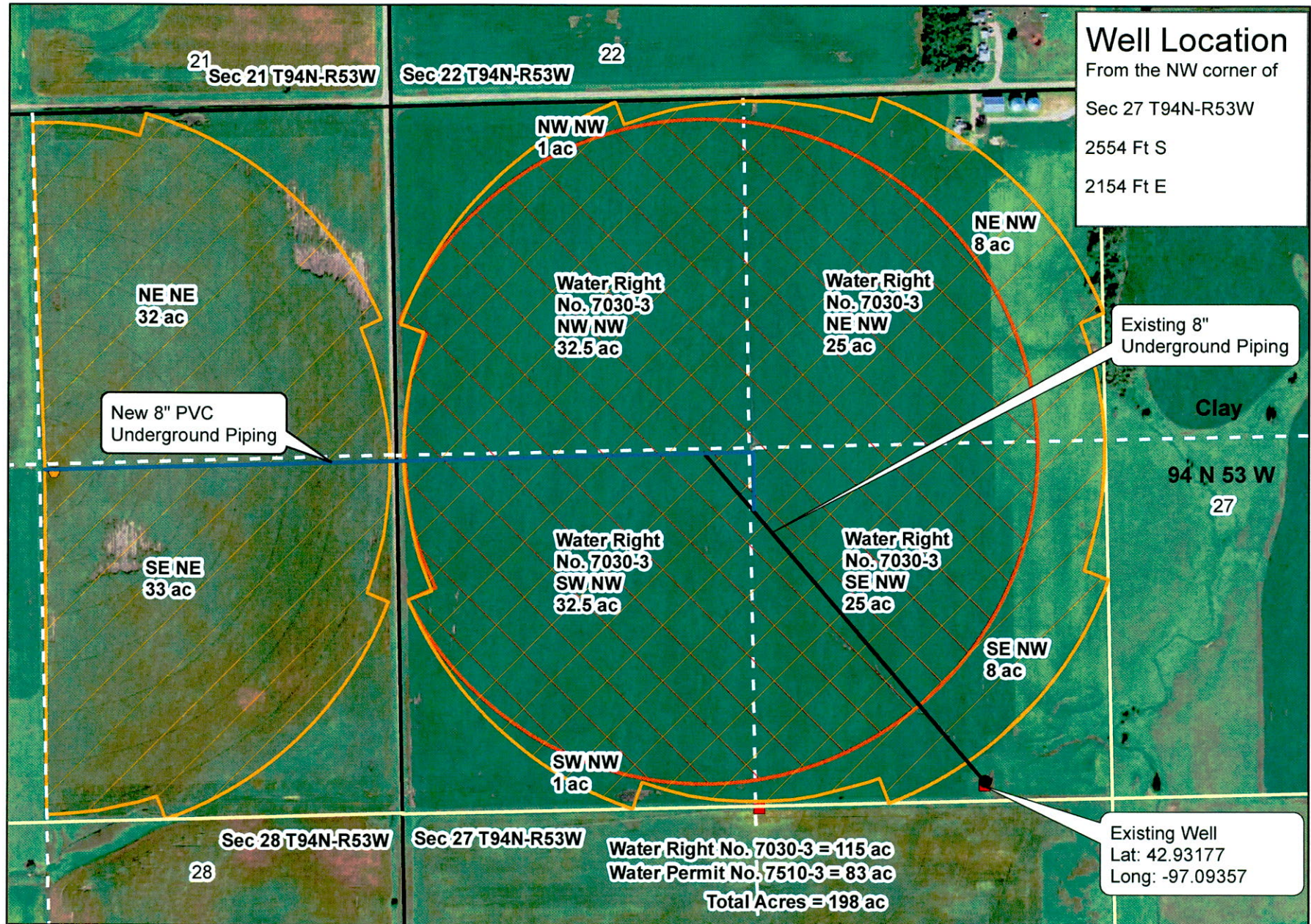
Water Permit 7510-3 and Water Right 7030-3 appropriated 1.62 cfs or 730 gpm for irrigation of 210 acres, however only 1.34 cfs or 600 gpm were developed for irrigation of 198 acres.



Harold Holoch, PE
Staff Engineer
DENR, Water Rights Program

Date report completed: **May 11, 2017**

7510-3



Harold Holoch
Harold Holoch, PE
Staff Engineer
March 24, 2017

STATE OF SOUTH DAKOTA
WATER LICENSE NO. 7510-3

(1) Howard A Kathol, 30918 450th Ave, Gayville SD 57031 made Application No. 7510-3, November 13, 2012 for a water permit to divert an additional 0.28 cubic feet of water per second (cfs) from ground water, one existing well (Lower James Missouri Aquifer), Clay County, South Dakota for irrigation purposes. Permit No. 7510-3, with a priority date of November 13, 2012 was approved February 11, 2013 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before February 11, 2018 and the application to beneficial use of water on or before February 11, 2022.

The Permit holder submitted a "*Notice of Completion of Works and Application of Water to Beneficial Use*" on June 21, 2013. The "*Notice*" stated the water use system was completed and water placed to beneficial use on June 13, 2013.

Water Permit No. 7510-3 appropriated additional diversion rate and acreage to the water use system developed under Water Right No. 7030-3. Water Right No. 7030-3, with a priority date of May 1, 2008, authorizes diversion of 1.34 cfs to irrigate 115 acres in the NW ¼ Section 27, T94N, R53W.

The applicable portions of Water Right No.7030-3 are being incorporated into this water license. A priority date of May 1, 2008 is retained for the entire developed diversion rate of 1.34 cfs. Priority dates as they pertain to the acreage irrigated are described in (3) of this license.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to divert 1.34 cubic feet of water per second for beneficial use. The location of the diversion point is 2,154 feet east and 2,554 feet south of the NW corner of Section 27, T94N, R53W (SE ¼ NW ¼).

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

T94N, R53W Section 27	NW ¼ NW ¼	33.5 acres	1 acre: November 13, 2012 priority 32.5 acres: May 1, 2008 priority
	NE ¼ NW ¼	33.0 acres	8 acres: November 13, 2012 priority 25 acres: May 1, 2008 priority
	SE ¼ NW ¼	33.0 acres	8 acres: November 13, 2012 priority 25 acres: May 1, 2008 priority
	SW ¼ NW ¼	33.5 acres	1 acre: November 13, 2012 priority 32.5 acres: May 1, 2008 priority
T94N, R53W Section 28	NE ¼ NE ¼	32.0 acres	November 13, 2012 priority
	SE ¼ NE ¼	33.0 acres	November 13, 2012 priority
	Total	198.0 acres	

Priority date of November 13, 2012 was established under Water Permit No. 7510-3 (83 acres)

Priority date of May 1, 2008 was established under Water Right No. 7030-3 (115 acres)

continued

(4) Pursuant to South Dakota Water Law 46-5-30.1 Howard A Kathol, 30918 450th Ave, Gayville SD 57031 the holder and/or owner of Incorporated Water Right No. 7510-3 is issued a license to appropriate water, the right to use 1.34 cubic feet of water per second from ground water, one well (Lower James Missouri Aquifer) with priority dates of May 1, 2008 (115 acres) and November 13, 2012 (83 acres) 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 Incorporated Water Right No. 7510-3 and subject to the following qualifications:

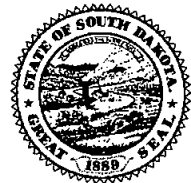
- The well approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having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



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

JUN 21 2017

date



7510-3



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

JUN 21 2017

7030-3
7510-3

Howard A Kathol
30918 450th Ave
Gayville SD 57031

Dear Mr. Kathol:

Enclosed is Water License No. 7510-3. 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 the owner of an existing well, such as the well authorized by Water Right No. 7510-3, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

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

Sincerely,

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

enclosures

NOTE: Upon licensing, the applicable portions of Water Right No. 7030-3 were incorporated into Water License No. 7510-3.