

WATER PERMIT NO. 7071-3

Name of Applicant: **Jerry Kiihl**

Address: **PO Box 204, Castlewood SD 57223**

Phone: **605 793-2689**

Amount of Water Claimed: **1.78 cfs**

Total Acres: **147**

Source of Water Supply: **groundwater (2 wells)**

Water to be used for: **irrigation**

County: **Hamlin**

Type of Waste Disposal System:

Location: **5^{miles} south of Castlewood**

PRIORITY

Date Received: **9-18-08**

Application/License Fee: **\$300**

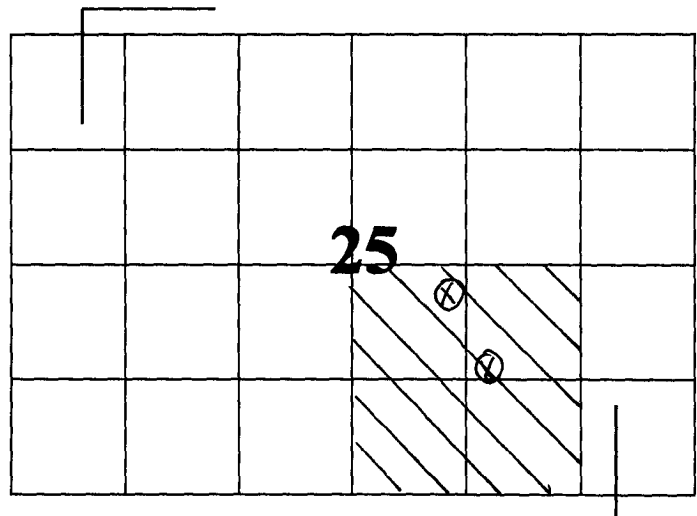
Corrected Application Received: **9-23-08**

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

Remarks:

Diversion Point: **N ½ SE ¼ Sec 25-T114N-R52W**

Land to be Irrigated: **SE ¼ Sec 25-T114N-R52W**



Depth of Well: **75 feet deep**

Well Driller: **Kaiser Well Drilling**

Remarks:

Type of Map: **aerial**

Prepared by: **J.V. Rigge, Hamlin Co. NRCS**

Reviewed and the Number Assigned on: **9-23-08**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

FORM 2: Application for irrigation in South Dakota

(type or print)

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. <u>7071-3</u> (office use only) Hydrologic Unit <u>10170202</u>
	Basin <u>SiouX River</u>
	Newspaper <u>Hamlin Co Herald Enterprise</u>

RECEIVED

SEP 18 2008

WATER RIGHTS
PROGRAM

Application For Permit To Appropriate Water For Irrigation

 Type of Application: ☒ New ☐ Vested Right ☐ Amendment/Correction to Permit No. _____

(Use predates Mar 2, 1955)

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

1. Name of Applicant Jerry Kiihl Phone (605) 793-2689 cell-605-881-4271
 (check one) ☒ Owner ☐ Tenant/lessee
 Mailing Address 304 S 5th St PO Box 204 Castlewood State SD 57223
 (Street, RR, or Box and City) (Zip Code)
2. Amount of water claimed 1.78*CFS or 800**GPM ***AF Total Acreage 147
 (*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)
3. Source of water supply _____
4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Hamlin
SW1/4 SE1/4 Sec 25 114 N R5 S2W 2 wells
N1/2 SE1/4
5. County or counties where water will be used Hamlin
6. Annual period during which water is to be used June 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
<u>SE 1/4 25-114-52</u>	<u>147</u>		

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

Irrigation well to pivot

STATE OF SOUTH DAKOTA)

SS

County of Hamlin)

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

 I, Jerry L Kiihl, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.
Applicant's signature Jerry L KiihlSubscribed and sworn to before me this 17 day of Sept 20 08
 Notary Public signature Jeannette Rudebusch

My Commission Expires January 14, 2011

**SOUTH DAKOTA
WATER PERMIT NO. 7071-3**

Date of first receipt of application September 18, 2008.

Date of return to applicant for corrections, amendments or changes September 18, 2008.

Date of receipt of corrected application September 23, 2008.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 7071-3 to Jerry Kiihl, Box 204, Castlewood SD 57223 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. 7071-3 appropriates 1.78 cubic feet per second from two wells to be completed into the Big Sioux:Brookings Aquifer (approximately 75 feet deep) located in the N ½ SE ¼ Section 25 to irrigate 147 acres located in the SE ¼ Section 25; all in T114N-R52W.
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: June 1 – September 30.
3. The date from which applicant may claim right is September 18, 2008.
4. The date of approval of Permit No. 7071-3 is December 29, 2008.
5. One-fifth of the construction is to be completed on or before June 29, 2011.
6. All construction is to be completed on or before December 29, 2013.
7. Water is to be put to beneficial use on or before December 29, 2017.
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 wells 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 wells authorized by Permit No. 7071-3 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: Garland Erbele
Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

JAN 27 2009

date



(type or print in ink)

1. Well Information - Proposed Construction

- a) Drill Hole Diameter 18" Depth 75'
- b) Casing Type Pvc Sch 40 Diameter 18" Thickness _____
- c) Screen Type PVC Diameter 18" Thickness _____
- d) Gravel Pack 1/4" x 1/8" Length of Gravel Pack _____
- e) Depth to Top of Water Bearing Material _____
- f) Depth to Water (ground surface to water level) _____
- g) Distance to nearest existing domestic well:
- On applicants property _____ On property owned by others 1900

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

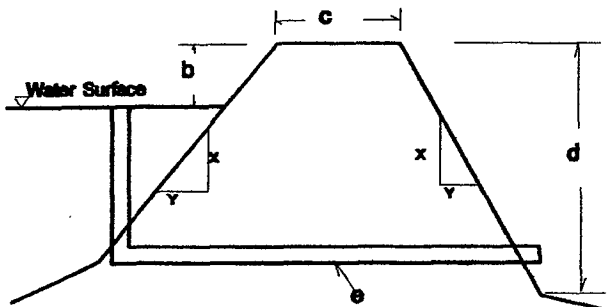
3. Dugout Information

- 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 _____
Upstream _____
Downstream _____
- h) Surface Area of Impoundment _____
- i) Storage _____ Acre Feet
- j) Drainage Area Above Dam _____ Acres

SE 1/4 25-114-52

Jerry Kihl

147.2

9/19/08

L. V. Rye - NRCS
Hayti FO

well

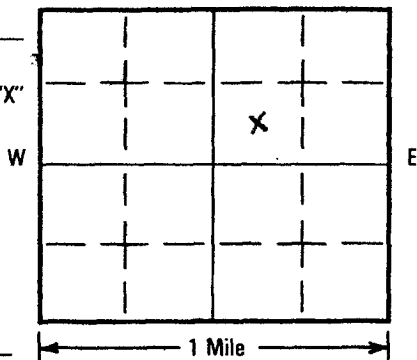
well

SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location SW 1/4 SE 1/4 Sec 25 Twp 114N Rg 52WCounty Hamlin

Please mark well location with an "X"



Well-Completion Date

9-12-08

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.) 2600 ft. from IRR. Well (identify source).

PROPOSED USE:

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

METHOD OF DRILLING:

Direct RotaryCASING DATA: ☐ Steel ☒ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>Sch 40</u> LB/FT	<u>3</u> IN	<u>260</u> FT	<u>20</u> FT	<u>10</u> IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN

GROUTING DATA

 Grout Type DF No. of Sacks 1 1/2 Grout Weight 54 lb./gal From 0 ft. To 20 ft.
Describe grouting procedure pressure grouting methodSCREEN: ☐ Perforated pipe ☒ ManufacturedDiameter 3 IN Length 10 FEETMaterial plasticSlot Size 1035 Set From 20 Feet to 30 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: 11 H2O2 tabs

NO, Why Not? _____

Laboratory sent to for water quality analysis _____

Well Owner: Jerry Kuhl

Business Name: _____

Address: 304 S 5th St
Castwood SD 57223

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Top soil</u>	<u>0</u>	<u>2</u>
<u>yellow fine sand</u>	<u>2</u>	<u>10</u>
<u>medium to coarse sand</u>	<u>10</u>	<u>20</u>
<u>W/L blinks</u>		
<u>medium to coarse W/L 10 in</u>	<u>20</u>	<u>28</u>
<u>Blue clay</u>	<u>28</u>	<u>60</u>

STATIC WATER LEVEL 6 Feet

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced Flowrate _____ GPM

Can well be completely shut in? _____

WELL TEST DATA:

☒ PumpedDescribe: Curve pump☐ Bailed☐ Other

Pumping Level Below Land Surface

12 ft. After 1 Hrs. pumped 100 + GPM12 ft. After 4 Hrs. pumped 100 + GPM

If pump installed, pump rate _____ GPM

REMARKS

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This well was drilled under license # 659

And this report is true and accurate.

Drilling firm Kaiser Well DrillingSignature of License Representative: [Signature]Signature of Well Owner or Equitable Property Holder: [Signature]Date: 9-16-08

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 9/18, 20 08

RECEIVED OF Jerry Kihl PO Box 204 Castlewood SD 57223

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

Fee for Application for Permit No. <u>7071-3</u> to Appropriate Water, to construct and to put water to beneficial use	250	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>7071-3</u>	50	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	300 00

No.

03758

By

David E. Muehl

Chief Engineer



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

September 18, 2008

Jerry ^KWihi
PO Box 204
Castlewood SD 57223

Dear Mr. ^KWihi:

Thank you for submitting the two *Applications for a Permit to Appropriate Water* for irrigation. In order to complete the applications, the following is required.

- Enclosed is the aerial photo map submitted with the applications. The map needs to reference a section corner.
- Also, the application for irrigation of the SE ¼ Section 25 states 2 wells. Please mark the location of the second well on the map.
- The map must be signed by one of the following: Registered Land Surveyor, Registered Professional Engineer or by any other government employee who normally prepares maps as a part of his assigned duties (i.e. local NRCS or FSA office).

If you have any questions, please contact me.

Sincerely,

Karen Schlaak

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

enclosure

Hi Karen I would like to change my application to 2 wells on each ¼ section

Thank you,

Jerry Kiihl

Phone 605-793-2689

Cell 605-881-4271

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**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
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**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 7071-3, Jerry Kiihl**

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. 7071-3, Jerry Kiihl, PO Box 204, Castlewood SD 57223.

The Chief Engineer is recommending APPROVAL of Application No. 7071-3 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 wells 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 wells authorized by Permit No. 7071-3 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.

Garland Erbele, Chief Engineer
December 4, 2008

REPORT FOR WATER PERMIT APPLICATION NOS. 7070-3 & 7071-3
JERRY KIIHL
OCTOBER 27, 2008

Water Permit Application No. 7070-3 proposes to appropriate 1.78 cubic feet of water per second (cfs) from two wells to be completed into the Brookings management unit of the Big Sioux aquifer (approximately 75 feet deep). The wells are to be located in the approximate center of the NE $\frac{1}{4}$ and in the SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 25, T114N-R52W. The water will be used to irrigate 160 acres located in the NE $\frac{1}{4}$ Section 25, T114N-R52W, Hamlin County.

Water Permit Application No. 7071-3 proposes to appropriate 1.78 cfs from two wells to be completed into the Brookings management unit of the Big Sioux aquifer (approximately 75 feet deep). The water will be used to irrigate 147 acres located in the SE $\frac{1}{4}$ Section 25, T114N-R52W, Hamlin County.

AQUIFER: Big Sioux: Brookings (BS:B)

SDCL 46-2A-9 requires

“A permit to appropriate water may be issued only if there is 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 from the Brookings management unit of the Big Sioux aquifer and the potential impacts to existing rights. The beneficial use and public interest of this proposed irrigation permit will not be addressed in this report.

AQUIFER CHARACTERISTICS:

The Big Sioux aquifer is an alluvium mantled outwash deposit consisting of silt, fine to coarse sand, and gravel. The aquifer thickness ranges from about 2 to 123 feet (Kume, 1985). The Brookings management unit of the Big Sioux aquifer extends from Codington County to Moody County, see figure 1. The management unit is hydraulically connected to the Aurora, North Deer Creek, Six Mile Creek and Unnamed Creek management units. The Brookings management unit underlies an estimated 191,100 acres and contains an estimated 642,230 acre-feet of recoverable water in storage (Hedges and others, 1982). In general, the aquifer is exposed at the surface and is unconfined (a water table aquifer) although confined portions may be present. The aquifer is hydraulically connected to the Big Sioux River and its tributaries, to Lake Poinsett and to Oakwood Lakes. Recharge to the aquifer is from groundwater inflow from glacial till, streamflow and lake recharge, and infiltration of precipitation on the aquifer surface. Average annual recharge is estimated to be 6.57 inches per year to the water table portion of the aquifer, and 3.29 inches per year to the artesian part of the aquifer (Koch, 1980). Discharge from the aquifer occurs through pumping from wells, evapotranspiration, and flow to streams and lakes.

The completion report for a test well that was submitted with Application No. 7070-3 identifies aquifer material from 1.5-18 feet below grade, clay from 18-22 feet below grade and aquifer material from 22-47 feet grade, with a static water level of four feet below grade at this well site. The log for the test well submitted for Application No. 7071-3 identifies aquifer material from surface to 28 feet below grade with a static water level of six feet.

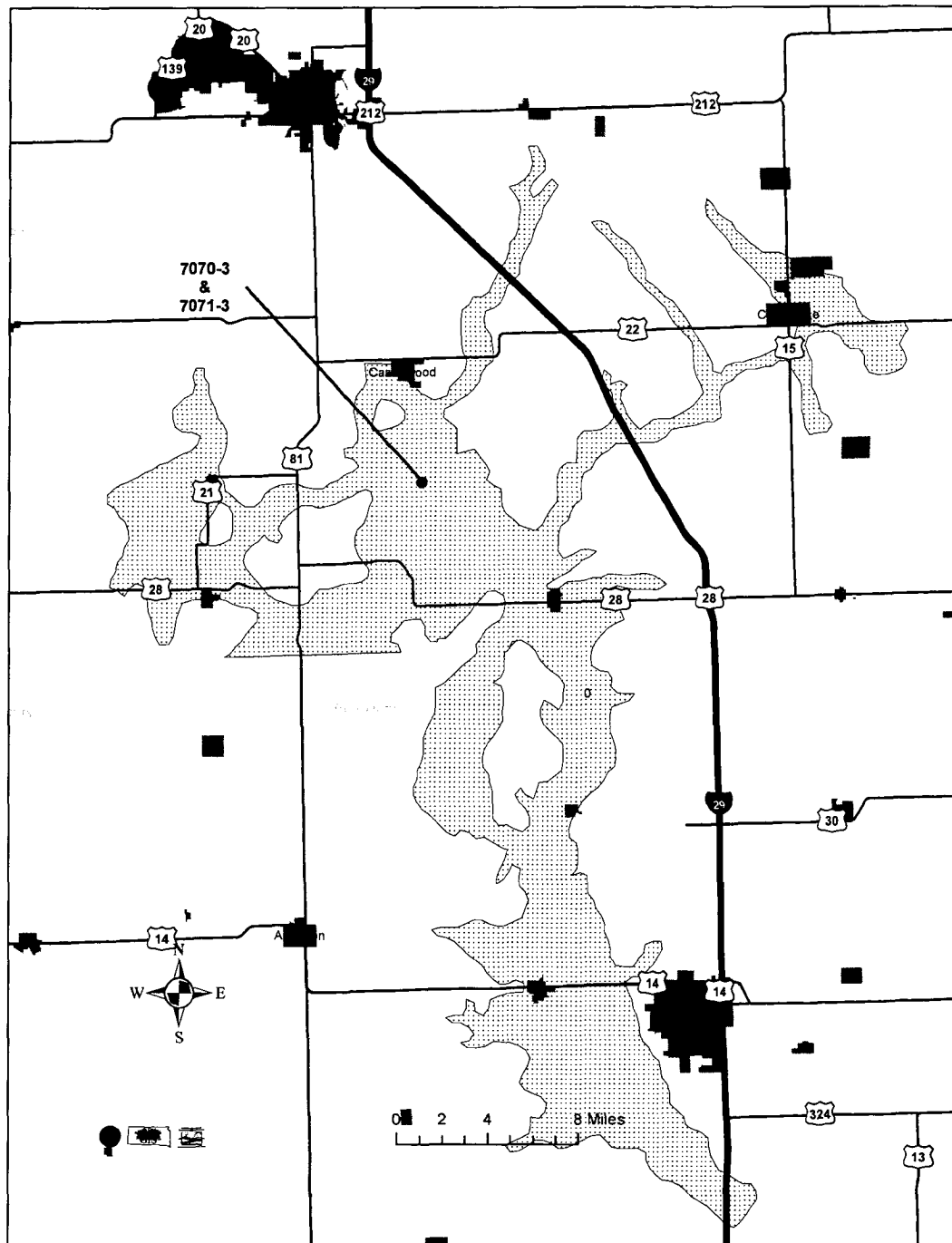


Figure 1. Map showing the areal extent of the Brookings Management Unit of the Big Sioux Aquifer and the proposed location of 7070-3 and 7071-3 (Modified from Hedges and others, 1982)

WATER AVAILABILITY

The availability of unappropriated water from the Brookings management unit of the Big Sioux aquifer can be evaluated by considering SDCL 46-6-3.1 which requires that:

“No application to appropriate groundwater may be approved if, according to the best information reasonably available, it is probable that the quantity of water withdrawn annually from a groundwater source will exceed the quantity of the average estimated annual recharge of water to the groundwater source.”

Two approaches can be used to assess water availability in respect to SDCL 46-6-3.1: a water balance; and observation well data.

Water Balance:

Water Use:

There are 180 Water Rights, 31 Water Permits and nine future use reservations appropriating water from the Brookings management of the Big Sioux aquifer.

The Brookings management unit is used primarily for irrigation use and rural water system use. Irrigation use from the aquifer is shown in table 1.

IRRIGATION USE (ac-ft/yr)			
Year	NUMBER of APPROPRIATIONS	Appropriation (ac-ft/yr)	Pumpage Reported (ac-ft/yr)
2007	164	62374.8	12730.13
2006	161	61075.8	14325.04
2005	159	61435.8	11513.48
2004	156	60695.8	11809.91
2003	149	58970.8	11380.47
2002	149	59186.8	12410.94
2001	149	59312.8	8384.81
2000	153	60799.8	8933.72
1999	155	62181.3	7841.04
1998	157	63306.2	8109.71
1997	153	62281.7	5650.00
1996	154	62575.2	7220.95
1995	161	62961.2	3862.25
1994	160	64395.2	2854.62
1993	162	64963.7	1042.90
1992	162	64603.7	2331.60
1991	165	65534.97	7771.74
1990	175	71616.95	5862.92
1989	166	69391.27	13930.70
1988	167	74615.27	18521.40
1987	171	76624.07	10015.00
1986	179	80788.57	2854.70
1985	181	81385.57	4951.40
1984	188	84188.07	8177.60
1983	161	74854.57	8227.46
1982	155	77754.57	4551.86
1981	197	91051	9040.00
1980	187	87093	9837
1979	184	85701	6144.00
AVERAGE	164.83	69369.64	8285.77
MAXIMUM	197	91,051	18,521.4
MINIMUM	149	58970.8	1,042.9

Table 1. Irrigation usage from the Brookings management unit of the Big Sioux aquifer (Water Rights, 1980-2008).

The Brookings-Deuel & Kingbrook Rural Water System and the Sioux Rural Water System both appropriate water from the Brookings management unit. Appropriations for the rural water systems are shown in table 2.

**RURAL WATER SYSTEM
APPROPRIATION FROM THE
BS:B**

Brookings Deuel-Kingbrook RWS

Permit/Right No	ac-ft/yr
4830-3	868.8
5079-3	1259.7
5434-3	434.0
5602-3	434.0
6002-3	362.0
2245B-3	270.0
6718-3	434.4
Total ₁	4062.8

Sioux RWS

Permit/Right No	ac-ft/yr
2033-2	286.7
5098-3	868.8
5960-3	680.0
Total ₂	1835.5

Total RWS appropriation 5,898.3

Volumes in Red based on (permit cfs*723.96694)*0.6

Volumes in Black are as quantified by the Water
Right/Permit

Table 2. Rural Water System appropriations from the Brookings management unit of the Big Sioux aquifer

The actual reported usage by the rural water systems is shown in table 3.

RURAL WATER SYSTEM USE REPORTED FROM THE BS:B (ac-ft/yr)		
year	Brookings-Deuel & Kingbrook	Sioux
2007	975	1900
2006	958	1210
2005	806	1211
2004	876	1109
2003	638	1136
2002	NA	NA
2001	NA	NA
2000	NA	NA
1999	187.5	859.2
1998	355	835
1997	303.7	951.4
1996	207	NA
1995	350	NA

Table 3. Rural Water System usage reported from the Brookings management unit of the Big Sioux aquifer (Water Rights, 1995-2007)

In addition to the Water Permits/Rights shown in table 2, Future Use Permit No. 5094-3 reserves 390 ac-ft/yr for future use by Sioux RWS; Future Use Permit Nos. 3982-3 & 3982A-3 reserve 207 ac-ft/yr for future use by Brooking-Deuel RWS; and Future Use Permit No. 6988-3 reserves 2,809 ac-ft/yr for future use by Joint Well Field Inc. The total amount of water reserved for future use from the Brookings management unit of the Big Sioux aquifer is 3,406 ac-ft/yr.

Average annual irrigation use (8,285 ac-ft/yr) plus maximum rural water use (2,875 ac-ft/yr) plus the future use reservation from the Big Sioux: Brookings (3,406 ac-ft/yr) equals 14,566 ac-ft/yr.

Recharge:

The estimated average annual recharge to the Brookings management unit of the Big Sioux aquifer, assuming an area of 191,100 acres and a recharge rate of 6.57 inches per year, is approximately 104,627 ac-ft/yr.

Budget:

A simple water balance comparing the estimated average annual recharge and the "theoretical maximum" withdrawal by wells shows that unappropriated water is available from the Brookings management unit of the Big Sioux aquifer to satisfy this additional appropriation.

A water budget is not intended to suggest that all of the water that is in storage in the Big Sioux: Brookings aquifer or that all of the recharge to the aquifer is available for this appropriation, merely to demonstrate that in general the aquifer is an immense resource that is relatively untapped.

Observation Well Data:

The Water Rights Program monitors 80 observation wells completed into the Brookings management unit of the Big Sioux aquifer. There are six observation wells within approximately four miles of the well sites proposed by this application. Water level data shows the aquifer responds well to climatic conditions with "wet years" resulting in rising water levels and declining water levels during dry years. Hydrographs of the Big Sioux-Brookings observation wells located within approximately four miles of the wells proposed by this application are shown in figures 2-7.

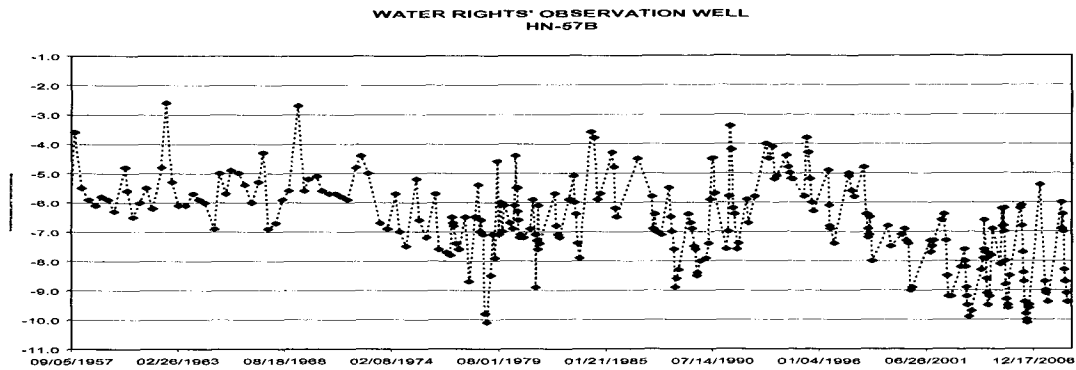


Figure 2. Hydrograph for Water Rights Observation Well completed into the Brookings management unit approximately 1.75 miles south-southeast of 7070-3 & 7071-3

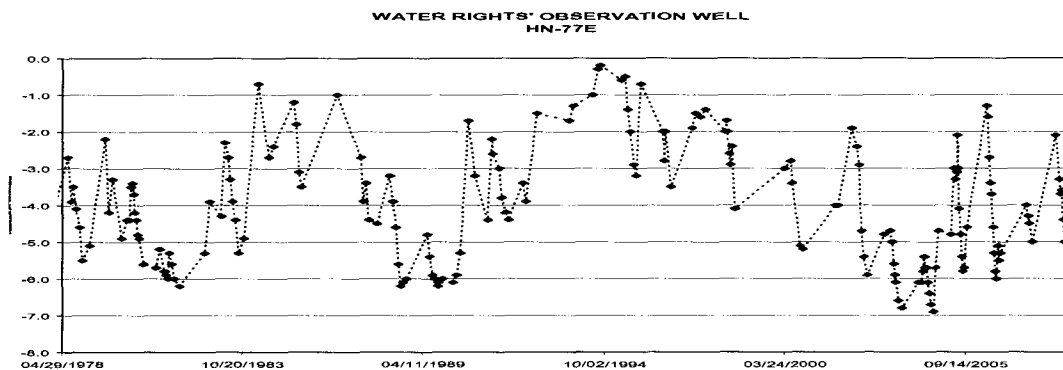


Figure 3. Hydrograph for Water Rights Observation Well completed into the Brookings management unit approximately 2.5 miles east-southeast of 7070-3 & 7071-3

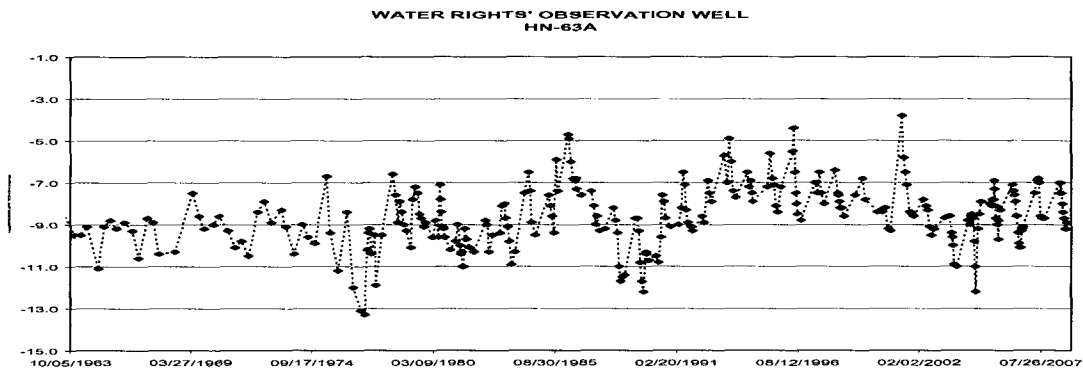


Figure 4. Hydrograph for Water Rights Observation Well completed into the Brookings management unit approximately 3.25 miles north of 7070-3 & 7071-3

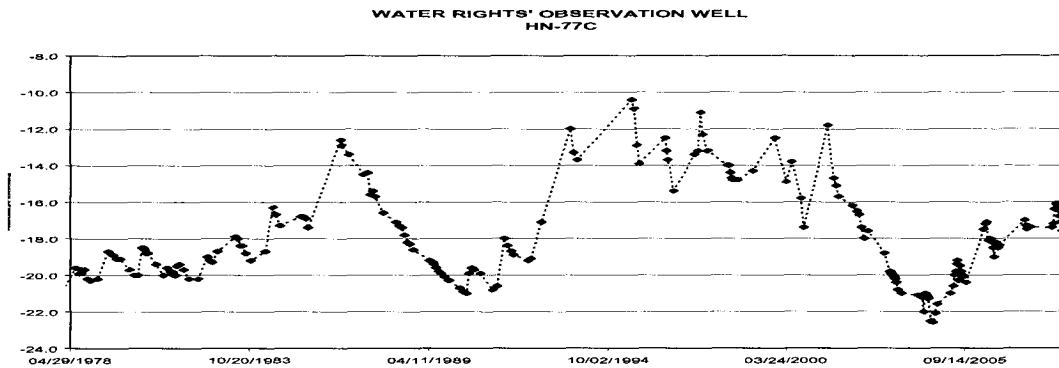


Figure 5. Hydrograph for Water Rights Observation Well completed into the Brookings management unit approximately 3.5 miles northwest of 7070-3 & 7071-3

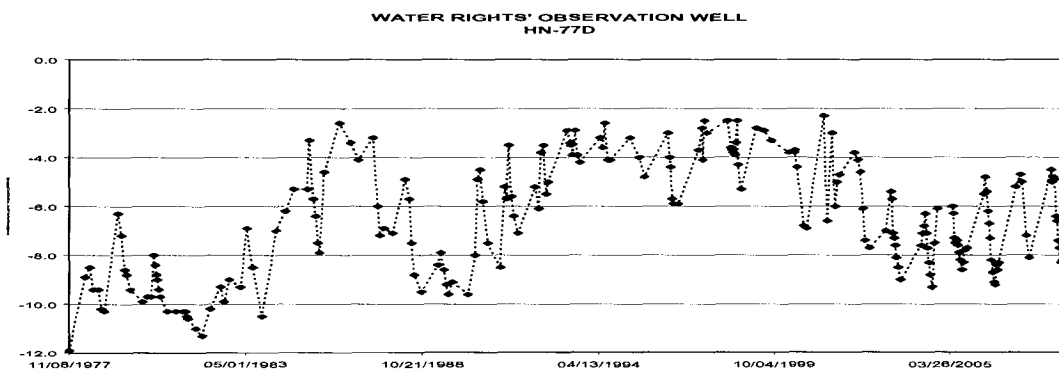


Figure 6. Hydrograph for Water Rights Observation Well completed into the Brookings management unit approximately 3.75 miles west of 7070-3 & 7071-3

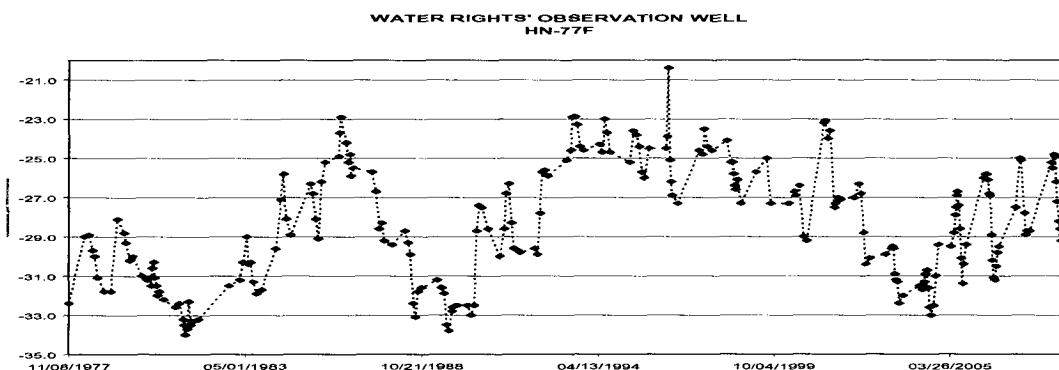


Figure 7. Hydrograph for Water Rights Observation Well completed into the Brookings management unit approximately 3.5 miles east-southeast of 7070-3 & 7071-3

In general the hydrographs show that over the period of record withdrawal has not exceeded recharge.

Review of Existing Water Permits/Rights:

There are nine Water Rights/Permits appropriating water within approximately one and one-half miles of the well sites proposed by Application Nos. 7070-3 and 7071-3. They are shown on figure 8 and table 4.

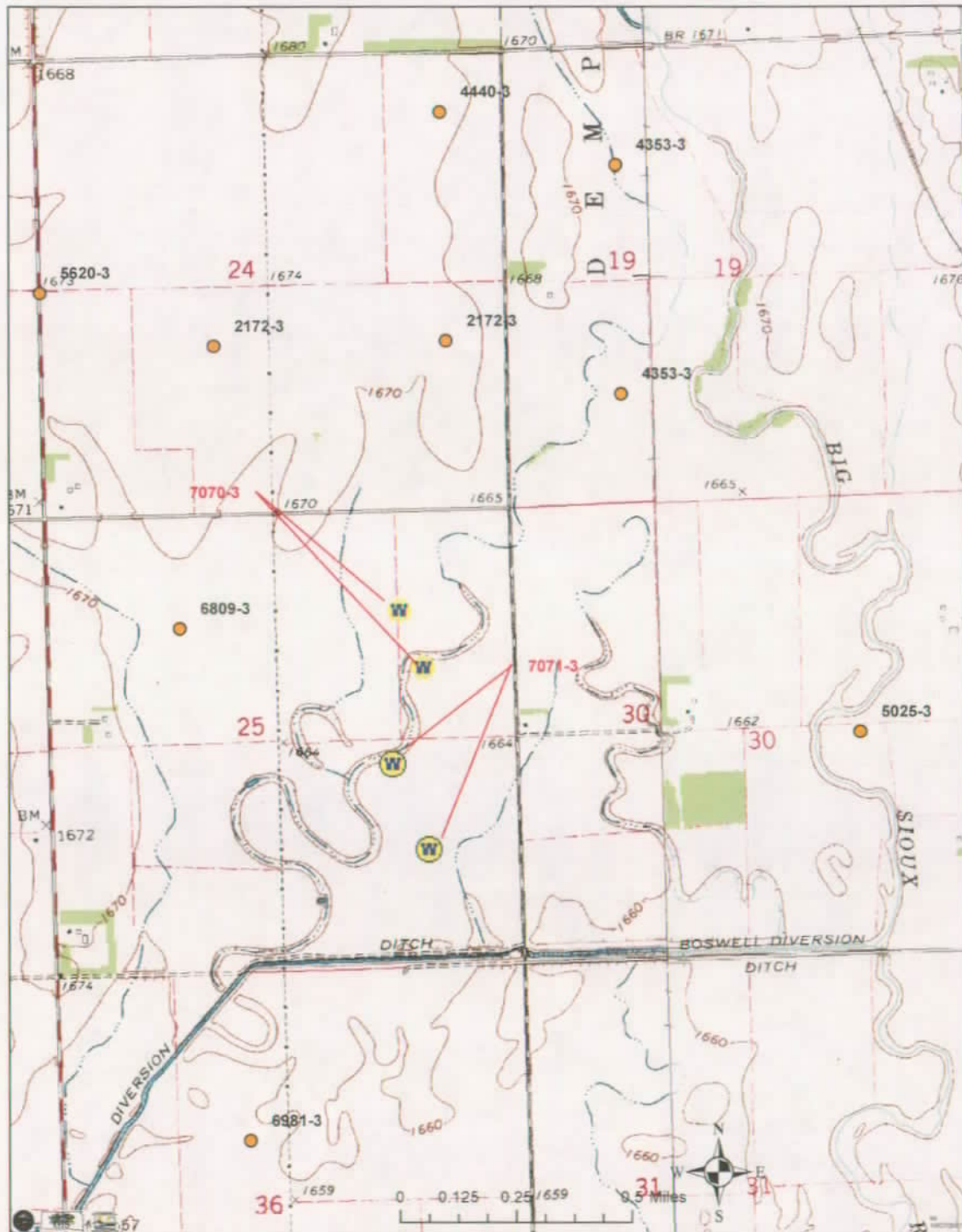


Figure 8. Water Rights/Permits within approximately one mile of the wells proposed by Application No. 7070-3

PERMIT NO	NAME	STATUS	CFS	ACRES
2172-3	RANDY H HANSON	LC	3.56	264.00
4353-3	CLAREMONT HTRN BRETHREN	LC	2.70	188.00
4440-3	RANDY H HANSON	LC	1.78	131.00
5025-3	DARREL JONGELING	LC	1.50	149.00
5620-3	RANDY H HANSON	LC	1.77	126.00
6809-3	HARVEY S WALSETH MARTIAL TRUST	PE	1.78	140.00
6981-3	RONALD JONGELING	PE	1.71	120.00
2172-3	RANDY H HANSON	LC	3.56	264.00
4353-3	CLAREMONT HTRN BRETHREN	LC	2.70	188.00

Table 4. Water Rights/Permits shown in Figure 8

Drawdown will occur if the wells proposed by this application are developed. The resulting interference to existing wells is not expected to be significant or a concern due to the distance between wells. This is apparent upon comparison of the hydrographs shown in figures 6 & 7. Observation well HN-77F (figure 7) is located only 1,750 feet from an irrigation well and Observation well HN-77D (figure 6) is approximately two miles from the nearest irrigation well, yet the hydrographs are nearly identical.

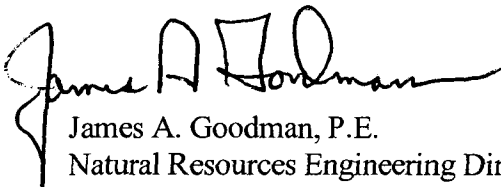
CONCLUSIONS:

1. The Brookings management unit of the Big Sioux aquifer is a viable aquifer and unappropriated water is available.
2. The Big Sioux: Brookings is predominately an unconfined aquifer and drawdown from pumped wells does not/should not adversely affect existing water rights.



Ken Buhler
Natural Resources Engineering Specialist

approved by



James A. Goodman, P.E.
Natural Resources Engineering Director

REFERENCES:

- Goodman, J.A., 1992, Report on Application No. 5604-3 for Brookings-Deuel/Kingbrook Joint Well Field: SD DENR-Water Rights Program Future Use Permit Application No. 5604-3
- 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: U.S. Army Corps of Engineers Contract DACW 45-80-C-0185
- Koch, N.C., 1980, Appraisal of the Water Resources of The Big Sioux Aquifer, Brookings, Deuel, and Hamlin Counties, South Dakota: U.S. Geological Survey Water Resources Investigations 80-100, 46 p.
- Kume, J., 1985, Water Resources of Deuel and Hamlin counties, South Dakota: U.S. Geological Survey Water-Resources investigations Report 84-4069, 53 p.
- Water Rights, 1980-2008, Irrigation Summary by Aquifer: SD DENR-Water Rights Program
- Water Rights Program, 2008a, "Unpublished Observation Well Records", South Dakota DENR-Water Rights Program, Joe Foss Building, Pierre, SD
- Water Rights Program, 2008b, "Water Permit/Right Files", South Dakota DENR-Water Rights Program, Joe Foss Building, Pierre, SD
- Water Rights Program, 2008c, "Well Completion Report Files", South Dakota DENR-Water Rights Program, Joe Foss Building, Pierre, SD

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JAN - 7 2009

Form 8

WATER RIGHTS
PROGRAM

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)

County of Hamlin)

SS

I, Lee Anne Archer

certify that the attached printed Notice was taken

from the Hamlin County
Herald Enterprise

printed and published in Hayti

County of Hamlin and

state of South Dakota. The notice was published

in the newspaper on the following two dates:

Dec. 10, 2008

Dec. 17, 2008

Cost of Printing 47.52

Lee Anne Archer
(Signature)

12-31-08

(Title)

Owner

(Date Signed)

15

NOTICE OF APPLICATION
NOS. 7070-3 AND 7071-3
TO APPROPRIATE WATER

Notice is given that Jerry Kiihl, PO Box 204, Castlewood SD 57223 has filed the following applications for a water permit.

Application No. 7070-3 proposes to appropriate 1.78 cubic feet of water per second from two wells to be completed into the Big Sioux: Brookings Aquifer (approximately 75 feet deep) located in approximate center of the NE 1/4 and SE 1/4 NE 1/4 Section 25 to irrigate 160 acres located in the NE 1/4 Section 25; all in T114N-R52W.

Application No. 7071-3 proposes to appropriate 1.78 cfs from two wells to be completed into the Big Sioux: Brookings Aquifer (approximately 75 feet deep) located in the N 1/2 SE 1/4 Section 25 to irrigate 147 acres located in the SE 1/4 Section 25; all in T114N-R52W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application Nos. 7070-3 and 7071-3 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 recommendations 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 these 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 recommendations. 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 December 29, 2008.

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 these applications.

Steven M. Pirner, Secretary
Department of Environment and Natural Resources.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

December 4, 2008

Hamlin County Herald Enterprise
PO Box 207
Hayti SD 57241

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application Nos. 7070-3 & 7071-3 to Appropriate Water to be published twice. Please publish the first notice on December 10, 2008 with the second publication 7 days later. 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, before you make the first publication. **Please BILL the APPLICANT for the cost of publication.** The APPLICANT is Jerry Kiihl, PO Box 204, Castlewood SD 57223 (Ph # 605-793-2689).

Please send the Water Rights Program the first publication immediately. The publication is checked for accuracy so any corrections can be made in the second publication. You may use the form below or fax a copy of the first publication. Any fax should be sent to the attention of Karen Schlaak at (605) 773-4068. Publication errors can invalidate the public notice.

After the second publication, **please send us an affidavit or use the enclosed Proof of Publication form.** 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

-----CUT HERE-----

Nos. 7070-3 & 7071-3

TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

Date _____

We are in receipt of your letter of December 4, 2008 enclosing Notice to Appropriate Water by Application Nos. 7070-3 & 7071-3 which was first published in our issue of _____. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

Name

Newspaper



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

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

December 4, 2008

Jerry Kiihl
PO Box 204
Castlewood SD 57223

Dear Mr. Kiihl:

Water Permit Application Nos. 7070-3 & 7071-3 for irrigation use have been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Publisher of the Hamlin County Herald Enterprise printed at Hayti SD (Ph #605-783-3636). You will need to contact the newspaper and authorize publication of this notice. For your information, a copy of the notice, the recommendations of the Chief Engineer and reports on the applications 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 to authorize publication of your Notice and to arrange for payment. Early contact with the paper can eliminate delays. Upon receiving authorization, the publisher has been instructed to publish your notice once each week for two consecutive weeks. 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 recommendations, 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 first Notice on December 10, 2008 with the second publication 7 days later. 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. 7070-3 and 7071-3 to Appropriate Water

Notice is given that Jerry Kiihl, PO Box 204, Castlewood SD 57223 has filed the following applications for a water permit.

Application No. 7070-3 proposes to appropriate 1.78 cubic feet of water per second from two wells to be completed into the Big Sioux:Brookings Aquifer (approximately 75 feet deep) located in approximate center of the NE $\frac{1}{4}$ and SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 25 to irrigate 160 acres located in the NE $\frac{1}{4}$ Section 25; all in T114N-R52W.

Application No. 7071-3 proposes to appropriate 1.78 cfs from two wells to be completed into the Big Sioux:Brookings Aquifer (approximately 75 feet deep) located in the N $\frac{1}{2}$ SE $\frac{1}{4}$ Section 25 to irrigate 147 acres located in the SE $\frac{1}{4}$ Section 25; all in T114N-R52W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application Nos. 7070-3 and 7071-3 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 recommendations 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 these 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 recommendations. 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 December 29, 2008.

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 these applications. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

JAN 27 2009

Jerry Kiihl
PO Box 204
Castlewood SD 57223

Dear Mr. Kiihl:

Enclosed are Water Permit Nos. 7070-3 & 7071-3 authorizing construction of your water diversion systems and beneficial use of the water, not exceeding the limits as specified in the Water Permits.

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

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

Sincerely,

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

enclosures

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. <u>7071-3</u> (office use only) Hydrologic Unit _____
	Basin _____
	Newspaper _____

RECEIVED

MAR 16 2009

WATER RIGHTS
PROGRAM

Application For Permit To Appropriate Water For Irrigation

Type of Application: ☐ New ☐ Vested Right ☒ Amendment/Correction to Permit No. 7070-3&7071-3
 (Use predates Mar 2, 1955)

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

Change diversion points to two wells in NW corner of NW 1/4 25-114-52 one well to pump 1100gpm the other to pump 500gpm the two wells to provide 800gpm for SE 1/4 25-114-52&800gpm NE1/4 25-114-52

1. Name of Applicant Jerry Kiihl Phone (605) 793-2689

(check one) ☒ Owner ☐ Tenant/lessee

Mailing Address Box 204 Castlewood State SD 57223
 (Street, RR, or Box and City) (Zip Code)

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

3. Source of water supply _____

4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Hamlin
2wells in NWcorner of NE1/4 25-114-52

5. County or counties where water will be used USA Hamlin

6. Annual period during which water is to be used May-Oct

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

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

STATE OF SOUTH DAKOTA) SS

County of Hamlin)

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

I, Jerry Kiihl, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Applicant's signature *Jerry Kiihl*

Subscribed and sworn to before me this 10 day of March 20 09

Sheila Gerhold

Notary Public signature

Commission expires 11-18-13

HEL

NHHEL

• Well 1 1100 s.p.m.

• Well 2 500 s.p.m.

979
1
88.5
NHHEL

979
8
3.34
NHHEL

979
10
1.12
NHHEL

979
6
5.87
NHHEL

979
7
3.33
NHHEL

979
5
31.35
NHHEL

979
17
0.48

979
11
0.4

Water Rights Program - DENR
Conversation File Documentation

NAME OF PERSON OR FILE: Jerry Kiihl – Water Permit Nos. 7070-3 & 7071-3

ADDRESS: Box 204, Castlewood SD

COUNTY: Hamlin

DATE: January 8, 2009

TELEPHONE: 793-2689

RE: Call from Mr. Kiihl to amend his recent request to change diversion points

Mr. Kiihl called in to clarify that his request is for each well authorized by water permits (Nos. 7070-3 and 7071-3) are for 800 gpm and not 1100 gpm & 500 gpm.

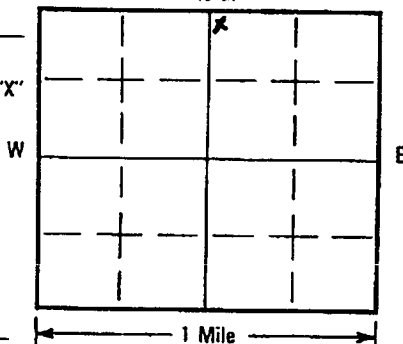
NAME: *Eric Hamlin*

SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location NW 1/4 NE 1/4 Sec 25 Twp 14N Rg 52W
County Hamlin

Please mark well location with an "X"



Well-Completion Date

3-31-09

Well Owner: Jerry Kiihl
Business Name:
Address: 3045 5th St
Castlewood SD 57223

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Top Soil</u>	<u>0</u>	<u>1</u>
<u>Sandy yellow clay</u>	<u>1</u>	<u>10</u>
<u>yellow gravel</u>	<u>10</u>	<u>20</u>
<u>yellow clay</u>	<u>20</u>	<u>30</u>
<u>yellow medium to coarse</u>	<u>30</u>	<u>55</u>

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? 1500 ft. from road well (identify source).

PROPOSED USE:

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

METHOD OF DRILLING:

Boring Rig

CASING DATA: ☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT DIAMETER FROM TO HOLE DIAMETER
5.440 LB/FT 16 IN 24 FT 35 FT 30 IN
____ LB/FT ____ IN ____ FT ____ FT ____ IN
____ LB/FT ____ IN ____ FT ____ FT ____ IN

GROUTING DATA

Grout Type No. of Sacks Grout Weight From To
Portland Cement 90 54 lb./gal 0 ft 30 ft
Cement ____ lb./gal ____ ft ____ ft

Describe grouting procedure pressure grout method

SCREEN: ☐ Perforated pipe ☒ Manufactured

Diameter 16 IN Length 20 FEET

Material plastic

Slot Size 1085 Set From 35 Feet to 55 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?

Laboratory sent to for water quality analysis

STATIC WATER LEVEL 8 Feet

If flowing: closed in pressure ____ PSI

GPM flow ____ through ____ inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other

Reduced Flowrate ____ GPM

Can well be completely shut in?

WELL TEST DATA:

☒ Pumped Describe: Sub pump
☐ Bailed
☐ Other

Pumping Level Below Land Surface

28 ft. After 24 Hrs. pumped 900 GPM
38 ft. After 1 Hrs. pumped 1400 GPM

If pump installed, pump rate ____ GPM

REMARKS

This well was drilled under license # 689

And this report is true and accurate.

Drilling firm Kaiser Well Drilling

Signature of License Representative:

[Signature]

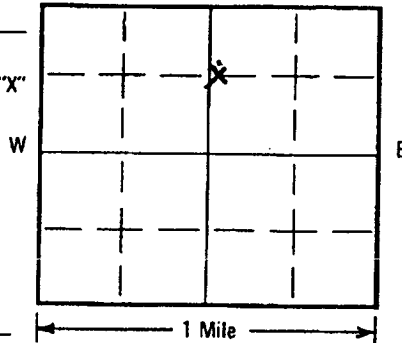
Signature of Well Owner or Equitable Property Holder:

Date:

SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location NW 1/4 NE 1/4 Sec 25 Twp 114N Rg 50W
County Hamlin
Please mark well location with an "X"



Well-Completion Date

3-31-09

Well Owner: Jerry Kihi
Business Name:
Address: 304 S 5th St
Castleton SD 57223

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Top So. 1</u>	<u>0</u>	<u>2</u>
<u>yellow sandy clay</u>	<u>2</u>	<u>8</u>
<u>yellow sand</u>	<u>8</u>	<u>18</u>
<u>yellow clay</u>	<u>18</u>	<u>30</u>
<u>yellow mixed gravel</u>	<u>30</u>	<u>50</u>

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? 700 ft. from well (identify source).

PROPOSED USE:

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

METHOD OF DRILLING:

Boring Rig

CASING DATA: ☐ Steel ☒ Plastic ☐ Other

If other describe _____

PIPEWEIGHT DIAMETER FROM TO HOLE DIAMETER
5440 LB/FT 16 IN 267 FT 30 FT 30 IN
____ LB/FT ____ IN ____ FT ____ FT ____ IN
____ LB/FT ____ IN ____ FT ____ FT ____ IN

GROUTING DATA

Grout Type No. of Sacks Grout Weight From To
Portland Cement 70 54 lb./gal 0 ft. 30 ft.
____ lb./gal ____ ft. ____ ft.

Describe grouting procedure _____

SCREEN: ☐ Perforated pipe ☒ Manufactured

Diameter 16 IN Length 20 FEET

Material plastic

Slot Size 1085 Set From 30 Feet to 50 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: HTA 1206/15

NO, Why Not? _____

Laboratory sent to for water quality analysis _____

STATIC WATER LEVEL 6 Feet

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced Flowrate _____ GPM

Can well be completely shut in? _____

WELL TEST DATA:

☒ Pumped

Describe: Sub pump

☐ Bailed

☐ Other

Pumping Level Below Land Surface

39 ft. After 12 Hrs. pumped 800 GPM

29 ft. After 24 Hrs. pumped 600 GPM

If pump installed, pump rate _____ GPM

REMARKS

This well was drilled under license # 689

And this report is true and accurate.

Drilling firm Kaiser Well Drilling

Signature of License Representative: [Signature]

Signature of Well Owner or Equitable Property Holder: _____

Date: _____

Approval of a Change of Diversion Points

NAME: Jerry Kiihl

ADDRESS: PO Box 204, Castlewood SD 57223

DATE: April 6, 2009 **COUNTY:** Hamlin **TELEPHONE:**

BACKGROUND:

Mr. Jerry Kiihl has filed an application to change the location of diversion points held under Water Permit Nos. 7070-3 and 7071-3. These two permits were issued in January 2009.

Water Permit No. 7070-3 appropriates 1.78 cfs from two wells to be completed into the Big Sioux:Brookings Aquifer (approximately 75 feet deep) located in the approximate center of the NE ¼ and SE ¼ NE ¼ Section 25 to irrigate 160 acres located in the NE ¼ Section 25; all in T114N, R52W.

Water Permit No. 7071-3 appropriates 1.78 cfs from two wells to be completed into the Big Sioux:Brookings Aquifer (approximately 75 feet deep) located in the N ½ SE ¼ Section 25 to irrigation 147 acres located in the SE ¼ Section 25; all in T114N, R52W.

Mr. Jerry Kiihl has filed a request to change the well locations to the NW ¼ NE ¼ Section 25, T114N, R52W. This request proposes to construct two wells instead of four wells originally intended. The well locations will be the NW ¼ NE ¼ near the N 1/4 corner of Section 25. This places the well to be completed under No. 7070-3 approximately 1,800 feet northwest of the original location. The well for No. 7071-3 will be approximately 3,500 feet northwest of its originally intended location. Mr. Kiihl stated during personal communication that the test drilling at the original location did not provide the production required. Well completion reports have been filed for the two wells in the NW ¼ NE ¼ Section 25 and the meet well construction standards.

AUTHORITY:

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

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

The water source authorized by Water Permit Nos. 7070-3 and 7071-3 is the Big Sioux:Brookings Aquifer. The request indicates the source will continue to be the Big Sioux:Brookings Aquifer.

No additional appropriation of water is requested. Each water permit authorizes 1.78 cfs. Mr. Kiihl states that the production for each well is planned for 800 gpm which equates to 1.78 cfs for each well. No additional water will be appropriated by the change in the well locations.

- **Review of Existing Diversions**

A review of domestic wells and existing water rights in the surrounding sections was conducted.

Using the Water Rights Program's well log database a total of two domestic wells were found in the surrounding sections. The closest domestic well is a 30 feet deep well located at a farmstead in the SW ¼ NW ¼ of Section 30 which is the neighboring quarter section to the east of the Mr. Kiihl's property. The other domestic well is 80 feet deep located to the south in the SW ¼ of Section 36. The proposed change in well locations will move these irrigation wells farther away from the existing domestic wells than the original permitted location of the irrigation wells.

A review of water rights in the area was also conducted. There are a number of water rights that divert water from the Big Sioux:Brookings Aquifer in this area. The staff report on these applications states there are nine water rights/permits within approximately one and one-half miles of the wells sites proposed by the Application Nos. 7070-3 and 7071-3. The nearest water rights are Water Permit No. 6809-3 in the NW ¼ Section 25 (same section) and Water Right No. 2172-3 in the S ½ Section 24. The proposed change will have these two wells being constructed in closer proximity to these existing wells. The new wells will be a little over 1,500 feet from the existing irrigation wells.

This is not an area where complaints regarding interference between diversions have been received by the Water Rights Program. The original report on these permit applications concluded that "drawdown from pumped wells does not/should not adversely affect existing water rights". The report showed a comparison of two hydrographs from observation wells in the area. One observation is located 1,750 feet from a irrigation well while the other is two miles away from the nearest irrigation well, yet the hydrograph is nearly identical. The point is that interference between wells is not expected to be significant and therefore is not a concern in this area.

CONCLUSION

- The change in the well location does not appropriate additional water.
- The wells are completed into the Big Sioux:Brookings Aquifer.
- Interference is not expected to be a concern.
- Existing domestic wells should not be adversely impacted by authorizing this change in well location.

RECOMMENDED ACTION

Based on the above criteria, it is recommended that the change of diversion point be authorized under Water Permit Nos. 7070-3 and 7071-3.


Eric Gronlund
Water Rights Program

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

This change of diversion point does not increase the potential for adverse effects to existing diversions.


Garland Erbele, Chief Engineer
Water Rights Program

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

April 15, 2009

Jerry Kiihl
PO Box 204
Castlewood SD 57223

Dear Mr. Kiihl:

I am writing in regard to the request filed to authorize changing the location of the wells authorized by Water Permit Nos. 7070-3 and 7071-3.

Water Permit No. 7070-3 appropriates 1.78 cfs from two wells to be completed into the Big Sioux:Brookings Aquifer (approximately 75 feet deep) located in the approximate center of the NE $\frac{1}{4}$ and SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 25 to irrigate 160 acres located in the NE $\frac{1}{4}$ Section 25; all in T114N, R52W.

Water Permit No. 7071-3 appropriates 1.78 cfs from two wells to be completed into the Big Sioux:Brookings Aquifer (approximately 75 feet deep) located in the N $\frac{1}{2}$ SE $\frac{1}{4}$ Section 25 to irrigation 147 acres located in the SE $\frac{1}{4}$ Section 25; all in T114N, R52W.

This request is to change the location of the proposed four wells to two wells to now be located in the NW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 25, T114N, R52W. Upon review of the request and pursuant to SDCL 46-5-13.1, the change in the well locations is authorized without application or publication of a notice of hearing pursuant to SDCL 46-2A-4.

If you have any questions, please contact Eric Gronlund at (605) 773-3352.

Sincerely,


Garland Erbele, Chief Engineer
Water Rights Program

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 7070-3 & 7071-3

I have this day, April 1, 2015, made a thorough examination of the water use system constructed by Jerry Kiihl, 304 S 5th St, Castlewood SD 57223 holder of Permit No. 7070-3 and 7071-3, both bearing the priority of September 18, 2008, each authorizing the diversion of 1.78 cu. ft. per second of the waters of Big Sioux Brookings aquifer for irrigation purposes, in Hamlin County.

Inspection contact & relationship **Jerry Kiihl**
to permit holder, if applicable:

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: Kaiser Well Drilling
- 2) No. of Wells 2
- 3) Depth(s) 55 (North well), 50 (South well) feet
- 4) Well log is available Y If no, explain in comments

Casing:

- 1) Diameter 16 (both) inches
- 2) Length 35 (North), 30 (South) feet
- 3) Type Plastic (both)

Screen:

- 1) Type Plastic (both)
- 2) Length 20 (both) feet
- 3) Static water level 8 (North), 6 (South) feet

Motor/Pump:

- 1) Make submersible (both)
- 2) Size 50 hp (North), 30 hp (South)
- 3) Capacity combined 650 GPM

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

- 1) Type PVC
- 2) Size 8 inches
- 3) Length 5,075 feet

C. Works used to apply water to beneficial use:

Center pivot (both):

- 1) Make T&L
- 2) Number of towers 7
- 3) End gun Y, 48 psi
- 4) Capacity 650 GPM

Only a single pivot is operated at a time due to the capacity limit of both wells.

Chemigation Equipment (same for both center pivots):

- | | |
|--|---|
| 1) Does chemigate <u>Y</u> | 6) Interlock type <u>electrical</u> |
| 2) Main line check valve <u>Y at each well</u> | 7) Injection pump type <u>none on-site</u> |
| 3) Inspection port/air relief <u>Y</u> | 8) Injection check valve <u>none on-site</u> |
| 4) Low pressure drain <u>Y</u> | 9) Injection line check valve or positive displacement pump <u>none on-site</u> |
| 5) Discharge is 20' from source <u>hose needed</u> | |

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by Y
- 2) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period Y List any extended period of nonuse: none
- 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: North well: 2,580 feet west and 225 feet south (NW1/4 NE1/4 – Latitude 44.65875, Longitude – 97.01670); South well: 2,600 feet west and 990 feet south (NW1/4 NE1/4 – Latitude 44.65664, Longitude – 97.01675) all from the NE corner of section 25-T114N-R52W.
2. The works are capable of diverting and conveying to the place of use 1.45 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:

All in section 25-T114N-R52W (No. 7070-3 in NE1/4, No. 7071-3 in SE1/4)

<u>NE1/4 NE1/4</u>	<u>34 ac</u>	<u>NE1/4 SE1/4</u>	<u>37 ac</u>
<u>NW1/4 NE1/4</u>	<u>34 ac</u>	<u>NW1/4 SE1/4</u>	<u>37 ac</u>
<u>SW1/4 NE1/4</u>	<u>35 ac</u>	<u>SW1/4 SE1/4</u>	<u>29 ac</u>
<u>SE1/4 NE1/4</u>	<u>35 ac</u>	<u>SE1/4 SE1/4</u>	<u>29 ac</u>

comprising a total of 270 acres of land and the license should be issued for 1.45 cfs.

3. All structures, wells and lands on map Y

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

Since the same wells are used to irrigate the property covered by Nos. 7070-3 and 7071-3, the permits can be incorporated together under No. 7071-3. The well locations were corrected by the Chief Engineer on April 6, 2009.



Ron Duvall
Water Rights Permitting Administrator
DENR, Water Rights Program

Date report completed: January 26, 2016

Scale: 1 inch = 649 feet

900

Feet



South Dakota
Department of Environment
& Natural Resources
Water Rights

Completed by:

Ron Duvall, WR Permitting Administrator
Water Rights Program

Diversion point(s) located using a Garmin eTrex 10 GPS

Date: Jan. 19, 2016

**Water Right Nos. 7070-3
and 7071-3**



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

7071-3

MAY 02 2016

Jerry Kiihl
PO Box 204
Castlewood SD 57223

Dear Mr. Kiihl:

Enclosed is Water License No. 7071-3. This is the final water right document completing your process of obtaining a Water Right. Also, included with your license is a map prepared by the staff engineer who conducted the investigation.

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

Note: The applicable portions of No. 7070-3 are incorporated into Water License No. 7071-3.

enclosures

STATE OF SOUTH DAKOTA
WATER LICENSE NO. 7071-3

(1) Jerry Kiihl, Box 204, Castlewood SD 57223 made Application No. 7071-3, September 18, 2008 for a water permit to divert 1.78 cubic feet of water per second from two wells – Big Sioux:Brookings Aquifer, Hamlin County, South Dakota for irrigation purposes. Permit No. 7071-3, with a priority date of September 18, 2008 was approved December 29, 2008 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before December 29, 2013 and for the application to beneficial use of water on or before December 29, 2017.

Water Permit No. 7070-3, with a priority date of September 18, 2008 authorizes 1.78 cfs from two wells (same wells as authorized by No. 7071-3) to irrigate 160 acres located in the NE 1/4 Section 25-T114N-R52W.

On April 15, 2009, a request was approved to change the location of the wells authorized by Water Permit Nos. 7070-3 and 7071-3. Pursuant to SDCL 46-5-13.1, the Chief Engineer made a finding that the change of diversion points did not increase the potential for adverse effects to existing diversions.

The applicable portions of No. 7070-3 are incorporated into No. 7071-3.

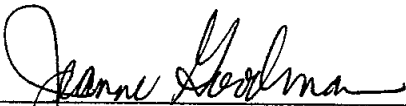
(2) The water supply system has been completed and water applied to beneficial use in accordance with South Dakota State Law. Pursuant to South Dakota Codified Law 46-5-30.1, the holders and/or owners of Incorporated Water Right No. 7071-3 is issued a license, bearing a priority date of September 18, 2008 to appropriate 1.45 cubic feet of water per second from two wells – Big Sioux:Brookings Aquifer to irrigate 270 acres.

The diversion points are located: North well – 2,580 feet west and 225 feet south and the South Well – 2,600 feet west and 990 feet north; all from the NE corner of Section 25-T114N-R52W (NW 1/4 NE 1/4). The acres authorized for irrigation are as follows:

Section 25-T114N-R52W			
NE 1/4 NE 1/4	34 ac	NE 1/4 SE 1/4	37 ac
NW 1/4 NE 1/4	34 ac	NW 1/4 SE 1/4	37 ac
SW 1/4 NE 1/4	35 ac	SW 1/4 SE 1/4	29 ac
SE 1/4 NE 1/4	35 ac	SE 1/4 SE 1/4	29 ac
Total 270 acres			

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Incorporated Water Permit No. 7071-3 including the following qualifications:

- The wells 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.
- The wells authorized by this permit shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28. *The wells were drilled by Kaiser Well Drilling in March, 2009. Copies of the logs are on file with the Water Rights Program.*
- 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

MAY 02 2016

date

