

WATER PERMIT NO. 7915-3

Name of Applicant: **Tom Park**

Address: **24267 468th Ave, Colton SD 57018** Phone: **605 489-2577**

Amount of Water Claimed: **1.33 cfs** Total Acres: **80**

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

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

Type of Waste Disposal System:

Location: **15 miles southeast of Madison**

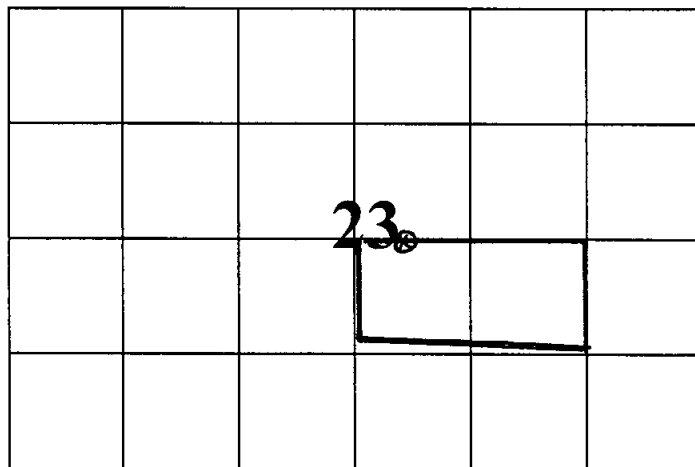
PRIORITY Date Received: **10-17-13** Application/License Fee: **\$ 950**

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

Remarks:

Diversion Point: **NW 1/4 SE 1/4 Sec 23-T105N-R51W**

Land to be Irrigated: **N 1/2 SE 1/4 Sec 23-T105N-R51W**



Depth of Well: **55 feet deep**

Well Driller: **Lacey Well Drilling**

Remarks:

Type of Map: **aerial**

Prepared by:

Reviewed and the Number Assigned on: **10-17-13**

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. <u>7915-3</u> (office use only) Hydrologic Unit <u>10170203</u>
	Basin <u>Lower River</u>
	Newspaper <u>Madison Daily Leader P.O. Box 348</u>
	<u>57042-605-256-4555</u>

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OCT 17 2013
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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 Tom Park
(check one) ☒ Owner ☐ Tenant/lessee ☐ Owner's Legal Agent

(name and complete address if different than above name)

Mailing Address 24267 468th ave Colton SD 57018
(Address) (City) (State) (Zip Code)

Home Phone 489-2577 Cell _____ Email _____

2. Amount of water claimed 1.33 *CFS or 600 **GPM _____ ***AF Total Acreage 80
(*Cubic Feet per Second) (**Gallons per Minute) (***Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply one well

4. Location of point of diversion one well NW 1/4 of the SE 1/4 Sec 23 105N - 51W
(example - 3 wells in SW 1/4 NE 1/4 section 12-T104N-R53W)

County Lake

5. County or counties where water will be used Lake

6. Annual period during which water is to be used May 1 - Sept 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>NW 1/4 of the SE 1/4 Sec 23 105N 51W</u>	<u>40</u>		
<u>NE 1/4 of the SE 1/4 Sec 23 105N 51W</u>	<u>40</u>		
<u>S 1/2 SE 1/4</u>			

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

Requesting diversion rate greater than statutory limit.

I, Tom Park, the applicant, certify that I have read this application, have examined the attached map, and that the matters stated are true.

SOUTH DAKOTA
TEMPORARY USE WATER PERMIT NO. 7915-3

Date of first receipt of application October 17, 2013.

The Chief Engineer, on behalf of the Water Management Board, issues Temporary Use Water Permit No. 7915-3 to Tom Park, 24267 468th Ave, Colton SD 57018 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. Temporary Use Water Permit No. 7915-3 authorizes 1.33 cubic feet of water per second (cfs) from one well to be completed into the Big Sioux:Northern Skunk Creek Aquifer (55 feet deep) located in the NW 1/4 SE 1/4 Section 23 for irrigation of 80 acres located in the SE 1/4 Section 23; all in T105N-R51W.
2. The amount of the appropriation may not exceed 2 acre feet annually for each acre of land to which water is actually and beneficially applied for irrigation. The water is to be used during the following described annual period: May 1 – September 30.
3. The date from which applicant may claim right is October 17, 2013.
4. The date of approval of Temporary Use Permit No. 7915-3 is February 17, 2014.
5. One-fifth of the construction is to be completed on or before August 17, 2016.
6. All construction is to be completed on or before February 17, 2019.
7. Water is to be put to beneficial use on or before February 17, 2023.
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 city of Madison, Kingbrook Rural Water System and Big Sioux Community Water have priority right to this water under future use withdrawal permits. This permit is issued as a temporary use permit pursuant to SDCL 46-5-39 and is subject to these prior rights if or when the future use permit holders fully develop their reserve water supply. The temporary use permit may be subject to cancellation when the water reserved under these future use permits is put to beneficial use. The Chief Engineer must provide the permit holder six month notice prior to cancellation of this temporary use permit.
2. The well approved under this temporary use 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.
3. The well authorized by Temporary Use Permit No. 7915-3 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.

(continued)

Temporary Use Water Permit No. 7915-3

Tom Park

Page 2

4. Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Temporary Use Permit No. 7915-3 authorizes a maximum diversion rate of 1.33 cfs for the irrigation of 80 acres with an annual volume not to exceed 2 acre feet of water per acre per year.
5. This temporary use permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

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

FEB 26 2014

date



Supplemental Information

(type or print in ink)

1. Well Information - Proposed Construction

- a) Drill Hole Diameter 20" Depth 55'
- b) Casing Type PVC Diameter 14" Thickness _____
- c) Screen Type PVC Diameter 14" Thickness _____
- d) Gravel Pack muskratine Length of Gravel Pack 20'
- e) Depth to Top of Water Bearing Material 15'
- f) Depth to Water (ground surface to water level) 15'
- g) Distance to nearest existing domestic well:
- On applicants property 1/4 mile On property owned by others X

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

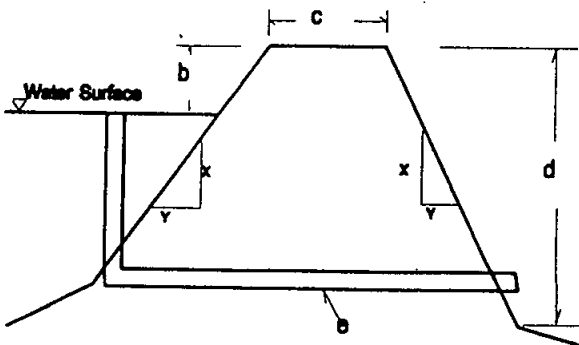
3. Dugout Information

- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

4. Water Storage Dams

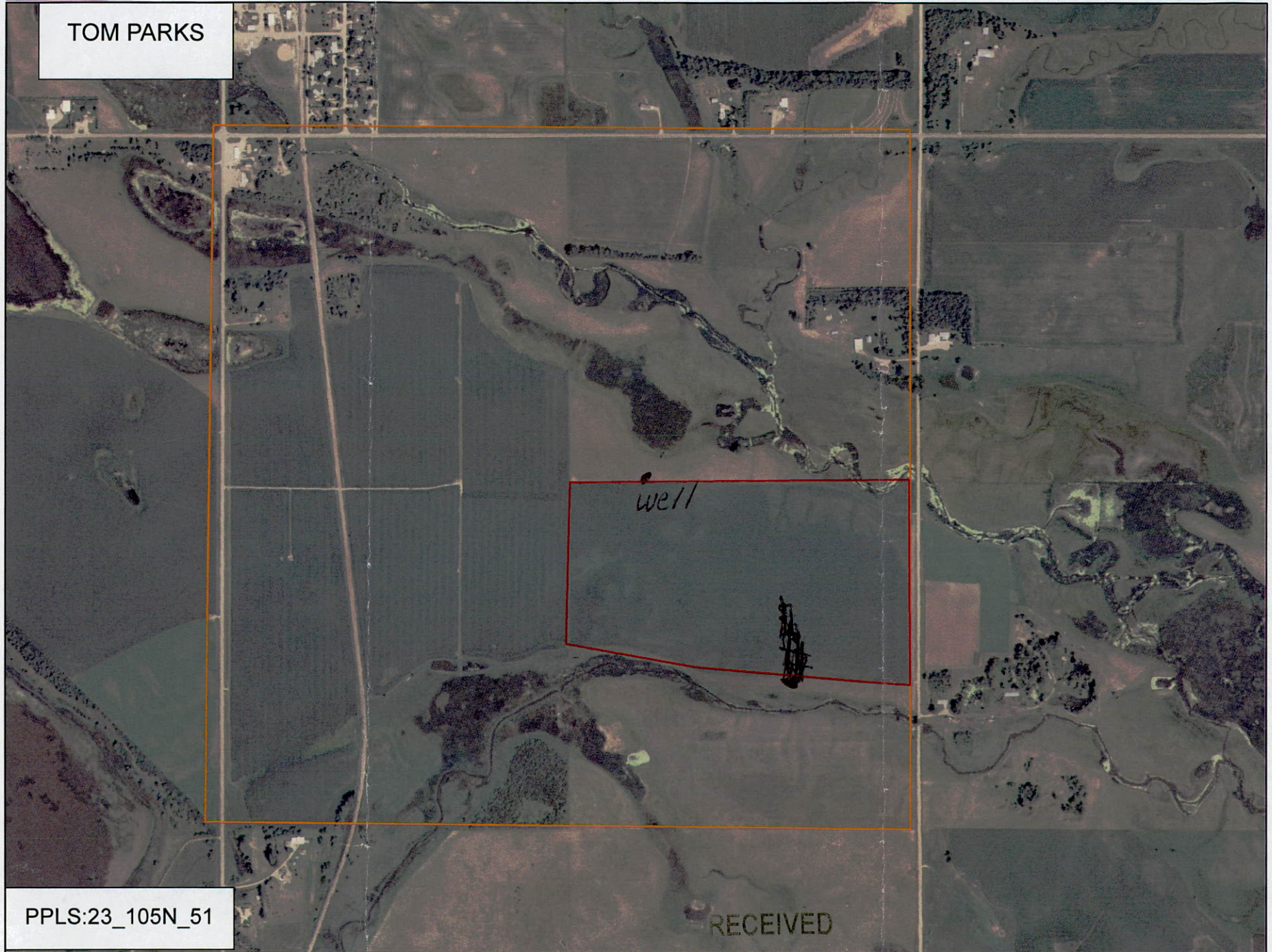
If the proposed water use system contains one or more storage dams, please furnish the information requested below for each dam. The locations of the dams need to be shown on the map submitted with the application.

- 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

TOM PARKS



PPLS:23_105N_51

Data use subject to license.

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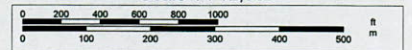
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Scale 1 : 12,000



1" = 1,000.0 ft

Data Zoom 14-1

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Test Hole - 55'

Tom Park

24267 464th Ave.

Colton, S.Dak. 57018

0-3 Topsoil

3-15 Sand + Rocks

15-30 Gravel

30-40 Good Sand

40-55 Really Good Gravel

SWL - 15'

Drilled: 9-24-13

Driller: Joan Redder-Lacey

Lacey Well Drilling Inc. LNS 111

Joan Redder-Lacey

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 10/17, 20 13

RECEIVED OF Tom Park 24267 464th Ave Colton SD 57018

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

Fee for Application for Permit No. <u>7915-3</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>7915-3</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. **06461**

By James Goodman Jr
Chief Engineer



**DEPARTMENT OF ENVIRONMENT
and NATURAL RESOURCES**

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



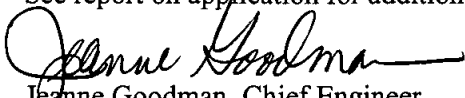
**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 7915-3, Tom Park**

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. 7915-3, Tom Park, 24267 468th Avenue, Colton SD 57018.

The Chief Engineer is recommending APPROVAL of Application No. 7915-3 as a TEMPORARY USE PERMIT pursuant to SDCL 46-5-39 because 1) water is available to be appropriated as a temporary use permit until holders of future use permits fully develop water reserved from their future use permit, 2) the proposed diversion can be developed as a temporary use permit 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 city of Madison, Kingbrook Rural Water System and Big Sioux Community Water have priority right to this water under future use withdrawal permits. This permit is issued as a temporary use permit pursuant to SDCL 46-5-39 and is subject to these prior rights if or when the future use permit holders fully develop their reserve water supply. The permit may be subject to cancellation when the water reserved under these future use permits is put to beneficial use. The Chief Engineer must provide the permit holder six month notice prior to cancellation of this temporary use permit.
2. 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.
3. The well authorized by Permit No. 7915-3 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.
4. Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Permit No. 7915-3 authorizes a maximum diversion rate of 1.33 cfs for the irrigation of 80 acres with an annual volume not to exceed 2 acre feet of water per acre per year.
5. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.


Jeanne Goodman, Chief Engineer
January 21, 2014

REPORT TO THE CHIEF ENGINEER

WATER PERMIT APPLICATION NO. 7915-3

Tom Park

December 15, 2013

Water Permit Application No. 7915-3 proposes to appropriate water at a maximum diversion rate of 1.33 cubic feet per second (cfs) from one well to be completed into the Northern Skunk Creek management unit of the Big Sioux aquifer. The well is expected to be approximately 55 feet deep, located in the NW¼ of the SE¼ of Section 23, T105N-R51W in Lake County. Water will be used to irrigate 80 acres located in the N½ of the SE¼ of Section 23, T105N-R51W. The application proposes a diversion rate in excess of the statutory limit.

AQUIFER: Northern Skunk Creek management unit of the Big Sioux aquifer (BS: NSC)

HYDROGEOLOGY:

The Northern Skunk Creek management unit of the Big Sioux aquifer is a surficial aquifer composed of unconsolidated sand and gravel (Hansen, 1986). The aquifer lies mostly within Lake County and also extends slightly into Moody County. From the aquifer delineation by Hansen (1986) and management unit boundaries determined by Hedges and others (1982), the Big Sioux: Northern Skunk Creek aquifer underlies approximately 30,000 acres. The aquifer is 39 feet thick on average. Applying a specific yield coefficient of 0.2, the Big Sioux: Northern Skunk Creek aquifer contains an estimated 234,000 acre feet (ac-ft) of water in storage. From the delineation map by Hansen (1986), 27,250 acres of the aquifer is unconfined. The Big Sioux: Northern Skunk Creek aquifer is hydraulically connected to local surface waters, specifically Lakes Madison, Herman, and Brant, and Skunk Creek. The Northern Skunk Creek management unit is hydraulically connected to the Middle Skunk Creek management unit to the south (Hedges and others, 1985). Water in the aquifer generally moves southeast at an average gradient of approximately five feet per mile. The hydraulic gradient decreases where the aquifer widens near the grouping of area lakes and increases where the aquifer narrows or land surface elevation decreases dramatically (Hansen, 1986; Water Rights, 2013a).

The test hole log submitted with the application documented aquifer materials to a depth of 55 feet below ground surface, with a static water level of 15 feet below ground surface. In the area of the proposed well site, the Big Sioux: Northern Skunk Creek aquifer occurs from just below ground surface to a depth of approximately 50 feet (SD Geological Survey, 2013; Water Rights, 2013c). In this area, the water table is approximately 10 feet below ground surface (Water Rights, 2013a).

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 that are pertinent to this application.

WATER AVAILABILITY:

The probability of unappropriated water available from an aquifer can be evaluated by considering SDCL 46-6-3.1, which requires “No application to appropriate groundwater may be approved if, according to the best information reasonably available, it is probable the quantity of water withdrawn annually from a groundwater source will exceed the quantity of the average estimated annual recharge of water to the groundwater source.” If the source of the water is older or lower than the Greenhorn Formation and a public water system has applied for a permit, the Board need not consider the recharge/withdrawal issue. Here, a public water system is not involved. Therefore, withdrawal/recharge issue must be considered.

In July of 2009, Buhler (2009) found that withdrawals exceeded recharge from the Big Sioux: Northern Skunk Creek aquifer, indicating that unappropriated water was not available for a future use permit application submitted by Big Sioux Community Water. This was primarily based on a hydrologic budget considering expected average annual withdrawal versus estimated annual recharge.

Since then, three reports have been completed for temporary use water permit applications proposing to appropriate water from this aquifer. These recharge estimates of this aquifer have been based on a method where measured water level increases in observation wells are equated to a recharge rate; these are applied to an aquifer area to determine an annual recharge volume. The recharge estimation has ranged from 6,562 to 9,779 ac-ft/yr. The average annual withdrawal, considering the most recent reported use data and the expected use of undeveloped water rights/permits and future use permits, was determined in these past four reports, ranging from 9,901 to 10,145 ac-ft/yr (Buhler, 2009; Goodman, 2009; Buhler, 2011; Mathiowetz, 2013). This report applies many of the previous methods plus additional methods using the most current data to determine the water availability in this aquifer.

Observation Well Data:

Administrative Rule of South Dakota Section 74:02:05:07 requires that “the [Water Management Board] shall rely upon the record of observation well measurements... to determine that the quantity of water withdrawn annually from the aquifer does not exceed the estimated average annual recharge of the aquifer.”

The DENR-Water Rights Program currently monitors seven observation wells completed into the Big Sioux: Northern Skunk Creek aquifer. The hydrographs for these wells are shown in Figures 1 through 7 (Water Rights, 2013a).



Figure 1: Hydrograph for observation well LK-79A (Water Rights, 2013a)

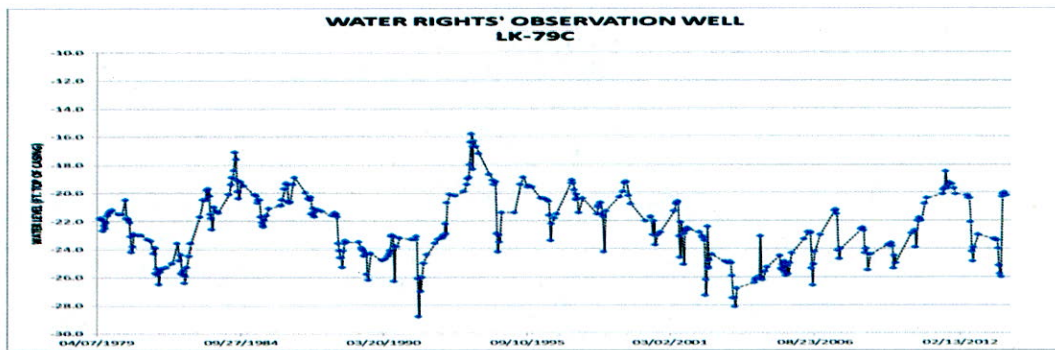


Figure 2: Hydrograph for observation well LK-79C (Water Rights, 2013a)

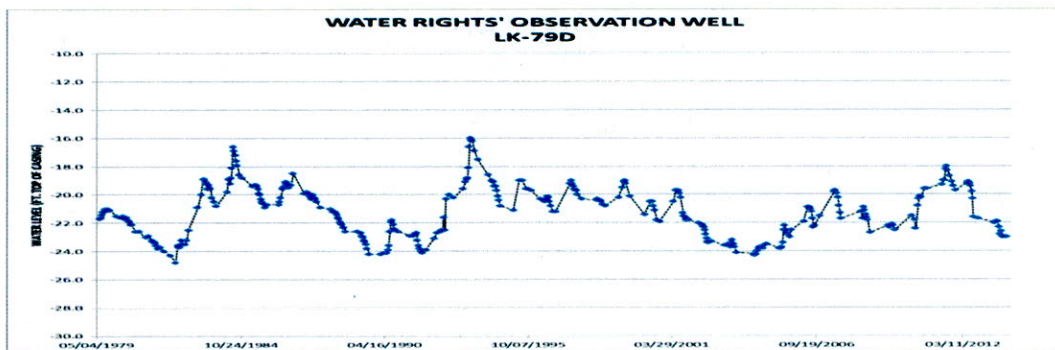


Figure 3: Hydrograph for observation well LK-79D (Water Rights, 2013a)

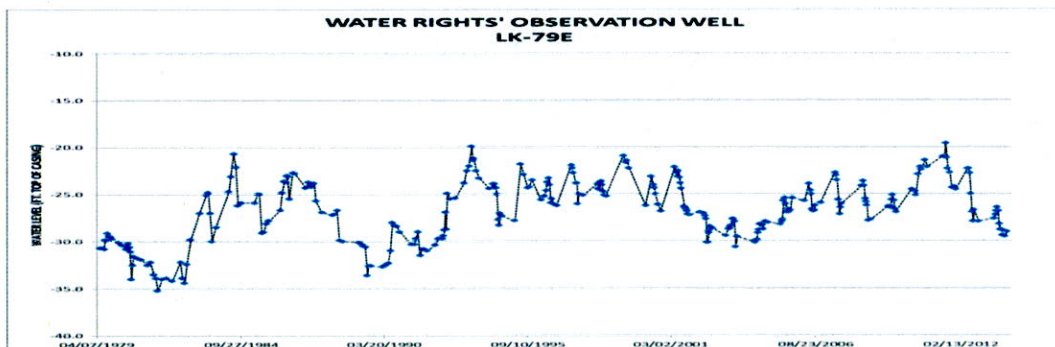


Figure 4: Hydrograph for observation well LK-79E (Water Rights, 2013a)

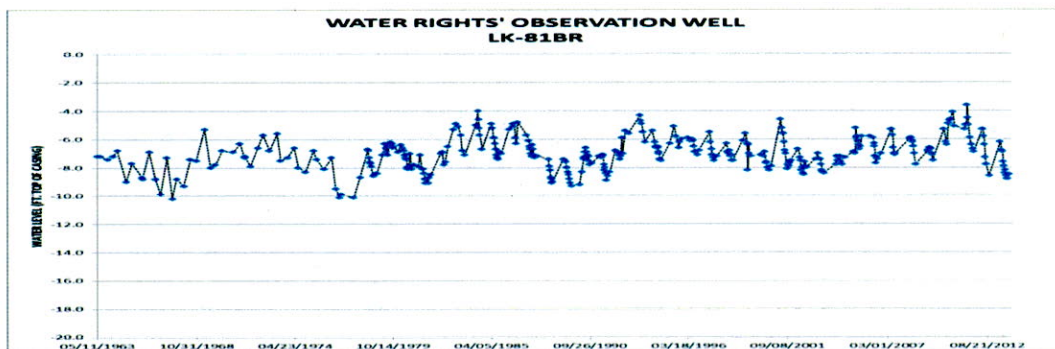


Figure 5: Hydrograph for observation well LK-81BR (Water Rights, 2013a)

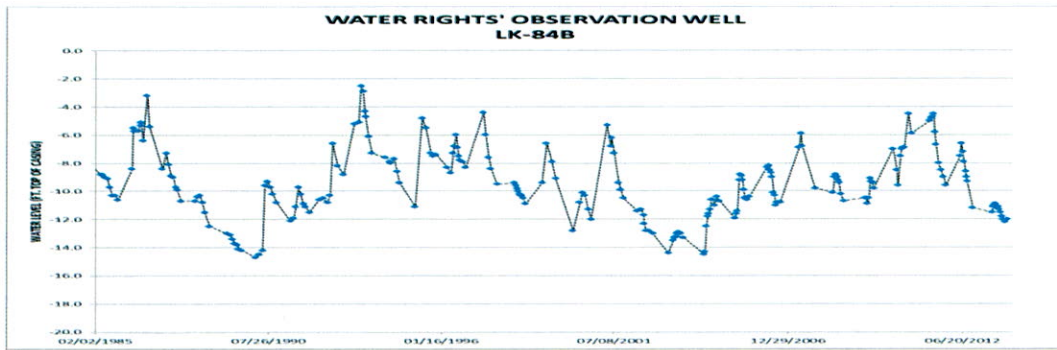


Figure 6: Hydrograph for observation well LK-84B (Water Rights, 2013a)

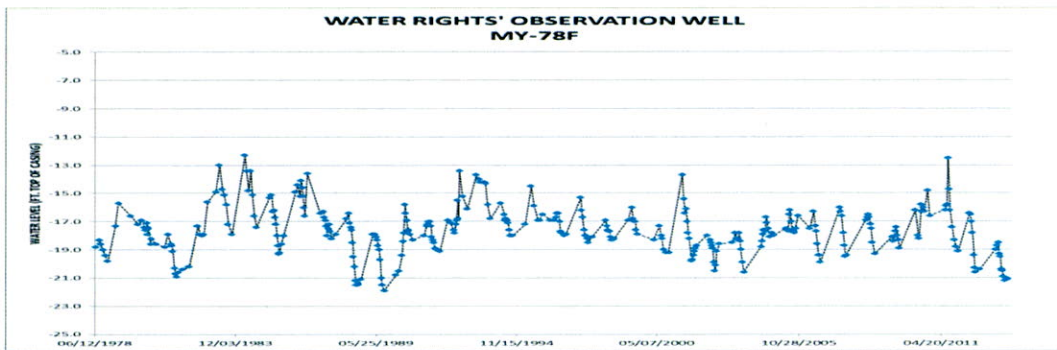


Figure 7: Hydrograph for observation well MY-78F (Water Rights, 2013a)

Water levels in these observation wells display cyclic conditions, recharging during wet years and declining during dry years. Pumpage is generally masked by climatic conditions. These wells record steady water levels in the aquifer over the period of record, even as well withdrawal development has increased and during large annual fluctuations of precipitation and pumping. Therefore, recharge has been approximately equal to total discharge in the aquifer over the period of record, meaning that the system is in equilibrium.

The lowering of the water table shown in some wells, specifically LK-79A, is attributed to nearby pumping and drawdown effects. The water table has since remained at a similar elevation since the development, indicating that on an aquifer basis withdrawals have not exceeded recharge.

HYDROLOGIC BUDGET:

Discharge:

Discharge from the aquifer occurs through evapotranspiration in areas where the aquifer is at or near land surface, outflow to Skunk Creek and local lakes during times of relatively low surface water levels, and well withdrawals (Hansen, 1986). The amount of evapotranspiration is related to the ground surface depth of groundwater and is difficult to quantify. The amount of evapotranspiration is related to ground surface depth and difficult to quantify. Because the hydraulic gradient between groundwater and surface water continually changes, the annual volume of water discharging to streams from the subunit is difficult to determine. Forty one water rights/permits appropriate water from the aquifer. Three temporary use permits also authorize withdrawals and four future use permits reserve water from the aquifer (Water Rights, 2013b).

There are currently three temporary use water permits authorizing withdrawals from the Big Sioux: Northern Skunk Creek aquifer. These water permits were issued as temporary due to full appropriation status of the aquifer pursuant to SDCL 46-5-39. Because these water permits are using water reserved by another entity and is accounted for, water use does not apply to the hydrologic budget.

Shipwreck Inn holds Water Right No. 5688-3, which appropriates water at a maximum diversion rate of 0.022 cfs for commercial use. Often, non-irrigation use water rights/permits pump an annual volume that is much less than 60 percent (%) of continuous annual pumpage at the maximum authorized diversion rate (Water Rights, 2013b). To be conservative, water use is assumed to be 60% of continuous annual pumpage at the maximum authorized diversion rate. Applying the assumption to this water right results in expected use of 10 ac-ft/yr.

Hilde Pipe & Gravel holds Water Right No. 5168-3, which appropriates water at a maximum diversion rate of 0.91 cfs for industrial and domestic use. Only one well with a total capacity of 60 gallons per minute, or 0.134 cfs, is currently still in use (Water Rights, 2013b). In applying 60% of continuous remaining pump rate, expected use is 59 ac-ft/yr.

Chester Sanitary District holds Water Right No. 6046-3, which appropriates water at a maximum diversion rate of 0.786 cfs for municipal use (Water Rights, 2013b). In applying 60% of continuous pumping at the maximum diversion rate, estimated use would be 342 ac-ft/yr.

As shown in Figure 8, the annual pumpage remained at a similar volume since 2000, averaging 49 ac-ft/yr (Buhler, 2009; Mathiowetz, 2013; Water Rights, 2013b). Because this appropriation is for municipal use, increase in development should be considered. Therefore, at present, development up to the eventual expected use determined by the previous assumption must be applied.

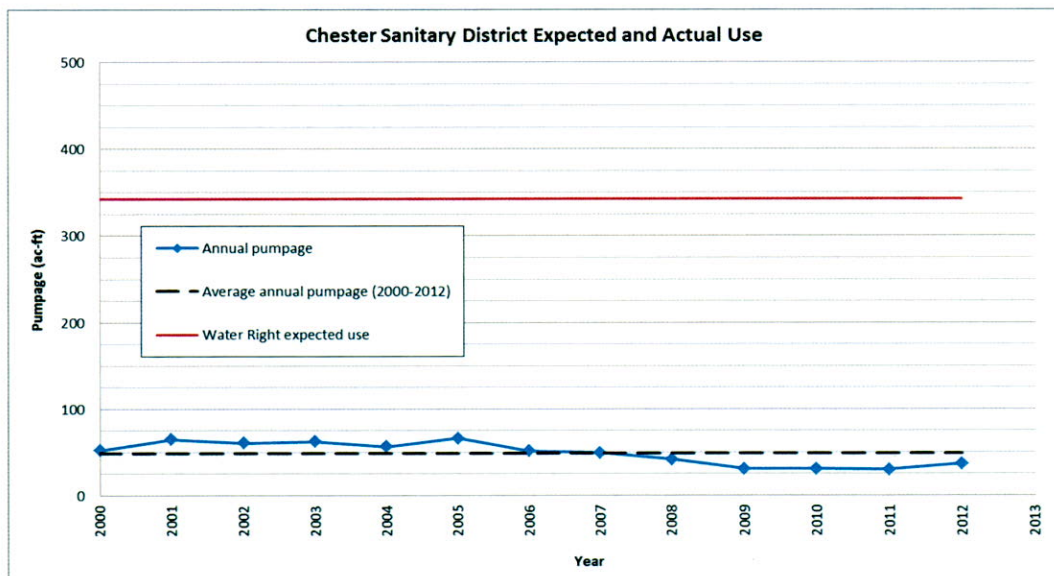


Figure 8: Chester Sanitary District annual use (Buhler, 2009; Mathiowetz, 2013; Water Rights, 2013b)

Big Sioux Community Water currently holds one water right, one water permit, and two future use permits, all for rural water system use, as shown in Table 1. David & Chrysella Daniel and Julie Hanson together hold one water permit for rural water system use by Big Sioux Community Water (Water Rights, 2013b). Expected annual use can be estimated by assuming water rights/permits limited by an annual volume will pump the entire volume appropriated annually, water rights/permits limited only by diversion rate will pump at the maximum diversion rate 60 percent of the time, and future use permits can be fully developed. Applying these assumptions, expected use 2,111 ac-ft/yr.

Table 1: Big Sioux Community Water appropriations/reservations (Water Rights, 2013b)

Name	Number	Priority Date	Status	Maximum Diversion Rate (cfs)	Maximum Volume (ac-ft)
Big Sioux Community Water	4943-3	01/26/1983	License	0.44	
Big Sioux Community Water	6152-3	09/30/1999	Permit	0.5	360
David & Chrysella Daniel, Julie Hanson	7117-3	02/19/2009	Permit	0.89	600
Big Sioux Community Water	5689-3	05/18/1992	Future Use		360
Big Sioux Community Water	6834-3	03/19/2007	Future Use		600

As shown in Figure 9, the annual pumpage remained at a similar volume since 2003, averaging 729 ac-ft/yr (Buhler, 2009; Water Rights, 2013b). Big Sioux Community Water currently holds future use permits, indicating that this public water supply system expects to increase development. Therefore, at present, development up to the eventual expected use determined by the previous assumptions must be applied.

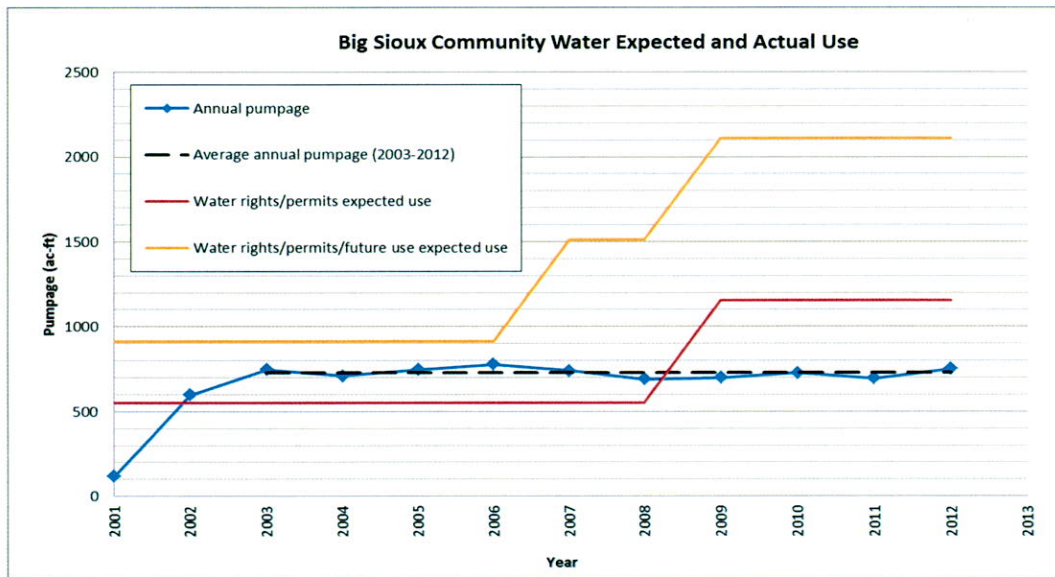


Figure 9: Big Sioux Community Water expected and actual use (Buhler, 2009; Water Rights, 2003-2013)

The City of Madison currently holds five water rights, one water permit, and one future use permit, all for municipal use, as shown in Table 2 (Water Rights, 2013b). Applying the previous assumptions, expected use is 3,731 ac-ft/yr.

Table 2: City of Madison appropriations/reservations (Water Rights, 2013b)

Number	Priority Date	Status	Maximum Diversion Rate (cfs)	Maximum Volume (ac-ft)
1079-3	11/10/1960	License	2.7	
1453-3	11/10/1960	License	0.78	
371-3	12/15/1956	License	0.31	
372-3	12/15/1956	License	0.26	
6040-3	11/10/1960	License	1.67	600
6510-3	11/10/1960	Permit	0.78	339
747-3	11/10/1960	Future Use		1033

As shown in Figure 10, the annual pumpage remained at a similar volume since 1998, averaging 716 ac-ft/yr (Buhler, 2009; Water Rights, 2013b). This public water supply system currently holds future use permits, indicating an increase in development is expected. Therefore, at present, development up to the eventual expected use determined by the previous assumptions must be applied.

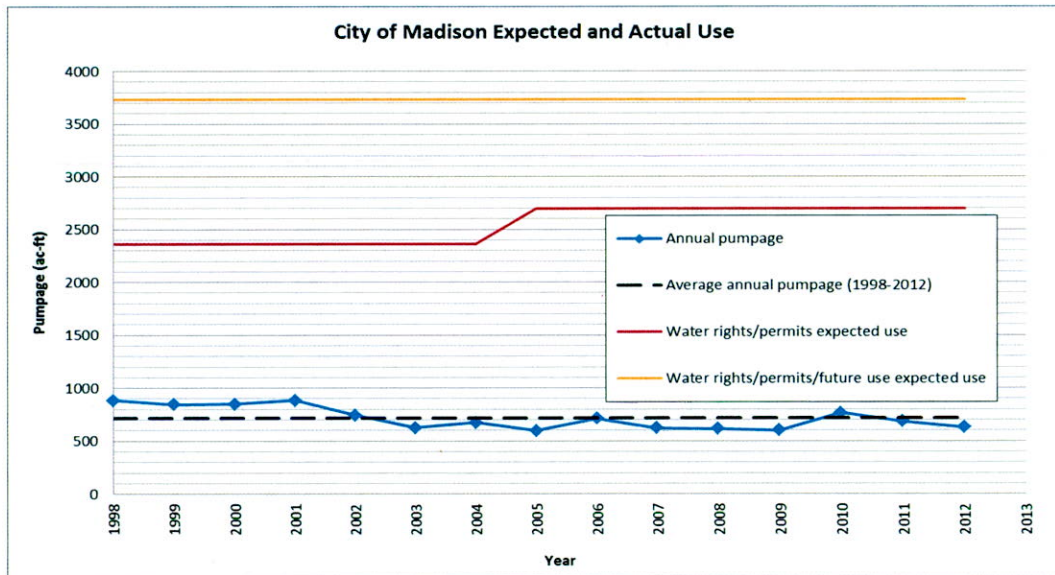


Figure 10: City of Madison expected and actual use (Buhler, 2009; Water Rights, 2003-2013)

Kingbrook Rural Water System, Inc. currently holds five water rights and one future use permit, all for rural water system use, as shown in Table 3 (Water Rights, 2013b). Applying the previous assumptions, expected use is 3,060 ac-ft/yr.

Table 3: Kingbrook Rural Water System, Inc. appropriations/reservations (Water Rights, 2013b)

Number	Priority Date	Status	Maximum Diversion Rate (cfs)	Maximum Volume (ac-ft)	Appropriation /Reservation (ac-ft)
4311A-3	06/26/1978	License	1.15	266	266
4367-3	01/09/1979	License	3		1303
6531-3	02/27/1990	License	1.05	350	350
6730-3	06/05/2006	License	0.67		291
5646-3	03/19/1992	License	1	425	425
5643-3	03/19/1992	Future Use		425	425

As shown in Figure 11, the annual pumpage remained at a similar volume since 1994, averaging 615 ac-ft/yr (Buhler, 2009; Water Rights, 2013b). This public water supply system currently

holds future use permits, indicating an increase in development is expected. Therefore, at present, development up to the eventual expected use determined by the previous assumptions must be applied.

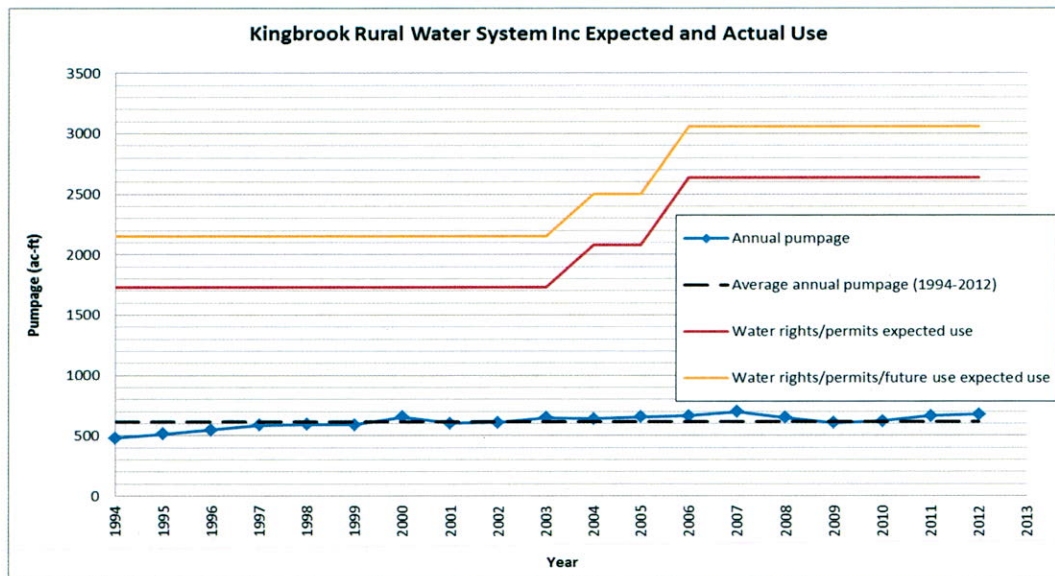


Figure 11: Kingbrook Rural Water System, Inc. expected and actual use (Buhler, 2009; Water Rights, 2003-2013; Water Rights, 2013b)

While there are numerous domestic wells on file, many are no longer used as primary sources since rural water systems have been introduced in the area. Considering this, and the relatively small withdrawal ability and authorization of a domestic well, the annual quantity of water withdrawn due to domestic wells is not significant to the hydrologic budget of the aquifer (Water Rights, 2013c).

Twenty of the forty one water rights/permits appropriating water from the Big Sioux: Northern Skunk Creek aquifer authorize irrigation use. Over the period of record the average annual irrigation pumpage is 840 ac-ft/yr, but varies from a minimum of 12 ac-ft/yr to a maximum of 1,908 ac-ft/yr. This data indicates a huge variability in the data set, which can be seen in Figure 12 (Water Rights, 1980-2013). Pumpage can be attributed mostly to two major factors: climatic and economic conditions. For example, during the drought and high commodity prices of 2012, the irrigation pumpage was much greater than the average. While a relationship exists, these variables are difficult to predict.

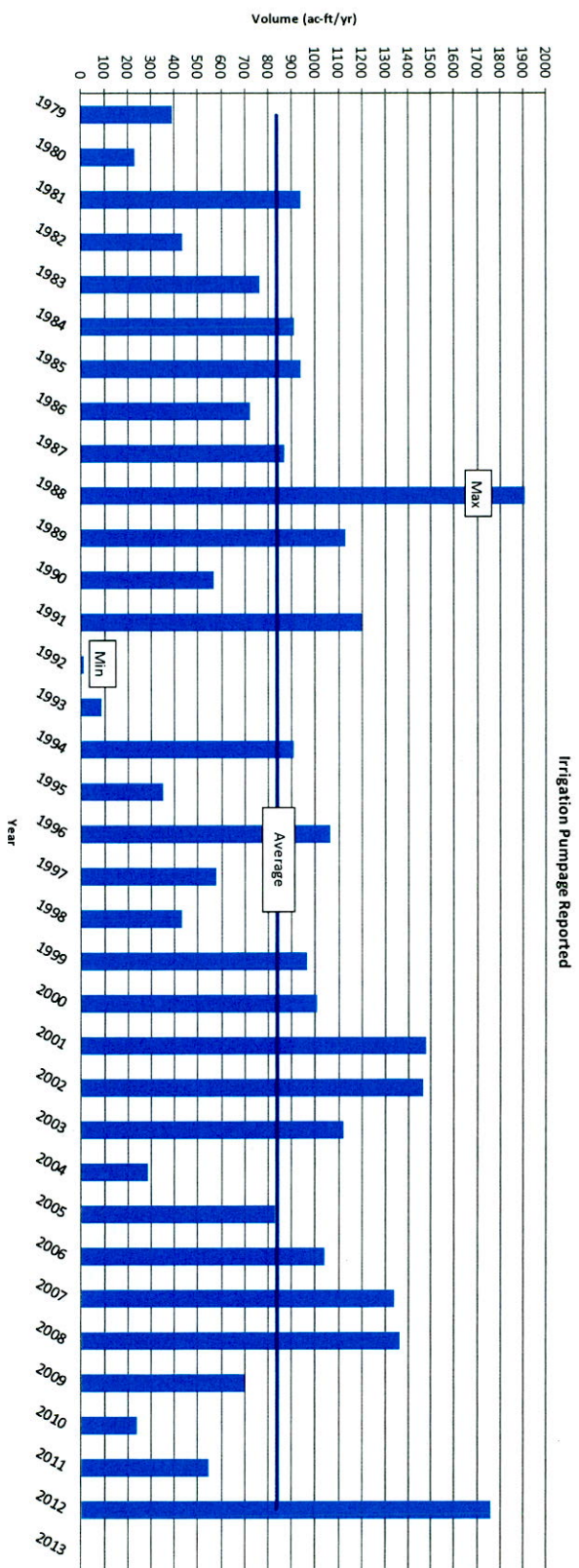
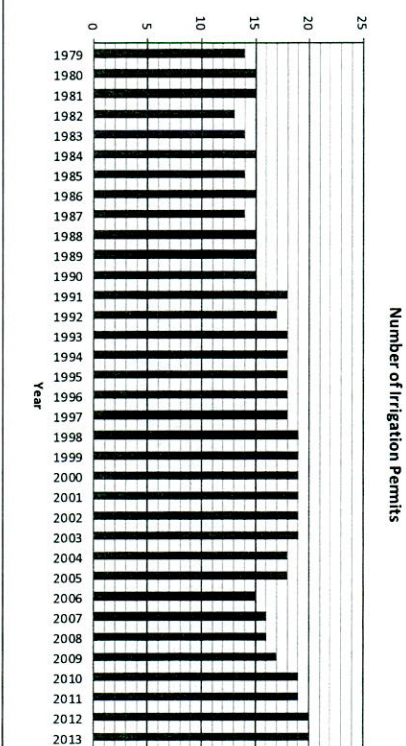
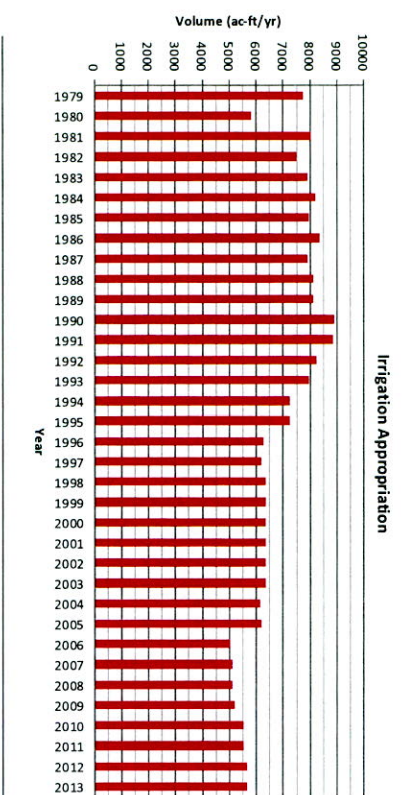


Figure 12. Historic irrigation water use from the Big Sioux: Northern Skunk Creek aquifer (Water Rights, 1980-2013)

Recharge:

Recharge to the Big Sioux: Northern Skunk Creek aquifer occurs through infiltration of precipitation in areas where the aquifer is at or near land surface, seepage through till, lake deposits, and underlying aquifers, and inflow from local surface waters during times of relatively high surface water levels, specifically Skunk Creek (Hansen, 1986). The portion of precipitation that actually recharges the aquifer is dependent on several factors and is difficult to quantify. As previously discussed, because the hydraulic gradient between groundwater and surface water continually changes, the annual volume of water discharging to the subunit from streams is difficult to determine.

Flow Net:

The amount of water flowing through an aquifer can be calculated by the following equation.

$$Q = T I L$$

Where: Q = flow through the aquifer

T = transmissivity of the aquifer

I = hydraulic gradient of the aquifer

L = cross sectional length of the aquifer

The transmissivity of the aquifer was estimated to be 35,000 gallons per day per foot based on specific capacities of wells completed into this aquifer (Water Rights, 2013c). The hydraulic gradient was estimated to be five feet per mile based on water levels in observation wells completed into this aquifer (Water Rights, 2013a). The cross sectional length was estimated to be three miles based on the current aquifer delineation (Hanson, 1986). From these parameters, water could naturally discharge as groundwater at a rate of approximately 600 ac-ft/yr.

This can be considered the absolute minimum recharge to the aquifer that is available for additional well withdrawal. Because the components of both recharge and discharge are approximately equal, the remainder of recharge, which has been indicated to be much greater than 600 ac-ft/yr, is likely currently leaving the aquifer by other means. These other components of discharge could be captured by pumping.

Change in Water in Storage:

The annual change in water levels is a measure of the difference between annual recharge and annual discharge. Because only water levels in observation wells under unconfined conditions show a true change in the water in storage of the aquifer, only the five observation wells under unconfined conditions were considered. The annual changes in water levels, from October to October, were recorded from 2000 to 2012, as shown in Table 4. While more annual observation well data is available for many of these observation wells, annual withdrawals are only available from 2000 to 2012. And so, only these years have comparable data. The annual water level changes for the five wells were averaged for each year. The specific yield and the unconfined area of the aquifer were then applied to determine each annual volume of recharge exceeding discharge.

Table 4: Difference between recharge and withdrawal in the Big Sioux: Northern Skunk Creek aquifer (Water Rights, 2013a)

Difference between Recharge and Withdrawal							
Year	Change in Water Level in Observation Wells (October-October)						Volume
	(ft)						(ac-ft)
	LK-79C	LK-79D	LK-81BR	LK-84B	MY-78F	Average	Specific Yield = 0.2 Area (unconfined) = 27,250 ac
2000	-2.60	1.10	0.60	0.00	1.90	0.20	1,090
2001	0.20	0.10	0.20	1.50	0.10	0.42	2,289
2002	-1.80	-1.50	-0.30	-2.50	0.50	-1.12	-6,104
2003	-2.40	-0.80	-0.40	-0.30	-2.00	-1.18	-6,431
2004	1.20	0.50	1.10	2.90	2.80	1.70	9,265
2005	1.30	1.10	1.50	0.00	1.20	1.02	5,559
2006	1.30	1.00	-1.20	-0.40	-3.30	-0.52	-2,834
2007	-1.00	-0.20	0.00	1.00	0.50	0.06	327
2008	-0.40	-1.00	-0.80	-0.90	0.10	-0.60	-3,270
2009	-0.60	0.20	0.30	0.90	0.40	0.24	1,308
2010	4.20	2.90	3.40	5.30	4.10	3.98	21,691
2011	1.40	0.50	-2.30	-4.00	-3.50	-1.58	-8,611
2012	-3.60	-2.60	-2.20	-2.70	-2.10	-2.64	-14,388
Average	-0.22	0.10	-0.01	0.06	0.05	0.00	-8

The change in water in storage during this time period was essentially zero. While some factors can change on an annual basis or have increased over the period of record, the water levels in these wells have remained at approximately the same elevations. The components of recharge have been approximately equal to the components of discharge, indicating that this aquifer system reaches equilibrium. When one component changes other components of recharge or discharge also change to reach a new equilibrium. This has been shown mathematically in this method but can also be seen by simply observing the hydrographs.

The annual well withdrawal from 2000 to 2012, shown in Table 5, averaged 3,080 ac-ft/yr. This change to amount of water removed from storage in the aquifer would result in a reduced water level at a rate of 1.36 in/yr during this time period. Because recharge and discharge have been shown to be approximately equal, the remainder of recharge, which has been indicated to be much greater than 1.36 in/yr, is likely currently leaving the aquifer by other means. If pumping were to increase, larger portions of the other components of discharge could be captured before occurring, and water levels would remain steady.

Table 5: Annual withdrawals from the Big Sioux: Northern Skunk Creek aquifer (Buhler, 2009; Mathiowetz, 2013; Water Rights, 1980-2013; Water Rights, 2003-2013; Water Rights, 2013b)

Year	Withdrawals							
	Reported (ac-ft)					Estimated (ac-ft)		Total (ac-ft)
	Chester Sanitary District	Big Sioux Community Water	Kingbrook RWS Inc	City of Madison	All Irrigation	Shipwreck Inn	Hilde Pipe & Gravel	
2000	52.01	0.00	654.83	848.96	1,007.05	9.56	58.07	2,630.48
2001	64.80	117.01	601.49	885.82	1,475.57	9.56	58.07	3,212.32
2002	60.83	597.58	609.78	744.50	1,461.85	9.56	58.07	3,542.17
2003	62.52	746.90	648.45	624.87	1,116.52	9.56	58.07	3,266.89
2004	56.47	711.00	640.08	672.88	284.40	9.56	58.07	2,432.46
2005	66.10	748.00	653.58	595.96	825.56	9.56	58.07	2,956.83
2006	51.18	777.00	663.70	713.59	1,037.47	9.56	58.07	3,310.57
2007	49.15	741.00	695.95	622.92	1,337.56	9.56	58.07	3,514.21
2008	41.71	690.00	647.10	614.03	1,361.49	9.56	58.07	3,421.96
2009	30.60	699.00	606.00	601.00	700.10	9.56	58.07	2,704.34
2010	30.76	728.00	621.00	766.00	237.50	9.56	58.07	2,450.90
2011	29.69	694.00	662.00	684.00	541.04	9.56	58.07	2,678.36
2012	36.55	752.00	677.00	630.00	1,755.00	9.56	58.07	3,918.18
Average	48.64	615.50	644.69	692.66	1,010.85	9.56	58.07	3,079.98

Water Level Increases:

Hedges and others (1985) estimated the average recharge rate to the Big Sioux: Northern Skunk Creek aquifer to be 3.1 inches per year (in/yr) by observation well analysis. Methodology to calculate recharge includes:

1. Identifying all wells under unconfined conditions from the aquifer.
2. Totaling the recorded water level rises each year for each well.
3. Totaling the annual water level rise of all wells.
4. Dividing the total water level rise by the total number of years providing data.
5. Applying the specific yield to obtain the average annual recharge rate.

Data was available from a total of 55 water years from eight observation wells (Hedges and others, 1985). Buhler (2009) estimated the recharge rate of this aquifer by applying the same method to observation well data up through 2009. From 155 water years from five observation wells, recharge rate was estimated to be 3.82 in/yr. Observation well data through 2013 was applied to update the estimated recharge rate. From 182 water years from the same five observation wells, recharge rate was estimated to be 4.07 in/yr. A storage coefficient of 0.15 has been assumed for this aquifer to calculate these recharge rates. Hansen (1986), among others, applies a storage coefficient for Big Sioux aquifers of 0.20. This would yield a current estimated recharge rate of 5.42 in/yr.

Because water levels in the aquifer have remained at the same general elevation over the period of record, as shown in the hydrographs, the unconfined area of the aquifer is not expected to have significantly changed over the same period of record. Applying the current recharge rate to the unconfined area of the aquifer, recharge is approximately 9,230 ac-ft/yr applying a storage coefficient of 0.15 and 12,310 ac-ft/yr applying a storage coefficient of 0.20.

The specific yield of the aquifer is a key variable that greatly affects the resulting recharge estimation. Also, measured increases in water levels could be skewed by the effects of drawdown due to pumping and water levels in hydraulically connected surface waters. Because recharge and discharge occur simultaneously, measurements of any increase in water levels is a measure of both recharge and discharge. Therefore, this method likely yields a lower than actual recharge rate.

Induced Recharge:

In surficial aquifers with hydraulic connections to other water systems, which is the case here, additional recharge could be induced by pumping. Because the specific variables are required for each well, the annual volume of induced recharge is difficult to quantify, and the amount of induction could be restricted by inadequate surface water flow. The Sioux Falls management unit of the Big Sioux aquifer has been a prime example of this.

Hydrologic Budget:

Circuit courts have ruled that if average annual recharge is used, average annual withdrawals should also be used to determine if unappropriated water is available. Data must be presented to show it is probable the average annual recharge exceeds the average annual discharge by at least the amount requested by the water permit application being considered (Memorandum Decision, April 29, 2005; Memorandum Decision, April 11, 2012).

By flow net analysis, the volume of water flowing through the aquifer, approximately 600 ac-ft/yr, could be considered the absolute minimum amount of water that would be available for additional pumping. Examining the change in water in storage indicates recharge supplies current well withdrawals, averaging 3,080 ac-ft/yr. This is a proven minimum recharge to the aquifer. Examining water level increases indicate that average annual recharge is approximately 9,230 to 12,310 ac-ft/yr. The expected use of the aquifer, approximately 10,153 ac-ft/yr, is within the range of the recharge estimate.

Actual recharge could be on the higher end of the estimated range and could be even more considering the possibility of discharge capture and induced recharge. However, to be conservative, this range should be considered a margin of error. Therefore, from the current data available and applying several methods, the Big Sioux: Northern Skunk Creek aquifer is currently still considered fully appropriated.

SDCL 46-5-39 & SDCL 46-5-40

Pursuant to SDCL 46-5-39, the Water Management Board may authorize a temporary appropriation of water from an unused portion of a future use permit; however, pursuant to SDCL 46-5-40, the temporary use permit would be effective only until the future use permit holder desires to use the water reserved by the future use permit and appropriated by the temporary use permit. The temporary use permit holder would then be given six months notice of permit cancellation. Temporary use permits are issued to place water reserved by future use permits to beneficial use until the future use permit is developed.

As shown in Table 6, three temporary use permits have been authorized from this aquifer. Applying 60% of continuous pumping at the maximum diversion rate for East River Electric Power Coop, Inc., results in an expected use of 58 ac-ft/yr. Irrigators withdrawing from this aquifer apply water at an average rate of 7.89 inches per acre (Buhler, 2009). Applying this rate to the acres permitted by the two temporary use irrigation permits, estimated use is 40 ac-ft/yr. As shown in Table 7, future use reservations currently totals 2,418 ac-ft/yr. Therefore, there is currently 2,320 ac-ft/yr of reserved water available for temporary use from the Big Sioux: Northern Skunk Creek aquifer (Water Rights, 2013b).

Table 6: Temporary use water permits authorizing withdrawals from the Big Sioux: Northern Skunk Creek aquifer (Water Rights, 2013b)

Number	Name	Status	Use Type	Maximum Diversion Rate (cfs)	Area (ac)
7131-3	Charles Alverson	PE	Irrigation	1	68
7275-3	Trevor Anderson	PE	Irrigation	0	60
7829-3	East River Electric Power Coop Inc	PE	Geothermal heat	0.133	0

Table 7: Future use reservations from the Big Sioux: Northern Skunk Creek aquifer (Water Rights, 2013b)

Future Use Permit No.	Name	Reservation (ac-ft)	Next Review
747-3	City of Madison	1,033	09/30/2020
5643-3	Kingbrook RWS Inc	425	07/07/2020
5689-3	Big Sioux Community Water	360	07/01/2014
6834-3	Big Sioux Community Water	600	06/11/2014

Expected use currently exceeds the estimated minimum recharge to the aquifer by 630 ac-ft/yr. If the actual average annual recharge rate is less than the average annual expected use, the aquifer would be over appropriated. However, this situation may not be a valid reason to not allow development of the future use reservation. Furthermore, this situation may not be a valid reason for denial of a temporary use permit authorizing water from a future use permit. And so, no matter the actual average annual recharge, the already 2,418 ac-ft/yr reserved by future use permits can be applied to temporary use permits provided the temporary use permit meets all other requirements.

EXISTING WATER RIGHTS:

There are several wells completed into the Big Sioux aquifer in the area of the proposed well site. The nearest wells on file are authorized to Water Right No. 611-3, located approximately one half mile west and northwest of the proposed well site. The next nearest well on file is authorized to Water Right No. 6044-3, located approximately one mile west. Wells authorized to Chester Sanitary District are located approximately one mile northwest of the proposed well site. The nearest domestic well on file, owned by Fred Feldman, Jr, is located approximately one mile northeast of the proposed well site (Water Rights, 2013b; Water Rights, 2013c).

The water table conditions of the aquifer in this area dictate that water level drawdown due to pumping would not extend far from the wells. The close proximity of the wells to Skunk Creek indicates that drawdown due to pumpage would be reduced due to the induced recharge from the creek. However, precise drawdown cannot be quantified without aquifer testing. The Water Management Board has consistently recognized that to place water to maximum beneficial use a certain amount of drawdown may occur. Therefore, nearby adequate wells are not expected to be adversely impacted by the proposed diversion.

SDCL 46-5-6

Pursuant to SDCL 46-5-6, the diversion rate for an irrigation appropriation cannot be in excess of one cubic foot of water per second for every seventy acres, or "the equivalent thereof." The statute provides that the Water Management Board may allow a greater diversion if the method of irrigation so requires.

This water permit application proposes to divert at a rate of 1.33 cfs per 80 acres, equating to 1.16 cfs per 70 acres. No justification was provided, but it could be an operational requirement of an irrigation pivot system.

CONCLUSIONS:

1. Water Permit Application No. 7915-3 proposes to irrigate 80 acres from one well, 55 feet deep, completed into the Big Sioux: Northern Skunk Creek aquifer.
2. The water availability analysis concluded the Big Sioux: Northern Skunk Creek aquifer is fully appropriated, and there is NOT a reasonable probability that unappropriated water is available to supply the proposed appropriation.
3. Pursuant to SDCL 46-5-39 and SDCL 46-5-40, a temporary use water permit allows water reserved by future use water permits to be put to beneficial use only until the future use permit holder desires to use the water reserved.

4. While three temporary use water permits have since been approved, there is a reasonable probability that reserved water is temporarily available from the Big Sioux: Northern Skunk Creek aquifer to supply the proposed appropriation.
5. This proposed diversion will not adversely or unlawfully impair existing nearby wells.
6. This application has requested an additional diversion rate in excess of one cfs per 70 acres. No justification was provided.



Joseph R Stonesifer
SD DENR-Water Rights Program

Approved by



Ken Buhler
SD DENR-Water Rights Program

REFERENCES:

- Buhler, K. 2009. Report on Water Permit Application No. 7136-3 Big Sioux Community Water. SD DENR-Water Rights Program. Joe Foss Bldg., Pierre, South Dakota.
- Buhler, K. 2011. Report on Water Permit Application No. 7275-3 Trevor Anderson. SD DENR-Water Rights Program. Joe Foss Bldg., Pierre, South Dakota.
- Goodman, J.A. 2009. Report on Water Permit Application No. 7131-3 Charles Alverson. SD DENR-Water Rights Program. Joe Foss Bldg., Pierre, South Dakota.
- Hansen, D.S. 1986. Water Resources of Lake and Moody Counties, South Dakota. Water-Resources Investigations Report 84-4209. USGS, Huron, South Dakota.
- Hedges, L.S., Burch, S.L., Iles, D.L., Barari, R.A., and Schoon, R.A. 1982. Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa, Task 1: Bedrock Topography and Distribution, Task 2: Extent of Aquifers, Task 3: Ground-Water Storage, Task 4: Computerized Data Base, Final Report. U.S. Army Corps of Engineers Contract DACW 45-80-C-0185.
- Hedges, L.S., Allen, J., and Holly, D.E. 1985. Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa. Task 7: Ground Water Recharge. U.S. Army Corps of Engineers Contract DACW 45-80-C-0185.

In the Matter of Water Permit Application No. 7239-3, by Hanson County Dairy v. Robert Bender and Stace Nelson, South Dakota First Judicial Court Civ. No. 11-54 (Memorandum Decision, April 11, 2012)

In the Matter of Water Permit Application No. 6431-3, by Phillip W. Hines v. SD Department of Environment and Natural Resources, South Dakota Sixth Judicial Court Civ. No. HU04-37 (Memorandum Decision, April 11, 2012)

Mathiowetz, A.M. 2013. Report on Water Permit Application No. 7829-3 East River Electric Coop Inc. SD DENR-Water Rights Program. Joe Foss Bldg., Pierre, South Dakota.

SD Geological Survey. 2013. Lithologic Logs Database, South Dakota Department of Environment & Natural Resources Geological Survey, Vermillion, South Dakota.

Water Rights. 2003-2013. "Non-Irrigation Yearly Reports": SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

Water Rights. 1980-2013. "Annual Irrigation Summary by Aquifer": SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

Water Rights. 2013a. Observation Well Files, SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

Water Rights. 2013b. Water Right/Permit Files, SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

Water Rights. 2013c. Water Well Completion Reports, SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.



DEPARTMENT OF ENVIRONMENT
and NATURAL RESOURCES

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



January 21, 2014

Madison Daily Leader
PO Box 348
Madison SD 57042

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 7915-3 to Appropriate Water. Please publish the notice once on January 29, 2014. 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 Tom Park, 24267 468th Ave, Colton SD 57018 (Ph # 605-489-2577).

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

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523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov



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

January 21, 2014

Tom Park
24267 468th Ave
Colton SD 57018

Dear Mr. Park:

Water Permit Application No. 7915-3 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 Daily Leader printed at Madison SD (Ph # 605-256-4555). 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 January 29, 2014. 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. 7915-3 to Appropriate Water

Notice is given that Tom Park, 24267 468th Ave, Colton SD 57018 has filed an application for a water permit to appropriate 1.33 cubic feet of water per second from one well to be completed into the Big Sioux:Northern Skunk Creek Aquifer (55 feet deep) located in the NW 1/4 SE 1/4 Section 23 for irrigation of 80 acres located in the N 1/2 SE 1/4 Section 23; all in T105N-R51W. The applicant is requesting a diversion rate greater than the statutory limit.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7915-3 as a TEMPORARY USE PERMIT pursuant to SDCL 46-5-39 because 1) water is available to be appropriated as a temporary use permit until holders of future use permits fully develop water reserved from their future use permit, 2) the proposed diversion can be developed as a temporary use permit without unlawful impairment of existing rights, 3) the proposed use is a beneficial use 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 10, 2014.

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 _____.



DEPARTMENT OF ENVIRONMENT
and NATURAL RESOURCES

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

January 29, 2014

Tom Park
24267 468th Ave
Colton SD 57018

Dear Mr. Park:

As stated in our phone conversation, enclosed is a copy of the Notice of Application No. 7915-3. The notice has been emailed to the Madison Daily Leader (Ph # 605-256-4555). You will need to contact the newspaper to authorize publication and arrange for payment of this notice. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

We did make a change in the legal description of the 80 acres to be irrigated. We included the entire SE 1/4 Section 23-T105N-R51W. Upon further review of the map submitted with the application, it appears that a few acres may be located in upper portions of the S 1/2 SE 1/4 Section 23.

If you have any questions, please contact me.

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.

Schlaak, Karen

From: Schlaak, Karen
Sent: Thursday, January 30, 2014 9:38 AM
To: 'Ann Koch'
Subject: RE: Notice of Application No. 7915-3 to Appropriate Water
Attachments: 7915-3public.short.docx

Ann,
Attached is the notice for Tom Park (605 489-2577) to be published on February 5, 2014. Mr. Park has been notified to contact you to authorize publication and arrange for payment. Hopefully this time it gets published.

Thanks,

Karen Schlaak
Water Rights Program
Phone: 605 773-3352
Fax: 605 773-4068

NOTICE OF APPLICATION NO. 7915-3 to Appropriate Water

Notice is given that Tom Park, 24267 468th Ave, Colton SD 57018 has filed an application for a water permit to appropriate 1.33 cubic feet of water per second from one well to be completed into the Big Sioux:Northern Skunk Creek Aquifer (55 feet deep) located in the NW 1/4 SE 1/4 Section 23 for irrigation of 80 acres located in the SE 1/4 Section 23; all in T105N-R51W. The applicant is requesting a diversion rate greater than the statutory limit.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7915-3 as a TEMPORARY USE PERMIT pursuant to SDCL 46-5-39 because 1) water is available to be appropriated as a temporary use permit until holders of future use permits fully develop water reserved from their future use permit, 2) the proposed diversion can be developed as a temporary use permit without unlawful impairment of existing rights, 3) the proposed use is a beneficial use 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 17, 2014.

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 _____.

AFFIDAVIT OF PUBLICATION RECEIVED

STATE OF SOUTH DAKOTA }
County of Lake } ss.

FEB 10 2014

WATER RIGHTS PROGRAM

Wednesday, Feb. 5

NOTICE OF APPLICATION NO. 7915-3 to Appropriate Water

Joanne Wheeler of the City of Madison, County of Lake, State of South Dakota, being first duly sworn on oath, deposes and says:

The Madison Daily Leader is a daily legal newspaper of general circulation, printed and published in the City of Madison, in said County of Lake, by Hunter Publishing, Inc., Jon M. Hunter, publisher, and has been such legal newspaper during the times hereinafter mentioned; that the said Madison Daily Leader has been in existence as such legal newspaper for more than one year prior to the publication of the notice hereunto attached, and has during all of said time had, and how has, more than 200 bona fide subscribers; that the undersigned, the affiant, is the Secretary of the said newspaper, in charge of the advertising department thereof and has personal knowledge of all the facts stated in this affidavit and the advertisement headed

Tom Park

Notice of Application #7915-3 to Appropriate Water

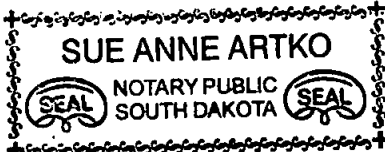
printed copy of which hereunto attached, was printed and published in the said newspaper for One successive weeks, once each week and on the same day of the week, on the following dates, to-wit:

On Wednesday, the 5th day of February, 2014;
On _____, the _____ day of _____, 20____;
On _____, the _____ day of _____, 20____;
On _____, the _____ day of _____, 20____;
On _____, the _____ day of _____, 20____;
On _____, the _____ day of _____, 20____;
On _____, the _____ day of _____, 20____;
On _____, the _____ day of _____, 20____;
On _____, the _____ day of _____, 20____;

That \$27.93 being the full amount of the fees for publication of the attached notice inures solely for the benefit of the publisher of the said newspaper; that no arrangement or understanding for a division thereof has been made with any other person and that no part thereof has been agreed to be paid to any other person whomsoever.

Joanne Wheeler

Subscribed and sworn to before me this 6th day of February, 2014



Sue Anne Artko
Notary Public, Lake County, South Dakota

Notice is given that Tom Park, 24267 468th Ave, Colton SD 57018 has filed an application for a water permit to appropriate 1.33 cubic feet of water per second from one well to be completed into the Big Sioux: Northern Skunk Creek Aquifer (55 feet deep) located in the NW 1/4 SE 1/4 Section 23 for irrigation of 80 acres located in the SE 1/4 Section 23; all in T105N-R51W. The applicant is requesting a diversion rate greater than the statutory limit.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7915-3 as a TEMPORARY USE PERMIT pursuant to SDCL 46-5-271-201 & 199.

39 because 1) water is available to be appropriated as a temporary use permit until holders of future use permits fully develop water reserved from their future use permit, 2) the proposed diversion can be developed as a temporary use permit without unlawful impairment of existing rights, 3) the proposed use is a beneficial use 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.

Publication Fees _____ \$ _____

Notary Fees _____ \$ _____

Total _____ \$ _____

Received Payment,



DEPARTMENT OF ENVIRONMENT
and NATURAL RESOURCES

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



FEB 26 2014

Tom Park
24267 468th Ave
Colton SD 57018

Dear Mr. Park:

Enclosed is Temporary Use Water Permit No. 7915-3 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,

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

enclosures

7915-3
RECEIVED

JUL 25 2014

WATER RIGHTS
PROGRAMNOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USE

Date

~~7-1-2014~~
7-23-2014TO: Water Rights Program, DENR
523 E. Capitol
Pierre, SD 57501-3181

FROM:

Tom Park
(name)
24267 464th Av
(address)
Colton S.D. 57018
(city, state, zip)270-1627
(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. 7515-3 states that the water use system is to be constructed by

8-17-2016 (date), and water is to be put to beneficial use by 2-17-2023 (date)

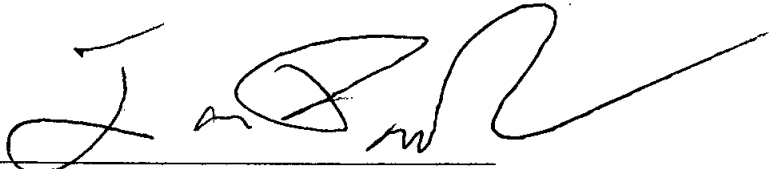
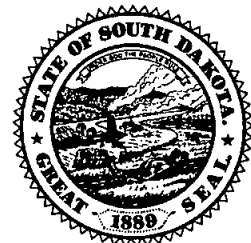
The water use system was completed on

~~6-15-2014~~
7-23-2014 (date)

Applying the water to beneficial use was completed on

~~6-28-2014~~
7-23-2014 (date)

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


(signature)




**DEPARTMENT OF ENVIRONMENT
and NATURAL RESOURCES**

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



July 28, 2014

7915-3

Tom Park
24267 464th Ave
Colton SD 57018

Dear Mr. Park:

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,

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

SOUTH DAKOTA WATER WELL COMPLETION REPORT

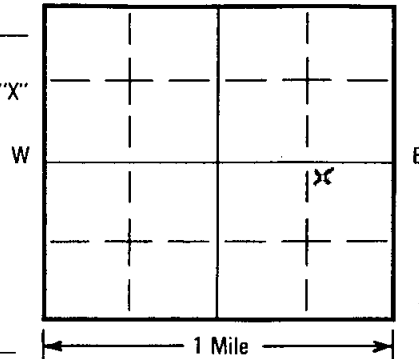
7915-3

07-92

Location NE 1/4 SE 1/4 Sec 23 Twp 105-N Rg 51-W

County Lake

Please mark well location with an "X"



Well Completion Date

7-14-14

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? 1/4 mile left from Home site (identify source).

PROPOSED USE:

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

METHOD OF DRILLING:

Bucket-Back casing

CASING DATA:

- ☐ Steel ☒ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>25</u> LB/FT	<u>1 1/4</u> IN	<u>+1</u> FT	<u>39</u> FT	<u>20</u> IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN

GROUTING DATA

Grout Type	No. of Sacks	Grout Weight	From	To
<u>Cement</u>	_____	_____ lb./gal	<u>0</u> ft	<u>10</u> ft
<u>Benbrite</u>	_____	_____ lb./gal	<u>10</u> ft	<u>12</u> ft

Describe grouting procedure _____

SCREEN:

☐ Perforated pipe ☒ Manufactured
 Diameter 1 1/4 IN Length 14 FEET
 Material PVC 160 class
 Slot Size .080 Set From 39 Feet to 53 Feet
 Other information _____

WAS A PACKER OR SEAL USED?

☐ YES ☒ NO

If so, what material? _____

Describe packer(s) and location? _____

DISINFECTION:

Was well disinfected upon completion?
☒ YES, How: chlorine
☐ NO, Why Not? in pack

Laboratory sent to for water quality analysis

Yes

Well Owner: Thomas Pack

Business Name: _____

Address: 24267 41st Ave.
Colton, S.Dak. 571218

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Topsoil</u>	<u>0</u>	<u>6</u>
<u>Clean Sand</u>	<u>6</u>	<u>12</u>
<u>Rocky</u>	<u>12</u>	<u>32</u>
<u>Really Fine Sand</u>	<u>32</u>	
<u>Coarse Gravel</u>	<u>32</u>	<u>43</u>
<u>Good Sand</u>	<u>43</u>	<u>44</u>
<u>Coarse Gravel</u>	<u>44</u>	<u>53</u>

STATIC WATER LEVEL

12' 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 ☐ Bailed ☐ Other

Describe: sub

Pumping Level Below Land Surface

28' 7" ft. After 1 Hrs. pumped 700 GPM

_____ ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS Good Well

RECEIVED

OCT 08 2014

WATER RIGHTS PROGRAM

This well was drilled under license # 111

And this report is true and accurate.

Drilling firm Lacey Well Drilling, Inc.

Signature of License Representative: _____

Signature of Well Owner or Equitable Property Holder: _____

Date: 7/14/2014

10-28-14



7915-3

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

February 3, 2020

4453-3
7915-3

Jeff Brown
24131 465th Ave
Chester SD 57016

Dear Mr. Brown:

Thank you for calling concerning permits listed in the name of Alan Brown and Tom Park.

I have edited the database to show the annual irrigation questionnaires should be sent directly to you as tenant. This does not change ownership at all, it just ensures you receive the forms.

With respect to Water Right No. 4453-3, listed in the name of Alan Brown, please let Alan's wife know that at some point, the water right will need to be transferred to her name.

Enclosed are copies of both Nos. 4453-3 and 7915-3. You may keep these for your records. If you have any questions, please let me know.

Sincerely,

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

enclosures

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 7915-3

I have this day, October 29, 2021, made a thorough examination of the water use system constructed by Tom Park, 24267 468th Ave, Colton, SD 57018 of Permit No. 7915-3, bearing the priority of October 17, 2013 authorizing the diversion of 1.33 cu. ft. per second of the waters of the Big Sioux: Northern Skunk Creek Aquifer for irrigation purposes, in Lake County.

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: Lacey Well Drilling
- 2) No. of Wells 1
- 3) Depth(s) 53 feet
- 4) Well log is available Y

Casing:

- 1) Diameter 14 inches
- 2) Length 39 feet
- 3) Type Plastic

Screen:

- 1) Type PVC
- 2) Length 14 feet
- 3) Static water level 12 feet

Pump:

- 1) Make NA
- 2) Model Submersible
- 3) Size NA
- 4) Capacity 500 GPM

Motor: unknown

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

- 1) Type Buried PVC
- 2) Size 6 inches
- 3) Length 450 feet

C. Works used to apply water to beneficial use:

Center pivot:

- 1) Make Valley
- 2) Overall length 1300 feet
- 3) Number of towers 7
- 4) End gun Y
- 5) Capacity 500 GPM

Chemigation Equipment: none

D. Compliance with Permit Requirements:

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

E. Condition and Location:

1. The system is in poor, good, etc condition with the point(s) of diversion located as follows: From the SE corner Sec 23 T105N R51W, 2640 ft N & 1710 ft W, Lat 43.88199 Long -96.9224 (NW ¼ SE ¼ Sec 23).
2. The works are capable of diverting and conveying to the place of use 1.11 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 land in Section 23 T105N R51W

NW ¼ SE ¼ – 36 acres
NE ¼ SE ¼ – 30 acres

comprising a total of 66 acres of land and the license should be issued for 1.11 cfs
3. All structures, wells and lands on map Y

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

The irrigated acreage was determined with the aid of FSA imagery and ArcMAP software.

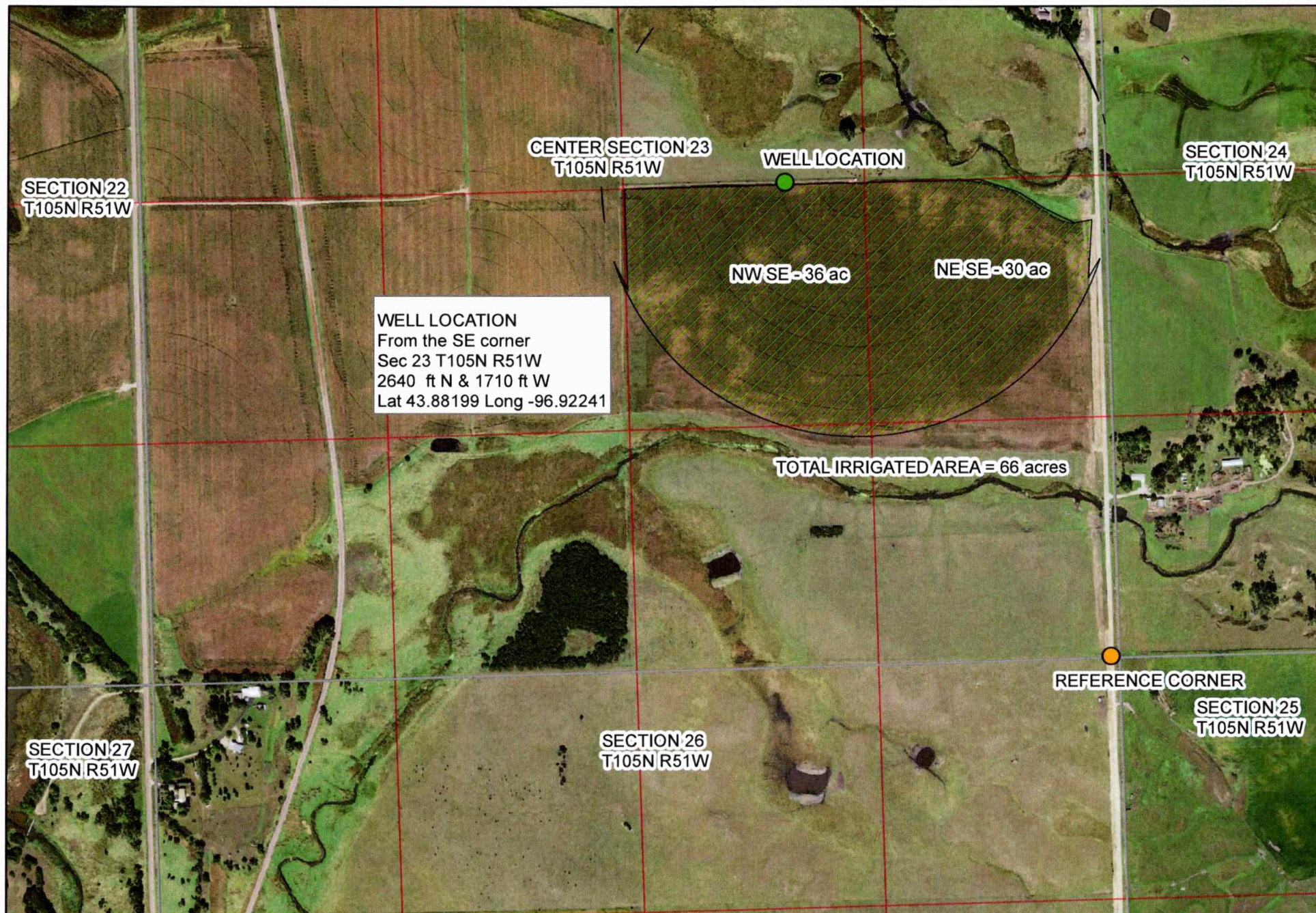
The mailing address must be changed to 464 not 468th Ave and the telephone number is now 605/270-0560 for Mr. Park.

All information regarding this Permit should be sent to Mr. Jeff Brown (tenant) at 24313 465th Ave, Chester, SD 57016 and his cell phone number is 605/270-0560.



Darrell W DeBoer
Water Rights Inspector
DANR, Water Rights Program

Date report completed: November 1, 2021



0 0.1 0.2 0.4 0.6 0.8 Miles



Darrell DeBoer
Water Right Inspector
DANR-Water Rights Program



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

NOV 10 2021

7915-3

Tom Park
24267 468th Ave
Colton SD 57018

Dear Mr. Park:

Enclosed is Reissued Temporary Use Water Permit No. 7915-3. The temporary use water permit was reissued to reflect the system as developed. The reissued permit is based on a field investigation done by a staff engineer with our program. A copy of his map is included showing the location of the diversion point and acres developed for irrigation.

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

The Reissued Temporary Use Water Permit is subject to the qualifications listed in the permit. If you have any questions, please contact our office.

Sincerely,

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

enclosures

**REISSUED SOUTH DAKOTA
TEMPORARY USE WATER PERMIT NO. 7915-3
AS DEVELOPED**

On February 17, 2014, on behalf of the Water Management Board, Temporary Use Water Permit No. 7915-3 was approved and issued to Tom Park, 24267 468th Ave., Colton SD 57018 authorizing construction of the water use system and placement of water to beneficial use.

1. On October 29, 2021, an investigation was conducted of the water use system described in Temporary Use Water Permit No 7915-3. The investigation found the system was developed as follows: One well, 53 feet deep into the Big Sioux: Northern Skunk Creek Aquifer located approximately 2,640'N and 1,710'W of the SE corner of Section 23, T105N, R51W (NW ¼ SE ¼ Sec 23) Latitude 43.88199, Longitude -96.9224.

The temporary use permit holder is authorized to divert the developed diversion rate of 1.11 cubic feet of water per second (500 gpm) from the well described above to irrigate the following acreage:

T105N, R51W Section 23	NW ¼ SE ¼	36 acres
	NE ¼ SE ¼	30 acres
	Total	66 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 I — September 30.
3. The date from which applicant may claim right is October 17, 2013.
4. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

- The city of Madison, Kingbrook Rural Water System and Big Sioux Community Water have priority right to this water under future use withdrawal permits. This permit is issued as a temporary use permit pursuant to SDCL 46-5-39 and is subject to these prior rights if or when the future use permit holders fully develop the reserve water supply. The temporary use permit may be subject to cancellation when the water reserved under these future use permits is put to beneficial use. The Chief Engineer must provide the permit holder a six month notice prior to cancellation of this temporary use permit.
- The well approved under this temporary use 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.

Reissued Temporary Use Water Permit No. 7915-3

Page 2

- The well authorized by Temporary Use Permit No. 7915-3 shall be constructed by a licensed well driller and construction shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28. ***The well was drilled in July 2014 by Lacey Well Drilling, Inc. A copy of the well completion report is on file with the Water Rights Program.***
- Pursuant to SDCL 46-5-6 which allows a greater diversion rate if the method of irrigation, time constraints, or type of soils so requires, Temporary Use Permit No. 7915-3 authorizes a maximum diversion rate of 1.33 cfs for the irrigation of 80 acres with an annual volume not to exceed 2 acre feet of water per acre per year. ***The system as developed is capable of diverting 1.11 cfs on 66 acres. This temporary use permit is limited to the system as developed.***
- This temporary use permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

Eric Gronlund

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

NOV 10 2021

date

