

WATER PERMIT NO. 7922-3

Name of Applicant: Steve Johnson

Address: 30468 411 Ave, Tyndall SD 57066 Phone: 605 286-3309

Amount of Water Claimed: 1.78 cfs Total Acres: 150 acres

Source of Water Supply: groundwater (one well)

Water to be used for: irrigation County: Bon Homme

Type of Waste Disposal System:

Location: 5 miles southwest of Tyndall

PRIORITY Date Received: 11-12-13 Application/License Fee: \$ 1050

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

Remarks:

Diversion Point: approximate NW1/4 Sec 28-
T94N-R60W

Land to be Irrigated: NW 1/4 Sec 28-T94N-R60W

Depth of Well: 200 feet deep

Well Driller:

Remarks:

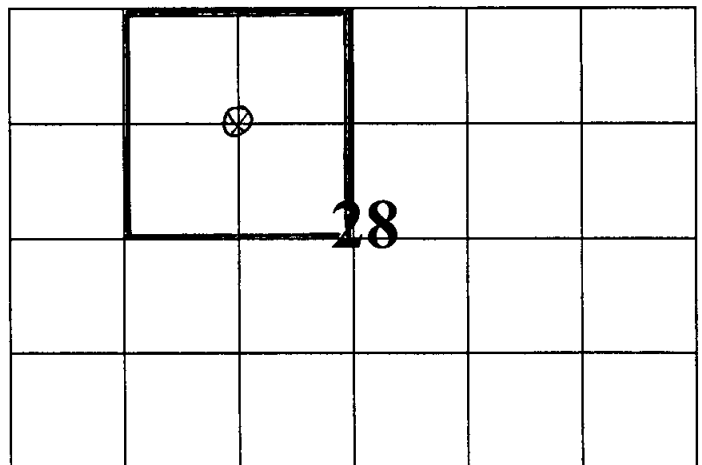
Type of Map: aerial

Prepared by:

Reviewed and the Number Assigned on: 11-12-13

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>7922-3</u>	(office use only) Hydrologic Unit <u>10170101</u>
	Basin <u>Missouri River</u>	<u>605-589-3242</u>
	Newspaper <u>Tyndall Tribune & Register Box 520 57066</u>	<u>605-665-0811</u>
	<u>Press & Dakotan 319 Walnut Yankton 57078</u>	

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NOV 12 2013
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 to Appear on Irrigation Permit Steve Johnson

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

(name and complete address if different than above name)

Mailing Address 30468 411 Ave Tyndall SD 57066

(Address)

(City)

(State)

(Zip Code)

Home Phone 286-3309 Cell 464-1896 Email _____

2. Amount of water claimed 1.78 *CFS or 800 **GPM _____ ***AF Total Acreage 150

(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply well

4. Location of point of diversion 1 well (approximate center NW 1/4 Sec 28 - T94N-R60W)

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

County Bon Homme

5. County or counties where water will be used Bon Homme

6. Annual period during which water is to be used Summer 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 Sec 28 T94N R60W 150</u>			

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

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

**SOUTH DAKOTA
WATER PERMIT NO. 7922-3**

Date of first receipt of application November 12, 2013.

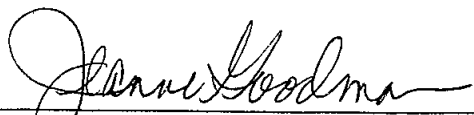
The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 7922-3 to Steve Johnson, 30468 411th Ave, Tyndall SD 57066 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 7922-3 appropriates 1.78 cubic feet of water per second from one well to be completed into the Choteau:Tyndall Aquifer (200 feet deep) located in the approximate center of the NW 1/4 Section 28 for irrigation of 150 acres located in the NW 1/4 Section 28; all in T94N-R60W.
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 November 12, 2013.
4. The date of approval of Permit No. 7922-3 is January 27, 2014.
5. One-fifth of the construction is to be completed on or before July 27, 2016.
6. All construction is to be completed on or before January 27, 2019.
7. Water is to be put to beneficial use on or before January 27, 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 well approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The well authorized by Permit No. 7922-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

By: 

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

FEB 20 2014

date



Supplemental Information

(type or print)

1. Well Information

(check one or both as applicable) ☒ Drilling new well(s) ☐ Using existing well(s)

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

b) If existing wells, how many 0 Provide copy of log(s), if available. Drilled by -

c) Well Depth 200' Depth to Top of Water Bearing Material 140 Depth to Water from Surface 140

d) Distance to nearest existing domestic well:

On applicant's property 0 On property owned by others 1000 +

2. Wastewater Disposal System Information

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

b) System Capacity (gallons) _____ Year Constructed _____

c) Connected to the City of _____ Sanitary System

3. Dugout Information

a) Surface Dimensions _____ Depth _____

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

4. Water Storage Dams

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

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

b) Freeboard _____

c) Crest Width _____

Crest Length _____

d) Height _____

e) Primary Outlet Capacity _____

If pipe, diameter _____

f) Secondary Spillway Capacity _____

Spillway Width _____

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

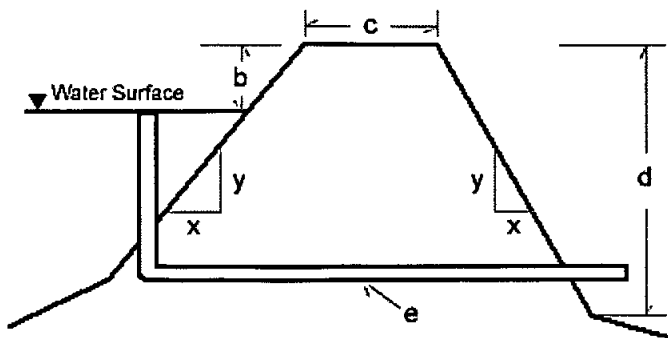
Upstream _____

Downstream _____

h) Surface Area of Impoundment _____

i) Storage _____ Acre Feet

j) Drainage Area Above Dam _____ Acres





United States Department of Agriculture
Farm Service Agency

August 06, 2013

PLSS: 28_94N_60W

Farm: 50

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Bon Homme County

1 inch equals 660 feet

Wetland Determination Identifiers

- Restricted Use
- ▽ Limited Restrictions
- Exempt from Conservation Compliance Provisions
- Common Land Units
- CRP
- /// Non Cropland

Disclaimer: Wetland identifiers do not represent the size, shape or specific determination of the area.
Refer to your original determination (CPA-026 and attached maps) for exact wetland boundaries and determinations, or contact NRCS.

2012 Ortho-Photography - Not to Scale





Prepared By: **Heine Electric and Irrigation, Inc.**
 For: **Johnson, Steve**

Questions or concerns? Please call us at 402-640-1999!

Pivot center at **42.934017, -97.946044**

[N] Spray off at 340°, on at 20°.

[S] Spray off at 160°, on at 200°.

[E] Spray off at 70°, on at 110°.

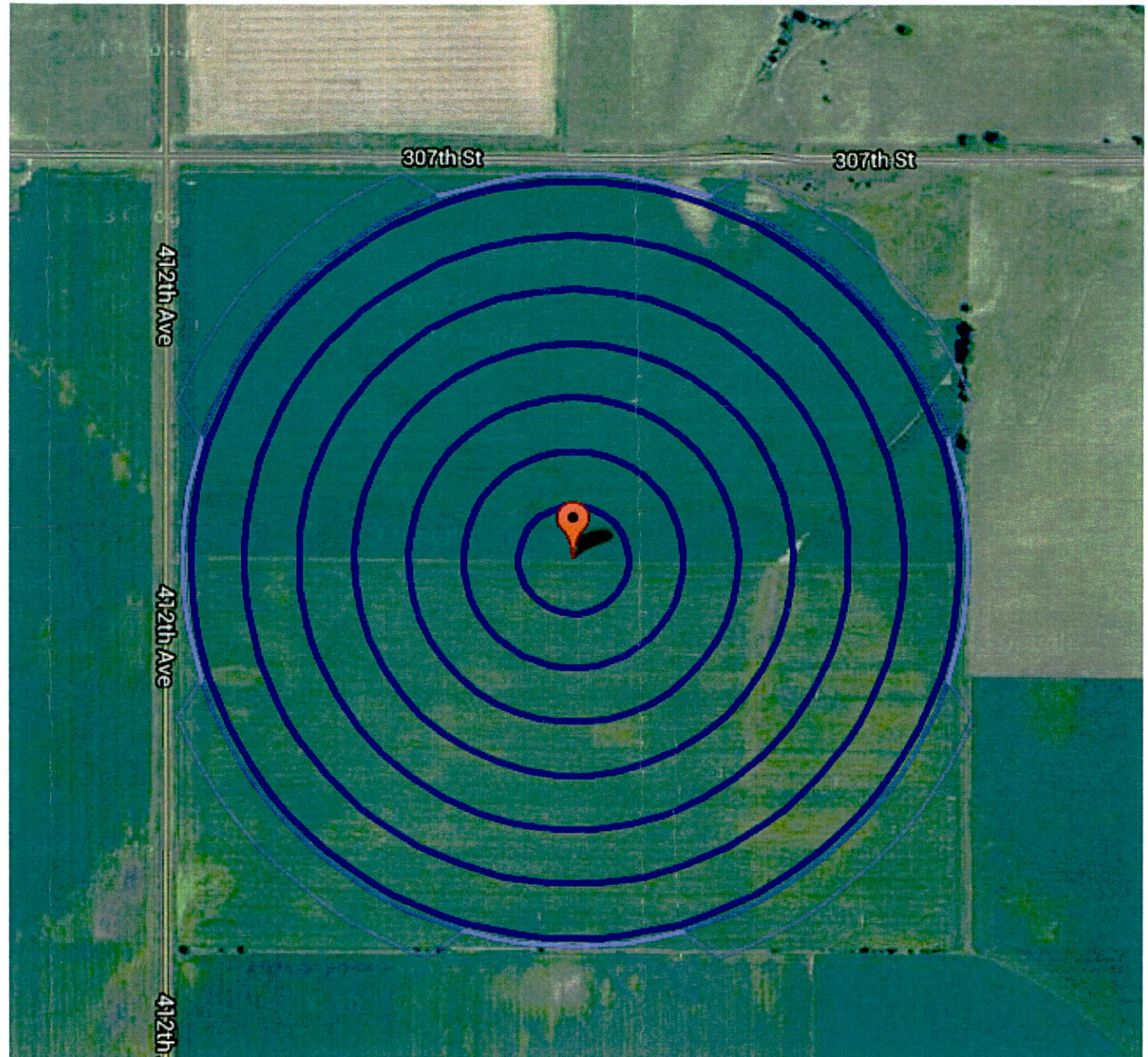
[W] Spray off at 250°, on at 290°.

- 1 180 ft. Total: 180 ft.
Acreage: 2.34. Total: 2.34 acres.
- 2 180 ft. Total: 360 ft.
Acreage: 7.02. Total: 9.36 acres.
- 3 180 ft. Total: 540 ft.
Acreage: 11.7. Total: 21.06 acres.
- 4 180 ft. Total: 720 ft.
Acreage: 16.38. Total: 37.44 acres.
- 5 180 ft. Total: 900 ft.
Acreage: 21.06. Total: 58.5 acres.
- 6 180 ft. Total: 1080 ft.
Acreage: 25.74. Total: 84.24 acres.
- 7 180 ft. Total: 1260 ft.
Acreage: 30.42. Total: 114.66 acres.
- Overhang** 27 ft. Total: 1287 ft.
Acreage: 4.96. Total: 119.62 acres.
- Spray** 120 ft. Total: **1407 ft.**
Acreage: 12.92. Total: **132.55 acres.**

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PROGRAM**



RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 11/12, 20 13

RECEIVED OF Steve Johnson 30468 411th Ave Tyndall SD 57066

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

Fee for Application for Permit No. <u>7922-3</u> to Appropriate Water, to construct and to put water to beneficial use	850	00
Fee for Application for Permit No. _____ to Appropriate Water for Future use		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. <u>7922-3</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	1050	00

No. **06480**

By Jeane Goodman
Chief Engineer



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 7922-3, Steve Johnson**

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. 7922-3, Steve Johnson, 30468 411th Avenue, Tyndall SD 57066.

The Chief Engineer is recommending APPROVAL of Application No. 7922-3 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 well authorized by Permit No. 7922-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.

Jeanne Goodman, Chief Engineer
January 2, 2014

REPORT TO THE CHIEF ENGINEER

WATER PERMIT APPLICATION NO. 7922-3

**Steve Johnson
December 5, 2013**

Water Permit Application No. 7922-3 proposes to divert groundwater at a maximum diversion rate of 1.78 cubic feet of water per second (cfs) from one well to be completed into the Tyndall management unit of the Choteau aquifer. The well is expected to be approximately 200 feet deep, located in the approximate center of the NW¼ of Section 28, T94N-R60W. Water will be used to irrigate 150 acres located in the NW¼ of Section 28, T94N-R60W in Bon Homme County.

AQUIFER: Tyndall management unit of the Choteau aquifer (CH:T)

HYDROGEOLOGY:

The Choteau: Tyndall and Niobrara aquifers both occur at approximately 200 feet below ground surface in the area of the proposed well site. The proposed well site appears to be located just within the preglacial valley that has incised the Niobrara Formation and has been filled with outwash deposits considered the Choteau: Tyndall aquifer (Tomhave and Schulz, 2004; Water Rights, 2013c). However, a test hole log was not submitted with this application as required by ARSD 74:02:01:08.01. From the information available, this application is considered as proposing to appropriate water from the Choteau: Tyndall aquifer and only this aquifer.

The aquifer was first identified as the Tyndall-Scotland aquifer by Jorgensen (1971), as shown in Figure 1. In assessing aquifers in eastern South Dakota, the Tyndall-Scotland aquifer was separated at a groundwater flow divide, becoming the Scotland management unit of the Lower James Missouri aquifer and the Tyndall management unit of the Choteau aquifer, bounded by a red box in Figure 2. Emmanuel Creek incises the Choteau aquifer, producing the West and Tyndall management units (Hedges and others, 1982).

The Choteau: Tyndall aquifer is an outwash deposit consisting of sands and gravels that to some extent fill a preglacial valley, shown in Figure 3. The aquifer is buried by till except at the southern extent, where it outcrops at Emmanuel Creek. The aquifer is often under artesian conditions, but water table conditions do exist locally (Jorgensen, 1971). The first aquifer materials map, as shown in Figure 4, further delineates the Choteau: Tyndall aquifer.

From these studies, the areal extent of the Choteau: Tyndall aquifer was estimated to be 24,800 acres, shown in Figure 5. The aquifer is often less than 50 feet thick (Jorgensen, 1971). Hedges and others (1982) estimated the average thickness to be 30 feet. From an aquifer pump test, Jorgensen (1971) found the aquifer had a storage coefficient of 0.2. Applying porosity and thickness to the area, there is an estimated 186,000 acre-feet (ac-ft) of water in storage in the aquifer. The Choteau: Tyndall aquifer is hydraulically connected to the Lower James Missouri: Scotland to the east, the adjacent Niobrara aquifer, the underlying Codell and Dakota aquifers, and local surface waters, including Emmanuel Creek. Water in the aquifer moves to the west in the northern portion and south in the southern portion (Jorgensen, 1971).

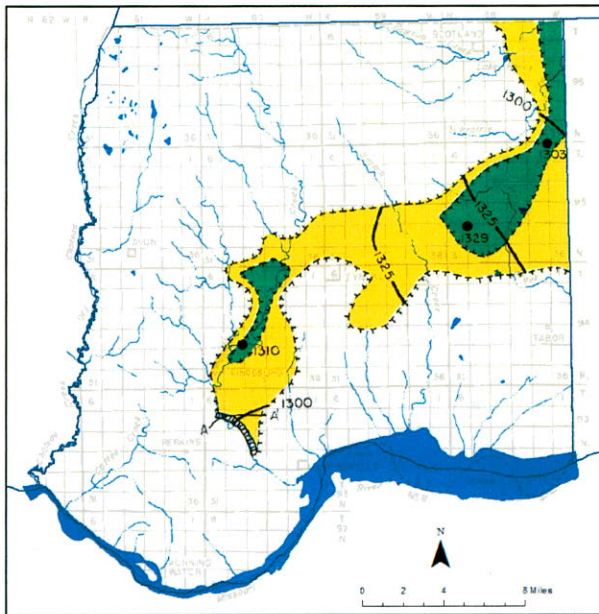


Figure 1: Tyndall-Scotland aquifer in Bon Homme County (Jorgensen, 1971)

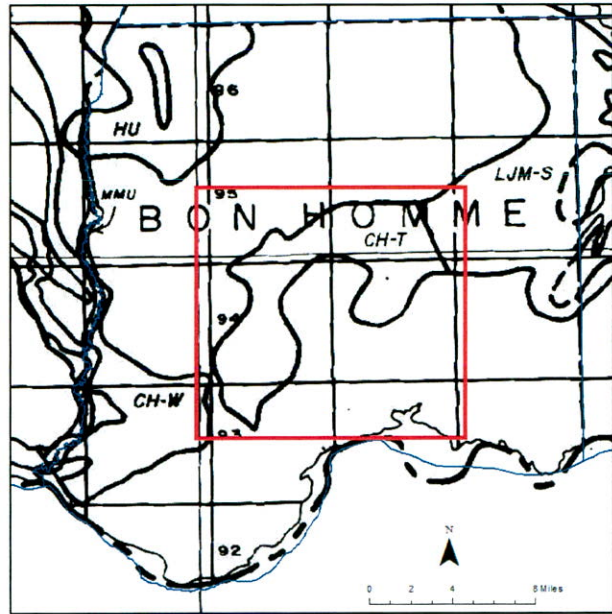


Figure 2: Choteau: Tyndall aquifer (Hedges and others, 1982)

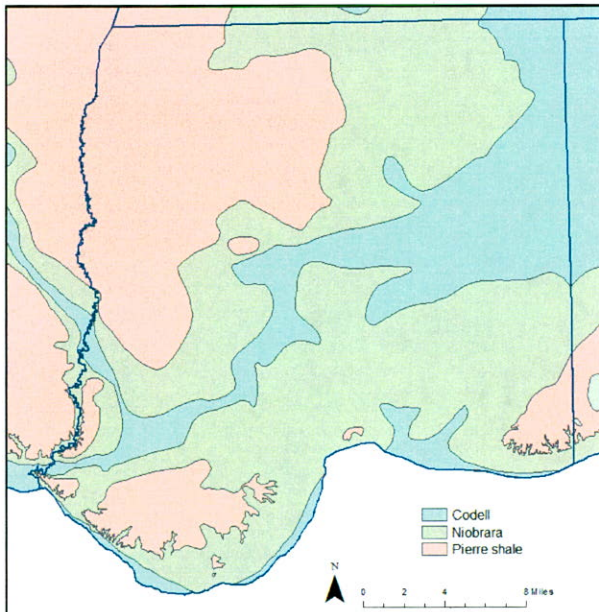


Figure 3: Uppermost bedrock map (Tomhave and Schulz, 2004)

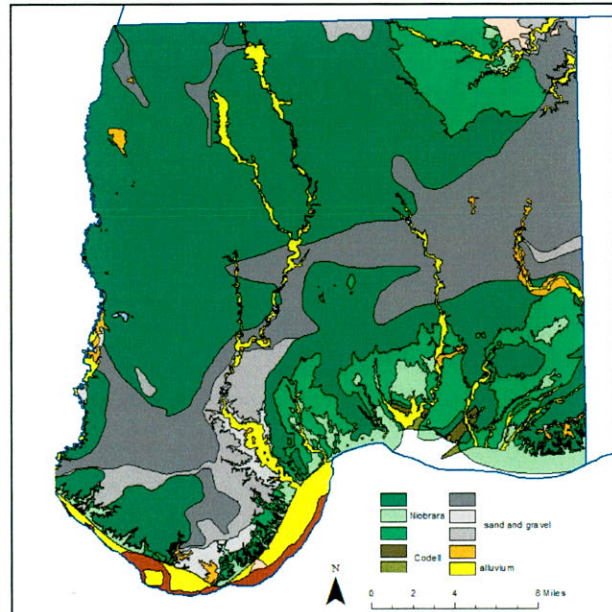


Figure 4: First aquifer materials map (Jensen, 2012)

Water level in the Choteau: Tyndall aquifer at the proposed well site is expected to be approximately 100 feet below ground surface (Water Rights, 2013a). The top of the aquifer is expected to be 60 feet below ground surface here. The aquifer is more than 100 feet thick in this area (Water Rights, 2013c).

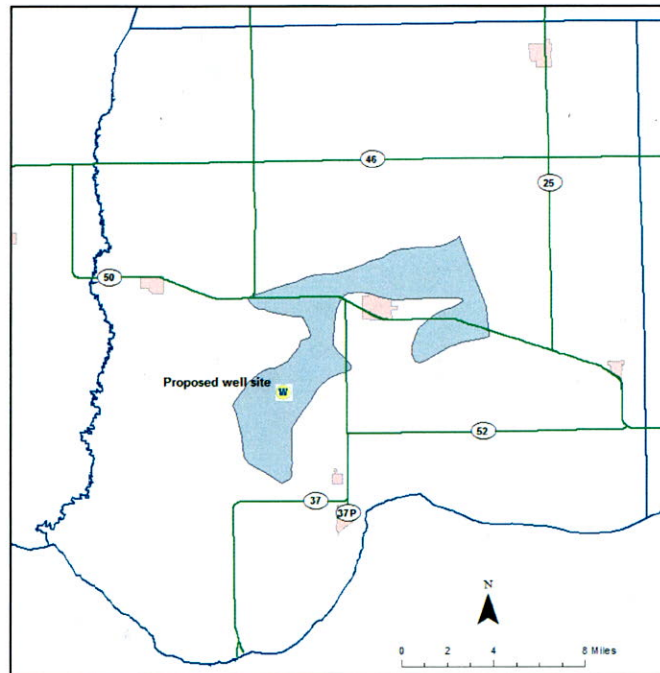


Figure 5: Choteau: Tyndall aquifer (based on previous studies)

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.

Hydrologic Budget:

Recharge:

Recharge to the Choteau: Tyndall aquifer is through percolation of precipitation through the overlying till or alluvium, inflow from Emmanuel Creek, and inflow from contiguous bedrock aquifers such as the Niobrara, Codell, and Dakota aquifers (Jorgensen, 1971).

Hedges and others (1985) estimated recharge based on observation well data. The 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.

Hedges and others (1985) estimated a recharge rate of 3.2 inches per year (in/yr) for unconfined portions of the Choteau: Tyndall aquifer. Data was available from a total of 16 water years from three observation wells. A storage coefficient of 0.15 was assumed for all aquifers in the study. Applying the storage coefficient of 0.2 for the Choteau: Tyndall aquifer from Jorgensen (1971), the recharge rate would have been estimated to be 4.3 in/yr. Because recharge and discharge occur simultaneously, measurements of any increase in water levels is a measured recharge compared to discharge. Therefore, this method yields lower than actual recharge rate.

Water levels have continued to be recorded in the same three wells, and these wells often exhibit unconfined conditions (Water Rights, 2013a). The same methodology from Hedges and others (1985) was applied to water level data of these wells from a total of 82 water years, and a storage coefficient of 0.2 was applied. Unconfined portions of the Choteau: Tyndall aquifer recharges at an estimated rate of 7.2 in/yr.

Unconfined portions of the Choteau: Tyndall aquifer was determined by comparing water levels in the aquifer to the top of the aquifer (Water Rights, 2013a; SD Geological Survey, 2013). Approximately 2,800 acres of the Choteau: Tyndall aquifer is currently under unconfined conditions, shown in Figure 6. While water levels have generally increased over the period of record, this amount is not expected to have significantly changed the unconfined portion of the aquifer over the same period of record. Applying the estimated unconfined area recharge rate to the unconfined area produces an estimated average annual recharge of at least 1,700 ac-ft/yr.

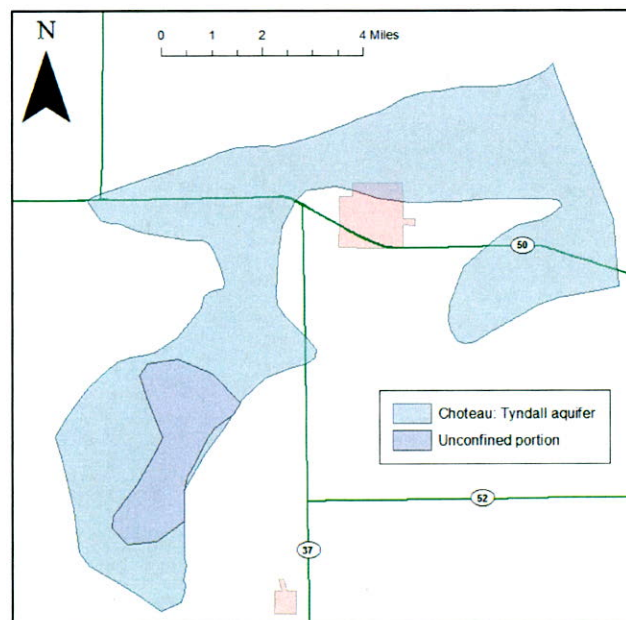


Figure 6: Unconfined portion of the Choteau: Tyndall aquifer

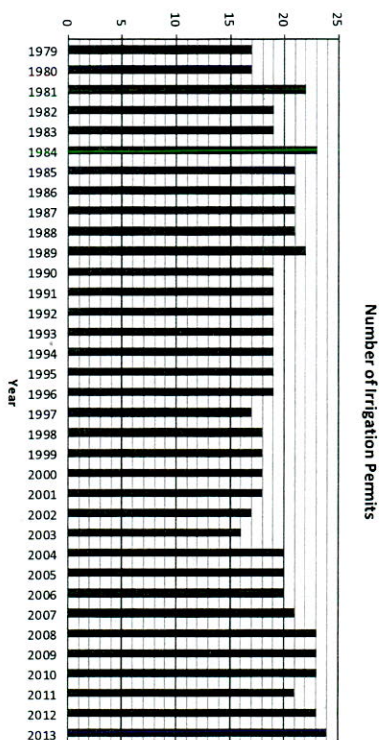
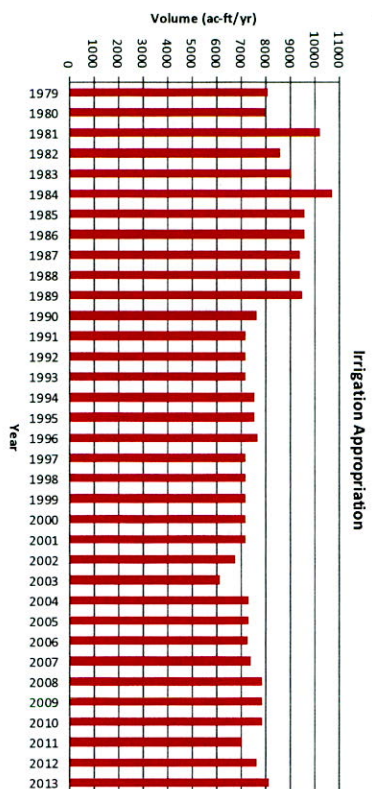
Discharge:

Discharge from the Choteau: Tyndall aquifer is through springs at the outcrop areas near Emmanuel Creek, evapotranspiration, outflow to contiguous Niobrara and Codell bedrock aquifers, and well withdrawals (Jorgensen, 1971). Currently there are a total of 26 water rights/permits appropriating water and two future use permits reserving water from the Choteau: Tyndall aquifer (Water Rights, 2013b).

The City of Tyndall holds two water rights, authorizing a total maximum diversion rate of 2.16 cfs, and two future use permits, authorizing a total reservation of 410 ac-ft/yr, from this aquifer. These are all for municipal use. Expected use of non-irrigation use water rights/permits limited by diversion rate can be estimated by assuming pumpage 60 percent of the time at the maximum diversion rate. Future use permits are assumed to be fully developable. However, the City of Tyndall has been using a rural water system as a primary source, and these water rights are maintained as a back-up source for uses such as fire protection. Effectively, the City of Tyndall is not expected to use these water rights or develop these future use permits.

The remaining 24 water rights/permits are authorized for irrigation use. The appropriation amount has remained fairly steady over the period of record, as shown in Figure 7. The average annual irrigation pumpage is currently 1,407 ac-ft/yr and varies from a minimum of 62 ac-ft/yr to a maximum of 3,932 ac-ft/yr (Water Rights, 1980-2013). This data indicates a huge variability in the data set, which can be seen in Figure 7. The annual irrigation pumpage can be attributed 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 there is relationship between these variables, they are difficult to predict. Since the end of the 2012 irrigation season, one water permit was authorized; this is not expected to significantly increase the overall use of the aquifer (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 Choteau: Tyndall aquifer (Water Rights, 2013c).



Irrigation Pumpage Reported

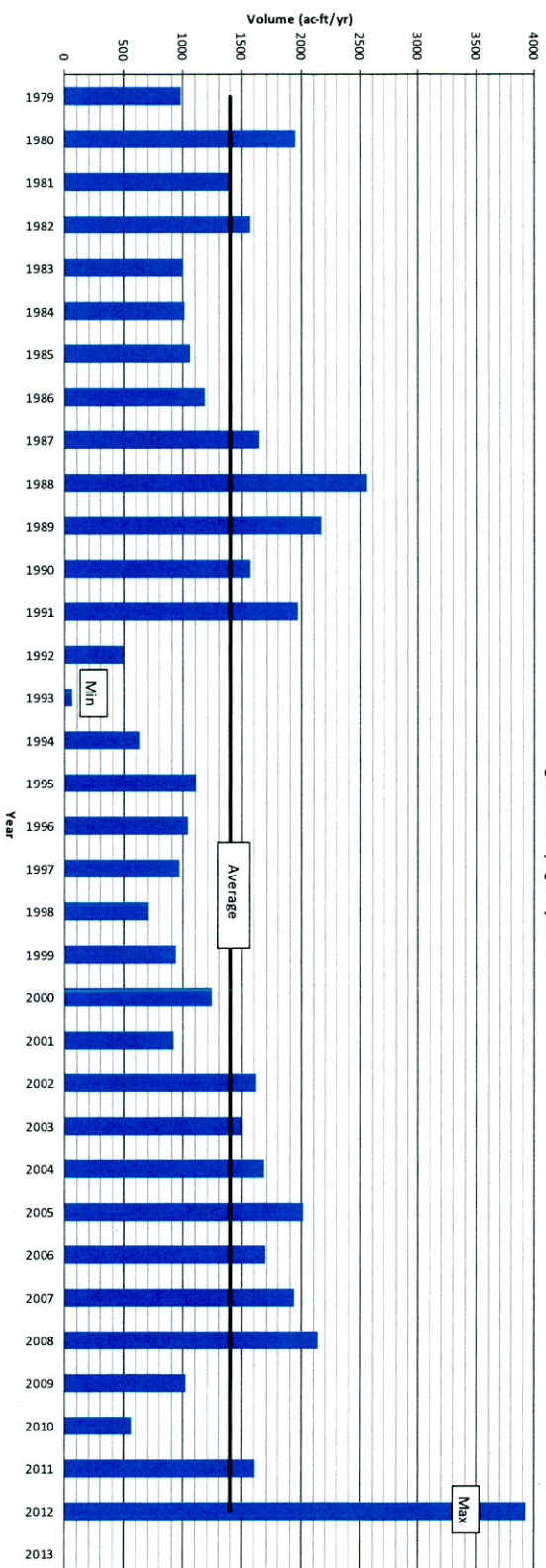


Figure 7. Historic irrigation water use from the Choteau: Tyndall aquifer (Water Rights, 1980-2013; Water Rights, 2013b)

Hydrologic Budget:

Recently, circuit court rulings stated 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 that it is probable that 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).

The average annual withdrawal is expected to be approximately 1,407 ac-ft/yr, while average annual recharge is estimated to be at least 1,700. Therefore, there is a reasonable probability that unappropriated water is available from the Choteau: Tyndall aquifer for the proposed appropriation.

Observation Well Data:

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

The DENR-Water Rights Program monitors eight observation wells completed into the Choteau: Tyndall aquifer (Water Rights, 2013a). Water levels in these observation wells strongly display cyclic conditions, recharging during wet years and declining during dry years. Pumpage is generally masked by climatic conditions. These wells record generally steady water levels in the aquifer over the period of record, indicating that recharge to and natural discharge from the aquifer greatly exceeds well withdrawal. Therefore, there is a reasonable probability that unappropriated water is available from the Choteau: Tyndall aquifer to support the proposed appropriation. Hydrographs of the nearest observation wells to the proposed well site are shown in Figures 8 and 9. Observation well BH-71C is located approximately three quarter miles north and BH-76C is located approximately three quarter miles east.

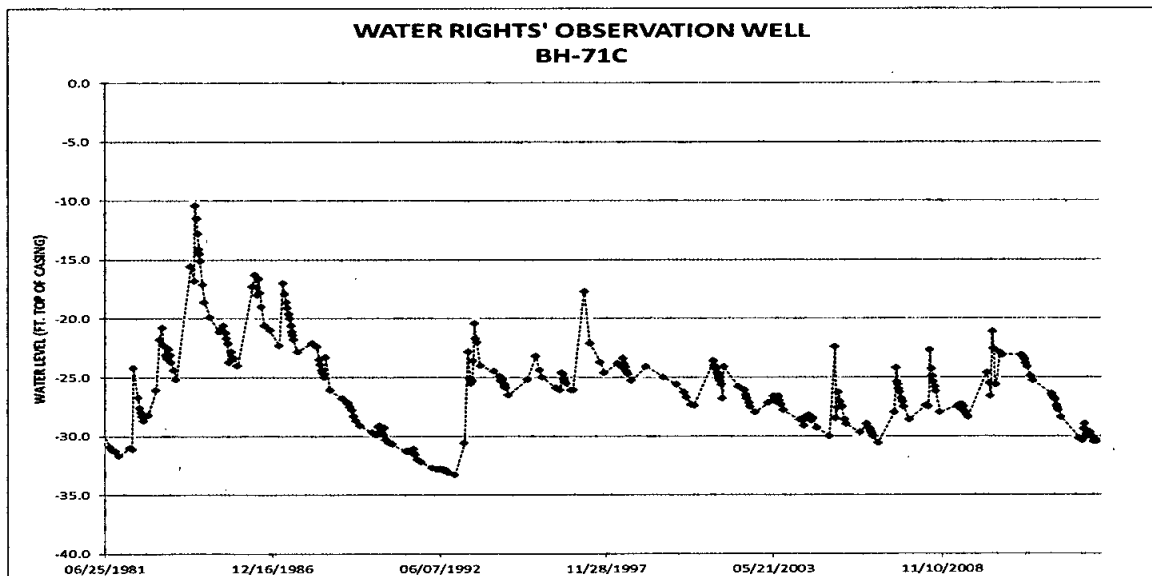


Figure 2: Hydrograph for observation well BH-71C (Water Rights, 2013a)

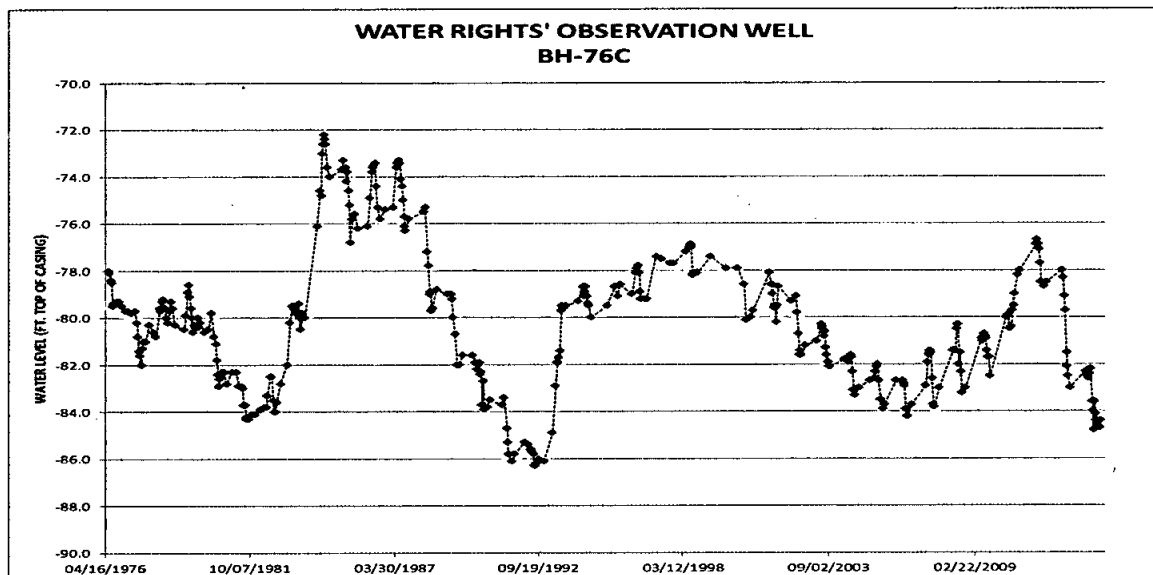


Figure 9: Hydrograph for observation well BH-76C (Water Rights, 2013a)

EXISTING WATER RIGHTS:

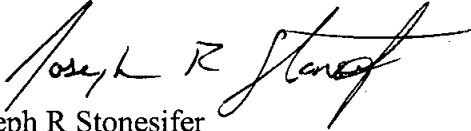
There are several wells completed into the Choteau: Tyndall aquifer in the area of the proposed well site. Within one mile, there are eight water rights/permits authorizing withdrawal from this aquifer, including the two water rights authorized to the City of Tyndall. The future use areas reserved by the City of Tyndall are located less than one half mile north. However, as previously discussed, these water rights and future use permits are not expected to be in use or developed. There are six domestic wells on file within one mile of the proposed well site that appear to be completed into the Choteau: Tyndall aquifer. However, also as previously discussed, many domestic wells are no longer in use due to the development of a rural water system in the area. The nearest well, a domestic well under the name Robert Ruppelt, is located approximately one half mile south.

The Choteau: Tyndall aquifer is generally confined. So, drawdown due to pumping is expected to extend relatively far from the well. However, in the area of proposed well site, the aquifer is under unconfined conditions, which could reduce drawdown effects. Jorgensen (1971) documented an aquifer transmissivity of 210,000 gallons per day per foot from an aquifer test in a well where that aquifer thickness was 130 feet. The aquifer where wells encounter thinner portions is expected to have much smaller transmissivity. The proposed well site is expected to encounter approximately 100 feet of aquifer materials, indicating a relatively favorable transmissivity in the area (Water Rights, 2013c). A favorable transmissivity, along with a thick aquifer under unconfined conditions, will reduce drawdown effects of pumping. 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. SDCL 46-6-6.1 does not require protection of artesian head pressure as a means of groundwater delivery. Depending on the characteristics of the aquifer in the area of the proposed well site, some existing well owners may need to lower their pumps to accommodate possible reduction of head pressure. Considering all this, nearby adequate wells are not expected to be adversely impacted by the proposed diversion.

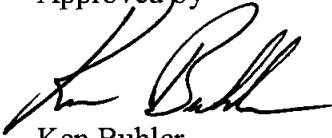
CONCLUSIONS:

1. This water permit application proposes to withdraw groundwater at a maximum diversion rate of 1.78 cfs from one well to be completed into the Choteau: Tyndall aquifer for the irrigation of 150 acres.
2. There is a reasonable probability that unappropriated water is available from the Choteau: Tyndall aquifer to supply the proposed appropriation.
3. There is a reasonable probability that this proposed diversion will not adversely impair existing nearby wells.



Joseph R Stonesifer
SD DENR-Water Rights Program

Approved by



Ken Buhler
SD DENR-Water Rights Program

REFERENCES:

- Hedges, L.S., Burch, S.L., Iles, D.L., Barari, R.A., and Schoon, R.A. 1982. Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa, Task 1: Bedrock Topography and Distribution, Task 2: Extent of Aquifers, Task 3: Ground-Water Storage, Task 4: Computerized Data Base, Final Report. U.S. Army Corps of Engineers Contract DACW 45-80-C-0185.
- Hedges, L.S., Allen, J., and Holly, D.E. 1985. Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa. Task 7: Ground Water Recharge. South Dakota DENR-Geological Survey, Vermillion, South Dakota.
- 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)
- SD Geological Survey. 2013. Lithologic Logs Database, South Dakota Department of Environment & Natural Resources Geological Survey, Vermillion, South Dakota.
- Jensen, A.R. 2012. First Occurrence of Aquifer Materials in Clay County, South Dakota. SD DENR-Geological Survey-Aquifer Materials Map 34. Vermillion, South Dakota.
- Jorgensen, D.G. 1971. Geology and water resources of Bon Homme County, South Dakota, Part II: Water Resources. South Dakota DENR-Geological Survey Bulletin 21, 61 p.
- Tomhave, D.W. and Schulz, L.D. 2004. Geologic Map Showing Configuration of the Bedrock Surface in South Dakota East of the Missouri River. SD DENR-Geological Survey, Vermillion, South Dakota.
- Water Rights, 1980-2013. "Irrigation Report Summaries." 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.

Affidavit of Publication

RECEIVED

JAN 27 2014

State of South Dakota }
County of Bon Homme } SS

WATER RIGHTS
PROGRAM

Rebecca Tydz Being first duly sworn says that the **Tyndall Tribune & Register** is a legal weekly newspaper for publication of legal and other official notices as required by Chapter 298 of the Session Laws of South Dakota, 1939; that it has bona fide paid circulation of more than two hundred copies weekly; that it is published in English language in the City of Tyndall, Bon Homme County, South Dakota, and has been admitted to the United States mail under second class mailing privilege for more than one year prior to the first publication of the notice herein mentioned, and that it is printed in an office maintained at the place of publication at Tyndall, South Dakota, and that deponent is the publisher in charge of the advertising department of said newspaper; that the advertisement headed

Not. of Application # 7922-3

666 @ 37.2

a printed copy of which is hereto attached, was printed and published in said newspaper for one successive weeks, upon the following dates:

Jan 15 2014	20
20	20
20	20
20	20

That the full amount of the fee charged for the publication of said notice, \$24.56, inures to the benefit of the publisher of said newspaper, that no agreement or understanding for the division thereof has been made with any other person, and that no part has been agreed to be paid to any person whomsoever.

Rebecca Tydz

Subscribed and sworn to before me this

15 day of Jan 2015

Peggy Schelske
Notary Public, South Dakota

My commission expires: Oct 24, 2015

NOTICE OF APPLICATION

NO. 7922-3 to Appropriate Water

Notice is given that Steve Johnson, 30468 411 Ave, Tyndall SD 57066 has filed an application for a water permit to appropriate 1.78 cubic feet of water per second from one well to be completed into the Choteau: Tyndall Aquifer (200 feet deep) located in the approximate center of the NW 1/4 Section 28 for irrigation of 150 acres located in the NW 1/4 Section 28; all in T94N-R60W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7922-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on this application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider this application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Eoss Building, 533 Capitol Pkwy, 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 January 27, 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 an approximate cost of \$24.56

(Jan. 15)

RECEIVED

JAN 21 2014

WATER RIGHTS
PROGRAM

AFFIDAVIT OF PUBLICATION

YANKTON DAILY PRESS AND DAKOTAN

Department of Environment and Natural Resources
PMB 2020
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3182

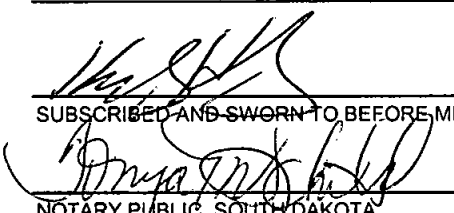
STATE OF SOUTH DAKOTA
COUNTY OF YANKTON

KELLY HERTZ BEING FIRST DULY SWORN ON OATH DEPOSES
AND SAYS THAT HE IS THE MANAGING EDITOR OF, YANKTON
MEDIA INC, A CORPORATION, THE PRINTER AND THE PUBLISHER OF THE
YANKTON DAILY PRESS AND DAKOTAN, A LEGAL DAILY NEWSPAPER
PUBLISHED AND CIRCULATED IN THE CITY OF YANKTON, SAID COUNTY
AND STATE, AND ONE OF THE OFFICIAL NEWSPAPERS OF THE SAID
COUNTY OF FACTS STATED IN THIS AFFIDAVIT; THAT THE ANNEXED
Application No. 7922-3

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE
NEWSPAPER ON THE 15th DAY OF January 2014
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION
OF SAID NOTICE TO WIT \$25.49 ENSURES TO THE
BENEFITS OF THE PUBLISHER OF SAID NEWSPAPER AND THAT NO
AGREEMENT AND UNDERSTANDING FOR THE DIVISION THEREOF HAS
BEEN MADE WITH ANY OTHER PERSON, AND THAT NO PART THEREOF
HAS BEEN AGREED TO BE PAID TO ANY PERSON WHOMSOEVER.

PUBLISHED ON: 1/15/2014

FILED ON: 1/15/2014

SUBSCRIBED AND SWORN TO BEFORE ME THIS 15th DAY OF January

NOTARY PUBLIC, SOUTH DAKOTA
MY COMMISSION EXPIRES 8/19/2015

1+15

NOTICE OF APPLICATION
NO. 7922-3 to Appropriate Water

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Published once at the total approximate cost of \$25.49.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

January 3, 2014

Tyndall Tribune & Register
PO Box 520
Tyndall SD 57066

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 7922-3 to Appropriate Water. Please publish the notice once on January 15, 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 Steve Johnson, 30468 411th Ave, Tyndall SD 57066 (Ph # 605-286-3309).

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

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

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

January 3, 2014

Press & Dakotan
319 Walnut
Yankton SD 57078

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Natural Resources Engineer
605 773-3352

enclosures



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

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

January 3, 2014

Steve Johnson
30468 411th Ave
Tyndall SD 57066

Dear Mr. Johnson:

Water Permit Application No. 7922-3 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 Tyndall Tribune & Register printed at Tyndall SD (Ph # 605-589-3242) and the Press & Dakotan printed at Yankton SD (Ph # 605-665-7811). You will need to contact the newspaper(s) and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

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

Sincerely,

Eric Gronlund
Natural Resources Engineer
(605) 773-3352
enclosures

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

Instruction to Newspaper - Publish the Notice on January 15, 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. 7922-3 to Appropriate Water

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Published once at the total approximate cost of _____.



DEPARTMENT OF ENVIRONMENT
and NATURAL RESOURCES

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PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov



FEB 20 2014

Steve Johnson
30468 411th Ave
Tyndall SD 57066

Dear Mr. Johnson:

Enclosed is Water Permit No. 7922-3 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

7922-3
RECEIVED

SEP 19 2014

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

Date

9/14/14

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

FROM:

Steve Johnson
(name)30468 411th ave
(address)Lyndall SD 57066
(city, state, zip)(605) 286-3309
(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. 7922-3 states that the water use system is to be constructed by

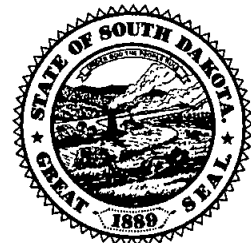
1/27/2019, and water is to be put to beneficial use by 1/27/2023.
(date) (date)

The water use system was completed on 5/1/2014.
(date)

Applying the water to beneficial use was completed on 5/15/2014.
(date)

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

[Signature]
(signature)





**DEPARTMENT OF ENVIRONMENT
and NATURAL RESOURCES**

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



September 22, 2014

7922-3

Steve Johnson
30468 411th Ave
Tyndall SD 57066

Dear Mr. Johnson:

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

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 7922-3

I have this day, June 19, 2018, made a thorough examination of the water use system constructed by Steve Johnson, 30468 411th Ave., Tyndall, SD 57066, holder of Permit No. 7922-3, bearing the priority of November 12, 2013 authorizing the diversion of 1.78 cu. ft. per second of the waters of groundwater (Choteau: Tyndall Aquifer) for irrigation purposes, in Bon Homme County.

Inspection contact: Steve Johnson, Owner

A. Works used to divert the water:

Well Information:

1) Well Drilling Firm: Hammond-Wetmore

Drilling, LLC

2) No. of Wells 1

3) Depth(s) 220 feet

4) Well log is available Yes

Casing:

1) Diameter 16 inches

2) Length 180 feet

3) Type Plastic

Screen:

1) Type PVC

2) Length 40 feet

3) Static water level 101 feet

Pump: Submersible

1) Make Unknown

2) Model Unknown

3) Capacity 700 GPM

Motor:

1) Make Unknown

2) Model No. Unknown

3) Horsepower rating Unknown hp

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

1) Type Galvanized 2) Size 8 inches 3) Length 20 feet

C. Works used to apply water to beneficial use:

Center pivot:

1) Make Valley

2) Overall length 1,290 feet

3) Number of towers 7

4) End gun Yes

5) Capacity 700 GPM

Chemigation Equipment:

- 1) Does chemigate No

D. Compliance with Permit Requirements:

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

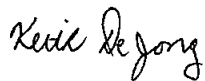
E. Condition and Location:

1. The system is in good condition with the point(s) of diversion located as follows: Well: 1,320 feet east and 1,340 feet south from the NW corner of Section 28-T94N-R60W (Latitude 42.93399, Longitude - 97.94606 – SW1/4NW1/4).
2. The works are capable of diverting and conveying to the place of use 1.56 cu. ft. per second of water which is to be used for irrigation purposes. Water has been put to beneficial use to the maximum extent as follows: all in Section 28-T94N-R60W

<u>NW1/4NW1/4</u>	<u>32 acres</u>
<u>NE1/4NW1/4</u>	<u>33 acres</u>
<u>SW1/4NW1/4</u>	<u>33 acres</u>
<u>SE1/4NW1/4</u>	<u>35 acres</u>

comprising a total of 133 acres of land and the license should be issued for 1.56 cfs.

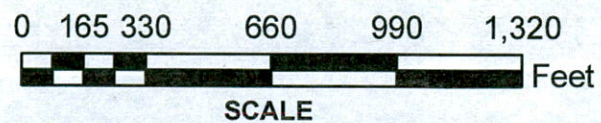
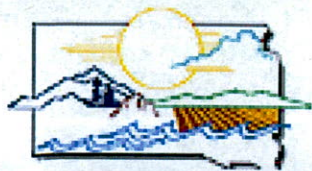
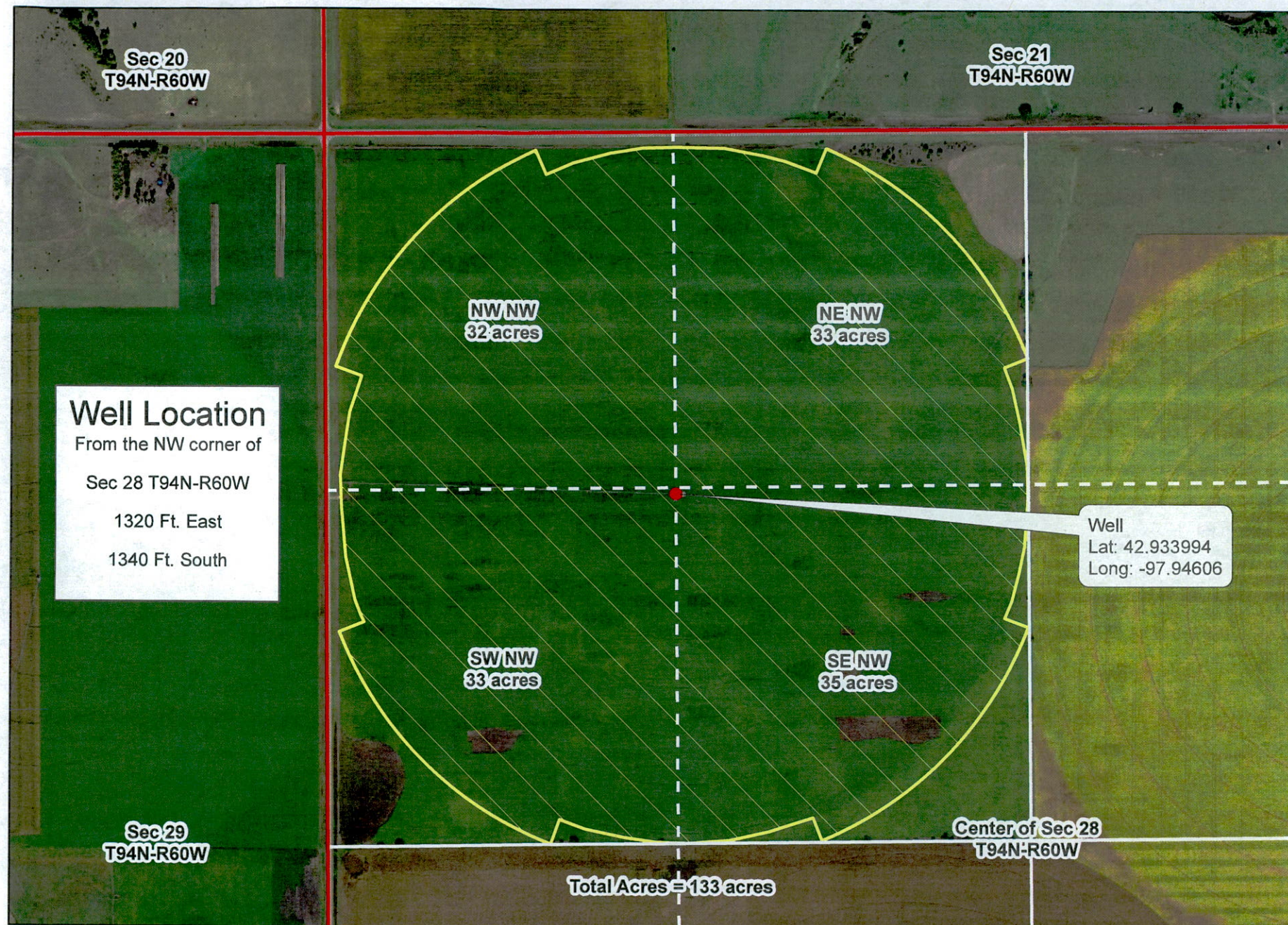
3. All structures, wells and lands on map Yes

F. Comments or other permit(s) associated with the project: None.

Keith DeJong
Water Rights Inspector
DENR, Water Rights Program

Date report completed: June 19, 2018

Water Right No. 7922-3



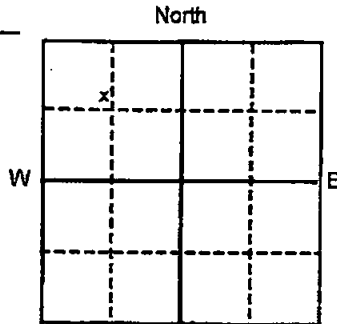
Keith DeJong
Keith DeJong, PE
Staff Engineer
June 19, 2018

7922-3

SD EForm - 1621LD V1

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location NW ¼ NW ¼ Sec 28 Twp 94N Rg 60WCounty Bon HommePlease mark well
location with an "X"

Well Completion Date

January 10, 2014

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
2,600.0 ft. from Septic Tank (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Reverse Rotary

CASING DATA:

If other describe ☐ Steel ☒ Plastic ☐ Other

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	<u>16.00</u> IN	<u>0.0</u> FT	<u>180.0</u> FT	<u>28.00</u> IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
<u>Bentonite</u>	<u>17</u>	<u>9.5</u> Lb/gal	<u>0.0</u> Ft	<u>175.0</u> Ft
		Lb/gal	Ft	Ft

Describe grouting procedure
Tremie Method

SCREEN:

☐ Perforated pipe ☒ Manufactured
 Diameter 16.00 Inches Length 40.0 Feet
Material PVCSlot Size .080 Set From 180.0 Feet to 220.0 Feet

Other information

WAS A PACKER OR SEAL USED?

☐ Yes ☒ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How?☒ No, Why Not?

Not Required

Lab to which water
quality sample sent for analysisWell Owner: Steve Johnson

Business Name:

Address: 30468 411th AveCity, State, Zip: Tyndall SD 57066

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
Top Soil	0	3
Brown Clay	3	31
Blue Clay	31	51
Sandy Blue Clay	51	57
Fine Sand	57	180
Coarse Sand & Gravel	180	220

STATIC WATER LEVEL 101.0 FEET

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other

Reduced flow rate _____ GPM

Can well be completely shut in?

WELL TEST DATA:

☒ Pumped Describe:☐ Bailed☐ Other

Pumping Level Below Land Surface

131.0 Ft. After 2.5 Hrs. pumped 1,100.0 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

RECEIVED

JAN 23 2014

WATER RIGHTS
PROGRAMThis well was drilled under license # 666 and this
report is true and accurate.Drilling firm: Hammond-Wetmore Drilling, LLC

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date: 1/21/2014



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

SEP 26 2018

7922-3

Steve Johnson
30468 411th Ave
Tyndall SD 57066

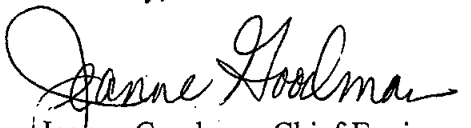
Dear Mr. Johnson:

Enclosed is Water License No. 7922-3. This is the final water right document completing your process of obtaining a Water Right. Included with your license is a map prepared by the staff engineer who conducted the field investigation.

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

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

Sincerely,


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

enclosures

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 7922-3

(1) Steve Johnson, 30468 411th Ave, Tyndall SD 57066 made Application No. 7922-3, November 12, 2013 for a water permit to divert 1.78 cubic feet of water per second from ground water, one well (Choteau Tyndall Aquifer, Bon Homme County, South Dakota for irrigation purposes. Permit No. 7922-3, with a priority date of November 12, 2013 was approved January 27, 2014 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before January 27, 2019 and for the application to beneficial use of water on or before January 27, 2023.

The Permit holder submitted a "*Notice of Completion of Works and Application of Water to Beneficial Use*" on September 19, 2014. The "*Notice*" stated the water use system was completed and the water placed to beneficial use in May, 2014.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to divert 1.56 cubic feet of water per second for beneficial use. The location of the diversion point is:

- 1,320'E and 1,340'S of the NW corner of Section 28, T94N, R60W (approximate center of NW ¼)
Latitude 42.93399, Longitude -97.94606

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

T94N, R60W Section 28	NW ¼ NW ¼	32 acres
	NE ¼ NW ¼	33 acres
	SW ¼ NW ¼	33 acres
	SE ¼ NW ¼	35 acres
Total		133 acres

(4) Pursuant to South Dakota Water Law 46-5-30.1 Steve Johnson, 30468 411th Ave, Tyndall SD 57066 the holder and/or owner of Water Right No. 7922-3 is issued a license to appropriate water, the right to use 1.56 cubic feet of water per second from ground water, one well (Choteau Tyndall Aquifer) with a priority date of November 12, 2013 from the location specified in (2) of this license for irrigation purposes.

This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Right No. 7922-3 and subject to the following qualifications:

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

continued

- The well authorized by Permit No. 7922-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with the 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 constructed by Hammond Wetmore Drilling LLC in January, 2014. A copy of the well completion report is 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

SEP 26 2018

date

