

DO NOT LICENSE
THIS IS A
TEMPORARY
WATER PERMIT

Mail to: DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8267-3</u> (office use only)	Hydrologic Unit <u>10170101</u>
	Basin <u>Missouri River</u>	
	Newspaper <u>Tyndall Tribune</u>	<u>605-589-3242</u>
	<u>Press-Tele. Junction</u>	<u>605-665-7811</u>

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FEB 15 2017
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 Vingil Tjeerdsma

Note: The "Name to Appear on Irrigation Permit" must be the name in which the property to be irrigated is held in.

Mailing Address 30628 414th av. Tyndall S.D. 57066
(Address) (City) (State) (Zip Code)

Phone _____ Mobile 605-464-1945 Email _____

2. Amount of water claimed 1.67*CFS or 750 **GPM ***AF Total Acreage 85
(*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 in SW 1/4 section 33 T-94-N-R-60-W
SNW (example - 3 wells in SW 1/4 NE 1/4 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 May 1 - Oct 1

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
(please go to map)			
S W 1/4 Sec 33 - T94N-R60W	85		

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

Requesting diversion rate greater than statutory limit

I, Vingil Tjeerdsma owner, the applicant, certify under
Name of Person Title (if applicable)

penalty of perjury that I have read this application, examined the attached map, and that the matters stated are true. I further certify, if acting on behalf of an entity or individual other than myself, that I am authorized to submit this application.

SOUTH DAKOTA
TEMPORARY WATER PERMIT NO. 8267-3

Date of first receipt of application February 15, 2017.

Date of return to applicant for corrections, amendments or changes February 16, 2017.

Date of receipt of corrected application February 24, 2017.

The Chief Engineer, on behalf of the Water Management Board, issues Temporary Water Permit No. 8267-3 to Virgil Tjeerdsma, 30628 414th 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. Temporary Water Permit No. 8267-3 appropriates 1.67 cubic feet of water per second from one well to be completed into the Tyndall management unit of the Choteau Aquifer (200 feet deep) located in the NW 1/4 SW 1/4 Section 33 for irrigation of 85 acres located in the SW 1/4 Section 33; 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 – October 1.
3. The date from which applicant may claim right is February 15, 2017.
4. The date of approval of Temporary Water Permit No. 8267-3 is May 15, 2017.
5. One-fifth of the construction is to be completed on or before November 15, 2019.
6. All construction is to be completed on or before May 15, 2022.
7. Water is to be put to beneficial use on or before May 15, 2026.
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 Tyndall has priority right to this water under future use withdrawal permits. Permit No. 8267-3 is issued as a temporary use permit pursuant to SDCL 46-5-39 and is subject to this prior right if or when the city of Tyndall develops their reserve water supply. Permit No. 8267-3 may be subject to cancellation when the water reserved under the future use permit is put to beneficial use. The Chief Engineer must provide the permit holder six months' 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. 8267-3 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. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

By: _____

Jeanne Goodman
Jeanne Goodman, Chief Engineer

Water Rights Program

Department of Environment and Natural Resources

MAY 18 2017

date



Supplemental Information

(type or print)

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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 _____ Provide copy of log(s), if available. Drilled by _____

For either Existing or Proposed Wells:

☒ c) Well Depth (required) 200' Depth to Top of Water Bearing Material _____ Depth to Water from Surface 10'

d) Distance to nearest domestic well on applicant's property apprx. 1,000 ft Property owned by others none

2. Wastewater Disposal System Information

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

b) System Capacity (gallons) _____ Year Constructed _____

c) Connected to the City of _____ Sanitary System

3. Dugout Information

a) Surface Dimensions _____ Depth _____

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

4. Water Storage Dams

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

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

b) Freeboard _____

c) Crest Width _____

Crest Length _____

d) Height _____

e) Primary Outlet Capacity _____

If pipe, diameter _____

f) Secondary Spillway Capacity _____

Spillway Width _____

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

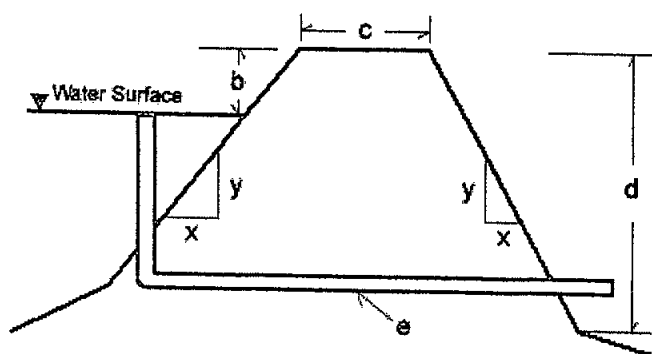
Upstream _____

Downstream _____

h) Surface Area of Impoundment _____

i) Storage _____ Acre Feet

j) Drainage Area Above Dam _____ Acres





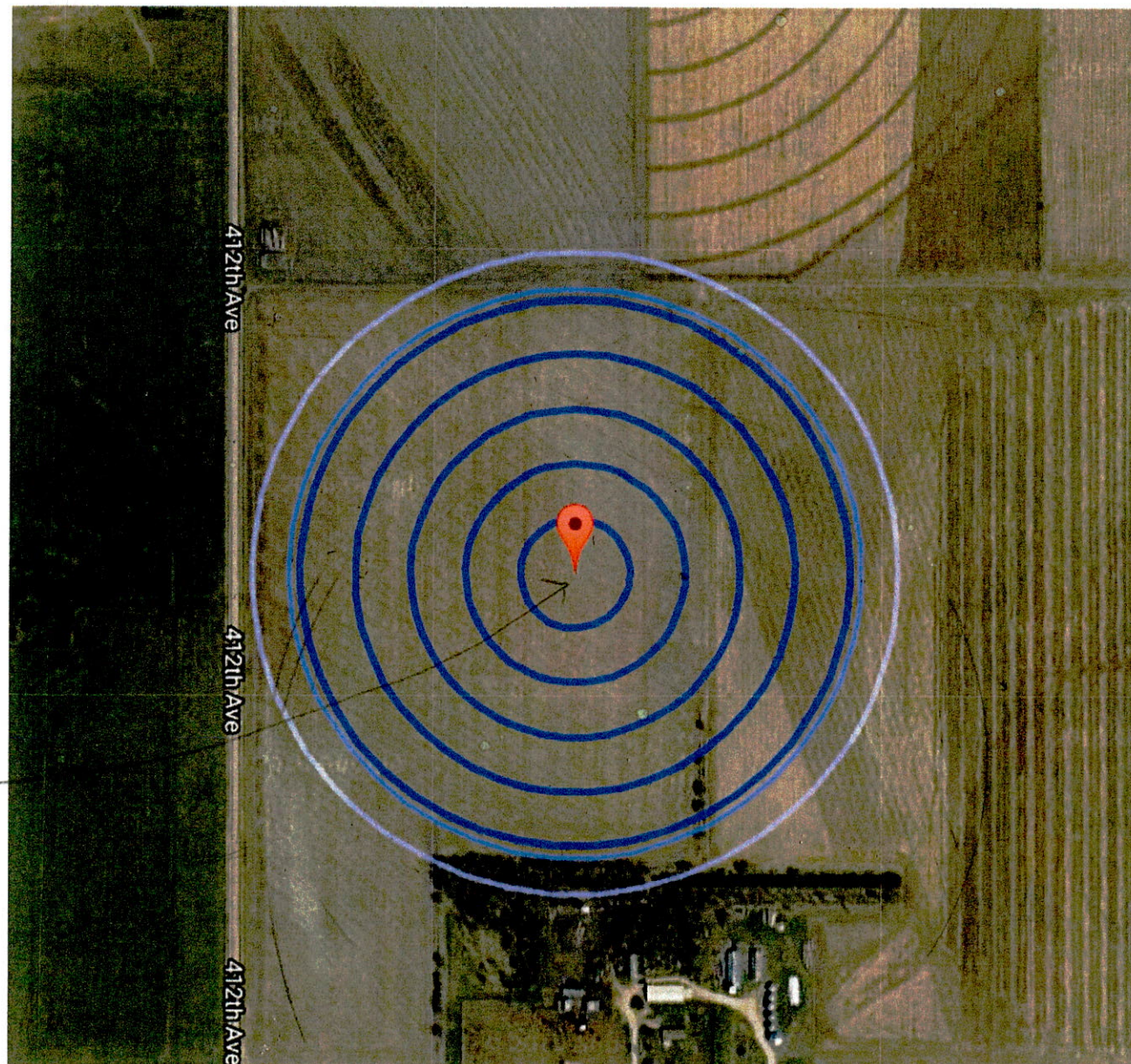
Prepared By: **Heine Electric and Irrigation, Inc.**

For: **Tjeerdsma, Cody**

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

Pivot center at 42.913285, -97.946866

- 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.
- Overhang 36 ft. Total: 936 ft.
Acreage: 4.77. Total: 63.27 acres.
- Spray 120 ft. Total: 1056 ft.
Acreage: 17.26. Total: 80.53 acres.



Section 33

T-94-N-R-60-W

Proposed well site

NW of SW 1/4

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Albion
Township

Springfield
12/29/2016 10:00 AM
TWN

Sec 20
T094N
R60W

Sec 21
T094N
R60W

Sec 22
T094N
R60W

Sec 29
T094N
R60W

Sec 28
T094N
R60W

Sec 27
T094N
R60W

Sec 32
T094N
R60W

Sec 33
T094N
R60W

Sec 34
T094N
R60W

Sec 5
T093N
R60W

Sec 4
T093N
R60W

Sec 3
T093N
R60W

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 2/16, 20 17

RECEIVED OF Virgil Tjeerdsma 30628 414th Ave Tyndall SD 57066

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

Fee for Application for Permit No. <u>8267-3</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>8267-3</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. **08184**

By *John Goodman*
Chief Engineer



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

February 16, 2017

Virgil Tjeerdsma
30628 414th Ave
Tyndall SD 57066

Dear Mr. Tjeerdsma:

Thank you for submitting the *Application for a Permit to Appropriate Water* for irrigation in Bon Homme County. In order to complete the application, the following is required.

- Enclosed is the Form 2A, Supplemental Information. On Item No. 1 regarding the Well Information, please complete c) Well Depth with proposed well depth. I have reviewed nearby irrigation permits as well as your own. The wells depths range from 220 to 180 feet deep.
- State Statutes limit diversions to 1 cubic feet of water per second (cfs) for each 70 acres irrigated. This would mean that you are allowed approximately 1.21 cfs or 544 gpm to irrigate the total 85 acres. We understand that in order to accommodate certain irrigation methods, a greater diversion rate is required. Please justify in writing your request for a diversion rate greater than the statutory limit (please explain diversion rate requirement for the project).

If you have any questions, please contact me.

Sincerely,

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

enclosure

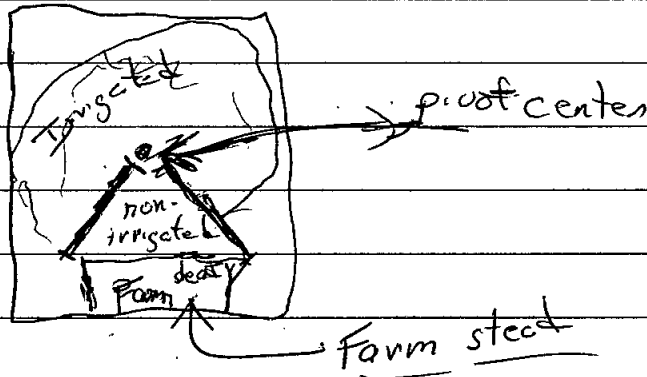
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Dear Koren,

On the state Statutes limit diversions,
I put in the amount of 750 gpm because
of the pivot is ~~hopefully~~ be a $\frac{1}{4}$ mile system
which works the best with this amount of
water, but the pivot would not be making
a full circle, basically windshield wiper.
The pumps on the well can also be set
to pump less (or 500 gpm) 750 gpm is just
the common setting for the $\frac{1}{4}$ mile pivot.



Thank you
Vangel
Spencer

(Very poor drawing, but hope this explains it!)



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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PIERRE, SOUTH DAKOTA 57501-3182

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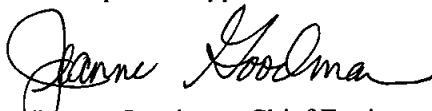
**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 8267-3, Virgil Tjeerdsma**

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. 8267-3, Virgil Tjeerdsma, 30628 414th Avenue, Tyndall SD 57066.

The Chief Engineer is recommending APPROVAL of Application No. 8267-3 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 the city of Tyndall, holder of a future use permit from the Choteau:Tyndall aquifer fully develops 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 Tyndall has priority right to this water under future use withdrawal permits. Permit No. 8267-3 is issued as a temporary use permit pursuant to SDCL 46-5-39 and is subject to this prior right if or when the city of Tyndall develops their reserve water supply. Permit No. 8267-3 may be subject to cancellation when the water reserved under the future use permit is put to beneficial use. The Chief Engineer must provide the permit holder six months' 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. 8267-3 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. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.


Jeanne Goodman, Chief Engineer
April 25, 2017

**REPORT TO THE CHIEF ENGINEER
ON
WATER PERMIT APPLICATION NO. 8267-3
VIRGIL TJEERDSMA
MARCH 17, 2017**

Water Permit Application No. 8267-3 proposes to appropriate water from the Tyndall management unit of the Choteau aquifer for irrigation purposes. The application proposes to divert water from one well, approximately 200 feet deep, at a maximum diversion rate of 1.67 cubic feet of water per second (cfs). The well is to be located in the NW¼SW¼ Sec. 33, T94N-R60W and the 85 acres to be irrigated are located in the SW¼ Sec. 33, T94N-R60W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres.

AQUIFER: TYNDALL MANAGEMENT UNIT OF THE CHOTEAU AQUIFER

GEOLOGY AND AQUIFER CHARACTERISTICS:

A test hole log was not submitted with this permit application. Within approximately one and one-half miles of the well site proposed by this application there are 18 water rights/permits appropriating groundwater from either the Tyndall management unit of the Choteau aquifer, the Niobrara aquifer or the Codell aquifer. The applicant was contacted, and he indicated his intent was to complete a well into the Choteau:Tyndall aquifer (V. Tjeerdsman, personal communication, March 22, 2017). DENR-Water Rights Program monitors an observation well completed into the Choteau: Tyndall aquifer within 1,000 feet west-southwest of the well site proposed by this application. The log for the observation well identifies glacial outwash from 38-174 feet below grade, glacial till from 174-204 feet below grade, and glacial outwash from 204-228 feet below grade. The log identifies bedrock (Niobrara Formation) at a depth of 228 feet below grade (Water Rights, 2017a).

Although the well site proposed by this application is west of any outwash deposit mapped by Jensen (2012), the altitude that the sand was encountered along with the elevation of the potentiometric surface at nearby domestic well corresponds with the Tyndall Management Unit of the Choteau aquifer.

The Tyndall Management Unit of the Choteau aquifer is a buried outwash deposit that fills a preglacial valley in central Bon Homme County. Originally this outwash was named the Tyndall-Scotland aquifer (Jorgensen, 1971) and was thought to extend to the northeast, ultimately into Yankton and Hutchinson Counties. Hedges and others, (1982) separated the "Tyndall-Scotland" aquifer into the Choteau: Tyndall aquifer and the Scotland Management Unit of the Lower James Missouri aquifer, which is located to the northeast of the Choteau: Tyndall. Observation well data suggests groundwater movement from north to south/east to west in the Choteau: Tyndall and to the north/east in the Lower James Missouri-Scotland aquifer. The boundary between the Choteau: Tyndall and Lower James Missouri: Scotland aquifers was identified near the southeast corner of T95N-R59W. The Choteau: Tyndall aquifer terminates to the southwest where Emmanuel Creek has completely incised the aquifer. Hedges and others, (1982) estimate the Choteau: Tyndall aquifer underlies approximately 31,300 acres of Bon

Homme County and contains an estimated 140,850 acre-feet of recoverable water in storage in the county. Jensen (2012) portrayed an outwash deposit located in a channel in the Niobrara Formation bedrock underlying approximately 25,800 acres of Bon Homme County between the Lower James Missouri-Scotland and Choteau: Tyndall divide identified by Hedges and others (1982) and the southwest terminus of the Choteau: Tyndall at Emmanuel Creek. The aquifer is generally under confined conditions, however unconfined conditions exist locally. The aquifer is under unconfined conditions at this well site.

Capacities of seven nearby irrigation wells that are completed into the Choteau: Tyndall aquifer range from 500-1,000 gpm and specific capacities of the wells range from under 7 (gpm)/ft. to over 43 (gpm)/ft. (Buhler, 2012). The aquifer transmissivity calculated from the reported specific capacities ranges from 9,855 to 65,205 gal/day/ft. (Buhler, 2012). An aquifer test conducted at a Tyndall municipal well that is completed into the Choteau: Tyndall aquifer indicated a transmissivity of 210,000 gal/day/ft. and a storage coefficient of 0.2 (Jorgensen, 1971).

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:

Assuming the statutory limit of two ac-ft/yr per irrigated acre, this application proposes to appropriate up to 170 acre-feet annually (ac-ft/yr). However, the average annual water demand for the irrigation of 85 acres as proposed by this application is expected to be significantly less than the appropriation.

There are 26 water rights/permits appropriating water from the Choteau: Tyndall aquifer for irrigation. Historic irrigation application rates are shown for these appropriations in Table 1. The average of these annual reported irrigation application rates is 8.01 inches per acre per year (in/ac/yr). Excluding the irrigation at Bon Homme Country Club (Water Right No. 2743-30, the average annual irrigation application rates reported from the Choteau: Tyndall aquifer is 7.56 in/ac/yr.

Assuming an average annual irrigation application rate of 8 inches per year, the water demand for the irrigation of 85 acres is estimated to be approximately 57 acre-feet annually.

Table 1. Annual irrigation application rates reported by operators of water rights/permits appropriating water from the Choteau: Tyndall aquifer (Water Rights, 2006-2016).

	Water Right/Permit No.	Annual Application Rate (inches per acre)										App Rate/appropriation	
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Max	Ave
	2587-3	9.85	4.92	5.76	2.27	2.65	7.58	13.22	20.08	8.08	11.24	20.08	8.57
	2743-3	12.28	11.96	11.48	9.26	28.64	38.45	56.63	7.46	5.97	7.46	56.63	18.96
	3576-3	10.13	8.67	11.68	5.7	1.85	5.61	17.33	8.45	8.72	3.96	17.33	8.21
	3579-3	8.63	7.51	8.74	2.4	1.2	7.93	8.06	6.47	7.91	4.53	8.74	6.34
	3581-3	6.66	10.97	9.51	5.58	0	9.48	18.77	11.19	14.09	10.62	18.77	9.69
	3582A-3	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	3811-3	7.56	10.1	11.28	4.84	1.26	6.52	20.71	10.47	13.3	8.06	20.71	9.41
	4650-3	9.4	6.05	7.99	2.27	2.4	6.57	9.93	8.32	6.6	2.78	9.93	6.23
	5060-3	2.04	6.48	4.86	2.63	0.63	2.21	13.26	2.39	1.86	6.77	13.26	4.31
	5286-3	5.13	5.37	5.84	5.43	2.78	6.32	15.8	4.24	6.19	3.93	15.80	6.10
	5424-3	15.18	12.28	9.21	6.4	1.49	5	19.35	10.47	8.39	3.1	19.35	9.09
	5513-3	5.78	8.46	12.53	1.93	4.18	3.86	12.44	4.18	9.14	4.55	12.53	6.71
	3583B-3	7.56	7.26	9.38	4.1	3.05	6.47	18.2	6.99	7.21	9.56	18.20	7.98
	6372-3	15.62	16.7	8.94	5.17	2.49	5.08	17.05	12.51	7.53	5	17.05	9.61
	6413-3	3.85	5.28	7.71	2.65	0	4.5	9.09	11.19	9.5	2.39	11.19	5.62
	6454-3	7.42	5.89	9.93	3.04	3.13	7.75	6.4	6.09	8.9	6.09	9.93	6.46
	6465-3	14.49	11.04	13.26	15.87	4.67	15.22	21.37	9.43	6.51	8.15	21.37	12.00
	6496-3	10.29	13.1	10.92	9.05	5.3	9.67	20.94	8.73	8.11	5.85	20.94	10.20
	6791-3	0	0	0	0	0	0	31.42	16.85	12.58	11.72	31.42	7.26
	6902-3		0	23.64	5.83	4.92	20.52	47.27	16.62	15.59	12.27	47.27	16.30
	6903-3		0	16.55	2.48	4.61	10.98	11.84	8.01	12.17	8.88	16.55	8.39
	7327-3						0	0	10.93	7.87	7.79	10.93	5.32
	7331-3						0	9.45	2.2	2.59	6.38	9.45	4.12
	7543-3							0	0	5.65	5.53	5.65	2.80
	7922-3								0	2.98	4.61	4.61	2.53
	8060-3									0	2.78	2.78	1.39
App Rate/year	Max	15.62	16.70	23.64	15.87	28.64	38.45	56.63	20.08	15.59	12.27		
	Ave	7.99	7.24	9.49	4.61	3.58	7.81	16.61	8.13	7.59	6.31		

Note: Water Right No. 2743-3 is held by Bon Homme Country Club and may reflect higher water demands of irrigating turf. No irrigation was reported under Water Right No. 3582A-3 from 2006-2011 and from 2013-2105 due to sufficient moisture. The 2012 irrigation questionnaire for Water Right No. 3582A-3 indicated no irrigation because the system was not constructed.

The probability of 57 ac-ft/yr 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 water distribution system has applied for a permit, the Board need not consider the recharge/withdrawal issue. Here, the source is not older than the Greenhorn Formation and a water distribution system is not involved. Therefore, the withdrawal/recharge issue must be considered.

Recharge:

Recharge to the Choteau: Tyndall aquifer is through inflow from Emmanuel Creek (Jorgensen, 1971), and potentially inflow from contiguous bedrock aquifers such as the Niobrara, Codell, and Dakota aquifers. Jorgensen (1971) also claims that infiltration is occurring as percolation of precipitation through overlying till. However, it is unclear to what extent local precipitation contributes to recharge.

Hedges and others (1985) estimated a recharge rate of 3.2 inches per acre per year (in/ac/yr) for unconfined portions of the Choteau: Tyndall aquifer. Stonesifer (2013) applied Hedges and others’ methodology in 2013 to estimate an average recharge rate of 7.2 in/ac/yr to the Choteau: Tyndall aquifer. Stonesifer estimated that the unconfined portions of the aquifer encompassed approximately 2,800 acres. Therefore, the minimum recharge to the Choteau: Tyndall aquifer was estimated to be 1,700 ac-ft/yr. Capen (2014) extended the observation well period of record used by Stonesifer, and applying Stonesifer’s assumptions, estimated a minimum average annual recharge of 1,408 ac-ft/yr.

Discharge:

Discharge from the Choteau: Tyndall aquifer is through springs near Emmanuel Creek, evapotranspiration, and well withdrawals (Jorgensen, 1971) as well as potential outflow to adjacent portions of the Niobrara and Codell bedrock aquifers. Currently there are a total of 29 water rights/permits appropriating water and one future use permit reserving water from the Choteau: Tyndall aquifer (Water Rights, 2017b). The City of Tyndall holds two water rights (Nos. 1075-3 and 4839B-3), authorizing a total maximum diversion rate of 2.16 cfs. However, the City of Tyndall is supplied by BY Rural Water System and the water rights are maintained only as a back-up source for uses such as fire protection. Consequently, withdrawals under water rights held by the City of Tyndall are assumed to be negligible. The City of Tyndall holds Future Use Permit No. 4839A-3 that reserves 410 ac-ft/yr, from this aquifer. There are 26 water rights/permits appropriating water from the Choteau: Tyndall aquifer for irrigation purposes. Temporary Water Permit Nos. 8060-3 and 8244-3 held by Douglas Johnson authorizes temporary appropriations of water reserved under Future Use Permit No. 4839A-3 pursuant to SDCL 46-5-39. Historic irrigation usage from the Choteau: Tyndall aquifer is shown in Table 2.

Table 2. Historic irrigation water use from the Choteau: Tyndall aquifer (Water Rights, 1980-2016).

Year	Number of Permits Reporting	Appropriation (ac-ft/yr)	Pumpage Reported (ac-ft/yr)
1979	17	8079.0	983.0
1980	17	7966.0	1943.0
1981	22	10210.0	1418.0
1982	19	8576.0	1564.7
1983	19	9043.0	996.7
1984	23	10710.0	1012.1
1985	21	9551.0	1056.2
1986	21	9551.0	1184.2
1987	21	9393.0	1645.7
1988	21	9393.0	2545.9
1989	22	9470.0	2173.9
1990	19	7604.0	1570.5
1991	19	7154.0	1961.5
1992	19	7154.0	489.3
1993	19	7154.0	61.2
1994	19	7523.0	633.7
1995	19	7523.0	1104.2
1996	19	7672.0	1034.8
1997	17	7179.0	964.0
1998	18	7179.0	708.2
1999	18	7179.0	939.2
2000	18	7179.0	1235.8
2001	18	7179.0	919.7
2002	17	6759.0	1613.7
2003	16	6138.0	1496.0
2004	20	7288.0	1680.1
2005	20	7288.0	2006.8
2006	20	7240.0	1693.3
2007	21	7410.0	1931.4
2008	23	7824.0	2138.4
2009	23	7824.0	1024.0
2010	23	7824.0	559.6
2011	21	7035.0	1609.7
2012	23	7629.0	3931.5
2013	24	8127.0	2078.8
2014	25	8427.0	2212.2
2015	26	8647.0	1670.9
Max	26	10710	3931.51
Min	16	6138	61.2
Average	20	7975	1454

Hydrologic Budget:

The average annual withdrawal of water from the Choteau: Tyndall aquifer was calculated to be approximately 1,454 ac-ft/yr from irrigation questionnaires spanning 1979-2015. An additional 410 ac-ft/yr is reserved for future use permits held by the City of Tyndall. Average annual recharge has been estimated to be 1,000 ac-ft/yr (Hedges, 1985; Jorgensen, 1971), 1,700 ac-ft/yr (Stonesifer, 2013) and approximately 1,400 ac-ft/yr (Capen, 2014). Expected average annual

withdrawal over the period of record may exceed the average annual recharge estimates if the future use permit is fully implemented.

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 in addition to other data 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 10 observation wells completed into the Choteau: Tyndall aquifer (Water Rights, 2017a). Hydrographs for the observation wells are shown in Figures 1-10.

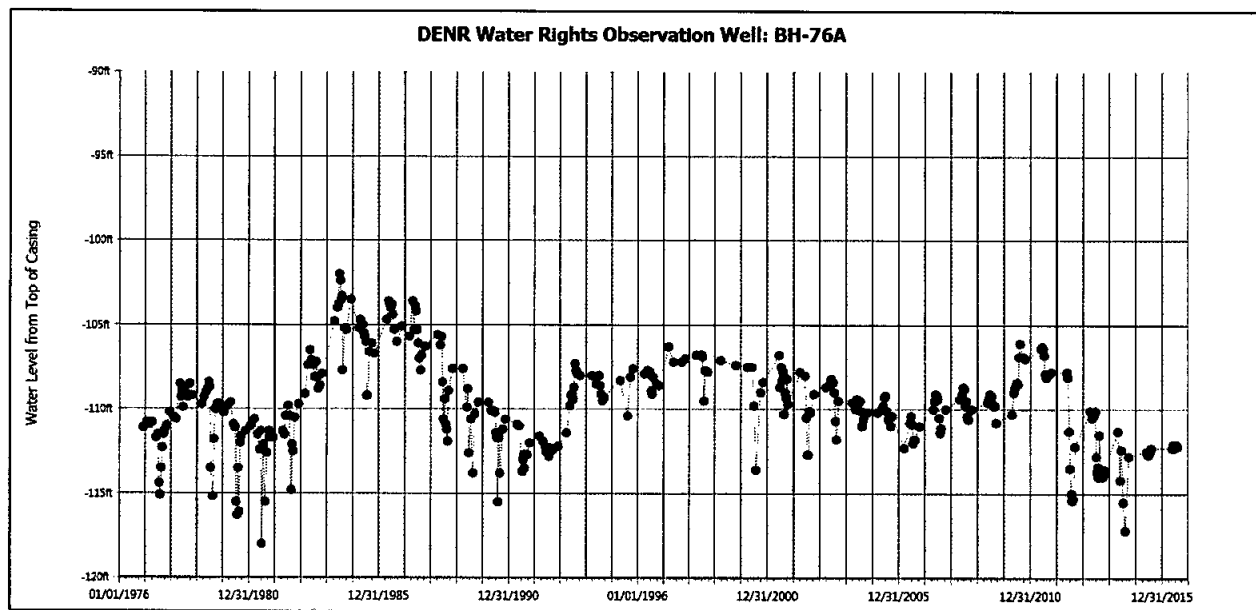


Figure 1. Hydrograph for observation well BH-76A which is completed into the Choteau: Tyndall aquifer approximately 5.5 miles north-northeast of the well site proposed by this application.

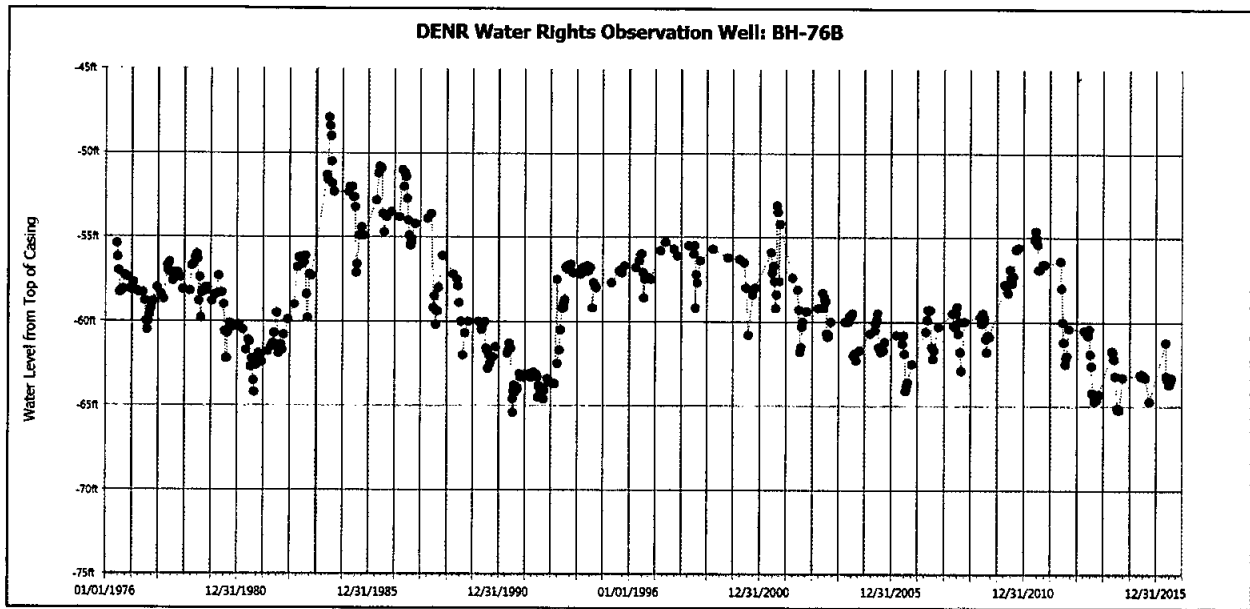


Figure 2. Hydrograph for observation well BH-76B which is completed into the Choteau: Tyndall aquifer approximately 3.25 miles north-northeast of the well site proposed by this application.

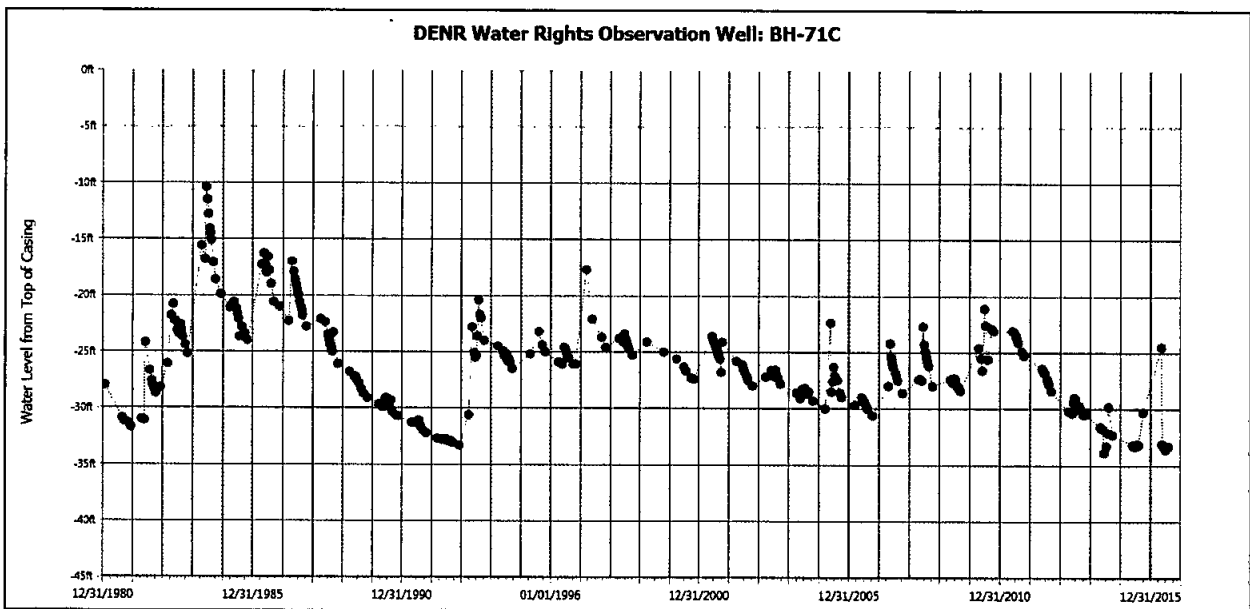


Figure 3. Hydrograph for observation well BH-71C which is completed into the Choteau: Tyndall aquifer approximately 2.15 miles north of the well site proposed by this application.

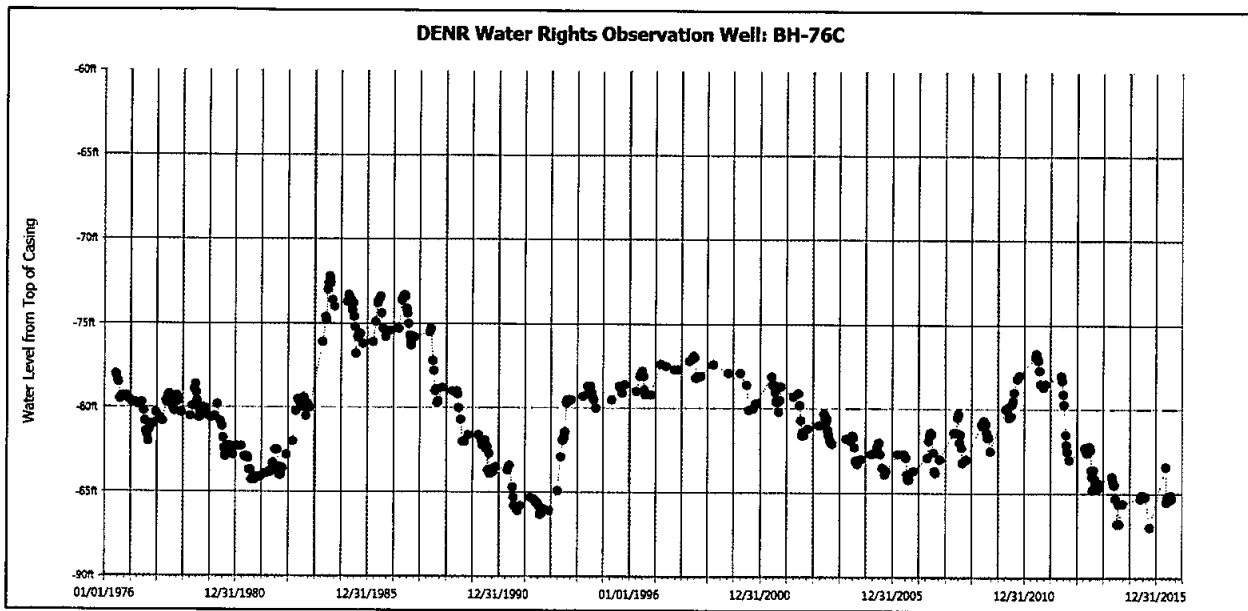


Figure 4. Hydrograph for observation well BH-76C which is completed into the Choteau: Tyndall aquifer approximately 1.8 miles northeast of the well site proposed by this application.

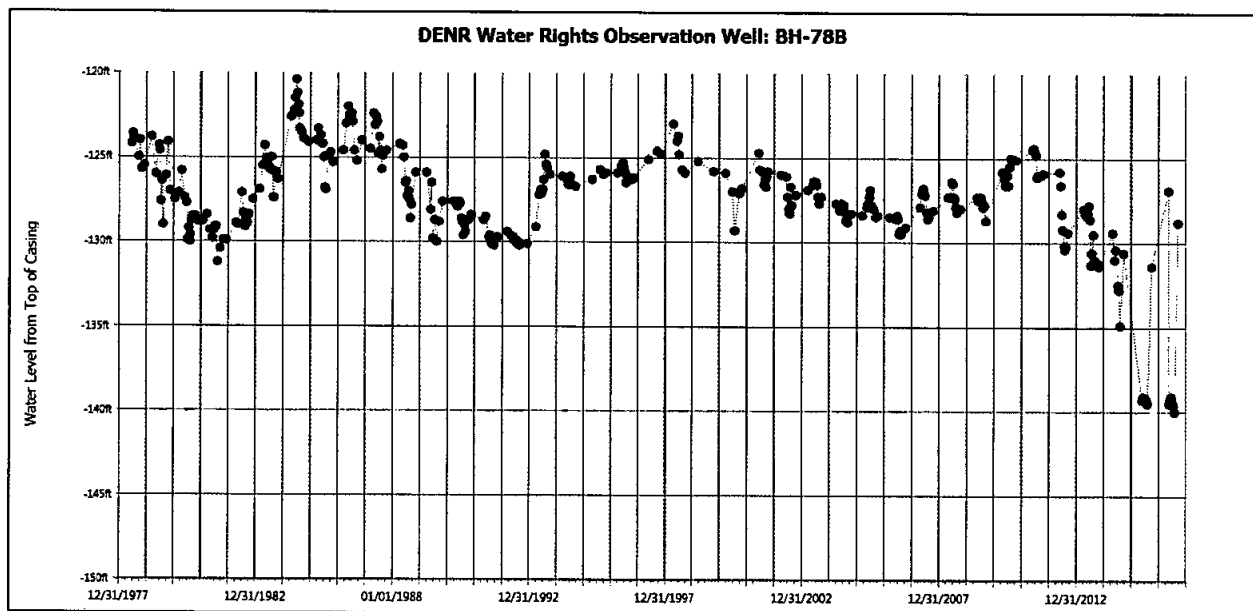


Figure 5. Hydrograph for observation well BH-78B which is completed into the Choteau: Tyndall aquifer approximately 2.3 miles northwest of the well site proposed by this application.

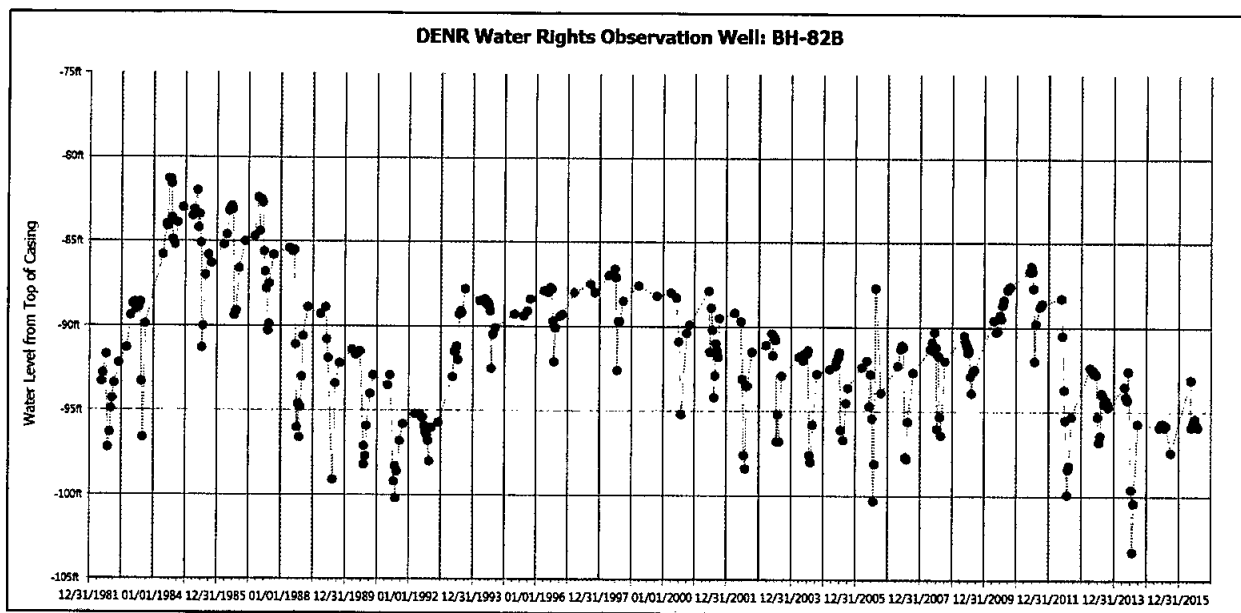


Figure 6. Hydrograph for observation well BH-82B which is completed into the Choteau: Tyndall aquifer approximately 4 miles northeast of the well site proposed by this application.

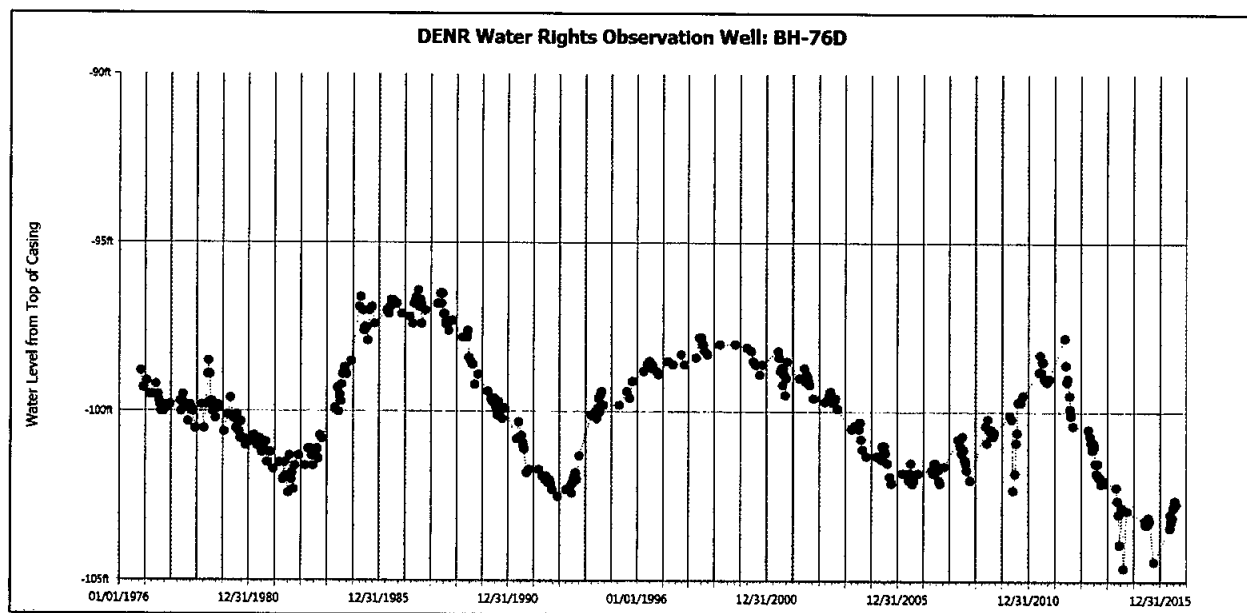


Figure 7. Hydrograph for observation well BH-76D which is completed into the Choteau: Tyndall aquifer approximately 1000 feet west of the well site proposed by this application.

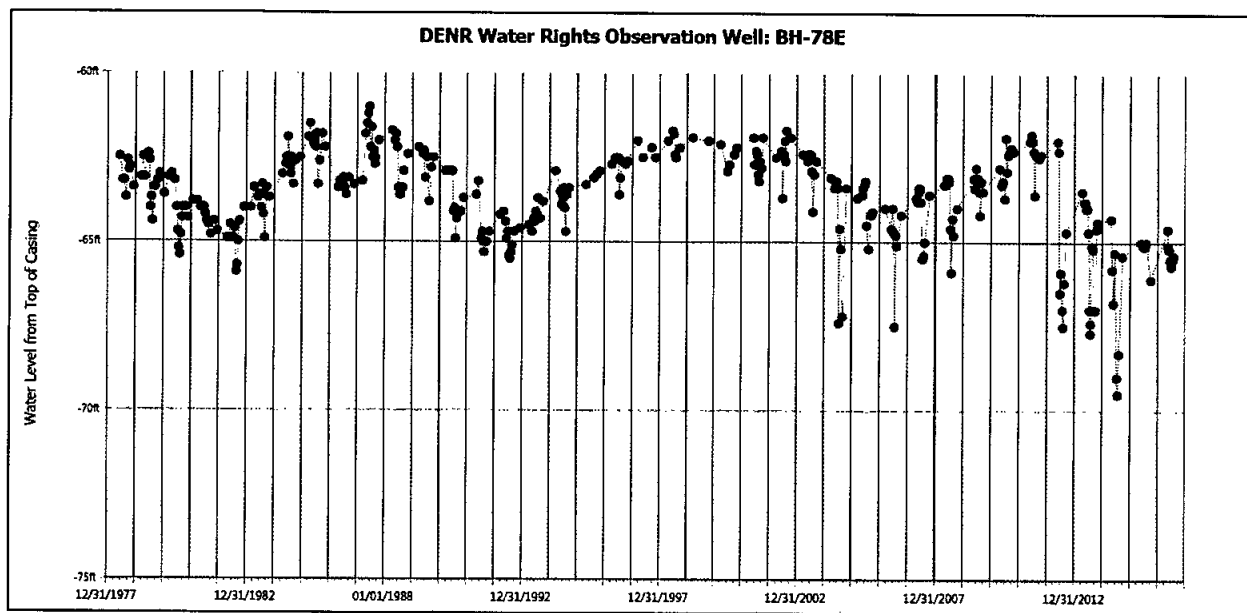


Figure 8. Hydrograph for observation well BH-78E which is completed into the Choteau: Tyndall aquifer approximately 1.8 miles southwest of the well site proposed by this application.

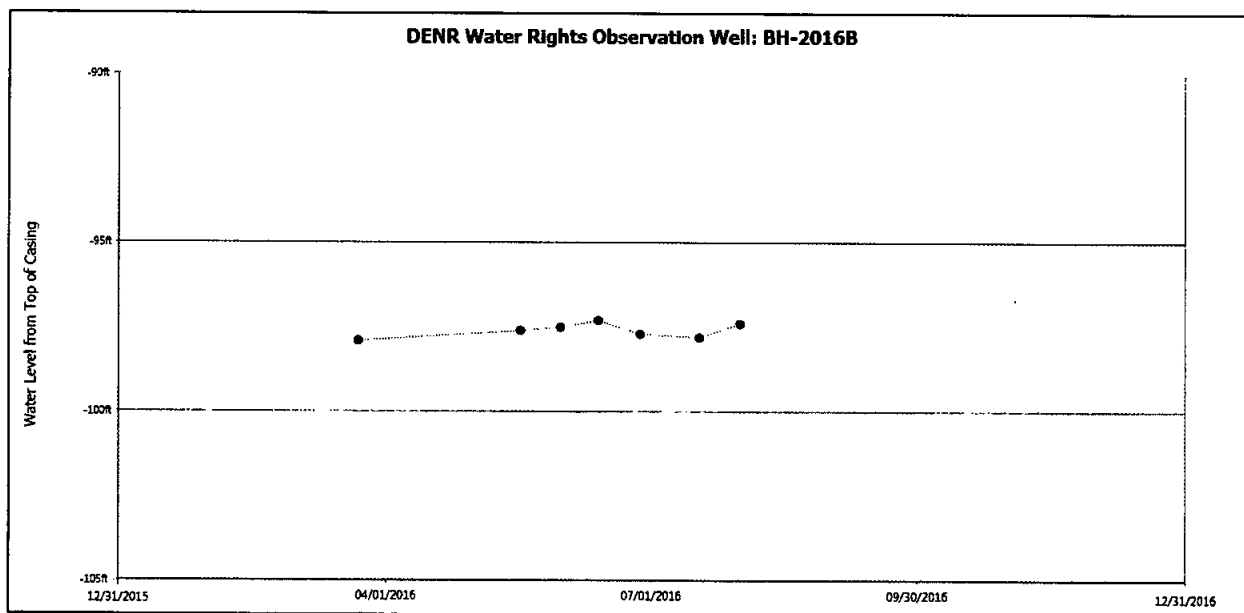


Figure 9. Hydrograph for observation well BH-2016B which is completed into the Choteau: Tyndall aquifer approximately 10.25 miles northeast of the well site proposed by this application.

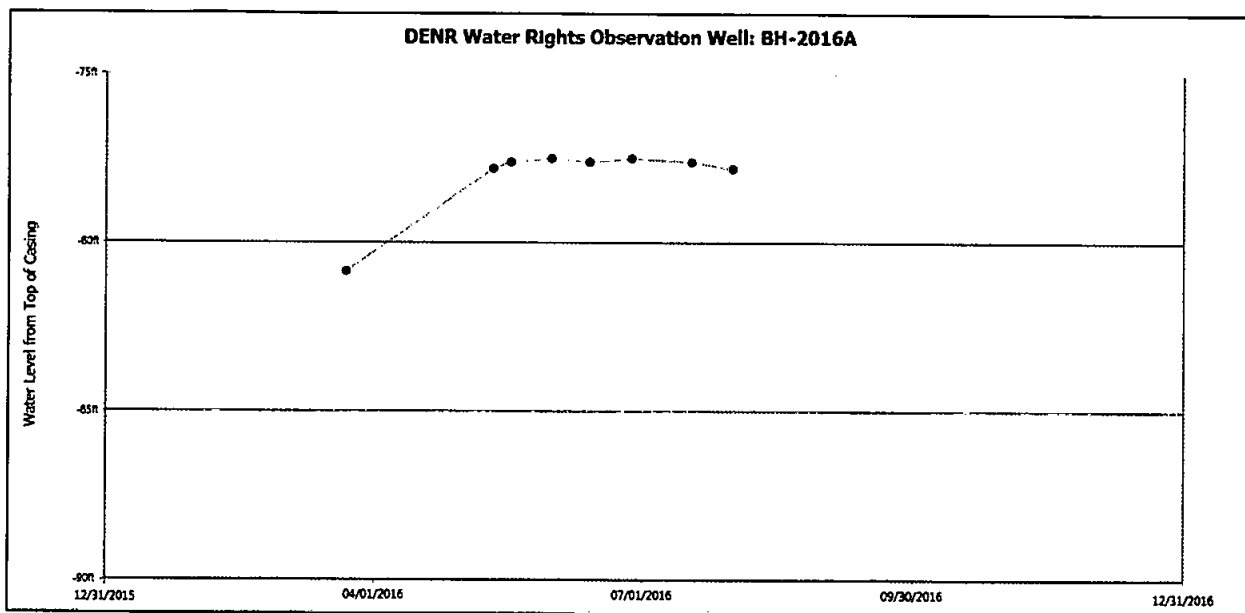


Figure 10. Hydrograph for observation well BH-2016A which is completed into the Choteau: Tyndall aquifer approximately 9.5 miles east-northeast of the well site proposed by this application.

Capen (2014) demonstrated that all eight of the observation wells that were completed into the Choteau: Tyndall aquifer at the time his report was produced displayed a declining trend line in water levels. Capen concluded that the combination of withdrawal and recharge have resulted in a decrease in the amount of water in storage in the Choteau: Tyndall aquifer and average annual recharge is not keeping pace with average annual withdrawals. Thus, Capen contended the observation well data supports the recharge estimates using the observation well analysis method introduced by Hedges and others (1985).

However, the observation well analysis used to estimate recharge developed by Hedges and others (1985), and updated for the Choteau: Tyndall aquifer by Stonesifer (2013) and Capen (2014) essentially assumes that a rise in the water level of an aquifer is the product of recharge only. In actuality, a water level rise is the result of recharge to the aquifer exceeding discharge from the aquifer. To account for this, the observation well data may be interpreted slightly differently. The annual water level change measured in observation wells completed into the unconfined portion of the Choteau: Tyndall aquifer was used to estimate an annual difference between recharge to the aquifer and discharge from the aquifer. The average annual change in water level for the aquifer multiplied by the specific yield (assumed to be 0.20) and multiplied by the area of the unconfined portion of the aquifer (assumed to be 2,800 acres) represents the difference between recharge and discharge (i.e. the change in storage) as shown in Table 3.

Table 3. Change in storage in the Choteau: Tyndall aquifer based on water level fluctuations recorded in observation well completed in the unconfined portion of the Choteau: Tyndall aquifer (Buhler, 2016).

Year	BH-76D Change in Water Level (ft/yr)	BH-76C Change in Water Level (ft/yr)	BH-71C Change in Water Level (ft/yr)	Average Change in Water Level (ft/yr)	Average Change in Storage (ac- ft/yr)
1982	-0.1	0.5	2.6	1.0	560.0
1983	0.9	3.6	3.5	2.7	1493.3
1984	1.8	6.0	6.6	4.8	2688.0
1985	1.5	-2.2	-5.4	-2.0	-1138.7
1986	0.6	0.4	3	1.3	746.7
1987	-0.2	0.0	-1.8	-0.7	-373.3
1988	-0.6	-3.8	-3.3	-2.6	-1437.3
1989	-1.3	-2.0	-3	-2.1	-1176.0
1990	-1.3	-2.2	-1.5	-1.7	-933.3
1991	-1.5	-2.0	-1.6	-1.7	-952.0
1992	-0.6	-0.2	-0.9	-0.6	-317.3
1993	1.0	6.5	9.1	5.5	3098.7
1994	1.5	-0.5	-2.5	-0.5	-280.0
1995	0.2	1.4	1.5	1.0	578.7
1996	0.8	-0.6	-1.1	-0.3	-168.0
1997	0.5	1.5	2.4	1.5	821.3
1998	0.0	-0.4	-1.6	-0.7	-373.3
1999	0.3	0.2	0.3	0.3	149.3
2000	-0.9	-1.8	-2.4	-1.7	-952.0
2001	0.4	1.0	3.3	1.6	877.3
2002	-1.1	-2.5	-3.9	-2.5	-1400.0
2003	-0.3	-0.9	0.2	-0.3	-186.7
2004	-1.4	-0.9	-1.5	-1.3	-709.3
2005	-0.8	-0.7	0.3	-0.4	-224.0
2006	0.3	0.0	-1.6	-0.4	-242.7
2007	0.2	0.7	2	1.0	541.3
2008	-0.4	0.0	0.6	0.1	37.3
2009	1.4	0.5	-0.4	0.5	280.0
2010	1.1	4.5	5.3	3.6	2034.7
2011	0.5	-0.5	-2.2	-0.7	-410.7
2012	-1.4	-4.5	-3.1	-3.0	-1680.0
2013	-1.7	-1.6	-1.9	-1.7	-970.7
2014	-0.8	-1.0	-2	-1.3	-709.3
2015	-1.5	-1.4	2	-0.3	-168.0
2016	1.7	1.7	-3	0.1	74.7
Average	-0.034	-0.034	-0.057	-0.042	-23.467

Examination of water level data from the unconfined portion of the Choteau: Tyndall aquifer indicates that on average, observation well water levels have declined 0.042 feet per year in the aquifer between 1982 and 2016 (see Table 2). The declining water level indicates that over the period of record, the amount of water stored in the aquifer has diminished on average, approximately 23 ac-ft/yr. Considering the assumptions involved in this estimate, for all practical purposes, there has been no change in storage in the aquifer over the period of record.

Groundwater gradients in the aquifer based on observation well data provides some evidence that recharge to the Choteau: Tyndall aquifer has increased and discharge from the aquifer has decreased between 1985 and 2016. It is possible the system is equilibrating through a combination of a decrease in storage in the aquifer, a reduction in the previous discharge from the aquifer, and an increase in recharge. Future well withdrawals may also induce more recharge or decrease discharge, however at this point, data suggests that over the period of record (1982-2016) average annual recharge to the Choteau: Tyndall aquifer is approximately equal to the average annual withdrawal from the aquifer (Buhler, 2016).

SDCL 46-5-39 and SDCL 46-5-40:

SDCL 46-5-39 allows the Water Management Board to authorize a temporary appropriation of water reserved under a future use permit. SDCL 46-5-40 states that a temporary use permit would be effective only until such time as the future use holder wants to develop the water covered by the temporary permit. The temporary permit holder is to be given six months notice after which time the temporary permit is subject to cancellation.

Future Use Permit No. 4839A-3 held by the City of Tyndall reserves 410 ac-ft/yr from the Choteau: Tyndall aquifer. Temporary Water Permit No. 8060-3 for Douglas Johnson, authorizes a temporary appropriation pursuant to SDCL 46-5-39, of water reserved under Future Use Permit No. 4839A-3 for the irrigation of 110 acres. Temporary Water Permit No. 8244-3 for Douglas Johnson, authorizes a temporary appropriation pursuant to SDCL 46-5-39, of water reserved under Future Use Permit No. 4839A-3 for the irrigation of 150 acres. Annual diversion limits were not established for Temporary Water Permit Nos. 8060-3 and 8244-3. Given the average of the annual irrigation application rates reported by irrigators from the Choteau: Tyndall aquifer of 8.01 inches per acre per year, the average annual withdrawal associated with the two temporary water permits is expected to be approximately 173 acre-feet annually. Therefore, there is approximately 236 ac-ft/yr of additional water reserved by the future use permit that is available for temporary appropriation through SDCL 46-5-39. Average annual water use associated with the irrigation of 85 acres proposed by this application is not expected to exceed 57 ac-ft/yr. Therefore, until the future use permit is developed, water is available for this proposed appropriation as a temporary use permit.

EXISTING WATER RIGHTS:

There are four domestic use wells on file with the DENR-Water Rights Program within approximately one mile of the well site proposed by this application that appear to be completed into the Choteau: Tyndall aquifer (Water Rights, 2017c). There are 27 existing water rights/permits, one future use permit and two temporary water permits appropriating water from the Choteau: Tyndall aquifer. One application (Water Permit Application No. 4674-3) has been denied from the aquifer. The application was denied in 1981 after the applicant requested the application be withdrawn from consideration due to unfavorable test hole results.

Some controversy accompanied irrigation development from the Choteau: Tyndall aquifer in this area in 1975. Three water permit applications, including Application No. 2446-3 which is located approximately one-half mile east of the well site proposed by Application No. 8267-3, were contested by a group of farmers and the City of Avon. The applications were eventually approved. An irrigation system was developed under authority of Water Permit No. 2446-3 and

the permit was incorporated into Water Right No. 3811-3, Virgil Tjeerdsma. Existing Water Rights/Permits in the vicinity of the well site proposed by this application are shown in Table 3 and on Figure 11.

Table 3. Water Rights/Permits in the vicinity Application No. 8267-3 (Water Rights, 2017b).

PERMIT NO	NAME	PRIORITY DATE	STATUS	USE	CFS	ACRES
3576-3	PERCY TJEERDSMA	07/28/1976	LC	IRR	2	155
3581-3	PERCY TJEERDSMA	08/10/1976	LC	IRR	1.78	126
3582A-3	DOUGLAS E & DARLA R VAN GERPEN	08/19/1976	LC	IRR	1.78	125
3583B-3	PRESTON BOCHMAN	08/19/1976	LC	IRR	2.07	145
3811-3	VIRGIL TJEERDSMA	03/24/1977	LC	IRR	2	168
5286-3	VINCENT BOESE	07/20/1976	LC	IRR	1.42	100
5424-3	LESLIE BOHLMANN	12/07/1989	LC	IRR	2	160
5513-3	RITA HAJEK & RICHARD HAJEK FAMILY TRUST	02/04/1991	LC	IRR	1.78	132
6413-3	PERCY TJEERDSMA	04/18/2003	PE	IRR	1.78	160
6454-3	DANIEL SCHUURMANS	12/10/2003	PE	IRR	1.71	120
6465-3	DAVID RUPPELT	01/20/2004	LC	IRR	1.56	135
6496-3	MYRON BIEREMA	04/12/2004	LC	IRR	1.78	136
6791-3	VIRGIL TJEERDSMA	12/26/2006	PE	IRR	1.21	85
6902-3	DAVID RUPPELT	09/27/2007	PE	IRR	1	70
6903-3	DAVID RUPPELT	10/09/2007	PE	IRR	1.56	137
7327-3	MYRON BIEREMA	03/02/2012	PE	IRR	1.78	97
7922-3	STEVE JOHNSON	11/12/2013	PE	IRR	1.78	150
LC= Water Right, PE= Water Permit, IRR= Irrigation						

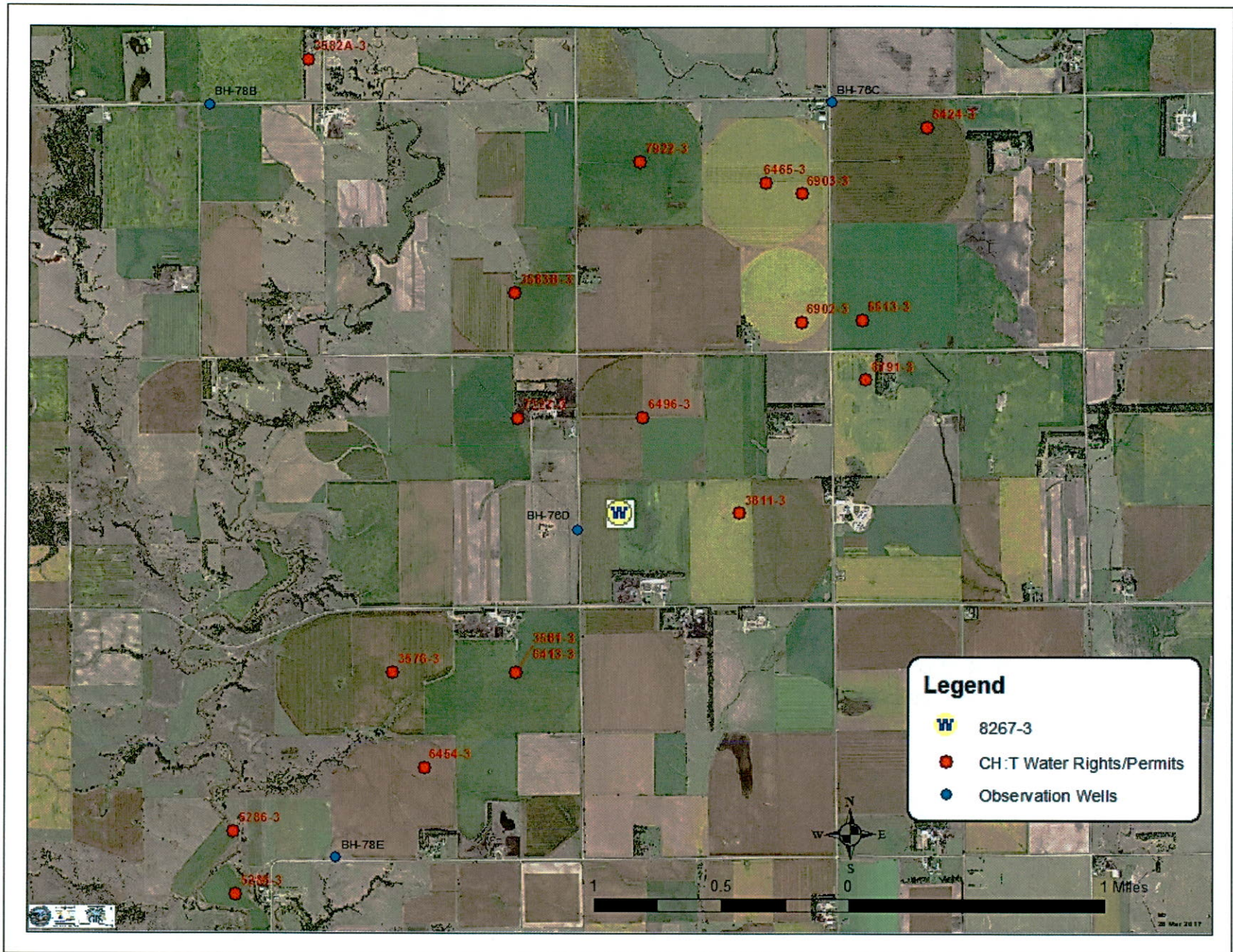


Figure 11. Map showing location of the well site proposed by Application No. 8267-3 and approximate location of diversion points for existing appropriations (Water Rights, 2017b).

The well site proposed by this application is located within approximately .75 miles of the diversion points for five irrigation appropriations. The same thing can be said of DENR-Water Rights' observation well BH-76D. The hydrograph for BH-76D (see Figure 7.) shows that the water table in this area has only fluctuated approximately eight feet over the period of record and drawdown from the nearby high capacity wells is insignificant and perhaps not measurable at the observation well. There is no reason to assume that drawdown from the pumping proposed by this application will have any more impact on neighboring wells than what the neighboring wells have on the observation well. Therefore, there is a reasonable probability that this permit can be approved without adversely impacting existing water rights.

SDCL 46-5-6

Pursuant to SDCL 46-5-6, the diversion rate for an irrigation appropriation cannot be in excess of one cfs for every 70 acres, or "the equivalent thereof." The statute does provide that the Water Management Board may allow a greater diversion rate if the method of irrigation so requires. Water Permit Application No. 8267-3 proposes to divert up to 1.67 cfs from the Choteau: Tyndall aquifer for the irrigation of 85 acres, or the equivalent of approximately 1.38 cfs per 70 acres. The applicant indicates the diversion rate is necessary due to the length of the center pivot and since the pivot will not make a full rotation the rate to acreage ratio is high.

CONCLUSIONS:

1. This water permit application proposes to withdraw groundwater at a maximum diversion rate of 1.67 cfs from one well to be completed into the Choteau: Tyndall aquifer for the irrigation of 85 acres.
2. Observation well data documents that water levels of observations wells completed into the Choteau: Tyndall aquifer have declined over the period of record.
3. Observation well data documents that at the current level of development, recharge to the aquifer and discharge from the aquifer are approximately equal.
4. There is not a reasonable probability that unappropriated water is available from the aquifer to supply the proposed appropriation.
5. There is a reasonable probability that this proposed diversion will not adversely impair existing nearby wells.
6. Pursuant to SDCL 46-5-39 and SDCL 46-5-40, a temporary use permit allows water reserved by future use water permits to be put to beneficial use until the future use permit holder uses the water reserved under the permit.
7. Given the amount of water reserved in the existing future use permit, there is a reasonable probability that reserved water is temporarily available from the future use permit in the Choteau: Tyndall aquifer to supply the proposed appropriation.



Ken Buhler
SD DENR-Water Rights Program

REFERENCES:

- Buhler, K.A., 2012, Report to the Chief Engineer on Water Permit Application No. 7331-3, Scott Schuurmans, March 30 2012, SD DENR-Water Rights Program, Joe Foss Building, Pierre, SD
- Buhler, K.A., 2016, Report to the Chief Engineer on Water Permit Application NO. 8244-3, Douglas Johnson, December 13, 2016, SD DENR-Water Rights Program, Joe Foss Building, Pierre, SD
- Capen, B. 2014, Report to the Chief Engineer on Water Permit Application No. 8060-3, Douglas Johnson, December 31, 2014, SD DENR-Water Rights Program, Joe Foss Building, Pierre, SD
- Hedges, L.S., Burch, S.L., Iles, D.L., Barari, R.A., Schoon, R.A., 1982, Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa, Task 1: Bedrock Topography and Distribution, Task 2: Extent of Aquifers, Task 3: Ground-Water Storage, Task 4: Computerized Data Base, Final Report; U.S. Army Corps of Engineers Contract DACW 45-80-C-0185
- Hedges, L.S., Allen, J., and Holly, D.E, 1985, Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa, Task 7: Ground Water Recharge, South Dakota DENR-Geological Survey, Vermillion, SD
- Jensen, A., 2012, First Occurrence of Aquifer Materials in Bon Homme County, South Dakota: S.D. Geological Survey Aquifer Materials Map 34, scale 1:100,000
- Jorgensen, D.G., 1971, Geology and Water Resources of Bon Homme County, South Dakota, Part II: Water Resources: S.D. Geological Survey Bulletin 21, 61 p.
- Stonesifer, J.R. 2013. Report on Water Permit Application No. 7922-3, Steve Johnson. South Dakota DENR-Water Rights Program. Joe Foss Building., Pierre, South Dakota.
- Water Rights, 2006-2016, "Annual Irrigation Questionnaire Reports": SD DENR-Water Rights Program, Joe Foss Building, Pierre, SD
- Water Rights, 1980-2016, "Annual Irrigation Summary by Aquifer": SD DENR-Water Rights Program, Joe Foss Building, Pierre, SD
- Water Rights, 2017a, Observation Well Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2017b, Water Right/Permit Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2017c, Well Completion Report Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.

Affidavit of Publication

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WATER RIGHTS PROGRAM

State of South Dakota }
County of Bon Homme } SS

Rebecca Uy.....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

Tjeerdsma Notice of Application to ^{appropriation} water
81@ 38

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

..... <i>May 3</i> 20..17.....	20.....
.....20.....	20.....
.....20.....	20.....
.....20.....	20.....

That the full amount of the fee charged for the publication
of said notice, \$*30.78*..., 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 Uy publisher
Subscribed and sworn to before me this
3 day of *May*, 20..17.
Peggy Sobel
Notary Public, South Dakota
my commission expires Oct, 24, 2021

NOTICE OF APPLICATION

NO. 8267-3 to Appropriate Water

Notice is given that Virgil Tjeerdsma, 30628 414th Ave, Tyndall SD 57066 has filed an application for a water permit to appropriate 1.67 cubic feet of water per second (cfs) from one well to be completed into the Tyndall management unit of the Choteau Aquifer (200 feet deep) located in the NW 1/4 SW 1/4 Section 33 for irrigation of 85 acres located in the SW 1/4 Section 33; all in T94N-R60W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8267-3 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 the city of Tyndall, holder of a future use permit from the Choteau-Tyndall aquifer fully develops water reserved from their future use permit, 2) the pro-

posed 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. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information, or other information, at the Water Rights Program address provided below.

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 May 15, 2017.

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.

If the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the recommendation with no hearing held before the Water Management Board. 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.

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

Published once at an approximate cost
of \$30.78

(May 3)

AFFIDAVIT OF PUBLICATION

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VIRGIL TJEERDSMA
30628 414TH AVE
TYNDALL SD 57066

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**WATER RIGHTS
PROGRAM**

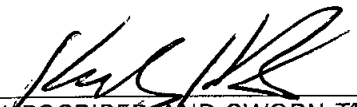
STATE OF SOUTH DAKOTA
COUNTY OF YANKTON

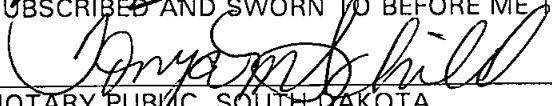
KELLY HERTZ, BEING FIRST DULY SWORN ON OATH DEPOSES
AND SAYS THAT (S)HE IS THE MANAGING EDITOR OF YANKTON
MEDIA INC, A CORPORATION, THE PRINTER AND THE PUBLISHER OF THE
YANKTON DAILY PRESS AND DAKOTAN, A LEGAL DAILY NEWSPAPER
PUBLISHED AND CIRCULATED IN THE CITY OF YANKTON, SAID COUNTY
AND STATE, AND ONE OF THE OFFICIAL NEWSPAPERS OF THE SAID
COUNTY OF FACTS STATED IN THIS AFFIDAVIT; THAT THE ANNEXED
5 + 3 NOTICE OF APPLICATION

TAKEN FROM THE PAPER, IN WHICH IT WAS LAST PUBLISHED IN THE
NEWSPAPER ON THE 3rd DAY OF May, 2017
THAT THE FULL AMOUNT OF THE FEE CHARGED FOR THE PUBLICATION
OF SAID NOTICE TO WIT \$29.25 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: 05/03/2017

FILED ON: 05/03/2017


SUBSCRIBED AND SWORN TO BEFORE ME THIS 3rd DAY OF May, 2017


NOTARY PUBLIC, SOUTH DAKOTA
MY COMMISSION EXPIRES 08/19/2021

Ad text : 5 + 3

NOTICE OF APPLICATION NO. 8267-3 to Appropriate Water

Notice is given that Virgil Tjeerdsma, 30628 414th Ave, Tyndall SD 57066 has filed an application for a water permit to appropriate 1.67 cubic feet of water per second (cfs) from one well to be completed into the Tyndall management unit of the Choteau Aquifer (200 feet deep) located in the NW 1/4 SW 1/4 Section 33 for irrigation of 85 acres located in the SW 1/4 Section 33; all in T94N-R60W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8267-3 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 the city of Tyndall, holder of a future use permit from the Choteau-Tyndall aquifer fully develops 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. The Chief Engineers recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information, or other information, at the Water Rights Program address provided below.

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 May 15, 2017.

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.

If the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the recommendation with no hearing held before the Water Management Board. 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.

Steven M. Pirner, Secretary, Department of Environment and Natural Resources.
Published once at the total approximate cost of \$29.25.

Schlaak, Karen

From: Schlaak, Karen
Sent: Tuesday, April 25, 2017 11:30 AM
To: ttribune@byelectric.com
Subject: 8267-3, Virgil Tjeerdsma
Attachments: 8267-3public.short.docx; FORM8.FRM.doc

Attached is a notice to be published on May 3, 2017.

Virgil Tjeerdsma, 30628 414th Ave, Tyndall SD 57066 (605 464-1945) has been notified to contact you to authorize publication and arrange for payment.

Please send the affidavit or return the attached Proof of Publication form ASAP.

Let me know if you have questions. Please acknowledge receipt of this email.

Karen Schlaak
SD DENR, Water Rights Program
(605) 773-3352



Schlaak, Karen

From: Schlaak, Karen
Sent: Tuesday, April 25, 2017 11:30 AM
To: 'Tera Schmidt'
Subject: 8267-3, Virgil Tjeerdsma
Attachments: 8267-3public.short.docx; FORM8.FRM.doc

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Karen Schlaak
SD DENR, Water Rights Program
(605) 773-3352





DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

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

April 25, 2017

Virgil Tjeerdsma
30628 414th Ave
Tyndall SD 57066

Dear Mr. Tjeerdsma:

Water Permit Application No. 8267-3 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.

NOTICE OF APPLICATION NO. 8267-3 to Appropriate Water

Notice is given that Virgil Tjeerdsma, 30628 414th Ave, Tyndall SD 57066 has filed an application for a water permit to appropriate 1.67 cubic feet of water per second (cfs) from one well to be completed into the Tyndall management unit of the Choteau Aquifer (200 feet deep) located in the NW 1/4 SW 1/4 Section 33 for irrigation of 85 acres located in the SW 1/4 Section 33; all in T94N-R60W. The applicant is requesting a diversion rate greater than the statutory limit of 1 cfs per 70 acres.

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Steven M. Pirner, Secretary, Department of Environment and Natural Resources. Published once at the total approximate cost of_____.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

MAY 18 2017

Virgil Tjeerdsma
30628 414th Ave
Tyndall SD 57066

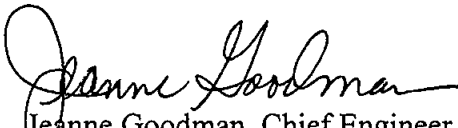
Dear Mr. Tjeerdsma:

Enclosed is Temporary Water Permit No. 8267-3 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the permit. This is a temporary water permit and subject to the City of Tyndall's prior right when they develop water reserved by their future use permit.

A 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 temporary permit can be reissued as developed.

An information 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



8267-3
DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

January 26, 2018

NOTICE

TO: VIRGIL TJEERDSMA, 30628 414TH AVE, TYNDALL, SD 57066

FROM: Ron Duvall, Natural Resources Engineer
for Jeanne Goodman, Chief Engineer
Water Rights Program

SUBJECT: Reporting Requirement for 2017 Irrigation Questionnaires

Our records indicate your 2017 Irrigation Questionnaires have not been submitted. The request for the Questionnaires was dated October 20, 2017. The Water Management Board has directed that owners of water permits who have not submitted the 2017 Irrigation Questionnaires be given notice of permit violation and a hearing to be held by the Board. The hearing is to determine if Permit No(s) 3811-3 should be amended to require the Questionnaire to be submitted each year and to determine action to be taken for violation of Water Permit No(s) 5424-3, 6372-3, 6791-3 & 8267-3 qualification:

"This permit is approved subject to the Irrigation Water Use Questionnaire being submitted each year."

The hearing will be held at **Wednesday, March 7, 2018 at 10:00 am (Central Time)** in the Floyd Matthew Training Center, Joe Foss Building, 523 E Capitol Avenue, Pierre, SD, and will be conducted pursuant to SDCL 46-1-12, 46-1-14, 46-2-9, 46-2-11 and 46-2-17. These are contested case hearings pursuant to Chapter 1-26. According to SDCL 46-1-12, the Board may suspend a permit for a period of up to one year for the first violation of a permit qualification or up to three years for a second violation, or cancel a permit for a third violation. Following the hearing, the Water Management Board can:

1. Suspend or cancel Permit No(s) 5424-3, 6372-3, 6791-3 & 8267-3 in accordance with applicable provisions of SDCL 46-1-12;
2. Amend Permit No(s) 3811-3 to require the Irrigation Water Use Questionnaire to be submitted each year;
3. Postpone any action or take no action.

The hearing is an adversary proceeding. The permit owner has the right to be present or to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and the State Supreme Court as provided by law.

If the questionnaires are received in this office before the **March 7, 2018** hearing you will no longer be in violation of your permit and your name will be removed from the Board agenda. Enclosed are additional questionnaires for your use. If you have questions or need assistance, please contact Genny McMath at (605) 773-3352 or email at genny.mcmath@state.sd.us. If you prefer, you can complete the questionnaire online at the following link: <http://denr.sd.gov/iq.aspx>

Note: Please contact the Water Rights Program, Joe Foss Building, 523 E Capitol, Pierre, SD (605-773-3352) to assure access to the meeting room for the handicapped or to obtain an interpreter for the hearing impaired.

8267-3



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

February 5, 2018

Virgil Tjeerdsma
30628 414th Ave
Tyndall SD 57066

RE: Water Permit/Right Nos. 3811-3, 5424-3, 6372-3, 6791-3 & 8267-3

Dear Mr. Tjeerdsma:

I am writing to acknowledge receipt of your 2017 irrigation questionnaires.

You may disregard the January 26, 2018, "Notice" concerning reporting requirements for Water Permit/Right Nos. 3811-3, 5424-3, 6372-3, 6791-3 & 8267-3. The information was received in our office prior to the Water Management Board meeting and your name has been deleted from the agenda.

If you have any questions, please contact me.

Sincerely,

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

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

8267-3

SD EForm - 1621LD V1

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

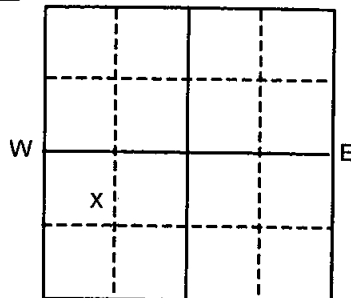
Location NW ¼ SW ¼ Sec 33 Twp 94N Rg 60W

Well Owner: Cody Tjeerdsma

County Bon Homme

North

Please mark well location with an "X"



Business Name:

Address: 41224 309th St

City, State, Zip: Springfield SD 57062

WELL LOG:

DEPTH

FORMATION	FROM	TO
Top soil	0	2
Glacial Till	2	24
Gray Chalk	24	42
Fine brown sand	42	140
Fine gray sand	140	175
Medium to coarse gravel	175	198
Fine gray sand	198	216
medium to coarse sand	216	236

Well Completion Date

April 26, 2018

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
1,400.0 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:

☐ Steel ☐ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	16.00 IN	0.0 FT	156.0 FT	22.00 IN
LB/FT	16.00 IN	176.0 FT	216.0 FT	22.00 IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type No. of Sacks Grout Weight From To

Bentonite 45 9.5 Lb/gal 0.0 Ft 140.0 Ft

per 25' tier 11/20/18 AM Lb/gal Ft Ft

Describe grouting procedure

SCREEN:

☒ Perforated pipe ☐ Manufactured

Diameter 16.00 Inches Length 20.0 Feet

Material PVC

Slot Size Set From 196.0 Feet to 236.0 Feet

Other information 156' - 176' 0.050 slot
216' - 236' 0.085 slot

WAS A PACKER OR SEAL USED?

☐ Yes ☒ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? HTH Tablets

Lab to which water ☐ No, Why Not?

quality sample sent for analysis

STATIC WATER LEVEL 99.5 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

123.0 Ft. After 1.0 Hrs. pumped 800.0 GPM

Ft. After Hrs. pumped GPM

If pump installed, pump rate: GPM

REMARKS

Elevation: 1401' asl

42 54 45.81 N

97 56 52.57 W

This well was drilled under license # 810 and this report is true and accurate.

Drilling firm: Heine Electric & Irrigation

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

RECEIVED

Date:

8-14-18

SEP 13 2018

WATER RIGHTS
PROGRAM

8267-3

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

MAIL TO: PMB 2020
DENR - Water Rights Program
523 E Capitol Ave
Pierre, SD 57501-3182
ph. (605) 773-3352

Date 11-21-19

FROM: Virgil Tjeendsma
(name)
30628 414th Ave.
(address)
Tyndall SD 57066 605-464-1945
(city) (state) (zip) (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. 8267-3 states that the water use system is to be constructed by
May 15, 2022, and water is to be put to beneficial use by May 15, 2026
(date) (date)

The water use system was completed on April, 2018
(date)

Applying the water to beneficial use was completed on July, 2018
(date)

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

Virgil Tjeendsma
11/21/19



Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 8267-3

I have this day, January 24, 2019, made a thorough examination of the water use system constructed by Virgil Tjeerdsma, 30628 414th Ave., Tyndall, SD 57066, holder of Permit No. 8267-3, bearing the priority of February 15, 2017 authorizing the diversion of 1.67 cu. ft. per second of the waters of groundwater (Choteau: Tyndall Aquifer) for irrigating 85 acres in Bon Homme County.

Inspection contact: Virgil Tjeerdsma, Owner

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: Heine Electric & Irrig.
- 2) No. of Wells 1
- 3) Depth(s) 236 feet
- 4) Well log is available Yes

Casing:

- 1) Diameter 16 inches
- 2) Length 216 feet
- 3) Type PVC

Screen:

- 1) Type PVC
- 2) Length 40 feet
- 3) Static water level 99.5 feet

Pump:

- 1) Make Borer Wholesale
- 2) Serial No. 21644
- 3) Capacity 800 GPM

Motor:

- 1) Make Diesel Engine
- 2) Model No. Unknown
- 3) Horsepower rating 60 hp

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

- 1) Type Galvanized
- 2) Size 8 inches
- 3) Length 10 feet

C. Works used to apply water to beneficial use:

Center pivot:

- 1) Make Valley
- 2) Overall length 938 feet
- 3) Number of towers 5
- 4) End gun Yes
- 5) Capacity 800 GPM

Chemigation Equipment: No

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by: The system is set for 1.78 cfs instead of 1.67 cfs.
- 2) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of the construction period The system was installed in 2018 and has not been used yet.
- 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: 970 feet east and 1,670 feet north from the southwest corner of Section 33-T94N-R60W (Latitude 42.91326, Longitude -97.947342 – NW1/4SW1/4).
2. The works are capable of diverting and conveying to the place of use 1.78 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 33-T94N-R60W

<u>NW1/4SW1/4</u>	<u>36 acres</u>
<u>NE1/4SW1/4</u>	<u>17 acres</u>
<u>SW1/4SW1/4</u>	<u>16 acres</u>
<u>SE1/4SW1/4</u>	<u>6 acres</u>

comprising a total of 75 acres of land at an irrigation rate of 1.78 cfs. It is a temporary permit and should not be licensed.

3. All structures, wells and lands on map Yes

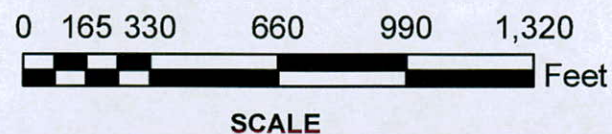
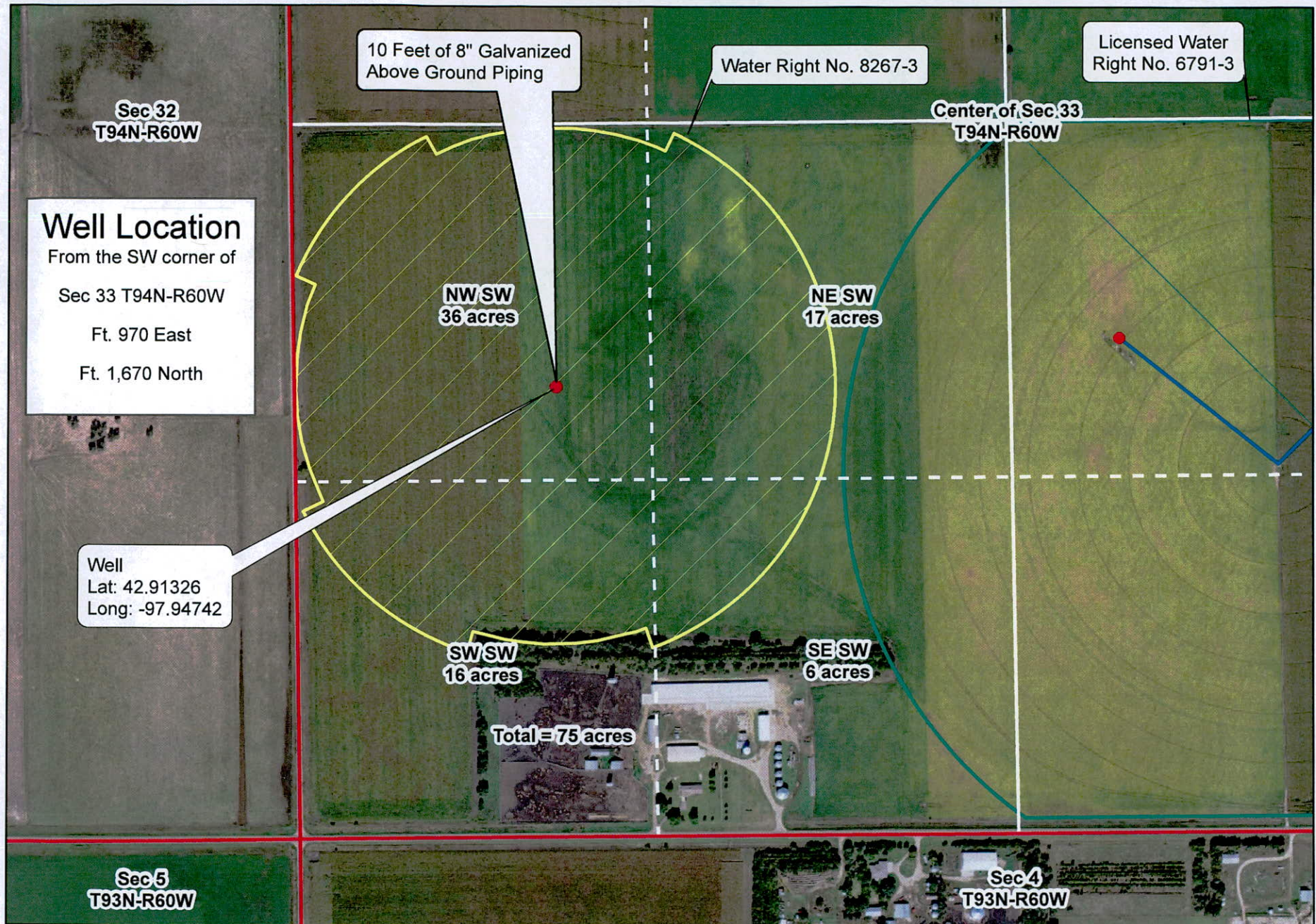
F. Comments or other permit(s) associated with the project: This is a temporary water permit and should not be licensed. Also, the system is set up for 1.78 cfs instead of 1.67 cfs as approved in the application.

Keith DeJong

Keith DeJong
Water Rights Inspector
DENR, Water Rights Program

Date report completed: November 22, 2019

Water Right No. 8267-3 (Temporary Water Permit, Do Not License)



Keith DeJong

Keith DeJong, PE
Staff Engineer
November 22, 2019



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

8267-3

Virgil Tjeerdsma
30628 414th Ave
Tyndall SD 57066

Dear Mr. Tjeerdsma:

Enclosed is Reissued Temporary Use Water Permit No. 8267-3. 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 irrigated.

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,

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

enclosures

Note: The field investigation found your irrigation system capable of 1.78 cfs or 800 gpm. You are limited to the original permitted amount of 1.67 cfs or approximately 750 gpm.

**REISSUED
SOUTH DAKOTA
TEMPORARY USE WATER PERMIT NO. 8267-3
AS DEVELOPED**

On May 15, 2017, the Chief Engineer, on behalf of the Water Management Board, issued Temporary Use Water Permit No. 8267-3 to Virgil Tjeerdsma 30628 414th Ave, Tyndall SD 57066 authorizing construction of the water use system and placement of water to beneficial use.

1. On January 24, 2019 an investigation was conducted of the water use system described in Temporary Use Water Permit No. 8267-3. The investigation found the system had been developed as follows: One 236 foot deep well (Choteau: Tyndall Aquifer) located in the NW $\frac{1}{4}$ SW $\frac{1}{4}$ approximately 970 feet east and 1,670 feet north from the SW corner of Section 33, T94N, R60W (Latitude 42.91326, Longitude -97.947342).

The temporary use permit holder is authorized to divert 1.67 cubic feet of water per second from the above well to irrigate 75 acres located as follows:

T94N, R60W Section 33	NW $\frac{1}{4}$ SW $\frac{1}{4}$	36 acres
	NE $\frac{1}{4}$ SW $\frac{1}{4}$	17 acres
	SW $\frac{1}{4}$ SW $\frac{1}{4}$	16 acres
	SE $\frac{1}{4}$ SW $\frac{1}{4}$	6 acres
	Total	75 acres

2. The amount of the appropriation may not exceed 2 acre feet annually for each acre of land to which water is actually and beneficially applied for irrigation. The water is to be used during the following described annual period: May 1 – October 1.
3. The date from which the temporary use water permit holder may claim right is February 15, 2017.
4. Water rights obtained in compliance with laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. The City of Tyndall has priority right to this water under future use withdrawal permits. Permit No. 8267-3 is issued as a temporary use permit pursuant to SDCL 46-5-39 and is subject to this prior right if or when the city of Tyndall fully develops their reserve water supply. Permit No. 8267-3 may be subject to cancellation when the water reserved under the future use permit is put to beneficial use. The Chief Engineer must provide the permit holder six months' 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.

Reissued Temporary Use Water Permit No. 8267-3

Virgil Tjeerdsma

Page 2

3. The well authorized by Permit No. 8267-3 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. *The well was drilled by Heine Electric & Irrigation Inc. in April, 2018. A copy of the well completion report is on file with the Water Rights Program.*
4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

By: _____

Jeanne Goodman

Jeanne Goodman, Chief Engineer

Water Rights Program

Department of Environment and Natural Resources

FEB 27 2020

date

