

WATER PERMIT NO. 7404-3

Name of Applicant: Zirbel Dairy

Address: 45202 145th St, Ortley SD 57256 Phone: 605 949-1362

Amount of Water Claimed: no add'l Total Acres: 160

Source of Water Supply: groundwater (one well)

Water to be used for: irrigation County: Grant

Type of Waste Disposal System:

Location: about 2 miles southe of Ortley

PRIORITY Date Received: 8-24-12 Application/License Fee: \$ 1,050.00

Corrected Application Received: Period of Annual Use: April 1 – September 30

Remarks: Utilizing existing well authorized by Water Permit No. 6893-3

Diversion Point: NW ¼ NW ¼ Sec 4-T121N-
R52W

Land to be Irrigated: NE ¼ Sec 4-T121N-R52W

Depth of Well: 62 feet deep

Well Driller: Lee Well Drilling

Remarks:

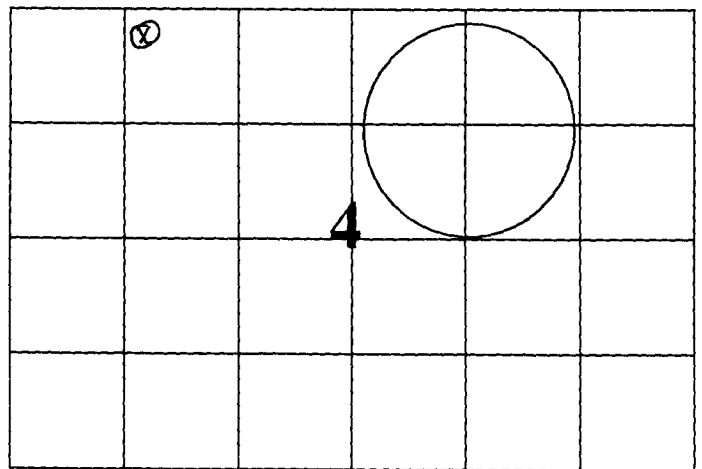
Type of Map: aerial

Prepared by: Jane Schwartz, Grant Co FSA

Reviewed and the Number Assigned on: 8-27-12

By: Karen Schlaak

Notice of Hearing - date to intervene: _____



FORM 2: Application for irrigation in South Dakota
(type or print)

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. <u>7404-3</u> (office use only)	Hydrologic Unit <u>10170202</u>
	Basin <u>Sioux River</u> <u>605-432-4516</u>	
	Newspaper <u>Grant Co. Review P.O. Box 390, Millbank 57252</u>	
	<u>Public Opinion P.O. Box 10, Watertown 57201-605-886-1010</u>	

RECEIVED
AUG 24 2012
 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.) _____

- Name of Applicant Ferdy Zinbel - Zinbel Farms Phone 605-949-1362
 (check one) ☐ Owner ☐ Tenant/lessee
- Mailing Address 45202-145 St. Ortley SD State 57256
 (Street, RR, or Box and City) (Zip Code)
- Amount of water claimed no add'l *CFS or no add'l **GPM ***AF Total Acreage 160
 (*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)
- Source of water supply ground
- Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) We plan to use existing well in NW quarter in Section four to irrigate 145 acres in section 4 on NE corner no additional water needed. County Grant
- County or counties where water will be used Grant
- Annual period during which water is to be used Apr - Sept 30
- List below each forty acre division, or lot, or fraction thereof and show number of acres to be irrigated in each.

Section 4 T121N R52W (Attach sheet if more space is needed)

Land Description	Acres	Land Description	Acres
NW 1/4 NE 1/4	40		
NE 1/4 NW 1/4	40		
SW 1/4 NE 1/4	40		
SE 1/4 NE 1/4	40		

8. Give a description of the project. (Attach sheet if more space is needed) Use water from Water permit 68-93-3 to irrigate

STATE OF SOUTH DAKOTA) SS
 County of Roberts

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

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

Applicant's signature Ferdy Zinbel

Subscribed and sworn to before me this 14th day of August 20 12

[Signature]
 Notary Public signature
 Commission expires 1-9-13

**SOUTH DAKOTA
WATER PERMIT NO. 7404-3**

Date of first receipt of application August 24, 2012.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 7404-3 to Zirbel Dairy, c/o Ferdy Zirbel, 45202 145th St, Ortleigh SD 57256 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. 7404-3 authorizes irrigation of 160 additional acres. Water Permit No. 6893-3 appropriates 2.28 cubic feet of water per second (cfs) from one well completed into the Big Sioux:North Aquifer (62 feet deep) located in NW 1/4 NW 1/4 Section 4-T121N-R52W for irrigation of 160 acres. This permit authorizes irrigation of 160 additional acres located in the NE 1/4 Section 4-T121N-R52W (within former boundaries of Sisseton Wahpeton Indian Reservation) from the existing well. This permit does not authorize any increase in the developed diversion rate.
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: April 1 – September 30.
3. The date from which applicant may claim right is August 24, 2012.
4. The date of approval of Permit No. 7404-3 is November 12, 2012.
5. One-fifth of the construction is to be completed on or before May 12, 2015.
6. All construction is to be completed on or before November 12, 2017.
7. Water is to be put to beneficial use on or before November 12, 2021.
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 Permit No. 6893-3 and 7404-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

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

DEC 12 2012
date





United States Department of Agriculture
Farm Service Agency

RECEIVED

AUG 24 2012

October 27, 2011

Grant County SD

WATER RIGHTS
PROGRAM

PLSS: 4_121N_52W

2012

Farm: 2291



Grant County FSA

1102 S. Dakota St., Suite 1
Milbank, SD 57252

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

2010 Ortho-Photography - Not to Scale

June Stund

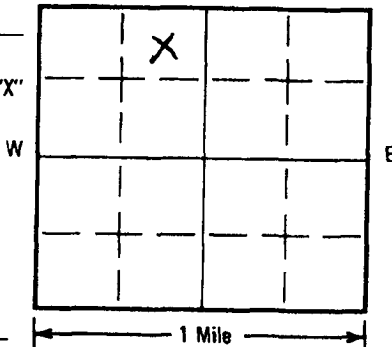


SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location NE 1/4 NW 1/4 Sec 4 Twp 121-N Rg 52-W
County Grant

Please mark well location with an "X"



Well Completion Date

10/22/07Well Owner: Zirbel Dairy c/o Ferdy Zirbel
Business Name: _____
Address: 45202 145th St

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>topsoil</u>	<u>0</u>	<u>2</u>
<u>Sand yellow</u>	<u>2</u>	<u>12</u>
<u>Sand Grey</u>	<u>12</u>	<u>62</u>
<u>clay yellow</u>	<u>62</u>	

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? _____ ft. from NONE (identify source).

PROPOSED USE:

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

METHOD OF DRILLING:

Forward RotaryCASING DATA: ☒ Steel ☐ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>50</u> LB/FT	<u>12</u> IN	<u>0</u> FT	<u>42</u> FT	<u>18</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>Neat Cement</u>	_____	<u>15</u> lb./gal	<u>0</u> ft	<u>20</u> ft
_____	_____	_____ lb./gal	_____ ft	_____ ft

Describe grouting procedure pressure GroutSCREEN: ☐ Perforated pipe ☒ ManufacturedDiameter 12" Pipe Size IN Length 20' FEETMaterial Stainless SteelSlot Size 50 Set From 42 Feet to 62 FeetOther information Stainless well rings & Stainlessplate bottomWAS A PACKER OR SEAL USED? ☐ YES ☒ NO

If so, what material? _____

Describe packer(s) and location? _____

DISINFECTION: Was well disinfected upon completion?

☒ YES, How: Chlorine

_____ NO, Why Not? _____

Laboratory sent to for water quality analysis

NoSTATIC WATER LEVEL 6ft 2 inches Feet

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced Flowrate _____ GPM

Can well be completely shut in? _____

WELL TEST DATA:

☒ Pumped Describe: _____☐ Bailed _____☐ Other _____

Pumping Level Below Land Surface

18 ft. After 2 Hrs. pumped 700 GPM

_____ ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS

RECEIVED

OCT 29 2007

WATER RIGHTS PROGRAM

This well was drilled under license # 63

And this report is true and accurate.

Drilling firm Lee Well Drilling IncSignature of License Representative: [Signature]

Signature of Well Owner or Equitable Property Holder: _____

Date: _____

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 8/27, 20 12

RECEIVED OF Zirbel Dairy 45202 145th St Ortley SD 57256

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

Fee for Application for Permit No. <u>7404-3</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>7404-3</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. 05543

By Charles Erbe
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. 7404-3, Zirbel Dairy**

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. 7404-3, Zirbel Dairy, c/o Ferdy Zirbel, 45202 145th Street, Ortleby SD 57256.

The Chief Engineer is recommending APPROVAL of Application No. 7404-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest with the following qualifications:

1. The well approved under Permit No. 6893-3 and 7404-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.

A handwritten signature in dark ink, appearing to read "Garland Erbele".

Garland Erbele, Chief Engineer
October 24, 2012

REPORT TO THE CHIEF ENGINEER
ON
WATER PERMIT APPLICATION NOS. 7404-3 and 7405-3
ZIRBEL DAIRY, FERDY ZIRBEL
OCTOBER 24, 2012

Water Permit Application No. 7404-3 proposes to appropriate an additional 320 acre-feet annually to irrigate 160 additional acres. Water Permit No. 6893-3 appropriates 2.28 cubic feet of water per second (cfs) from one well completed into the Big Sioux: North aquifer (62 feet deep) located in NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 4-T121N-R52W for irrigation of 160 acres. This application proposes to irrigate 160 additional acres located in the NE $\frac{1}{4}$ Section 4-T121N-R52W (within former boundaries of Sisseton Wahpeton Indian Reservation) from the existing well in Grant County. This application, if approved, does not authorize any increase in the developed diversion rate.

Water Permit Application No. 7405-3 proposes to appropriate 560 acre-feet (ac-ft) annually at a maximum diversion rate of 3.33 cfs from three wells, 42 feet deep, located in the S $\frac{1}{2}$ SW $\frac{1}{4}$ Section 3-T121N-R52W. This permit application proposes to irrigate 280 acres located in the N $\frac{1}{2}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, W $\frac{1}{2}$ SE $\frac{1}{4}$ Section 3 and N $\frac{1}{2}$ NW $\frac{1}{4}$ Section 11; all in T121N-R52W (within former boundaries of Sisseton Wahpeton Indian Reservation) in Grant County.

AQUIFER: Big Sioux: North (BS:N)

GEOLOGY AND AQUIFER CHARACTERISTICS:

The North management unit of the Big Sioux aquifer is an alluvium mantled, surficial outwash deposit located primarily in the flood plain of the Big Sioux River (Hansen, 1990). The Big Sioux: North aquifer is generally under unconfined conditions with water movement to the south and toward the Big Sioux River. The aquifer is hydraulically connected to Lake Kampeska, Pelican Lake, Still Lake and the Big Sioux River (Putnam and Thompson, 1996). The aquifer underlies approximately 83,500 acres of Codington, Grant, Hamlin, and Roberts Counties and contains approximately 187,880 ac-ft of recoverable water in storage (Hedges et. al, 1982). The Big Sioux: North can range from 2-54 feet thick and is generally encountered less than 50 feet below ground surface (Putnam and Thompson, 1996). Recharge to the Big Sioux: North occurs through infiltration and subsequent percolation of precipitation where the aquifer is near land surface. Due to the hydraulic connection between the aquifer and some area lakes and the Big Sioux River, recharge can be provided to the aquifer during times of high flow and stage.

SDCL 46-2A-9

Pursuant to SDCL 46-2A-9, a permit to appropriate water may be issued only if there is reasonable probability that there is unappropriated water available for the applicant's proposed use, that the proposed diversion can be developed without unlawful impairment of existing rights and that the proposed use is a beneficial use and in the public interest. This report will address the availability of unappropriated water and existing rights from the aquifer.

WATER AVAILABILITY:

Water Permit Application Nos. 7404-3 and 7405-3 propose to appropriate 320 ac-ft/yr and 560 ac-ft/yr from the Big Sioux: North aquifer, respectively. 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 that the quantity of water withdrawn annually from a groundwater source will exceed the quantity of the average estimated annual recharge of water to the groundwater source.

Recharge versus Withdrawals:

Recharge:

Hedges and others (1985) stated “the calculated recharge rates range from 2.7 to 6.9 inches per year if flow-net analysis is ignored.” Hansen (1990) estimated the recharge rate to the Big Sioux aquifer to be 4-10 inches per year (in/yr). Putnam and Thompson (1996) estimated the recharge rate to be between 2.9-5.8 in/yr and 5.53 in/yr was used for the purpose of computer modeling under steady state conditions. The average annual recharge, using Putnam and Thompson’s (1996) recharge rate, to the North management unit of the Big Sioux aquifer is 38,780 ac-ft/yr.

It is important to note that not all of the recharge or recoverable water in storage in the aquifer is available for every diversion point. Putnam and Thompson’s (1996) computer model suggested that some high capacity wells would be seriously impacted during dry conditions. The model suggests “The Big Sioux aquifer probably is unable to support extensive irrigation during dry periods such as those that occurred during 1980 and 1981 or in 1976” (Putnam and Thompson, 1996).

Withdrawals:

There are 85 water rights/permits appropriating water from the Big Sioux: North aquifer and three future use permits on record with the DENR-Water Rights Program. The non-irrigation appropriations include 16 for municipal use, 11 for commercial use, five for industrial use, two for rural water system use, and one for use by a suburban housing development (Water Rights, 2012b). Water Right No. 5158-3, Sioux Rural Water System, has not been used since 1998. The well field has “basically been abandoned” because of water quality issues (Buhler, 2012). The future use permits are all for municipal use and reserve a total of 3,469 ac-ft of water annually for the City of Watertown. The estimated annual water use by the non-irrigation appropriations, not including Clark Rural Water System, Sioux Rural Water System and the City of Watertown is 2,864 ac-ft per year (Water Rights, 2012b). This estimate is based on pumping at the maximum allowed diversion rate for 14.4 hours (60 percent) per day. Reported water use from the Big Sioux: North for the City of Watertown and the Clark RWS is shown in table 1 and annual pumpage for irrigation is shown in table 2.

Reported Pumpage From the BS:N for Municipal and RWS Use (ac-ft/yr)		
	Watertown₁	Clark RWS₂
2011	3864.04	143
2010	3947.15	143
2009	3735.26	164
2008	3984.15	127
2007	4062.46	44
2006	2960.86	N/A
2005	2391.83	N/A
2004	2125.66	N/A
Avg.	3383.93	124.2
₁ (Denville)		
₂ (Water Rights, 2008-2012)		

Table 1- Reported water use from the Big Sioux: North aquifer; modified from Buhler (2012).

Year	Appropriation (ac-ft/yr)	Pumpage Reported (ac-ft/yr)
2011	16208.5	2147.88
2010	16208.5	2421.27
2009	15948.5	1773.51
2008	15498.5	2743.94
2007	14584.5	3308.79
2006	15134.5	4285.97
2005	15250.5	2886.70
2004	14673.5	2448.79
2003	14113.5	3662.11
2002	14129.5	2835.49
2001	14116.0	2558.91
2000	14116.0	3013.88
1999	14047.6	2593.10
1998	14117.8	1702.52
1997	13612.8	1656.00
1996	13472.8	1497.96
1995	14136.8	1186.68
1994	14151.8	1192.95
1993	14445.8	865.50
1992	14311.8	1325.70
1991	17240.0	1659.00
1990	22492.8	2520.10
1989	21096.8	2686.60
1988	19564.8	2740.40
1987	19564.8	1929.40
1986	19564.8	1079.10
1985	19659.0	1419.70
1984	21936.3	1684.50
1983	21141.0	1110.45
1982	20187.0	1384.05
1981	20814.0	1067.00
1980	20598.0	888.00
1979	20598.0	912.00
Min	13472.8	865.50
Max	22492.8	4285.97
Avg	16870.8	2032.50

Table 2- Irrigation water use from the Big Sioux: North aquifer; modified from Buhler (2012).

Total estimated average annual withdrawal, including estimated non-irrigation use, is 8,404.63 ac-ft/yr. Comparing the estimated average annual withdrawal plus water reserved by the future use permits, 11,873.63 ac-ft/yr, to estimated average annual recharge, 38,780 ac-ft/yr, there is a reasonable probability that there is unappropriated water available from the North management unit of the Big Sioux aquifer.

Some of the Big Sioux: North aquifer, 12,500 acres, plus the drainage above the area reserved for future use by Future Use Permit No. 5862-3 was determined to be fully appropriated, water permits approved for the area have been approved as temporary use permits pursuant to SDCL 46-5-39. The fully appropriated portion of the aquifer is 15 miles south of the well locations proposed by these permit applications.

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 27 observation wells completed into the Big Sioux: North aquifer (Water Rights, 2012a). The nearest of the observation wells, GT-57A, GT-77B, and GT-82A, are all within two miles of either of the proposed well locations. Water levels in the observation wells show good response to climatic conditions. Figures 1, 2, and 3 show the hydrograph for observation wells GT-57A, GT-77B, and GT-82A, respectively

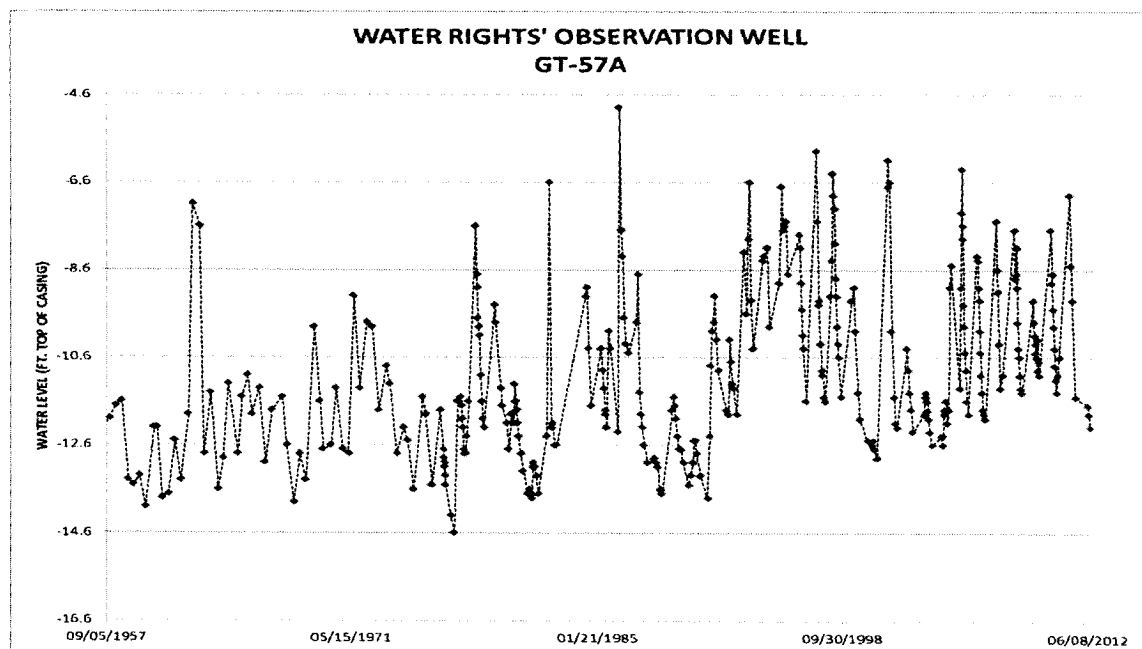


Figure 1- Hydrograph of DENR-Water Rights' observation well GT-57A (Water Rights, 2012a).

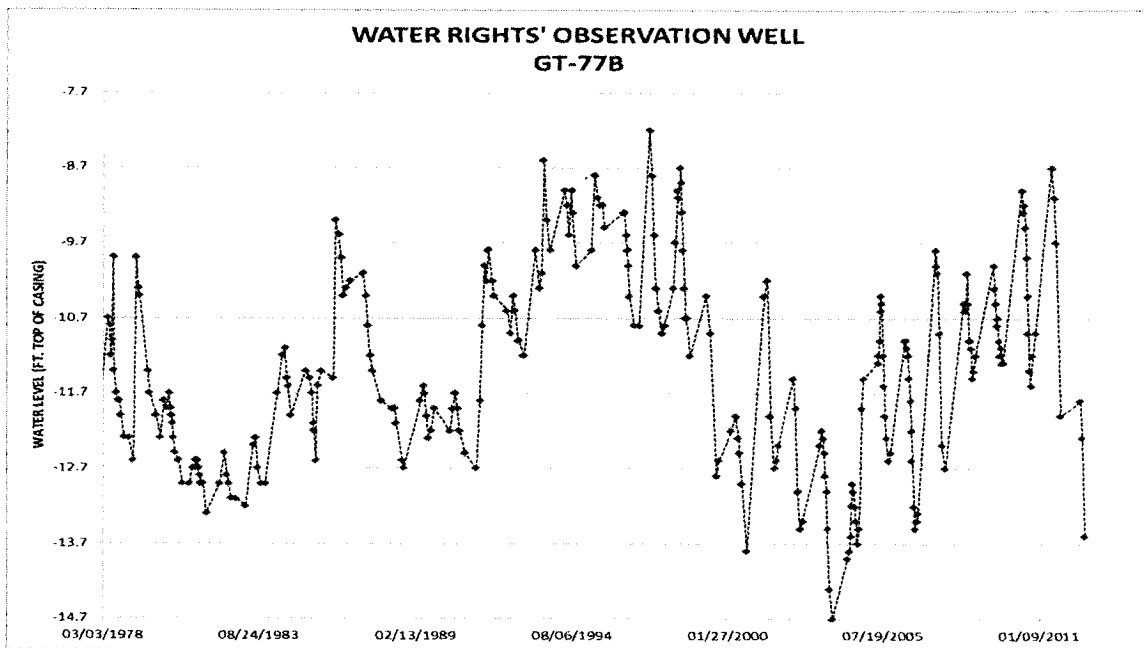


Figure 2- Hydrograph of DENR-Water Rights' observation well GT-77B (Water Rights, 2012a).

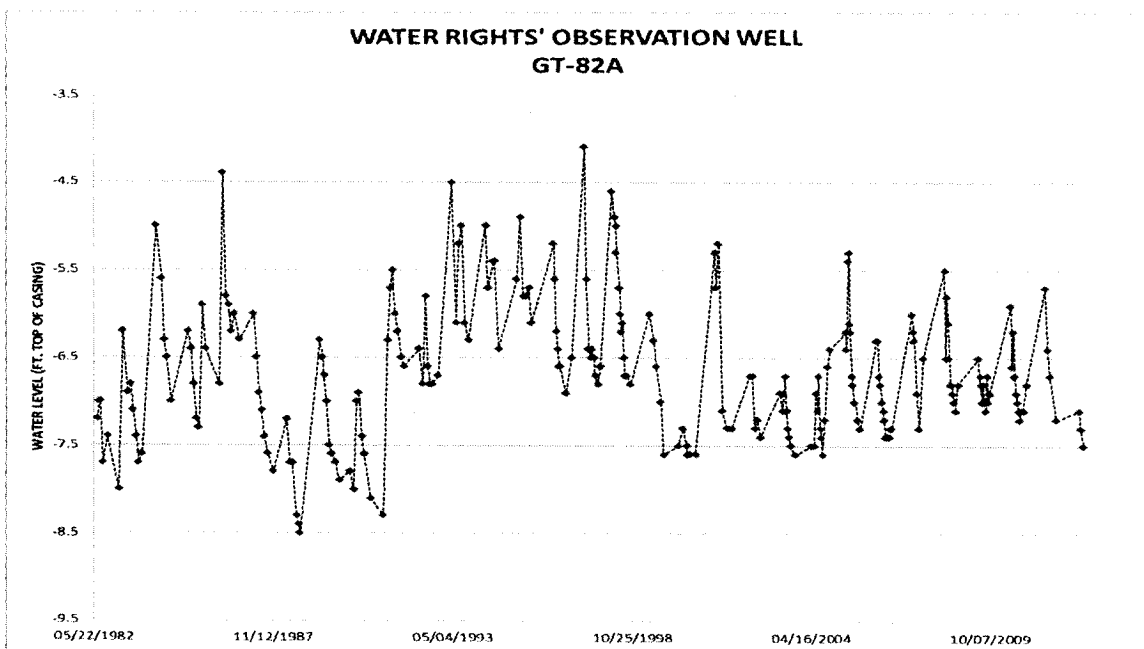


Figure 3- Hydrograph of DENR-Water Rights' observation well GT-82A (Water Rights, 2012a).

The water levels rise (recharge) during wet years and gradually decline during dry years. All three observation wells show that the water level has held steady over the period of record. The climatic effects on water level mask the temporal impacts of well withdrawal. Therefore, recharge to and natural discharge from the Big Sioux: North aquifer significantly exceeds pumping.

EXISTING WATER RIGHTS:

There are eight water rights/permits authorizing wells, some authorize multiple wells, appropriating water from the Big Sioux: North aquifer within two miles of the proposed well locations; three of those water rights/permits are held by the applicant. The nearest water right not held by the applicant is 6004-3 Don Endres, and is one mile away from the proposed wells for Water Permit Application 7404-3 and even farther away from the wells proposed by 7405-3. There are three domestic wells on file with the DENR-Water Rights Program within two miles of any of the proposed well locations (Water Rights, 2012c). The appropriation of the additional 320 ac-ft annually will increase average withdrawal rate by a maximum 0.146 cfs over the irrigation season. This increase in average withdrawal will have an insignificant effect on drawdown. At these distances well interference should not be an issue.

CONCLUSIONS:

1. Water Permit Application No. 7404-3 proposes to appropriate 320 ac-ft annually for the irrigation of an additional 160 acres located in the NE $\frac{1}{4}$ Section 4-T121N-R52W (within former boundaries of Sisseton Wahpeton Indian Reservation) to the acreage authorized by Water Permit No. 6893-3. The wells are completed into the North management unit of the Big Sioux aquifer in Grant County. This permit application is not requesting an increase in authorized diversion rate.
2. Water Permit Application No. 7405-3 proposes to appropriate 560 ac-ft annually at a maximum diversion rate of 3.33 cfs from three wells completed into the North management unit of the Big Sioux aquifer for the irrigation of 280 acres located in the N $\frac{1}{2}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, W $\frac{1}{2}$ SE $\frac{1}{4}$ Section 3 and N $\frac{1}{2}$ NW $\frac{1}{4}$ Section 11; all in T121N-R52W (within former boundaries of Sisseton Wahpeton Indian Reservation) in Grant County.
3. There is a reasonable probability that unappropriated water is available from the Big Sioux: North aquifer to supply these proposed diversions.
4. There is a reasonable probability that the diversion rate requested by each of the applications can be made without adversely affecting existing water rights/permits.



Adam Mathiowetz
SD DENR-Water Rights Program

REFERENCES:

- Buhler, K. 2012. Report on Water Permit Application No. 7328-3, Marvin Amdahl. SD DENR-Water Rights Program. Joe Foss Bldg., Pierre, SD.
- Hansen, D.S. 1990. Water resource of Codington and Grant Counties, South Dakota: U.S. geological Survey Water-Resources Investigations Report 89-4147. U.S. Geological Survey, Huron, SD.
- Hedges, L.S., S.L. Burch, D.L. Iles, R.A. Barari, and R.A. Schoon. 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. J. Allen, and D.E. Holly. 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.
- Putnam, L.D. and R.C. Thompson. 1996. Appraisal of the Water Resources of the Big Sioux aquifer, Codington and Grant Counties, South Dakota: U.S. Geological Survey Water Resources Investigations No. 96-4275. U.S. Geological Survey, Huron, SD.
- Water Rights. 1979-2012. "1979-2012 Irrigation Summaries by Aquifer": SD DENR-Water Rights Program, Joe Foss Building, Pierre, SD.
- Water Rights. 2012a. Observation Well Files. SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, SD.
- Water Rights. 2012b. Water Right/Permit Files. SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, SD.
- Water Rights. 2012c. Water Well Completion Report. SD DENR-Water Rights Program, Joe Foss Bldg. Pierre, SD.

Printer's Affidavit of Publication

RECEIVED

STATE OF SOUTH DAKOTA
COUNTY OF GRANT

} ss.

NOV - 2 2012

WATER RIGHTS
PROGRAM

Pauline Hicks

of said County and State, being first duly sworn, on oath says that the Grant County Review is a legal weekly newspaper of general circulation, printed and published in Milbank, in said County of Grant and State of South Dakota, by Phyllis Justice, and has been such newspaper during the times hereinafter mentioned; that said newspaper is a legal newspaper; and that it has a bona fide circulation of more than two hundred copies weekly, and has been published within said County of Grant in the English language and has been admitted to the United States mail under second class mailing privilege, for at least one year next prior to the publication of the Notice herein mentioned, and has been printed wholly in an office maintained at the said place of publica-

tion, that I, the undersigned, Bookkeeper of said newspaper, in charge of the advertising department thereof, have personal knowledge of all the facts stated in this affidavit; that the advertisement headed Notice of Application Nos. 7404-3 and 7405-3 to Appropriate Water

a printed copy of which, taken from the paper in which the same was published, is attached to this sheet and is made a part of this Affidavit, was published in said newspaper at least once each week for one successive weeks, on the day of each week on which the said newspaper was regularly published, to-wit:

<u>October 31</u>	<u>2012</u>	<u>20</u>
<u>20</u>		<u>20</u>
<u>20</u>		<u>20</u>

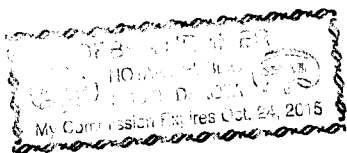
That \$ 30.82, being the full amount of the fee charged for the publication of said Notice, inures to the benefit of the publisher of the Grant County Review; that no agreement or understanding for the division thereof has been made with any person, and that no part has been agreed to be paid to any person whomsoever.

Pauline Hicks

Subscribed and sworn to before me this 1st day of Nov 20 12

Erica Hemmick

Notary Public, Grant County, South Dakota



Publication Fee	\$ <u>30.82</u>
Notarial Fee	\$ <u> </u>
Total	\$ <u>30.82</u>

NOTICE OF APPLICATION NOS. 7404-3 and 7405-3 to Appropriate Water

Notice is given that Zirbel Dairy; Ferdy Zirbel, 45202 145th St., Ortley, SD 57256 has filed the following applications for a water permit.

Application No. 7404-3 proposes to irrigate 160 additional acres. Water Permit No. 6893-3 appropriates 2.28 cubic feet of water per second (cfs) from one well completed into the Big Sioux:North Aquifer (62 feet deep) located in NW 1/4 NW 1/4 Section 4-T121N-R52W for irrigation of 160 acres. This application proposes to irrigate 160 additional acres located in the NE 1/4 Section 4-T121N-R52W (within former boundaries of Sisseton Wahpeton Indian Reservation) from the existing well. This application, if approved, does not authorize any increase in the developed diversion rate.

Application No. 7405-3 proposes to appropriate 3.33 cfs from three wells to be completed into the Big Sioux:North Aquifer (42 feet deep) located in the S 1/2 SW 1/4 Section 3 to irrigate 280 acres located in the N 1/2 SW 1/4, SE 1/4 SW 1/4, W 1/2 SE 1/4 Section 3 and N 1/2 NW 1/4 Section 11; all in T121N-R52W (within former boundaries of Sisseton Wahpeton Indian Reservation).

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application Nos. 7404-3 and 7405-3 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 these applications, as recommended, unless a petition is filed opposing the applications or the applicant files a petition contesting the Chief Engineer's recommendations. If a petition opposing the applications or contesting the recommendations is filed, then a hearing will be scheduled and the Water Management Board will consider these applications. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting these applications or recommendations must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendations. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre, SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by November 12, 2012.

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

Published once at the total approximate cost of \$30.82.

RECEIVED

NOV - 2 2012

Form 8

WATER RIGHTS
PROGRAM

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County of Codington) SS

I, Monica K. Saathoff

certify that the attached printed Notice was
taken

from the Watertown Public Opinion

printed and published in Watertown

County of Codington and

state of South Dakota. The notice was
published

in the newspaper on the following date:

October 31st, 2012

Cost of Printing 71.67

Monica K. Saathoff
(Signature)

Bookkeeping
(Title)

October 31, 2012
(Date Signed)

DEPARTMENT OF ENVIRON- MENT AND NATURAL RESOURCES

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if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to these applications. Steven M. Pirner, Secretary, Department of Environment and Natural Resources. Published once at the approximate cost of \$74.00. (October 31, 2012)

All legal notices in the Public Opinion and other South Dakota newspapers can be found at
www.sdpublishnotices.com

71.67



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

October 25, 2012

Grant County Review
PO Box 390
Milbank SD 57252

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application Nos. 7404-3 and 7405-3 to Appropriate Water. Please publish the notice once on October 31, 2012. 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 Ferdy Zirbel, Zirbel Farms, 45202 145th St., Ortleby SD 57256 (Ph # 605-949-1362).

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

October 25, 2012

Public Opinion
PO Box 10
Watertown SD 57201

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Sincerely,


Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

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

October 25, 2012

Ferdy Zirbel
Zirbel Farms
45202 145th St
Ortley SD 57256

Dear Mr. Zirbel:

Water Permit Application Nos. 7404-3 and 7405-3 for irrigation use have been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Grant County Review printed at Milbank SD (Ph # 605-432-4516) and the Public Opinion printed at Watertown SD (Ph # 605-886-6901). You will need to contact the newspaper(s) and authorize publication of this notice. For your information, a copy of the notice, the recommendations of the Chief Engineer and reports on the applications are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspaper(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(s) has also been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the applications.

Sincerely,

Eric Gronlund
Natural Resources Engineer
(605) 773-3352

cc: Dave Gullickson, Farmer's Implement, E Hwy 14 By-Pass, Brookings SD 57006
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 applications.

Instruction to Newspaper - Publish the Notice on October 31, 2012. The applicant is responsible for payment. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352 or email: Karen.schlaak@state.sd.us.

NOTICE OF APPLICATION NOS. 7404-3 and 7405-3 to Appropriate Water

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Published once at the total approximate cost of _____.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

DEC 12 2012

Zirbel Dairy
Ferdy Zirbel
45202 145th St
Ortley SD 57256

Dear Mr. Zirbel:

Enclosed are Water Permit Nos. 7404-3 & 7405-3 authorizing construction of your water diversion systems and beneficial use of the water, not exceeding the limits as specified in the Water Permits.

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

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

Sincerely,

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

enclosures

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 7404-3 & 6893-3

I have this day, **September 4, 2018**, made a thorough examination of the water use system constructed by **Zirbel Dairy** of **45202 145th St, Ortle SD 57256** holder of Permit No. **6893-3**, bearing the priority of **September 6, 2007** authorizing the diversion of **2.28** cu. ft. per second and of Permit No. **7404-3**, bearing the priority of **August 24, 2012** authorizing the diversion of **no additional** cu. ft. per second of the waters of **ground water: Big Sioux: North Aquifer** for **irrigation use** purposes, in **Grant** County.

Inspection contact & relationship **David Zirbel, operator**

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: **Lee Well Drilling Inc**
- 2) No. of Wells **1**
- 3) Depth(s) **62** feet
- 4) Well log is available **Y** If no, explain in comments

Comments: **none**

Casing:

- 1) Diameter **12** inches
- 2) Length **42** feet
- 3) Type **steel**

Screen:

- 1) Type **stainless steel**
- 2) Length **20** feet
- 3) Static water level **6** feet

Pump:

- 1) Make **Franklin**
- 2) Model **submersible**
- 3) Size **NA**
- 4) Capacity **800** GPM

Motor:

- 1) Make **Franklin**
- 2) Model No. **submersible**
- 3) Horsepower rating **NA** hp

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

- 1) Type **PVC**
- 2) Size **10** inches
- 3) Length **3700** feet

Comments: **none**

C. Works used to apply water to beneficial use:

Center pivot: West Pivot

- 1) Make Valley
- 2) Overall length 1300 feet
- 3) Number of towers 7
- 4) End gun Y
- 5) Capacity 800 GPM

Center pivot: East Pivot

- 1) Make Valley
- 2) Overall length 1250 feet
- 3) Number of towers 7
- 4) End gun Y
- 5) Capacity 800 GPM

Chemigation Equipment:

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

Comments: I informed the permit holder he needed to install a hose to the low pressure drain so discharge could be routed 20 feet from the well head.

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by Y
- 2) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period Y; List any extended period of nonuse: none; Exceptions to compliance are: none

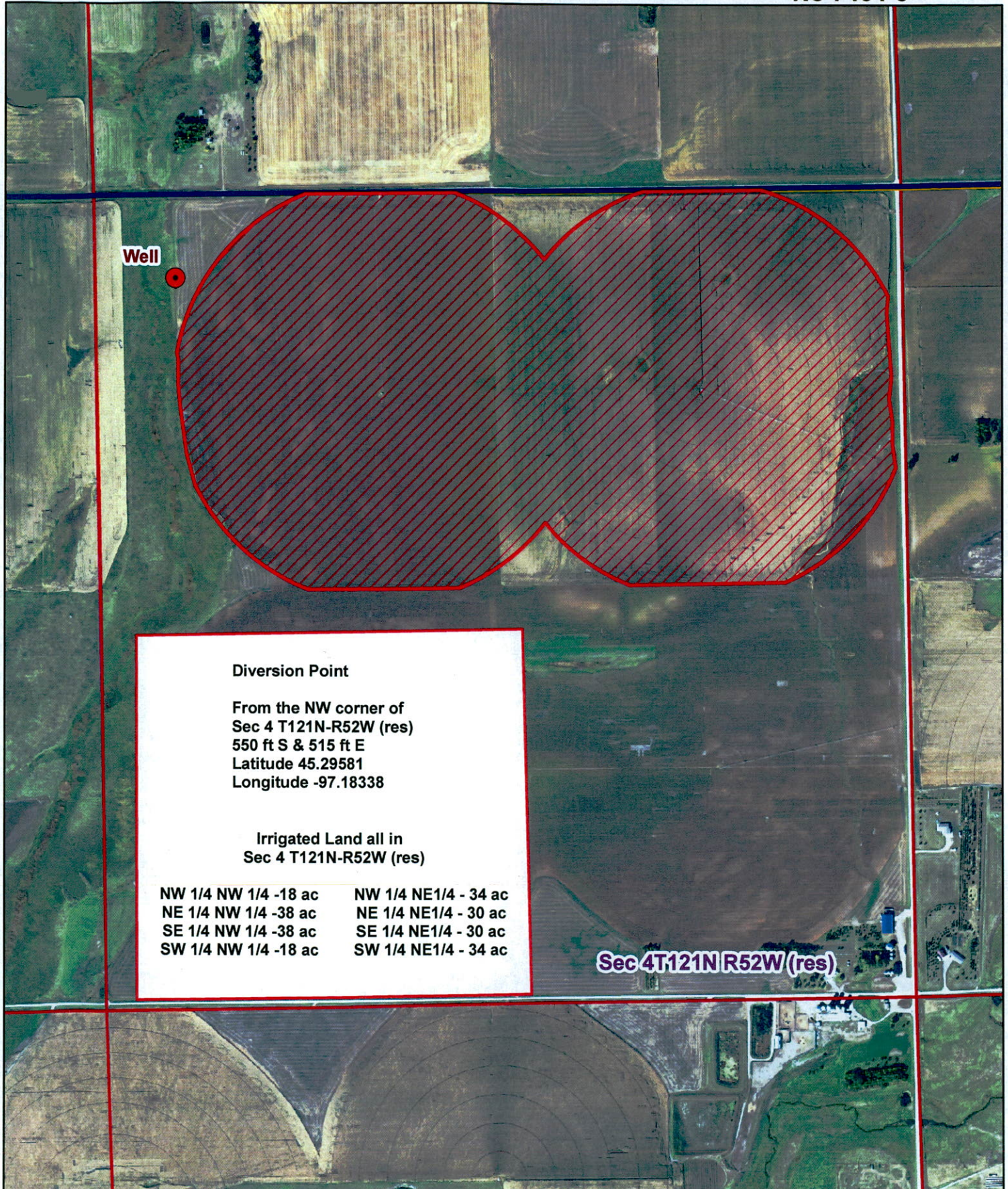
E. Condition and Location:

1. The system is in good condition with the point(s) of diversion located as follows: from the NW corner of Sec 4 T121N-R52W (res) 550 ft S & 515 ft E ; latitude of 45.29581 and longitude of -97.18338, NW 1/4 NW 1/4.
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. Water has been put to beneficial use to the maximum extent as follows: All land is located in Sec 4 T121N-R52W (res)
NW 1/4 NW 1/4 - 18 ac NE 1/4 NW 1/4 - 38 ac SE 1/4 NW 1/4 - 38 ac SW 1/4 NW 1/4 - 18 ac
NW 1/4 NE 1/4 - 34 ac NE 1/4 NE 1/4 - 30 ac SE 1/4 NE 1/4 - 30 ac SW 1/4 NE 1/4 - 34 ac
comprising a total of 240 acres of land and the license should be issued for 1.78.
All structures, wells and lands on map Y



Date report completed: 1/25/2019

Mark D Rath, Natural Resources Engineer
DENR, Water Rights Program



0 0.125 0.25 0.5 Miles

Mark D Rath

Mark D Rath
Natural Resources Engineer
January 24, 2019

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCESJOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3182
<http://denr.sd.gov>

MAR 19 2019

6893-3

7404-3

7405-3

Ferdy Zirbel
Zirbel Dairy
45202 145th St
Ortley SD 57256

Dear Mr. Zirbel:

Enclosed are Water License Nos. 7404-3 and 7405-3. These are the final water right documents completing your process of obtaining Water Rights. Included with each 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.

At the time the irrigation projects were inspected for licensing, the staff engineer made note of the equipment used to apply chemicals or fertilizer through your center pivot systems. In order to bring the equipment into compliance, a hose will need to be installed to the low pressure drains to allow discharge to be routed at least 20 feet away from the wells. Enclosed are excerpts of Board Rules outlining the requirements for chemigation equipment.

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

Sincerely,

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

enclosures

Note: Upon licensing, the applicable portions of Water Permit No. 6893-3 were incorporated into Water License No. 7404-3.

**STATE OF SOUTH DAKOTA
WATER LICENSE NO. 7404-3**

(1) Zirbel Dairy, 45202 145th St, Orley SD 57256 made Application No. 7404-3, August 24, 2012 for a water permit to add acreage to the irrigation system authorized under Water Permit No. 6893-3. No increase in the developed diversion rate from the existing well (Big Sioux North Aquifer) was authorized. The project is located in Grant County, South Dakota. Permit No. 7404-3, with a priority date of August 24, 2012 was approved November 12, 2012 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before November 12, 2017 and for the application to beneficial use of water on or before November 12, 2021.

Water Permit No. 6893-3, with a priority date of September 6, 2007, authorizes diversion of 2.28 cubic feet of water per second from one well to irrigate 160 acres in the NW ¼ and W ½ NE ¼ Section 4, T121N, R52W (res). Water Permit No. 7404-3, with a priority date of August 24, 2012, added 160 acres located in the NE ¼ Section 4 to the project. The applicable portions of Water Permit No. 6893-3 are incorporated into Water License No. 7404-3. Priority dates as they pertain to the acreage are described in (3) of this license.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the water supply system and is entitled to divert 1.78 cubic feet of water per second for beneficial use. The location of the diversion point is:

- 550'S and 515'E of the NW corner of Section 4, T121N, R52W (NW ¼ NW ¼)
Latitude 45.29581, Longitude -97.18338 (Res)

The above location is within the former boundaries of the Sisseton Wahpeton Indian Reservation.

(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:

Section 4, T121N, R52W (Res)	NW ¼ NW ¼	18 acres	NW ¼ NE ¼	34 acres
	NE ¼ NW ¼	38 acres	NE ¼ NE ¼	30 acres
	SE ¼ NW ¼	38 acres	SE ¼ NE ¼	30 acres
	SW ¼ NW ¼	18 acres	SW ¼ NE ¼	34 acres
240 acres				

Priority dates: September 6, 2007 for the west pivot as established under No. 6893-3;
August 24, 2012 for the east pivot as established under No. 7404-3 (pivots overlap)

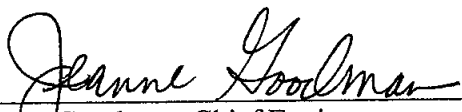
The above acreage is within the former boundaries of the Sisseton Wahpeton Indian Reservation.

(4) Pursuant to South Dakota Water Law 46-5-30.1 Zirbel Dairy, 45202 145th St, Orley SD 57256 the holder and/or owner of Incorporated Water Right No. 7404-3 is issued a license to appropriate water, the right to use 1.78 cubic feet of water per second from ground water, one well (Big Sioux North Aquifer) with priority dates of September 6, 2007 and August 24, 2012 from the location specified in (2) of this license for irrigation purposes.

continued

This license is subject to South Dakota Water Law, any limitations or conditions listed in Incorporated Water Right No. 7404-3 and subject to the following qualifications:

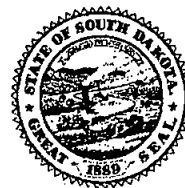
- The well approved under Permit Nos. 6893-3 and 7404-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
- **(From Permit No. 6893-3)** The well authorized 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 drilled in October, 2007 by Lee Well Drilling Inc. 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

MAR 19 2019

date



Dewell, Amanda

From: Dewell, Amanda
Sent: Wednesday, October 30, 2024 9:10 AM
To: fszirbel@tnics.com
Subject: FW: [EXT] 7404-3 IQ Reported Use in 2024, Yes, 260.00 acres irrigated

Mr. Zirbel,

The Water Rights Program has received the 2024 Irrigation Questionnaire you submitted online for [Water Right No. 7404-3](#). On this year's questionnaire, you indicated the irrigation of 260 acres, while the water right only authorizes irrigation of 240 acres. If it was simply an entry error, please let me know so that I may correct the report. However, if 20 new acres have been developed, [additional permitting](#) would be required.

Thank you,

Amanda Dewell

DANR - Water Rights Program
 Permitting Administrator
 Main Phone: 605 773-3352
 Website: danr.sd.gov



From: Caspio <noreply@caspio.app>
Sent: Tuesday, October 29, 2024 8:54 AM
To: Duvall, Ron <Ron.Duvall@state.sd.us>; Dewell, Amanda <Amanda.Dewell@state.sd.us>
Subject: [EXT] 7404-3 IQ Reported Use in 2024, Yes, 260.00 acres irrigated

Permit Holder:
 FERDY ZIRBEL
 ZIRBEL DAIRY
 45202 145TH ST
 ORTLEY SD 57256

fszirbel@tnics.com

If water used, reported in following months:

Month	Crop 1	Crop 2	Crop 3	Crop 4
Mar	,	,	,	,
Apr	,	,	,	,
May	,	,	,	,