

WATER PERMIT NO. 8413-3

Name of Applicant: Ratio LLC

Address: 43204 US Hwy 14, DeSmet SD 57231

Phone: 605 350-1359

Amount of Water Claimed: 0.134 cfs (77 AF)

Total Acres: NA

Source of Water Supply: groundwater (2 wells)

Water to be used for: commercial County: Hand

Type of Waste Disposal System:

Location: 12 miles southeast of Miller

PRIORITY Date Received: 10-30-19

Application/License Fee: \$ 700

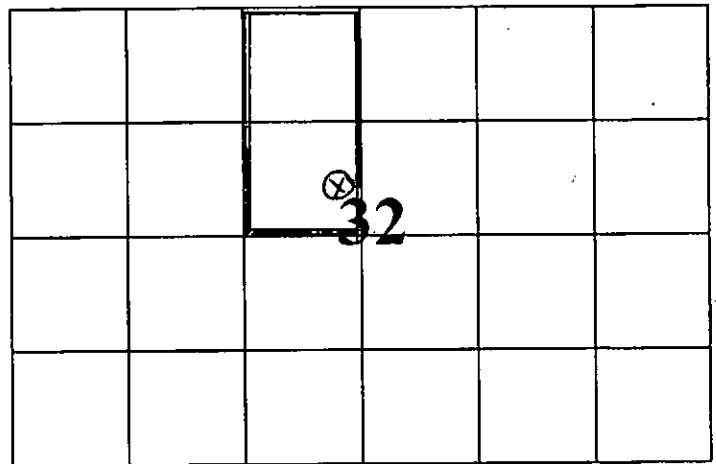
Corrected Application Received:

Period of Annual Use: Jan 1 – Dec 31

Remarks: swine production facility

Diversion Point: SE 1/4 NW 1/4 Sec 32-T111N-
R67W

Land to be Irrigated: NA



Depth of Well: 166 feet deep

Well Driller:

Remarks:

Type of Map:

Prepared by:

Reviewed and the Number Assigned on: 11-4-19

By: Karen Schlaak

Notice of Hearing - date to intervene: _____

**SOUTH DAKOTA
WATER PERMIT NO. 8413-3**

Date of first receipt of application October 30, 2019.

Date of return to applicant for corrections, amendments or changes October 30, 2019.

Date of receipt of corrected application November 1, 2019.

The Water Management Board approved Water Permit No. 8413-3 on December 2, 2020 for Ratio LLC, c/o Kirk A Aughenbaugh, 43204 US Hwy 14, DeSmet SD 57231 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. 8413-3 appropriates 77 acre-feet of water annually at a maximum pump rate of 0.134 cubic feet of water per second from two wells to be completed into the Niobrara Aquifer (325-350 feet deep) or the Dakota Aquifer (1,300-1,500 feet deep) located in the SE 1/4 NW 1/4 Section 32 for commercial use in a swine production facility to be located in the E 1/2 NW 1/4 Section 32; all in T111N-R67W. This site is located approximately 10 miles southeast of Miller SD.
2. The water appropriated shall be used for the purpose of commercial use and may not exceed the amount of water needed for beneficial use.
3. The water is to be used during the following described annual period: January 1 – December 31.
4. The date from which applicant may claim right is October 30, 2019.
5. One-fifth of the construction is to be completed on or before June 2, 2023.
6. All construction is to be completed on or before December 2, 2025.
7. Water is to be put to beneficial use on or before December 2, 2029.
8. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. The wells approved under Water Permit No. 8413-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under these Permits shall control withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The wells authorized by Water Permit No. 8413-3 shall be constructed into the same aquifer, either the Niobrara aquifer or Dakota aquifer, but not both. At the time of the licensing, the final water right will be issued for the developed water source.
3. The wells authorized by Permit No. 8413-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.

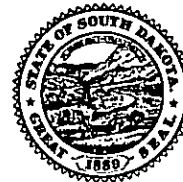
(continued)

4. Water Permit No. 8413-3 is subject to compliance with requirements of the Department's Water Pollution Control Permit issued pursuant to SDCL 34A-2-36 or 34A-2-36.2 or 34A-2-112 or 34A-2-124 for concentrated animal feeding operations.
5. Water Permit No. 8413-3 is subject to compliance with all existing and applicable Water Management Board Rules including but not limited to:
 - a) Chapter 74:54:01 Ground Water Quality Standards,
 - b) Chapter 74:54:02 Ground Water Discharge Permit,
 - c) Chapter 74:51:01 Surface Water Quality Standards,
 - d) Chapter 74:51:02 Uses Assigned to Lakes,
 - e) Chapter 74:51:03 Uses Assigned to Streams, and
 - f) Chapter 74:52:01 through 74:52:11 Surface Water Discharge Provisions
6. The Permit holder shall report to the Chief Engineer annually the amount of water withdrawn from the aquifer.
7. Water Permit No. 8413-3 authorizes a total annual diversion of 77 acre feet of water from the aquifer.

WATER MANAGEMENT BOARD

By: Eric Gronlund
Eric Gronlund, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

JAN 22 00 2021
date



FORM 2: Application for uses other than irrigation
(type or print)

RECEIVED

OCT 30 2019

WATER RIGHTS
PROGRAM

Mail to: DENR - Water Rights 523 E Capitol Ave Pierre, SD 57501-3182 ph. (605) 773-3352	No. <u>8413-3</u>	(office use only) Hydrologic Unit <u>10160006</u>
	Basin <u>James River</u>	
	Newspaper <u>Miller Press</u>	
	<u>Plainsman</u>	

Application For Permit To Appropriate Water Within The State Of South Dakota

Check use(s) of water:

☐ Municipal	☐ Water Distribution System	☐ Recreational	☐ Institutional
☐ Rural Water System	☒ Commercial	☐ Fish & Wildlife	☐ Geothermal
☐ Domestic (over 18 gpm)	☐ Industrial	☐ Other _____	

Type of Application:
(check one)

☒ New	☐ Vested Right (Use predates Mar 2, 1955)	☐ Future Use Reservation
☐ Place to Beneficial Use Water Reserved by Future Use Permit No. _____		
☐ Amendment/Correction to Permit No. _____		

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

_____1. Name to Appear on Water Permit Ratio, LLC

Mailing Address 43204 US Highway 14 De Smet SD 57231
(Address) (City) (State) (Zip Code)
 Phone _____ Mobile (605) 350-1359 Email kirka@aughenbaughhq.com

2. Amount of water claimed 0.134 *CFS or 60 **GPM and 77 ***AF or _____ Gallons
Flow rate and volume are both required. (*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use)

3. Source of water supply Niobrara Formation

4. Location of point of diversion NW 1/4, Section 32, T111N, R67W (SE 1/4 NW 1/4) County Hand
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)

If not a public water supply (e.g. municipal), will water be used outside of the area described above? ☐ Yes ☒ No

If "Yes," where will water be used? Facility location: E 1/2 NW 1/4 Sec 32 - T111N - R67W
(example - NW1/4 section 12-T104N-R53W)

5. County or counties where water will be used Hand6. Annual period during which water is to be used January 1st thru December 31st

7. Give a description of the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)
 Ratio, LLC is a proposed 9,060 head swine production facility. A rural water connection is being explored, also.

I, Kirk Aughenbaugh Kirk A. Aughenbaugh Member _____, 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.

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

Supplemental Information

(type or print)

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

a) If new wells, how many 2 Have test holes been drilled ☐ Yes ☒ No Drilled by _____
(if yes, please provide copies of logs)

b) If existing wells, how many 2 Provide copy of log(s), if available. Drilled by Cain Drilling

For either Existing or Proposed Wells: Well # 2 208' 194' 15'

c) Well Depth (required) 166 Depth to Top of Water Bearing Material 129 Depth to Water from Surface 45

d) Distance to nearest domestic well on applicant's property >2,400' Property owned by others >3,000'

2. Wastewater Disposal System Information

a) Type of System (i.e. septic tank, drain field) N/A

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)

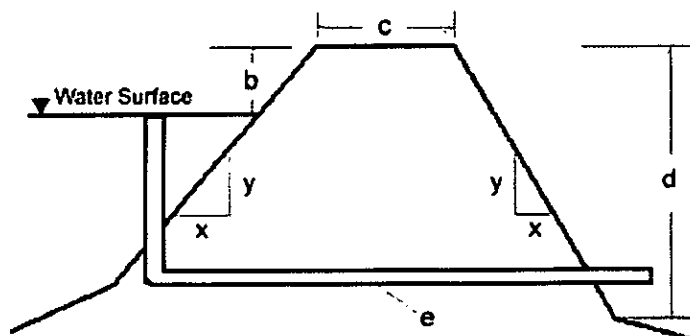
Upstream _____

Downstream _____

h) Surface Area of Impoundment _____

i) Storage _____ Acre Feet

j) Drainage Area Above Dam _____ Acres





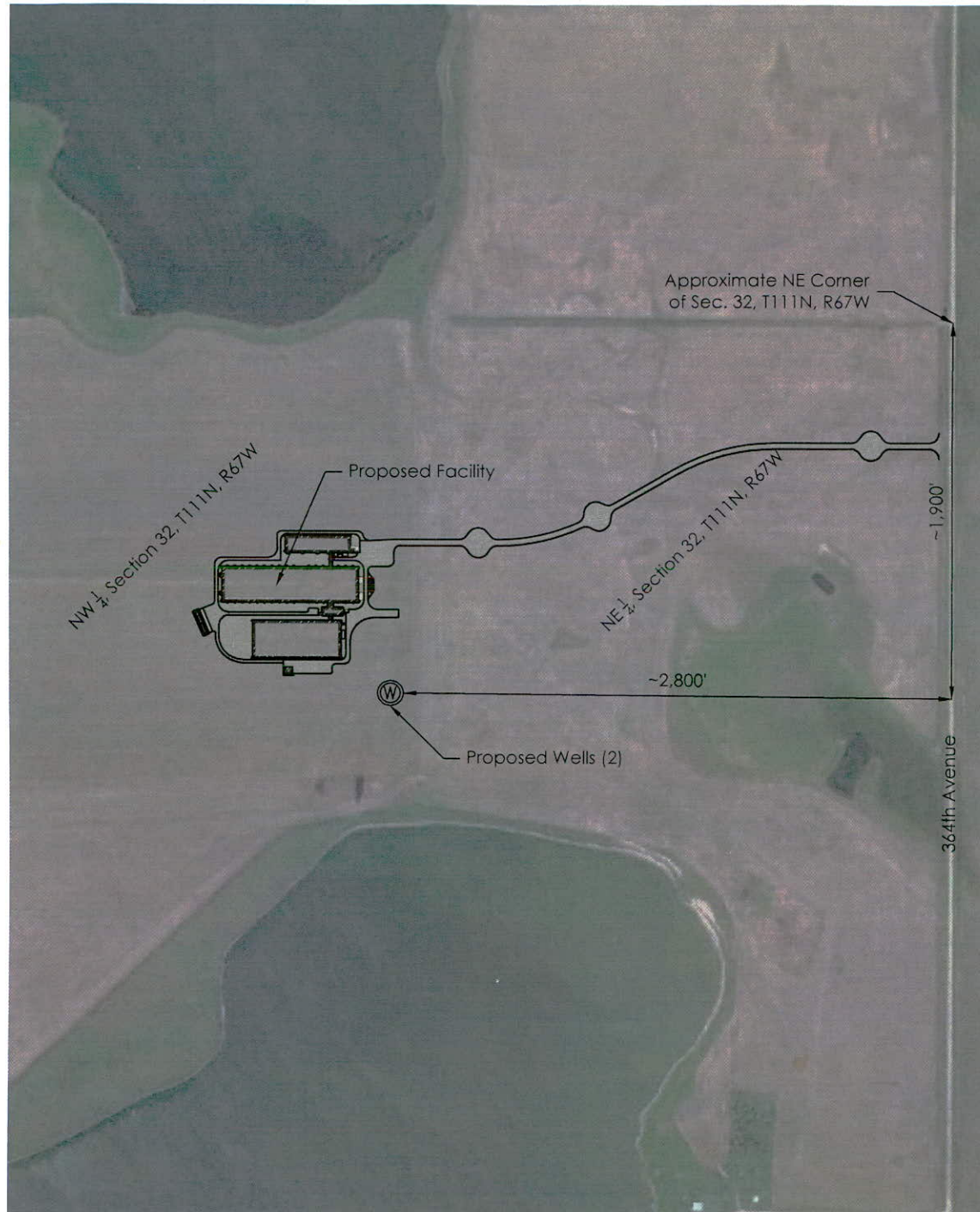
0 200 400 800

Ratio, LLC
Proposed Well Location
Hand County, SD
SEI PROJECT #: 19088

PLOT DATE 10/23/2019 3:23 PM

WELL

AERIAL



Ratio, LLC
Proposed Well Location
Hand County, SD
SEI PROJECT #: 19088

PLOT DATE 10/30/2019 4:14 PM

WELL

AERIAL

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date November 1, 20 19

RECEIVED OF Ironcor Kirk A. Aughenbaugh 21024 421st Ave Iroquois SD 57353

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

Fee for Application for Permit No. <u>8413-3</u> to Appropriate Water, to construct and to put water to beneficial use	700 500	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>8413-3</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	700 00

No. **09231**

By Joanne Goodman
Chief Engineer Jm



DL164350

B0098-9417 05/08/2019 3:06PM Rec'd by SD SOS

Secretary of State
500 E. Capitol Ave
Pierre, SD 57501-5070
(605) 773-4845

ARTICLES OF ORGANIZATION

DOMESTIC LIMITED LIABILITY COMPANY
SDCL 47-34A-203, 212

Filing Fee: \$150

Total Fee: \$150

Please Type or Print Clearly in Ink
Please submit one Original
Make payable to the SECRETARY OF STATE

Article I

The name of the Company: **Ratio LLC**

Article II

The address of the initial designated office in or out of the State of South Dakota where the company conducts its business:

Actual Street Address

**43204 US HIGHWAY 14
DESMET, SD 57231**

Mailing Address

**PO BOX 10
DESMET, SD 57231**

Article III

SDCL 59-11-6

The South Dakota Registered Agent's Name:

South Dakota law permits the registered agent to be either (a) a noncommercial registered agent or (b) a commercial registered agent.

(a) The South Dakota Noncommercial Registered Agent's name

Name **Kirk Alan Aughenbaugh**

Actual Street Address in this State

**43204 US HIGHWAY 14
DESMET, SD 57231**

Mailing Address in this State

**BOX 10
DESMET, SD 57231**

Article IV

The name and address of each organizer

Name

Address

Kirk Alan Aughenbaugh 21024 421st Avenue, Iroquois, SD 57353

Alan Martin Aughenbaugh 20124 421st Avenue, Iroquois, SD 57353

Article V

The duration of the company if other than perpetual is: **Perpetual**

If the document is not to be effective upon filing by the Secretary of State, the delayed effective date is: _____



Article VI

☒ Member-Managed ☐ Manager-Managed

Article VII

Whether one or more of the members of the company are to be liable for its debts and obligations as set forth under SDCL 47-34A-303(c).

☒ Yes ☐ No

Article VIII

Beneficial Owners (optional): A beneficial owner is a person who has or in some manner controls an equity security. Please consult an attorney for legal advice if you have any questions concerning this entry. Any question under this heading is considered a request for legal advice and the secretary of state's office is, by statute, not permitted, to provide legal advice.

Name	Address
Kirk Alan Aughenbaugh	21024 421st Avenue, Iroquois, SD 57353
Alan Martin Aughenbaugh	21024 421st Avenue, Iroquois, SD 57353

Signature/Authorization

The Articles of Organization must be executed by the organizers.

No person may execute this report knowing it is false in any material respect. Any violation may be subject to a criminal penalty (SDCL 22-39-36).

Kirk Alan Aughenbaugh	<i>Kirk Alan Aughenbaugh</i>	Owner	05/08/2019
PRINTED NAME	SIGNATURE	TITLE	DATED

Schlaak, Karen

From: Schlaak, Karen
Sent: Wednesday, October 30, 2019 4:26 PM
To: Brad Woerner
Subject: RE: [EXT] Ratio, LLC (Hand County) Water Rights Application

Yes that map works and you answered my questions. Once the fee is received we will proceed with the application.
Karen

From: Brad Woerner <bwoerner@stockwellengineers.com>
Sent: Wednesday, October 30, 2019 4:19 PM
To: Schlaak, Karen <Karen.Schlaak@state.sd.us>
Cc: kirka@aughenbaughhq.com; Gronlund, Eric <Eric.Gronlund@state.sd.us>
Subject: RE: [EXT] Ratio, LLC (Hand County) Water Rights Application

Karen,

Will this revised map work? I had the facility on my screen but it was on a no print layer within CAD.

The swine facility will be located in the E ½ of the NW ¼. The wells (two of them) will be located in the SE ¼ of the NW ¼.

The plan would be to drill 2 wells for this permit.

I believe that Kirk Aughenbaugh will be sending the application fee directly to the Department.

If you have any questions, please let me know.

Thanks for your help!

Sincerely,
Bradley S. Woerner, PE
PROJECT MANAGER



bwoerner@stockwellengineers.com
Phone: 605.665.8092
Cell: 605.660.1362
Fax: 605.665.0523
201 Walnut Street
Yankton, SD 57078
stockwellengineers.com

This e-mail may contain confidential and/or privileged information. If you are not the intended recipient (or have received this e-mail in error) please notify the sender immediately and destroy this e-mail. Any unauthorized copying, disclosure or distribution of the material in this email is strictly forbidden.

From: Schlaak, Karen <Karen.Schlaak@state.sd.us>
Sent: Wednesday, October 30, 2019 16:02

To: Brad Woerner <bwoerner@stockwellengineers.com>
Cc: kirka@aughenbaughhq.com; Gronlund, Eric <Eric.Gronlund@state.sd.us>
Subject: FW: Ratio, LLC (Hand County) Water Rights Application

Brad,

Eric forwarded the email and application for Ratio LLC to me for review. The following is required to complete the application.

- Please submit a aerial photo map which outlines the entire area of the proposed facility.
- The map indicates a location for proposed wells. How many wells is the application requesting? Will the well(s) be located within the SE ¼ NW ¼ Section 32-T111N-R67W.
- The application/license fee based on the requested 77 acre-feet of water will be \$700.

If you have any questions, please let me know.

Karen Schlaak

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



From: Brad Woerner <bwoerner@stockwellengineers.com>
Sent: Wednesday, October 30, 2019 3:12 PM
To: Gronlund, Eric <Eric.Gronlund@state.sd.us>
Cc: Kirk Aughenbaugh <kirka@aughenbaughhq.com>
Subject: [EXT] Ratio, LLC (Hand County) Water Rights Application

Eric,

I have attached a water rights application for the proposed Ratio, LLC swine facility in Hand County. Currently, the facility is awaiting approval of their application from the feedlot program.

If you should have any questions, please feel free to contact myself or Kirk at your convenience.

Thanks!

Bradley S. Woerner, PE
PROJECT MANAGER



bwoerner@stockwellengineers.com
Phone: 605.665.8092
Cell: 605.660.1362
Fax: 605.665.0523



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

November 20, 2019

Ratio LLC
Kirk Aughenbaugh
43204 US Hwy 14
DeSmet, SD 57231

Dear Aughenbaugh:

As discussed by email and a phone call between Eric Gronlund and Brad Woerner of Stockwell Engineers on behalf of Ratio LLC on November 20, 2019, more information in the form of a test hole is needed to complete the assessment of Water Permit Application No. 8413-3 for Ratio LLC.

The test hole is to be drilled to a depth of 225 feet or until the main body of the Pierre shale is encountered whichever occurs first. The test hole is to be completed as near as possible to the proposed diversion points listed in Water Permit Application No. 8413-3 (SE ¼ NW ¼ Section 32; T111N-R67W).

If you have any questions pertaining to drilling, please contact Timothy Magstadt, Adam Mathiowetz or myself. The Department of Environment and Natural Resources' phone number is (605) 773-3352.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric Gronlund".

Eric Gronlund
Water Rights Program

RECEIVED

Subject: Well paperwork
Date: Friday, December 20, 2019 at 3:51:15 PM Central Standard Time
From: Tom Rathjen
To: Kirk Aughenbaugh
Attachments: Completion Report.jpeg, Drillers log.jpeg, Invoice.jpeg, Plugging Invoice 1.jpeg, Plugging Invoice 2.jpeg, Plugging Report 1.jpeg, Plugging report 2.jpeg

JAN 02 2020

WATER RIGHTS
PROGRAM

Good afternoon,

Please sign and date the Plugging reports and completion report and send them to Tim Magstadt at the state. The states mailing address is 523 E Capital Ave Pierre, SD 57501

Thank you!

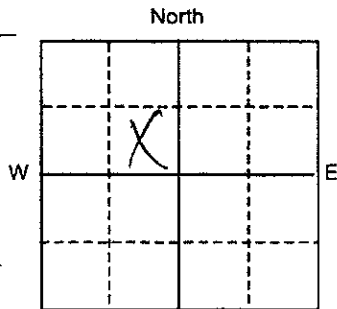
Stretch's Well Service, Inc. ☐
(605) 266-2128
Fax: 1-605-266-2126

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SE 1/4 NW 1/4 Sec 32 Twp 111N Rg 67WCounty HAND

Please mark well location with an "X"



Well Completion Date

12-17-19

1 Mile

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

NONE ft. from (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Mud Rotary

CASING DATA:

☐ Steel ☐ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	IN	FT	FT	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>#20</u>	<u>15</u>	Lb/gal	<u>0</u> Ft	<u>285</u> Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

Pumped Through Drill Pipe

SCREEN:

☐ Perforated pipe ☐ Manufactured

Diameter _____ Inches Length _____ Feet

Material _____

Slot Size _____ Set From _____ Feet to _____ Feet

Other information _____

WAS A PACKER OR SEAL USED?

☐ Yes ☐ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How?

☐ No, Why Not?

Lab to which water quality sample sent for analysis

Well Owner: Kirk Augenbaugh

Business Name:

Address: 21024 421 AveCity, State, Zip: Treasure SD 57753

WELL LOG:

DEPTH

FORMATION

FROM

TO

See Attached Log

STATIC WATER LEVEL

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

_____ Ft. After _____ Hrs. pumped _____ GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

This well was drilled under license # 722 and this report is true and accurate.

Drilling firm:

Stretch's Well Service Inc

Signature of License Representative:

Tom Glatton

Signature of Well Owner or Equitable Property Holder:

Tom AugenbaughDate: 12-21-19

RECEIVED

JAN 02 2020

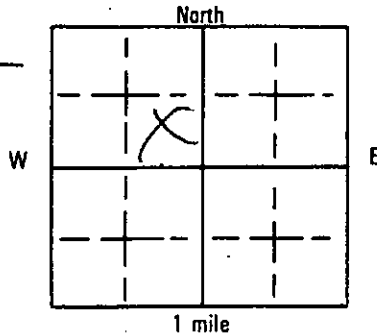
WATER RIGHTS PROGRAM

SOUTH DAKOTA WELL AND TEST HOLE PLUGGING REPORT

10-85

Location SE 1/4 NW 1/4 Sec 32 Twp 111N Rg 167W

County

HandPlease mark well
location with
an "X"

Well Owner:

Name Kirk AugenbaughAddress 21024 421 AveTroquois S.D. 57353Plugging completion Date 12-20-19

CHECK APPROPRIATE BOX

EXISTING WELL ☒TEST HOLE ☐Well depth UNKNOWNCasing material steelCasing size(s) 3"Casing condition Fair

Hole depth _____

Hole size _____

Describe plugging procedure: 110' Tremmie PipeDescribe grout or plugging material: 15⁵² Portland Cement

Type of non-slip plug: _____

This well or test hole was plugged under license # 722 And this report is true and accurate.Drilling firm Stretch's Well Service Inc.Signature of Licensed Representative [Signature]Signature of Well Owner [Signature]Date 12-21-19

RECEIVED

JAN 02 2020

WATER RIGHTS
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SOUTH DAKOTA WELL AND TEST HOLE PLUGGING REPORT

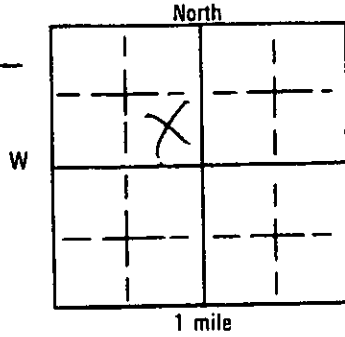
10-85

Location SE 1/4 NW 1/4 Sec 32 Twp 11N Rg 67W

County

Hand

Please mark well location with an "X"



Well Owner:

Name Kirk Augerbaugh

Address 21024 421 Ave

Troquair's S.D 57353

Plugging completion Date 12-20-19

CHECK APPROPRIATE BOX

EXISTING WELL



TEST HOLE



Well depth UNKNOWN

Casing material Steel

Casing size(s) 3"

Casing condition Fair

Hole depth _____

Hole size _____

Describe plugging procedure: Tremmie Pipe To 100'

Describe grout or plugging material: Portland Cement 15⁴²

Type of non-slip plug: Cement

This well or test hole was plugged under license # 722 And this report is true and accurate.

Drilling firm Stretch's Well Service Inc.

Signature of Licensed Representative Tom Pethers

Signature of Well Owner Kirk Augerbaugh

Date 12-21-19

RECEIVED

JAN 02 2020

WATER RIGHTS PROGRAM

Kirk AUGHBAU
Job NameEast-South of
St Lawrence
Location12-13-19
Date

Rig No.

Daryl
Foreman

Jt #	Depth	Time	Remarks
	A		
1	0-15	3.00	GL - 4' TOP SOIL BLACK
2	15-30	3.55	4-5' yellow clay
3	30-45	4.26	6-7 ROCK
4	45-60	4.16	7-8 yellow clay
5	60-75	4.35	8-9 ROCK
6	75-90	4.53	9-15 yellow clay with pebbles
7	90-105	4.50	15-32 ROCK fell in drilling it down
8	105-120	1.00	yellow clay
9	120-135	1.18	32-35 light grayish clay
10	135-150	1.20	35-60 Blue clay little sand
11	150-165	1.34	60-75 Blue clay little sand
12	165-180	1.15	with small pebbles
13	180-195	1.38	75-76 ROCK kept coming in
14	195-210	1.46	76-90 Blue clay
15	210-225	1.27	90-109 softer sandy blue clay
16	225-240	1.48	109-110 ROCK
17	240-255	2.39	110-117 Blue sandy clay
18	255-270	3.12	117-125 Blue sandy clay small sand streaks
19	270-285	4.07	125-183 Harder Blue silty clay small pebbles
			183-187 Blue silty clay small sand streaks
			187-233 Blue shaley clay with pebbles
			233-240 Hard Rattley thin down
			240-245 Sand Hard Rattley NO H2O
			245-250 Sand Little H2O bottom 2' drilled better
			250-255 Sand Rattley drilled better little H2O
			255-260 Sand with clay streaks little H2O
			260-265 Sand drilled fair Rattley NO H2O
			265-270 Sand with clay streaks No H2O did not drill very good
			270-273 Sand drilled fair
			273-275 clay
			275-280 Sand drilled fair Rattley
			280-285- Shale
			1 bag bentonite
			2 bags hole plug

RECEIVED

JAN 06 2020

WATER RIGHTS
PROGRAM

Gronlund, Eric

From: Brad Woerner <bwoerner@stockwellengineers.com>
Sent: Thursday, February 6, 2020 10:34 AM
To: Magstadt, Timothy; Gronlund, Eric
Subject: FW: [EXT] Ratio, LLC - Water Rights Application

Importance: High

Timothy / Eric,

Following our conversation this morning and my subsequent conversations with the applicant, we would request that the existing application for Ratio, LLC be amended to include the Dakota Aquifer as a potential source, should the Niobrara not be available beneath the site.

If would our belief that the Dakota Aquifer is at a depth of approximately 1,300 -1,500 feet below the surface.

We request that the existing application be amended and that review continue/include the Dakota Aquifer, in addition to the Niobrara Aquifer as previously discussed.

Should you have any questions, please contact my office at your convenience. Thank you.

Sincerely,

Bradley S. Woerner, PE
PROJECT MANAGER



bwoerner@stockwellengineers.com
Phone: 605.665.8092
Cell: 605.660.1362
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From: Brad Woerner <bwoerner@stockwellengineers.com>
Sent: Friday, January 17, 2020 15:50
To: Magstadt, Timothy <Timothy.Magstadt@state.sd.us>; Gronlund, Eric <Eric.Gronlund@state.sd.us>
Subject: Ratio, LLC - Water Rights Application
Importance: High

Timothy / Eric,

Upon further discussion and review, Ratio, LLC requests an amendment to their water rights permit application. We believe the depth to the Niobrara Aquifer to be approximately 325'-350' deep at this location based upon the recently

completed test hole. We request that the application be amended to reflect this depth and that the review/processing continue on the application.

If you have any questions, please contact my office at your convenience. Thank you!

Sincerely,

Bradley S. Woerner, PE
PROJECT MANAGER



bwoerner@stockwellengineers.com

Phone: 605.665.8092

Cell: 605.660.1362

Fax: 605.665.0523

201 Walnut Street

Yankton, SD 57078

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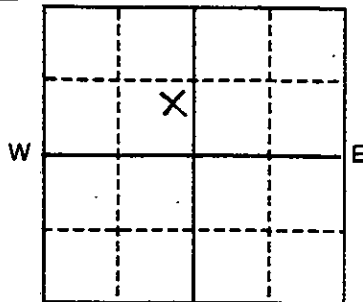
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SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SE 1/4 NW 1/4 Sec 32 Twp 111N Rg 67WCounty HAND

North

Please mark well
location with an "X"

Well Completion Date

2-4-20

1 Mile

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

NONE from

(Identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

Mud Rotary

CASING DATA:

☐ Steel
 ☐ Plastic
 ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	IN	FT	FT	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>#20</u>	<u>16</u>	Lb/gal	<u>0</u> Ft	<u>410</u> Ft
		Lb/gal		

Describe grouting procedure

Pumped Through Drill Pipe

SCREEN:

☐ Perforated pipe
 ☐ Manufactured

Diameter _____ Inches Length _____ Feet

Material _____

Slot Size _____ Set From _____ Feet to _____ Feet

Other information _____

WAS A PACKER OR SEAL USED?

☐ Yes
 ☐ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How?

☐ No, Why Not?

Lab to which water quality sample sent for analysis

Well Owner: Kirk Aughenbaugh

Business Name:

Address:

21024 421st Ave

City, State, Zip:

Irquois SD 57353

WELL LOG:

DEPTH

FORMATION

FROM

TO

See Attached Log

STATIC WATER LEVEL

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

Ft. After

Hrs. pumped

GPM

Ft. After

Hrs. pumped

GPM

If pump installed, pump rate:

GPM

REMARKS

This well was drilled under license #

722

and this

report is true and accurate.

Drilling firm:

Stretch's Well Service Inc

Signature of License Representative:

[Signature]

Signature of Well Owner or Equitable Property Holder:

RECEIVED

Date:

3-5-2020MAR 09 2020WATER RIGHTS
PROGRAM



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 8413-3, Ratio LLC**

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. 8413-3, Ratio LLC, c/o Kirk Aughenbaugh, 43204 US Hwy 14, DeSmet SD 57231.

The Chief Engineer is recommending APPROVAL of Application No. 8413-3 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 Water Permit No. 8413-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner, under these Permits shall control withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The well authorized by Water Permit No. 8413-3 shall be constructed into a single aquifer, either the Niobrara aquifer or Dakota aquifer, but not both. At the time of the licensing, the final water right be issued for the developed water source.
3. The well authorized by Permit No. 8413-3 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. Water Permit No. 8413-3 is subject to compliance with requirements of the Department's Water Pollution Control Permit issued pursuant to SDCL 34A-2-36 or 34A-2-36.2 or 34A-2-112 or 34A-2-124 for concentrated animal feeding operations.
5. Water Permit No. 8413-3 is subject to compliance with all existing and applicable Water Management Board Rules including but not limited to:
 - a) Chapter 74:54:01 Ground Water Quality Standards,
 - b) Chapter 74:54:02 Ground Water Discharge Permit,
 - c) Chapter 74:51:01 Surface Water Quality Standards,
 - d) Chapter 74:51:02 Uses Assigned to Lakes,

(continued)

- e) Chapter 74:51:03 Uses Assigned to Streams, and
- f) Chapter 74:52:01 through 74:52:11 Surface Water Discharge Provisions

6. The Permit holder shall report to the Chief Engineer annually the amount of water withdrawn from the aquifer.
7. Water Permit No. 8413-3 authorizes a total annual diversion of 77 acre feet of water from the aquifer.

See report on application for additional information.



Eric Gronlund, Chief Engineer

April 28, 2020

REPORT ON PERMIT APPLICATION NO. 8413-3

Ratio LLC

April 28, 2020

Ratio LLC has filed Water Permit Application No. 8413-3 for commercial use of 77 acre-feet of water annually at a maximum instantaneous rate of 0.134 cubic feet per second (cfs) from two wells to be completed into the Niobrara aquifer (325-350 feet deep) or the Dakota aquifer (1,300–1,500 feet deep) located in the SE ¼ NW ¼ Section 32 for use in a swine production facility to be located in the E ½ NW ¼ Section 32; all in T111N-R67W. This site is located approximately 10 miles southeast of Miller SD.

Aquifer: Niobrara (NBRR) or Dakota (DKOT)

South Dakota Codified Law 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 the potential for unlawful impairment of existing rights within the Niobrara and Dakota aquifers.

Water Availability

SDCL 46-6-3.1 is considered when evaluating the probability of unappropriated water from an aquifer and states "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. An application may be approved, however, for withdrawals of groundwater from any groundwater formation older than or stratigraphically lower than the greenhorn formation in excess of the average estimated annual recharge for use by water distribution systems." The Niobrara aquifer is not older or lower than the Greenhorn Formation; however, the Dakota is older and lower than the Greenhorn Formation. This application, however, is not for a water distribution system. Therefore, recharge and withdrawal rates must be considered.

NIOBRARA AQUIFER

Niobrara Aquifer Hydrogeology

The Niobrara formation is composed of argillaceous chalk, marl, and shale with thin, laterally continuous bentonite beds, chalky carbonaceous shale, minor sand, and small concretions (Martin, Sawyer, Fahrenbach, Tomhave, & Schulz, 2004). Saturated areas in the Niobrara formation are known as the Niobrara aquifer. These saturated areas occur where there is sufficient fracturing and development of solution cavities. The Pierre shale overlies the Niobrara formation except where the Pierre Shale has been eroded or where the Niobrara formation outcrops (Fahrenbach, et al., 2010). Locally, the Niobrara formation is known as "chalk rock" and is extensive throughout South Dakota (Hedges, Burch, Iles, Barari, & Schoon, 1982). In

Hand County, the areal extent of the aquifer is estimated to be approximately 210,000 acres based on Rich's first occurrence of aquifer materials in Hand County, South Dakota, and lithologic logs for Hand County (Rich, 2013; South Dakota Geological Survey, 2020). The thickness of the Niobrara formation varies from 20 to 110 feet, with an average of 100 feet (South Dakota Geological Survey, 2020). The Niobrara aquifer is generally under confined conditions (South Dakota Geological Survey, 2020; Water Rights, 2020a; Water Rights, 2020b; Water Rights, 2020c).

Niobrara Aquifer Hydrologic Budget

Recharge

Recharge to the Niobrara aquifer occurs through infiltration of snowmelt and precipitation and inflow from the Dakota and Codell aquifers. Hedges and others (1985) also stated that East of the Missouri River,

“The Niobrara Formation, Codell Sandstone, Inyan Kara Group, and Madison Group have such high storage and low use that it is unlikely that use is approaching or exceeding recharge. Furthermore, there is no evidence of significant head loss in any of these aquifers over the years that would suggest that use is exceeding recharge.”

Discharge

Discharge from the Niobrara aquifer occurs through evapotranspiration in areas where the aquifer is near land surface, groundwater outflow to other aquifers, and through well withdrawals (Water Rights, 2020a). Currently, there are a total of 83 water rights/permits appropriating water from the Niobrara aquifer (Water Rights, 2020a). All current non-irrigation water rights/permits appropriating water from the Niobrara aquifer are summarized in Table 1. The amount of water that can be expected to be withdrawn can be estimated by assuming water rights/permits limited only by diversion rate will pump at the maximum permitted diversion rate 60 percent of the time, and those limited by an annual volume will use the entire permitted volume annually.

There are some municipalities that are served by rural water systems (Table 2), as such, the wells for these municipal water rights are maintained for standby use only. Therefore, the water use for these rights have been set to zero in Table 1 as the usage for them is reflected in the rural water systems permits/rights they are served by.

Table 1: Summary of expected use of non-irrigation water rights/permits from the Niobrara aquifer (Water Rights, 2020a)

Use Type	No. of Water Rights/Permits	Permitted Diversion Rate (cfs)	Permitted Volume (ac-ft)	Expected Annual Use (ac-ft)
MUN	11	1.280	N/A	556
IND	1	0.134	N/A	58
INS	5	0.567	N/A	246
COM	9	0.584	460	714
FWP	1	0.170	N/A	74
GEO	1	0.110	N/A	48
Total	28	2.845	460	1,696
MUN = Municipal, IND = Industrial, INS = Institutional, COM = Commercial, FWP = Fish and Wildlife Propagation, GEO = Geothermal				

Table 2: Municipalities served full time by rural water systems (DENR, 2020).

Permit No	Name	Status	Use Type	Licensed Diversion Rate (cfs)	Served By
810-3	City Of Freeman	LC	MUN	1.260	B-Y RWS
5239-3	City Of Freeman	LC	MUN	0.330	B-Y RWS
1229-3	Town Of Irene	LC	MUN	0.560	B-Y RWS
1062-3	City Of Scotland	LC	MUN	0.580	B-Y RWS
5356-3	Town Of Tabor	LC	MUN	0.400	B-Y RWS
4121A-3	City Of White Lake	LC	MUN	0.130	AURORA-BRULE RWS

There are 55 water rights/permits for irrigation currently authorized to appropriate water from the Niobrara aquifer. Permit Application No. 8416-3 is pending review and, if approved, will use 1.56 cfs to irrigate 116 acres. Assuming full appropriation, Permit Application No. 8416-3 will use 232 ac-ft/yr. Annual irrigation questionnaires provide reported pumpage data and are more accurate than assuming full appropriation. For example, assuming full appropriation for all irrigation rights/permits from 1979 to 2018 would result in an estimated 9,644 ac-ft/yr, whereas using reported pumpage for the same timeframe would result in 1,259 ac-ft/yr. Irrigation water permits for the Niobrara aquifer rose dramatically starting in 2012 (Figure 1). Estimating the water usage from 1979 to 2018 would not properly reflect the current state of the aquifer and the existing irrigation infrastructure currently in place. Calculating the average use over the last ten years (2009-2018) would be a more accurate representation of the current irrigation usage. Using the reported pumping data for the years 2009 to 2018, the estimated average annual withdrawals for irrigation rights/permits is 2,020 ac-ft/yr.

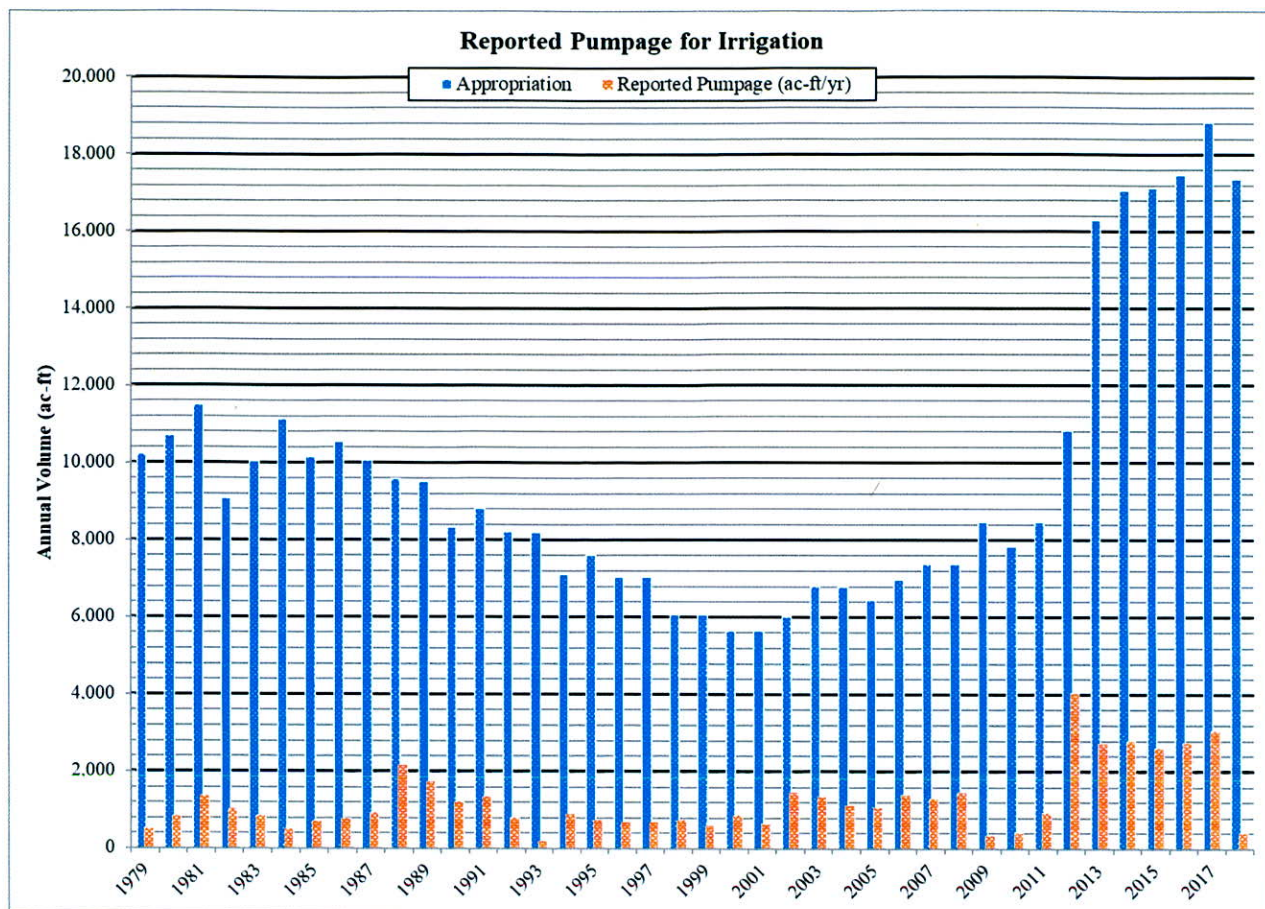


Figure 1: Historical Irrigation questionnaire data from the Niobrara aquifer in South Dakota (Water Rights, 2020d)

Hydrologic budget summary

Without an estimated average annual recharge rate, there is no way to compare the recharge and discharge rates directly. It is unlikely that the Niobrara aquifer is approaching or exceeding recharge due to the high storage and low use. The estimated withdrawals from the Niobrara aquifer are 232 ac-ft/yr from pending applications assuming full appropriation, 1,696 ac-ft/yr from non-irrigation users, and 2,020 ac-ft/yr from crop irrigation. Therefore the total estimated average annual withdrawal from the Niobrara aquifer is 3,948 ac-ft/yr.

Niobrara Aquifer Observation Well Data

In determining the availability of unappropriated water for a permit application Administrative Rule of South Dakota (ARSD) 74:02:05:07 requires the Water Management Board to rely on 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 to the aquifer.

The DENR-Water Rights Program monitors 57 observation wells completed into the Niobrara aquifer (Water Rights, 2020c). Observation wells provide data on how the aquifer reacts to regional climatic conditions and local pumping. The nearest observation wells that can be used for

analysis are SA-79B (36 miles southeast), and SA-67E (43 miles southeast). The hydrographs for these wells are shown in Figure 2.

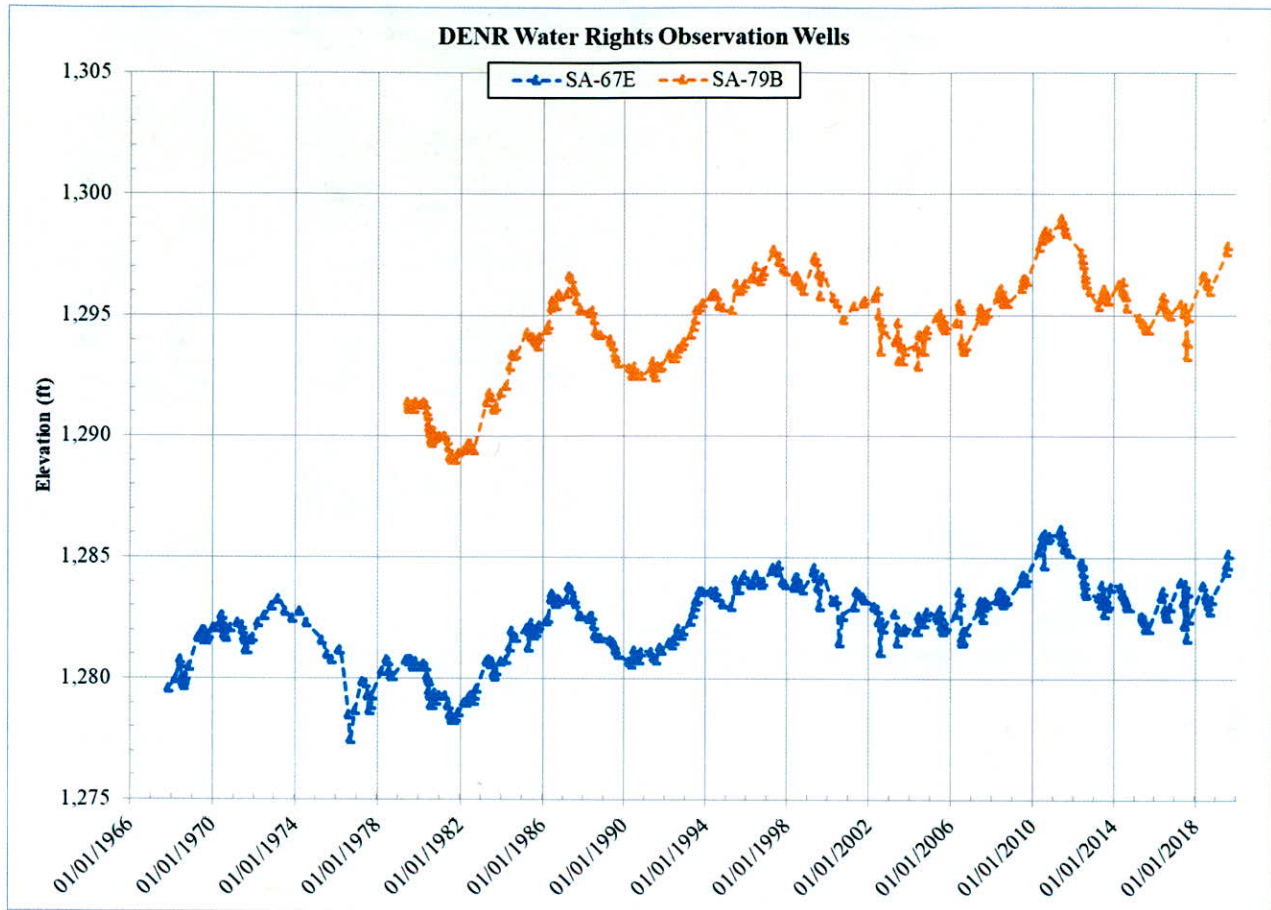


Figure 2: Hydrographs for observation wells SA-79B, and SA-67E (Water Rights, 2020c).

These observation well hydrographs are representative of the Niobrara aquifer. The water levels in the observation wells show that the amount of recharge to and natural discharge from the aquifer greatly exceeds pumping with the aquifer returning to pre-pumping conditions after spring recharge. Therefore, recharge to, and natural discharge from the Niobrara aquifer can be captured for pumping, and the hydrographs document that unappropriated water is available for this proposed appropriation.

Niobrara Aquifer Existing Water Rights

Currently, there are 83 water rights/permits appropriating water from the Niobrara aquifer (Water Rights, 2020a). There are 3 diversion points approximately 5 miles to the southwest for water right 5111A-3 held by Sunshine Bible Academy for the appropriation of 0.04 cfs of water from the Niobrara aquifer (Figure 3). The nearest water right/permit completed into the Niobrara aquifer other than water right 5111A-3 is approximately 32 miles to the east of the proposed diversion point. There are a number of domestic wells on file with the SD DENR Water Rights Program in the area of the proposed well site that appear to be completed into the Niobrara aquifer (Water Rights, 2020b).

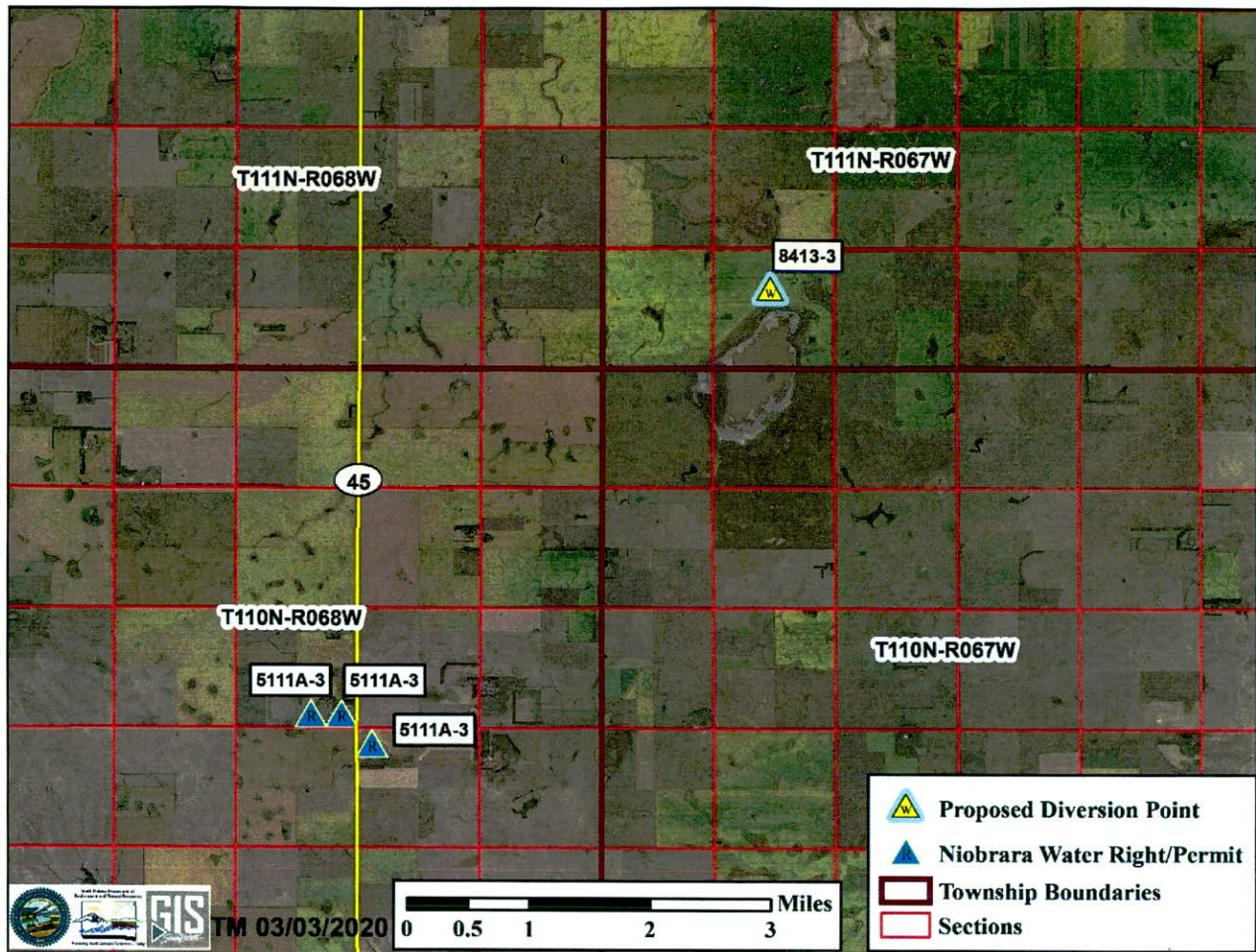


Figure 3: Map showing the proposed diversion point, and nearby water rights/permits completed into the Niobrara aquifer (Water Rights, 2020a).

The Niobrara aquifer is confined in this area, so drawdown from pumping the aquifer can extend over a fairly large area. Observation well data can provide insight into how the aquifer reacts to local pumping. Observation wells SA-79B and SA-67E are located within 3 miles of one or more existing water rights/permits. The hydraulic head for observation well SA-79B over the period of record has varied by approximately 9 feet and approximately 10 feet for observation well SA-67E. At the lowest recorded water level on record out of both wells, there was approximately 100 feet of artesian head pressure remaining (Water Rights, 2020c). Saturated thickness of the Niobrara aquifer in this area varies between 25 to 100 feet (Water Rights, 2020a; Water Rights, 2020b; South Dakota Geological Survey, 2020). This would allow sufficient saturated thickness for a pump to be placed 20 feet below the top of the aquifer. An adequate well should not be adversely impacted by pumping at this proposed diversion rate.

An adequate well has been defined in Administrative Rule of South Dakota (ARSD) 74:02:04:20(6) as:

“A well constructed or rehabilitated to allow various withdrawal methods to be used, to allow the inlet to the pump to be placed not less than 20 feet into the saturated aquifer or formation material when the well is constructed, or to allow the

pump to be placed as near to the bottom of the aquifer as is practical if the aquifer thickness is less than 20 feet.”

SDCL 46-6-6.1 does not protect artesian head pressure as a means of delivery. In the past, the Water Management Board has recognized that to place water to maximum beneficial use, a certain amount of drawdown may occur (Water Rights, 1995). Given the artesian head pressure of the Niobrara aquifer the nearest water right being approximately 5 miles to the southwest and the lack of well interference complaints in the area; any well interference from drawdown created by pumping this proposed diversion is not expected to cause an adverse impact (Water Rights, 2020e). Therefore, there is a reasonable probability that any interference created by pumping for this proposed appropriation will not be unlawful.

DAKOTA AQUIFER

Dakota Aquifer Hydrogeology

The Dakota Formation is composed of light-brown to reddish-brown, fine-to-medium grained friable quartz, minor feldspar sandstone with interbeds of gray to dark-gray shale, thin discontinuous beds of lignite, gray silty clay with siderite pellets, medium-to coarse-grained quartz sandstone with thin shaly intervals (less than 5 feet) (Hedges, Burch, Iles, Barari, & Schoon, 1982).

The areal extent and recoverable water of the Dakota aquifer in Hand County, SD was estimated by Hedges, Burch, Iles, Barari, & Schoon (1982) to be 912,640 acres and 22,245,600 acre-feet respectively. In the vicinity of these water rights, the potentiometric surface of the Dakota aquifer is expected to be approximately 270 to 330 feet below grade with a general direction of groundwater movement to the east and a minimum aquifer thickness of 200 and a maximum of 320 feet in Hand and Hyde Counties (Water Rights, 2020a; Water Rights, 2020c; Koch, 1980).

Dakota Aquifer Hydrologic Budget

Recharge

Recharge to the Dakota aquifer occurs through the infiltration of precipitation in areas of the Black Hills where the Newcastle Sandstone outcrops, leakage through confining layers (likely through fractures), and by upward leakage from deeper aquifers (Koch, 1980; Bredehoeft, Neuzil, & Milly, 1983). The Dakota aquifer in South Dakota has been studied extensively due to the large amounts of water discharged through flowing wells, and where the recharge is occurring to support such discharges (Bredehoeft, Neuzil, & Milly, 1983).

Leakage from confining layers contribute to the recharge of the Dakota aquifer; however, the extent of that recharge is not well known. For this reason, models have been used for numerical simulations of groundwater flow to provide estimates of the amount of leakage that is occurring through confining layers. These models have indicated that most of the water released from storage has come from the confining layers (Bredehoeft, Neuzil, & Milly, 1983). Bredehoeft, Neuzil, & Milly (1983) calibrated a multidimensional computer model to match the potentiometric surface mapped by Darton (1909). Bredehoeft's, Neuzil's, & Milly's (1983) steady-state model estimated the natural recharge to the Dakota aquifer, before large scale well development, from leakage of confining layers to be 78.3 cfs or approximately 56,700 ac-ft/yr.

The assumptions made for this model include steady-state conditions (unrealistic to real-world conditions); the confining layers are idealized (many diverse lithologic units not accounted for); and single values are used for hydraulic parameters (these values vary in the real world).

Recharge to the Dakota aquifer in its entirety has not been quantified; however, leakage from confining layers has been estimated by Bredehoeft's, Neuzil's, & Milly's (1983) model. While some of the assumptions associated with this estimate are not real-world conditions, they do provide a range to one of the larger factors impacting recharge within the Dakota aquifer. Due to the assumptions, the variability of the Dakota aquifer, and the surrounding lithology in terms of hydraulic parameters and many other unknown factors, this estimate cannot be used as an exact value for water management purposes.

Discharge

Discharge from the Dakota aquifer occurs through leakage to confining layers, outflow where the Dakota aquifer outcrops, uncontrolled flowing wells, outflow to adjacent aquifers, and well withdrawals (Koch, 1980; Bredehoeft, Neuzil, & Milly, 1983). Currently, there are a total of 238 water rights/permits appropriating water from the Dakota aquifer, 2 pending applications, and 5 future use permits that still have water reserved (Table 3) (Water Rights, 2020a). Water Permit Application No. 8421-3, if approved, will use 78.5 ac-ft/yr at a maximum instantaneous rate of 0.48 cfs and Water Permit Application No. 8423-3 if approved, will use up to 126 ac-ft/year at a maximum instantaneous rate of 0.33 cfs.

Table 3: Future use permits with remaining water reserved from the Dakota aquifer (Water Rights, 2020a)

Permit No.	Name	Reserved Water (ac-ft)
1262C-3, 5219-3	City Of Canton	1,849
4817-3	South Lincoln RWS	1,448
5155-3	Lincoln County RWS	440
8400-3	City Of Harrisburg	500
Total		4,237
RWS = Rural Water System		

All current non-irrigation water rights/permits appropriating water from the Dakota aquifer are summarized in Table 4. The amount of water that can be expected to be withdrawn can be estimated by assuming water rights/permits limited only by diversion rate will pump at the maximum permitted diversion rate 60 percent of the time, and those limited by an annual volume will use the entire permitted volume annually. There are some municipalities that are served by rural water systems, as such, the wells for these municipal water rights/permits are maintained for standby use only (DENR, 2020). Therefore, the water use for these rights have been set to zero in Table 4 as the usage for them is reflected in the rural water systems permits/rights they are served by. There are 6 non-irrigation water rights/permits that are required to report annual usage (Table 5). For these water rights/permits, the average annual reported usage was used for the expected annual use in table 4.

Table 4: Summary of expected use from non-irrigation water rights/permits from the Dakota aquifer (Water Rights, 2020a)

Use Type	No. of Water Rights/Permits	Permitted Diversion Rate (cfs)	Permitted Volume (ac-ft)	Expected Annual Use (ac-ft)
REC	2	0.450	N/A	195
MUN	89	10.414	3,274	7,798
IND	6	0.844	160	527
INS	2	1.340	N/A	582
DOM	11	1.753	N/A	761
RWS	6*	2.200*	2,005*	896*
COM	92	11.073	589	5,399
FWP	4	2.783	N/A	1,209
SHD	7	3.330	N/A	1,446
GEO	2	2.330	N/A	1,012
Total	221	34.317	4,023	19,825
REC = Recreation, MUN = Municipal, IND = Industrial, INS = Institutional, DOM = Domestic, RWS = Rural Water System, COM = Commercial, FWP = Fish and Wildlife Propagation, SHD = Suburban Housing Development, GEO = Geothermal, * See reported usage in table 5				

Table 5: Water rights/permits required to report usage from the Dakota aquifer (Water Rights, 2020f).

	South Lincoln RWS	Clay RWS	Lincoln County RWS
	5647-3, 6300-3, 6490-3, 6778A-3	5997B-3	5156-3
2003	725		
2004	904		
2005	769		
2006	863	72	
2007	860	126	
2008	863	124	0
2009	773	119	0
2010	775	122	0
2011	785	116	0
2012	865	186	0
2013	765	155	0
2014	739	148	0
2015	711.5	141	0
2016	640	163	0
2017	643	201	0
2018	503	170	0
Max	904	201	0
Min	503	72	0
Avg	755	141	0

There are 17 water rights/permits for irrigation currently authorized to appropriate water from the Dakota aquifer. Irrigation water rights/permits that are required to report their annual usage are illustrated in Figure 4. Annual irrigation questioners provide reported pumpage data and are more accurate than assuming full appropriation. For example, assuming full appropriation for all irrigation rights/permits from 1979 to 2018 would result in an estimated 1,453 ac-ft/yr, whereas using reported pumpage for the same timeframe would result in an estimated 147.78 ac-ft/yr. Estimating the water usage from 1979 to 2018 would not properly reflect the current state of the aquifer and the existing irrigation infrastructure currently in place. Calculating the average use over the last 10 years (2009-2018) would be a more accurate representation of the current irrigation usage. Using the reported pumping data for the years 2009 to 2018, the estimated average annual withdrawals for irrigation rights/permits is 201.25 ac-ft/yr.

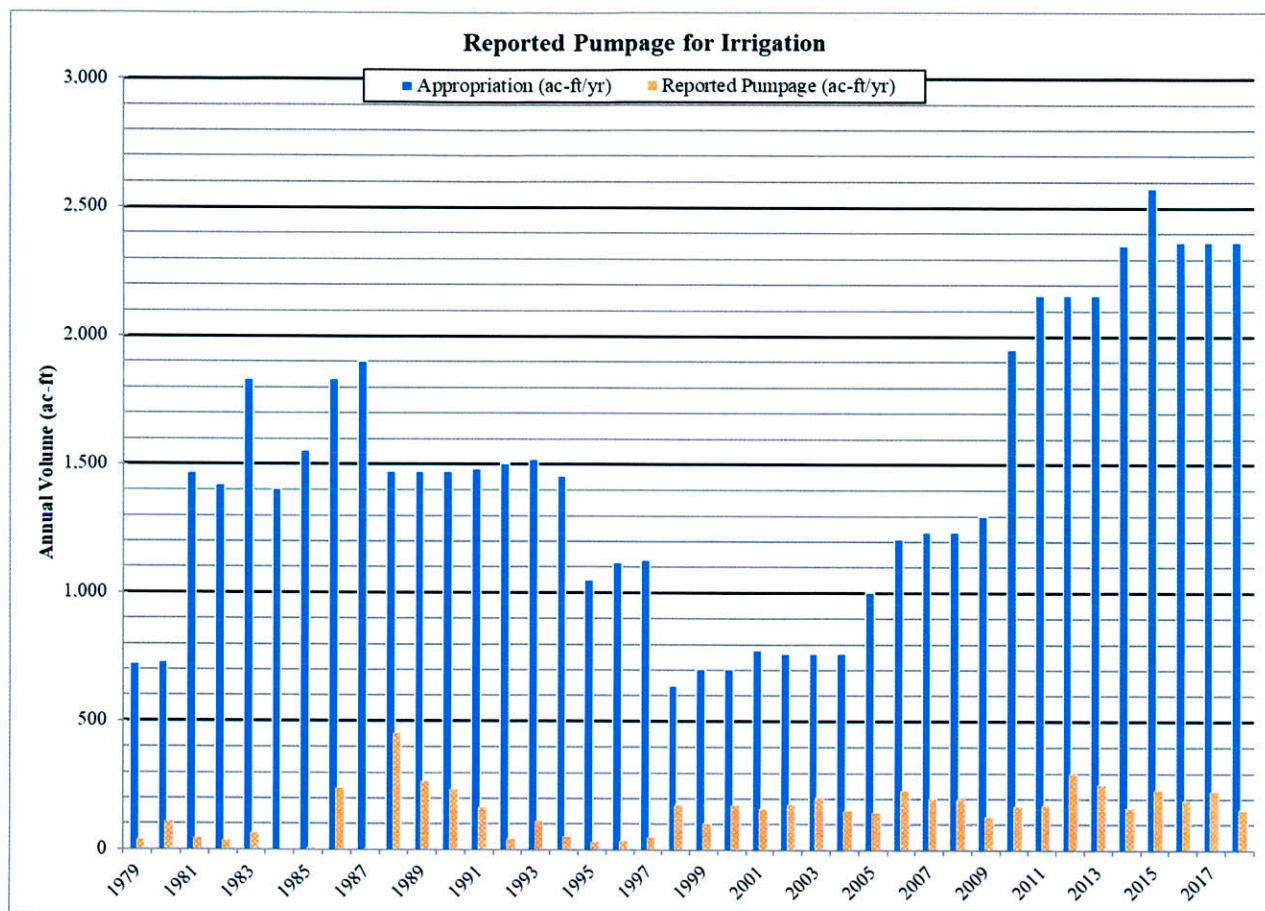


Figure 4: Historical Irrigation questionnaire data from the Dakota aquifer in South Dakota (Water Rights, 2020d)

Hydrologic budget summary

Without a reliable recharge rate, there is no way to compare the recharge and discharge rates directly. Bredehoeft (1983) used modeling to estimate the recharge occurring to the Dakota aquifer from leakage of confining layers to be approximately 56,700 ac-ft/yr; however, due to the assumptions made, there is no way to tell if this estimate is high or low. It is unlikely that the Dakota aquifer is approaching or exceeding recharge due to the high storage. The estimated withdrawals from the Dakota aquifer are 19,825 ac-ft/yr from non-irrigation users, 201.25 ac-ft/yr

from irrigation, 222 ac-ft/yr from pending applications, and 4,237 ac-ft/yr from future use permits with remaining water reserved. Therefore the total estimated average annual withdrawal from the Dakota aquifer is 24,485.25 ac-ft/yr

Dakota Aquifer Observation Well Data

In determining the availability of unappropriated water for a permit application Administrative Rule of South Dakota (ARSD) 74:02:05:07 requires the Water Management Board to rely on 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 to the aquifer.

The DENR-Water Rights Program monitors 46 observation wells completed into the Dakota aquifer (Water Rights, 2020c). Observation wells provide data on how the aquifer reacts to regional climatic conditions and local pumping. The nearest observation well that can be used for analysis is HD-87A (8.5 miles southeast) (Figure 5). Over the period of record observation well, HD-87A has had a decline in hydraulic head of approximately 22 feet (Water Rights, 2020c).

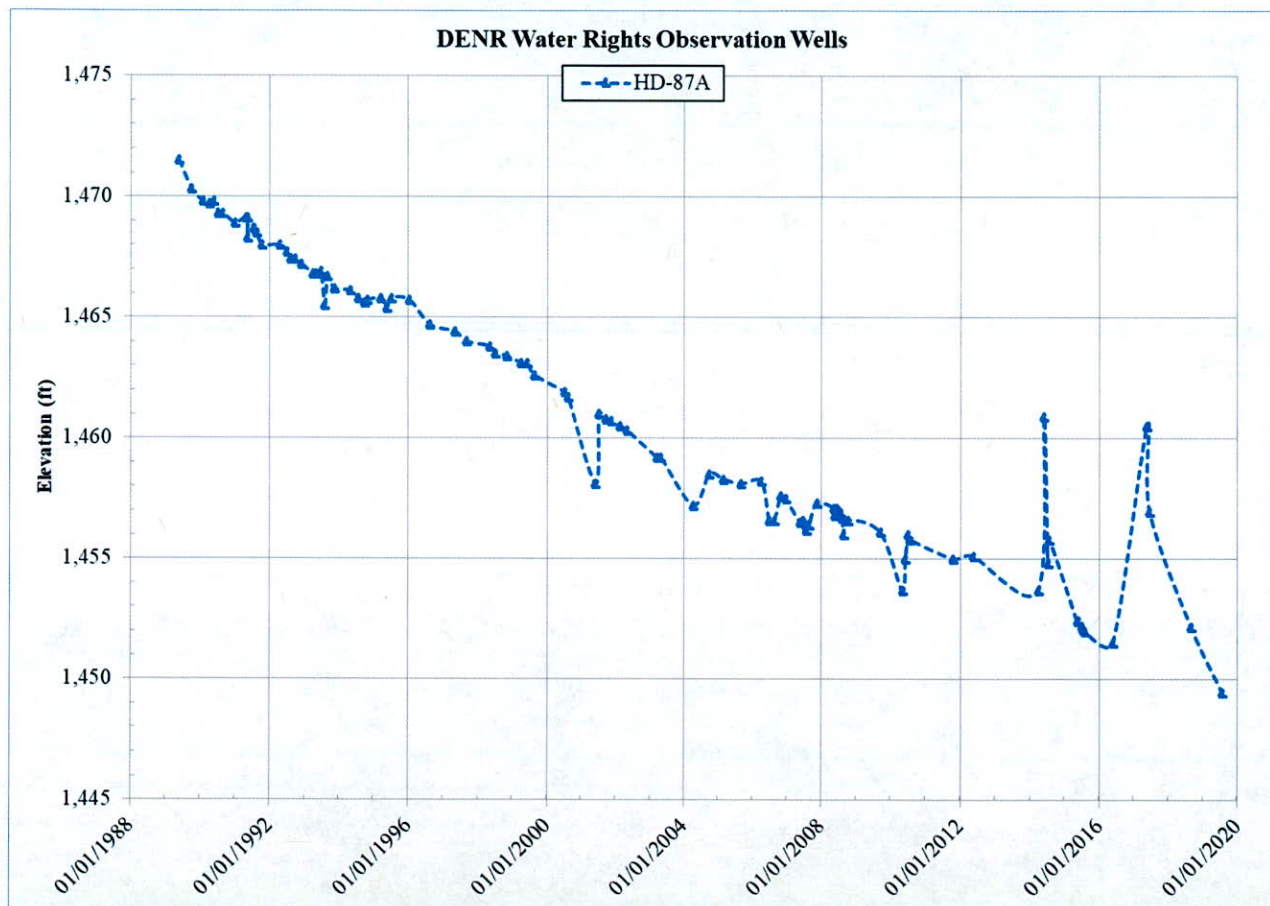


Figure 5: Hydrograph for Observation Well HD-87A (Water Rights, 2020c).

The decline in hydraulic head is likely due to uncontrolled flowing wells and not well withdrawals for beneficial use. Shortly after wells began being completed into the Dakota aquifer, many were

left to flow with no restrictions; this led to a noticeable decline in artesian head pressure in the Dakota aquifer. However, the Water Management Board has found that past declines of the potentiometric surface in the Dakota aquifer does not necessarily mean that withdrawals have exceeded recharge (Water Rights, 1987). The Board has concluded that withdrawals exceeding the average annual recharge cannot be determined based solely upon a decline in head pressure and, in theory, the Dakota aquifer head pressure is stabilizing relative to withdrawals and discharges (Water Rights, 1987). Overall, the Water Management Board's decision to increase the development of the Dakota aquifer is favorable due to beneficial withdrawals lowering the amount of pressure in uncontrolled flowing wells, thus reducing the amount of water flowing to waste.

Observation well ED-85A (approximately 73 miles north) is also completed into the Dakota aquifer and has a hydrograph that shows a stable to slightly increasing trend in hydraulic head (Figure 6). The dip in hydraulic head that occurred in 2018 was due to an aquifer pumping test (Water Rights, 2020c).



Figure 6: hydrograph for observation well ED-85A (Water Rights, 2020c)

As noted, the decreasing trend in the Dakota aquifer is likely due to the uncontrolled flowing wells. The Water Management Board has determined uncontrolled flowing wells is not a beneficial use of water and do not constitute appropriation pursuant to SDCL 46-6-3.1 (Water Rights, 1987). Observation well data indicates that there is a reasonable probability unappropriated water is available from the Dakota aquifer (Water Rights, 2020c). By allowing unappropriated water to go

to beneficial withdrawals, the pressure in the uncontrolled flowing wells is lowered, thus reducing the amount of water flowing to waste.

Dakota Aquifer Existing Water Rights And Permits

Currently, there are 238 water rights/permits appropriating water from the Dakota aquifer (Water Rights, 2020a). There are 7 diversion points completed into the Dakota aquifer within approximately 12 miles, with the nearest one being Water Right 6581-3 located approximately 9 miles to the north of the proposed diversion point (Table 6 and Figure 7). There are a number of domestic wells on file with the SD DENR Water Rights Program in the area of the proposed well site that appear to be completed into the Dakota aquifer (Water Rights, 2020b).

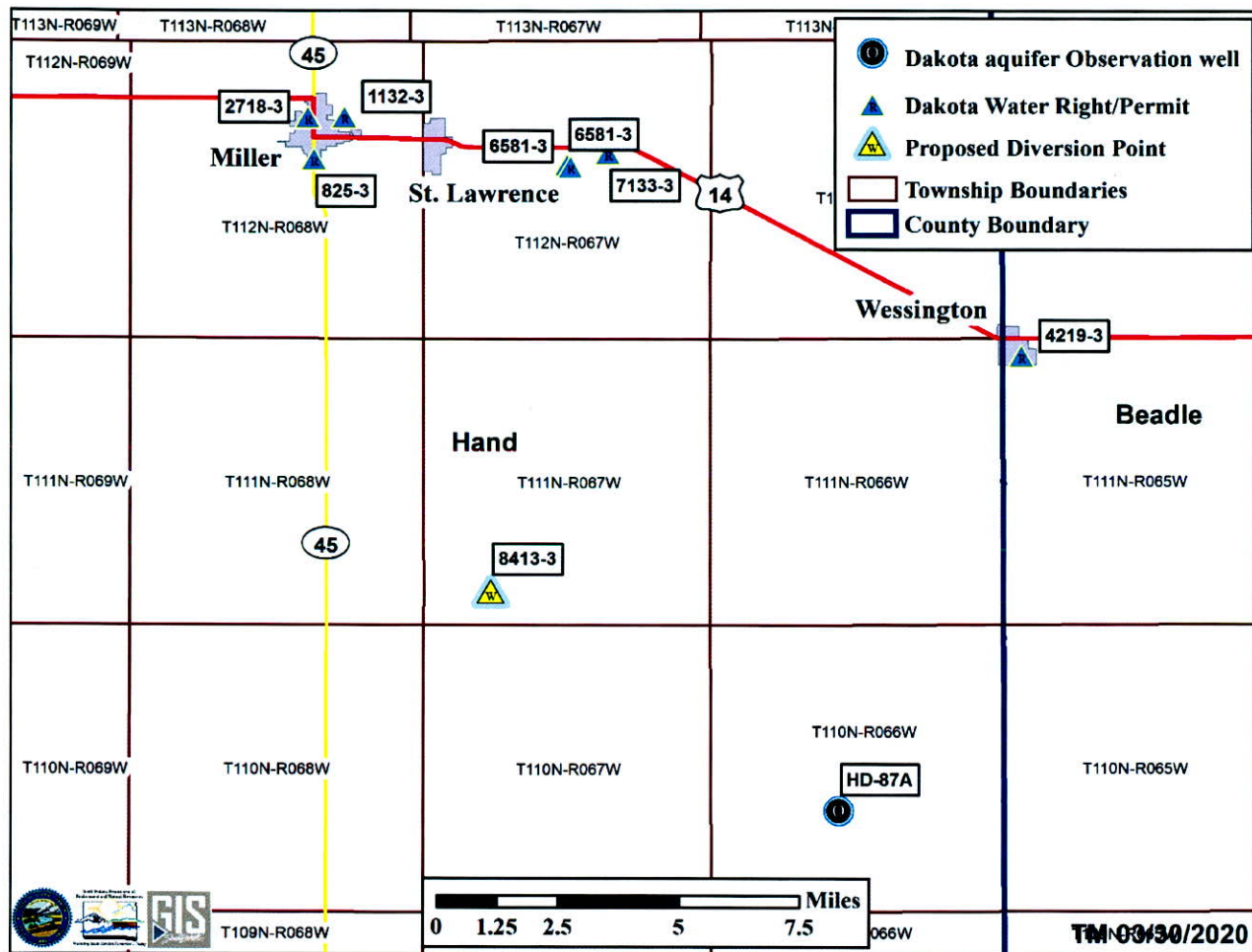


Figure 7: Map showing the proposed diversion point, nearby observation wells, and nearby water rights/permits completed into the Dakota aquifer (Water Rights, 2020a; Water Rights, 2020c).

Table 6: Nearby Dakota aquifer Water Rights/Permits within approximately 12 miles shown in Figure 7 (Water Rights, 2020a).

Permit No.	Name	Status	Use	Rate (cfs)	Acres
825-3	City Of Miller	LC	MUN	0.71	N/A
1132-3	City Of Miller	LC	MUN	0.5	N/A
2718-3	City Of Miller	LC	MUN	0.33	N/A
4219-3	City Of Wessington	LC	MUN	0.71	N/A
6581-3	Fremark Feedlot	LC	COM	0.122	N/A
7133-3	South Dakota Soybean Processors	PE	IND	0.044	N/A
LC = Water Right, MUN = Municipal, COM = Commercial, PE = Water Permit, IND = Industrial					

The Dakota aquifer is confined in this area, so drawdown from pumping the aquifer can extend over a fairly large area. Observation well data can provide insight into how the aquifer reacts to local pumping. Observation well HD-85A is located approximately 8.5 miles to the southeast of the proposed diversion point, and at the lowest recorded water level over the period of record, there was approximately 280 feet of hydraulic head remaining (Water Rights, 2020c). With the Dakota aquifer having a minimum aquifer thickness of 200 and a maximum of 320 feet in Hand and Hyde Counties, this would allow sufficient saturated thickness for a pump to be placed 20 feet below the top of the aquifer (Water Rights, 2020a; Water Rights, 2020c; Koch, 1980). The drawdown created from the proposed diversion should not unlawfully impair nearby adequate wells.

An adequate well has been defined in Administrative Rule of South Dakota (ARSD) 74:02:04:20(6) as:

“A well constructed or rehabilitated to allow various withdrawal methods to be used, to allow the inlet to the pump to be placed not less than 20 feet into the saturated aquifer or formation material when the well is constructed, or to allow the pump to be placed as near to the bottom of the aquifer as is practical if the aquifer thickness is less than 20 feet.”

SDCL 46-6-6.1 does not protect artesian head pressure as a means of delivery. In the past, the Water Management Board has recognized that to place water to maximum beneficial use, a certain amount of drawdown may occur (Water Rights, 1995). Given the artesian head pressure of the Dakota aquifer, the nearest water right being approximately 9 miles to the north, and the lack of well interference complaints in the area; well interference from this proposed diversion is not expected to unlawfully impair nearby adequate wells. Therefore, there is a reasonable probability that any interference created by pumping for this proposed appropriation will not be unlawful.

Special Consideration: Declining Hydraulic Head

As the Dakota aquifer is a confined aquifer, the hydraulic head causes the water within the aquifer to rise above the top of the aquifer. In the late 1800s, wells began being completed into the Dakota aquifer, and a decline in the aquifer's hydraulic head occurred whenever a flowing well was drilled and not properly controlled. These uncontrolled wells create a release of pressure contained within the aquifer. This decline has caused some concern on whether the Dakota aquifer withdrawals have exceeded the recharge to the aquifer. The Water Management

Board has previously and carefully considered the declining hydraulic head in the Dakota aquifer. In the deliberation and approval of Water Permit No. 5136-3, for Farmland Industries Inc, the Water Management Board approved the findings of facts and conclusions of law containing the following summarized points (Water Rights, 1987):

- The estimated average annual recharge to the Dakota aquifer is not likely to be quantified in the near future.
- Determination of whether the withdrawals exceed the estimated average annual recharge cannot be determined solely by a decline in the hydraulic head.
- SDCL 46-6-6.1 does not require the artesian head to be protected; however, the Board must consider the effect of a limitation or loss of artesian head as one of the factors under the public interest determination.
- The decline in the hydraulic head in the Dakota aquifer has been primarily due to water being discharged through uncontrolled flowing wells.
- "Water discharged from uncontrollable flowing wells does not constitute withdrawal (appropriation) pursuant to SDCL 46-6-3.1."
- That it is in the public interest to appropriate water rather than allow the water to be discharged by uncontrollable flowing wells.
- That it is not in the public interest to deny a water permit application when the effects of the withdrawal will not be measurable and will not have a significant effect upon the decline or stabilization of the hydraulic head in the Dakota aquifer.

Special Consideration: Well Construction

The alternative well construction method for certain Dakota aquifer wells (ARSD 74:02:04:35) is not permitted for any well with uses other than reasonable domestic use and noncommercial livestock use. The proposed use for this application is neither a reasonable domestic use nor noncommercial livestock use. Any new well constructed for this application, if it is approved, must be constructed to meet the definition of an adequate well as set forth in ARSD 74:02:04:20(6) and using the construction method required by ARSD 74:02:04:28.

Conclusions

1. Water Permit Application No. 8413-3 proposes the commercial use of 77 acre-feet of water annually at a maximum instantaneous rate of 0.134 cubic feet per second (cfs) from two wells to be completed into the Niobrara aquifer (325-350 feet deep) or the Dakota aquifer (1,300–1,500 feet deep) for use in a swine production facility located approximately 10 miles southeast of Miller SD.
2. Based on observation well data and the hydrologic budget, there is a reasonable probability that unappropriated water is available from the Niobrara and Dakota aquifers.
3. There is a reasonable probability that the diversion proposed by this application will not unlawfully impact adequate wells for existing water rights and domestic use.



Timothy Magstadt
Natural Resources Engineer I
SD DENR – Water Rights Program

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Schlaak, Karen

From: Schlaak, Karen
Sent: Wednesday, April 29, 2020 10:19 AM
To: kirka@aughenbaughhq.com
Cc: Brad Woerner (bwoerner@stockwellengineers.com)
Subject: Water Permit Application No. 8413-3, Ratio LLC
Attachments: Application No. 8413-3.pdf

Attached is the report, recommendation and information regarding the public notice for your Water Permit Application No. 8413-3. As stated in the letter, it is important that you contact the papers to authorize publication and arrange for payment ASAP in order for the notice to be published next week on May 6th. This same information is being mailed to you today.

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
<http://denr.sd.gov>

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

April 29, 2020

Ratio LLC
c/o Kirk A Aughenbaugh
43204 US Hwy 14
DeSmet SD 57231

Dear Mr. Aughenbaugh:

Water Permit Application No. 8413-3 for commercial use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Miller Press printed at Miller SD (Ph # 605 353-7414) and the Plainsman printed at Huron SD (Ph # 605 350-1359). You will need to contact the newspapers 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 newspapers to authorize publication of your Notice and to arrange for payment. Early contact with the papers 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,

Karen Schlaak

Karen Schlaak
Water Rights Program
(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. 8413-3 to Appropriate Water

Notice is given that Ratio LLC, c/o Kirk Aughenbaugh, 43204 US Hwy 14, DeSmet SD 57231 has filed an application for a water permit to appropriate 77 acre-feet of water annually at a maximum pump rate of 0.134 cubic feet of water per second from two wells to be completed into the Niobrara Aquifer (325-350 feet deep) or the Dakota Aquifer (1,300-1,500 feet deep) located in the SE 1/4 NW 1/4 Section 32 for commercial use in a swine production facility to be located in the E 1/2 NW 1/4 Section 32; all in T111N-R67W. This site is located approximately 10 miles southeast of Miller SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8413-3 with qualifications 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. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/public> or contact Ron Duvall 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 18, 2020.

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.

Published once at the total approximate cost of _____.

Schlaak, Karen

From: Schlaak, Karen
Sent: Wednesday, April 29, 2020 10:09 AM
To: 'rcrandall@plainsman.com'
Subject: 8413-3, Ratio LLC
Attachments: 8413-3public.short.docx; FORM8.FRM.doc

Attached is a notice to be published on May 6, 2020.

Ratio LLC, c/o Kirk A Aughenbaugh, 43204 US Hwy 14, DeSmet SD 57231 (605 350-1359) 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 to the Water Rights Program, 523 E Capitol, Pierre SD 57501.

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: Wednesday, April 29, 2020 10:08 AM
To: Miller Press (news@themillerpress.com)
Subject: 8413-3, Ratio LLC
Attachments: 8413-3public.short.docx; FORM8.FRM.doc

Attached is a notice to be published on May 6, 2020.

Ratio LLC, c/o Kirk A Aughenbaugh, 43204 US Hwy 14, DeSmet SD 57231 (605 350-1359) 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 to the Water Rights Program, 523 E Capitol, Pierre SD 57501.

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

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



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JUN 04 2020

WATER RIGHTS
PROGRAM

Proof Of Publication

Huron Plainsman
49 3rd Street SE
Huron, SD 57350
605-353-7402

Legal Notice Number: 0247

I, McKendzie Castillo, being duly sworn on oath say that the Plainsman is a daily paper published at Huron, Beadle County South Dakota, and that said newspaper has a bona fide circulation of at least 250 copies daily; that said newspaper has been published within said county for fifty-two consecutive weeks immediately prior to this date, that said newspaper is printed in whole or in part, in an office maintained at said place of publication; that I am a Legal Advertising Coordinator of said newspaper and know that facts herein state. The annexed notice headed: SD ENVIRONMENTAL & NATURAL, was published for one day, in said newspaper and not in any supplement of the said newspaper, the publication was on 5/6/20. That the full amount of the fee charged for the publishing \$ 29.03 insures 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 thereof has been agreed to be paid to any person whomsoever.

Subscribed and sworn to me before this date 5/29/20.



Notary Public, South Dakota

My Term Expires 03/11/2022

F. P. 05-06-20

**NOTICE OF
APPLICATION
NO. 8413-3 to**

Appropriate Water

Notice is given that Ratio LLC, c/o Kirk Aughenbaugh, 43204 US Hwy 14, DeSmet SD 57231 has filed an application for a water permit to appropriate 77 acre-feet of water annually at a maximum pump rate of 0.134 cubic feet of water per second from two wells to be completed into the Niobrara Aquifer (325-350 feet deep) or the Dakota Aquifer (1,300-1,500 feet deep) located in the SE 1/4 NW 1/4 Section 32 for commercial use in a swine production facility to be located in the E 1/2 NW 1/4 Section 32; all in T111N-R67W. This site is located approximately 10 miles southeast of Miller

SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8413-3 with qualifications 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. The Chief Engineer's recommendation with the qualifications, the application, and staff report are available at <http://denr.sd.gov/> public or contact Ron Duvall 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 18, 2020.

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.

No. 0247 (adv.)
Published once at the total approximate cost of \$29.03.

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JUN 04 2020

**WATER RIGHTS
PROGRAM**

**AFFIDAVIT OF
PUBLICATION**
The Miller Press

RECEIVED

JUN 05 2020

WATER RIGHTS
PROGRAM

STATE OF SOUTH DAKOTA)
)SS
County of Hand)

Michael G. Caviness of said county being first duly sworn, on oath, says that he is the publisher of *The Miller Press*, a weekly newspaper published in Miller, said County of Hand by Hand County Publishing Co., Inc. and has full and personal knowledge of all the facts herein stated; that said newspaper is a legal newspaper and has been published within said County for fifty weeks next prior to the publication of the notice, herein mentioned, and was and is printed wholly or in part in an office maintained at said place of publication; that the

Swine production facility seeks water permit

NOTICE OF APPLICATION NO. 8413-3 to Appropriate Water

Notice is given that Ratio LLC, c/o Kirk Aughenbaugh, 43204 US Hwy 14, DeSmet SD 57231 has filed an application for a water permit to appropriate 77 acre-feet of water annually at a maximum pump rate of 0.134 cubic feet of water per second from two wells to be completed into the Niobrara Aquifer (325-350 feet deep) or the Dakota Aquifer (1,300-1,500 feet deep) located in the SE 1/4 NW 1/4 Section 32 for commercial use in a swine production facility to be located in the E 1/2 NW 1/4 Section 32; all in T111N-R67W. This site is located approximately 10 miles southeast of Miller SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8413-3 with qualifications 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. The Chief Engineer's recommendation with qualifications, the application, and staff report are available at <http://denr.sd.gov/> public or contact Ron Duvall 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 18, 2020.

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.

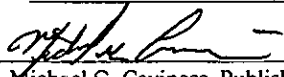
Published May 2, 2020 at the total approximate cost of \$26.10.

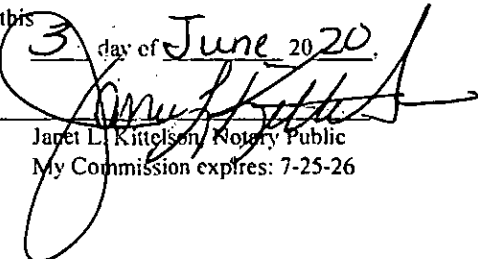
Swine production
facility seeks water
permit

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 1 successive week(s), on the day of each week on which said newspaper was regularly published, to wit:

5/2 2020 20
____ 20 ____; ____ 20 ____
____ 20 ____; ____ 20 ____

that the full amount of the fees for the publication of the annexed notice is

\$ 26.10

Michael G. Caviness, Publisher

Subscribed and sworn to before me
this 3 day of June 2020.

Janet L. Kittelson, Notary Public
My Commission expires: 7-25-26

RECEIVED

MAY 18 2020

WATER RIGHTS
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I am writing in concern about the water permit of Ratio LLC Kirk Aughenbaugh. This request for permit is for an animal feeding operation approximately 10 miles SE of Miller, SD

I live 2 miles east of this proposed sight and have concerns about water protection and contamination of these wells.

Having wells of my own, it is on going maintenance to see they are not contaminated with animal nitrates.

Other concerns is my available water supply. Will these wells cut my water supply? I have a 300 ft deep well and if I pump it more than a couple continuous hours a day, it goes dry. I must wait to use it until it refills. This operation proposes to use 40,000 gallons of water a day. What will this do to local wells? Will this 40,000 gallons a day meet the requirements for a 9060 head sow facility while feeding suckling pigs?

Many people were opposed to this sight and spoke at the commisioners meeting. One group was the Federal Fish and Wildlife.

They and the Game Fish and Parks have land and large water areas that feed those aquifers. Contamination of these bodies of water may have serious consequences for the wildlife and water supply.

Clean water is a natural resourse we cannot live without. Serious thought must be considered in this application. I ask that you deny this application for a water permit to LLC Ratio Kirk Aughenbaugh. Not only for private individuals, but also for the public well being for safe water.

Patricia Mountz

36611 208th St
St Lawrence, SD 57323



United States Department of the Interior

FISH AND WILDLIFE SERVICE Mountain-Prairie Region



IN REPLY REFER TO:
FWS/R6/

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225-0486

STREET LOCATION:
134 Union Boulevard
Lakewood, Colorado 80228-1807

Mr. Eric Gronlund,
State Engineer
Joe Foss Building
523 East Capital
Pierre, SD 57501-3182

RECEIVED

MAY 18 2020

WATER RIGHTS
PROGRAM

RE: Letter of Concern regarding New Application for Water Permit No. 8413-3

Dear Mr. Gronlund:

The U.S. Fish and Wildlife Service (FWS) submits this Letter of Concern regarding application to appropriate water under Water Permit No. 8413-3. The Applicant, Ratio LLC (Ratio), c/o Kirk Aughenbaugh, 43204 US Hwy 14, DeSmet SD 57231 has filed an application for a water permit to appropriate 77 acre-feet of water annually at a maximum pump rate of 0.134 cubic feet of water per second from two wells to be completed into the Niobrara Aquifer (325-350 feet deep) or the Dakota Aquifer (1,300-1,500 feet deep) located in the SE 1/4 NW 1/4 Section 32 for commercial use in a swine production facility to be located in the E 1/2 NW 1/4 Section 32; all in T111N-R67W. Ratio has completed two test wells in conjunction with the water permit application. Both of the test wells are only conducted down to a maximum of 410 feet, to the beginning of the Pierre shale layer above the Niobrara aquifer. The FWS is concerned that Ratio will seek to place the wells for this water permit in the relatively shallow Tulare aquifer, as related to the current well tests, and not within either the Niobrara or Dakota aquifer as currently required under the Chief Engineer's Recommendation. The Chief Engineer's Recommendation for Water Permit No. 8413-3 includes the qualification "2. The well authorized by Water Permit No. 8413-3 shall be constructed into a single aquifer, either the Niobrara aquifer or Dakota aquifer, but not both. At the time of the licensing, the final water right be issued for the developed water source."

FWS is concerned that if the proposed wells under Water Permit No. 8413-3 are constructed above either the Niobrara or Dakota aquifers, they will negatively impact the lake within the adjacent Calahan Wetland Protection Area. The lake is approximately 700 feet from the proposed well sites. FWS respectfully requests the Department of Environment and Natural Resources (SD-DENR) ensures Ratio develops the two wells under Water Permit No. 8413-3 into either the Niobrara or Dakota aquifers. The FWS also requests SD-DENR send a copy of the final well logs for Water Permit No. 8413-3.

The FWS is also concerned about the water quality aspects associated with this water permit and the CAFO to which it is related. The FWS has expressed water quality concerns to SD-DENR in previous documents. However, the FWS has not received any communication from Ratio addressing those concerns.

If you have questions concerning this letter, please contact me at (303) 236-4491.

Sincerely,

 (acting)

Brian S. Caruso
Chief, Division of Water Resources



DENR
SOUTH DAKOTA

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

June 3, 2020

NOTICE OF HEARING

TO: Ratio LLC
Kirk Aughenbaugh
43204 US Highway 14
DeSmet SD 57231

Patricia Moriarty
36611 208th Street
St. Lawrence SD 57373

Brian S Caruso
US Fish and Wildlife Service
Post Office Box 25486
Denver Federal Center
Denver CO 80225-0486

FROM: Eric Gronlund, Chief Engineer
Water Rights Program

SUBJECT: Notice of Hearing on Water Permit Application No. 8413-3, Ratio LLC

A petition and letter of concern were filed in the matter of Water Permit Application No. 8413-3 in response to the Notice of Application published in the Miller Press and Plainsman. This notice schedules a hearing on Application No. 8413-3 before the South Dakota Water Management Board.

Water Permit Application No. 8413-3 proposes to appropriate 77 acre-feet of water annually at a maximum pump rate of 0.134 cubic feet of water per second from two wells to be completed into the Niobrara Aquifer (325-350 feet deep) or the Dakota Aquifer (1,300-1,500 feet deep) located in the SE 1/4 NW 1/4 Section 32 for commercial use in a swine production facility to be located in the E 1/2 NW 1/4 Section 32; all in T111N-R67W. This site is located approximately 10 miles southeast of Miller SD.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 8413-3 with qualifications 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.

The Water Management Board will consider Application No. 8413-3 at 10:00 AM on Wednesday, July 8, 2020, in the Floyd Matthew Training Center, Joe Foss Building, 523 E Capitol Avenue, Pierre SD. The agenda time is an estimate and may be delayed due to prior

items on the agenda. Notice will be provided to parties if there is a change in the time or date of the hearing.

The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny the application after it reaches a conclusion based on the facts presented at the public hearing.

The July 8, 2020, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any person who has filed a petition to oppose or support the application. The request for an automatic delay must be filed by June 29, 2020. If an automatic delay is requested, the hearing will be rescheduled for a future Board meeting and personal notice will be provided to all petitioners regarding the time, date and location.

The hearing is an adversary proceeding and any party has the right to be present at the hearing and is required to be represented by a lawyer. The applicant or a federal agency is required to be represented by legal counsel in this administrative proceeding. These and other due process rights will be forfeited if they are not exercised at the hearing. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

Contact Ron Duvall at ron.duvall@state.sd.us or (605) 773-3352 to request the staff report, recommendation, application or any other information. Filings regarding the application can be found on the department's contested case page at <https://denr.sd.gov/contested.aspx>. Notice is given to individuals with disabilities that this hearing is being held in a physically accessible place. Please notify the Department of Environment and Natural Resources at least 48 hours before the hearing if you have a disability for which special arrangements must be made at the hearing. The telephone number for making arrangements is (605) 773-3352.

Enclosed is a copy of the report, recommendation, and the petition and letter of concern filed in the matter of Water Permit Application No. 8413-3. State law directs the Chief Engineer to provide Water Management Board members with a copy of all pleadings including petitions for each proceeding. The information being provided to you is also being sent to the Board members in advance of the hearing. In addition, enclosed are two documents intended to acquaint parties with the hearing process entitled "Procedure for Hearings before the Water Management Board" and "Summary of South Dakota Water Laws and Rules." You are encouraged to review these documents prior to the hearing.

Under SDCL 1-26-17(7) notices must state that "if the amount in controversy exceeds \$2,500.00 or if a property right may be terminated, any party to the contested case may require the agency to use the Office of Hearing Examiners by giving notice of the request to the agency no later than ten days after service of a notice of hearing issued pursuant to SDCL 1-26-17." This is a Notice of Hearing, service is being provided by direct mail to you, and the applicable date to give notice to the Chief Engineer is June 15, 2020. However, since this particular matter is a water permit application and not a monetary controversy in excess of \$2,500.00 or termination of a property right, the Chief Engineer disputes the applicability of this provision and maintains that the hearing must be conducted by the Board.

As applicable, the following provides the legal authority and jurisdiction under which the hearing will be held and the particular statutes and rules pertaining to this application: SDCL 1-26-16 thru 1-26-28; SDCL 46-1-1 thru 46-1-9, 46-1-13 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-17; 46-2A-1 thru 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21, 46-2A-23; 46-5-1.1, 46-5-2 thru 46-5-26, 46-5-30.2 thru 46-5-30.4, 46-5-31 46-5-32 thru 46-5-34.1, 46-5-38 thru 46-5-39, 46-5-46, 46-5-47, 46-5-49; 46-6-1 thru 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14, 46-6-21, 46-6-26; Board Rules ARSD 74:02:01:01 thru 74:02:01:24.02 and ARSD Chapter 74:02:04.

Questions regarding the hearing process may be directed to Ron Duvall, Water Rights Program at (605) 773-3352 or ron.duvall@state.sd.us.

Enclosures

c: Ann Mines Bailey

CERTIFICATION

I hereby certify that on June 3, 2020, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice of Hearing dated June 3, 2020, regarding notice of hearing for Water Right Permit Application No. 8413-3, as addressed below and on the parties of record list:

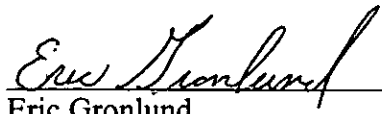
Ratio LLC
Kirk Aughenbaugh
43204 US Highway 14
DeSmet SD 57231

Patricia Moriarty
36611 208th Street
St. Lawrence SD 57373

Brian S Caruso
US Fish and Wildlife Service
Post Office Box 25486
Denver Federal Center
Denver CO 80225-0486

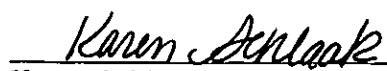
Sent Inter-office to:

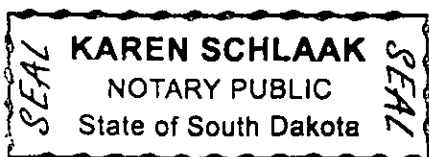
Ann Mines Bailey, Assistant Attorney General
1302 East Highway 14, Suite 1
Pierre SD 57501-8501


Eric Gronlund
Water Rights Program, DENR

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 3rd day of June~~3~~, 2020.


Karen Schlaak
Notary Public
My Commission expires April 1, 2025





DENR
SOUTH DAKOTA

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

June 16, 2020

NOTICE

TO: Ratio LLC
Kirk Aughenbaugh
43204 US Highway 14
DeSmet, South Dakota 57231

Patricia Moriarty
36611 208th Street
St. Lawrence, South Dakota 57373

Brian S Caruso
US Fish and Wildlife Service
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225-0486

FROM: Eric Gronlund, Chief Engineer
Water Rights Program, DENR

SUBJECT: Automatic Delay of Hearing on Water Permit Application No. 8413-3, Ratio LLC

A petition of opposition and a letter of concern were filed in the matter of Water Permit Application No. 8413-3 in response to the Public Notice of Application published in the Miller Press and Plainsman. Notice of hearing dated June 3, 2020, was sent scheduling a July 8, 2020, hearing before the Water Management Board on Water Permit Application No. 8413-3. In response to the notice, Kirk Aughenbaugh filed a formal request (copy enclosed) for an automatic delay of the July 8, 2020, hearing date. Therefore, the hearing on Water Permit Application No. 8413-3 is automatically delayed pursuant to SDCL 46-2A-4 and 46-2A-5 and will not be held on July 8, 2020.

The hearing to consider Water Permit Application No. 8413-3 is tentatively scheduled for the October 7 - 8, 2020, Water Management Board meeting. The Board will formalize their next meeting date at the July 8, 2020, meeting. Further notice of the time and place of the hearing for Water Permit Application No. 8413-3 will be provided at a later date.

Questions regarding this hearing process may be directed to Eric Gronlund at (605) 773-3352.

Enclosure

c: Ann Mines Bailey, Assistant Attorney General

CERTIFICATION

I hereby certify that on June 16, 2020, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice of Hearing dated June 16, 2020, regarding automatic delay for Water Right Permit Application No. 8413-3, as addressed below:

Ratio LLC
Kirk Aughenbaugh
43204 US Highway 14
DeSmet, South Dakota 57231

Patricia Moriarty
36611 208th Street
St. Lawrence, South Dakota 57373

Brian S Caruso
US Fish and Wildlife Service
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225-0486

Sent Inter-office to:

Ann Mines Bailey, Assistant Attorney General
1302 East Highway 14, Suite 1
Pierre SD 57501-8501



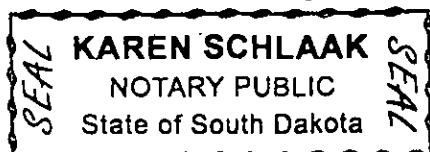
Eric Gronlund
Water Rights Program, DENR

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HAND)

Sworn to, before me, this 16th day of June, 2020.



Karen Schlaak
Notary Public
My Commission expires April 1, 2025



RECEIVED

JUN 10 2020

WATER RIGHTS
PROGRAM

June 8, 2020

SD DENR
Joe Foss Building
Groundwater Quality Program
Attn: Chief Engineer Eric Gronlund
523 East Capitol
Pierre, SD 57501-3182

RE: Water Rights Application 8413-3 for Ratio, LLC
Request for Automatic Delay

Mr. Gronlund,

Per the Department's June 3, 2020 Notice for the Ratio, LLC Water Permit Application (8413-3), I am requesting an automatic delay for the proposed July 8, 2020 hearing.

If you should have any questions, please contact my office. Thank you.

Sincerely,



Kirk Aughenbaugh
For Ratio, LLC

CERTIFICATION

I hereby certify that on September 16, 2020, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice of Hearing dated September 16, 2020, regarding Water Right Permit Application No. 8413-3, as addressed below:

Ratio LLC
Kirk Aughenbaugh
43204 US Highway 14
DeSmet, SD 57231

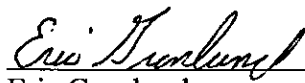
Patricia Moriarty
36611 208th Street
St. Lawrence SD 57373

Brian S Caruso
US Fish & Wildlife Service
PO Box 25486
Denver Federal Center
Denver, CO 80225-0486

Todd D. Wilkinson
Counsel for Ratio, LLC
Wilkinson & Schumacher Law Prof. LLC
PO Box 29
DeSmet SD 57231

Sent Inter-office to:

Ann Mines Bailey, Assistant Attorney General
1302 East Highway 14, Suite 1
Pierre SD 57501-8501

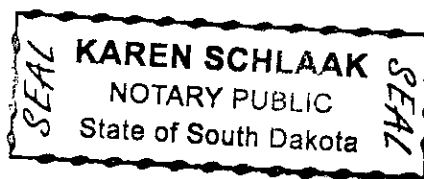


Eric Gronlund
Water Rights Program, DENR

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 16th day of September 2020.


Karen Schlaak
Notary Public
My Commission expires April 1, 2025



Wilkinson & Schumacher Law Prof. LLC
Attorneys At Law

HARRY J. EGGEN (1922-1969)
ELLSWORTH F. WILKINSON (1923-2005)

103 JOLIET AVE., S.E. - P.O. BOX 29
DE SMET, SOUTH DAKOTA 57231

TODD D. WILKINSON
GARY W. SCHUMACHER*
MARCENE J. SMITH
MICHELLE ORTON, paralegal

TELEPHONE: (605) 854-3378
FACSIMILE: (605) 854-9006

todd@wslawfirm.net
gary@wslawfirm.net
marcene@wslawfirm.net
michelle@wslawfirm.net
*ALSO LICENSED IN
MINNESOTA

June 30, 2020

Eric Gronlund
Water Rights DENR
523 East Capitol
Pierre SD 57501

RE: Kirk Aughenbaugh

Dear Eric:

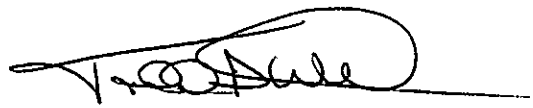
This letter is to inform you that I will be representing Kirk Aughenbaugh in regard to his hearing on the Water Permit Application No. 8413-3 for Ratio LLC which hearing is scheduled for October 7-8, 2020.

Would you please forward me a copy of the file for Ratio LLC Water Permit Application No. 8413-3. You can email the documents to me at todd@wslawfirm.net.

Thank you.

Sincerely yours,

WILKINSON & SCHUMACHER
LAW PROF. LLC



Todd D. Wilkinson

TDW:mo

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JUL 02 2020
WATER RIGHTS
PROGRAM



OFFICE OF ATTORNEY GENERAL

1302 East Highway 14, Suite 1
Pierre, South Dakota 57501-8501
Phone (605) 773-3215
Fax (605) 773-4106
TTY (605) 773-6585
<http://atg.sd.gov/>

JASON R. RAVNSBORG
ATTORNEY GENERAL

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SEP 16 2020

**WATER RIGHTS
PROGRAM**

CHARLES D. McGUIGAN
CHIEF DEPUTY ATTORNEY GENERAL

September 14, 2020

Todd D. Wilkinson
Counsel for Ratio, LLC
Wilkinson & Schumacher Law Prof. LLC
P.O. Box 29
DeSmet, SD 57231

David M. McVey
Assistant Attorney General
Counsel for Water Management Board
1302 East Highway 14, Suite 1
Pierre, SD 57501
Hand Delivered

Patricia Moriarty
36611 208th Street
St. Lawrence, SD 57373

Brian S. Caruso
US Fish and Wildlife Service
P.O. Box 25486
Denver Federal Center
Denver, CO 80225-0486

Re: *In the Matter Water Application No. 8413-3, Ratio LLC.*

To Whom it May Concern:

Enclosed please find a copy of the Motion for Procedural Order and the proposed Procedural Order in the above-referenced file.

Sincerely,

A handwritten signature in black ink, appearing to read "Ann F. Mines Bailey".

Ann F. Mines Bailey
Assistant Attorney General

AFM/klg
Enclosures
cc w/enc: Ron Duvall, DENR Water Rights Program

RECEIVED
SEP 16 2020

STATE OF SOUTH DAKOTA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
WATER MANAGEMENT BOARD

WATER RIGHTS
PROGRAM

IN THE MATTER OF WATER
APPLICATION NO. 8413-3, RATIO LLC.

)
)
)

MOTION FOR
PROCEDURAL ORDER

COME NOW the Chief Engineer and the Water Rights Program and request the Prehearing Chair enter a Procedural Order regarding the conduct of the hearing to be held on October 7, 2020. The COVID-19 pandemic is ongoing. In an effort to comply with the guidelines set forth by the Centers for Disease Control, such as social distancing, the Chief Engineer and Water Rights Program request that the Prehearing Chairman order that the parties submit their exhibits, properly numbered, in order to effectuate the provision of those exhibits to Board members who may be attending the meeting remotely. It is also requested that the Prehearing Chairman order the parties to provide the administrator responsible for the physical arrangements of the hearing room with the number of people that will be in attendance so that the room could be set up in a manner which would allow for social distancing. A proposed order is submitted with this motion for the Prehearing Chairman's consideration.

Though it is my understanding that United States Fish and Wildlife Service does not intend to participate in the hearing, such notice has not been received in writing. Accordingly, USFWS will be served with this motion and proposed order and is included in the provision of the proposed order.

Dated this 14th day of September, 2020.


Ann F. Mines Bailey
Assistant Attorney General
Mickelson Criminal Justice Center
1302 East Highway 14, Suite 1
Pierre, South Dakota 57501
Telephone: (605) 773-3215

RECEIVED

SEP 16 2020

STATE OF SOUTH DAKOTA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

WATER RIGHTS
PROGRAM

WATER MANAGEMENT BOARD

IN THE MATTER OF WATER	)	PROCEDURAL ORDER
APPLICATION NO. 8413-3,	)	
RATIO LLC.	)	

Hearing on this matter is scheduled for October 7, 2020. In preparation for hearing, the parties are hereby ordered to comply with the following:

1. To facilitate distribution to those Board members who will be appearing remotely, the parties shall provide a hardcopy of each exhibit which may be used during the course of the hearing. Each exhibit is to be numbered prior to submission. The Applicant shall identify its exhibits using letters A-Z. Water Rights shall use numbers 1-99. Patricia Moriarty shall use numbers 100-199. United States Fish and Wildlife Service shall use numbers 200-299.
2. In order to comply with the guidance issued by the Centers for Disease Control and the South Dakota Department of Health, the parties shall also submit on or before September 25, 2020, the number of individuals who will be present on their behalf during the hearing.
3. The parties must still be prepared to provide a sufficient number of copies of exhibits, with the exception of the administrative file, for use at the contested case hearing, including at least nine (9) copies for the

Board, its counsel, and court reporter, and enough additional copies for all parties participating in the contested proceedings.

On or before September 25, 2020, the number of participants to be present and the exhibits as outlined above must be provided to Ron Duvall, Water Rights, Department of Environment of Natural Resources, 523 East Capitol, Pierre, SD 57501.

Dated this _____ day of September, 2020.

Rodney Freeman, Jr.
Prehearing Chairman
Water Management Board

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SEP 16 2020

STATE OF SOUTH DAKOTA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

WATER RIGHTS
PROGRAM

WATER MANAGEMENT BOARD

IN THE MATTER OF WATER)
APPLICATION NO. 8413-3, RATIO LLC.)
)

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the Motion for Procedural Order and the proposed Procedural Order in the above matter was served by U.S. mail, first class, postage prepaid, upon the following on this 14th day of September 2020:

Todd D. Wilkinson
Counsel for Ratio, LLC
Wilkinson & Schumacher Law Prof. LLC
P.O. Box 29
DeSmet, SD 57231

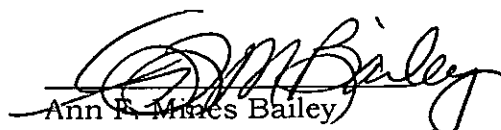
Patricia Moriarty
36611 208th Street
St. Lawrence, SD 57373

Brian S. Caruso
US Fish and Wildlife Service
P.O. Box 25486
Denver Federal Center
Denver, CO 80225-0486

David M. McVey
Assistant Attorney General
1302 East Highway 14, Ste. 1
Pierre, SD 57501
Hand-delivered and emailed WORD version of Order

And on the same date, the original was filed with:

Ron Duvall
DENR Water Rights Program
Joe Foss Building
523 East Capitol Avenue
Pierre, SD 57501


Ann R. Mines Bailey
Assistant Attorney General



denr.sd.gov

c: Ann Mines Bailey, Assistant Attorney General

CERTIFICATION

I hereby certify that on September 16, 2020, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice of Hearing dated September 16, 2020, regarding Water Right Permit Application No. 8413-3, as addressed below:

Ratio LLC
Kirk Aughenbaugh
43204 US Highway 14
DeSmet, SD 57231

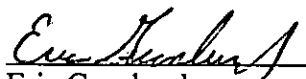
Patricia Moriarty
36611 208th Street
St. Lawrence SD 57373

Brian S Caruso
US Fish & Wildlife Service
PO Box 25486
Denver Federal Center
Denver, CO 80225-0486

Todd D. Wilkinson
Counsel for Ratio, LLC
Wilkinson & Schumacher Law Prof. LLC
PO Box 29
DeSmet SD 57231

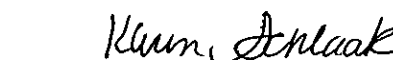
Sent Inter-office to:

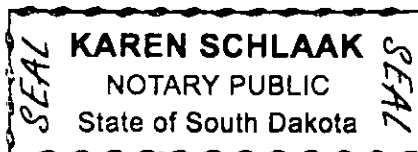
Ann Mines Bailey, Assistant Attorney General
1302 East Highway 14, Suite 1
Pierre SD 57501-8501


Eric Gronlund
Water Rights Program, DENR

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 16th day of September 2020.


Karen Schlaak
Notary Public
My Commission expires April 1, 2025





denr.sd.gov

c: Ann Mines Bailey, Assistant Attorney General
David McVey, Assistant Attorney General

RECEIVED

via
email

SEP 22 2020

WATER RIGHTS
PROGRAM

STATE OF SOUTH DAKOTA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

WATER MANAGEMENT BOARD

IN THE MATTER OF WATER	)	PROCEDURAL ORDER
APPLICATION NO. 8413-3,	)	
RATIO LLC.	)	

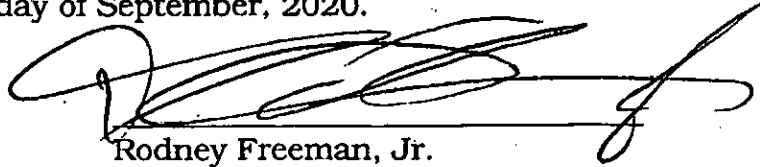
Hearing on this matter is scheduled for October 7, 2020. In preparation for hearing, the parties are hereby ordered to comply with the following:

1. To facilitate distribution to those Board members who will be appearing remotely, the parties shall provide a hardcopy of each exhibit which may be used during the course of the hearing. Each exhibit is to be numbered prior to submission. The Applicant shall identify its exhibits using letters A-Z. Water Rights shall use numbers 1-99. Patricia Moriarty shall use numbers 100-199. United States Fish and Wildlife Service shall use numbers 200-299.
2. In order to comply with the guidance issued by the Centers for Disease Control and the South Dakota Department of Health, the parties shall also submit on or before September 25, 2020, the number of individuals who will be present on their behalf during the hearing.
3. The parties must still be prepared to provide a sufficient number of copies of exhibits, with the exception of the administrative file, for use at the contested case hearing, including at least nine (9) copies for the

Board, its counsel, and court reporter, and enough additional copies for all parties participating in the contested proceedings.

On or before September 25, 2020, the number of participants to be present and the exhibits as outlined above must be provided to Ron Duvall, Water Rights, Department of Environment of Natural Resources, 523 East Capitol, Pierre, SD 57501.

Dated this 22nd day of September, 2020.

A handwritten signature in black ink, appearing to read 'Rodney Freeman, Jr.', written over a horizontal line.

Rodney Freeman, Jr.
Prehearing Chairman
Water Management Board

CERTIFICATION

I hereby certify that on September 22, 2020, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Procedural Order dated September 22, 2020, regarding Water Right Permit Application No. 8413-3, as addressed below:

Ratio LLC
Kirk Aughenbaugh
43204 US Highway 14
DeSmet, SD 57231

Patricia Moriarty
36611 208th Street
St. Lawrence SD 57373

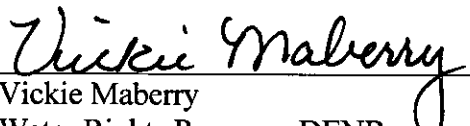
Brian S Caruso
US Fish & Wildlife Service
PO Box 25486
Denver Federal Center
Denver, CO 80225-0486

Todd D. Wilkinson
Counsel for Ratio, LLC
Wilkinson & Schumacher Law Prof. LLC
PO Box 29
DeSmet SD 57231

Sent Inter-office to:

Ann Mines Bailey, Assistant Attorney General
1302 East Highway 14, Suite 1
Pierre SD 57501-8501

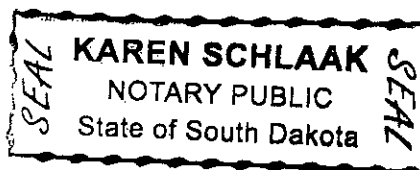
David McVey, Assistant Attorney General
1302 East Highway 14, Suite 1
Pierre SD 57501-8501


Vickie Maberry
Water Rights Program, DENR

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 22nd day of September 2020.


Karen Schlaak
Notary Public
My Commission expires April 1, 2025



RECEIVED

SEP 24 2020

WATER RIGHTS
PROGRAM

STATE OF SOUTH DAKOTA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

WATER MANAGEMENT BOARD

IN THE MATTER OF WATER	)	PROCEDURAL ORDER
APPLICATION NO. 8413-3,	)	
RATIO LLC.	)	

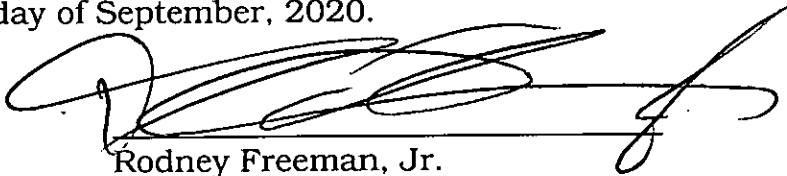
Hearing on this matter is scheduled for October 7, 2020. In preparation for hearing, the parties are hereby ordered to comply with the following:

1. To facilitate distribution to those Board members who will be appearing remotely, the parties shall provide a hardcopy of each exhibit which may be used during the course of the hearing. Each exhibit is to be numbered prior to submission. The Applicant shall identify its exhibits using letters A-Z. Water Rights shall use numbers 1-99. Patricia Moriarty shall use numbers 100-199. United States Fish and Wildlife Service shall use numbers 200-299.
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3. The parties must still be prepared to provide a sufficient number of copies of exhibits, with the exception of the administrative file, for use at the contested case hearing, including at least nine (9) copies for the

Board, its counsel, and court reporter, and enough additional copies for all parties participating in the contested proceedings.

On or before September 25, 2020, the number of participants to be present and the exhibits as outlined above must be provided to Ron Duvall, Water Rights, Department of Environment of Natural Resources, 523 East Capitol, Pierre, SD 57501

Dated this 22nd day of September, 2020.

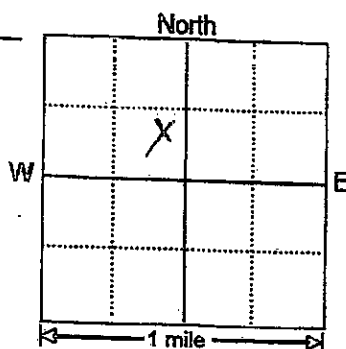
A handwritten signature in black ink, appearing to read 'Rodney Freeman, Jr.', written over a horizontal line.

Rodney Freeman, Jr.
Prehearing Chairman
Water Management Board

SOUTH DAKOTA WELL AND TEST HOLE PLUGGING REPORT 11-02

Location SE 1/4 NW 1/4 Sec 32 Twp 11N Rg 67W Well Owner:County Hand

Please mark well location with an "X"

Name: Kirk AugenbaughAddress: 21024 421st St.City, State, Zip: Fragaria SD 57353

Comments:

Plugging Completion Date 2-4-20

CHECK APPROPRIATE BOX

EXISTING WELL ☐TEST HOLE ☒

Well depth _____

Casing material _____

Casing size(s) _____

Casing condition _____

Hole depth 410Hole size 5"

Describe plugging procedure:

Pumped #20 Grout Through Drill Pipe @ 410'

Describe grout or plugging material:

#20 GroutType of non-slip plug: CementThis well or test hole was plugged under license # 722 and this report is true and accurate.Drilling firm: Stretch's Well Service Inc.Signature of Licensed Representative: Tom GrathenSignature of Well Owner: Kirk AugenbaughDate: 9-26-2020

RECEIVED

OCT 07 2020

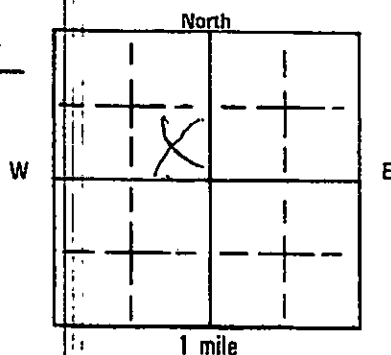
WATER RIGHTS
PROGRAM

SOUTH DAKOTA WELL AND TEST HOLE PLUGGING REPORT

10-85

Location SE 1/4 NW 1/4 Sec 32 Twp 111N Rg 67W

County

HandPlease mark well
location with
an "X"

Well Owner:

Name

Kirk Augenbaugh

Address

21024 421 AveIroquois S.D. 57353

Plugging completion

Date 12-17-19

CHECK APPROPRIATE BOX

EXISTING WELL

☐

TEST HOLE

☒

Well depth

285

Hole depth

285

Casing material

Hole size

5"

Casing size(s)

Casing condition

Describe plugging procedure:

Pumped #20 Grout Through Drill Pipe@ 285'

Describe grout or plugging material:

#20 Grout

Type of non-slip plug:

CementThis well or test hole was plugged under license # 722

And this report is true and accurate.

Drilling firm

Stretch's Well Service Inc.

Signature of Licensed Representative

[Signature]

Signature of Well Owner

[Signature]

Date

9-26-2020

RECEIVED

OCT 07 2020

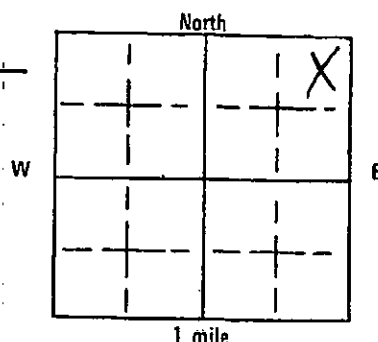
WATER RIGHTS
PROGRAM

SOUTH DAKOTA WELL AND TEST HOLE PLUGGING REPORT

10-85

Location NE 1/4 NE 1/4 Sec. 5 Twp 110N Rg 67WCounty Hand

Please mark well location with an "X"



Well Owner:

Name Kirk AugenbaughAddress 21024 421 AveIrquini's S.D. 57353Plugging completion Date 12-20-19

CHECK APPROPRIATE BOX

EXISTING WELL



TEST HOLE

Well depth UNKNOWNCasing material SteelCasing size(s) 3"Casing condition Fair

Hole depth _____

Hole size _____

Describe plugging procedure: 100' Tremmie PipeDescribe grout or plugging material: 15 lb Portland CementType of non-slip plug: CementThis well or test hole was plugged under license # 722 And this report is true and accurate.Drilling firm Stretch's Well Service Inc.Signature of Licensed Representative Tom ButcherSignature of Well Owner Tim A. AugenbaughDate 10-5-2020

RECEIVED

OCT 07 2020

WATER RIGHTS
PROGRAM

SOUTH DAKOTA WELL AND TEST HOLE PLUGGING REPORT

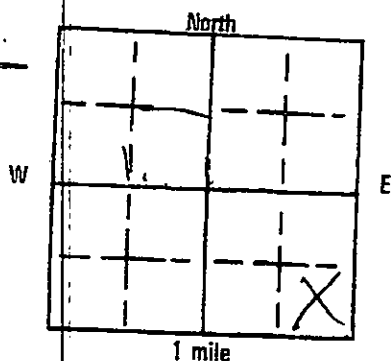
10-85

Location SE y SE, Sec 32 Twp 111N Rg 124W

County

Hand

Please mark well location with an "X"



Well Owner:

Name Kirk Augenbaugh

Address 21024 421 Ave

Treasure's S.D. 57353

Plugging completion Date 12-20-19

CHECK APPROPRIATE BOX

EXISTING WELL



TEST HOLE



Well depth Unknown

Casing material Steel

Casing size(s) 3"

Casing condition Fair

Hole depth _____

Hole size _____

Describe plugging procedure: 110' Tremmie Pipe

Describe grout or plugging material: 15^{lb} Portland Cement

Type of non-slip plug: _____

This well or test hole was plugged under license # 722

And this report is true and accurate.

Drilling firm Stretch's Well Service Inc.

Signature of Licensed Representative [Signature]

Signature of Well Owner [Signature]

Date 9-28-2020

RECEIVED

OCT 07 2020

WATER RIGHTS PROGRAM

SOUTH DAKOTA WELL AND TEST HOLE PLUGGING REPORT

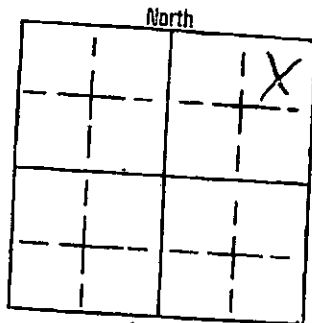
10-85

Location NE 1/4 NE 1/4 Sec 32 Twp 111N Rg 67W

County

Hard

Please mark well location with an "X"



Well Owner:

Name Kirk Aughenbaugh

Address 21024 421 Ave

Trogluc's S.D. 57353

Plugging completion Date 9-29-20

CHECK APPROPRIATE BOX

EXISTING WELL



TEST HOLE



Well depth UNKNOWN

Casing material Steel

Casing size(s) 8"

Casing condition Good

Hole depth _____

Hole size _____

Describe plugging procedure: Tremie Pipe To 65' would Not Go any Further

Describe grout or plugging material: 15 lb Portland Cement

Type of non-slip plug: Cement

This well or test hole was plugged under license # 722

Drilling firm Stretch's Well Service Inc

Signature of Licensed Representative Tom Butcher

Signature of Well Owner Kirk Aughenbaugh

Date 10-5-2020

And this report is true and accurate.

RECEIVED

OCT 07 2020

WATER RIGHTS PROGRAM

Water Well Completion Reports

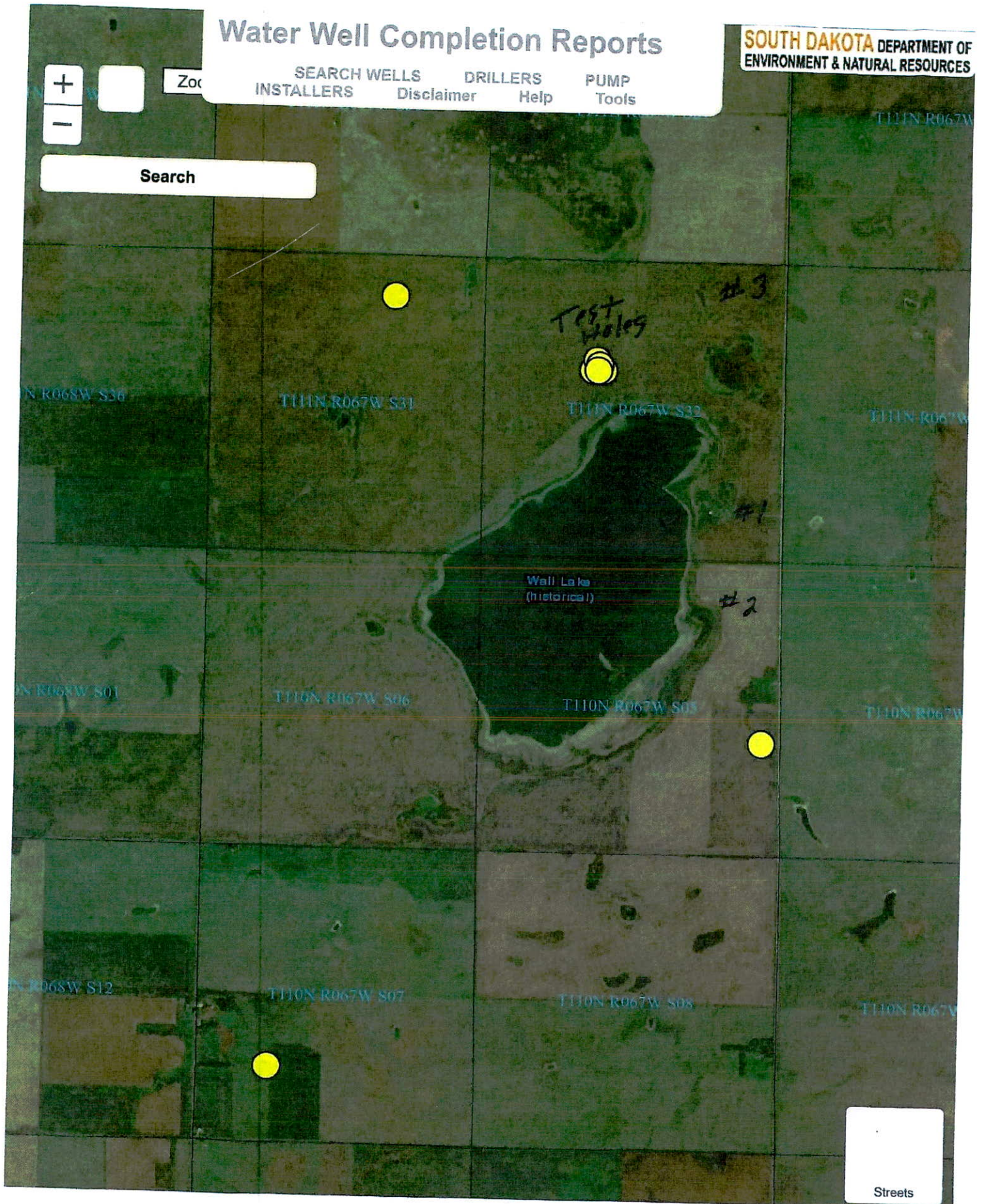
SOUTH DAKOTA DEPARTMENT OF
ENVIRONMENT & NATURAL RESOURCES

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Search





DENR
SOUTH DAKOTA

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

October 13, 2020

NOTICE

TO: Todd D. Wilkinson
Attorney At Law
PO Box 29
DeSmet SD 57231

Patricia Moriarty
36611 208th Street
St. Lawrence SD 57373

Brian S Caruso
US Fish & Wildlife Service
Denver Federal Center
PO Box 25486
Denver CO 80225-0486

Ann Mines Bailey, Assistant Attorney General
1302 East Highway 14, Suite 1
Pierre SD 57501-8501

FROM: Eric Gronlund, Chief Engineer *Eric Gronlund*
Water Rights Program

SUBJECT: Preparation of Findings of Fact, Conclusions of Law and Final Decision in the matter of Water Permit Application 8413-3, Ratio LLC

The Water Management Board directed counsel for the Water Rights Program to prepare proposed Findings of Fact, Conclusions of Law and a Final Decision in the matter of the approval of Water Permit Application No. 8413-3, Ratio LLC.

The Board requested that the proposed Findings of Fact, Conclusions of Law and Final Decision be mailed to Board Counsel David McVey and all other parties by November 10, 2020. Written objections or comments in support of the proposed Findings of Fact, Conclusions of Law and Final Decision, or alternative Findings of Fact, Conclusions of Law and Final Decision are to be mailed to Board and Water Rights Program counsel and other parties of record by November 20, 2020. Board counsel requests that the draft findings or alternative findings be provided in both a PDF format and a WORD format file via email to David.McVey@state.sd.us.

The Board will consider adoption of Findings of Fact, Conclusions of Law and Final Decision at 10:00 AM, on Wednesday, December 2, 2020, in the Floyd Matthew Training Center, Joe Foss Building, 523 East Capitol Avenue, Pierre SD. The agenda time is an estimate and may be delayed due to prior issues on the agenda. Notice will be provided if there is a change in the hearing time.

At the Board's discretion, oral arguments in opposition or support of the proposed Findings of Fact, Conclusions of Law and Final Decision, or alternative Findings of Fact, Conclusions of Law and Final Decision may be made at the December 2, 2020, meeting. The evidentiary hearing was completed October 7, 2020. No additional testimony will be received at the meeting on December 2, 2020.

If you have questions about the findings process, please contact Ann Mines-Bailey at (605) 773-3215.

c: David McVey, Water Management Board Counsel

CERTIFICATION

I hereby certify that on October 13, 2020, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice of Hearing dated October 13, 2020, regarding preparation of findings of fact, conclusions of law and a final decision in the matter of Water Right Permit Application No. 8413-3, as addressed below and on the parties of record list:

Todd Wilkinson
Attorney at Law
PO Box 29
DeSmet SD 57231

Patricia Moriarty
36611 208th Street
St Lawrence SD 57373

Brian S Caruso
US Fish & Wildlife
Service
Denver Federal Center
PO Box 25486
Denver CO 80225-0486

Sent Inter-office to:

Ann Mines Bailey, Assistant Attorney General
1302 East Highway 14, Suite 1
Pierre SD 57501-8501

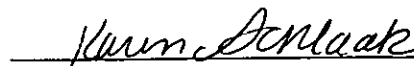
David McVey, Assistant Attorney General
1302 East Highway 14, Suite 1
Pierre SD 57501-8501



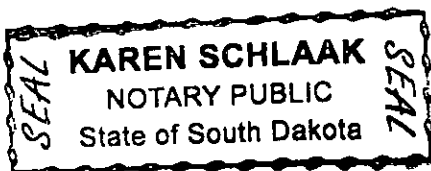
Eric Gronlund
Water Rights Program, DENR

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 13th day of October, 2020.



Karen Schlaak
Notary Public
My Commission expires April 1, 2025



STATE OF SOUTH DAKOTA



OFFICE OF ATTORNEY GENERAL

1302 East Highway 14, Suite 1
Pierre, South Dakota 57501-8501
Phone (605) 773-3215
Fax (605) 773-4106
TTY (605) 773-6585
<http://atg.sd.gov/>

JASON R. RAVNSBORG
ATTORNEY GENERAL

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NOV 09 2020

WATER RIGHTS
PROGRAM

CHARLES D. McGUIGAN
CHIEF DEPUTY ATTORNEY GENERAL

November 6, 2020

Todd D. Wilkinson
Counsel for Ratio, LLC
Wilkinson & Schumacher Law Prof. LLC
P.O. Box 29
DeSmet, SD 57231

David M. McVey
Assistant Attorney General
Counsel for Water Management Board
1302 East Highway 14, Suite 1
Pierre, SD 57501
Hand Delivered

Patricia Moriarty
36611 208th Street
St. Lawrence, SD 57373

Brian S. Caruso
US Fish and Wildlife Service
P.O. Box 25486
Denver Federal Center
Denver, CO 80225-0486

Re: *In the Matter Water Application No. 8413-3, Ratio LLC.*

To Whom it May Concern:

Enclosed please find a copy of the Water Rights' proposed Findings of Fact, Conclusions of Law, and Final Decision in the above-referenced file.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ann F. Mines Bailey".

Ann F. Mines Bailey
Assistant Attorney General

AFM/mb
Enclosures
cc w/enc: Ron Duvall, DENR Water Rights Program

RECEIVED

NOV 09 2020

WATER RIGHTS
PROGRAM

STATE OF SOUTH DAKOTA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

WATER MANAGEMENT BOARD

IN THE MATTER OF WATER	)	WATER RIGHTS' PROPOSED
PERMIT APPLICATION NO. 8413-3,	)	FINDINGS OF FACT,
RATIO LLC	)	CONCLUSIONS OF LAW,
	)	AND FINAL DECISION

This matter came before the South Dakota Water Management Board for hearing on October 7, 2020. Board members Jim Hutmacher, Rodney Freeman, Leo Holzbauer, Bill Larson, Peggy Dixon, Chad Comes, and Tim Bjork were present at the hearing. Todd Wilkinson appeared on behalf of Ratio LLC. Petitioner, Patricia Moriarty, personally appeared and represented herself. The Department of Environment and Natural Resources, Water Rights Program Department and the Chief Engineer were represented by Assistant Attorney General Ann F. Mines Bailey.

The Board, having considered the testimony and exhibits presented and all records and documents on file, and having entered its oral decision and rulings on the parties' submissions and motions, now enters the following:

FINDINGS OF FACT

1. On October 30, 2019, Water Rights received Water Permit Application No. 8413-3 on behalf of Ratio, LLC seeking an appropriation of water for commercial use. The application seeks a diversion rate of 0.134 cubic feet of water per second (cfs) for a maximum annual diversion of 77 acre-feet of water per year (ac-ft/yr) from two wells both of which would be

completed into either the Niobrara aquifer or the Dakota aquifer and located in the SE¼ NW¼ Section 32, T111N, R67W, Hand County, South Dakota.

Applicant intends to use the water in a swine production facility to be located in E½ NW¼ Section 32, T111N, R67W, Hand County, South Dakota.

2. The original application sought an appropriation from the glacial aquifer in the area. In the process of reviewing the application, it was requested that a test hole be completed. Based upon a review of the information from that test hole and other lithologic logs, it was determined that there was not sufficient water in the glacial deposits in the area to satisfy the application.

3. It was then requested that a second test hole be completed to determine if the Niobrara aquifer was present in the area. Due to equipment limitations, this second test hole was unable to be completed through the Pierre shale which overlies the Niobrara aquifer. As a result, it is unknown if the Niobrara aquifer occurs in this location. Accordingly, the review contemplates both the Niobrara aquifer, should it be encountered in this location, and the Dakota aquifer which is known to occur in this area.

4. The Chief Engineer recommended approval of the application with the following qualifications:

1. The well approved under Water Permit No. 8413-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under these Permits shall control withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.

2. The well authorized by Permit No. 8413-3 shall be constructed into a single aquifer, either the Niobrara aquifer or Dakota aquifer, but not both. At the time of the licensing, the final water right will be issued for the developed water source.
3. The well authorized by Permit No. 8413-3 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. Water Permit No. 8413-3 is subject to compliance with requirements of the Department's Water Pollution Control Permit issued pursuant to SDCL 34A-2-36 or 34A-2-36.2 or 34A-2-112 or 34A-2-124 for concentrated animal feeding operations.
5. Water Permit No. 8413-3 is subject to compliance with all existing and applicable Water Management Board Rules including but not limited to:
 - a) Chapter 74:54:01 Ground Water Quality Standards
 - b) Chapter 74:54:02 Ground Water Discharge Permit
 - c) Chapter 74:51:01 Surface Water Quality Standards
 - d) Chapter 74:51:02 Uses Assigned to Lakes
 - e) Chapter 74:51:03 Uses Assigned to Streams, and
 - f) Chapter 74:52:01 through 74:52:11 Surface Water Discharge Provisions.
6. The Permit holder shall report to the Chief Engineer annually the amount of water withdrawn from the aquifer.
7. Water Permit No. 8413-3 authorizes a total annual diversion of 77 acre feet of water from the aquifer.

5. Public notice of the application was published in the Huron Plainsman newspaper on May 6, 2020, and The Miller Press newspaper on May 2, 2020.

6. DENR received a "letter of concern" from United States Fish and Wildlife Service and petition in opposition to the application from Patricia Moriarty.

7. The matter was initially scheduled for hearing at the July 2020 Water Management Board meeting; however, an automatic delay was requested by Ratio. The matter was then set for the October 2020 board meeting.

8. Water Permit Application No. 8413-3 is a new water permit application which requires a determination pursuant to SDCL § 46-2A-9 that there is a reasonable probability unappropriated water is available for the proposed use, whether the use would impair existing rights, whether the use would be a beneficial use, and whether the proposed use is in the public interest.

9. In considering water availability this Board must examine whether the quantity of the average water withdrawn annually from the groundwater source would exceed the quantity of the estimated average annual recharge of water to the groundwater source if this permit was granted.

10. Because it is uncertain if the Niobrara aquifer occurs at this location, a review was conducted as to both the Niobrara and Dakota aquifers.

11. DENR witness, Timothy Magstadt, a natural resources engineer, reviewed the permit application, analyzed the hydrology of both the Niobrara and Dakota aquifers, and reviewed the information obtained from the observation wells completed into the aquifers, as well as current water right/permit files and well completion reports for each aquifer.

12. The Niobrara aquifer is composed primarily of chalk, marl, and shale. In Hand County, it is estimated that the areal extent of the Niobrara aquifer is 210,000 acres. In this location, the aquifer varies in thickness from 25 to 100 feet. It is expected in this area that the aquifer exists in confined conditions with artesian head pressures of approximately 80-130 feet.

13. Mr. Magstadt testified that the Niobrara aquifer receives recharge through the infiltration of precipitation and inflow from the Dakota and Codell aquifers. No studies have been done to estimate the recharge rate to the Niobrara aquifer.

14. Water Rights monitors 57 observation wells completed into the Niobrara aquifer. The observation well data demonstrated that, over the period of record, recharge is greater than discharge.

15. Mr. Magstadt further testified that withdrawals from the Niobrara include evapotranspiration, outflow to other aquifers and rivers, and well withdrawals. Mr. Magstadt estimated well withdrawals in the amount of 3,948 acre-feet/year.

16. There are 83 water rights completed into the Niobrara aquifer. The nearest water right on record completed into the Niobrara aquifer is approximately five miles to the southwest of the proposed diversion point.

17. The nearest domestic well on file is approximately 1.5 miles to the northwest of the proposed point of diversion. Given that there are glacial aquifers at shallower depths, it is unlikely that domestic wells would be completed into either the Niobrara or the Dakota aquifers.

18. Mr. Magstadt opined that there is a low probability of unlawful impairment to existing rights with adequate wells completed into the Niobrara aquifer due to the estimated artesian head pressure in the area and distance to the nearest domestic user or water right.

19. The Dakota aquifer is composed of sandstone, quartz, and shale. In Hand County, it is estimated that the areal extent of the Dakota aquifer is 912,640 acres and contain an estimated 22,245,608 acre-feet of water is held in storage. The aquifer is estimated to have a thickness of 200-320 feet in this area. In this area, the Dakota aquifer exists in confined conditions with artesian head pressure of 970-1200 feet.

20. The Dakota aquifer receives recharge through infiltration of precipitation, leakage through confining layers, and upward leakage from deeper aquifers. While there are no estimates of the entirety of the recharge to the Dakota aquifer, there has been an estimate of recharge received from confining layers which is estimated at 56,780 acre-feet/yr.

21. The Water Rights program monitors 46 observation wells completed into the Dakota aquifer. The observation well data shows that the Dakota aquifer is in a state of equilibrating and that as the artesian head pressure in the aquifer drops, flowing wells are ceasing to flow to waste. Furthermore, the observation well data shows that water is available for appropriation.

22. Mr. Magstadt further testified that withdrawals from the Dakota aquifer include leakage to confining layers, uncontrolled flowing wells, outflow to other aquifers, and well withdrawals. Mr. Magstadt estimated well withdrawals in the amount of 24,485.25 acre-feet/year.

23. There are 238 water rights completed into the Dakota aquifer. The closest water right to the proposed diversion point completed into the Dakota aquifer is approximately nine miles to the north.

24. Mr. Magstadt opined that there is a low probability of unlawful impairment to existing rights with adequate wells completed into the Dakota aquifer due to the estimated artesian head pressure in the area and distance to the nearest domestic user or water right.

25. Mr. Magstadt also reviewed Ms. Moriarty's petition. Based upon the information set forth in her petition, Mr. Magstadt opined that Ms. Moriarty's well is completed into a glacial aquifer and as such would not be affected by this proposed diversion. Mr. Magstadt further opined that Ms. Moriarty's second well is completed into the Dakota aquifer and given the artesian head pressure, there would not be an unlawful impairment but perhaps a need to lower the pump.

26. Chief Engineer Eric Gronlund also provided testimony to the Board. Chief Engineer Gronlund testified that he recommended approval of the application. He offered corrections to his recommendation, namely that the reference to "well" in Qualifications Nos. 1, 2, and 3 should be plural. He

further modified Qualification No. 2 to read “shall be constructed into the same aquifer” as opposed to “constructed into a single aquifer” as originally drafted.

26. The Board also received the testimony of Kirk Aughenbaugh. Mr. Aughenbaugh is one of the members of Ratio, LLC. Mr. Aughenbaugh testified that the water will be used in a swine production facility which will be operated by Pipestone. The farm will be comprised of five buildings: a farrowing barn, a gestation barn, a gilt growing barn, a compost building, and a storage shed. Mr. Aughenbaugh further testified of the benefits which would be derived by the community from the facility.

27. Nick Fitzgerald also provided testimony to the Board. Mr. Fitzgerald is employed by Pipestone. As part of his employment, he has been working with Ratio regarding the design of the facility. Mr. Fitzgerald testified that this is a deep-pitted structure, a zero discharge facility. The facility has been engineered per state standards. The holding tanks have been designed to exceed DENR requirements for storage capacity.

28. Ms. Patricia Moriarty also testified. Ms. Moriarty lives two miles east of the site. She testified that they occasionally have troubles getting sufficient water for all their needs and that water availability is a great concern for her. She is also very concerned about water quality and the potential contamination of the well by manure. Ms. Moriarty further expressed concerns regarding several abandoned wells on the Ratio site.

29. Board member Rodney Freeman moved to approve the application subject to the qualifications set forth by the Chief Engineer and as modified

during the Chief Engineer's testimony. Board member Peggy Dixon seconded the motion. A roll call vote was taken and the motion carried unanimously.

30. The Board finds Mr. Magstadt to be a credible expert witness and that these proposed Findings of Fact are supported by the evidence presented including Mr. Magstadt's testimony and the reports and exhibits which he prepared and/or relied upon.

31. Petitioner did not submit sufficient evidence through expert opinions, testimony, or evidence that would support a determination that there is a reasonable probability that there is not unappropriated water available in this aquifer.

32. The Board finds that there is a reasonable probability there is unappropriated water available for the Applicant's proposed use.

33. The Board further finds that granting this application will not result in withdrawals from the aquifer exceeding the estimated average annual recharge to the aquifer.

34. The Board finds that the proposed diversion is unlikely to result in an unlawful impairment to adequate wells.

35. The Board additionally finds that the proposed use of the water for commercial use in a swine production facility constitutes beneficial use.

36. The Board further finds that placing the water to this beneficial use is in the public interest.

37. Any finding of fact more properly designated as a conclusion of law shall be treated as such.

Based upon the forgoing Findings of Fact, the Board makes the following:

CONCLUSIONS OF LAW

1. The Board has jurisdiction over the application and the parties pursuant to SDCL Ch. 46-2A.

2. Publication was properly made, and the Notice of Hearing was properly issued pursuant to SDCL § 46-2A-4.

3. The Chief Engineer recommended granting this application. That recommendation, however, is not binding upon the Board. *See* SDCL § 46-2A-4(8).

4. South Dakota Codified Law, section 46-2A-9 provides that provides that 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.” Each of these factors must be met and the permit must be denied if the applicant does not meet its burden of proof on any one of them.

5. The Applicant bore the burden of proof under SDCL § 46-2A-9. The Applicant met its burden of proof and is entitled to a permit subject to qualifications adopted by the Board.

6. The first factor for consideration under SDCL § 46-2A-9 is whether there is water available for the appropriation. Determination of water availability includes consideration of the criteria in SDCL § 46-6-3.1 pertaining to recharge/withdrawal: whether “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.”

7. The Board concludes there is a reasonable probability that there is unappropriated water is available to fulfill the amount requested by the Applicant.

8. The Board further concludes that it is not probable that withdrawals from the aquifer would exceed recharge to the aquifer in violation of SDCL § 46-6-3.1 if this application is granted.

9. The second requirement of SDCL § 46-2A-9 is that the proposed water use may not unlawfully impair existing water rights. The proposed diversion can be developed without unlawful impairment of existing water rights.

10. The third element in SDCL § 46-2A-9 is whether the use of water would be a beneficial use: one that is reasonable and useful and beneficial to the appropriator and also consistent with the interest of the public in the best utilization of water supplies under SDCL § 46-1-6(3). The proposed use (commercial use in a swine production facility) is a beneficial use.

11. The fourth requirement of SDCL § 46-2A-9 concerns the public interest. The proposed use of the water must be “consistent with the interests of the public of this state in the best utilization of water supplies.” SDCL § 6-1-6(3). The Board finds that appropriating water for commercial use is in the public interest.

12. Any Conclusion of Law more properly designated as a Finding of Fact shall be treated as such.

FINAL DECISION

Based on the foregoing Findings of Fact and Conclusions of Law, the Board enters its determination that Water Permit Application No. 8413-3 is granted with the following qualifications:

1. The wells approved under Water Permit No. 8413-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under these Permits shall control withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The wells authorized by Permit No. 8413-3 shall be constructed into the same aquifer, either the Niobrara aquifer or Dakota aquifer, but not both. At the time of the licensing, the final water right will be issued for the developed water source.
3. The wells authorized by Permit No. 8413-3 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. Water Permit No. 8413-3 is subject to compliance with requirements of the Department's Water Pollution Control Permit issued pursuant to SDCL 34A-2-36 or 34A-2-36.2 or 34A-2-112 or 34A-2-124 for concentrated animal feeding operations.
5. Water Permit No. 8413-3 is subject to compliance with all existing and applicable Water Management Board Rules including but not limited to:
 - a) Chapter 74:54:01 Ground Water Quality Standards
 - b) Chapter 74:54:02 Ground Water Discharge Permit
 - c) Chapter 74:51:01 Surface Water Quality Standards
 - d) Chapter 74:51:02 Uses Assigned to Lakes
 - e) Chapter 74:51:03 Uses Assigned to Streams, and
 - f) Chapter 74:52:01 through 74:52:11 Surface Water Discharge Provisions.

6. The Permit holder shall report to the Chief Engineer annually the amount of water withdrawn from the aquifer.
7. Water Permit No. 8413-3 authorizes a total annual diversion of 77 acre feet of water from the aquifer.

Dated this ____ day of December, 2020.

BY THE BOARD:

Jim Hutmacher, Chairman
South Dakota Water Management Board

STATE OF SOUTH DAKOTA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

WATER MANAGEMENT BOARD

IN THE MATTER OF WATER	)	CERTIFICATE OF SERVICE
APPLICATION NO. 8413-3, RATIO LLC.	)	
	)	

The undersigned hereby certifies that a true and correct copy of the Water Rights' proposed Findings of Fact, Conclusions of Law, and Final Decision in the above matter was served by U.S. mail, first class, postage prepaid, upon the following on this 6th day of November 2020:

Todd D. Wilkinson
Counsel for Ratio, LLC
Wilkinson & Schumacher Law Prof. LLC
P.O. Box 29
DeSmet, SD 57231

Patricia Moriarty
36611 208th Street
St. Lawrence, SD 57373

Brian S. Caruso
US Fish and Wildlife Service
P.O. Box 25486
Denver Federal Center
Denver, CO 80225-0486

David M. McVey
Assistant Attorney General
1302 East Highway 14, Ste. 1
Pierre, SD 57501
Hand-delivered and emailed WORD version of Order

And on the same date, the original was filed with:

Ron Duvall
DENR Water Rights Program
Joe Foss Building
523 East Capitol Avenue
Pierre, SD 57501


Ann F. Mines Bailey
Assistant Attorney General



DENR
SOUTH DAKOTA

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

December 16, 2020

NOTICE OF ENTRY OF ORDER

TO: Todd D. Wilkinson
Attorney At Law
PO Box 29
DeSmet SD 57231

Patricia Moriarty
36611 208th Street
St. Lawrence SD 57373

Brian S Caruso
US Fish & Wildlife Service
Denver Federal Center
PO Box 25486
Denver CO 80225-0486

Ann Mines Bailey, Assistant Attorney General
1302 East Highway 14, Suite 1
Pierre SD 57501-8501

FROM: Eric Gronlund, Chief Engineer
Water Rights Program

SUBJECT: Notice of Entry of Findings of Fact, Conclusions of Law and Final Decision in the matter of Water Permit Application 8413-3, Ratio LLC

Notice is hereby given that on the 2nd day of December 2020, the South Dakota Water Management Board entered its Findings of Fact, Conclusions of Law, and Final Decision in the above-entitled matter. Enclosed is the signed Findings of Fact, Conclusions of Law and Final Decision adopted by the Board.

South Dakota statutes provide that decisions of the Board may be appealed to the Courts. Notice of appeal of the Board's decision must be filed within thirty days of this notice and be in accordance with procedures established in SDCL 1-26-31.

c: David McVey, Water Management Board Counsel

CERTIFICATION

I hereby certify that on December 16, 2020, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice of Entry of Order dated December 16, 2020, regarding adoption of findings of fact, conclusion of law and final decision in the matter of Water Right Permit Application No. 8413-3, as addressed below:

Todd Wilkson
Attorney at Law
PO Box 29
DeSmet SD 57231

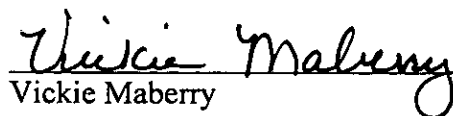
Patricia Moriarty
36611 208th Street
St Lawrence SD 57373

Brian S Caruso
US Fish & Wildlife Service
Denver Federal Center
PO Box 25486
Denver CO 80225-0486

Sent Inter-office to:

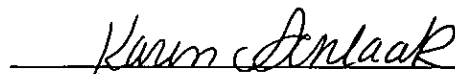
Ann Mines Bailey, Assistant Attorney General
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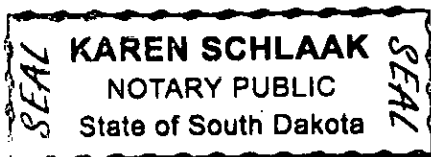
David McVey, Assistant Attorney General
1302 East Highway 14, Suite 1
Pierre SD 57501-8501


Vickie Maberry
Water Rights Program, DENR

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 16th day of December, 2020.


Karen Schlaak
Notary Public
My Commission expires April 1, 2025



RECEIVED

DEC 15 2020

WATER RIGHTS
PROGRAM

STATE OF SOUTH DAKOTA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

WATER MANAGEMENT BOARD

IN THE MATTER OF WATER	)	
PERMIT APPLICATION NO. 8413-3,	)	FINDINGS OF FACT,
RATIO LLC	)	CONCLUSIONS OF LAW,
	)	AND FINAL DECISION

This matter came before the South Dakota Water Management Board for hearing on October 7, 2020. Board members Jim Hutmacher, Rodney Freeman, Leo Holzbauer, Bill Larson, Peggy Dixon, Chad Comes, and Tim Bjork were present at the hearing. Assistant Attorney General David M. McVey served as Board Counsel. Todd Wilkinson appeared on behalf of Ratio LLC. Petitioner, Patricia Moriarty, personally appeared and represented herself. The Department of Environment and Natural Resources, Water Rights Program Department and the Chief Engineer were represented by Assistant Attorney General Ann F. Mines Bailey.

The Board, having considered the testimony and exhibits presented and all records and documents on file, and having entered its oral decision and rulings on the parties' submissions and motions, now enters the following:

FINDINGS OF FACT

1. On October 30, 2019, Water Rights received Water Permit Application No. 8413-3 on behalf of Ratio, LLC seeking an appropriation of water for commercial use. The application seeks a diversion rate of 0.134 cubic feet of water per second (cfs) for a maximum annual diversion of 77

acre-feet of water per year (ac-ft/yr) from two wells both of which would be completed into either the Niobrara aquifer or the Dakota aquifer and located in the SE¼ NW¼ Section 32, T111N, R67W, Hand County, South Dakota. Applicant intends to use the water in a swine production facility to be located in E½ NW¼ Section 32, T111N, R67W, Hand County, South Dakota.

2. The original application sought an appropriation from the glacial aquifer in the area. In the process of reviewing the application, it was requested that a test hole be completed. Based upon a review of the information from that test hole and other lithologic logs, it was determined that there was not sufficient water in the glacial deposits in the area to satisfy the application.

3. It was then requested that a second test hole be completed to determine if the Niobrara aquifer was present in the area. Due to equipment limitations, this second test hole was unable to be completed through the Pierre shale which overlies the Niobrara aquifer. As a result, it is unknown if the Niobrara aquifer occurs in this location. Accordingly, the review contemplates both the Niobrara aquifer, should it be encountered in this location, and the Dakota aquifer which is known to occur in this area.

4. The Chief Engineer recommended approval of the application with the following qualifications:

1. The well approved under Water Permit No. 8413-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under these Permits shall control withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.

2. The well authorized by Permit No. 8413-3 shall be constructed into a single aquifer, either the Niobrara aquifer or Dakota aquifer, but not both. At the time of the licensing, the final water right will be issued for the developed water source.
3. The well authorized by Permit No. 8413-3 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. Water Permit No. 8413-3 is subject to compliance with requirements of the Department's Water Pollution Control Permit issued pursuant to SDCL 34A-2-36 or 34A-2-36.2 or 34A-2-112 or 34A-2-124 for concentrated animal feeding operations.
5. Water Permit No. 8413-3 is subject to compliance with all existing and applicable Water Management Board Rules including but not limited to:
 - a) Chapter 74:54:01 Ground Water Quality Standards
 - b) Chapter 74:54:02 Ground Water Discharge Permit
 - c) Chapter 74:51:01 Surface Water Quality Standards
 - d) Chapter 74:51:02 Uses Assigned to Lakes
 - e) Chapter 74:51:03 Uses Assigned to Streams, and
 - f) Chapter 74:52:01 through 74:52:11 Surface Water Discharge Provisions.
6. The Permit holder shall report to the Chief Engineer annually the amount of water withdrawn from the aquifer.
7. Water Permit No. 8413-3 authorizes a total annual diversion of 77 acre feet of water from the aquifer.

5. Public notice of the application was published in the Huron Plainsman newspaper on May 6, 2020, and The Miller Press newspaper on May 2, 2020.

6. DENR received a “letter of concern” from United States Fish and Wildlife Service and petition in opposition to the application from Patricia Moriarty.

7. The matter was initially scheduled for hearing at the July 2020 Water Management Board meeting; however, an automatic delay was requested by Ratio. The matter was then set for the October 2020 board meeting.

8. Water Permit Application No. 8413-3 is a new water permit application which requires a determination pursuant to SDCL § 46-2A-9 that there is a reasonable probability unappropriated water is available for the proposed use, whether the use would impair existing rights, whether the use would be a beneficial use, and whether the proposed use is in the public interest.

9. In considering water availability this Board must examine whether the quantity of the average water withdrawn annually from the groundwater source would exceed the quantity of the estimated average annual recharge of water to the groundwater source if this permit was granted.

10. Because it is uncertain if the Niobrara aquifer occurs at this location, a review was conducted as to both the Niobrara and Dakota aquifers.

11. DENR witness, Timothy Magstadt, a natural resources engineer, reviewed the permit application, analyzed the hydrology of both the Niobrara and Dakota aquifers, and reviewed the information obtained from the observation wells completed into the aquifers, as well as current water right/permit files and well completion reports for each aquifer.

12. The Niobrara aquifer is composed primarily of chalk, marl, and shale. In Hand County, it is estimated that the areal extent of the Niobrara aquifer is 210,000 acres. In this location, the aquifer varies in thickness from 25 to 100 feet. It is expected in this area that the aquifer exists in confined conditions with artesian head pressures of approximately 80-130 feet.

13. Mr. Magstadt testified that the Niobrara aquifer receives recharge through the infiltration of precipitation and inflow from the Dakota and Codell aquifers. No studies have been done to estimate the recharge rate to the Niobrara aquifer.

14. Water Rights monitors 57 observation wells completed into the Niobrara aquifer. The observation well data demonstrated that, over the period of record, recharge is greater than discharge.

15. Mr. Magstadt further testified that withdrawals from the Niobrara include evapotranspiration, outflow to other aquifers and rivers, and well withdrawals. Mr. Magstadt estimated well withdrawals in the amount of 3,948 acre-feet/year.

16. There are 83 water rights completed into the Niobrara aquifer. The nearest water right on record completed into the Niobrara aquifer is approximately five miles to the southwest of the proposed diversion point.

17. The nearest domestic well on file is approximately 1.5 miles to the northwest of the proposed point of diversion. Given that there are glacial aquifers at shallower depths, it is unlikely that domestic wells would be completed into either the Niobrara or the Dakota aquifers.

18. Mr. Magstadt opined that there is a low probability of unlawful impairment to existing rights with adequate wells completed into the Niobrara aquifer due to the estimated artesian head pressure in the area and distance to the nearest domestic user or water right.

19. The Dakota aquifer is composed of sandstone, quartz, and shale. In Hand County, it is estimated that the areal extent of the Dakota aquifer is 912,640 acres and contain an estimated 22,245,608 acre-feet of water is held in storage. The aquifer is estimated to have a thickness of 200-320 feet in this area. In this area, the Dakota aquifer exists in confined conditions with artesian head pressure of 970-1200 feet.

20. The Dakota aquifer receives recharge through infiltration of precipitation, leakage through confining layers, and upward leakage from deeper aquifers. While there are no estimates of the entirety of the recharge to the Dakota aquifer, there has been an estimate of recharge received from confining layers which is estimated at 56,780 acre-feet/yr.

21. The Water Rights program monitors 46 observation wells completed into the Dakota aquifer. The observation well data shows that the Dakota aquifer is in a state of equilibrating and that as the artesian head pressure in the aquifer drops, flowing wells are ceasing to flow to waste. Furthermore, the observation well data shows that water is available for appropriation.

22. Mr. Magstadt further testified that withdrawals from the Dakota aquifer include leakage to confining layers, uncontrolled flowing wells, outflow to other aquifers, and well withdrawals. Mr. Magstadt estimated well withdrawals in the amount of 24,485.25 acre-feet/year.

23. There are 238 water rights completed into the Dakota aquifer. The closest water right to the proposed diversion point completed into the Dakota aquifer is approximately nine miles to the north.

24. Mr. Magstadt opined that there is a low probability of unlawful impairment to existing rights with adequate wells completed into the Dakota aquifer due to the estimated artesian head pressure in the area and distance to the nearest domestic user or water right.

25. Mr. Magstadt also reviewed Ms. Moriarty's petition. Based upon the information set forth in her petition, Mr. Magstadt opined that Ms. Moriarty's well is completed into a glacial aquifer and as such would not be affected by this proposed diversion. Mr. Magstadt further opined that Ms. Moriarty's second well is completed into the Dakota aquifer and given the artesian head pressure, there would not be an unlawful impairment but perhaps a need to lower the pump.

26. Chief Engineer Eric Gronlund also provided testimony to the Board. Chief Engineer Gronlund testified that he recommended approval of the application. He offered corrections to his recommendation, namely that the reference to "well" in Qualifications Nos. 1, 2, and 3 should be plural. He

further modified Qualification No. 2 to read “shall be constructed into the same aquifer” as opposed to “constructed into a single aquifer” as originally drafted.

26. The Board also received the testimony of Kirk Aughenbaugh. Mr. Aughenbaugh is one of the members of Ratio, LLC. Mr. Aughenbaugh testified that the water will be used in a swine production facility which will be operated by Pipestone. The farm will be comprised of five buildings: a farrowing barn, a gestation barn, a gilt growing barn, a compost building, and a storage shed. Mr. Aughenbaugh further testified of the benefits which would be derived by the community from the facility.

27. Nick Fitzgerald also provided testimony to the Board. Mr. Fitzgerald is employed by Pipestone. As part of his employment, he has been working with Ratio regarding the design of the facility. Mr. Fitzgerald testified that this is a deep-pitted structure, a zero discharge facility. The facility has been engineered per state standards. The holding tanks have been designed to exceed DENR requirements for storage capacity.

28. Ms. Patricia Moriarty also testified. Ms. Moriarty lives two miles east of the site. She testified that they occasionally have troubles getting sufficient water for all their needs and that water availability is a great concern for her. She is also very concerned about water quality and the potential contamination of the well by manure. Ms. Moriarty further expressed concerns regarding several abandoned wells on the Ratio site.

29. Board member Rodney Freeman moved to approve the application subject to the qualifications set forth by the Chief Engineer and as modified

during the Chief Engineer's testimony. Board member Peggy Dixon seconded the motion. A roll call vote was taken and the motion carried unanimously.

30. The Board finds Mr. Magstadt to be a credible expert witness and that these proposed Findings of Fact are supported by the evidence presented including Mr. Magstadt's testimony and the reports and exhibits which he prepared and/or relied upon.

31. Petitioner did not submit sufficient evidence through expert opinions, testimony, or evidence that would support a determination that there is a reasonable probability that there is not unappropriated water available in this aquifer.

32. The Board finds that there is a reasonable probability there is unappropriated water available for the Applicant's proposed use.

33. The Board further finds that granting this application will not result in withdrawals from the aquifer exceeding the estimated average annual recharge to the aquifer.

34. The Board finds that the proposed diversion is unlikely to result in an unlawful impairment to adequate wells.

35. The Board additionally finds that the proposed use of the water for commercial use in a swine production facility constitutes beneficial use.

36. The Board further finds that placing the water to this beneficial use is in the public interest.

37. Any finding of fact more properly designated as a conclusion of law shall be treated as such.

Based upon the forgoing Findings of Fact, the Board makes the following:

CONCLUSIONS OF LAW

1. The Board has jurisdiction over the application and the parties pursuant to SDCL Ch. 46-2A.
2. Publication was properly made, and the Notice of Hearing was properly issued pursuant to SDCL § 46-2A-4.
3. The Chief Engineer recommended granting this application subject to qualifications. That recommendation, however, is not binding upon the Board. See SDCL § 46-2A-4(8).
4. South Dakota Codified Law, section 46-2A-9 provides that provides that 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.” Each of these factors must be met and the permit must be denied if the applicant does not meet its burden of proof on any one of them.
5. The Applicant bore the burden of proof under SDCL § 46-2A-9. The Applicant met its burden of proof and is entitled to a permit subject to qualifications adopted by the Board.
6. The first factor for consideration under SDCL § 46-2A-9 is whether there is water available for the appropriation. Determination of water availability includes consideration of the criteria in SDCL § 46-6-3.1 pertaining to recharge/withdrawal: whether “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.”

7. The Board concludes there is a reasonable probability that there is unappropriated water is available to fulfill the amount requested by the Applicant.

8. The Board further concludes that it is not probable that withdrawals from the aquifer would exceed recharge to the aquifer in violation of SDCL § 46-6-3.1 if this application is granted.

9. The second requirement of SDCL § 46-2A-9 is that the proposed water use may not unlawfully impair existing water rights. The proposed diversion can be developed without unlawful impairment of existing water rights.

10. The third element in SDCL § 46-2A-9 is whether the use of water would be a beneficial use: one that is reasonable and useful and beneficial to the appropriator and also consistent with the interest of the public in the best utilization of water supplies under SDCL § 46-1-6(3). The proposed use (commercial use in a swine production facility) is a beneficial use.

11. The fourth requirement of SDCL § 46-2A-9 concerns the public interest. The proposed use of the water must be “consistent with the interests of the public of this state in the best utilization of water supplies.” SDCL § 6-1-6(3). The Board finds that appropriating water for commercial use is in the public interest.

12. Any Conclusion of Law more properly designated as a Finding of Fact shall be treated as such.

FINAL DECISION

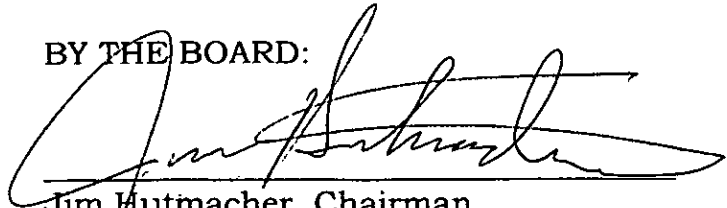
Based on the foregoing Findings of Fact and Conclusions of Law, the Board enters its determination that Water Permit Application No. 8413-3 is granted with the following qualifications:

1. The wells approved under Water Permit No. 8413-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under these Permits shall control withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The wells authorized by Permit No. 8413-3 shall be constructed into the same aquifer, either the Niobrara aquifer or Dakota aquifer, but not both. At the time of the licensing, the final water right will be issued for the developed water source.
3. The wells authorized by Permit No. 8413-3 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. Water Permit No. 8413-3 is subject to compliance with requirements of the Department's Water Pollution Control Permit issued pursuant to SDCL 34A-2-36 or 34A-2-36.2 or 34A-2-112 or 34A-2-124 for concentrated animal feeding operations.
5. Water Permit No. 8413-3 is subject to compliance with all existing and applicable Water Management Board Rules including but not limited to:
 - a) Chapter 74:54:01 Ground Water Quality Standards
 - b) Chapter 74:54:02 Ground Water Discharge Permit
 - c) Chapter 74:51:01 Surface Water Quality Standards
 - d) Chapter 74:51:02 Uses Assigned to Lakes
 - e) Chapter 74:51:03 Uses Assigned to Streams, and
 - f) Chapter 74:52:01 through 74:52:11 Surface Water Discharge Provisions.

6. The Permit holder shall report to the Chief Engineer annually the amount of water withdrawn from the aquifer.
7. Water Permit No. 8413-3 authorizes a total annual diversion of 77 acre feet of water from the aquifer.

Dated this 7 day of December, 2020.

BY THE BOARD:

A handwritten signature in black ink, appearing to read "Jim Nutmacher", written over a horizontal line.

Jim Nutmacher, Chairman
South Dakota Water Management Board



DENR
SOUTH DAKOTA

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

JAN 20 2021

Ratio LLC
c/o Kirk Aughenbaugh
43204 US Hwy 14
DeSmet SD 57231

Dear Mr. Aughenbaugh:

Enclosed is Water Permit No. 8413-3 authorizing construction of the water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

Form 10, *Notice of Completion of Works and Application of Water to Beneficial Use*, is enclosed. Please return this completed form after you have finished the system and have put the water to beneficial use. An investigation can then be scheduled so the water license may be issued, thus completing the acquisition of a water right.

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

Sincerely,

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

enclosures

8413-3

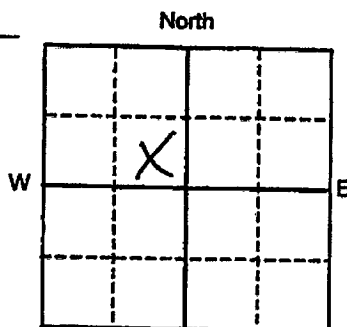
SD EForm - 1621LD V1

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SW 1/4 NW 1/4 Sec 32 Twp 111N Rg 67WCounty Hand

Please mark well location with an "X"



Well Completion Date

11-5-21

1 Mile

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

PROPOSED USE:

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

METHOD OF DRILLING:

Mud Rotary

CASING DATA:

☒ Steel ☐ Plastic ☐ Other
 If other describe Stainless Steel

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>Sch 40</u> LB/FT	<u>5</u> IN	<u>0</u> FT	<u>1510</u> FT	<u>7 7/8</u> IN
<u>5.5</u> LB/FT	<u>2</u> IN	<u>1510</u> FT	<u>1650</u> FT	<u>4 1/2</u> IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
<u>Portland</u>	<u>250</u>	<u>15</u> Lb/gal	<u>0</u> Ft	<u>1510</u> Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

Pumped Through 5" Pipe

SCREEN:

☐ Perforated pipe ☒ Manufactured
 Diameter 2 Inches Length 140 Feet
Material Stainless SteelSlot Size 1025 Set From 1510 Feet to 1650 Feet

Other information

Well Owner: Kirk AugenbaughBusiness Name: Pipestone SystemsAddress: PO Box 370City, State, Zip: Pipestone MN 56164

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Top Soil</u>	<u>0</u>	<u>10</u>
<u>Yellow Clay</u>	<u>10</u>	<u>30</u>
<u>Blue Clay</u>	<u>30</u>	<u>190</u>
<u>Shale</u>	<u>190</u>	<u>640</u>
<u>Greenhorn</u>	<u>640</u>	<u>680</u>
<u>Shale</u>	<u>680</u>	<u>1340</u>
<u>Dakota</u>	<u>1340</u>	<u>1650</u>

STATIC WATER LEVEL 280 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: Air☐ Bailed☐ Other

Pumping Level Below Land Surface

280 Ft. After 24 Hrs. pumped 20 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

FEB 08 2022

WATER RIGHTS PROGRAM

This well was drilled under license # 722 and this report is true and accurate.Drilling firm: Stretch's Well Service Inc.

Signature of License Representative:

Tom Gaudin

Signature of Well Owner or Equitable Property Holder:

Tim A. AugenbaughDate: 12-2-2021WAS A PACKER OR SEAL USED? ☒ Yes ☐ NoIf so, what material? CementDescribe packer(s) and location 1510

DISINFECTION: Was well disinfected upon completion?

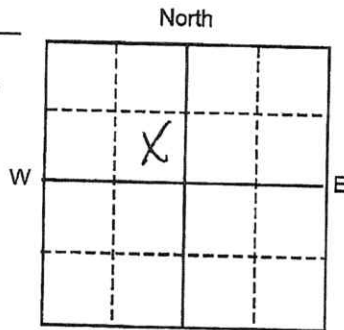
☒ Yes, How? Chlorine☐ No, Why Not?

Lab to which water quality sample sent for analysis

8413-3

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SE 1/4 NW 1/4 Sec 32 Twp 11N Rg 67WCounty HandPlease mark well
location with an "X"

Well Completion Date

4-30-21

1 Mile

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

PROPOSED USE:

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

METHOD OF DRILLING:

Mud Rotary

CASING DATA:

☒ Steel ☐ Plastic ☒ Other
 If other describe Stainless Steel

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>Sch 40</u> LB/FT	<u>5</u> IN	<u>0</u> FT	<u>1510</u> FT	<u>7 7/8</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>Portland</u>	<u>250</u>	<u>15</u> Lb/gal	<u>0</u> Ft	<u>1510</u> Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

Pumped Through 3" Pipe

SCREEN:

☐ Perforated pipe ☒ Manufactured
 Diameter 2 Inches Length 140 Feet
 Material Stainless Steel
 Slot Size 1025 Set From 1515 Feet to 1655 Feet

Other information

2" PVC 4' above screen 300'WAS A PACKER OR SEAL USED? ☒ Yes ☐ NoIf so, what material? Cement

Describe packer(s) and location

1510

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? Chlorine
☐ No, Why Not?
 Lab to which water
 quality sample sent for analysis
Well Owner: Kirk AngenbaughBusiness Name: Pipestone SystemsAddress: PO BOX 370City, State, Zip: Pipestone, MN 56104

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Top Soil</u>	<u>0</u>	<u>5</u>
<u>Yellow Clay</u>	<u>5</u>	<u>30</u>
<u>Blue Clay</u>	<u>30</u>	<u>180</u>
<u>Shale</u>	<u>180</u>	<u>1320</u>
<u>Dakota</u>	<u>1320</u>	<u>1655</u>

STATIC WATER LEVEL

280

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: Air
☐ Bailed
☐ Other

Pumping Level Below Land Surface

280 Ft. After 24 Hrs. pumped 20 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate:

GPM

REMARKS

This well was drilled under license # 722 and this report is true and accurate.

Drilling firm:

Stretch's Well Service Inc.

Signature of License Representative:

Gom Bratzen

Signature of Well Owner or Equitable Property Holder:

RECEIVED

JUN 04 2021

Date:

WATER RIGHTS
PROGRAM

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 8413-3

I have this day, July 3, 2025, made a thorough examination of the water use system constructed by Ratio LLC, 43204 US Hwy 14, DeSmet 57231 of Permit No. 8413-3, bearing the priority of October 30, 2019 authorizing the diversion of 0.134 cu. ft. per second of the waters of the Niobrara or Dakota Aquifers for commercial (swine) purposes, in Hand County.

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: Stretch's Well Service
- 2) No. of Wells 2 (Dakota Aquifer)
- 3) Depth(s) 1650 feet
- 4) Well log is available Y

Casing:

- 1) Diameter 5 inches
- 2) Length 1510 feet
- 3) Type Stainless steel

Screen:

- 1) Type Stainless steel
- 2) Length 140 feet
- 3) Static water level 280 feet

Pump:

- 1) Make Submersibles
- 2) Model Unknown
- 3) Size Unknown
- 4) Capacity 60 GPM

Motor:

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

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

- 1) Type Buried PVC
- 2) Size Unknown inches
- 3) Length 400 feet

C. D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by Y
- 2) 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 LOCATIONS From the NE corner Sec 32 T111N R67W "N" WELL: 1800 ft S & 2820 ft W, Lat 44.38003 Long - 98.91485 (SE ¼ NW ¼) "S" WELL: 1950 ft S & 2810 ft W, Lat 44.37976 Long -98.91525 (SE ¼ NW ¼).
2. The works are capable of diverting and conveying to the place of use 0.134 cu. ft. per second of water which is to be used for commercial (swine) use.

the license should be issued for 0.134 cfs.
3. All structures, wells and lands on map Y

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

Used FSA maps and ArcGIS to construct the map.

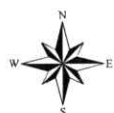
Mr. Marty Rost, Pipestone (507/215-0482) supplied the estimated combined well flow rate.



Darrell DeBoer
Water Rights Inspector
DENR, Water Rights Program

Date report completed: August 11, 2025

8413-3



0 425 850 1,700 2,550 3,400 Feet

Darrell DeBoer
Water Right Inspector
DANR-Water Rights Program

STATE OF SOUTH DAKOTA
WATER LICENSE NO. 8413-3

(1) Ratio, LLC, 43204 US HWY 14, DeSmet SD 57231, made Application No. 8413-3, October 30, 2019, for a water permit to appropriate up to 77 acre-feet of water annually, with a maximum diversion rate of 0.134 cubic feet of water per second from groundwater, two wells (Niobrara or Dakota Aquifers), Hand County, South Dakota for commercial use in a swine production facility. Permit No. 8413-3, with a priority date of October 30, 2019, was approved by the Water Management Board on December 2, 2020, and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before December 2, 2025, and for the application to beneficial use of water on or before December 2, 2029.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to appropriate up to 77 acre-feet of water annually, with a maximum diversion rate of 0.134 cubic feet of water per second for beneficial use. The locations of the diversion points are:

- North Well: 1,800 ft S & 2,820 ft W of the NE corner Section 32, T111N, R67W (SE ¼ NW ¼)
(Latitude 44.38003 & Longitude -98.91485)
- South Well: 1,950 ft S & 2,810 ft W of the NE corner Section 32, T111N, R67W (SE ¼ NW ¼)
(Latitude 44.37976 & Longitude -98.91525)

(3) The water is to be used during the following described annual period: January 1 – December 31.

(4) The permit holder has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use.

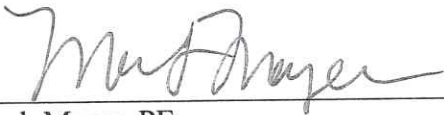
(5) Pursuant to South Dakota Water Law 46-5-30.1 Ratio, LLC, the holder and/or owner of Water Right No. 8413-3 is issued a license to appropriate water, the right to appropriate up to 77 acre-feet of water annually, with a maximum diversion rate of 0.134 cubic feet of water per second from groundwater, two wells (Dakota Aquifers), with a priority date of October 30, 2019, from the location specified in (2) of this license for commercial purposes in a swine confinement facility.

This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Right No. 8413-3 and subject to the following qualifications:

1. The wells approved under Water Permit No. 8413-3 will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under these Permits shall control withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. The wells authorized by Water Permit Nos. 8413-3 shall be constructed into the same aquifer, either the Niobrara Aquifer or Dakota Aquifer, but not both. At the time of licensing, the final water right will be issued for the developed water source. *(Both wells were completed into the Dakota Aquifer.)*
3. The wells authorized by Permit No. 8413-3 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 wells were drilled in 2021 by Stretch's Well Service Inc. Copies of the Well Completion Reports are on file with the Water Rights Program.)*

4. Water Permit No. 8413-3 is subject to compliance with requirements of the Department's Water Pollution Control Permit issued pursuant to SDCL 34A-2-36 or 34A-2-36.2 or 34A-2-112 or 34A-2-124 for concentrated animal feeding operations.
5. Water Permit No. 8413-3 is subject to compliance with all existing and applicable Water Management Board Rules including but not limited to:
 - a) Chapter 74:54:01 Ground Water Quality Standards
 - b) Chapter 74:54:02 Ground Water Discharge Permit
 - c) Chapter 74:51:01 Surface Water Quality Standards
 - d) Chapter 74:51:02 Uses Assigned to Lakes
 - e) Chapter 74:51:03 Uses Assigned to Streams
 - f) Chapter 74:52:01 through 74:52:11 Surface Water Discharge Provisions
6. The Permit holder shall report to the Chief Engineer annually the amount of water withdrawn from the aquifer.
7. Water Permit No. 8413-3 authorizes a total annual diversion of 77 acre-feet of water from the aquifer.



Mark Mayer, PE
Director of the Office of Water
Department of Agriculture and Natural Resources

8/14/25
date





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

AUG 14 2025

8413-3

Ratio LLC
43204 US HWY 14
DeSmet SD 57231

To whom it may concern:

Enclosed is Water License No. 8413-3. This is the final water right document completing your process of obtaining a Water Right. Included with your license is a map prepared by the staff engineer who conducted the field investigation.

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

So long as you use the water beneficially, as stated in the Water License, State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact Amanda Dewell, Permitting Administrator, Water Rights Program (605) 773-3352.

Sincerely,

Mark Mayer, PE
Director of the Office of Water

enclosures