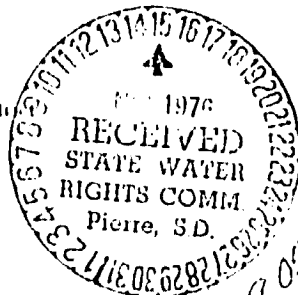


Water Right Number 3201-7

1. Considered 1-26, 19 77
2. Name of Applicant CECIL L. JOHNSON
3. Post Office Address MISSION Hill
4. Amount of water claimed 2.5
5. Source of water supply 220' WELL
6. Water to be used for IRRIGATION
Acres to be irrigated 180
7. Water to be diverted and used in YANKTON County
about 5N 6E Miles of YANKTON
8. Proof of Publication
Received 12-29-78
Not received
9. Application
Approved
Subject to
Not approved
Action deferred

10. Remarks:

No. 3275.5
 Map No. 2579-3 Water Division No. 3 JAMES RIVER District 1
 (This form is to be filed by the Engineer for the W. R. C.)


APPLICATION FOR PERMIT

To Appropriate Water within the State of South Dakota

(NOTE - Draw a line through items not applicable)

1. Name of Applicant CRAIG L. JOHNSON
 Post office address RR1 Box 154 Mission Hill S.D. 57046
 If a corporation, how date and place of incorporation _____
2. Method of accomplishing work (contract, employment of others, or by direct labor) DIRECT
3. Name of diversion work JOHNSON
4. Amount of water claimed (cubic feet per second) 2.5
5. Source of water supply WELL
6. Location of point of diversion SE 1/4 of NW 1/4 24 94-55 (WELL)
- County YANKTON
7. Annual period or periods during which water is to be used MARCH 1 - NOV. 1
8. Use to be made of water (irrigation, industrial, municipal, commercial, recreation, etc.) IRRIGATION
9. For irrigation use: Total number of acres to be irrigated 180

List below each forty-acre subdivision, or lot, or fraction thereof, and show number of acres to be irrigated in each

Land Description	No. Acres Irr.	Land Description	No. Acres Irr.
<u>NW 1/4 24 94-55</u>	<u>160</u>		
<u>W 1/4 of NW 1/4 of NE 1/4 94-55</u>	<u>20</u>		

Attach sheet if more space is needed

10. Time required to complete construction of water supply system 5 years. Additional time required to complete application of water to the proposed beneficial use 2 years.
11. Choose one newspaper for Notice of Intent to Appropriately Use Water publication PRESS & DAKOTAN - YANKTON
12. Principal Features of the Proposed Water Supply System

A. Works proposed to divert water from its natural source

PUMP

B. Work proposed to transport water to place of use

PIPE

C. Works proposed to apply water to beneficial use

SPRINKLER TYPE IRRIGATION SYSTEM (PIVOT)Estimated total cost \$50,000.
 Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water is proposed. Attach map.
 (See instructions concerning preparation.)

STATE OF SOUTH DAKOTA

County of Yankton
 I, Craig L. Johnson, the applicant, certify that I have read the foregoing application and have examined the attached map and that the matters therein stated are true and that I intend, and am able to complete the necessary construction.
Signed Craig L. JohnsonSubscribed and sworn to before me this 7 day of March, 1976
Edwin Bayum
 Notary Public for other qualified officers

WATER RIGHT APPLICATION APPROVAL

The Water Rights Commission hereby approves Water Right Application No. 3292-3 MISSION HILL
CRAIG L. JOHNSON R.R. #1, Box 151, ~~Georgetown~~
 (Applicant) (Post Office Address)
SOUTH DAKOTA 57046 With the following modifications:
 (State)

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

Date of first receipt of application NOVEMBER 15 19 76
 Date of return to applicant for correction, amendments or changes required — 19 —
 Date of receipt of corrected application — 19 —
 Approved JANUARY 26 19 77, Recorded in Book 16 Page 295

WATER RIGHT PERMIT NO. 3292-3

The Water Rights Commission hereby grants and issues this Water Right Permit No. 3292-3 authorizing the construction of the water use system and the putting of water to beneficial use as stated in the Application and as modified in the Water Right Application approval, subject, however, to the following limitations and conditions:

1. The date from which applicant may claim right is NOVEMBER 15 19 76
2. The equivalent of at least one-fifth of the work above specified is to be completed on or before JULY 26 19 79
3. The whole of said work is to be completed on or before JANUARY 26 19 82
4. The limit of time from proof of beneficial use of water appropriated in accordance herewith is JANUARY 26 19 84
5. The water appropriated shall be used for the purpose of IRRIGATION
6. The prior right of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to the use of water must not be injuriously affected by this appropriation.
7. The amount of the appropriation herein granted shall not exceed 2.5 cubic feet per second; neither shall it exceed the capacity of the above described water supply system, nor shall it exceed the amount of water needed for beneficial use served, and if for the irrigation purposes said appropriation must be limited to not more than 3 acre feet per acre per year and be limited to not more than one-seventieth (1/70) of one cubic foot of water per second of time for each acre of land to which water is actually and beneficially applied for irrigation on or before JANUARY 26 19 84; said water to be used during the following described annual period: MARCH 1 - NOVEMBER 1

Witness my hand this 8TH day of MARCH 19 77

WATER RIGHTS COMMISSION

By:

John Hatch
 Chief Engineer, Executive Officer

Certificate of Construction Issued — 19 —

Water License Issued — 19 —

12 Principal Features of the Proposed Water Supply System (continued)

D Well Information or Estimates

- (1) Drill Hole, Diameter 20" Depth 220'
(2) Casing, Type Steel Diameter 16" Thickness _____
(wood, concrete, steel, etc)
(3) Perforated Screen
Type Steel Diameter 16" Length _____
(4) Gravel Pack Thickness 4" Length of gravel pack 200'

E Dugout Information or Estimates

- (1) Surface dimensions _____, Depth _____

F Cut out for Either a Well or a Dugout

- (1) Water Bearing Materials. (Please attach a copy to test well log if available.)

Character of Water bearing materials ENCLOSED IS A COPY OF THE
TEST LOG.

Depth to top of water bearing material _____

Depth to bottom of water bearing material _____

Thickness of water bearing material _____

Depth to water (ground surface to water level) _____

- (2) Distance to nearest existing household or livestock watering wells.

On same owner's property _____ rds. On property owned by others _____ rds.

G Water Storage Dams

If the proposed water use system contains one or more water storage dams, please show in the space below the height, maximum water depth, surface area and storage capacity of each storage dam. The location of each water storage dam should be shown on the water right map.

Craig E. Johnson
Signature of Applicant

MISSOURI VALLEY IRRIG. INC.
RT. 4 BOX 78
YANKTON, S. DAK. 57078

Craig Johnson
Mission Hill, S. Dak.

Oct. 4, 76

TEST LOG

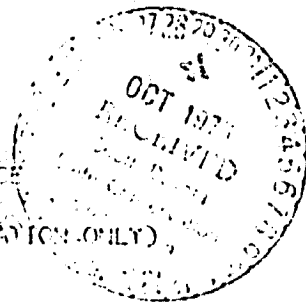
0-5	Top Soil
5-20	Clay (brown)
20-40	Clay (brown)
40-60	Clay (brown)
60-80	Clay (blue)
80-95	Clay (blue)
95-100	Fine Sand & Clay
100-120	Clay (blue) with fine sand streaks
120-130	Clay (blue)
130-140	Fine Sand (mixed)
140-150	Fine Sand & Clay
150-160	Fine Sand & Coarse Gravel <u>10</u>
160-180	Coarse Gravel <u>20</u>
180-200	Coarse Gravel <u>20</u>
200-220	Coarse Gravel <u>20</u>

Total 70' of Coarse Gravel

Driller Dennis Wortmann
Roughneck: Philip Olson

CONSERVATION
COMMISSION
FORM W1 #1

STATE CONSERVATION COMMISSION
SUPPORTING INFORMATION
FOR APPROPRIATION OF GROUND WATER IN ACCORDANCE
WITH SECL 46-6-3 AS AMENDED
(THIS FORM REQUIRED FOR PROPOSED GROUND WATER IRRIGATION ONLY)



NAME CRAIG L. JOHNSON

ADDRESS RR1 Box 154 Mission Hill, S.D. 57046

COUNTY YANKTON

LEGAL DESCRIPTION

1. WELL LOCATION SE 1/4 NW 1/4 24-94-55

2. LOCATION OF AREA TO BE IRRIGATED SE 1/4 NW 1/4 24-94-55

TYPE OF IRRIGATION

3. GRAVITY TOWLINE CENTER PIVOT ✓ GUN

4. CROPS TO BE IRRIGATED CORN - SOYBEANS - ALFALFA

WATER QUALITY

5. SAMPLE NUMBER 76-1647

6. SALINITY (EC X 10⁶) 15.57 (high)

7. SODIUM (SAR) 0.55

8. RESIDUAL SODIUM CARBONATE (meq/l.) 0

I do hereby certify that a chemical analysis of the ground water representative of that used to irrigate shall be acquired from South Dakota State University and: the soils information has been acquired from YANKTON COUNTY Conservation District, County Extension office or Soil Conservation Service. and: that the legal description for the location of the well and land to be irrigated is true and correct.

SUBSCRIBED AND SWORN BEFORE ME THIS
17th DAY OF October 1976.

(TITLE OR SEAL)

APPLICANT'S SIGNATURE

Approved: This project can be carried out successfully. Individual management of the project is required. The relative success of the project is dependent on the degree of management.

APPROVED/RECEIVED

(SOILS INFORMATION ON REVERSE SIDE)

REPORT OF ANALYSIS
Water Quality Laboratory
Water Resources Research Institute
South Dakota State University
Brookings, South Dakota 57006

Submitted by: Orwig L. Johnson
 Address: Rt. 1, Box 154
Mission Hill, SD 57046

Date Rec'd October 20, 1976
 Sample No. 76-1649
 Identification Well
Line, Sec. 24, T. 94N, R. 55E

WATER ANALYSIS

Calcium (Ca)	240	ppm*	12.00	me/l**
Magnesium (Mg)	64	ppm	5.25	me/l
Sodium (Na)	37	ppm	1.61	me/l
Potassium (K)	10	ppm	0.26	me/l
Sulfate (SO ₄)	580	ppm	12.06	me/l
Nitrate (as N)		ppm		me/l
Chloride (Cl)	3	ppm	0.08	me/l
Bicarbonate (HCO ₃)	476	ppm	7.80	me/l
Carbonate (CO ₃)		ppm		me/l
Iron (Fe)		ppm		me/l
Fluoride (F)		ppm		g.p.g.***
Hardness (EDTA as CaCO ₃)		ppm		
Alkalinity (Methyl Orange)	390	ppm (as CaCO ₃)		
Alkalinity (Phenolphthalein)	0	ppm (as CaCO ₃)		
Electrical Conductivity	1559	micromhos per cm at 25° C.		
Sodium Adsorption Ratio	3.55			
Sodium	8.42	% of cations		
Residual sodium carbonate	0.60	me/l		
pH	6.93			
Others:				

*ppm=parts per million
 **me/l=millequivalents per liter
 ***g.p.g.=grains per gallon

COMMENTS: Total cations 19.12 me/l
 Total anions 19.94 me/l

By: Shirley Litten

Service Performed	Amount Due
Irrigation analysis	\$8.00 PAID
Make checks payable to: Water Quality Laboratory	
Cut along dotted line and return the lower portion with payment	

Sample No. 76-1649

Amount Enclosed \$

Signed



October 28, 1976

Mr. Craig L. Johnson
R.R. #1, Box 154
Mission Hill, SD 57046

Dear Mr. Johnson:

Your water sample (Lab. No. 76-1649) has been analyzed and the results are reported on the accompanying sheet, which is your copy to keep.

I am also enclosing a copy of AES pamphlet #13 for your use. The quality of your water for irrigation use is plotted approximately by means of the red cross in the chart on the outside back cover.

This water is marginal for use on the soils you intend to irrigate and should be considered for use only under the following conditions:

- (1) It will be used no more than 3 times (preferably less) in any growing season.
- (2) The soil will be completely filled with water so natural leaching can occur, by irrigating in the late fall just before freeze-up, at least one year out of 3.
- (3) Water applications will be made each irrigation to completely re-wet the entire depleted soil within the rooting zone of the crop being grown. This may require 3-5 inches of water each irrigation with fine soils.
- (4) If a salt problem or soil dispersion occurs, contact extension personnel or this office for management recommendations.

Sincerely yours,

L. O. Fina

L. O. Fina
Water Quality Lab

LOP:ckb

Enclosures

cc: State Conservation Commission

P.S. All the depressions have soils with poor drainage and slow intake rates (less than 0.2 inches per hour).

Unless the Tetonian and Crossplain soils are provided with drainage, you will have no end of trouble getting stuck, water-logging, and salt. Also, the application rate must be maintained low enough so the soil can absorb the water.

... of ... but the Tetonian

No. 3293-3

Publish first publication, on or before January 13, 1977

NOTICE
INTENT TO APPROPRIATE WATER

Pierre, South Dakota 57501

December 15, 1976

Notice is hereby given that: Craig L. Johnson

whose post office address is Mission Hill, South Dakota, has made an application in accordance with the provisions of the water laws of South Dakota for a permit to appropriate for beneficial use

2.5 cubic feet of water per second of time from the ground water through the

Johnson # 1, the point of diversion of which is to be located in the

SE 1/4 NW 1/4

of Section 24, Twp. 94N, Range 55W. Said water to be used for the purpose of providing irrigation on the following described land:

SW 1/4 & NW 1/4 NE 1/4, Section 24, T44N, R55W

This application No. 3293-3 will be considered by the Water Rights Commission at their office at Pierre upon the 26th day of January, 1977, at 10:00 A.M. All interested persons may appear and be heard.

WATER RIGHTS COMMISSION

By:

BURTON F. JONES
Water Rights Specialist

BFJ/bw
cc: Craig L. Johnson, R.R. # 1, Box 154, Mission Hill, SD 57046

Form 10.

No. 3292-3

NOTICE OF COMPLETION OF WORKS AND/OR
APPLICATION OF WATER TO BENEFICIAL USE



Post Office MISSION Hill

Date 6-6-77

TO: Water Rights Commission
Joe Foss Building
Pierre, South Dakota 57501

Dear Sirs:

This is to inform you that I have completed the construction of the water diversion system and/or that I have put the water to beneficial use to the maximum extent it is going to be used, not exceeding the amounts as specified in Water Right Permit No. 3292-3.

Water Right Permit No. 3292-3 states that the diversion system is to be constructed by January 24, 19 82 and that the water is to be put to beneficial use by January 26, 19 84.

The diversion system was completed on May 23, 19 77. Applying the water to beneficial use was completed on June 1, 19 77.

You may schedule an inspection so that the Certificate of Construction and/or the Water License may be issued, thus completing my acquisition of a water right.

Craig L. Johnson
(Signature)



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

March 23, 1987

CRAIG L JOHNSON
RT 1 BOX 211
MISSION HILL, SD 57046

NOTICE

Re: Violation of Water Permit(s). 4855-3 and 1986 Irrigation Questionnaire Requirements.

Our records indicate that the 1986 Irrigation Questionnaire has not been submitted for Permit No(s). 4855-3. The request for the questionnaire was dated November 3, 1986. The Water Management Board has directed that owners of water permits who have not submitted 1986 Irrigation Questionnaires be given notice of permit violation and of hearing(s) before the Board. The hearing(s) will be held to determine action to be taken by the Board for violation of Water Permit No(s). 4855-3 qualification:

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

The hearing will also be to determine if Permit No(s). 3292-3 should be amended with the qualification to require the Questionnaire to be submitted each year.

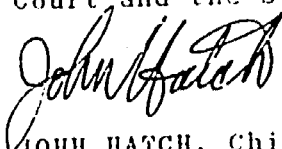
The hearing(s) will be at 2:00 pm, May 6, 1987, in Room 216, Joe Foss Building, 523 E Capitol, Pierre SD.

The hearing(s) will be conducted pursuant to the provisions of SDCL 46-1-12, 46-1-14, 46-2-9, 46-2-11, and 46-2-17. These are contested case hearings pursuant to procedures contained in SDCL 1-26.

Following the hearings(s), the Water Management Board can:

1. Suspend Permit No(s). 4855-3 until either the 1986 Questionnaire is submitted or for the period of up to one year;
2. Amend Permit No(s). 3292-3 to require the Irrigation Water Use Questionnaire to be submitted each year;
3. Postpone any action;
4. Take no action.

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



JOHN HATCH, Chief Engineer
Water Rights Division
605 773-3352

NOTE: If the questionnaire(s) are received in this office before the hearing date, you will no longer be in violation of your permit(s) and your name will be deleted from the agenda pertaining to these hearings.

**South Dakota Department of
Water & Natural Resources**

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

April 15, 1987

3292-3
4855-3

Craig L. Johnson
RR #1 Box 211
Mission Hill, SD 57046

Dear Mr. Johnson:

This will acknowledge receipt of and thank you for the return of your 1986 Irrigation Questionnaires. A notice was sent to you March 23, 1987 regarding the Irrigation Questionnaire submittal violation of Water Permit Nos. 3292-3 and 4855-3 and the date hearings were to be held before the Water Management Board to determine any action to be taken concerning the violation.

Please disregard the notice sent to you dated March 23, 1987. Your name has been deleted from the agenda pertaining to these hearings.

If you have any questions, please contact us.

Very truly yours,

John Hatch
JOHN HATCH, Chief Engineer
Water Rights Division
605 773-3352



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

January 29, 1988

3292-3

CRAIG L JOHNSON
RT 1 BOX 211
MISSION HILL, SD 57046

NOTICE

Re: Violation of Water Permit No(s). 4855-3 and 1987 Irrigation Questionnaire Requirements

Our records indicate that the 1987 Irrigation Questionnaire has not been submitted for Permit No(s). 4855-3. The request for the questionnaire was dated October 8, 1987. The Water Management Board has directed that owners of water permits who have not submitted 1987 Irrigation Questionnaires be given notice of permit violation and of hearing(s) before the Board. The hearing(s) will be held to determine action to be taken by the Board for violation of Water Permit No(s). 4855-3 qualification:

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

The hearing will also be to determine if Permit No(s) 3292-3 should be amended with the qualification to require the Questionnaire to be submitted each year.

The hearing(s) will be at 9:00 am, March 2, 1988, in Room 216, Joe Foss Building, 523 E Capitol, Pierre, South Dakota.

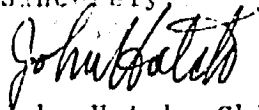
The hearing(s) will be conducted pursuant to the provisions of SDCL 46-1-12, 46-1-14, 46-2-9, 46-2-11, and 46-2-17. These are contested case hearings pursuant to procedures contained in SDCL 1-26.

Following the hearing(s), the Water Management Board can:

1. Suspend Permit No(s). 4855-3 until either the 1987 Questionnaire is submitted or for the period of up to one year;
2. Amend Permit No(s) 3292-3 also held by CRAIG L JOHNSON to require the Irrigation Water Use Questionnaire to be submitted each year;
3. Postpone any action;
4. Take no action.

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

Sincerely,

A handwritten signature in cursive script, appearing to read "John Hatch", written in dark ink.

John Hatch, Chief Engineer
Water Rights Division

Note: If the questionnaire(s) are received in this office before the March 2 hearing date, you will no longer be in violation of your permit(s) and your name will be deleted from the agenda pertaining to these hearings.

● **SENDER:** Complete Items 1 and 2 when additional services are desired, and complete Items 3 and 4.

Put your address in the "TURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☒ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery (Extra charge)†

CRAIG L JOHNSON
RT 1 BOX 211
MISSION HILL, SD 57046

4. Article Number

P 501 739 251

Type of Service:

- ☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Always obtain signature of addressee or agent and **DATE DELIVERED.**

8. Addressee's Address (ONLY if requested and fee paid)

X *Craig L Johnson*
6. Signature - Agent

X
7. Date of Delivery

3-15-88



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

March 14, 1988

NOTICE OF AMENDMENT TO WATER PERMIT(S)

TO: CRAIG L JOHNSON
RT 1 BOX 211
MISSION HILL, SD 57046

FROM: John Hatch, Chief Engineer
Water Rights Division
773-3352

SUBJECT: Amendment to Water Permit No(s). 3292-3

Pursuant to the provisions of the notice dated January 29, 1988 and following the Hearing March 2, 1988, the Water Management Board has amended Water Permit No(s). 3292-3 to add the following qualification to each:

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

The addition of this qualification to your Permit(s) means that failure to submit the required irrigation questionnaire in the future could result in suspension of the water permit and no use of water for up to one year for the first violation. Please include the enclosed attachment with your permit.



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3101

Attachment to Water Permit No(s). 3292-3

Pursuant to the provisions of the notice dated January 29, 1988 and following the hearing March 2, 1988, the Water Management Board has amended Water Permit No(s). 3292-3 to add the following qualification to each:

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



April 9, 1996

3292-3

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181

Permit No. 4855-3

Craig L. Johnson
RR 1, Box 21
Volin, SD 57072

Dear Mr. Johnson:

The inspection of your water use system and the inspection of the extent of application of water to beneficial use, as developed under Water Permit Nos. 3292-3 and 4855-3, has been completed. Your final water right document, the Water License, can now be issued. Upon licensing, the applicable portions of Water Permit No. 3292-3 will be incorporated into 4855-3.

Statutes require that we charge a \$50.00 fee for the inspection and issuance of the Water License. Upon receipt of the \$50.00 fee from you, we will begin processing your Water License.

Please remit fee to:
Department of Environment & Natural Resources
Water Rights Program
523 E. Capitol
Pierre, SD 57501-3181

South Dakota Water Law 46-5-30.1 requires that a permit holder may not divert water until the \$50.00 license fee has been paid. Please contact us if you have any questions.

Sincerely,

Cheryl F. Frost
Secretary
Water Rights Program
(605) 773-3352

NOTE: On check or money order, please specify your permit number. This will insure proper handling of the fee.



3292-3

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181

JUN 27 1996

4855-3

Craig L. Johnson
RR 1, Box 21
Volin, SD 57072

Dear Mr. Johnson:

Enclosed is Water License No. 4855-3. This is the final water right document completing your process of obtaining a Water Right. Enclosed is Receipt No. 414942 in the amount of \$50.00 which you paid for the inspection and issuance of the Water License.

For your information SDCL 46-6-27 requires that if the owner of an existing well, such as the well authorized by Water Right No. 4855-3, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

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

Very truly yours,

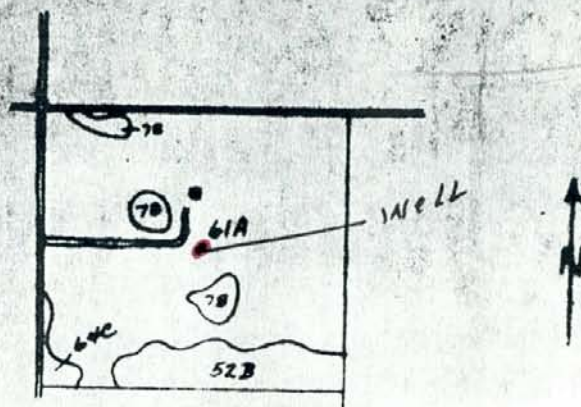
JOHN HATCH, Chief Engineer
Water Rights Program
(605) 773-3352

gm
enclosures

NOTE: The applicable portions of Water Permit No. 3292-3 are incorporated into this Water License No. 4855-3.

Craig A. Johnson

HN 24-TWN-R55W



Mapping Symbol

52B Egan - Ethan - Viborg complex, 2-6 percent slopes. -- these gently undulating, well and moderately well drained soils are developed in a thin silty mantle overlying glacial till. It contains about 50 % Egan soils, 20 % Ethan soils and 20 % Viborg soils, remainder is other soils of minor extent. The Egan soils are on mid-slopes and the Ethan soils are on crests of knobs. Permeability is moderate ($0.6-2.0 \frac{\text{in}}{\text{hr}}$) through the surface and subsoil of both soils and moderately slow ($0.2-0.6 \frac{\text{in}}{\text{hr}}$) through the underlying material. The Viborg soils are in the swales and permeability is moderate ($0.6-2.0 \frac{\text{in}}{\text{hr}}$) throughout.

61A Clarno - Crossspleen - Tetonka complex, 0 to 3 percent slopes. -- these slightly undulating, well to poorly drained soils are developed in glacial till. It contains about 45 % Clarno soils, 25 % Crossspleen soils and 20 % Tetonka soils, remainder is other soils of minor extent. The Clarno soils are on the highs, Crossspleen soils in the swales and the Tetonka soils in the slight potholes. Permeability is moderate ($0.6-2.0 \frac{\text{in}}{\text{hr}}$) through the surface and subsoil of Clarno soils and moderately slow ($0.2-0.6 \frac{\text{in}}{\text{hr}}$) in the underlying material. Permeability in the Crossspleen and Tetonka soils is slow ($0.06-0.2 \frac{\text{in}}{\text{hr}}$) throughout.

7B Tetonka silt loam, 0 to 2 percent slopes. -- this poorly drained, slowly permeable soil is developed in a pothole.

64C Ethan - Borilla loams, 6 to 9 percent slopes. -- these well and moderately well drained soils are developed in glacial till on moderate slopes. Small extent.

2/8/82 10/8/76

Map N-10-254-3 App N-10-3292-3