

Water Right Number 3110-3

1. Considered 11-17, 1976
2. Name of Applicant DAELYN SANGER
3. Post Office Address ROCKHAM
4. Amount of water claimed 2.10
5. Source of water supply 79' DEEP WELL
6. Water to be used for IRRIGATION
Acres to be irrigated 152

7. Water to be Diverted and used in LAND County
about 1.5 Miles of ROCKHAM

8. Proof of Publication

Received 11-8-76

Not received _____

oved _____

Subject to _____

approved _____

ion deferred _____

Well in SW⁴ was
disapproved -
Will irrigate this
same farm Well in
NE⁴, Sec. 35, T116N, R67W
PERMIT NO 3110-3

Map No. 2434-3 Water Division No. 3 No. 3110-3 JAMES RIVER District _____
(Blanks to be Filled 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 Daelyn R. Sanger
Postoffice address RR #1, Rockham, State South Dakota 57470
If a corporation show date and place of incorporation _____

2. Method of accomplishing work (contract, employment of others, or by direct labor) Direct Labor

3. Name of diversion work Daelyn R. Sanger - Unit #1

4. Amount of water claimed (cubic feet per second) 2.1

5. Source of water supply Ground Water NIE

6. Location of point of diversion IN THE CENTER OF ~~SECTION~~ SECTION 35 T14N R67W

County Hand

7. Annual period or periods during which water is to be used March - November

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 152

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.
SW $\frac{1}{4}$ of 35-116-67	152		

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. Choice of newspaper for Notice of Intent to Appropriate Water publication The Daily Plainsman, Huron, South Dakota

12. Principal Features of the Proposed Water Supply System.

A. Works proposed to divert water from its natural source.

Pump Bowl

B. Works proposed to transport water to place of use.

Main Line

C. Works proposed to apply water to beneficial use.

Center Pivot

Estimated Total Cost \$ _____

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 Hand)

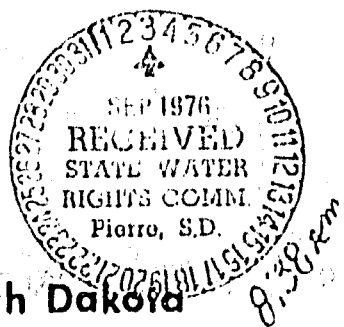
I, Daelyn R. Sanger the applicant, certify that I have read the foregoing application and have examined the attached map and that the matters therein stated are true and that I intend, and am able to complete the necessary construction.

Signed Daelyn R. Sanger

Subscribed and sworn to before me this 1 day of September, 1978

James A. Osling
Notary Public (or other qualified officer)

Commission Expires 11-6-80



WATER RIGHT APPLICATION APPROVAL

The Water Rights Commission hereby approves Water Right Application No. 3110-3

DAELYN R. SANGER
(Applicant)

R.R. #1, ROCKHAM
(Post Office Address)

SOUTH DAKOTA 57470
(State)

With the following modifications:

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 existing domestic wells or in irrigation wells having prior water rights.

THE WATER QUALITY FROM THE WELL LOCATED IN THE CENTER OF THE SW⁴ WAS DISAPPROVED BY THE STATE CONSERVATION COMMISSION. THIS LAND WILL BE IRRIGATED FROM THE WELL IN THE NE⁴ AS APPROVED UNDER PERMIT NO 3110-3.

Date of first receipt of application SEPTEMBER 3, 19 76

Date of return to applicant for correction, amendments or changes required _____, 19 _____

Date of receipt of corrected application OCTOBER 21, 19 76

Approved NOVEMBER 17, 19 76, Recorded in Book 16 Page 203

WATER RIGHT PERMIT NO. 3110-3

The Water Rights Commission hereby grants and issues this Water Right Permit No. 3110-3 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 SEPTEMBER 3, 19 76
2. The equivalent of at least one-fifth of the work above specified is to be completed on or before MAY 17, 19 79
3. The whole of said work is to be completed on or before NOVEMBER 17, 19 81
4. The limit of time from proof of beneficial use of water appropriated in accordance herewith is NOVEMBER 17, 19 83
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 2.10 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 uses 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 NOVEMBER 17, 19 83; said water to be used during the following described annual period: MARCH - NOVEMBER

Witness my hand this 21ST day of DECEMBER, 19 76

WATER RIGHTS COMMISSION

By:

John Hatch
Chief Engineer, Executive Officer

Certificate of Construction Issued _____, 19 _____

Water License Issued _____, 19 _____

PAGE NO.

Steven Kuchl
FOREMAN

[illegible]

Form 1A - Wells, Dugouts or Water Storage Dams (Supplement to form 2)

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

D. Well Information or Estimates

- (1) Drill Hole, Diameter _____, Depth _____
- (2) Casing, Type _____ Diameter _____ Thickness _____
(wood, concrete, steel, etc)
- (3) Perforated Screen.
Type _____, Diameter _____, Length _____
- (4) Gravel Pack, Thickness _____, Length of gravel pack _____

E. Dugout Information or Estimates.

- (1) Surface dimensions _____, Depth _____

F. Fill out for Either a Well or a Dugout. *Log will be furnished by driller

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

Character of Water bearing materials _____

Depth to top of water bearing material _____

Depth to bottom of water bearing material _____

Thickness of water bearing material _____

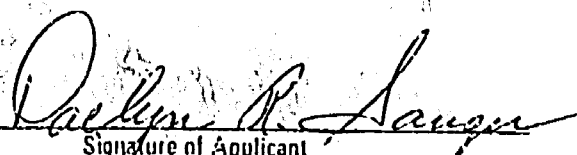
Depth to water (ground surface to water level) _____

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

On same owner's property 400 _____ rds. On property owned by others 100 _____ 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.


Signature of Applicant

Approved

October 1, 1976

Mr. Daelyn R. Sanger
R.R. #1
Rockham, SD 57470

Dear Mr. Sanger:

I am enclosing herewith the report of analysis on your unit #2 well which is in the NE quarter of section 35. This water is extremely hazardous and probably will cause a build-up in exchangeable sodium in the soil. For fine textured soils, this can take a considerable time, but when it does occur the effects will be even more disastrous than on coarse textured soils. When sandy soils lose their structure as a result of high sodium, it is not always easy to tell what is happening, but with a fine textured soil such as a silt loam or a clay loam, when dispersion occurs, it is a disastrous effect and water and air penetration, seedling emergence and the whole picture of crop performance is very seriously affected. Sometimes the soil may lose its ability entirely to absorb water.

This being the situation, I recommend that you proceed with this development only with the full knowledge that you may have to use some drastic and expensive methods to keep the soil in production after 6 to 10 years, or possibly longer, depending on your management and the amount of water you use.

With a sodium adsorption ratio of 9.3, this soil will very likely end up at an equilibrium level of around 10-15% exchangeable sodium. This is a difficult soil to manage when it reaches that point and all of the surface soil will be affected over the entire area because there is no soil in the tract that will really have favorable structure after dispersion begins. The loams are among those which have soft crumb structure and can change from something which is desirable to something which is not desirable in a matter of 1 or 2 years when they get near the level of exchangeable sodium that causes this change.

This is not a simple matter to explain in a letter, but water such as yours is one of the marginal waters that we have insufficient experimental and experience with in this climatic zone of the world. In the desert and SW United States, the use of this water would cause the complete loss of soil structure in a matter of 3 to 6 years. Here, as I indicated above, it will take longer.

My recommendation, then, would be not to proceed with this, but if you are granted a water permit, to proceed with the development with the full knowledge that this may be the consequences, and my development would be with the least expensive irrigation equipment that I could use because there is a chance you would have to abandon irrigation within 8-12 years.

Mr. Sangar
October 1, 1976
Page 2

Sincerely yours,

L O Fine

L. O. Fine
Water Quality Lab

LOF:ckb

Enclosures

cc: State Conservation Commission

CONSERVATION
COMMISSION
FORM W1 #1

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



NAME Daelyn R. Sanger - Unit #2
ADDRESS RR #1, Rockham, South Dakota 57470
COUNTY Hand

1122-HD
2110-3
Permit # 3190
3190-2

LEGAL DESCRIPTION

1. WELL LOCATION Center of the NE $\frac{1}{4}$ of 35-116-67
2. LOCATION OF AREA TO BE IRRIGATED NE $\frac{1}{4}$ of 35-116-67 and SW $\frac{1}{4}$ of 35-116-67
See letter of Oct. 25, 1976/c/c

TYPE OF IRRIGATION

3. GRAVITY TOWLINE CENTER PIVOT X GUN
4. CROPS TO BE IRRIGATED Corn, Alfalfa, Small Grain

WATER QUALITY

5. SAMPLE NUMBER 76-1270
6. SALINITY (EC X 10⁶) 2230 (High-Very High)
7. SODIUM (SAR) 9.31
8. RESIDUAL SODIUM CARBONATE (meq/l.) 1.01

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 Hand 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
1 DAY OF August 19 76.

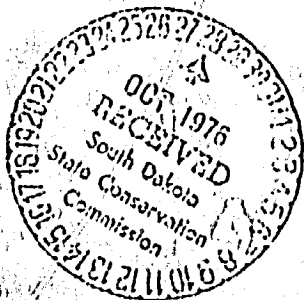
(TITLE OR SEAL)

(SOILS INFORMATION ON REVERSE SIDE)

Daelyn R. Sanger
APPLICANT'S SIGNATURE

Approval does not imply that this project can be carried out successfully in all circumstances. Individual management will, to a large degree, determine the relative success of this venture.

APPROVED/DISAPPROVED



Rockham South Dakota
October 25, 1976

Division of Conservation
Pierre, So. Dak.

Dear Sirs:

This letter is to inform you that I no longer wish to pursue my application for water from Well #1 located on the SW $\frac{1}{4}$, Sec. 35, T. 116 R. 67W.

Also it is my desire to ammend my Application for water from Well #2 located in the NE $\frac{1}{4}$ Sec. 35 T 116, R 67W, to allow me to irrigate both the NE $\frac{1}{4}$ and the SW $\frac{1}{4}$, Sec 35, T 116, R 67W. This application is already on file in your office.

Trusting this is satisfactory, I am,

Very Truly Yours,

Daslyn Sanger
Daslyn Sanger
Rockham, So. Dak.

CONSERVATION
COMMISSION
FORM W1 #1

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

NAME Daelyn R. Sanger - Unit #2
ADDRESS RR #1, Rockham, South Dakota 57470
COUNTY Hand

LEGAL DESCRIPTION

1. WELL LOCATION Center of the NE $\frac{1}{4}$ of 35-116-67
2. LOCATION OF AREA TO BE IRRIGATED NE $\frac{1}{4}$ of 35-116-67

TYPE OF IRRIGATION

3. GRAVITY _____ TOWLINE _____ CENTER PIVOT X GUN _____
4. CROPS TO BE IRRIGATED Corn, Alfalfa, Small Grain

WATER QUALITY

5. SAMPLE NUMBER 76-1270
6. SALINITY (EC x 10⁶) 2230 (high-very high)
7. SODIUM (SAR) 9.31
8. RESIDUAL SODIUM CARBONATE (meq/l.) 101

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 Hand 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.

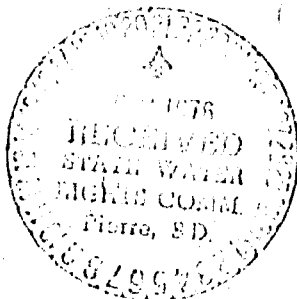
SUBSCRIBED AND SWORN BEFORE ME THIS
1 DAY OF June 19 76.

(TITLE OR SEAL)

Daelyn R. Sanger
APPLICANT'S SIGNATURE

Approval does not imply that this project can be carried
out successfully in all circumstances. Individual man-
agement will, to a large degree, determine the relative
success of this venture.

APPROVED/DISAPPROVED



October 1, 1976

Mr. Daelyn R. Sanger
R.R. #1
Rockham, SD 57470

Dear Mr. Sanger:

I am enclosing herewith the report of analysis on your unit #2 well which is in the NE quarter of section 35. This water is extremely hazardous and probably will cause a build-up in exchangeable sodium in the soil. For fine textured soils, this can take a considerable time, but when it does occur the effects will be even more disastrous than on coarse textured soils. When sandy soils lose their structure as a result of high sodium, it is not always easy to tell what is happening, but with a fine textured soil such as a silt loam or a clay loam, when dispersion occurs, it is a disastrous effect and water and air penetration, seedling emergence and the whole picture of crop performance is very seriously affected. Sometimes the soil may lose its ability entirely to absorb water.

This being the situation, I recommend that you proceed with this development only with the full knowledge that you may have to use some drastic and expensive methods to keep the soil in production after 6 to 10 years, or possibly longer, depending on your management and the amount of water you use.

With a sodium adsorption ratio of 9.3, this soil will very likely end up at an equilibrium level of around 10-15% exchangeable sodium. This is a difficult soil to manage when it reaches that point and all of the surface soil will be affected over the entire area because there is no soil in the tract that will really have favorable structure after dispersion begins. The loams are among those which have soft crumb structure and can change from something which is desirable to something which is not desirable in a matter of 1 or 2 years when they get near the level of exchangeable sodium that causes this change.

This is not a simple matter to explain in a letter, but water such as yours is one of the marginal waters that we have insufficient experimental and experience with in this climatic zone of the world. In the desert and SW United States, the use of this water would cause the complete loss of soil structure in a matter of 3 to 6 years. Here, as I indicated above, it will take longer.

My recommendation, then, would be not to proceed with this, but if you are granted a water permit, to proceed with the development with the full knowledge that this may be the consequences, and my development would be with the least expensive irrigation equipment that I could use because there is a chance you would have to abandon irrigation within 8-12 years.

Mr. Sanger
October 1, 1976
Page 2

Sincerely yours,

L O Fine

L. O. Fine
Water Quality Lab

LOF:ckb
Enclosures

cc: State Conservation Commission

Form 6 - Notice of Intent to Appropriate Water

3110-3

Publish first publication, on or before November 4, 19 76

NOTICE
INTENT TO APPROPRIATE WATER

Pierre, South Dakota 57501

October 25, 19 76

Notice is hereby given that Daelyn R. Sanger
whose post office address is Rockham, 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
2.1 cubic feet of water per second of time from the ground water through the
Sanger # 1, the point of diversion of which is to be located in the

Center of the SW $\frac{1}{4}$
of Section 35, Twp. 116N, Range 67W. Said water to be used for the purpose
of providing irrigation on the following described land:

SW $\frac{1}{4}$, Section 35, T116N, R67W

This application No. 3110-3 will be considered by the Water Rights Commission at the Marvin Hughitt Hotel
Huron, S. D.
upon the 17th day of November, 19 76, 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:

Daelyn R. Sanger, R. R. 1, Rockham, S. D. 57470

Form 8 - Proof of Publication - Notice of
Intent to Appropriate Water

No. 3110-3

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County Beadle) ss.

I, Dorothy Murphy hereby

certify that the annexed printed copy of Notice of Intent to Appropriate

Water was taken from the Huron Daily Plainsman

A newspaper which during the whole time of publication of said notice
herein after stated, has been and is printed and published in the _____

City _____ of Huron

County of Beadle and State of South Dakota;
that the said notice was published in said newspaper on the following
two dates:

October 29, 1976

November 5, 1976

Dorothy Murphy
(Signature)

Bookkeeper
(Title)

November 5, 1976

(Date Signed)

F.P. 10-29-76 11/05/76 L.P. 11/5/76
NOTICE OF INTENT TO
APPROPRIATE WATER
October 25, 1976
Notice is hereby given that Daelyn
R. Sanger whose post office address
is Rockham, 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 2.1
cubic feet of water per second of
time from ground water through the
Sanger No. 1, the point of diversion
of which is to be located in the
Center of the NE 1/4 SW 1/4 of Section
35, Twp. 118N, Range 67W, Sd.
water to be used for the purpose of
providing irrigation on portions of
the following described land: NE 1/4
SW 1/4, Section 35, T118N, R67W, Sd.
This application No. 3110-3 will be
considered by the Water Rights
Commission at the Marvin Hughitt
Hotel Huron, S.D. on the 17th day
of November, 1976, at 10:00 a.m. All
interested persons may appear and
be heard.
WATER RIGHTS COMMISSION
By Burton F. Jones
BURTON F. JONES
Water Rights Specialist
No. 635 (adv.)



February 7, 1979

Daelyn Sanger
Rockham, SD 57470

Dear Mr. Sanger:

This is a follow up of my telephone conversation with you today. You indicated that you desired to dig a well in the SW $\frac{1}{4}$ of Section 35. After checking through your permits I find that Permit No. 3110-3 stated that: "The water quality from the well located in the center of the SW $\frac{1}{4}$ was disapproved by the State Conservation Commission. This land will be irrigated from the well in the NE $\frac{1}{4}$ as approved under Permit No. 3190-3." With this in mind you will need a water quality sample approved by the State Conservation Commission before a permit would be approved by the Water Rights Commission for a well in the SW $\frac{1}{4}$ of Section 35. Apparently the water quality in the SW $\frac{1}{4}$ is very poor and chances of obtaining suitable water in this area is not good.

The wells in the NW $\frac{1}{4}$ of 35 under Permit No. 4106-3 and the NE $\frac{1}{4}$ of 35 under Permit No. 3190-3 have been approved by the Commission and can be used for Irrigation.

This letter is to caution you about drilling a well in the SW $\frac{1}{4}$ of 35. It must meet the water quality standards. If you have any questions regarding the matter please feel free to contact this office.

Enclosed is a map of your Permits, the well locations and the area to be irrigated.

Sincerely,

LeRoy J. Hernaugh
Water Resources Engineer

LJH:kjr

enclosure

3110-3
3190-3

 **Department of
Water & Natural Resources**

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

February 17, 1989

Daelyn R. Sanger
RR 1, Box 54
Rockham, SD 57470

Dear Mr. Sanger:

On October 6, 1988, the Water Management Board adopted rules to implement a 1988 law for application of chemicals through irrigation systems. The rules establish equipment standards, performance standards and installation requirements for irrigation systems that apply chemicals (fertilizers, insecticides, or herbicides) with irrigation water.

You have indicated on your 1988 Water Management Board Irrigation Questionnaire that you do apply chemicals with irrigation water. A copy of the new rules for chemigation are enclosed for your information.

The new standards include:

- * a check valve between the irrigation pump and the point of chemical injection;
- * a vacuum relief valve on top of the pipeline between the irrigation pump and the irrigation pipeline check valve;
- * a low-pressure drain on the bottom of the pipeline between the irrigation pump and the irrigation pipeline check valve;
- * a chemical injection line check valve between the chemical injection pump and the point at which the chemical is injected into the irrigation line; a second check valve is required if the chemical injection pump is not a positive displacement pump;
- * an interlock system which ensures that the chemical injection pump will stop whenever the irrigation pump stops;
- * an inspection port between the irrigation pump and the check valve on the irrigation line;



Each of these equipment requirements are discussed more thoroughly in Sections 74:02:09:05 through 74:02:09:10 of the enclosed rules. Appendix A contains diagrams of the arrangements of these anti-pollution devices.

The equipment must be installed according to the manufacturer's specifications, calibrated, and maintained in good working condition. All chemical product labels must be followed and warning signs must be posted. These rules also require reporting of all spills, accidents, and system malfunctions. A 24-hour telephone number is provided.

The chemigation rules contain notification and record keeping requirements. Prior to using chemigation, notification must be given to the Chief Engineer on the enclosed Form 1C. Information that must be provided in this notification includes the water permit or right number, the name, address, and telephone number of the water permit or right holder and of the system operator, and the legal description of the lands on which the system is located. A record of the name, quantity, dates and hours of each chemical applied must be provided to the Chief Engineer on Form 2C. A copy of this form is also enclosed for your information. It will be mailed with the annual irrigation questionnaire and must be returned with the questionnaire by the date specified. If you have any questions regarding these rules or need additional copies of the forms, please contact Susan Bowar, Water Rights Engineer (605-773-3352).

Very truly yours,

John Hatch
for JOHN HATCH, Chief Engineer
Water Rights Division



Department of Water & Natural Resources

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

3190-3

DEC 26 1989

Daelyn Sanger
RR 1, Box 54
Rockham SD 57470

Dear Mr. Sanger:

Enclosed is Water License No. 3190-3. This is the final water right document completing your process of obtaining a Water Right. Enclosed is Receipt No. 411618 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. 3190-3, 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 Division
(605) 773-3352

enclosures

NOTE: The applicable portions of Water Permit No. 3110-3 have been incorporated into this Water License No. 3190-3.