

8. Estimated cost of work:

(a) Head Gates, \$----- (b) Pumping plant, \$-----
 (c) Fluming, \$----- (d) Canal-earth, \$----- Rock, \$-----
 (e) Other structures, \$----- Total, \$-----

9. Description of diversion works:

I. Nature of works: (Reservoir, dam, ditch, flume, pumping plant, etc.)

II. Dimensions of works:

(a) Dam: Height ----- feet; length at bottom ----- feet; length at top ----- feet; thickness at bottom ----- feet; thickness at top ----- feet; slope at front water face -----; slope at back face -----
 material used in construction -----
 (b) Reservoir: Capacity when filled ----- acre feet. Surface area at highwater mark ----- acres.

DEPTH AT OUTLET-Feet	SURFACE AREA AT EACH DEPTH AT OUTLET--ACRES	FEET ACRE-Feet CAPACITY

(c)* Head gate: Width ----- feet; height ----- feet;
 Material -----
 (d) Canal: Total length ----- miles.

LOCATION BELOW HEADGATE	DEPTH	BOTTOM WIDTH	WIDTH AT WATER-LINE	GRADE PER MILE
At ----- Mile	----- feet	----- feet	----- feet	----- feet
At ----- Mile	----- feet	----- feet	----- feet	----- feet
At ----- Mile	----- feet	----- feet	----- feet	----- feet
At ----- Mile	----- feet	----- feet	----- feet	----- feet
At ----- Mile	----- feet	----- feet	----- feet	----- feet
At ----- Mile	----- feet	----- feet	----- feet	----- feet

(Give dimensions where reductions in size are made.)

10. Time required for completion of work ----- years.

11. Time required for complete application of water to the proposed beneficial use ----- years.

12. Choice of newspaper for publication of notice of intention to appropriate -----

STATE OF SOUTH DAKOTA

County of -----

I, Howard J. Rehner, being first duly sworn on my oath depose and say: That my relation to the above described undertaking is that of owner, that I have read the above foregoing statement, examined the map accompanying the same, and that I know of my own personal knowledge that the matters therein stated and shown are true.

Signed

Subscribed and sworn to before me this

20th

day of

November

1959

Notary Public (or other qualified officer.)

*Each diversion must have a headgate or measuring device.

Remarks by State Water Resources Commission:

"Vested Right Claimed"

The diversion rate limitation of 1 cubic foot per second for each 70 acres irrigated shall not apply to this Dry Draw irrigation diversion during periods of flood flows, when such flows are in excess of the amount of water required to satisfy domestic use requirements and other water rights.

STATE OF SOUTH DAKOTA

County of

Hughes

ss.

Pierre, South Dakota,

December 16, 1959

This is to certify that the foregoing application was received by the Commission at 11:15 o'clock

A.m. upon the 11 day of December, 1959

State Water Resources Commission

By:

J. C. Quinn

Chief Engineer, Executive Officer

Number of permit 442-1

Date of first receipt of application

December 11, 1959

Date of return to applicant for correction, amendments or changes required as follows: , 19

Date of receipt of corrected application , 19

Date from which applicant may claim right June, 1946

Approved December 16, 1959, Recorded in Book 5 Page 288

This is to certify that we have examined the foregoing application for a permit to appropriate water of the State of South Dakota, and we hereby grant the same as stated herein, subject, however, to the following limitations and conditions:

1st. The equivalent of at least one-fifth of the work above specified has been completed on or before

2nd. The whole of said work is completed

3rd. The limit of time for proof of beneficial use of water appropriated in accordance herewith is

completed

4th. The water appropriated shall be used for the purpose of irrigation

5th. 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.

6th. The amount of the appropriation herein granted shall not exceed .28 cubic feet per second; neither shall it exceed the capacity of the above described system of diversion works, nor the least amount of water that experience may hereafter indicate as necessary for the production of crops in the exercise of the best husbandry; and further, said appropriation must 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 before 1946; said water to be used during the following described annual period:

April to October inclusive

Witness my hand this 16th day of December, 1959.

State Water Resources Commission

By:

J. C. Quinn

Chief Engineer, Executive Officer

Certificate of Construction Issued

January 13, 1960

Water License Issued

January 13, 1960

STATE OF SOUTH DAKOTA

WATER LICENSE No. 442-1

WHEREAS, On the 11th day of December A. D. 1959
Howard J. Rahorst

of Belle Fourche County of Butte Vested Right and State of
South Dakota duly made application (No. 442-1) to us for a permit to use .287
cubic feet per second of the waters of the Belle Fourche River
County of Butte, State of South Dakota, for irrigation
purposes; and

WHEREAS, On the 16th day of December A. D. 1959
Vested Right and recognizing
/ Permit No. 442-1 was issued to said applicant for the diversion of said water, ~~XXXXXX~~ for the
completion of the works of diversion therein described ~~XXXXXX~~ ~~XXXXXX~~
~~XXXXXX~~ and for the application to beneficial use of said
water ~~XXXXXX~~ ~~XXXXXX~~ ~~XXXXXX~~
and,

WHEREAS, On the 11th day of December A. D. 1959
Vested right
the holder of said permit made proof of the completion of adequate works for the diversion of .287
cubic feet per second of said waters, as evidenced by our Certificate No. 442-1
dated January 13, 1960 confirming the completion of works of sufficient capacity for
diverting and conveying to the place of intended use .287 cubic feet per second of water, with date of
priority of 1946 ~~xxx~~ and,

WHEREAS, On the 11th day of December A. D. 1959
proof was duly made of the application to beneficial use of .287 cubic feet per second of said water;
for irrigation on portions of Section 10, T 8 N, R 1 E

NOW, THEREFORE, By the virtue of the authority vested in us by the laws of the State of South Dakota,
We hereby grant and confirm to Howard J. Nahorat
of Belle Fourche the holder and owner of said ^{Vested Right} permit No. 422-1
a water right, dating from 1946 to the use of .287
cubic feet per second of the waters of the Belle Fourche River
In the County of Butte and State of South Dakota, or so much thereof as may be
necessray for the purposes hereinabelow mentioned, to be diverted at a point in the NE 1/4
Sec. 10, T 8 N, R 1 E
and conducted to and upon portions of the SE 1/4, Sec. 10, T 8 N, R 1 E
more specifically described in the Certificate of Completion of Works
for the purpose of irrigation

subject, however, to the laws of the State of South Dakota applicable to a license for the use of the waters of the State, and subject, also to the local or community customs, rules and regulations which have been or may be adopted from time to time by a majority of the users from a common source of supply, canal or lateral from which such water may be taken, when such rules and regulations have for their object the economical use of such water.

WITNESS, My hand and seal of our office at Pierre, South Dakota,
this 13th day of January A. D. Nineteen
Hundred and Sixty

State Water Resources Commission

By:

J. W. GRIMES, Chief Engineer, Executive Officer

STATE OF SOUTH DAKOTA

Water License No. _____

To _____

Source of Supply _____

County _____

Am't _____ c. f. s.

Point of Diversion _____

Place of Use _____

Purpose _____

Date of Priority _____

Recorded _____

In Book _____ of _____ Page _____

Permit No. 442-1Belle FourcheWater Division No. 1 River Water District**Certificate of Completion of Works**

TO ALL WHOM IT MAY CONCERN:

This is to Certify, That Howard J. Rehoratof Belle Fourche, County of Butte, and State of South Dakota, the holder of Vested Right Permit No. 442-1, Issued upon ApplicationNo. 442-1, bearing date of priority of 1946, authorizing the diversion of .287 cu. ft. per second of the waters of the Belle Fourche RiverCounty of Butte, State of South Dakota, at a point 172.0 rods N 169° 45' W of NE Corner, Sec. 10, T 9 N, R 1 Efor irrigationpurposes, has fully complied with the provisions of the laws of the State of South Dakota relating to proof of completion of the works of diversion set out and described in said Permit; that said works are recognized as in satisfactory~~condition~~ for diverting and conveying to the place of intended use .287 cu. ft.

per second of water, and that the lands proposed to be irrigated by the use of said water are described as follows,

to-wit: NE 1/4 Sec. 10, T 8 N, R 1 E 17.5 ac.SE 1/4 Sec. 10, T 8 N, R 1 E 2.6 ac.Witness my hand this 13th day of January A. D. 1960

State Water Resources Commission

By

J. W. GRIMES,

Chief Engineer, Executive Officer

Location No. 442-1Bella FwicheWater Division No. 1River Water District**Proof of Application of Water to Beneficial Use****PETITION OF HOLDER**

Ques. 1. State your name, residence, occupation and postoffice address.

Ans. HOWARD T. HARRIS, BELLA FWICHE, CALIF.
PARSONS

Ques. 2. If acting in behalf of a corporation, state its name, principal place of business (if a foreign corporation, give name and postoffice of statutory agent,) your position with reference to same, and your authority for appearing in its behalf.

Ans. _____

Ques. 3. State date of posting and date of recording notice of appropriation.

Ans. JUNE, 1959

Ques. 4. State source of water supply and give exact location of point of diversion.

Ans. LAKE RED DRAINAGE AREA, MOUNTAIN VIEW, CALIF.
DIVISION: 172.0, N. 169° 25' W. 1/4 SEC. 12, T. 2 N. R. 1 E

Ques. 5. Describe your works of diversion giving length and height of each dam and state amount of water they are capable of conveying from point of diversion to place of use, and give name of canal or ditch or other works by which water is conducted to such place of use, and date of completion of same.

Ans. ORIGINAL PIPE WAS USED TO DRAIN DIVISION 172.0
ON TO SPRINGFIELD AREA. WAS REPLACED BY 12" PIPE IN 1959. THE
PIPE WAS REPLACED BY 12" CHUCKER AND NEW CHUCKER DITCHES
WERE CONSTRUCTED (4' BOTTOM, 1.5' DEPTH) WITH 4" PIPES INSTALLED.

Ques. 6. State for what purpose water is used and describe place of use. (If for irrigation, name each subdivision in which used, and number of acres in each subdivision that have ACTUALLY been irrigated with said water.)

Ans. WATER CONSERVATION:
N. 1/4 SEC. 12, SEC. 12, T. 2 N. R. 1 E - 12.5 AC.
S. 1/4 SEC. 12, SEC. 12, T. 2 N. R. 1 E - 2.6 AC.

Ques. 7. If for other than irrigation purpose, state how applied, amount of horse power generated, etc.

Ans. _____

Ques. 8. What is the minimum amount of water required for the use specified above?

Ans. THAT REQUIRED FOR THE USE SPECIFIED ABOVE

Ques. 9. If you are not the person or representative of the corporation to whom above mentioned permit was originally issued, please state how ownership was acquired by present holder.

Ans. _____

Ques. 10. State when, how, in what amount and to what extent, the water diverted under above mentioned permit has been used.

Ans _____

(Sign) _____

I hereby certify that the foregoing testimony was read to the above subscriber before its signing, that I believe him to be the person he represents himself to be, and that said testimony was subscribed and sworn to before me, at my office in Belle Fourche, County of Butte State of South Dakota, on this 30th day of November A. D. 1959

Witnesses, _____

I, the undersigned, do hereby certify that I am a duly qualified elector residing in the immediate vicinity of the diversion works designated in the foregoing testimony, that I have no interest in the works, water or land above described, that I have read the foregoing testimony and that I know of my own personal knowledge that the matters therein stated are true.

Location No. _____

**PROOF OF APPLICATION OF
WATER TO BENEFICIAL USE**

PETITION OF HOLDER

Amount of Water _____ c. f. s.

Source _____

County _____

Purpose _____

Place of Use _____

Date of recording _____

Received and filed _____

**OVERSIZE
DOCUMENT IS
SUPPLEMENTARY
TO MICROFILM FILE**

SOUTH DAKOTA
Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501
Division of Water Rights
605 773-3352

No. 442-1

August 16, 1985

Dan Heck
Box 371
Belle Fourche, South Dakota 57717

Dear Mr. Heck:

Please find enclosed a copy of a Notice of Transfer of Water Permit form. This form must be signed by the owner before a notary and returned to this office with a filing fee of \$2.50.

Upon receipt of the enclosed form and the \$2.50 filing fee the permit will be transferred to the proper name. South Dakota Water Law 46-5-30.3 requires Notice of any sale, grant, lease, conveyance or other transfer of a Water Permit or Water Right to appropriate water to be filed with this office within ninety days.

Please advise if you have any questions.

Sincerely,

Maxine Stirling
Staff Assistant

Second Notice

November 5, 1985

Permit No. 442-1

Dan Heck
Box 371
Belle Fourche, South Dakota 57717

Dear Mr. Heck:

On August 16, 1985 notice was sent to you concerning the transfer of Water Permit No. 442-1 in the name of Howard J. Belcher which covers irrigation of 20.1 acres in the NW 1/4 SE 1/4 and the SE 1/4 SE 1/4 Section 10, T8N, R1E. To date, we have not heard from you on this matter.

A transfer form was previously sent to you, enclosed please find an additional form. Please sign, have notarized and return the form to this office with the required filing fee of \$2.50. The permit can then be transferred to your name. If you are not the present owner of the land covered under this permit, please notify this office. It is very important that ownership records be kept current. South Dakota Water Law 46-5-30.3 requires Notice of any sale, grant, lease, conveyance or other transfer of a Water Permit or Water Right to appropriate water to be filed with this office within ninety days.

If you have any questions, please contact us.

Very truly yours,

John Hatch, Chief Engineer
Water Rights Division
Phone: (605) 773-5352

SS09:MR

NO. 442-1

NOTICE OF TRANSFER OF WATER PERMIT

TO: Water Rights
Foss Building
Pierre, SD 57501

Date: 11-15-1985

This is to notify you that the title to the lands described as follows:

20.1 acres - NW 1/4 SE 1/4 and SE 1/4 SE 1/4 Section 10, T8N, R1E

formerly owned by Howard J Rehorst

has been transferred to Dan Heck, Box 371, Belle Fourche SD 57717
(please include complete mailing address)
together with any rights to the beneficial use of water thereon as evidenced by

Water Right Permit No. 442-1 as provided for in SDCL 46-5-32 and 46-5-33.

You are therefore hereby requested to file this "Notice of Transfer of Water Permit" in its appropriate file at the Div. of Water Rights, Water Management Board as evidence of the change of ownership.

A fee of Two Dollars and Fifty Cents (\$2.50) is hereto attached to cover filing fees as required under SDCL 46-2-13.

STATE OF SOUTH DAKOTA)
County of Butte) ss.

I, Dan Heck being first duly sworn or my oath depose and say:
That my relation to the above described undertaking is that of Owner, that I have read the above foregoing statement, and I know of my own personal knowledge that the information herein stated is true.

Dan Heck
(Signed)

Subscribed and sworn to before me this 15th Day of November, 1985

Annette L. Nelson
(Notary Public)

ANNETTE L. NELSON, Notary Public
My Commission Expires Mar. 24, 1988



RECEIPT

Division of Water Rights

No 4 16243

South Dakota Department of Water and Natural Resources

Pierre, November 18, 1915

RECEIVED OF Van Heck, Box 371, Belle Fourche, SD 57717

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

Fee for Application for Permit No. _____ to Appropriate Water, to construct works and to put water to beneficial use _____		
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. _____		
Fee for Filing Transfer Form 42-1 _____		2.50
Fee for Filing Extension Request _____		
Fee for Certified Copy of _____		
Fee for Print Copy of Map _____		
Fee for Certifying _____		
Fee for _____		
(Any Other Work Provided by Law)	Total	2.50

By John Hatch
Chief Engineer JOHN HATCH

No. _____

442-1

SOUTH DAKOTA Department of
Water & Natural Resources
Joe Foss Building Water Rights Division
Pierre, South Dakota 57501 Phone (605) 773-3352

November 13, 1985

Dan Heck,
Box 371
Belle Fourche, South Dakota 57717

Dear Mr. Heck:

Enclosed is receipt No. 4 10243 in the amount of \$ 2.50 which you
paid for transfer of Water Right No. 442-1.

Our records now show you as the owner of this Water Right.

Sincerely,

Maxine Stirling
Staff Assistant

ms/
Enc.

 **Department of
Water & Natural Resources**
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

September 21, 1988

NOTICE

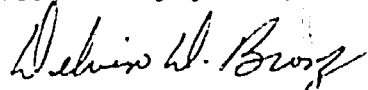
Dan Heck
Box 371
Belle Fourche SD 57717

Dear Mr. Heck:

I am writing to notify you that pursuant to the Notice of Intent to Validate Vested Water Right Claims dated June 20, 1988 that I intend to oppose validation of your water right claim No(s). 442-1 until a field inspection has been completed. The claim has either never been inspected or an inspection was conducted so long ago that a new inspection is needed. An inspection is needed to determine the current state of your vested water right claim.

A staff member from the Division of Water Rights will be contacting you and scheduling an inspection of your water project. If we can answer any questions, please contact us.

Very truly yours,


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



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

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

December 1, 1988

Vested Water Right
Claim No. 442-1

Dan Heck
Box 3715
Belle Fourche, SD 57717

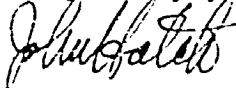
Dear Mr. Heck:

Enclosed is a copy of a letter received from the U.S. Department of Interior, Bureau of Reclamation. The Bureau of Reclamation is opposing those vested water right claims in Pennington, Perkins, Butte and Fall River counties which have never been investigated by the Division of Water Rights. Earlier, you received a letter stating that I was opposing your claim until an investigation can be completed.

After the investigation has been completed, you and the Bureau of Reclamation will be notified as to the date, place and time of the hearing on your vested water right claim. At that time all parties of record will have an opportunity to testify on the validation.

If we can answer any questions, please contact us.

Very truly yours,



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

cc: Bruce Laymon, Bureau of Reclamation



DATE MICROFILMED

CAMERA OPERATOR

Water Rights Division - DWNR

File No. 442-1

Conversation or File Documentation

NAME OF PERSON OR FILE: Don HeckADDRESS: Box 371, Belltown, ID 57717 COUNTY BulheDATE: 5-22-89 TELEPHONE 892-3864RE: Vested Right Inspection

COMMENTS:

On Monday April 17, 1989, Vested Right No. 442-1was inspected. Accompanied by Mr. Heck the area was inspectedThe land and diversion point seemed to be the same as the mapfor VR #442-1 on our files.

File in Permit or other file as necessary. Use to document conversations and what the other party was told; why action or decision was made.

NAME: MR. Heck

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

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

March 28, 1991

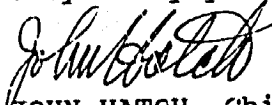
Dan Heck
Box 371
Belle Fourche SD 57717

Dear Mr. Heck:

The Water Management Board has validated the enclosed Vested Water Right No. 442-1. This validation gives legal status to the claim and is the final document for your vested right.

As long as you use the water beneficially, as stated in the validation, State Water Laws provide that you have a continuing right to use the water.

Very truly yours,



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

enclosure

SOUTH DAKOTA

VALIDATION OF VESTED WATER RIGHT CLAIM NO. 442-1 FOR IRRIGATION

Date Claim Accepted For Filing December 11, 1959.

Date of Validation September 27, 1989.

Pursuant to SDCL 46-2A-17 the Water Management Board validated Vested Water Right Claim Permit No. 442-1 for irrigation purposes for Dan Heck, Box 371, Belle Fourche, South Dakota 57717 with the following limitations, conditions and qualifications:

1. Vested Water Right No. 442-1 appropriates 0.29 cubic feet of water per second from the Belle Fourche River to irrigate 20.1 acres. The diversion point is located in the NE 1/4 SE 1/4 and the irrigated acres are located in the NW 1/4 SE 1/4 and SE 1/4 SE 1/4; all in Section 10, T8N, R1E.
2. The appropriation may not exceed the amount of water needed for beneficial use for irrigation. The appropriation may not exceed 3 acre feet per year for each acre of irrigated land. The water is to be used during the following annual period: April 1 - October 31.
3. The priority date of the Vested Water Right is June 1, 1946.
4. The water use system has been constructed and water has been applied to beneficial use.
5. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

WATER MANAGEMENT BOARD

By: _____

John H. Hattis
Chief Engineer
Division of Water Rights
Dept. of Water and Natural Resources

MAR 28 1991

date _____

442-1



United States Department of the Interior

BUREAU OF RECLAMATION

Great Plains Region

Belle Fourche Projects Office

P.O. Box 226

Newell, South Dakota 57760-0226



WTR 4.10
BF-430

AUG 18 1993



Mr. John Hatch, Chief Engineer
Water Rights Division
South Dakota Department of Water and Natural Resources
523 E. Capitol
Pierre SD 57501-3181

Subject: Vested Water Right Claims in Western South Dakota (Your Letter
dated April 20, 1993) (Water Rights)

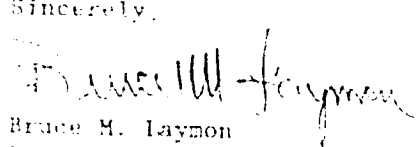
Dear Mr. Hatch,

We have reviewed the vested water right claims located in Perkins, Pennington, Fall River, and Butte Counties as listed in your letter dated April 20, 1993. We have also discussed these rights with contract water users. We appreciate the assistance of your staff in providing documentation of inspections and validation proceedings for specific claims as we requested.

We are satisfied with all of the actions taken by the board. Our intent in opposing validation of the water rights was to assure that all of the rights were reviewed prior to validation. That review has been completed by your staff. Thank you for notifying us of the board's actions and extending the opportunity to reconsider the actions if it would have been deemed necessary. We understand that future notification will be made in advance of board actions.

If we can be of further assistance, please contact Craig Kjar or me at (605) 456-2695.

Sincerely,


Bruce M. Laymon
Project Manager

cc: Mr. Joe Kramer, Manager
Angostura Irrigation District
PO Box 346
Oral SD 57766

Mr. James E. Winterton, Project Manager
Belle Fourche Irrigation District
PO Box 225
Newell SD 57760

**Water Rights Permit
Application -
Supplement**

Permit No. 2035-1
Dan Heck

**Sourdough Flats Wetland
Restoration**

Butte County, South Dakota

February 2024

Prepared by:

Kendall Vande Kamp, Environmental Scientist
HDR Engineering
100 S. Phillips Avenue, STE 401
Sioux Falls, South Dakota, 57104

Prepared for:

Tetonka, LLP
401 E. 8th Street, Suite 211
Sioux Falls, South Dakota, 57103

1.0 Executive Summary

This memo provides a supplement to a water rights permit application due to the nuanced nature of the project being proposed. The memo provides evidence to support the approval of a Water Right Permit for a compensatory wetland mitigation bank project (i.e., wetland restoration) of a drained wetland within a once-terminal basin. During a due diligence review of the viability of developing a wetland bank on Sourdough Flats, it was discovered that a water rights application for restoring this same wetland basin had previously been submitted on May 31, 2002, by the landowner Dan Heck for a project proposed by Ducks Unlimited (Water Permit No 1771-1). File No. 1771-1 includes a recorded conversation between Mark Rath and Timothy Schaal (Water Rights Division – DENR) and Roger Smith (Ducks Unlimited) where DENR suggested withdrawing the permit application or they would recommend denial because the application was above the Belle Fourche Diversion Dam. The application was withdrawn on August 8, 2002. Ducks Unlimited either didn't have the benefit of the data we have now relating to Hay Creek or didn't provide it as part of their application.

After a brief review, it was determined that compelling data is available that supports the fact that no significant impact on existing water rights would result from the project. The data was reviewed and considered further and ultimately developed into the current analysis presented in this memo which clearly shows no significant impact on existing water rights. Reputable data sources were used to (mainly) provide the South Dakota Department of Agriculture and Natural Resources (DANR) assurances that the wetland restoration project will not impair existing water rights.

Support includes:

- At most, the annual yield of the catchment that drains into the proposed wetland restoration is 8.33 acre-feet to the mouth of Hay Creek (derived from USGS 2002 study).
- The existing residual water storage capacity of the drained wetland (35.65 acre-feet) in addition to an existing vested water right for using water from the drained basin to irrigate 20.1 acres (appropriation = 60.3 acre-feet) totals 95.95 acre-feet of water, an amount which the catchment would only infrequently produce, and certainly not during dry periods (2.3 inches of runoff across the approximately 500-acre Sourdough Flats catchment area)

2.0 Introduction

Tetonka LLP is seeking to develop a wetland mitigation bank that would offer wetland mitigation credits to fulfill the obligation that 404 permit applicants have to offset adverse impacts to wetlands as a condition of Clean Water Act, Section 404 permit authorization from the U.S. Army Corps of Engineers. The project involves the restoration of an artificially drained wetland basin located approximately ½ mile north of Sourdough Road and 5 miles west of its intersection with US 85 in Belle Fourche, South Dakota. A ditch was constructed through a hill in the SE ¼ of Section 10, Township 8N, Range 1E, Butte County, and artificially drains the basin to the south (Figure 1). For this report, the basin/catchment that contributes to the drained wetland will be referred to as Sourdough Flats.

The restoration project involves restoring original contours where a ditch was previously constructed and would not involve constructing a "dam" as defined in Administrative Rule 74:02:01:01, which is one of the triggering factors requiring a need for a water right. A "dam" which is defined as follows:

Dam: an artificial barrier, including appurtenant works, which impounds or diverts water;

However, an Attorney General Opinion (No 89-14) contends that the definition of "dam" is included in administrative rule for the purpose of dam safety regulations, and because "dam" is not defined by state statute, the word "dam" in its ordinary sense, SDCL 2-14-1, is defined to mean "a barrier preventing the flow of water; especially a barrier built across a water course for impounding water (Merriam Webster Dictionary).

Further, Attorney General Opinion (No 89-14) notes that a properly drained wetland becomes an established water course as defined in SDCL 46A-10A-1.

"Established water course," a fixed and determinate route, either natural or man-made, by which water has flowed from one parcel of real property to another and by which water has been discharged upon a servient estate for a period of time, on such a regular basis and in such quantities as to make it a predictably continuous activity

These two contentions beginning with reliance on a Webster's Dictionary definition built around the argument on the technicality of the word "dam" being defined within the SD Administrative Rules but not specifically within SDCL appear to be the basis for determining that wetland restoration projects are subject to water rights law in the same manner as irrigation projects.

3.0 Hydrology overview

The Sourdough Flats catchment totals 553 acres. Of that, approximately 480 acres is considered contributing drainage area. Noncontributing areas include those that are above existing dry draw impoundments. Before being ditched/drained, Sourdough Flats was a terminal basin that never discharged surface water based on its minor catchment size relative to its topographic capacity. Had water overtopped the natural outlet of the basin's catchment, it would have overflowed into another depression wetland basin to the northwest before overtopping and discharging into a natural watercourse to the north (see Figure 2). Attachment A includes a USGS StreamStats report which summarizes the basin characteristics and peak flow statistics of the Sourdough Flats catchment. Notably, USGS estimates the 50-percent annual exceedance probability flow to be just 3.83 cfs, meaning that over the long term, one can expect discharge from the ditch outletting from the basin to reach 3.83 cfs once every two years. Surface discharge from the ditched basin is ephemeral and occurs for brief periods following snow melt and precipitation events. The ditch could be considered a "losing" watercourse that is disconnected from the water table and constantly losing water into the ground¹.

The longest flow path of water before leaving the basin is 1.9 miles (Attachment A). When surface flow does leave the basin, it continues via an unnamed ephemeral waterway for approximately 2.76 stream miles, beginning by being diverted with an earthen berm that converts channelized flow into sheet flow to irrigate approximately 20 acres of land. Flow continues for another 14.08 miles along Hay Creek which has an intermittent flow regime (USGS Gage 06433500 Hay Creek at Belle Fourche SD – see Figure 3, Figure 4, and Figure 5). Hay Creek discharges into the Redwater River which flows just 0.16 miles before its confluence with the Belle Fourche River. Upon reaching the Belle Fourche River, flow

¹ <https://www.ag.ndsu.edu/publications/environment-natural-resources/riparian-complex-ecological-sites-of-north-dakota-a-pictorial-guide-of-riparian-complex-ecological-sites-common-in-north-dakota#section-4>

continues for 1.61 miles until reaching the Belle Fourche diversion and then the diversion canal is 7.49 stream miles before reaching the tail end of the Belle Fourche Reservoir. Hence, the total flow path distance is 26.1 "stream" miles as measured by the USGS National Hydrography Dataset (NHD). This is a conservative estimate as the NHD does not fully account for channel sinuosity. Photo 1 and Photo 2 below show the characteristics of the dense vegetation along Hay Creek and demonstrate its poorly defined channel and inefficient surface water conveyance.



Photo 1. Google Earth street view image facing Hay Creek downstream of US85 in Belle Fourche, SD.



Photo 2. Google Earth street view image facing Hay Creek downstream of Highway 34 crossing located ~ 4 miles west of US85 (44.638864, -103.940966)

4.0 Support for Recommending Water Right Approval

The following criteria must be met for a water right to be issued:

- 1) There is a reasonable probability that unappropriated water is available.
- 2) The proposed diversion can be developed without unlawful impairment of existing rights.
- 3) The proposed use is a beneficial use.
- 4) **The proposed use is in the public's interest.**

The following sections offer support for approving this application.

4.1 Annual Yield

To picture any watershed as a completely impervious area of land that collects precipitation with no evaporation or evapotranspiration is overly simplistic and not at all like a real-world watershed. Many factors are universal in nature that determine how much water flows in a stream. Although universal, a wide range of variability exists, both temporally and spatially. These factors include:

Precipitation: The amount of precipitation that falls in the watershed as rain or snow explains the greatest amount of variation in streamflow. However, not all precipitation that falls in a watershed flows out (in some cases, little to none), and streams with intermittent to perennial flow regimes continue to flow where there is no direct runoff from recent precipitation.

Infiltration: Water infiltrates the soil and will remain in the shallow soil layer where it will gradually move downhill and eventually discharge into a stream by seepage into the stream bank. Some water may infiltrate much deeper, recharging groundwater aquifers. Infiltration depends on several characteristics of the watershed including soil type, soil saturation, land cover, and topographic relief.

Evaporation: Water from rainfall returns to the atmosphere largely through evaporation. The amount of evaporation depends on temperature, solar radiation, wind, atmospheric pressure, and other factors.

Transpiration/Evapotranspiration: Plants absorb water from soil and most of this water moves through the plant and is released into the atmosphere through the leaves. Transpiration varies based on the sun's heat, the characteristics and density of the vegetation, and plant available water within the soil.

Storage: Reservoirs store water and increase the amount of surface water that is lost to evaporation, infiltration, and even evapotranspiration.

4.1.1 Annual Yield: A Comparative Analysis of Hay Creek to Other Basins

The U.S. Geological Survey (USGS) published a report titled Hydrology of the Black Hills Area, South Dakota in 2022. It reports annual yield data throughout the study area, including several exterior basins of the Black Hills such as the Hay Creek watershed. Annual yield is the annual runoff per unit of area. The USGS 2022 study shows that annual yield characteristics vary widely among streams. For example, Hay Creek had an annual yield of just 0.2 inches/acre while Rhoads Fork near Rochford had an average annual yield of 9.34 inches/acre. Indian Creek near Arpan might be considered more comparable to Hay Creek from a hydrogeological perspective, but even it had more than four times

the annual yield of Hay Creek with 0.86 inches/acre (see Table 5 of USGS 2022 included in Attachment B). The key observation to note about Hay Creek is that it had the lowest annual yield among any streams in the USGS 2022 study – even when compared to streams that drain the exterior basins of the Black Hills (Hat Creek, Horsehead Creek, Indian Creek, Bear Butte Creek, and Hay Creek).

4.1.2 Posited Annual Yield of Sourdough Flats Basin

An average annual yield of 0.2 inch/acre over the ~500-acre Sourdough Flats catchment would yield on average just 8.33 acre-feet of water to the mouth of Hay Creek each year. Of that, water would continue to be lost as it flows further downstream.

Just like there is a wide range in variation in annual yield among basins as demonstrated within the USGS 2022 study, it's important to recognize the variability within the Hay Creek basin itself due to aforementioned factors that affect how much water reaches a point along a stream. Due to the relatively small size of Hay Creek (123 square miles), climatic conditions including precipitation and evaporation are unlikely to contribute to the variation. There are however two distinct differences in basin characteristics between Hay Creek as a whole and the Sourdough Flats catchment (topographic relief and storage) that are known factors in explaining variation in runoff. Table 1 presents parameters that describe key basin characteristics that are known to influence water yield and were taken from USGS StreamStats reports found in Attachment A. Sourdough Flats include just 0.7% of the overall Hay Creek basin. Sourdough Flats has a mean slope that is more than 4x less than that of Hay Creek and the percentage of the catchment with storage capacity is nearly 68x that of the overall Hay Creek basin. Although the Sourdough Flats basin has been ditched, it still retains the topographic capacity to store water and is further described in Section 4.1.3. These characteristics indicate that Sourdough Flats would generate less runoff (i.e., less annual yield) than the Hay Creek catchment as a whole.

Table 1. Hay Creek vs Sourdough Flats: A comparison of basin characteristic parameters which are known to influence water yield.

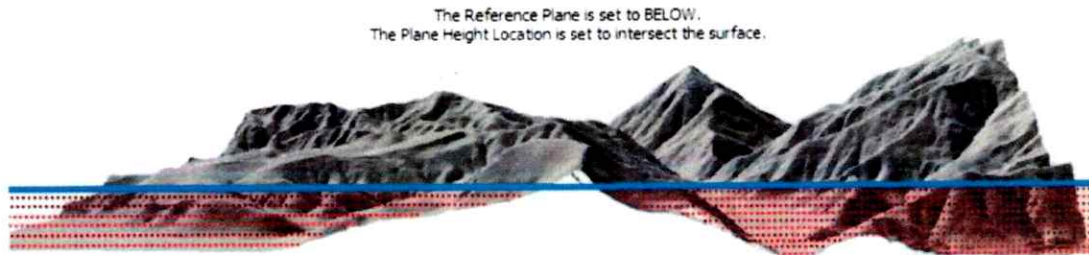
Basin Parameter	Unit	Hay Creek	Sourdough Flats
Drainage Area	square miles	122.95	0.87
Mean Basin Slope	Percent	16.2	3.7
Percentage of storage (combined water bodies and wetlands from the National Wetland Inventory)	percent	0.343	23.274

4.1.3 Existing topographic storage capacity of the Sourdough Flats Basin

Based on spatial analysis of a digital elevation model derived from a LiDAR dataset, the current pool depth of the basin reaches one foot before surface water outflow. Surface water discharges from the ditch for brief periods in some years when the snow melts and following large precipitation events or during wetter than normal periods. Evidence of the existing topographic water storage ability and seasonality/irregularity of water storage can be observed using a timelapse of Sentinel2 images (see attached mp4)². The Sentinel image timelapse corroborates the landowner's anecdotal description of surface water ponding within the wetland.

² Created using <https://apps.sentinel-hub.com/eo-browser>

A 3D spatial analysis was performed in ArcGIS to quantify the water storage capacity of the Sourdough Flats basin based on current conditions. During the analysis, a reference plane was set at 3,283 feet above sea level, which is the elevation to which water would have to rise before being released from the ditch. A conceptual graphic of the 3D surface volume analysis is shown below. Surface volume was quantified in the area that fell between the existing ground and the reference plane. The surface volume was determined to be 35.65 acre-feet. Approximately 0.85 inches of surface runoff across the entire basin is required to fill the current capacity.



*Image produced by ESRI

4.2 Unappropriated Water Availability

The landowner, Dan Heck, has maintained Vested Water Right No 442-1 (See Attachment C). The Water Right appropriates 0.29 cfs to irrigate 20.1 acres of land just downstream of its diversion point. The water right has a priority date of June 1, 1946, and was most recently validated on September 27, 1989, upon the water right being transferred from its original owner to Dan Heck.

This priority date comes after the 1944 Belle Fourche River compact between Wyoming and South Dakota (1944) which split up unappropriated water between Wyoming and South Dakota. Thus, if the source of water being appropriated in 1946 was going to come from the outflow of ditching a terminal basin, practical logic would suggest there to be no real water to appropriate from this non-contributing "terminal" basin in 1944.

4.3 Abandoning an Existing Vested Water Right

The Validation of Vested Water Right Claim No. 442-1 For Irrigation appropriates 0.29 cfs "from the Belle Fourche River" and notes that the appropriation "may not exceed 3 acre-feet per year for each acre of irrigated land" (i.e., annual appropriation = 60.3 acre-feet) (See Attachment C). The vested water right states that it appropriates water "from the Belle Fourche River", suggesting that at the time, the Belle Fourche River had that much water to appropriate annually (60.3 acre-feet). As demonstrated above and knowing the true source of the irrigation water (the ditched wetland basin) it's clear that the Sourdough Flats basin yields nowhere close to 60.3 acre-feet of water into the Belle Fourche River. Thus, an argument could be made that there is now 60.3 acre-feet of water that was appropriated "from the Belle Fourche River" that was never really "used".

SDCL 46-5-34 does not allow transferring an irrigation water right to another use besides domestic use or use within a water distribution system. However, from a practical standpoint, the wetland restoration project would, in essence, abandon the vested irrigation water right because surface water that currently outlets from the Sourdough Flat wetland would no longer be released and dispersed to irrigate the land below.

5.0 Conclusions

Wetland restoration on Sourdough Flats would be conducted with the intent of creating wetland mitigation credit offsets to satisfy special conditions/requirements of projects subject to Section 404 Clean Water Act permits. The project would not be simply for the intent "to make a beneficial use of the water" (e.g., Fish and Wildlife Propagation). The intent of a wetland mitigation project is distinctly different from wetland restoration which has the sole purpose of conservation or fish and wildlife propagation.

As a summary, key data in this supplemental memo includes:

- Overall, the average annual water yield of Hay Creek is very low (0.2 inches/acre). Basin characteristics of Sourdough Flats suggest that its water yield would fall below the average water yield of Hay Creek as a whole. If, assuming Sourdough Flats yields the average annual yield of the Hay Creek basin, Sourdough Flats would annually contribute just 8.33 acre-feet of water to the mouth of Hay Creek (liberal estimate) under current drained conditions.
- The surface water storage capacity of the current basin was determined to be 35.65 acre-feet.
- The landowner would voluntarily abandon his vested water right for irrigation (appropriation = 60.3 acre-feet annually) because of the wetland restoration project.
- The existing water storage capacity of the wetland in addition to the irrigation water right totals 95.95 acre-feet.
- Supplying 95.95 acre-feet of water to the Sourdough Flats wetland would require 2.3 inches of runoff across its approximately 500-acre catchment area. Runoff events of that size occur infrequently and not during periods of sustained drought when water is needed most.
- Partially restoring original grades where a ditch had been cut through a hill (i.e., installing a ditch plug) would increase the existing topographic capacity, but even if indefinite, would result in a de minimis reduction in the total annual discharge of Hay Creek.

Reputable evidence demonstrates that the undertaking would certainly not exceed a de minimis impact on water supply and would not impair existing water rights. The proposed use is a beneficial use and is in the public's interest as it would provide compensatory mitigation to offset adverse wetland impacts as a requirement of Section 404 of the Clean Water Act. The compensatory mitigation project would provide an efficient means to offset wetland loss and provide 100% certainty for compliance to permit applicants. Therefore, upon completion, it would reduce the permitting approval timeframe and risks associated with receiving 404 permit authorization. This eliminates one barrier to investments in public and private infrastructure and therefore provides public benefits beyond the environmental benefits alone. Currently, no wetland bank is available west of the Missouri River in South Dakota and therefore the compensatory wetland mitigation burden falls on the permit applicant when seeking to build a project that results in filling a Water of the United States. The U.S. Army Corps of Engineers has been encouraging wetland bankers to develop wetland banks west of the Missouri River as they have been doing so for years east of the Missouri River.

6.0 Figures

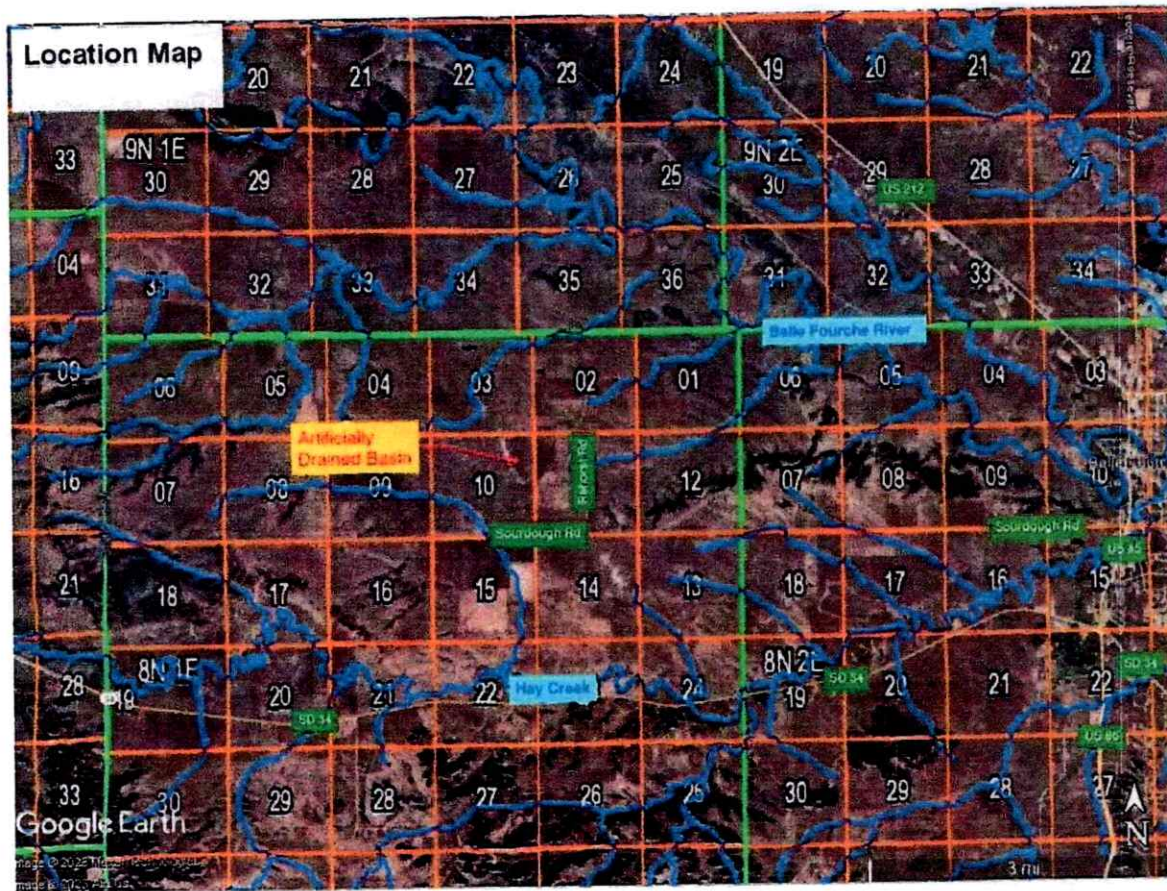


Figure 1. Project Location Map

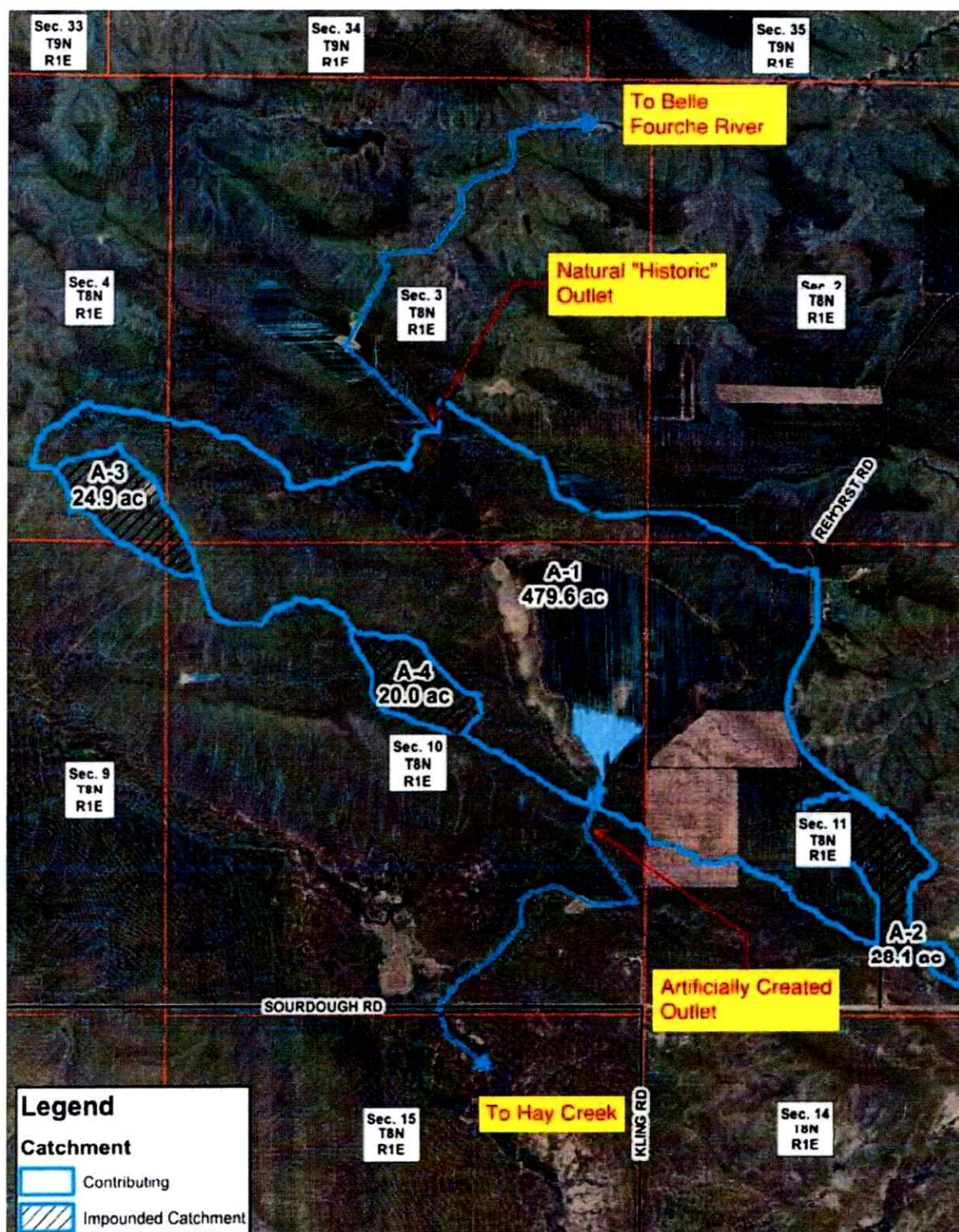


Figure 2. Wetland catchment and artificial and natural (historic) outlet. Catchment delineation based on LiDAR elevation data.

USGS 06433500 HAY CR AT BELLE FOURCHE SD
(19531001 - 19960929)

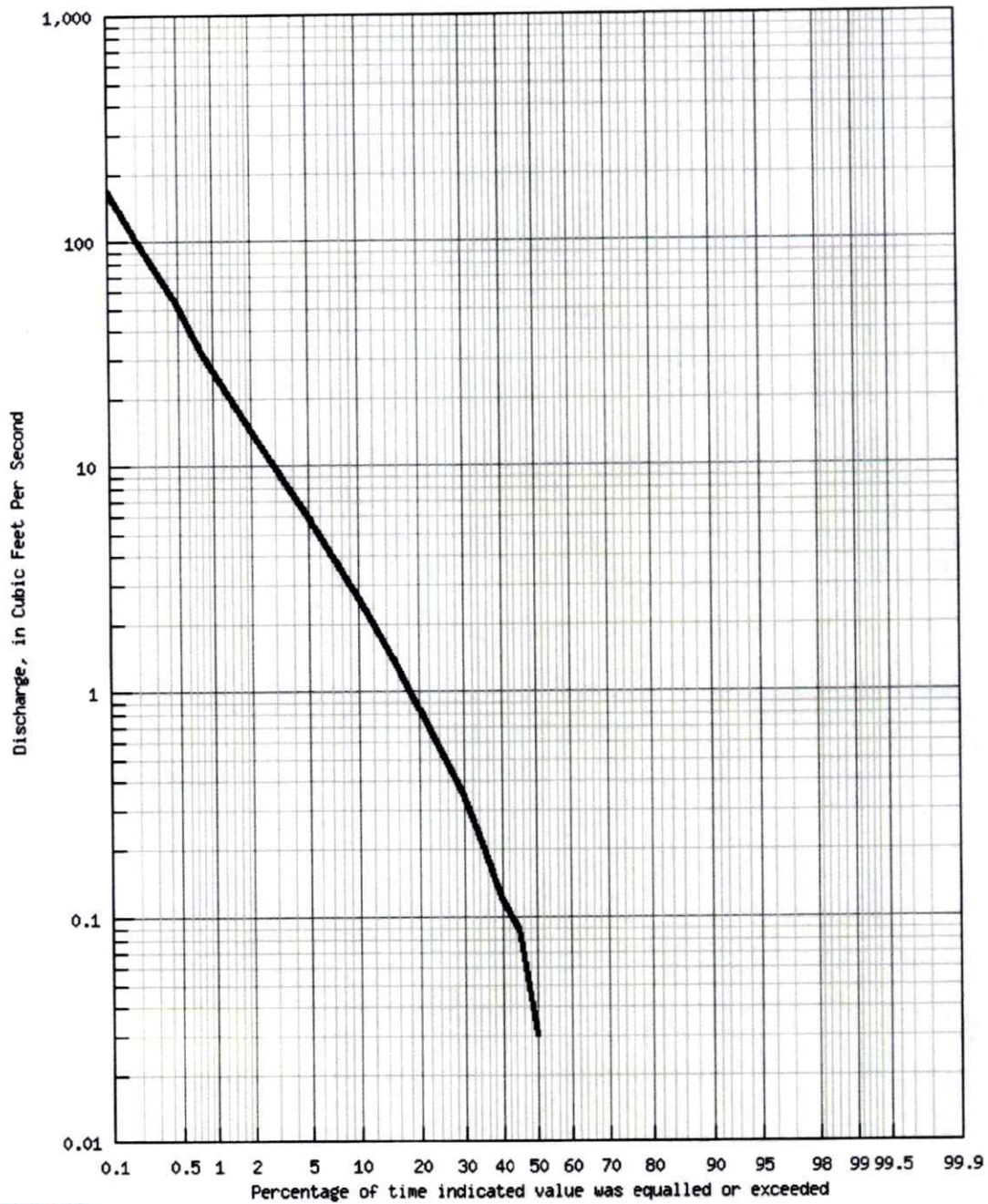


Figure 3. Flow Duration Curve of Hay Creek is indicative of an intermittent flow regime, with no flow 50% of the time.

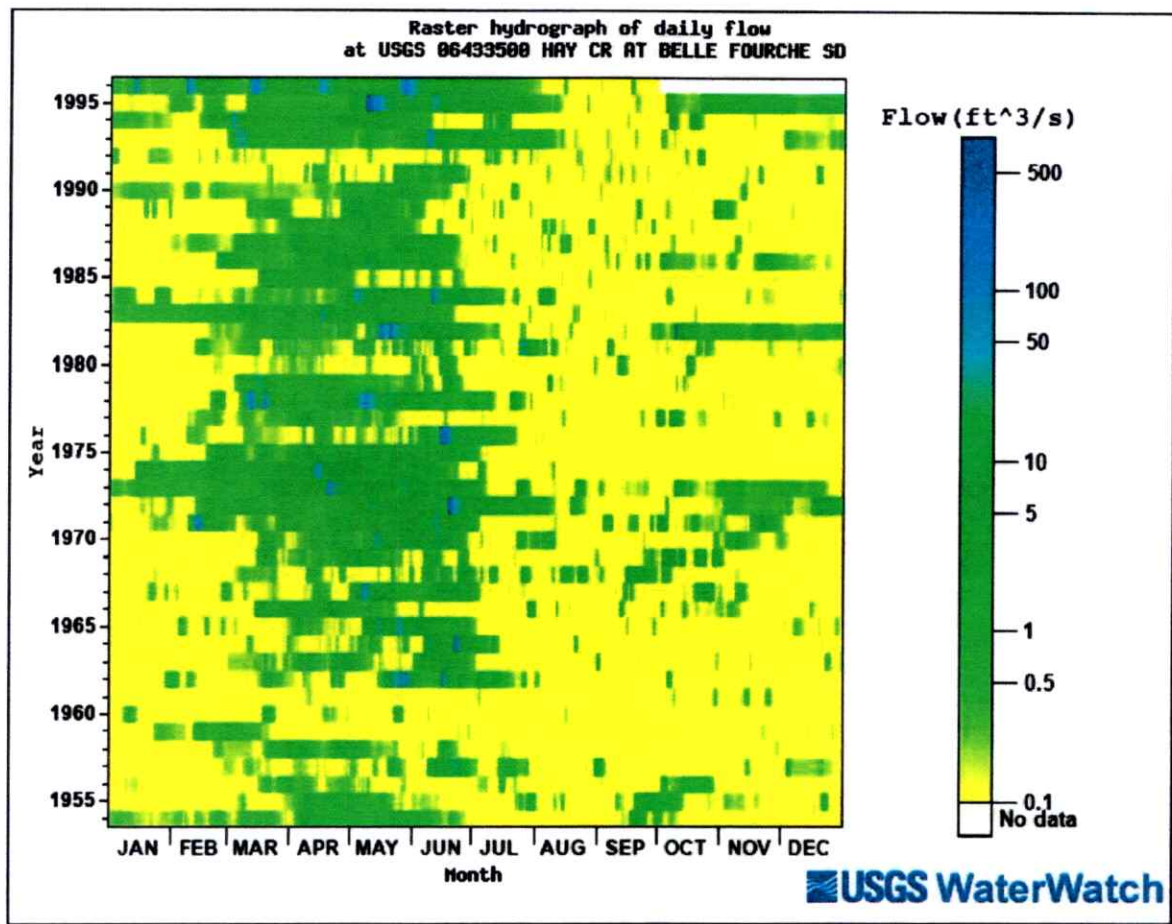


Figure 4. Raster hydrograph of Hay Creek.

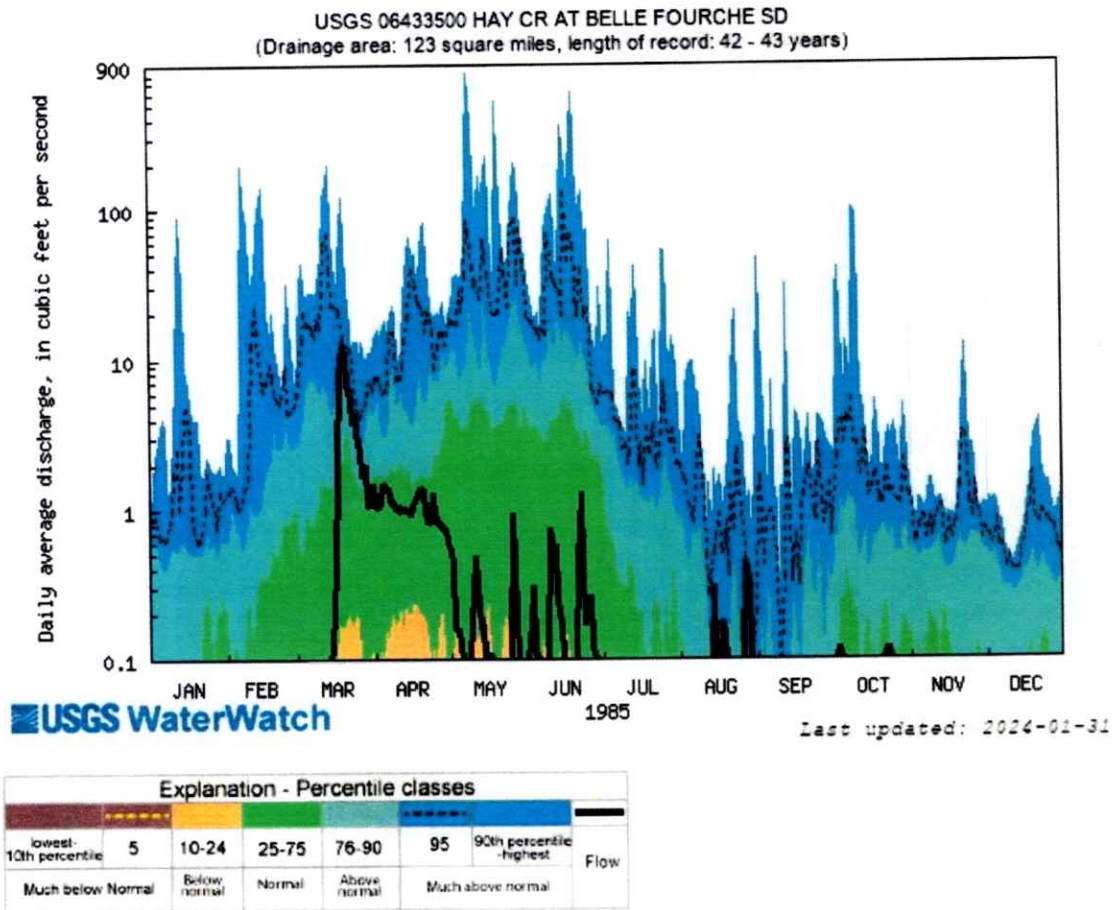


Figure 5. Streamflow duration hydrograph.



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

May 30, 2024

NOTICE OF CANCELLATION

TO: Dan Heck, PO Box 607, Belle Fourche SD 57717

FROM: Ron Duvall, Natural Resources Engineer
for Eric Gronlund, Chief Engineer
Water Rights Program

SUBJECT: Cancellation of Vested Water Right No. 442-1

Vested Water Right No. 442-1 authorizes the diversion of 0.287 cubic feet of water per second from the Belle Fourche River for irrigation of 20.1 acres located within the NW $\frac{1}{4}$ SE $\frac{1}{4}$ & SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 10, T8N, R1E, Butte County, South Dakota. In February 2024, you made Permit Application No. 2035-1 for the Sourdough Flatts Restoration Project. With the application, you submitted a supplemental information packet, stating that you were voluntarily abandoning Vested Water Right No. 442-1. The Chief Engineer of the Water Rights Program is recommending cancellation of Water Right No. 683-1, due to abandonment.

The Water Management Board will consider cancellation of Vested Water Right No. 442-1 at **9:30 am, Wednesday, July 10, 2024 (Central Time)** in the Floyd Matthew Training Center, Joe Foss Building, 523 E Capitol, Pierre, SD *(the agenda time is an estimate, and the actual time of hearing may be later)*.

The recommendation of the Chief Engineer is not final or binding upon the Board. The Board is authorized to 1) cancel, 2) cancel portions of, 3) delay action on, or 4) take no action on Vested Water Right No. 442-1 based upon facts presented at the public hearing. Our records show you to be the owner of property covered by this vested water right. If you wish to oppose the cancellation and if you intend to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, you must file a written petition with the Chief Engineer by June 10, 2024. The petition may be informal, but it must include a statement describing the reasons for your opposition to the cancellation, and your signature and mailing address or your legal counsel if legal counsel is obtained.

The hearing will be conducted pursuant to the provisions of SDCL 46-1-1 thru 46-1-10, 46-1-14 thru 46-1-15; 46-2-3.1, 46-2-9, 46-2-11, 46-2-17; 46-5-36, 46-5-37, 46-5-37.1; 46-2A-1 thru 46-2A-8; and Board Rules ARSD 74:02:01:36 thru 74:02:01:41. These are contested cases pursuant to procedures contained in SDCL 1-26.

This hearing is an adversarial proceeding. Any party 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 State Supreme Court as provided by law.

The time of the hearing will be automatically extended for at least twenty days upon your written request to the Chief Engineer after a petition has been filed to oppose the cancellation. If an extension is requested, the hearing on the cancellation will be continued until the next regular Board Meeting. Any request for extension must be filed with the Chief Engineer by June 10, 2024.

Prior to June 10, 2024, contact the Water Rights Program, Joe Foss Building, 523 E Capitol, Pierre, SD (605-773-3352) if assistance is needed with the following: 1) further information on the proposed cancellation; 2) to assure access to the meeting room for the handicapped; or 3) to obtain an interpreter for the hearing impaired.

According to SDCL 1-26-18.3, parties to a contested case may use the Office of Hearing Examiners to conduct a hearing if either a property right is being terminated or the dollar amount in controversy exceeds \$2,500.00. If you choose to use the Office of Hearing Examiners rather than the hearing procedure described above, then you need to notify the Chief Engineer (Water Rights Program, 523 E. Capitol Avenue, Pierre SD) by June 10, 2024.



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

**RECOMMENDATION OF CHIEF ENGINEER
FOR VESTED WATER RIGHT NO. 442-1, DAN HECK**

Pursuant to SDCL 46-2A-2 and 46-5-37.1, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Agriculture and Natural Resources concerning Vested Water Right No. 442-1.

Mr. Heck made Permit Application No. 2035-1 for the impoundment of up to 200 acre-feet to be located partially on acres authorized for irrigation under Vested Water Right No. 442-1. In the supplemental information packet submitted with Application No. 2035-1, it was stated that with the approval of Permit No. 2035-1, Vested Water Right No. 442-1 would be effectively abandoned. Permit No. 2035-1 was approved May 20, 2024.

The Chief Engineer is recommending cancellation of the above water right due to abandonment.

Ron Duvall, Natural Resources Engineer
for Eric Gronlund, Chief Engineer
May 30, 2024

CERTIFICATION

The undersigned hereby certifies under the penalty of perjury that I have personally deposited a true and correct NOTICE OF CANCELLATION dated May 30, 2024, into the United States Mail in Pierre, South Dakota, first class postage prepaid to the following Water Permit and Right holders on May 30, 2024.

Vested Water Right No. 442-1

Dan Heck, PO Box 607, Belle Fourche SD 57717

Water Right No. 683-1

Mark Job, 2250 Glennridge Ct, Sturgis SD 57785

Water Right No. 2989A-3

Terwilliger & Sons Inc, c/o dale Terwilliger, 401 Lake St, Winfred SD 57076

Water Right No. 3749-3

Larry Jorgenson, 24048 477th Ave, Trent SD 57065

Water Right No. 5439-3

Estelline Grain Co-Op, c/o Jennifer Loban, 109 State Ave E, Estelline SD 57234

Water Permit No. 7857-3

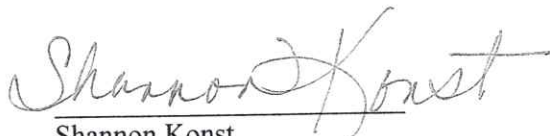
Casey & April Johnston, 3324 Sioux Conifer Rd, Watertown SD 57201

Water Permit No. 8043-3

Robert P Walsh, 47844 County Rd 1B, Elk Point SD 57025

Water Permit No. 8423-3

City of Platte, c/o Shauna Meyerink, PO Box 236, Platte SD 57369



Shannon Konst
Senior Secretary-Water Rights

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 30th day of May, 20 24.


Rachel Rodriguez Notary Public
My Commission expires May 16, 2029





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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

June 7, 2024

442-1

2035-1

Dan Heck
PO Box 607
Belle Fourche SD 57717

Dear Mr. Heck:

I am writing concerning the Notice of Cancellation you received for Vested Water Right No. 442-1 authorizing the irrigation of 20.1 acres within the NW ¼ SE ¼ & SE ¼ SE ¼ Section 10, T8N-R1E, Butte County.

Kendall Vande Kamp with HDR Engineering contacted me concerning postponing the cancellation consideration of No. 442-1 until after development of the wetlands mitigation project authorized by Water Permit No. 2035-1. In light of details to be worked out to complete works under Permit No. 2035-1, cancellation consideration of No. 442-1 is being withdrawn.

Vested Water Right No. 442-1 has been removed from the Water Management Board's July 2024 agenda and will NOT be reconsidered for cancellation pending the outcome of construction of works authorized by Permit No. 2035-1.

Please let me know if you have any questions. I can be reached at 605.773.5670. or by email at ron.duvall@state.sd.us.

Sincerely,

Ron Duvall, Engineer
SD DANR, Water Rights Program

c. Kendall Vande Kamp, HDR Engineering, 100 S. Phillips Ave, STE 401, Sioux Falls SD 57104