

Considered: _____

WATER PERMIT NO. 5431-3

HAP No. 339-7025

Name of Applicant City of Sioux Falls

Post Office Address 224 West 9th St. Sioux Falls SD 57102

Amount of Water Claimed 17.8 cfs Total Acres -

Source of Water Supply Big Sioux River

Water to be used for emergency artificial recharge County Minnehaha

About 2 miles N of Renner

PROOF OF PUBLICATION: Received _____ Not Received _____

APPLICATION: Approved _____ Subject to _____

F.F. & C.L. Adopted _____ Not Approved _____ Deferred _____

PRIORITY _____ Date Received 3/26/90 Fee \$1500⁰⁰ Remarks Water will be pumped

from river to old diversion channel where it will percolate down into the aquifer
and raise the groundwater levels. See attached sheet.

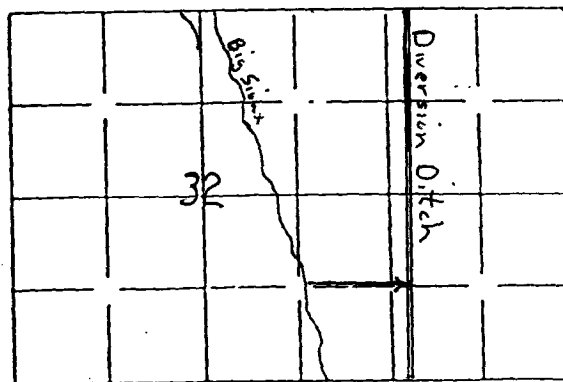
Corrected Application Received _____ Period of Annual Use _____

WATER QUALITY APPROVAL RECEIVED NA APPROVED/CONDITIONAL (Circle one)

WI-1 Description same as Application YES _____ NO _____ REMARKS _____

Diversion Point SW¹/₄ SE¹/₄ SE¹/₄ Section 32
T103N R49W

Land to be Irrigated _____



Well Log: Driller NA Licensed YES _____ NO _____

Depth of Well NA REMARKS _____

Type of Map Topo PREPARED BY Keith DeJong Reviewed and the Number

assigned on 4/2/90 By Eric Threlund

SOUTH DAKOTA
WATER PERMIT No. 5431-3

Date of first receipt of application March 26, 1990.

The Water Management Board approved Water Permit Application No. 5431-3 on May 23, 1990 for City of Sioux Falls, 224 West 9th Street, Sioux Falls, SD 57102 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 5431-3 appropriates 17.8 cubic feet of water per second (6360 acre feet annually) from the Big Sioux River to provide artificial recharge to the Big Sioux Aquifer. The point of diversion will be located in the SW1/4 SE1/4 SE1/4 of Section 32 T103N-R49W. Water will be diverted to the SW1/4 of Section 33 T103N-R49W to an old diversion channel that runs parallel to the Big Sioux River.
2. The water appropriated shall be used for the purpose of artificial recharge and may not exceed the amount of water needed for beneficial use for municipal puposes.
3. The water is to be used during the following described annual period: March 1 - November 31.
4. The date from which applicant may claim right is March 26, 1990.
5. One-fifth of the construction is to be completed on or before November 23, 1992.
6. All construction is to be completed on or before May 23, 1995.
7. Water is to be put to beneficial use on or before May 23, 1999.
8. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. Permit No. 5431-3 does not authorize pumping from the Big Sioux River unless at least 20 cfs can be bypassed when pumping.
2. Approval of Permit No. 5431-3 authorizes total annual withdrawals of 6360 acre feet.

WATER MANAGEMENT BOARD

By: _____

John Hatcher
Chief Engineer, Water Rights Division
Department of Water and Natural Resources

SEP 12 1990

(date)

No. <u>5431-3</u>	Hydrologic Unit <u>10170203</u>
Map No. _____	Basin <u>Big Sioux</u>
Newspaper <u>SF Argus Leader</u>	Box <u>5034</u> <u>57117</u>

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

Check use of water: Industrial ☐ Commercial ☐ Municipal ☒ Other Common Distribution System ☐
 Rural Water System ☐ Suburban Housing ☐ Geothermal Heat ☐ Institutional ☐ Recreational ☐
 Domestic ☐ (above 18gpm) Other ☐

Type of Application: Check one or more of the following

New ☒ Vested Right ☐ Future Use ☐ Change Use ☐☐ Amend Permit No. _____ with old priority date retainedChange diversion point(s) ☐ Add diversion point(s) ☐ Other ☐☐ Application to: Change diversion point(s) ☐ Add diversion point(s) ☐ on Permit No. _____☐ Construction to use water reserved by Future Use Permit No. _____1. Name of Applicant City of Sioux Falls Phone No. 339-7025Post Office Address 224 West 9th Street, Sioux Falls State SD 57102
(Street, RR or Box) (City) Zip Code2. Amount of water claimed (c.f.s.) 17.8 cfs (53 acre-ft.) (6360 acre-feet annually)3. Source of water supply Big Sioux River surface water4. Location of point of diversion SW 1/4 SE 1/4 SE 1/4, Section 32, T103 N, R49 WCounty Minnehaha5. Counties where water will be used Minnehaha and Lincoln

March 1 - November 31

6. Annual period during which water is to be used Spring, Summer and Fall

7. Give a brief description of proposed project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)

See attached sheets.

Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water, is proposed. Attach map (see instruction)

STATE OF SOUTH DAKOTA)
County of Minnehaha, ssI, Jack White, Mayor the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Signed

MAYOR

MAR 19 1990

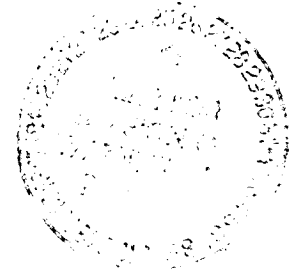
19

Subscribed and sworn to before me this _____ day of _____

Dianne Mettli

Notary Public

DIANNE METTLI, Notary Public
My Commission Expires Dec. 3, 1997



WATER PERMIT APPLICATION ATTACHMENT

City of Sioux Falls Water Purification

The City of Sioux Falls desires to provide a temporary emergency artificial recharge to the Big Sioux Aquifer in the vicinity of the Sioux Falls well field. Water will be pumped from the Big Sioux River through an overland piping network to an old diversion channel which parallels the Big Sioux River. The water will then percolate down into the aquifer and raise the groundwater level in the area along the diversion channel. This will help increase the rate at which the eastern portion of the aquifer in the Sioux Falls well field is being recharged.

The pump and piping will be installed on a temporary basis and will only be used when the aquifer water level is low and there is adequate flow available in the Big Sioux River.

From 1974 to 1977, the Big Sioux Aquifer was in a condition very similar to what is being experienced now. Because of that drought situation, two reports were written concerning artificial recharge of the aquifer. One report is the "Final Report, Big Sioux River Recharge Study at Sioux Falls" by Jerry Siegel of the East Dakota Conservancy Sub-District, and the other report is the "Simulated Recharge in the Big Sioux Aquifer in Minnehaha County, South Dakota" by the U.S.G.S. (Report #84-4312). The reports state that there is a very good filtration rate between the diversion channel and the aquifer. They also show that even though some water will get back into the river, it will help to recharge the aquifer.

A pilot study using observation wells and infiltration cells was begun in 1978, but because the drought ended in the Spring of 1978, the study was never completed. Even though the pilot study was not able to be completed, we feel that the water diversion will have a positive effect on the aquifer level and will significantly increase the amount of time that water will be available in the aquifer.

We are currently acquiring easements from the property owners along the diversion channel and gathering equipment, information, and permits for pumping the river water. We do not anticipate any problems from sediments in the water because the diversion channel is already an overflow for the Big Sioux River.

In closing, we look forward to the approval of the water permit so that the drastic effects of the current drought can be somewhat alleviated.

CITY OF SIOUX FALLS — PURCHASE ORDER

SD Dept of Water & Natl Resources

Foss Bldg.

Ver

523 E. Capitol

Pierre, SD 57501-3181

DEPARTMENT	NUMBER	VENDOR NO.	DATE		
			MO.	DAY	YR.
Water	75	65805	3	12	91

BASIC ACCOUNT	EXPENSE CLASS	PROJECT / DIVISION	QTY	DESCRIPTION	UNIT PRICE	AMOUNT
675-750-5-22005	750	7253		Other Prof. Services & Fees		1,500.00
				Fee for application for permit to appropriate water within the state from the Big Sioux River to the diversion ditch		
					TOTAL ▶	1,500.00

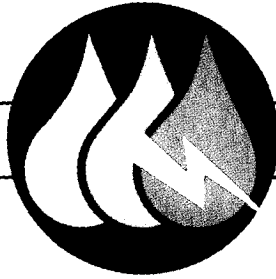
TOTAL	▶	1,500.00
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AUTHORIZED SIGNATURE

DUPLICATE COPY



Sioux Falls UTILITIES



WATER • (605) 339-7031
WASTEWATER • (605) 339-7088

LIGHTS • (605) 339-7150
STORM DRAINAGE • (605) 339-7023

March 21, 1990



Mr. John Hatch
DWNR - Water Rights Division
Joe Foss Building
Pierre, SD 57501

RE: Permit application for the Big Sioux River

Dear Mr. Hatch:

The City of Sioux Falls is interested in diverting water from the Big Sioux River to an existing diversion channel to help increase the water level in the Big Sioux Aquifer. Enclosed is the application for a water permit to pump the water for this purpose.

Also enclosed is a copy of the Purchase Order in the amount of \$1,500.00 to cover the cost of the permit. If you have any questions, please contact me.

Sincerely,

Keith DeJong, P.E.

Keith DeJong, P.E.
Water Superintendent

cc: Commissioner Hanson
Lyle Johnson

RECEIPT

Division of Water Rights

South Dakota Department of Water and Natural Resources

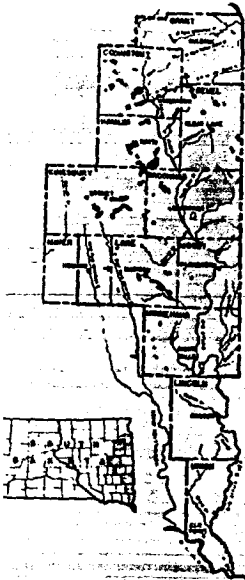
Pierre, March 30, 19 90

RECEIVED OF City of Sioux Falls, 224 W 9th Street, Sioux Falls, SD 57102

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

Fee for Application for Permit No. <u>5431.3</u> to Appropriate Water, to construct works and to put water to beneficial use _____	1500	00
Fee for Application for Permit No. _____ to Appropriate Water for Future Use _____		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. _____		
Fee for Filing Transfer Form _____		
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	1500 00

By John H. Welch
Chief Engineer



EAST DAKOTA CONSERVANCY SUB-DISTRICT

BOARD OF DIRECTORS

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WILLIAM DEMPSEY, *White*
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JERRY L. SIEGEL

Manager-Treasurer

DENNIS NELSON

Technical Assistant

Office

524 SEVENTEENTH AVENUE
BROOKINGS, SOUTH DAKOTA 57006
TELEPHONE 692-5185

TO: Alan Johnson, Omaha Dist. - U.S. Corps of Engineers
Richard Peterson, Commissioner - City of Sioux Falls
Richard Willer, Superintendent - Sioux Falls Utilities
Doug Holden, Sioux Falls Water Purification Plant
Wendell Wischer, Director - EDCSD
Sue Bunker, Sioux Falls Water Advisory Committee
Assad Barari, S.D. Geological Survey
Neil Koch, U.S. Geological Survey
John Hatch, Division of Water Rights - DWNR
James Dornbush, SDSU Civil Engineering Department

FROM: Jerry L. Siegel, Manager-Treasurer

DATE: October 22, 1984

SUBJECT: Final Draft - Sioux Falls Aquifer Recharge Report



I am transmitting with this letter a copy of the approved final report for the Big Sioux Aquifer Recharge Study at Sioux Falls. I incorporated comments received from Alan Johnson and other Corps of Engineers officials; Neil Koch, U.S. Geological Survey; and Assad Barari, S.D. Geological Survey.

This draft does not include Appendix II because it is so bulky and is unchanged from the earlier draft you received. You can attach it to this copy. Please note the monthly Big Sioux River flow at Dell Rapids which was superimposed at the bottom of the Sioux Falls well charts in Appendix I.



FINAL REPORT

BIG SIOUX AQUIFER RECHARGE STUDY AT SIOUX FALLS.

Prepared by

Jerry L. Siegel, Manager

EAST DAKOTA CONSERVANCY SUB-DISTRICT

524 17th Avenue

Brookings, SD 57006

September, 1984

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SUMMARY

In 1977, a multi-agency technical task force was established to evaluate the potential for artificial recharge of the wellfield in the shallow Big Sioux Aquifer north of the City of Sioux Falls. Sioux Falls had experienced declining water levels during the drought of 1974-1977 and was looking at artificial recharge for supplemental water supply.

Representatives of the Omaha District - Corps of Engineers, East Dakota Conservancy Sub-District, City of Sioux Falls, S.D. Geological Survey, and U.S. Geological Survey served on the task force.

The task force selected a section of an old diversion ditch lying between Silver Creek and the Big Sioux River as the best site for pilot recharge tests. The project called for pumping Big Sioux River water into four recharge pits constructed in the ditch. The task force decided the ground water level should be at least five feet below the top of the sand and gravel in the aquifer in order to run reliable recharge tests.

Although 50 observation wells were installed and channel structures for constructing the recharge pits were fabricated, area water levels never dropped more than five feet below the top of the aquifer. Task force efforts shifted in 1982 toward use of a digital model being finalized to analyze recharge potential. By 1984, it was apparent that reliable recharge tests at the selected site could not be achieved unless drought conditions returned and a decision was made to terminate the project.

An important conclusion was drawn from the fact that water levels never dropped more than five feet below the top of the aquifer between 1978 and 1984: Natural recharge at the site, resulting from precipitation and overland flooding plus infiltration through the bed of the Big Sioux River, Silver Creek, the old diversion ditch and Corps flood diversion channel, is very efficient. The rapid rise in area water levels in 1977, the end of the drought, attested to this.

It was concluded that during years with normal precipitation it would be wasteful or foolish to use Big Sioux River water to recharge the wellfield because of (1) expensive pumping costs, (2) efficient natural recharge, (3) the likely return of most recharge water back to the Big Sioux River before it could be used, and (4) possible creation of crop damaging high water table conditions.

It was further concluded that when conditions were dry enough that artificial recharge would become a reasonable economic gamble, flows in the Big Sioux River would likely drop below the 50 cfs bypass flow requirement established by the state.

Daily stream flow records for the Big Sioux River near Dell Rapids for May 1, 1948 through October 24, 1983 are included in the report as backup data along with (1) a flow duration hydrograph for the same location, (2) water level charts for five Sioux Falls wells, and (3) a summary of the results of digital model evaluation of artificial recharge.

INTRODUCTION

Scope of This Report -- This report is not intended to be a detailed treatise on aquifer recharge. Instead, it is an effort by the chairman of a multi-agency task force, created in 1977 to make a pilot aquifer recharge study, to document the group's efforts and to summarize the conclusions drawn from this experience.

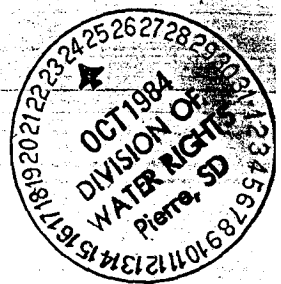
Sioux Falls Wellfield and the Big Sioux Aquifer -- The City of Sioux Falls draws its water from 33 wells located in the Big Sioux Aquifer above Sioux Falls (see Figure 1).¹ The Bragstad Wells noted on the map are roughly 40 ft. diameter gravel-packed wells with yields in the 400 gal/min. to 1200 gal/min. range. Ranney Wells are roughly 15 ft. diameter concrete caissons with several hundred feet of well screen extending laterally from the bottom and yield between 800 gal/min. and 1700 gal/min.

The aquifer is an unconfined, shallow ground water system connected to the Big Sioux River and its tributaries. The aquifer genally combines good recharge characteristics with large storage volumes.

Basis for Study -- On June 22, 1977, a Citizens Water Advisory Committee appointed earlier by the Sioux Falls City Commission submitted a written report to the Commissioners.² The Committee's first short-term recommendation was that, "Immediate steps be taken by the city to initiate programs of annual recharge of the aquifer." The Committee further recommended that additional study be made to determine the most effective means of recharging the Big Sioux Aquifer.³

On June 10, 1977, John Velehradsky, Chief - Planning Division, Omaha District - Corps of Engineers (Corps), wrote to the East Dakota Conservancy Sub-District (EDCSD), U.S. Geological Survey (USGS), and City of Sioux Falls (C-SF) noting that the Corps was evaluating alternative sources of supplemental water supply for Sioux Falls as part of the Corps' Upper Big Sioux River and Eastern South Dakota Water Supply Study.⁴ He proposed a multi-agency evaluation of artificial recharge and offered \$5000 of Corps funds to intitiate the effort.

Representatives of the Corps, USGS, South Dakota Geological Survey (SDGS), and C-SF met with the EDCSD Board of Directors on July 21, 1977 and decided to jointly pursue a well-planned research program to evaluate the possibility of recharge of the big Sioux River north of Sioux Falls.⁵



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Prepared by

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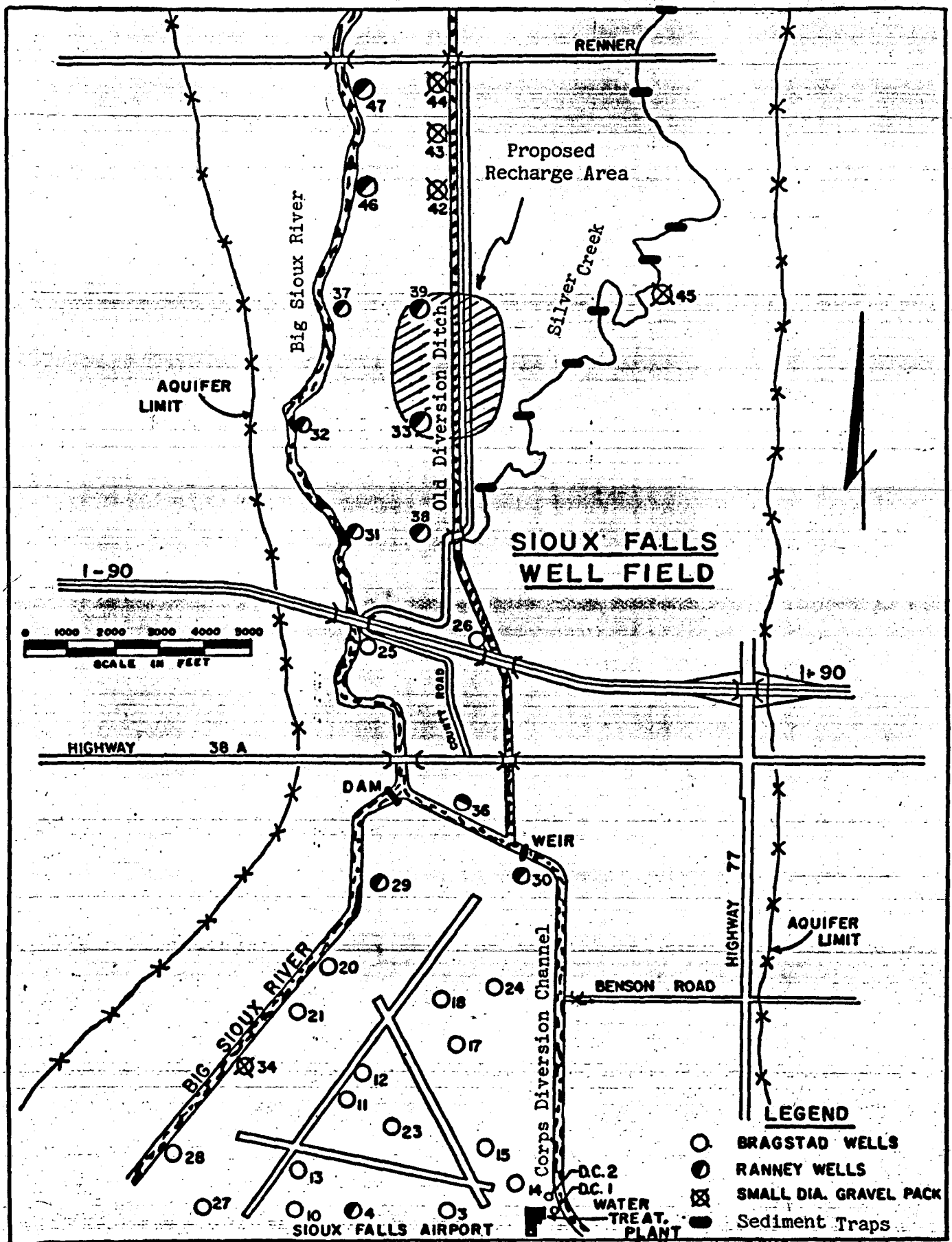
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Representatives of the Corps, USGS, South Dakota Geological Survey (SDGS), and C-SF met with the EDCSD Board of Directors on July 21, 1977 and decided to jointly pursue a well-planned research program to evaluate the possibility of recharge of the big Sioux River north of Sioux Falls.⁵

Figure 1. Location Map of Sioux Falls Municipal Wells and Sediment Traps in the Silver Creek Channel



Source: Adapted from Sioux Falls Water Department Annual Report, 1980.

These actions were taken because artificial recharge had been a popular concept in most discussions of alternatives for Sioux Falls future water supply. During the drought of 1974-1977, Sioux Falls experienced declines in water levels which reduced the yield of nearly all city wells. Graphs showing these declines are contained in Appendix I. In early 1977, in order to meet water demands the city installed three sandpoint systems in the dry bed of the Corps of Engineers diversion channel.

In Addition, the Sioux Falls Water Advisory Committee had hired Ed Lacey, a well driller/inventor from Trent, South Dakota, to run some preliminary recharge tests. The Committee felt these test results warranted more intensive evaluation using pilot tests in a section of the city's wellfield.

Formation of Task Force and Pilot Study Proposal -- Initial task force participants were Carter Laing, Corps; Jerry Siegel and Wendell Wischer, EDCSD; John Powell and Ed LeReux, USGS; Merlin Tipton and Assad Barari, SDGS; Les Hash, Tom Molohan and Vern Winegarden, C-SF; and Gerald Moore, EROS Data Center.

It should be noted that Rick Miner, Paul Ziemba and Alan Johnson were later Corps participants as were Neil Koch and John Little with the USGS. In addition, John Wiersma, James Dornbush and Walter Hu, Engineering Professors at South Dakota State University, provided input. John Madden, DeWild Grant Reckert and Assoc. (DGR), as consultant to C-SF, assisted the task force with various technical aspects of the project.

All committee meetings were held at the Water Purification Plant in Sioux Falls. A brief summary of actions of the task force in planning and trying to implement the study follows:

At the initial meeting, on August 4, 1977, Jerry Siegel was appointed task force chairman. Three possible pilot recharge sites in the Sioux Falls area were evaluated using maps and field inspections. A section of an old diversion ditch north of the city between the Big Sioux River and Silver Creek was tentatively selected as the best site because of two main factors:

- (1) The site was in an area of the aquifer where the city was locating new wells and thus a site where permanent recharge facilities might be favorably located.

- (2) Other possible sites in the area were impacted by a larger number of factors which might influence recharge test results, such as ponded water, stream channels, and wells.

The task force decided to secure the following information:

- (1) maps showing location and capacity of all city wells;
- (2) the location of all existing observation wells;
- (3) sediment data from the Dell Rapids gauging station;
- (4) a detailed bibliography on past aquifer recharge efforts in the United States; and
- (5) a copy of the Silver Creek Watershed Improvement Plan.

At the second meeting, on September 1, a number of articles on artificial recharge were reviewed and the general concept of diverting Big Sioux River water via pipeline as the source of recharge was developed. The task force decided to ask the Sioux Falls Water Advisory Committee and two townships to participate in the task force, if they desired.

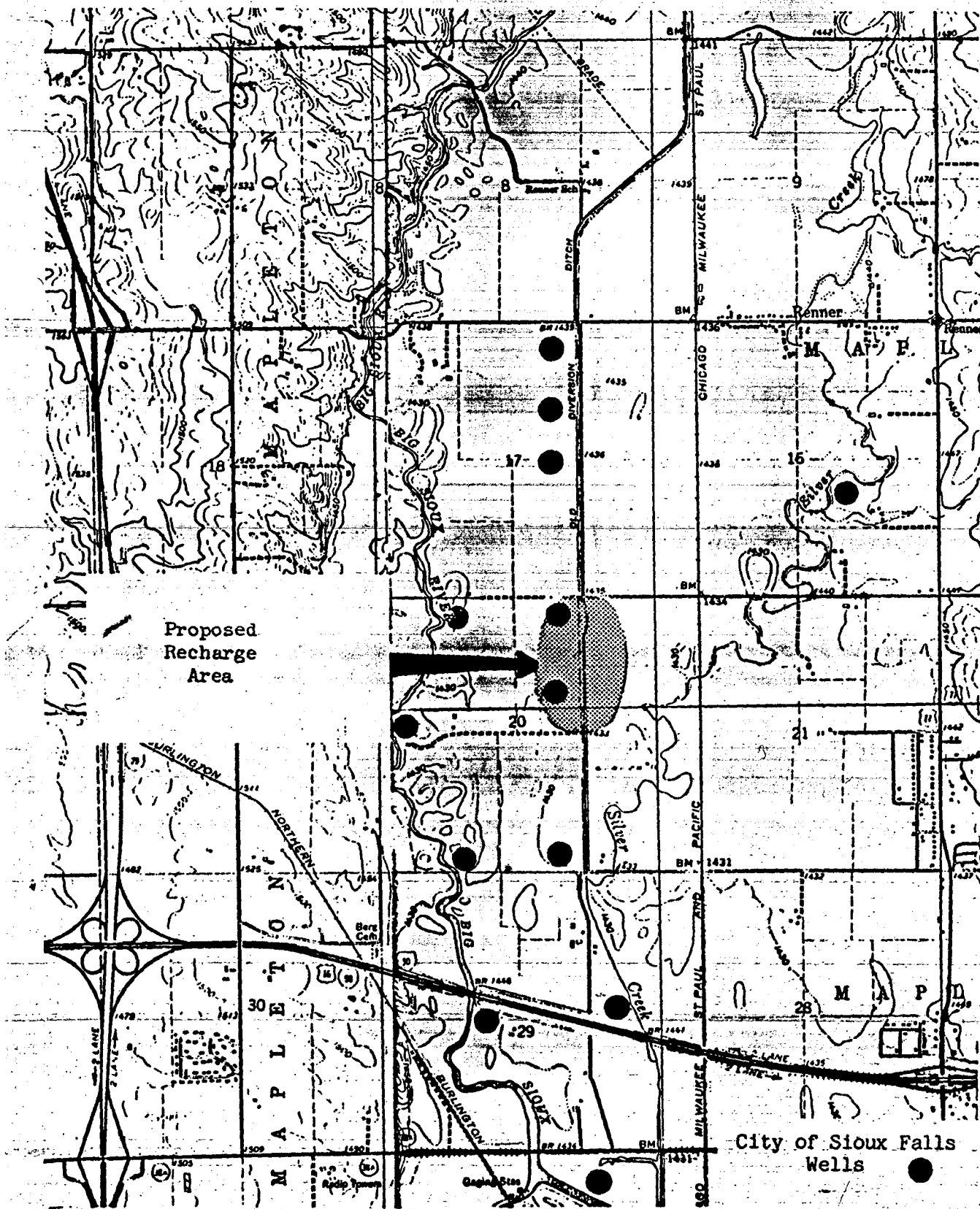
At an October 4 meeting, the task force learned from John Hatch, S.D. Division of Water Rights, that a temporary water permit was needed to run the proposed pilot recharge tests. In addition, the permit to divert Big Sioux River flows for the proposed Slip-Up Creek Project would be senior to any artificial recharge permit.

On October 27, Les Hash reported that water levels in their older wells in the airport area had risen six to eight feet after water began flowing again in the Big Sioux River. During a large part of 1976, the river had been dry in the wellfield area. A rough cost estimate of \$23,500 was made to install and operate a four-cell recharge system. A final site location was made along 160 acres owned by the C-SF in the NE $\frac{1}{4}$ of Section 20 (see Figure 2). Carter Laing was authorized to finalize a proposal for submission to the Corps' Missouri River Division Office in Omaha with a request for \$15,000 of Corps' funding. By late December, the task force received word that the Corps had tentatively approved a \$15,000 grant.⁶

Final Study Proposal -- The general proposal argeed on by the task force and finalized by Carter Laing is summarized below:

Materials for constructing the pits, power costs, and other direct costs would be financed by the Corps grant. The C-SF would provide equipment and labor to construct the pits and would be in charge of actual operation of the recharge tests.

Figure 2. Location Map of Proposed Artificial Recharge Test Area.

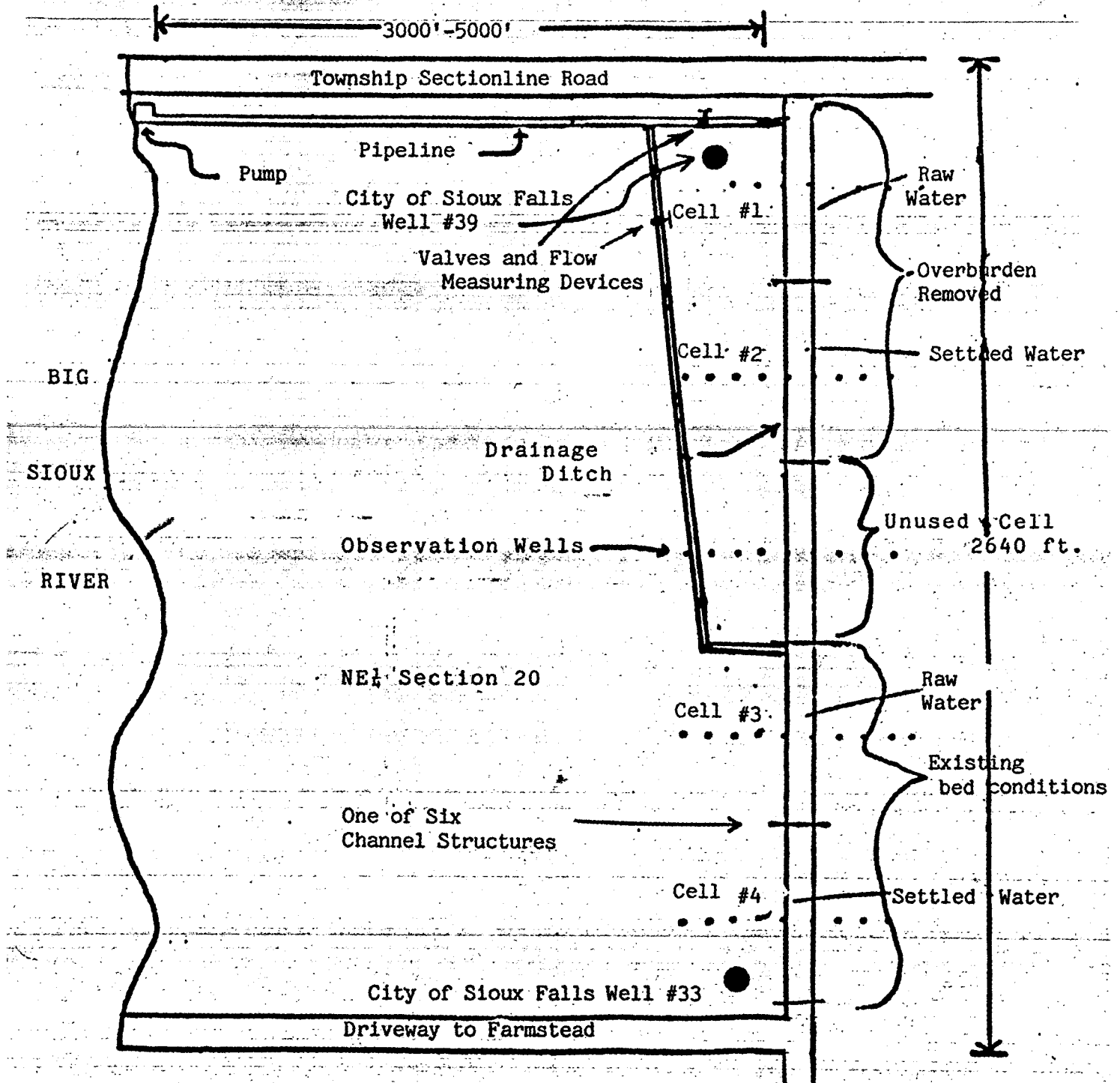


The project called for construction of two two-cell recharge pits in a one-half mile reach of the old diversion ditch north of Sioux Falls between Silver Creek and the Big Sioux River, along land owned by the C-SF. The recharge tests would be conducted essentially as follows: Water would be diverted from the Big Sioux River to the drainage ditch by means of an irrigation pump and a T-ed pipeline which would allow metered discharge of water into the recharge test area at two separate points. Water would be impounded in the diversion ditch by using six channel structures to form four recharge impoundments. The first two impoundments would be prepared for the recharge tests by removal of 12 to 18 inches of soil from the drainage ditch bottom. The third and fourth impoundments would be left in their natural state. The first cell of each series would thus receive raw Big Sioux River surface water, whereas the second cell would receive better quality water with most of the suspended solids settled out in the first cell (see Figure 3).

A total flow of about 600 gpm would be pumped into the recharge impoundment and allowed to infiltrate into the aquifer. The quantity of surface flow into and out of each recharge pit would be accurately measured. The quantity of water which infiltrated the recharge area would be determined by use of the continuity equation. The rate of recharge into the aquifer would be monitored by about 50 observation wells placed in five parallel rows perpendicular to the drainage ditch in a spacing patterns similar to that used in standard well pump tests. At least one row of wells would extend from Silver Creek to the Big Sioux River. Water would be applied to the recharge site in a cyclical manner during the critical phase of testing and in a continuous manner during the second phase of testing. Recharge tests would be run as soon as there was a combination of the following two conditions: (1) the water level in the recharge area was low enough to conduct reliable recharge tests, and (2) there were still sufficient flows in the Big Sioux River to allow diversion.

All participating agencies would assist in data collection for the first few days of the recharge tests. After that period, the C-SF would read the observation wells and river stage gauge on a regular basis in the manner approved by the other participating agencies. The data would be analyzed to determine the feasibility of developing a permanent artificial recharge program for Sioux Falls.

Figure 3. Sketch Diagram Showing General Layout of Proposed Four Cell Recharge System.



Attempted Implementation of Project -- The committee met again on January 10, 1978 and approved the final study work plan. It was apparent, however, from the rising water table that the pilot tests would be difficult to conduct during 1978. The task force felt strongly that the average water level in the recharge area should be at least five feet below the top of the gravel outwash material before reliable information could be secured from artificial recharge tests. The SDGS agreed to install the needed observation wells as soon as weather permitted. The Corps issued a three-party contract with the C-SF and EDCSD on May 4, 1978.

The task force met again, May 24, 1978, to finalize detailed plans for recharge cell size and location and the location and placement of observation wells. John Madden of DGR was authorized to survey the location and elevation of the observation wells, once installed (see Figure 4). The SDGS installed the observation wells in early June, 1978. High water levels continued through 1978 and early 1979, however, and prohibited the running of pilot recharge tests.

During late summer of 1979, water levels began to drop. On September 13, the task force met to update the proposed recharge project and determine whether to proceed with the pilot tests. Updated costs estimates prepared by DGR for purchase and fabrication of the channel structures were reviewed. Total costs had risen from \$31,000 to \$41,031.93. The task force asked the Corps to consider providing additional funds needed due to the rise in costs resulting from time delays.

The task force decided to purchase the materials and fabricate the structures so they would be ready to install once water levels were favorable. The Corps modified the three-party contract on October 12 so a \$10,000 payment could be made upon installation of the observation wells and delivery of the assembled channel structures. The channel structures were fabricated by DGR and C-SF personnel. Water levels rose again, however; further delaying the actual tests.

On March 18, 1980, EDCSD billed the Corps for \$10,000. A \$1,428.40 payment was given to SDGS for installation of the observation wells and \$7,706.11 to DGR for surveying, preparing cost estimates, and purchasing and partially assembling the channel structure materials.

The task force met April 22, 1980 to review the possibility for conducting tests during 1980. Although the aquifer and river were essentially full, the committee decided to apply for a temporary water permit in case water levels dropped later. A temporary permit for Sioux Falls to divert 0.865 mgd, as long as there was a 50 cfs by-pass flow, was approved June 10 by the State Division of Water Rights. On August 12, DGR noted that water levels might not drop the desired five feet below the top of the aquifer by the end of the year. The temporary recharge permit expired December 31, 1980.

On February 10, 1981, DGR billed the C-SF and EDCSD for \$1242.12 of unpaid engineering services and materials and noted that high water levels precluded testing that spring. DGR was paid \$865.49 remaining from the \$10,000 Corps grant received earlier, leaving an unpaid bill of \$376.63.

Task Force Chairman Jerry Siegel corresponded with the C-SF stating that no further expenses should be incurred until additional funds were secured.⁷ He began pursuing funds through the Corps' Sec. 22 and Eastern South Dakota Water Supply Study programs. In late 1981, a strong request was made for a \$15,000 allocation of Eastern South Dakota Water Supply Study funds for FY1982. The Corps indicated they might become available and asked for detailed cost estimates. The following breakdown was made for the remaining \$5000 grant plus \$15,000 of new funds.⁸

Purchase and installation of water delivery equipment	-	\$13,000
Purchase and installation of flow measurement devices	-	1,000
Pumping Power costs	-	1,000
Data interpretation and report preparation	-	5,000
Total		\$20,000

This estimate continued to assume that the C-SF would honor an earlier commitment to get the site ready for testing and record most of the data, and that the EDCSD, SDGS and USGS would supervise the installation of equipment and the collection and analysis of data. On June 11, Mr. Siegel met with the Corps and learned they were in the process of allocating the \$15,000 to the aquifer recharge budget. Water levels remained high during 1982, however, and the recharge tests were further delayed.

In 1982, the USGS published a report on a digital model of the main Big Sioux River Aquifer in Minnehaha County, north of Sioux Falls.⁹ The task force shifted its efforts temporarily toward use of the digital model

to analyze the potential for artificial recharge north of Sioux Falls. Several trips were made to Huron to consult with Neil Koch, who was responsible for preparation of the model. A discussion of these analyses is contained in the Analysis and Discussion section of this report.

During 1983, water levels remained high. Alan Johnson replaced Rick Miner as the Corps official responsible for the project. In late 1983 (November 7), the Corps processed payment for \$372.63 engineering services which had been provided by DGR. Alan Johnson advised Task Force Chairman Jerry Siegel that the \$15,000 allocation of Eastern South Dakota Water Supply Study funds for the recharge project would likely be lost if the tests could not be run during 1983.

In early 1984, it became apparent to everyone involved that reliable recharge tests at the selected site could not be achieved unless drought conditions returned. Alan Johnson advised Jerry Siegel, in an April 18 telephone conversation, that the \$15,000 of additional Corps funding had reverted and asked him to utilize the \$4627.37 remaining to summarize the efforts of the task force and to make a realistic appraisal of the potential for artificial recharge of the Big Sioux River Aquifer near the Sioux Falls wellfield area.

USGS and C-SF water officials were consulted. C-SF officials indicated they did not wish to prepare the final report but offered to provide water level data for their wellfield and to review the draft report. The EDCSD entered into a cooperative agreement with the USGS to provide \$1000 of Corps funds for USGS analysis of flow records at the Dell Rapids gauging station.

SUMMARY OF EXPENDITURES FROM \$15,000 CORP'S FUNDING

Engineering Services - DeWild Grant Reckert & Assoc.	\$ 4,847.37
Purchase of Channel Structure Materials	4,096.86
Installation of Observation Wells - SDGS	1,428.40
Preparation of Final Report - EDCSD	3,627.37
Flow Analysis -- Dell Rapids Gauging Station - USGS	1,000.00
Total	\$15,000.00

ANALYSIS AND DISCUSSION

The Artificial Recharge Paradox -- The fact that efforts to run aquifer recharge tests were frustrated for seven years because the aquifer water level never dropped more than five feet below the top of the sand and gravel, leads to an important conclusion. Natural recharge of the Sioux

Falls wellfield area through precipitation and overland flooding plus infiltration through the bed of the Big Sioux River, Silver Creek, the old diversion ditch, and the Corps flood diversion channel is very efficient.

The favorable location of Sioux Falls municipal wells in relation to the Big Sioux River, the old diversion channel and Silver Creek is shown in Figures 1 and 2. As a part of the Silver Creek PL566 Watershed Project, a series of over 25 sediment traps was constructed in the Silver Creek stream bed. Figure 1 notes the location of seven of these traps which lie in the wellfield area. Seven upstream dams, in conjunction with these traps, inadvertently provide effective artificial recharge of the northern portion of Sioux Falls wellfield. It should be noted, however, that the recharge efficiency of these traps will decrease with time as they fill with sediment.

As long as there is flow in the Big Sioux River, it appears that the adjacent aquifer will be replenished. This was dramatically demonstrated in 1977. A severe drought occurred during 1975-77 and water levels in Sioux Falls wells and the surrounding aquifer area dropped sharply. Some area residents predicted it would take a major flood to bring the water level in the well field back up. No major flood occurred during 1977 (see Appendix II). Yet, by late 1977, aquifer levels in the wellfield had risen to the high levels of the spring of 1973 before the drought began (see Appendix I). It should be noted that cleanout of the Corps diversion channel by the city in 1977 aided the natural recharge process.

During normal water years, it would be wasteful or foolish for Sioux Falls to pump water from the Big Sioux River to artificially recharge the aquifer near the wellfield for a number of reasons: (1) Power costs for pumping are expensive, (2) Mother Nature (with assistance from the Silver Creek Watershed, old diversion ditch and Corps diversion ditch) is able to recharge the wellfield very efficiently herself, (3) most of the time, the bulk of the water would flow naturally back to the river before it could be captured for use, and (4) if artificial recharge created high water table conditions, surrounding farmers could sue for crop damages.

Even following abnormally dry summers, high river flows usually occur the following spring and naturally replenish the aquifer. Thus, pumping river water to recharge the aquifer most years would involve wasted energy and money. The only scenario in which artificial recharge would make economic sense

would be when an extended dry period occurred and the river level dropped to the point that it was not recharging the aquifer naturally. When that occurs, however, the city could very well face restrictions on diverting river water for recharge because of downstream water right considerations.

This brings us to the heart of the artificial recharge paradox for the city. When hydrologic conditions are such that the aquifer water level has dropped to the point where pumping Big Sioux River water to recharge the aquifer would be a reasonable economic gamble, there would not likely be enough flow in the river to allow diversion for artificial recharge. It must be remembered that the river and aquifer are not separate systems operating independently. They are closely inter-related parts of the same system.¹⁰

The remaining subsections contain additional information dealing with the artificial recharge paradox.

Digital Model Evaluation of Aquifer Recharge above Sioux Falls -- In 1982, as noted earlier, the task force decided to utilize the hydrologic digital model being finalized for the Big Sioux River Aquifer above Sioux Falls to make an assessment of the potential and impacts of diverting Big Sioux River water for artificial recharge. Project Manager Neil Koch agreed to make the desired computer runs. Task Force members Les Hash, Assad Barari, and Jerry Siegel met with him to review and discuss his results.

Using the model, water was pumped to the recharge site at a constant rate of 870 gpm or 1.94 cfs for four 30 day recharge periods.¹¹ The model estimated the amount of the recharge water that would return to the river during these periods. In addition, the model was used to predict the amount of water that would return to the river during three 30 day recovery periods.

The outputs of the model run are summarized as follows:

Total water delivered during 120 day recharge period	150,336,000 gallons
Water returned to river during 120 day recharge period	24,429,600 gallons
Recharge water remaining in aquifer after 120 day recharge period	125,906,400 gallons
Water returned to river during 90 day recovery period	30,067,200 gallons

Thus, during the 120 day recharge and 90 day recovery period, the model predicted that 54,496,800 gallons out of 150,336,000 gallons delivered to the aquifer, or 36%, would return to the river.

Streamflow Analysis at Dell Rapids Gauging Station -- Daily streamflow data from the gauging station on the Big Sioux River near Dell Rapids for May 1, 1948 through October 24, 1983 are contained in Appendix II.

As noted earlier, the S.D. Board of Water Management determined that 50 cfs must be bypassed for any diversions from the Big Sioux River.

Table I contains a listing of the dates when Big Sioux River flow at the Dell Rapids gauging station was less than 50 cfs. As the table shows, diversions of the Big Sioux River flows for artificial recharge of the Sioux Falls wellfield would have been restricted during extended periods of most dry years. As noted earlier, diversion during normal years would have been wasteful.

A duration hydrograph prepared by the U.S. Geological Survey for the period 1954-1983 is shown in Figure 5. The hydrograph shows the percent of time which discharges were equaled or exceeded during any given time period. The 50 cfs bypass requirement has been superimposed on the diagram. Even though the hydrograph shows that 50 cfs is exceeded over 50% of the time between mid-March and early August, it is during the extended dry periods (when flow would most likely be less than 50 cfs) that artificial recharge would be beneficial.

Table 1. Dates When Big Sioux River Flow at Dell Rapids Gauging Station was Equal To or Less Than the 50cfs By-Pass Requirement

<u>Water Year 1948*</u>	<u>Water Year 1955</u>	<u>Water Year 1964</u>	<u>Water Year 1971</u>
12/18-2/25	10/1-3/24	10/1-3/14	10/1-10/29
7/18	3/29-3/30	3/18-3/31	12/17-12/19
7/19	5/21-6/3	8/16	12/28-3/11
7/21-7/25	6/6-6/22	8/18	
8/13	7/5-7-12	8/31-9/18	<u>Water Year 1972</u>
8/14	7/19-8/7		7/17-9/28
8/19-9/2	9/9-9/30	<u>Water Year 1965</u>	9/30
9/5-9/10		11/26-12/11	
9/12-9/30	<u>Water Year 1956</u>	12/19-2/8	<u>Water Year 1973</u>
<u>Water Year 1949</u>	10/1-3/21	7/7-7/17	10/1-10/8
10/1-3/23	8/16-8-22	8/3-8/19	10/18-2/19
7/25	9/3-9/19	8/30	6/24-9/30
7/28	9/22	9/4-9/10	
7/29	<u>Water Year 1957</u>	9/17-9/30	<u>Water Year 1974</u>
8/1	10/1-10/30	<u>Water Year 1966</u>	10/1-4/7
8/2	11/19-2/24	10/1-11/10	6/3-9/30
8/7-8/11	3/5	11/12-2/29	
8/17-9/20	3/8-3/22	8/6-8/25	<u>Water Year 1975</u>
9/27-9/30	7/1-9/30	9/3-9/30	10/1-2/26
<u>Water Year 1950</u>	<u>Water Year 1958</u>	<u>Water Year 1967</u>	3/5
10/6	10/1-3/6	10/1-10/22	5/24-9/30
10/8-10	4/7-5/4	10/24-3/17	<u>Water Year 1976</u>
10/13	5/6-5/27	3/20-3/22	10/1-3/9
10/15	7/1-7/6	3/30-4/2	5/11-6/17
10/16-17	7/8-9/30	5/23	7/14-9/30
10/20-2/23		5/26-6/24	
3/5-3/26	<u>Water Year 1959</u>	7/15-9/30	<u>Water Year 1977</u>
<u>Water Year 1951</u>	10/1-3/28	<u>Water Year 1968</u>	1/9-3/12
1/11-1/14	7/22-8/24	10/1-10/15	9/28-29
1/18-2/10	<u>Water Year 1960</u>	12/7-12/10	<u>Water Year 1978</u>
2/28-3/18	10/2-2/20	12/13-4/2	10/13-3/17
<u>Water Year 1952</u>	7/20-8/3	<u>Water Year 1969</u>	<u>Water Year 1979</u>
11/2	8/10-8/22	12/9	1/29-3/13
11/4-3/10	8/31-9/30	12/21-12/25	9/14
<u>Water Year 1952</u>	<u>Water Year 1961</u>	8/24	9/16-9/30
12/4	10/1-3/25	8/28-9/30	
12/11-2/8	<u>Water Year 1962</u>	<u>Water Year 1970</u>	<u>Water Year 1980</u>
<u>Water Year 1954</u>	12/9-3/15	10/1-10/9	10/1-3/7
10/17-11/5	<u>Water Year 1963</u>	10/24	5/9-9/30
11/13-3/1	12/8-3/11	10/27	
3/6-3/9	7/18-9/30	12/17	<u>Water Year 1981</u>
5/23-5/26		12/20-2/17	10/1-2/22
6/1-6/17		2/20-2/23	
6/25-9/30		7/28-9/30	<u>Water Year 1982</u>
			None
			<u>Water Year 1983</u>

*Water Year - begins October 1 and runs through September 30 of the following year.

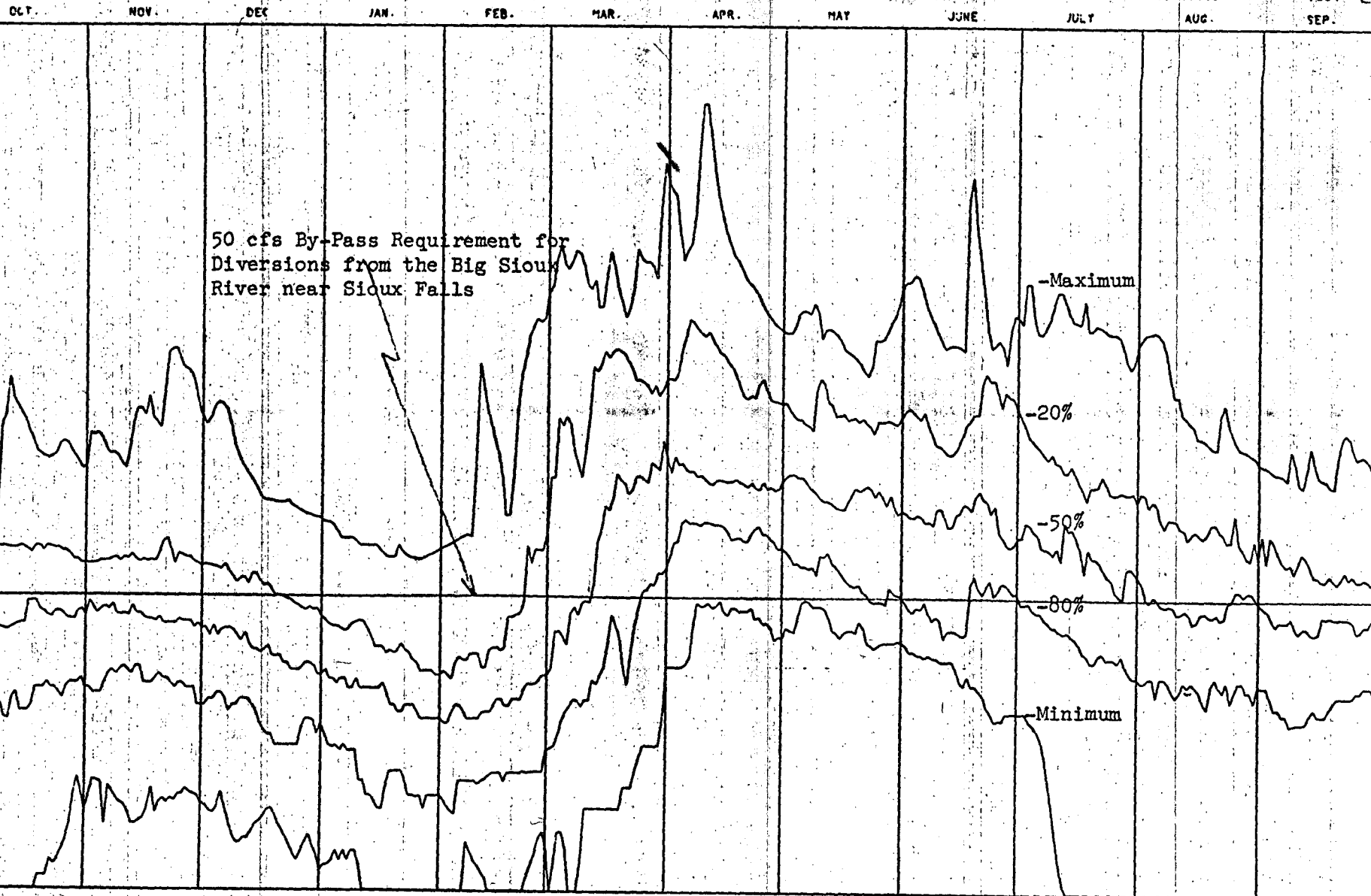


Figure 5. Duration Hydrograph for the Period 1958-1983, Big Sioux River Gauging Station near Dell Rapids, South Dakota.

NEED TO GET DURATION HYDROGRAPH

REFERENCES

- 1 Annual Report of Sioux Falls Water Department, 1980, p. 4.
- 2 Report of the Citizens Water Advisory Committee to the City Commissioners, Sioux Falls, South Dakota, submitted June 22, 1977, p. 12.
- 3 Ibid, p. 15.
- 4 10 June, 1977 Letter from John E. Velehradsky, Chief - Planning Division, Omaha District Corps of Engineers, to Jerry L. Siegel, Manager-Treasurer, East Dakota Conservancy Sub-District.
- 5 Minutes - East Dakota Conservancy Sub-District - July 21, 1977, pp. 1 and 6.
- 6 20 December 1977 Letter from Carter Laing, U.S. Corps of Engineers - Omaha District to Task Force Members.
- 7 March 3, 1981 Letter from Jerry L. Siegel, Manager-Treasurer, East Dakota Conservancy Sub-District, to Les Hash, Manager, Sioux Falls Water Department.
- 8 April 14, 1982 Letter from Jerry L. Siegel, Manager-Treasurer, East Dakota Conservancy Sub-District, to Rick Miner, U.S. Corps of Engineers - Omaha District.
- 9 A Digital-Computer Model of the Big Sioux Aquifer in Minnehaha County, South Dakota, U.S. Geological Survey Water Resources Investigations 82-4064, Prepared in cooperation with the East Dakota Conservancy Sub-District, the South Dakota Department of Water and Natural Resources, and Minnehaha County.
- 10 The Big Sioux Aquifer Water Quality Study, First in a Series, East Dakota Conservancy Sub-District, 1983, pp. 6-8.
- 11 The Effects of Artificial Recharge on the Big Sioux Aquifer in Minnehaha County, South Dakota, Water Resources Investigation Report, Neil Koch, U.S. Geological Survey, 1984.

APPENDIX I

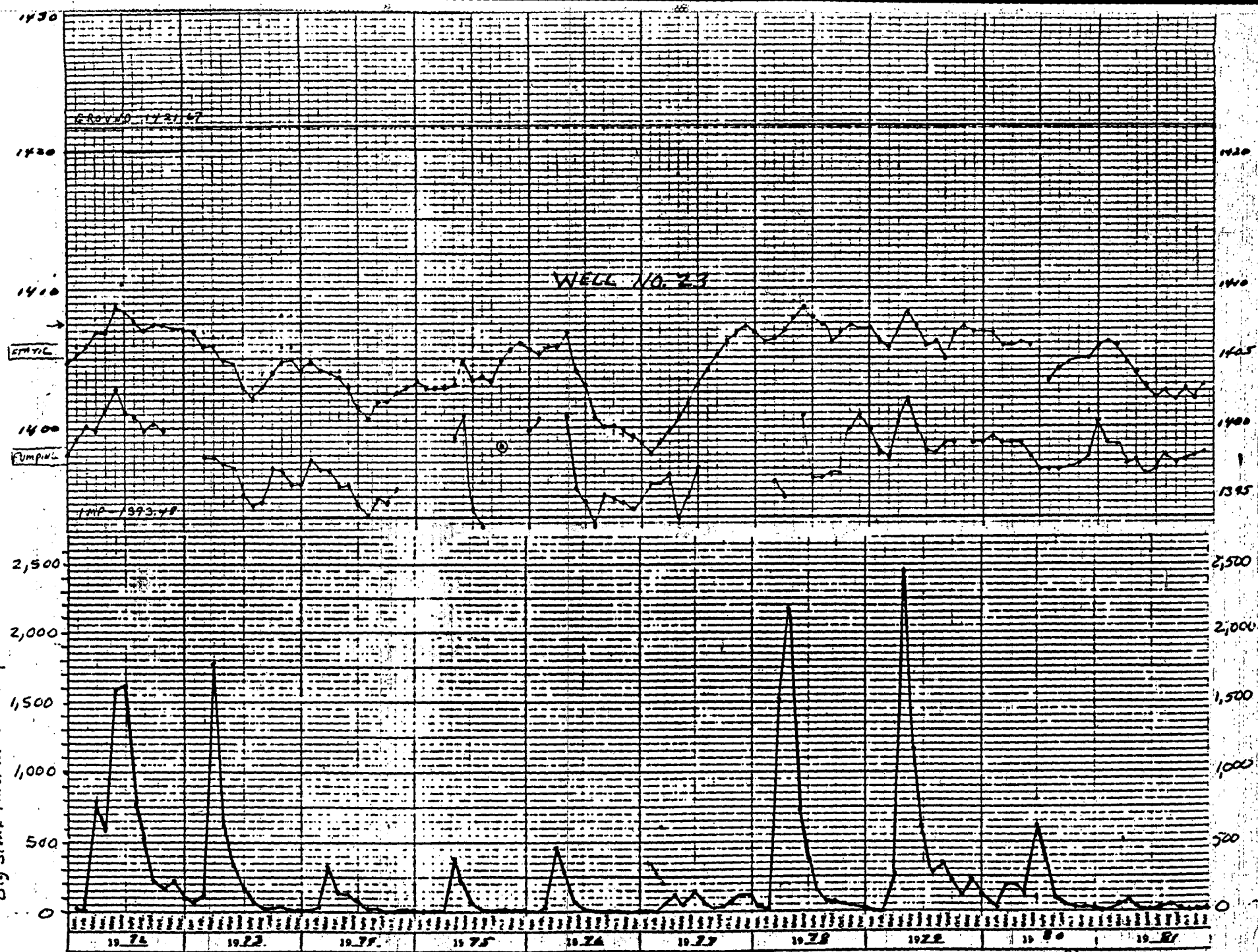
WATER LEVELS FOR SELECTED SIOUX FALLS MUNICIPAL WELLS, 1972-1981

NOTE: The charts show the ground surface elevation, measured static (non-pumping) water level, measured pumping water level, and the elevation of the lower impeller in the well. Mean monthly flows as recorded at the Big Sioux River gauging station near Dell Rapids are charted at the bottom of each chart.

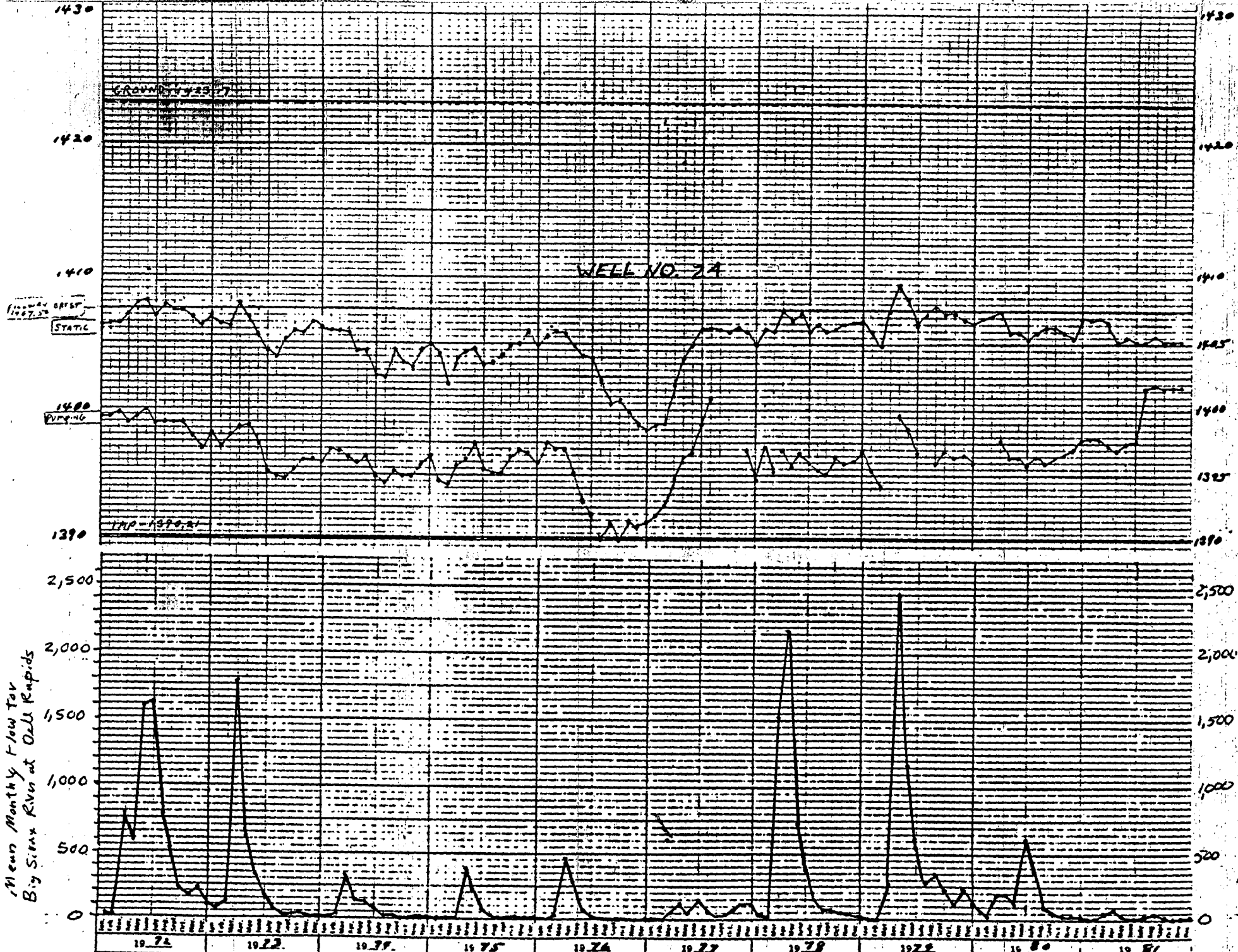


Source: Unpublished File Data. Sioux Falls, South Dakota Water Department, 1984

Mean Monthly Flow for
Big Sioux River at Oak Rapids

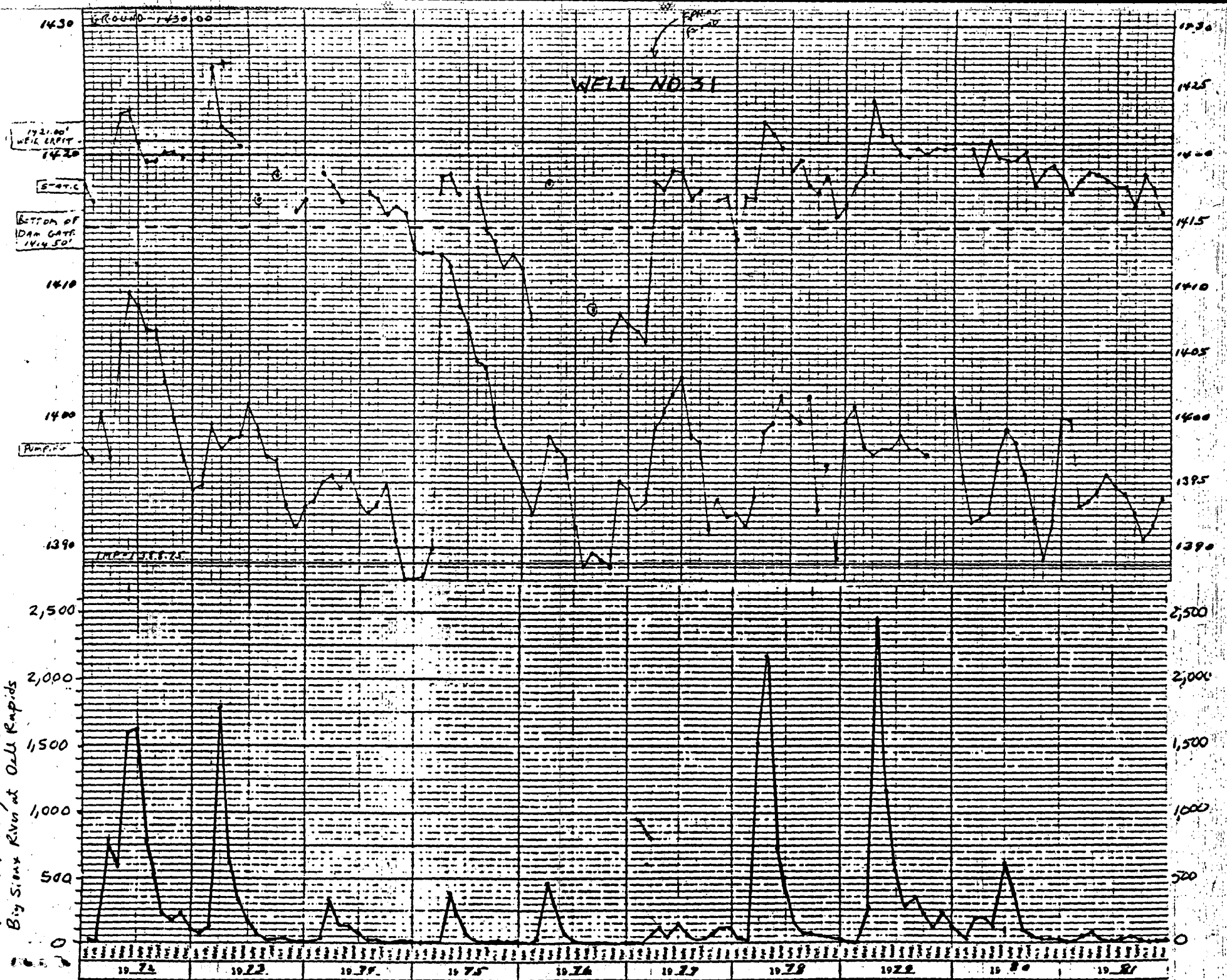


Source: Unpublished File Data. Sioux Falls, South Dakota Water Department, 1984



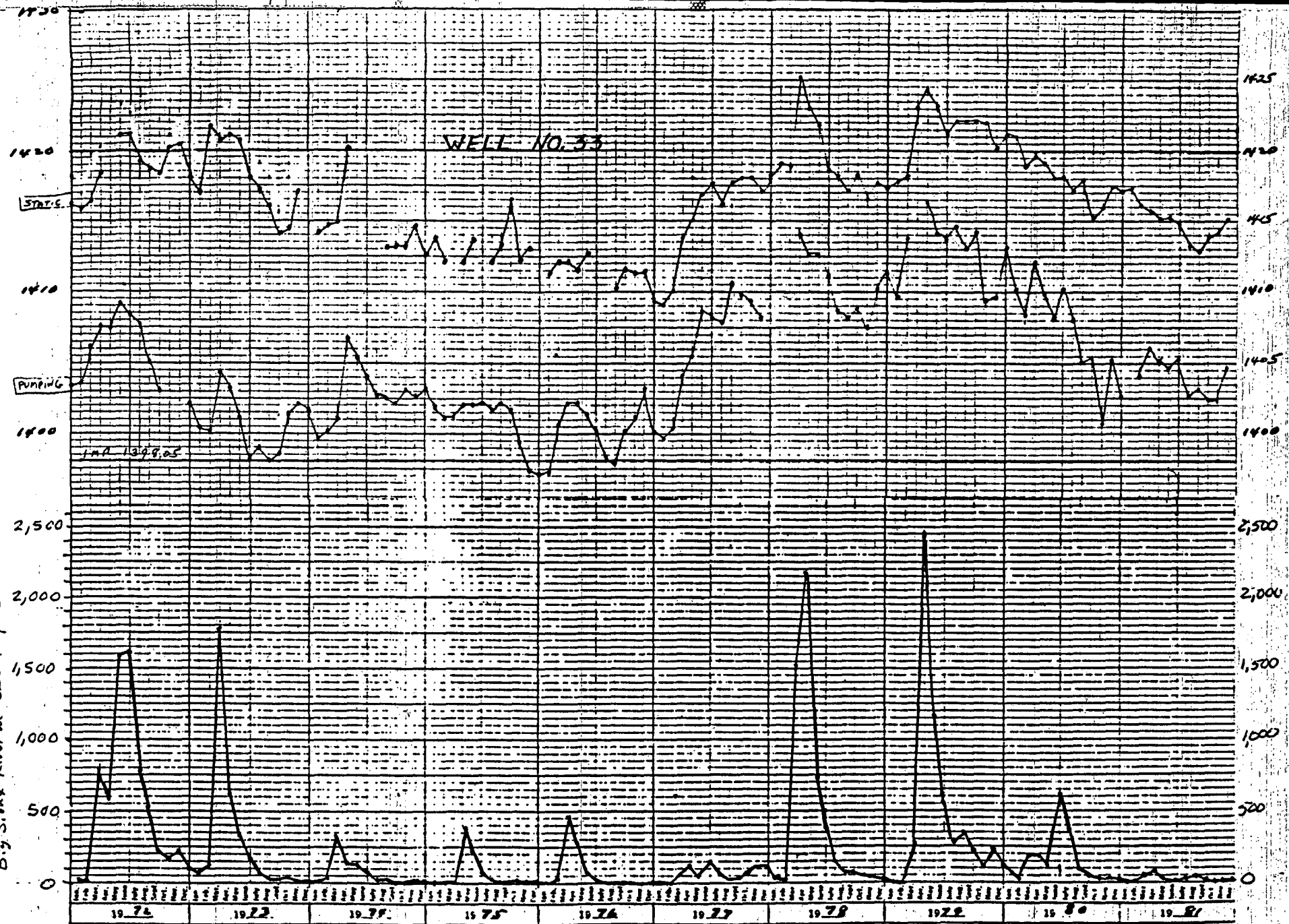
Source: Unpublished File Data. Sioux Falls, South Dakota Water Department, 1984

Mean Monthly Flow Tot
Big Sioux River at Old Rapids



Source: Unpublished File Data. Sioux Falls, South Dakota Water Department, 1984

Mean Monthly Flow for
Big Sioux River at Dell Rapids



Source: Unpublished File Data. Sioux Falls, South Dakota Water Department, 1984

NAME OF PERSON OR FILE: City of Sioux Falls

ADDRESS: _____ COUNTY Minnehaha

DATE: 3/27/90 TELEPHONE 339-7031

RE: _____

COMMENTS:

I talked with Keith DeJong on the city of Sioux Falls permit application for artificial recharge. The amount of water claimed is 17.8 cfs (6360 ac-ft) the discrepancy on the application of 53 ac-ft is that there are 53-120 ac-ft billing units for figuring the application fee.

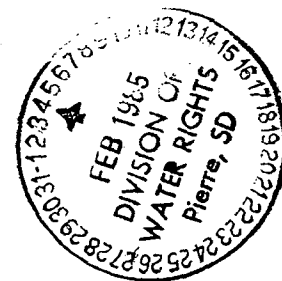
Also annual period of use was defined by Mr. DeJong to be March 1 - November 31.

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: Eric S. Hansen

**SIMULATED ARTIFICIAL RECHARGE IN THE BIG SIOUX
AQUIFER IN MINNEHAHA COUNTY, SOUTH DAKOTA**

By Neil C. Koch



U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 84-4312

Prepared in cooperation with the
CITY OF SIOUX FALLS, and the
EAST DAKOTA CONSERVANCY SUB-DISTRICT

Huron, South Dakota

1984



UNITED STATES DEPARTMENT OF THE INTERIOR

WILLIAM P. CLARK, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information
write to:

District Chief, WRD
U.S. Geological Survey
Rm. 317, Federal Bldg.
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CONVERSION FACTORS

For readers who may prefer to use metric units rather than inch-pound units, the conversion factors for the terms in this report are listed below:

<u>Multiply inch-pound units</u>	<u>By</u>	<u>To obtain SI units</u>
foot (ft)	0.3048	meter
gallon (gal)	3.785	liter
gallon per minute (gal/min)	0.0630	liter per second (L/s)
mile (mi)	1.609	kilometer

SIMULATED ARTIFICIAL RECHARGE IN THE BIG SIOUX AQUIFER IN MINNEHAHA COUNTY, SOUTH DAKOTA

By Neil C. Koch

ABSTRACT

The Big Sioux aquifer in Minnehaha County is a water-table aquifer hydraulically connected to the Big Sioux River. A digital-computer model previously developed by the U.S. Geological Survey was used to simulate potential effects of artificial recharge on the aquifer.

A simulation was made of recharging water at the rate of 870 gallons per minute for four 30-day periods. Total water recharged to the aquifer during the 120 days was 150.3 million gallons. During the 120-day recharge period, 24.4 million gallons of water discharged from the aquifer to the river as a result of the artificial recharge. During the three 30-day recovery periods after the artificial recharge period, about 30 million gallons of water discharged from the aquifer to the river as a result of artificial recharge making a total of 54.4 million gallons that discharged from the aquifer to the river or 36 percent of the 150.3 million gallons that was artificially recharged.

INTRODUCTION

The Big Sioux aquifer, a major glacial-drift aquifer hydraulically connected to the Big Sioux River, extends most of the length of the Big Sioux basin in eastern South Dakota (fig. 1). The aquifer provides all the water for the city of Sioux Falls. There is concern about the capacity of the aquifer to provide sufficient water for the rapidly urbanizing Sioux Falls area.

A study by the City of Sioux Falls, U.S. Army Corps of Engineers, and the East Dakota Conservancy Sub-District was planned to determine the effect of artificial recharge on the aquifer. A section of a drainage ditch north of the City of Sioux Falls between the Big Sioux River and Silver Creek was selected to conduct an artificial recharge test (fig. 2) but high water-table conditions never allowed for the field test to be conducted. As a result, the City of Sioux Falls and the East Dakota Conservancy Sub-District requested that a digital-computer model previously developed by the U.S. Geological Survey (Koch, 1982) for the Big Sioux aquifer in Minnehaha County be used to simulate the response of the aquifer to artificial recharge at the site selected north of Sioux Falls.

PURPOSE AND APPROACH OF STUDY

The purpose of this study was to evaluate the effects of artificial recharge on the Big Sioux aquifer in Minnehaha County. Using the digital-computer model developed in the previous study (Koch, 1982), a transient simulation was made starting with June 1976 water-level conditions.

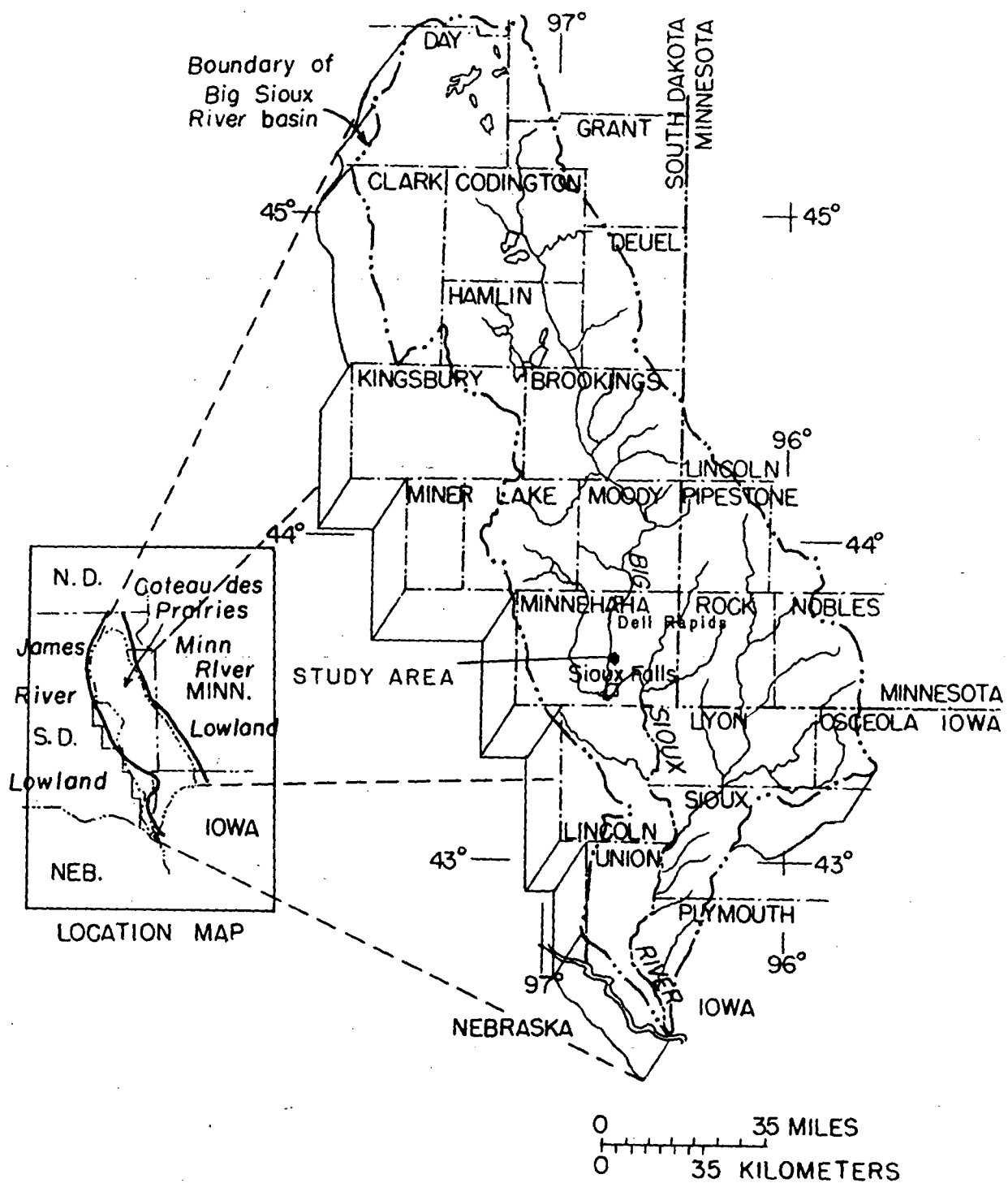


Figure 1.--Location of study area and Big Sioux River basin.

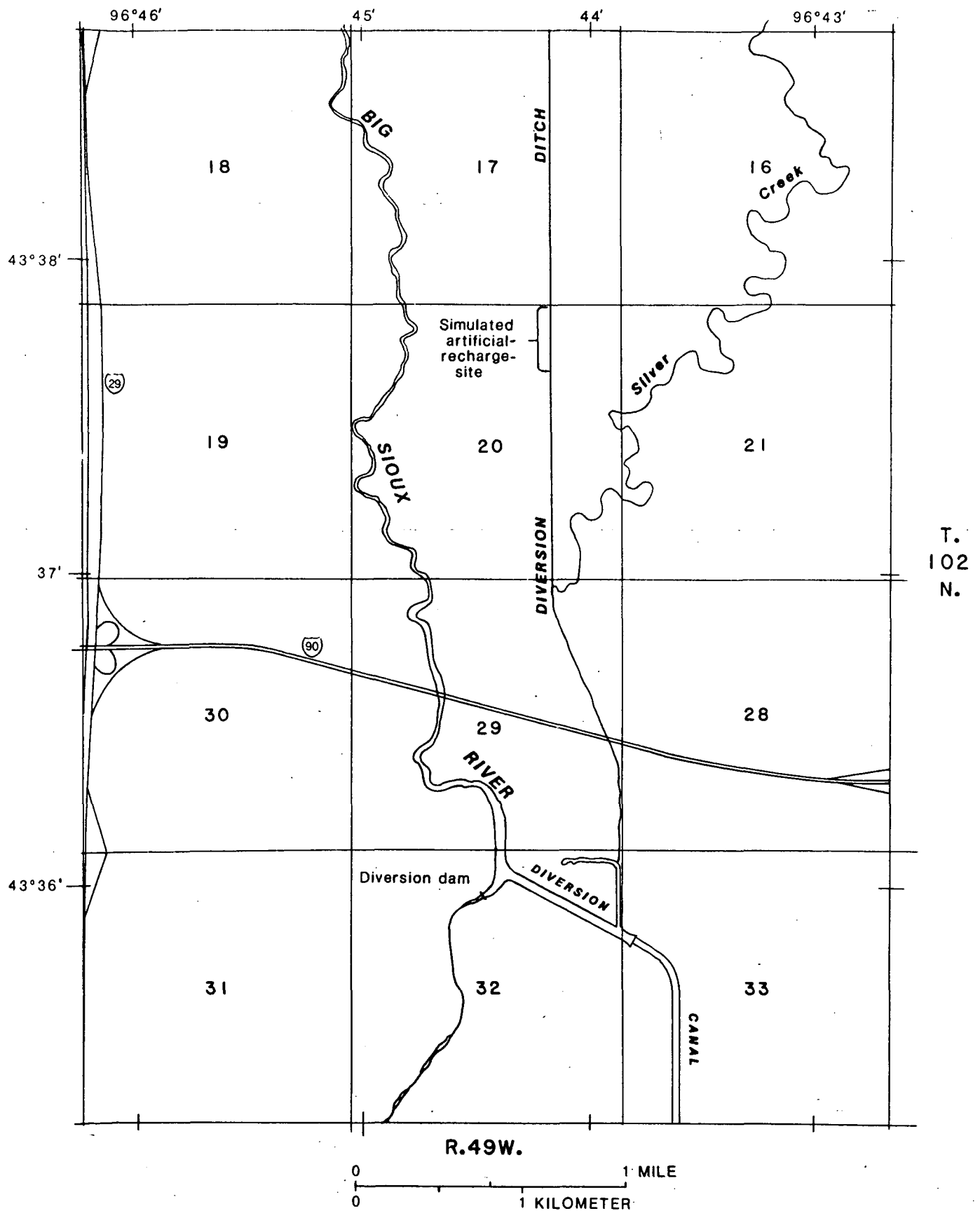


Figure 2.--Location of simulated artificial-recharge site.

MODEL DEVELOPMENT

To develop the digital model for the previous study (Koch, 1982), a map of the project area was prepared showing the aquifer boundary and location of streams. A 0.25-mi grid network was superimposed on the map. The network has 77 rows and 18 columns, a total of 585 cells representing the aquifer. Each cell contains a node at its center. These nodes are points at which flow equations are evaluated even though the cell represents a volume of the aquifer through which flow is occurring. The altitude of the water table, the altitude of the bottom of the aquifer, the altitude of the land surface, the hydraulic conductivity of the aquifer, and the specific yield of the aquifer are entered into the computer for each node.

The model was developed based on known hydrologic conditions. A number of simplifying assumptions were used in the model to make it possible to describe the aquifer mathematically. The hydraulic assumptions used in the model of the Big Sioux aquifer were:

- (1) The aquifer is a single unconfined (water-table) aquifer.
- (2) The aquifer is hydraulically connected to the Big Sioux River.
- (3) The flow in the aquifer is horizontal.
- (4) No-flow conditions exist on the perimeter of and beneath the aquifer.
- (5) Recharge to the aquifer is from streamflow and infiltration of precipitation.
- (6) Ground water is discharged by pumpage from wells, evapotranspiration, and flow to the Big Sioux River.
- (7) The average stream stage remains constant throughout the steady-state simulation but under transient conditions, the stream stage is raised or lowered each month based on stream stage at Dell Rapids (12 mi north of the recharge site) and the diversion dam (2 mi south of the recharge site). The constant hydraulic-head stream nodes are removed when the stream becomes dry.
- (8) Evapotranspiration is a linear function of depth below land surface. Evapotranspiration is maximum at land surface and decreases linearly to zero at 5 ft below land surface.
- (9) Return flow from irrigation is not modeled because the irrigation water applied is assumed to be entirely consumed by the crops or evaporated.
- (10) Transmissivity is hydraulic-head dependent.

RESULTS OF COMPUTER-MODEL SIMULATIONS

To determine the aquifer's response to artificial recharge, a recharge well was simulated in the node at the artificial-recharge site. The aquifer was recharged at a rate of 870 gal/min for 120 days (four 30-day recharge periods). Monthly simulations were made with no other recharge and at the same river stage. The computer-calculated June 1976 (Koch, 1982) water levels were used as the starting hydraulic heads.

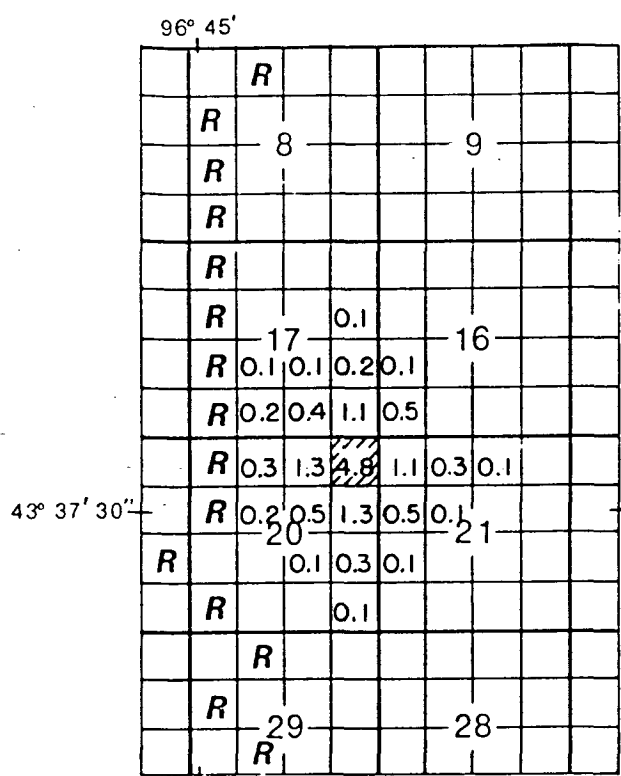
To determine hydraulic head and changes in the volume of discharge from the aquifer to the river caused by artificial recharge, the recharge simulations were compared with computer-model simulations that did not have a simulated recharge well. Monthly simulations were continued for 90 days after recharge was discontinued (three 30-day recovery periods).

The volume of water added to the aquifer each month, the volume of water returned to the river, and the volume of recharge water remaining in the aquifer are summarized in table 1.

The river stage was 3.4 ft higher than the water level in the recharge node prior to the start of artificial recharge. After 120 days of recharge the water level in the recharge node was 6.9 ft above the starting water level or 3.5 ft above the river stage. The hydraulic-head change at the end of each 30-day recharge and recovery simulation is shown in figure 3.

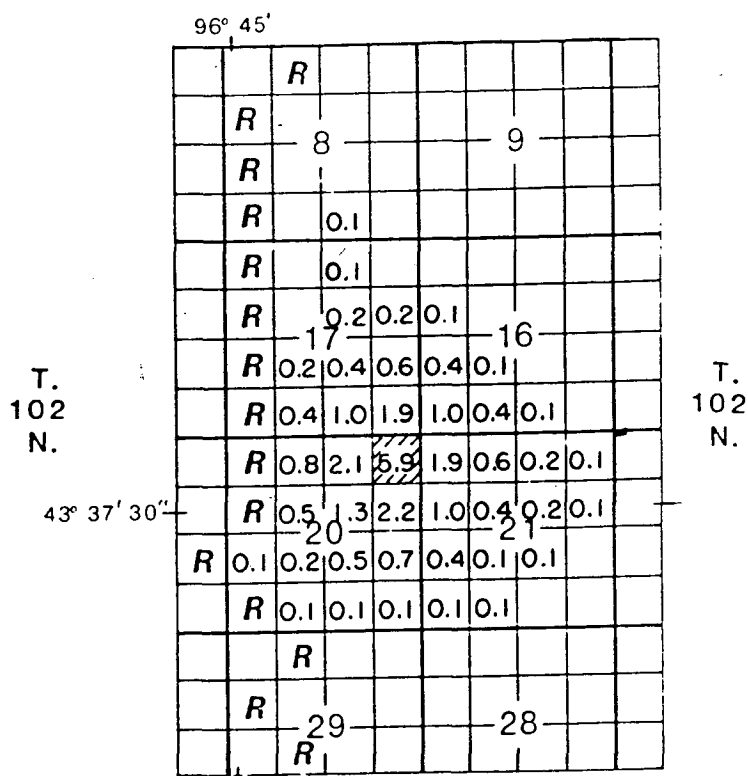
Table 1.--Computer-simulated monthly changes in volume of water recharged to and discharged from the aquifer

Days after start of simulation	Cumulative volume of water added to aquifer (million gallons)	Cumulative volume of recharge water returned to the river. Upper number is million gallons; lower number is percentage	Cumulative volume of recharge water remaining in aquifer. Upper number is million gallons; lower number is percentage
<u>RECHARGE</u>			
30	37.6	1.5 4	36.1 96
60	75.2	6 8	69.2 92
90	112.8	13.9 12	98.9 88
120	150.3	24.4 16	125.9 84
<u>RECOVERY</u>			
150	150.3	35.7 24	114.6 76
180	150.3	45.8 30	104.5 70
210	150.3	54.4 36	95.9 64



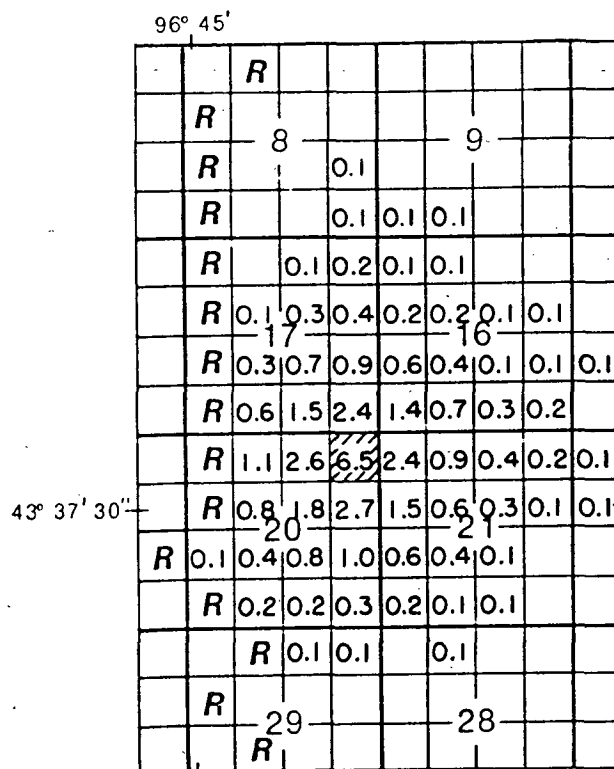
R. 49 W.

First 30-day recharge simulation



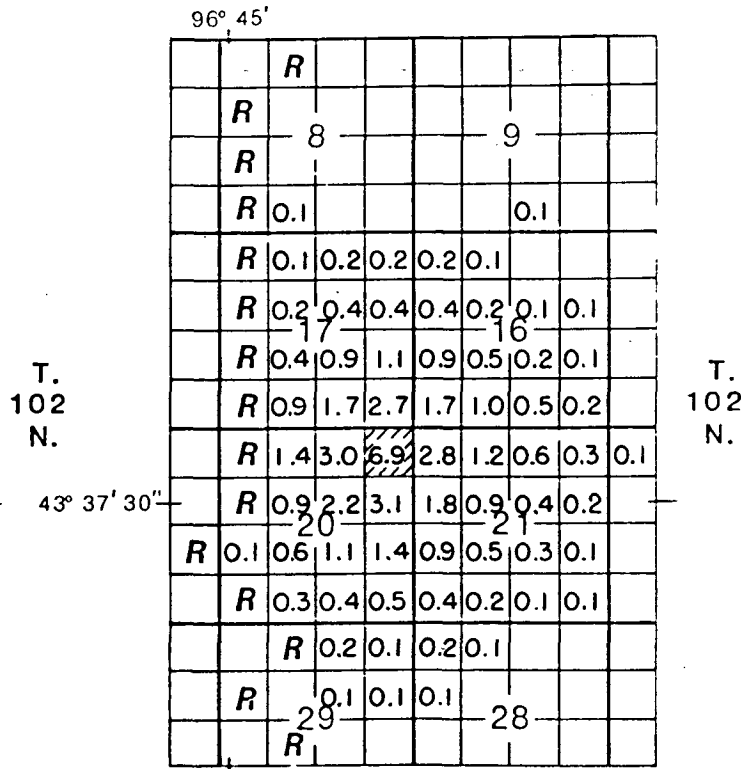
R. 49 W.

Second 30-day recharge simulation



R. 49 W.

Third 30-day recharge simulation



R. 49 W.

Fourth 30-day recharge simulation



RECHARGE NODE--
Number is feet of water
level rise in node



RIVER NODE--River stage
remained the same for
all simulations



NODE--Number is feet
of water level rise in
node

Figure 3.--Head change and recharge mound at the end of each 30-day simulation.

		R							
	R								
	R	8				9			
	R								
	R	0.1	0.1	0.1	0.1	0.1			
	R	0.2	0.2	0.3	0.2	0.2	0.1	0.1	
	R	0.3	0.5	0.6	0.5	0.4	0.2	0.1	0.1
	R	0.4	0.9	1.0	0.9	0.6	0.3	0.2	0.1
	R	0.8	1.5	1.8	1.6	1.0	0.6	0.3	
	R	1.2	2.0	2.5	1.9	1.2	0.6	0.3	0.2
43° 37' 30"	R	0.9	1.9	2.3	1.6	1.0	0.5	0.3	0.1
	R	0.1	0.6	1.1	1.4	1.0	0.6	0.4	0.2
	R	0.3	0.5	0.6	0.5	0.3	0.2	0.1	
	R	0.2	0.2	0.2	0.2				
	R	0.1	0.1	0.1	0.1				
	R	0.1	0.1						

R. 49 W.

First 30-day recovery simulation

T.
102
N.

		R		0.1					
	R		0.1	0.1					
	R	0.1	0.1	0.1	0.1	0.1	0.1		
	R	0.1	0.2	0.1	0.1	0.1	0.1	0.1	
	R	0.1	0.3	0.3	0.3	0.2	0.1	0.1	
	R	0.2	0.4	0.6	0.6	0.4	0.3	0.2	0.1
	R	0.4	0.7	0.9	0.9	0.6	0.5	0.3	0.1
	R	0.7	1.1	1.3	1.2	0.9	0.6	0.4	
	R	1.0	1.4	1.6	1.4	0.9	0.7	0.5	0.3
43° 37' 30"	R	0.7	1.4	1.6	1.4	0.9	0.6	0.4	0.2
	R	0.2	0.6	1.0	1.1	0.9	0.7	0.4	0.3
	R	0.3	0.5	0.7	0.6	0.4	0.3	0.2	0.1
	R	0.2	0.4	0.3	0.2	0.2			0.1
	R	0.1	0.2	0.2	0.1	0.1			
	R	0.1		0.1			0.1		

R. 49 W.

Second 30-day recovery simulation

T.
102
N.

		R							
	R		0.1						
	R	8				9			
	R		0.1	0.1	0.1			0.1	
	R		0.1	0.1	0.1	0.1	0.1		
	R	0.1	0.2	0.4	0.3	0.3	0.2	0.1	
	R	0.2	0.5	0.5	0.5	0.4	0.3	0.2	0.2
	R	0.3	0.6	0.7	0.8	0.7	0.5	0.3	0.2
	R	0.5	0.8	1.0	1.0	0.8	0.5	0.4	
	R	0.8	1.1	1.2	1.1	0.8	0.6	0.5	0.4
43° 37' 30"	R	0.5	1.1	1.2	1.1	0.8	0.6	0.4	0.3
	R	0.2	0.5	0.8	1.0	0.8	0.7	0.5	0.3
	R	0.3	0.4	0.6	0.6	0.4	0.3	0.2	0.1
	R	0.2	0.4	0.3	0.3	0.1	0.1		
	R	0.2	0.1	0.2	0.2	0.2	0.1		
	R	0.1	0.1	0.1		0.1			

R. 49 W.

Third 30-day recovery simulation

T.
102
N.

Figure 3.—Continued

SUMMARY AND CONCLUSIONS

A digital-computer model previously developed by the U.S. Geological Survey was used to simulate potential effects of artificial recharge on the Big Sioux aquifer.

A simulation was made by recharging at the rate of 870 gallons per minute for four 30-day periods and monitoring recovery for three 30-day periods. During the 120-day recharge period and the 90-day recovery period, 54.4 million gallons of water discharged from the aquifer to the river or 36 percent of the 150.3 million gallons that was artificially recharged to the aquifer.

The river stage prior to the start of artificial recharge was 3.4 ft higher than the water level in the recharge node. After the first 30-day simulation the water level in the recharge node was 1.4 feet higher than the river stage resulting in a reversal in direction of ground-water flow. Prior to recharge river water was recharging the aquifer. At the end of the first 30-day simulation, 1.5 million gallons had discharged from the aquifer to the river.

To effectively recharge an aquifer, the water level in the recharge area needs to remain below the water level in the area of potential discharge. If the water level at the recharge site simulated for this study is below stream stage, the recharge decreases the flow from the river to the recharge area. If the water level at the recharge site is above the stream stage, the flow from the recharge area to the stream is increased. At the recharge site simulated for this study, a developed well field could eventually dewater a significant part of the aquifer which could then be recharged without any appreciable loss by increased discharge to the river.

REFERENCE

- Koch, N. C., 1982, A digital-computer model of the Big Sioux aquifer in Minnehaha County, South Dakota: U.S. Geological Survey Water-Resources Investigations 82-4064, 49 p.

**EVALUATION OF THE RESPONSE OF THE BIG SIOUX
AQUIFER TO EXTREME DROUGHT CONDITIONS
IN MINNEHAHA COUNTY, SOUTH DAKOTA**

By Neil C. Koch

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 83-4234

Prepared in cooperation with the
CITY OF SIOUX FALLS

Huron, South Dakota
1983



UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information
write to:

District Chief
U.S. Geological Survey
Rm. 317, Federal Bldg.
200 4th St. SW
Huron, SD 57350

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Telephone: (303) 234-5888

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CONVERSION FACTORS

For readers who may prefer to use metric units rather than inch-pound units, the conversion factors for the terms in this report are listed below:

<u>Multiply</u>	<u>By</u>	<u>To obtain</u>
foot (ft)	0.3048	meter
cubic foot per second (ft ³ /s)	0.02832	cubic meter per second
gallon	0.003785	cubic meter
	3.785	liter
million gallons per day (Mgal/d)	2.629	cubic meter per minute
mile (mi)	1.609	kilometer
square mile (mi ²)	2.590	square kilometer

EVALUATION OF THE RESPONSE OF THE BIG SIOUX
AQUIFER TO EXTREME DROUGHT CONDITIONS
IN MINNEHAHA COUNTY, SOUTH DAKOTA

by

Neil C. Koch

ABSTRACT

The Big Sioux aquifer in the study area is a 36-square mile, water-table aquifer hydraulically connected to the Big Sioux River. There is concern about the capacity of the aquifer to provide sufficient water for the rapidly urbanizing Sioux Falls area if a drought similar to that which occurred in 1976-77 should recur. A digital-computer model previously developed by the U.S. Geological Survey was used to simulate potential effects on the aquifer of ground-water pumpage under worst-drought conditions.

Flow-duration data for the Big Sioux River at the Dell Rapids stream-gaging station showed that the streamflow was less than 23 cubic feet per second for 270 consecutive days from June 1976 to March 1977. This flow probably was the 100-year or greater low-flow in the Big Sioux River at the Dell Rapids stream-gaging station.

A model simulation with no recharge, a dry river, and pumpage from 60 wells of 25 million gallons per day stopped after 248 days when two pumping wells caused storage to be depleted at a model node. A new pumping rate of 24 million gallons per day allowed the model simulation to continue for an additional 31 days. Water-level declines in the Big Sioux aquifer at the end of the model simulation varied from less than 4 to more than 20 feet in the pumped area.

Another model simulation was made under the hydrologic conditions determined by calculating averages based on 1970-79 data with pumpage decreased to 21 million gallons per day by shutting down 12 wells in the city well field. The water-level recovery converted to volume of water added to storage was 531 million gallons after 186 days of pumping at the decreased rate.

INTRODUCTION

The Big Sioux aquifer, a major glacial-drift aquifer hydraulically connected to the Big Sioux River, extends most of the length of the Big Sioux basin in eastern South Dakota (fig. 1). The study area (36 mi² of the aquifer) extends from Dell Rapids on the north where the aquifer pinches out on quartzite, downstream to the city of Sioux Falls where again the aquifer pinches out on the quartzite.

The Big Sioux aquifer provides all the water for the city of Sioux Falls. There is concern about the capacity of the aquifer to provide sufficient water for the rapidly urbanizing Sioux Falls area if a drought similar to that which occurred in 1976-77

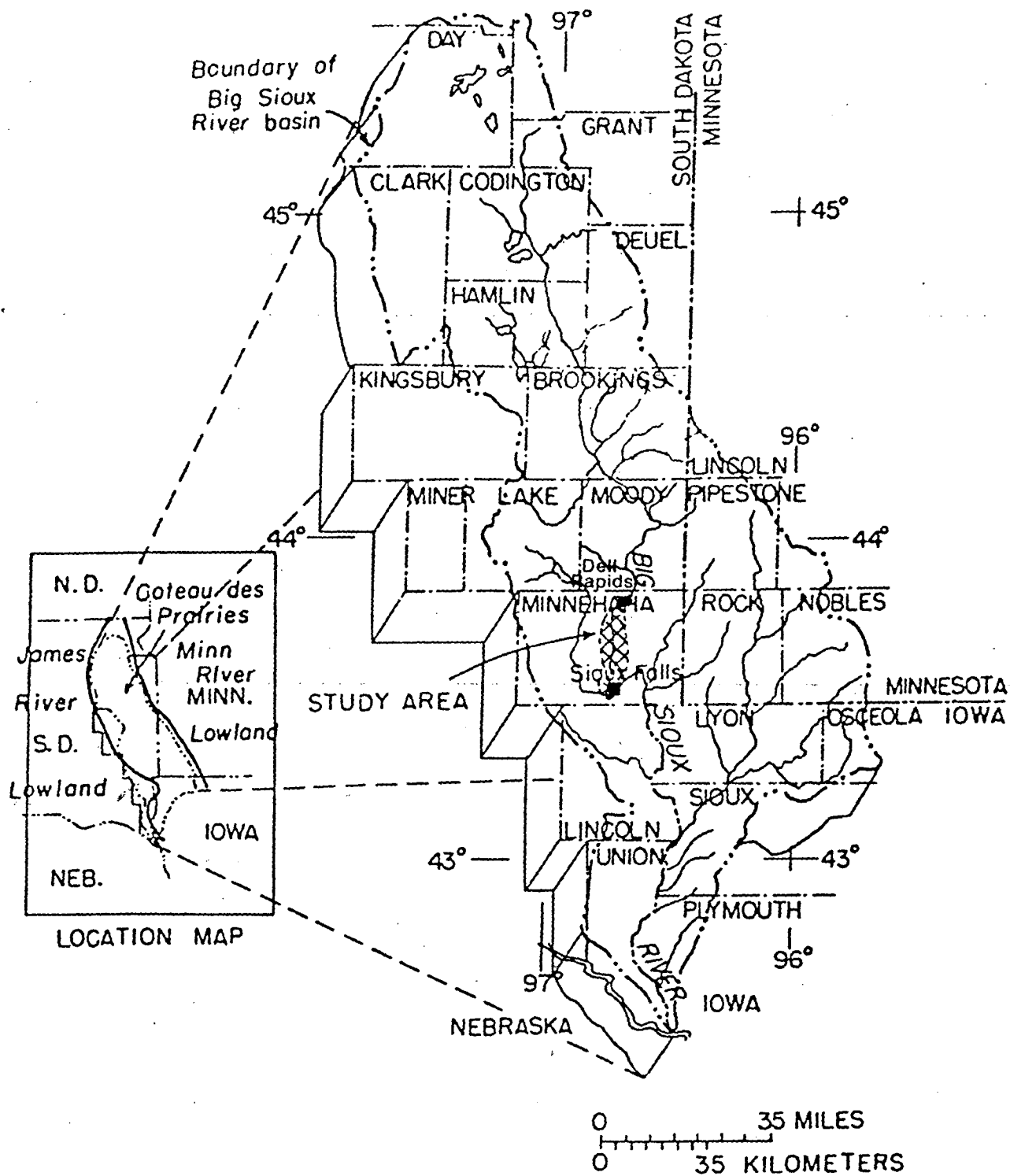


Figure 1.--Location of study area and Big Sioux River basin.

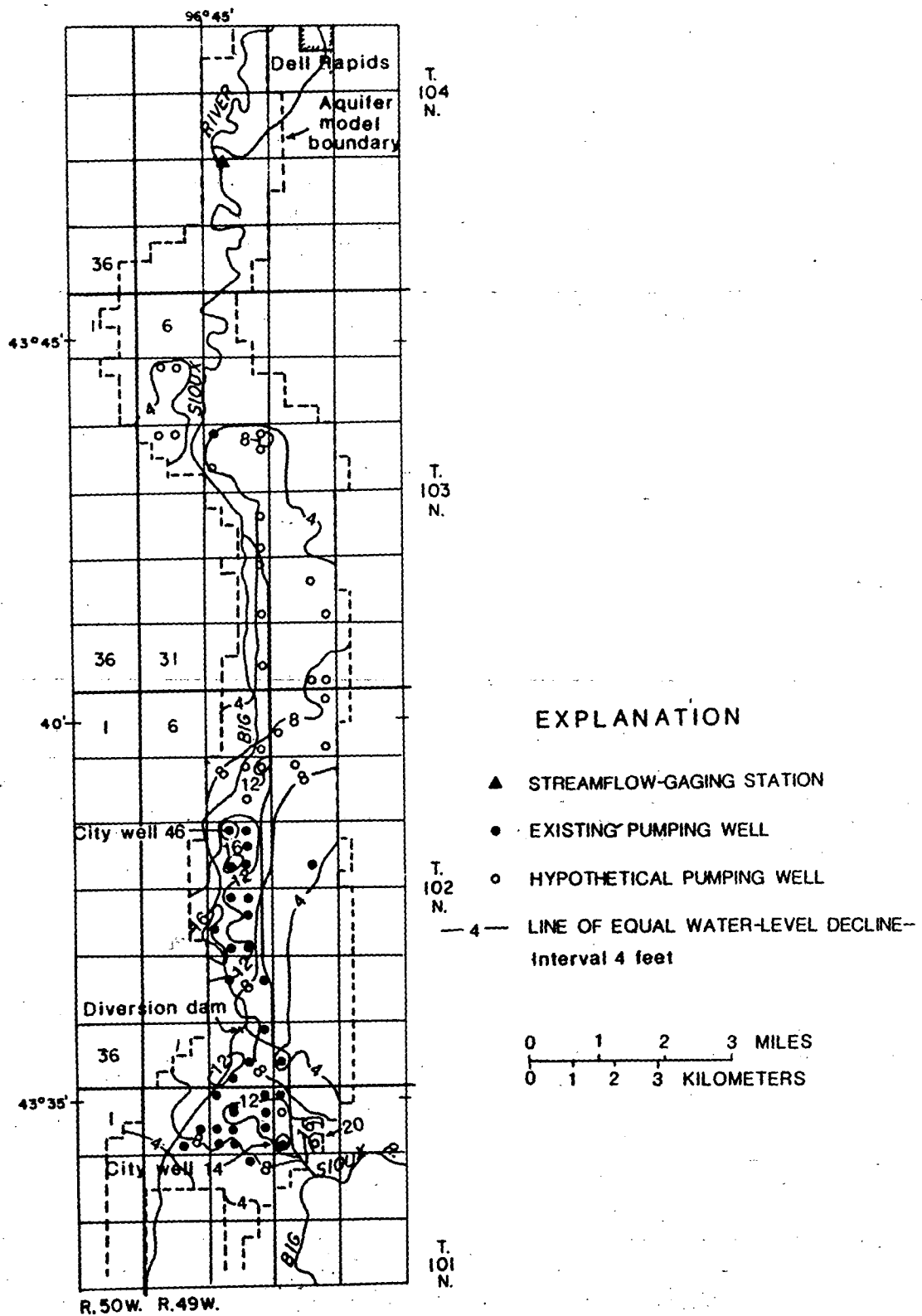


Figure 2--Computer-simulated drawdown in the Big Sioux aquifer after pumping for 279 days.

to 21 Mgal/d by shutting down 12 wells in the city well field (T. 101 N). Six monthly simulations were made and the recovery calculated. The recovery was converted to volume of water by multiplying the average recovery by the specific yield (20 percent) and the area effected by the recovery (table 1).

Table 1.—Water-level recovery and volume of water added to storage in the Sioux Falls well field

Days after pumpage- rate decrease	Average water-level recovery (feet)	Maximum water-level recovery in 0.25-square- mile node (feet)	Area affected by recovery (square miles)	Cumulative volume of water added to storage ^{1/} (million gallons)
31	0.95	3.7	2.9	116
62	1.4	5.4	3.8	223
93	1.6	6.8	4.5	311
124	2.0	7.8	4.8	395
155	2.2	8.8	5.1	467
186	2.3	9.7	5.4	531

^{1/} Based on average water-level recovery (feet) times area affected by recovery (square miles) times estimated specific yield of 20 percent.

REFERENCE

Koch, N. C., 1982, A digital-computer model of the Big Sioux aquifer in Minnehaha County, South Dakota: U.S. Geological Survey Water-Resources Investigations 82-4064, 49 p.

Report on Water Right Application No. 5431-3
City of Sioux Falls
April 11, 1990

Application No. 5431-3, City of Sioux Falls, proposes to appropriate 17.8 cubic feet of water per second (6360 acre-feet annually) from the Big Sioux River. The water is to be pumped from a diversion point located in the SW1/4 SE1/4 SE1/4 of Section 32-T103N-R49W in Minnehaha County. The water is to be pumped to an old diversion channel which parallels the Big Sioux River to provide artificial recharge to the Big Sioux Aquifer. Sioux Falls maintains a well field which draws water for municipal use from the Big Sioux Aquifer.

Review of Existing Water Rights

Water Rights for irrigation and industrial uses from the Big Sioux River, excluding other Sioux Falls municipal use water rights, below the proposed diversion point total 68 cfs. Water is generally available from the Big Sioux River and tributary inflows below the City of Sioux Falls to meet the needs of these water rights except under extreme dry conditions within the Big Sioux River drainage area.

The City of Sioux Falls holds two water permits from the Big Sioux River for municipal use, Permit No. 5202-3 (4.6 cfs-552 acre-feet annually) and Permit No. 5334-3 (13.8 cfs-10,000 acre-feet annually). The city also holds Future Use Permit Nos. 3981-3 and 3981A-3 for which 40,000 acre-feet annually is still reserved. The diversion points for these permits are downstream of the proposed application.

Water Source

The proposed diversion of water is from the Big Sioux River upstream of the Skunk Creek drainage, the Silver Creek drainage, and the Split Rock Creek drainage which all contribute flows to the Big Sioux River.

General information of the flow in the Big Sioux River and contributing drainages is as follows:

	median of mean <u>yearly discharges</u>
Big Sioux River near Dell Rapids	210 cfs
Skunk Creek at Sioux Falls	36 cfs
Big Sioux River at North Cliff Ave	390 cfs
Split Rock Creek at Corson	54 cfs
Big Sioux River at Akron, Ia.	770 cfs

Recent flow measurements on the Big Sioux River at USGS gaging station locations were as follows:

	<u>Date</u>	<u>Flow (cfs)</u>
Big Sioux River near Dell Rapids	4/9/90	50
Big Sioux River at North Cliff Ave	4/9/90	37

The report for Water Right No. 5334-3, City of Sioux Falls, August 21, 1989, contains a low flow analysis for the Big Sioux River. The analysis determined that a 20 cfs bypass requirement should be sufficient to meet the needs of existing rights and domestic uses downstream on the Big Sioux River.

Discussion of Proposed Works

The City of Sioux Falls proposes to divert water from the Big Sioux River through an overland piping network to an old diversion channel which parallels the Big Sioux River approximately 1/4 mile east of the river. Water in the diversion channel will then be allowed to percolate into the Big Sioux Aquifer to provide artificial recharge of the aquifer. The City of Sioux Falls maintains a well field for pumping water from the aquifer. The well field is bordered on the west by the Big Sioux River and on the east by the old diversion channel.

In 1977, a multi-agency task force which included the City of Sioux Falls, initiated a pilot study to investigate the feasibility of artificial recharge of the Big Sioux Aquifer. The following excerpt is from the analysis and discussion section of the pilot study final report:

Natural recharge of the Sioux Falls well field area through precipitation and overland flooding plus infiltration through the bed of the Big Sioux River, Silver Creek, the old diversion ditch, and the Corps flood diversion channel is very efficient.

Even following abnormally dry summers, high river flows usually occur the following spring and naturally replenish the aquifer. Thus, pumping river water to recharge the aquifer most years would involve wasted energy and money. The only scenario in which artificial recharge would make economic sense would be when an extended dry period occurred and the river level dropped to the point that it was not recharging the aquifer naturally. When that occurs, however, the city could very well face restrictions on diverting river water for recharge because of downstream water right considerations.

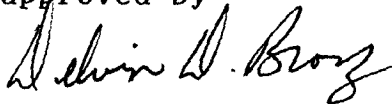
Conclusions

1. During normal periods there will be water available for the proposed application.
2. During extreme dry periods, interference by the proposed application with downstream water rights is likely.
3. Application No. 5431-3 should be approved with the following qualification:
 - A. Withdrawals of water are allowed whenever 20 cfs or more is flowing past the City's diversion point after diversions have been made.



Mark D. Rath
Natural Resources Engineer

approved by



Delvin D. Brosz
Natural Resources Engineer IV

References

1. U.S. Geological Survey. 1988. Water Resources Data South Dakota Water Year 1988. U.S. Geological Survey Water-Data Report SD-88-1.
2. Siegel, Jerry L. 1984. Final Report Big Sioux Aquifer Recharge Study at Sioux Falls. East Dakota Conservancy Sub-District 524 17th Avenue, Brookings, SD 57006.
3. Winterton, James. 1989. Report on Application No. 3981-3 and 5334-3. South Dakota Department of Water and Natural Resources, Water Rights Division.

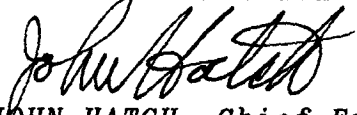
RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 5431-3, City of Sioux Falls

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Division, Department of Water and Natural Resources concerning Water Permit Application No. 5431-3, City of Sioux Falls, 224 West 9th Street, Sioux Falls SD.

The Chief Engineer is recommending APPROVAL of Application No. 5431-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) in the public interest with the following qualifications:

1. Permit No. 5431-3 does not authorize pumping from the Big Sioux River unless at least 20 cfs can be bypassed when pumping.
2. Approval of Permit No. 5431-3 authorizes total annual withdrawals of 6360 acre feet.

See the attached report for additional information.


JOHN HATCH, Chief Engineer
April 12, 1990



Department of Water & Natural Resources

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

April 16, 1990

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

Jack White, Mayor
City of Sioux Falls
224 West 9th Street
Sioux Falls, SD 57102-0595

Dear Mr. White:

Water Permit Application No. 5431-3 for emergency artificial recharge has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of hearing has been sent to the Publisher of the Argus Leader and the Canton Sioux Valley printed at Sioux Falls and Canton SD. For your information, a copy of the notice is enclosed. Copies of the report and the Chief Engineer's recommendation are also enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspaper to authorize publication of your Notice of Intent to Appropriate Water and to arrange for payment. Early contact with the paper can eliminate delays. The publisher has been instructed to publish your notice once each week for two consecutive weeks with the last publication to occur twenty days before the board meeting. We must receive Proof of Publication before the application can be considered by the Water Management Board.

Sincerely,

A handwritten signature in cursive script that reads "Eric Gronlund".

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures



Department of Water & Natural Resources

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

April 16, 1990

Canton Sioux Valley
Box 255
Canton, SD 57103-0255

ATTN: Legal Publications:

Enclosed is a Notice of Hearing on Application No. 5431-3 to be published twice. Please publish the first notice on or before April 26, 1990 with the second publication 7 days later.

The APPLICANT MUST VERIFY TO YOU THAT THE NOTICE IS TO BE PUBLISHED, before you make the first publication. Please BILL the APPLICANT for the cost of publication. The APPLICANT is the City of Sioux Falls, 224 W. 9th Street, Sioux Falls, SD 57102-0595.

A copy of BOTH publications must be SENT to the WATER RIGHTS DIVISION. IMMEDIATELY return the FIRST publication with the FIRST Transmittal form on the bottom of this page. The first copy is needed to check the publication for errors so any corrections can be made in the second publication. Publication errors can invalidate the public notice and cause the applicant costly delays.

Please be sure the SECOND publication is returned IMMEDIATELY with the enclosed Proof of Publication form. DO NOT WAIT until the end of the month or the billing cycle. The permit application cannot be considered by the Water Management Board until proof of publication has been received.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

-----CUT HERE-----

FIRST TRANSMITTAL NOTICE

TO: Eric Gronlund
Water Rights Division
Joe Foss Building
Pierre SD 57501-3181

No. _____

Date _____

We are in receipt of your letter of _____ enclosing Notice of Hearing to
Appropriate Water by Application No. _____ which was first published in our issue
of _____. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

Name

Newspaper



Department of Water & Natural Resources

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

April 16, 1990

Argus Leader
Box 5034
Sioux Falls, SD 57117-5034

ATTN: Legal Publications:

Enclosed is a Notice of Hearing on Application No. 5431-3 to be published twice. Please publish the first notice on or before April 26, 1990 with the second publication 7 days later.

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Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

-----CUT HERE-----

FIRST TRANSMITTAL NOTICE

TO: Eric Gronlund
Water Rights Division
Joe Foss Building
Pierre SD 57501-3181

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of _____. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

Name

Newspaper

Instruction to Newspaper - Publish first Notice on or before April 26, 1990 with 2nd publication 7 days later. The applicant is responsible for payment.

NOTICE OF HEARING on Application No. 5431-3 to Appropriate Water

Notice is given that the City of Sioux Falls, 224 West 9th St., Sioux Falls, SD 57102-0595 has filed an application for a water permit to appropriate 17.8 cubic feet of water per second (6360 acre feet annually) from the Big Sioux River to provide artificial recharge to the Big Sioux Aquifer for municipal use by the City of Sioux Falls. The point of diversion will be located in the SW1/4 SE1/4 SE1/4 of Section 32-T103N-R49W. Water will be diverted to the SW1/4 of Section 33-T103N-R49W to an old diversion channel that runs parallel to the Big Sioux River.

Pursuant to SDCL 46-2A-2, the Chief Engineer of the Water Rights Division recommends APPROVAL of Application No. 5431-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water and 4) it is in the public interest. This application will be considered by the Water Management Board in the Pelican Room, Ramkota Inn, Hwy 212, Watertown, SD on May 23, 1990 at 10:00 am. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer or 4) deny this application based on the facts presented at the public hearing.

Any interested person that intends to participate in the hearing before the Board by presenting evidence or cross-examining witnesses according to SDCL 1-26, must file a written petition with BOTH the applicant and Chief Engineer by May 11, 1990. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)". The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application and the signature and mailing address of the petitioner or legal counsel if legal counsel is obtained. The applicant need not file a petition. Contact the Water Rights Division to request information on this application or to assure access to the hearing by the handicapped.

This hearing is an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer. These and other due process rights will be forfeited if 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 also be automatically delayed for at least twenty days upon written request to the Chief Engineer from the applicant or a petitioner. The request for a delay must be received by May 11, 1990.

This application is made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-15; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) ss.
 County Lincoln)

I, Sandra Lundstrom
 certify that the attached printed Notice was taken
 from the Sioux Valley News

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 _____ Canton _____

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

April 26

May 3, 1990

Sandra Lundstrom
 (Signature)

Bookkeeper
 (Title)

May 3, 1990
 (Date Signed)

BERNON R. THORSON
 My commission expires
 January 20, 1995.

Cost of Printing: \$35.93

Supreme Court as provided by law.
 The time of the hearing will also be
 automatically delayed for at least
 twenty days upon written request to
 the Chief Engineer from the appli-
 cant or a petitioner. The request for
 a delay must be received by May
 11, 1990.

This application is made pur-
 suant to SDCL 46-1-1 through 46-1-
 9, 46-1-12 thru 46-1-15; 46-2-3.1,
 46-2-9, 46-2-11, 46-2-13, 46-2-17;
 46-2A-1 thru 46-2A-10, 46-2A-12,
 46-2A-14, 46-2A-15; 46-5-1 thru 46-
 5-11, 46-5-13 thru 46-5-15, 46-5-24,
 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-
 31; and Board Rules ARSD
 74:02:01:01 thru 74:02:01:15.
 4-26; 5-3



NOTICE OF HEARING ON APPLICATION NO. 5431-3 TO APPROPRIATE WATER

Notice is given that the City of
 Sioux Falls, 224 West 9th St., Sioux
 Falls, SD 57102-0595 has filed an
 application for a water permit to ap-
 propriate 17.8 cubic feet of water
 per second (6360 acre feet annu-
 ally) from the Big Sioux River to pro-
 vide artificial recharge to the Big
 Sioux Aquifer for municipal use by
 the City of Sioux Falls. The point of
 diversion will be located in the
 SW1/4 SE1/4 SE1/4 of Section 32-
 T103N-R49W. Water will be diverted
 to the SW1/4 of Section 33-T103N-
 R49W to an old diversion channel
 that runs parallel to the Big Sioux
 River.

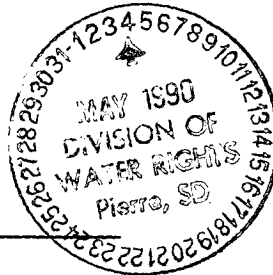
Pursuant to SDCL 46-2A-2, the
 Chief Engineer of the Water Rights
 Division recommends APPROVAL
 of Application No. 5431-3 because
 1) unappropriated water is available,
 2) existing rights will not be unlaw-
 fully impaired, 3) it is a beneficial
 use of water and 4) it is in the public
 interest. This application will be
 considered by the Water Manage-
 ment Board in the Pelican Room,
 Ramkota Inn, Hwy 212, Watertown,
 SD on May 23, 1990 at 10:00 am.
 The Chief Engineer's recommenda-
 tion is not final or binding upon the
 Board. The Board is authorized to 1)
 approve, 2) approve with qualifica-
 tions, 3) defer or 4) deny this appli-
 cation based on the facts presented
 at the public hearing.

Any interested person that in-
 tends to participate in the hearing
 before the Board by presenting evi-
 dence or cross-examining wit-
 nesses according to SDCL 1-26,
 must file a written petition with
 BOTH the applicant and Chief Engi-
 neer by May 11, 1990. The Chief
 Engineer's address is "Water Rights
 Division, Foss Building, 523 E.
 Capitol, Pierre, SD 57501 (605 773-
 3352)". The petition may be informal,
 but must include a statement
 describing the petitioner's interest
 in the application, the petitioner's
 reasons for opposing or supporting
 the application and the signature
 and mailing address of the petitioner
 or legal counsel if legal counsel is
 obtained. The applicant need not file
 a petition. Contact the Water Rights
 Division to request information on
 this application or to assure access
 to the hearing by the handicapped.

This hearing is an adversary
 proceeding. Any person filing a pe-
 tition and/or the applicant have the
 right to be represented by a lawyer.
 These and other due process rights
 will be forfeited if not exercised. De-
 cisions of the Board may be ap-
 pealed to the Circuit Court and State

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) ss.
 County Minnehaha)



I, Nancy A. Buckley

certify that the attached printed Notice was taken
 from the Argus Leader

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 Sioux Falls

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

Tuesday, April 24, 1990

Tuesday, May 1, 1990

Nancy A. Buckley
 (Signature)

Administrative Assistant
 (Title)

5/1/90

(Date Signed)

Cost of Printing: \$74.80

NOTICE OF HEARING
 on Application No. 5431-3
 to Appropriate Water
 Notice is given that the City of
 Sioux Falls, 224 West 9th St., Sioux
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 ally) from the Big Sioux River to
 provide artificial recharge to the Big
 Sioux Aquifer for municipal use by
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 SW1/4 SE1/4 SE1/4 of Section
 32-T103N-R49W. Water will be di-
 verted to the SW1/4 of Section
 33-T103N-R49W to an old diversion
 channel that runs parallel to the Big
 Sioux River.

Pursuant to SDCL 46-2A-2, the
 Chief Engineer of the Water Rights
 Division recommends APPROVAL
 of Application No. 5431-3 because
 1) unappropriated water is avail-
 able, 2) existing rights will not be
 unlawfully impaired, 3) it is a
 beneficial use of water and 4) it is in
 the public interest. This application
 will be considered by the Water
 Management Board in the Pelican
 Room, Ramkota Inn, Hwy 212,
 Watertown, SD on May 23, 1990 at
 10:00 am. The Chief Engineer's
 recommendation is not final or
 binding upon the Board. The Board
 is authorized to 1) approve, 2)
 approve with qualifications, 3) defer
 or 4) deny this application based on
 the facts presented at the public
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Any interested person that in-
 tends to participate in the hearing
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 evidence or cross-examining wit-
 nesses according to SDCL 1-26,
 must file a written petition with
 BOTH the applicant and Chief
 Engineer by May 11, 1990. The
 Chief Engineer's address is "Water
 Rights Division, Foss Building, 523
 E. Capitol, Pierre SD 57501 (605
 773-3352)". The petition may be
 informal, but must include a state-
 ment describing the petitioner's
 interest in the application, the peti-
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 the petitioner or legal counsel if
 legal counsel is obtained. The
 applicant need not file a petition.
 Contact the Water Rights Division
 to request information on this appli-
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This hearing is an adversary
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 to SDCL 46-1-1 thru 46-1-9, 46-1-12
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 thru 46-2A-10, 46-2A-12, 46-2A-14,
 46-2A-15; 46-5-1 thru 46-5-11,
 46-5-13 thru 46-5-15, 46-5-24,
 46-5-25, 46-5-30.2, 46-5-30.4,
 46-5-31; and Board Rules ARSD
 74:02:01:01 thru 74:02:01:15.

146 April 24, May 1, 1990



Department of Water & Natural Resources

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

5431-3

SEP 12 1990

Jack White, Mayor
City of Sioux Falls
224 West 9th Street
Sioux Falls, SD 57102

Dear Mr. White:

Enclosed is Water Permit No. 5431-3 as approved by the Water Management Board authorizing you to construct your water diversion system and put the water to beneficial use, not exceeding the limits as specified in the Water Permit.

Also enclosed is Form 10, Notice of Completion of Works and Application of Water to Beneficial Use, which you are to complete and submit to the Chief Engineer when you have completed the system and/or have put the water to beneficial use. An inspection can then be scheduled so that the Water License may be issued, thus completing your acquisition of a Water Right.

Very truly yours,

A handwritten signature in black ink, appearing to read "John Hatch". The signature is written in a cursive, flowing style.

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

enclosures

PLEASE NOTE: Certain changes can be made in your permit within the five year construction period, usually without affecting the priority date provided an application to amend your permit is made within the five year period - i.e. changes in location or number of diversion points (wells) or location of land to be irrigated. Well locations for wells into the same aquifer can be moved up to 660 feet without application.

Applications to amend a permit after the five year construction period will be assigned a new priority date. Applications to change water sources, to add lands or increase original diversion rates, if approved will usually receive the date of the new application as a priority date regardless of the five year construction period.



June 17, 1992

Lyle D Johnson, Water/Wastewater Manager
Utilities Department
224 W 9th Street
Sioux Falls SD 57102

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

Dear Mr. Johnson:

This letter is in reference to inspections of the city's water permits. On May 28, 1992, I met with Keith DeJong and Doug Holden to collect information to license Water Permit Nos. 5127-3, 5127A-3, 5115-3, 5235-3, and 5242-3.

Several discussions have occurred concerning the proper amount of water to place on the water licenses. The various pump rates discussed have been average pump rates, peak pump rates, design pump rates, and maximum sustainable pump rate under ideal operating conditions. Historically, the amount of water a permit is licensed for is the peak pump rate. Due to the unique nature of some of the city's wells (Bragstad and Ranney wells) licensing for the peak pump rate does not accurately reflect actual well production.

Aside from the Bragstad and Ranney wells, I believe the city's permits should be licensed considering both the peak pump rate (highest one day average) and design pump rate figures. Average pump rates over a year's time are not applicable. Enclosed is a copy of the 1991 pump records for well Nos. 48 thru 65. Well No. 48 produced a maximum flow of 400 gpm during 1991. If, for example, the design pump rate for the well was 425 gpm and you believe the well could produce this amount under more favorable aquifer conditions, then the well should be licensed for 425 gpm. If the design pump rate is 375 gpm and the well produces 400 gpm, then the well should be licensed for 400 gpm rather than the design rate. According to Jim Goodman, staff engineer, the water levels in your wells likely stabilize after a few hours of pumping without a substantial variance in the pump rate. Some informed estimating on your part may be needed to determine the proper pump rates. Keep in mind that the best time to determine what the wells produce is when the wells are relatively new and aquifer conditions are good.

I would appreciate your input before licensing Permit Nos. 5127-3, 5127A-3, 5115-3, 5235-3, and 5242-3. Please refer to the above narrative when commenting on the proposed pump rates for the licenses. Another important consideration is the annual volume of water diverted. Some of the following permits placed water to beneficial use that was originally reserved by a future use permit. Upon licensing, the portion of the annual volume not developed, if any, is reinstated to the future use permit. It is important to note that reinstatement of undeveloped water may only occur at the time of licensing. Reduced usage in the future may not be reinstated.

- 1) Water Permit Nos. 5127-3 and 5127A-3 place to beneficial use up to 2,160 acre-feet of water annually reserved by Future Use Permit No. 448-3 from as many as 8 wells with a maximum diversion rate of 8.0 cfs. The wells developed under these permits are well Nos. 53 thru 58. According to the 1991 pump records, the 6 developed wells produced a maximum of 2,315 gpm (5.16 cfs) and may be licensed 5.16 cfs with an annual volume of 2,160 acre-feet.
- 2) Water Permit No. 5115-3 places to beneficial use up to 2,244 acre-feet of water annually reserved by Future Use Permit No. 448-3 from as many as 5 wells with a maximum diversion rate of 6.70 cfs. The wells developed are well Nos. 48 thru 52. According to the 1991 pump records, the 5 developed wells produced a maximum of 1,850 gpm (4.12 cfs) and may be licensed for 4.12 cfs with an annual volume of 2,244 acre-feet.

June 17, 1992
Lyle D Johnson
Page 2 of 2

- 3) Water Permit No. 5235-3 authorizes construction of 6 wells to divert up to 6.45 cfs. The wells developed are well Nos. 60 thru 65. According to the 1991 pump records, the 6 developed wells produced a maximum of 3,670 gpm (8.17 cfs) which exceeds the permitted pump rate by 1.72 cfs. Any increase over the permitted amount will need to be covered by a new permit application. No future use permit is involved with this water permit.
- 4) Water Permit No. 5242-3 authorizes diversion of 1.56 cfs (700 gpm) from an abandoned quarry to be discharged to the Big Sioux River. I looked at the motor and pump but did not get the pump rate. Please confirm whether or not the pump rate is 700 gpm. No future use permit is involved with this water permit.

An inspection was also made of the one well developed in the Big Sioux:Southern Skunk Creek aquifer as authorized by Permit No. 5214-3. This permit will remain unlicensed since time is available until October 5, 1993, to complete construction of 2 additional wells. I was also informed that changes may be made to the pumping equipment used to recharge the Big Sioux Aquifer as authorized by Permit No. 5431-3. Licensing of this permit can also wait until the permanent equipment is in place.

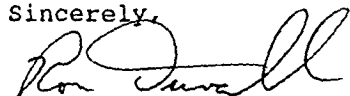
Mr. DeJong informed me that Nos. 1947-3 and 5202-3 can be cancelled. Water Right No. 1947-3 authorized the city to supply water to the EROS complex. According to Mr. DeJong, the complex has been supplied by the Minnehaha Rural Water System for the last couple of years. Permit No. 5202-3 appropriates 4.6 cfs from Silver Creek near the confluence with the Big Sioux River diversion canal. These pump stations provided an emergency water supply and are no longer needed due to well field expansions and construction of the Big Sioux River pump station.

The Bragstad and Ranney wells were licensed several years ago. Whether or not the licensed amount of water is currently accurate may be questionable. In the case of these types of wells, I believe the licensed amount of water should correspond with the maximum sustained pump rate under optimal operating conditions (i.e. wells rehabilitated and favorable aquifer conditions.) The initial peak pump rate would be artificially high for these types of wells due to the reservoir in the wells. The maximum sustained pump rate would occur after the reservoir level has stabilized. As noted on page 2 of my February 7, 1991 letter, the accuracy of the licenses can be reviewed as your well rehabilitation program allows. Well Nos. 30 thru 33 have been rehabilitated within the last few years.

Please comment on the amount of water you want placed on your water licenses. Several of the wells were constructed prior to 1991 and pump records from prior years may be more favorable for purposes of licensing. Especially important is your input on the annual water volume for those permits placing water to beneficial use reserved by Future Use Permit No. 448-3.

If you have any questions, please contact me.

Sincerely,



Ron Duvall
Natural Resources Engineer
605 773-3352

enc.

Well No	GPM		Pump	Motor	Horse power
	Max.	1991 AVG.			
48	400	386	Aurora 8RL 1 stage	Franklin	15 Submersible
49	550	410	Aurora 8RL 1 stage	Franklin	15 Submersible
50	400	363	Aurora 6RM 1 stage	Franklin	10 Submersible
51	275	249	Aurora 8RXL 1 stage	Franklin	15 Submersible
52	225	142	Aurora 6RL 2 stage	Franklin	10 Submersible
53	480	434	Aurora 8RXL 1 stage	Franklin	15 Submersible
54	400	392	Aurora 6RH 2 stage	Franklin	10 Submersible
55	330	294	Aurora 6RM 2 stage	Franklin	7.5 Submersible
56	325	290	Aurora 6RH 2 stage	Franklin	10 Submersible
57	390	276	Aurora 6RH 2 stage	Franklin	10 Submersible
58	390	354	Aurora 6RH 2 stage	Franklin	10 Submersible
60	700	590	Grundfos 600S150-1		15 Submersible
61	500	311	Western Land Roller 8KKH		20 Submersible
62	600	501	Western Land Roller 8KKH		20 Submersible
63	550	349	Western Land Roller 8KKH		15 Submersible
64	620	569	Western Land Roller 8KKH		20 Submersible
65	700	675	Western Land Roller 8KKH		20 Submersible

UTILITIES DEPARTMENT

Hearing Impaired (605) 339-7039



January 27, 1994

Ron Duvall, Natural Resources Engineer
DENR - Water Rights Division
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3181

Dear Mr. Duvall:

This letter is in response to your request regarding the City of Sioux Falls' total 1993 pumpages from our existing water supply sources.

Please review the attached Sioux Falls water supply summary. We have listed the total diverted water amounts from the Big Sioux Aquifer, Split Rock Creek Aquifer, Southern Skunk Creek Aquifer, and the Big Sioux River.

Please note that we have not, as of this time, diverted any water for our use from the Middle Skunk Creek Aquifer.

If you have any questions concerning this information, please contact Lyle Johnson at 339-7088 or contact me at 339-7040.

Sincerely,

Randy Janssen, Water Superintendent

gls
attachments
cc: Lyle Johnson, Water/Wastewater Manager

Utility Office
224 West Ninth Street
Sioux Falls, SD 57102
(605) 339-7031
FAX (605) 338-8490

Water Purification
2100 N. Minnesota Ave.
Sioux Falls, SD 57104
(605) 339-7025
FAX (605) 338-7801

Water Reclamation
4500 N. Sycamore Ave.
Sioux Falls, SD 57104
(605) 339-7088
FAX (605) 338-8484

Lights
2000 N. Minnesota Ave.
Sioux Falls, SD 57104
(605) 339-7150
FAX (605) 339-7006

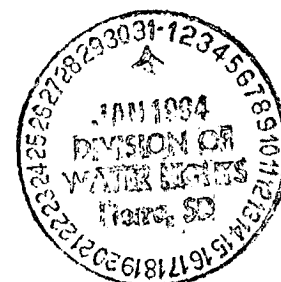
Maint./Svc. Division
668 Algonquin Avenue
Sioux Falls, SD 57104
(605) 339-7020
FAX (605) 338-7883



SIOUX FALLS WATER SUPPLY SUMMARY

BIG SIOUX AQUIFER

Well No.	Permit No.	Total 1993 Pumpage Acre-Ft.	Million Gals(MG)
3	256-3	19	6.19
4	257-3	30	9.78
10	259-3	18	5.87
11	260-3	27	8.80
12	261-3	28	9.13
13	262-3	91	29.66
14	263-3	8	2.61
15	264-3	241	78.54
17	266-3	17	5.54
18	267-3	93	30.31
20	269-3	277	90.27
21	270-3	482	158.06
23	272-3	57	18.58
24	273-3	53	17.27
25	274-3	329	107.22
26	275-3	265	86.36
27	276-3	286	93.21
28	298-3	491	160.01
29	299-3	758	247.03
30	300-3	133	43.34
31	395-3	380	123.84
32	396-3	639	208.24
33	397-3	187	60.94
34	1305-3	125	40.74
36	2018-3	412	134.27
37	2019-3	349	113.74
38	2747-3	388	126.45
39	2886-3	97	31.61
42	4098-3	322	104.94
43	4099-3	242	78.87
44	4100-3	370	120.58
46	4812-3	638	207.92
47	4811-3	389	126.77
48-53	5115-3	632	205.96
54-58	5127A-3	757	246.70
60-65	5235-3	326	106.24
Total		9956	3245.59



Split Rock Creek Aquifer

Well	Permit	Acre-Ft.	MG
67	5213-3	261	85.05
NSP	5213-3	265	86.36
Total		526	171.41

Big Sioux River

Well	Permit	Acre-Ft.	MG
Intake			
Sioux River			
Pump Station	5431-3	<u>6287</u>	<u>2049</u>
Total		6287	2049



5431-3

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

January 13, 1994

Lyle D. Johnson
City of Sioux Falls
224 W 9TH Street
Sioux Falls, SD 57102

Dear Mr. Johnson:

Pursuant to qualifications on Water Permit/Right No. 5726-3 (Big Sioux:Middle Skunk Creek Aquifer) & 5710-3 (Big Sioux:Sioux Falls Aquifer), and an annual water use limit from the Big Sioux River on Nos. 5334-3 and 5431-3, I am requesting that the City of Sioux Falls report the total amount of water diverted from each of these water sources during 1993. Please respond by January 31, 1994.

If you have any questions concerning this or other water rights questions, please contact Barry McLaury, Natural Resources Analyst, (605) 773-3352.

Sincerely,

RON DUVALL, Natural Resources Engineer
for JOHN HATCH, Chief Engineer
Water Rights Division



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

City of Sioux Falls
Public Works Adm.
224 W 9th St
Sioux Falls SD 57102

Attn: Darla

On July 24, 2002, Lynn Beck, a staff engineer accompanied by Randy Janssen conducted investigations of several of the City of Sioux Falls water permits, including the extent of application of water to beneficial use, as developed under the permits. The final water right documents, the water license, can now be issued.

State law requires that we charge a \$50.00 fee for each investigation and issuance of the water license. Enclosed is an invoice for a total of \$400.00. The check or money order for the fee should be made payable to the "Water Rights Program".

The licensed water right will be similar to a property right that can not be lost as long as the water use continues and the city abides by the permit requirements.

If you have any questions regarding the water permits, investigation of the water use systems or payment of the fee, please contact me.

Sincerely,

Karen Schlaak
Water Rights Program
(605) 773-3352



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

* INVOICE *

Invoice No. 20411-110602

City of Sioux Falls
Public Works Adm.
224 W 9th St
Sioux Falls SD 57102

Fee for investigation of the following water permits:

No. 5213-3	50.00
No. 5214-3	50.00
No. 5431-3	50.00
No. 5611-3	50.00
No. 5612-3	50.00
No. 5614-3	50.00
No. 5615-3	50.00
No. 5726-3	50.00

PLEASE PAY THIS AMOUNT:

\$400.00

Karen Schlaak
Karen Schlaak
Environmental Scientist
Water Rights Program
(605) 773-3352

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date November 19, 2007

RECEIVED OF City of Sioux Falls, 244 West Ninth St., Sioux Falls, SD 57104-6407

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

Fee for Application for Permit No. _____ to Appropriate Water, to construct and to put water to beneficial use	50	00
Fee for Application for Permit No. _____ to Appropriate Water for Future use		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. <u>6 5431-3</u>		
Fee for Filing Transfer Form _____		
Fee for _____		
Fee for Issuing New Well Driller's License No. _____ for C.Y. _____		
Fee for Renewal of Well Driller's License No. _____ for C.Y. _____		
Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____		
Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____		
(Any Other Work Provided by Law)	TOTAL	50.00

No.

By

David Erbel
Chief Engineer

Permit No. 5431-3
Big Sioux River - Water District

Report of Examination of Works and/or Application of Water to Beneficial Use

TO: Chief Engineer, Water Rights Program, DENR, Foss Bldg., Pierre, SD 57501

I have this day, **July 24, 2002**, made a thorough examination of the water use system constructed by **City of Sioux Falls** of **224 West 9th St., Sioux Falls SD 57104** holder of Permit No. **5431-3**, bearing the priority of **March 26, 1990** authorizing the diversion of **17.8** cu. ft. per second and/or **6,360** acre-feet annually of the waters of **the Big Sioux River** for **artificial recharge** purposes, in **Minnehaha** County.

Inspection contact & relationship to permit holder, if applicable:	Randy Janssen, Water Superintendent for the City of Sioux Falls
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A. Works used to divert the water:

Pump:

- 1) Make **Fairbanks/Morse submersible**
- 2) Model **D5731MV**
- 3) Size **16"**
- 4) Capacity **7,000** GPM

Motor:

- 1) Make **Fairbanks/Morse**
- 2) Model No.
- 3) Horsepower rating **75** hp

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

- | | | |
|--------------------------------|---------------------------------|-------------------------------------|
| 1) Type <u>concrete</u> | 2) Size <u>20</u> inches | 3) Length <u>1,940'</u> feet |
|--------------------------------|---------------------------------|-------------------------------------|

C. Works used to apply water to beneficial use:

Water is diverted to an old diversion channel that parallels the Big Sioux River for recharge to the Big Sioux Aquifer.

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by **yes**

Report of Examination of Works

Permit No. 5431-3

The system is in good condition with the point of diversion located as follows: 55' S and 1,270' W of the NE corner Section 5-T102N-R49W in the NE¼ NE¼. The works are capable of diverting and conveying to the place of use 15.56 cu. ft. per second of water and/or 6,360 acre-feet of water annually which is to be used for artificial recharge. Water has been put to beneficial use to the maximum extent as follows:

Water is diverted to an old diversion channel that parallels the Big Sioux River for recharge to the Big Sioux Aquifer.

The license should be issued for 15.56 cfs and/or 6,360 acre-feet annually.

All structures, wells and lands on map yes

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


Lynn Beck

Natural Resources Engineer Specialist
DENR, Water Rights Program

Date report completed: October 16, 2002

Approval of Location Change and/or Additional Diversion Point(s)

NAME: City of Sioux Falls

ADDRESS: 224 West 9th Street, Sioux Falls SD 57102

DATE: November 1, 2002

COUNTY: Minnehaha

TELEPHONE: (605) 339-7025

AUTHORITY:

Pursuant to SDCL 46-5-13.1, the location of a diversion point may be changed or additional diversion points may be licensed provided the following conditions are met and the potential for interference with other existing diversions is not increased:

- **Developed water source same as permitted source and no additional water appropriated**

The water source is the Big Sioux River and no additional water is used.

- **If irrigation, no new land is irrigated**

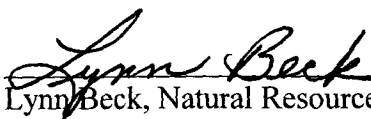
NA

- **Review of Existing Diversions**

Permit Nos. 5334-3 and 6210-3 also held by the City of Sioux Falls are the only water rights downstream of this diversion point before the diversion of the Big Sioux River around Sioux Falls. Permit No. 5431-3 authorizes one point of diversion from the Big Sioux River located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 32-T103N-R49W. The diversion point was developed in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 5-T102N-R49W approximately 55' S and 1,270' W of the NE corner Section 5. The permit requires a 20-cfs bypass before pumping can occur.

RECOMMENDED ACTION

Based on the above criteria, it is recommended that the diversion point(s) be licensed as developed.


Lynn Beck, Natural Resources Engineer
Water Rights Program

The Chief Engineer makes a finding pursuant SDCL 46-5-13.1 and ARSD 74:02:01:14.01 that:

This change in location and/or additional diversion point(s) does not increase the potential for adverse effects to existing diversions.


Garland Erbele, Chief Engineer
Water Rights Program

WATER RIGHT NO. 5431-3

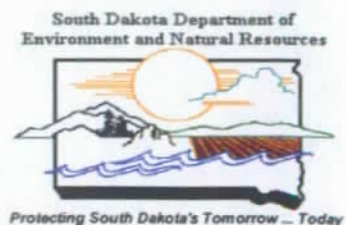
City of Sioux Falls



1000 0 1000 2000 3000 4000 5000 Feet

Lynn Beck

Lynn Beck
Natural Resources Engineer Specialist
DENR, Water Rights Program
October 16, 2002



STATE OF SOUTH DAKOTA
WATER LICENSE NO. 5431-3

(1) The City of Sioux Falls, 224 W 9th St, Sioux Falls SD 57102 made Application No. 5431-3, March 26, 1990 for a water permit to divert 17.8 cubic feet of water per second (6,360 acre-feet annually) from the Big Sioux River, Minnehaha County, South Dakota for municipal purposes. Permit No. 5431-3, with a priority date of March 26, 1990 was approved May 23, 1990 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before May 23, 1995 and for the application to beneficial use of water on or before May 23, 1999.

An investigation conducted for licensing purposes found the diversion point under Water Permit No. 5431-3 was not in the location authorized by the permit. Pursuant to SDCL 46-5-13.1, the Chief Engineer makes a finding that the change in location of diversion point does not increase the potential for interference with existing water rights.

(2) The water supply system has been completed and water applied to beneficial use in accordance with South Dakota State Law. Pursuant to South Dakota Codified Law 46-5-30.1, the holder and/or owner of Water Right No. 5431-3 is issued a license, bearing a priority date of March 26, 1990 to appropriate 15.56 cubic feet of water per second (6,360 acre-feet annually) from the Big Sioux River.

Water is diverted from the river to an old diversion channel that parallels the Big Sioux River for recharge to the Big Sioux Aquifer.

The diversion point is located 55 feet south and 1,270 feet west of the northeast corner of Section 5-T102N-R49W (NE ¼ NE ¼).

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 5431-3 including the following qualifications:

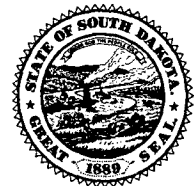
- Permit No. 5431-3 does not authorize pumping from the Big Sioux River unless at least 20 cfs can be bypassed when pumping.
- Approval of Permit No. 5431-3 authorizes total annual withdrawals of 6,360 acre-feet.

Garland Erbele

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

JUN 20 2003

date



Amendment to the qualifications contained in Water Right No. 5431-3

Deleted Qualification:

- Permit No. 5431-3 does not authorize pumping from the Big Sioux River unless at least 20 cfs can be bypassed when pumping.

New Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06482020 at North Cliff Avenue when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

May 22, 2018

NOTICE OF ENTRY OF ORDER

(5431-3) 6210-3

City of Sioux Falls
Greg Anderson
224 W 9th St
Sioux Falls SD 57102

Dear Mr. Anderson:

I am writing in response to action taken by the Water Management Board on May 3, 2018, regarding the Hearing to Amend the Bypass Qualifications on Big Sioux River water rights.

Attached is the qualification that was deleted from your water right and the new qualifications.

This amendment designates a US Geological Survey gaging station as the measuring point to determine if pumping is allowed. The gaging station has real time flow information that can be accessed online at <https://waterdata.usgs.gov/sd/nwis/rt>. However, the water right is also subject to written orders of the Chief Engineer regardless of the bypass criteria.

If you have questions concerning the Board action or your water right(s), please contact Mark Rath with our program at 605 773-3352 or mark.rath@state.sd.us.

Sincerely,

Jeanne Goodman, Chief Engineer
Water Rights Program

enclosure

cc: Diane Best, Assistant City Attorney, City of Sioux Falls

CERTIFICATION

I hereby certify that on May 22, 2018, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice of Entry of Order dated May 22, 2018 regarding amending bypass qualifications on Big Sioux River water rights addressed as stated below:

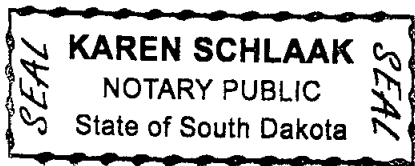
Elaine Ahlers, PO Box 186, Flandreau SD 57028
Adam Wiese, Operator, 22603 479th Ave, Flandreau SD 57028
Chad Anderson, 47880 244th St, Dell Rapids SD 57022
Ronnie J Boever, 47948 232nd St, Flandreau SD 57028
Brian Burkhart, 24482 482nd Ave, Dell Rapids SD 57022
Jim Czech, Operator, 45767 177th St, Watertown SD 57201
Marvin & Maxine Czech, 45848 176th St, Watertown SD 57201
Dell Rocky Run Golf Course, 47364 Golf View Drive, Dell Rapids SD 57022
Allen Fugere, Operator, 700 N Main, Estelline SD 57234
W J Sanderson & Alan Blum, 703 1st Ave S, Estherville IA 51334
Darren & Allison Hamilton, 22615 480th Ave, Flandreau SD 57028
Wayne Headrick, 47926 SD Hwy 32, Flandreau SD 57028
Mrs. Raymond D Jensen & Scott Jensen, Operator, 24348 478th Ave, Dell Rapids SD 57022
Larry J Jorgenson, 24048 477th Ave, Trent SD 57065
Ted Lacey, 24064 478th Ave, Trent SD 57065
Thomas A & Patricia K Munk Revocable Living Trust, 15683 State Hwy 105, Austin MN 55912
City of Sioux Falls, Greg Anderson, 224 W 9th St, Sioux Falls SD 57102
City of Sioux Falls, Kelby Mieras, 100 E 6th St, Sioux Falls SD 57104
Diane Best, Assistant City Attorney, City of Sioux Falls, PO Box 7402, Sioux Falls SD 57117-7402

Vickie Maberry
Vickie Maberry
Secretary/Water Rights

[illegible]

Sworn to, before me, this 22nd day of May, 2018.

Karen Schlaak
Karen Schlaak
Notary Public
My Commission expires April 1, 2019





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

JUN 20 2003

Randy Jenssen
Sioux Falls Water Superintendent
2100 N Minnesota Ave
Sioux Falls SD 57104

Dear Mr. Jenssen:

Enclosed are Water License Nos. 5213-3, 5214-3, 5431-3, 5611-3, 5612-3, 5614-3, 5615-3, 5726-3, 6210-3, 6214-3 and 6215-3 for the City of Sioux Falls. A map prepared by Lynn Beck is also included for each permit as well as receipts for payment of the license fees.

These are the final water right documents completing the city's process of obtaining Water Rights.

As long as the city uses the water beneficially, as stated in the Water Licenses, State Water Laws provide a continuing right to use the water.

Sincerely,

A handwritten signature in cursive script that reads 'Garland Erbele'.

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

NOTE: The applicable portions of No. 5334-3 are incorporated into Water License No. 6210-3.
The applicable portions of Nos. 2923-3 and 5613-3 are incorporated into Water License No. 5726-3.

enclosures



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

January 31, 2018

5431-3 6210-3

CITY OF SIOUX FALLS
GREG ANDERSON
224 W 9TH ST
SIOUX FALLS SD 57102

Subject: Bypass Qualifications on Big Sioux River Water Rights

Dear Mr. Anderson,

I am writing to inform you of an effort the SD Dept. of Environment and Natural Resources Water Rights Program is undertaking to review and update a number of water right permits authorized to pump water from the Big Sioux River. When a number of these permits were issued, they contained a qualification requiring a minimum flow bypass before the user is able to pump water from the river. The bypass qualification was placed on these permits to protect the use of water by downstream senior priority water right holders and domestic water users, which includes livestock watering. The review found, with the passage of time, a number of senior water right permits have been cancelled due to abandonment or forfeiture. Consequently, it may be possible to lower the flow bypass limitation on the remaining permits. In other words, the amount of flow in the river can be lower and pumping will still be allowed. The review also found an inconsistency between permits on where the bypass flow is to be measured.

The intent of this effort is to standardize and make consistent the bypass requirements for the remaining water users. In most cases, the proposed changes will reduce the flow bypass requirement on the individual permits. To make the permits consistent, the bypass measuring point will also be designated at a United States Geological Survey (USGS) stream gaging station. The USGS maintains a real-time stream gaging network on the Big Sioux River. Current river flow information can be easily accessed from the internet at the following internet address:

<https://waterdata.usgs.gov/sd/nwis/rt>

In order to amend a qualification on an existing water right permit, formal action by the SD Water Management Board is needed. In the next few weeks, you can expect to receive official notification scheduling a hearing before the Water Management Board. If you wish to participate in the hearing you can, but you are not required to. There will be instructions with the notification on how to participate in the hearing if you so choose.

If you have any questions concerning this effort, please contact Mark Rath of the Water Rights Program at phone (605) 773-3352.

Sincerely,


Jeanne Goodman, Chief Engineer
Water Rights Program



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

February 12, 2018

5431-3 6210-3

City of Sioux Falls
Greg Anderson
224 W 9th St
Sioux Falls SD 57102

Subject: Bypass Qualifications on Big Sioux River Water Rights

Dear Mr. Anderson:

The SD Department of Environment and Natural Resources has evaluated the minimum flow bypass condition on water rights that pump from the Big Sioux River. The Chief Engineer is recommending amending the bypass qualification on 21 Big Sioux water rights. The intent is to bring uniformity to the bypass requirement placed on water rights in past years. Water Right(s) that you own or operate are included in those proposed to be amended.

Attached is the qualification to be deleted from the water right(s) and the proposed new qualifications.

The proposed amendment to your water right will not impose a more restrictive condition than currently is in place on your water right. In some cases the bypass requirement remains the same but generally the proposed amendment decreases the minimum bypass that must exist before a user is able to pump water from the river. The amendment does designate a US Geological Survey gaging station as the measuring point to determine if pumping is allowed. The gaging station has real time flow information that can be accessed on-line at <https://waterdata.usgs.gov/sd/nwis/rt>. Many, but not all, water rights referenced the bypass being located at the pump site where there isn't real time flow information.

A hearing before the Water Management Board is scheduled at 11:30 AM, Wednesday, March 7, 2018 in the Matthew Training Center, Joe Foss Building, 523 E Capitol Avenue, Pierre SD. Enclosed is the notice to be published on or before February 15, 2018, in one newspaper from each of the seven counties that the Big Sioux River flows through. This notice provides information on filing a petition in either support or opposition to the propose amendment. The filing of a petition must be postmarked by February 26, 2018. Additionally filing a petition affords you the opportunity to participate in the March 7th hearing before the Board if you choose.

The staff report including affected water rights and the proposed changes is available at <http://denr.sd.gov/public> or contact Mark Rath at 605 773-3352 or mark.rath@state.sd.us. If you have questions, please call. DENR is willing to work to answer any questions.

Sincerely,

Eric Gronlund
Water Rights Program, DENR
605 773-3352
Eric.gronlund@state.sd.us

enclosure

Proposed Qualification Revisions

In order to standardize the qualifications for the 5 existing water rights/permits containing bypass qualifications in the Big Sioux River reach between the USGS stream gaging station near Dell Rapids downstream to the USGS stream gaging station at North Cliff Avenue at Sioux Falls, the following changes are proposed.

Amendment to the qualifications contained in Water Right No. 5431-3

Delete Qualification:

- Permit No. 5431-3 does not authorize pumping from the Big Sioux River unless at least 20 cfs can be bypassed when pumping.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06482020 at North Cliff Avenue when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Review of Big Sioux River Water Rights and Report on Proposed Amendments

February 13, 2018

Introduction

The Big Sioux River is a prairie stream with headwaters located in the northern prairie coteau in southern Roberts, eastern Day and eastern Clark counties, in northeastern South Dakota. The river drains glacial till and outwash plains as it runs southward to its junction with the Missouri River near Sioux City, Iowa. The Big Sioux River physical geography is characterized by glaciated terrain and rolling plains. Rivers commonly follow the valleys formed by glacial lobes, which were glaciated as recently as 14,000 years ago. Drainages in this region formed after retreat of glaciers and are therefore poorly established in parts of the watershed. The poorly established drainage patterns are accompanied by numerous areas of internal drainages, or “potholes,” and are commonly referred to as the “Prairie Pothole Region” (Hoogestrat and Stamm, 2015).

As is typical of prairie streams in South Dakota, the peak runoff occurs during the spring months due to plains snowpack melt and from runoff of larger rain events. Runoff tends to decrease in the late summer months going in to fall and winter.

Qualification Status

A review of Water Right Program files shows there have been 163 water right permits (water permits) issued for the Big Sioux River, some with priority dates going back to statehood. Many of these have been cancelled due to abandonment or forfeiture, some have been incorporated into other water permits and some remain active. An examination of water right files found the Water Resources Commission placed the first bypass qualification, 20 cubic feet per second (cfs) bypass at the diversion point, on a Big Sioux River water permit in Moody County in 1960 (Water Rights, 2018).

After the Water Resources Commission placed the first bypass qualification on a Big Sioux River water permit in 1960, it appears from then until the mid-1990’s, with the advent of real-time accessible stream gaging, the management of water permits from the Big Sioux River was primarily addressed on a river reach basis and the presence of senior priority water permits. Water permits issued in a similar reach with relatively similar priority dates would have the same bypass requirements. Later when water permits were issued, the bypass requirement would be incrementally increased to account for protection of the senior priority water permits (Water Rights, 2018).

The northern most river reach, from the headwaters in southern Roberts County to the Brookings – Moody county line, only has a hand full of permits issued since 1960. Bypass qualifications range from 5 cfs for those water permits issued in the mid-1960’s to 35 cfs for those issued more recently (Water Rights, 2018).

In the Big Sioux River reach from the northern border of Moody County to Dell Rapids, which has the most water permits issued, the 20 cfs bypass requirement was placed on Big Sioux River water permits from 1960 until 1966 when the bypass requirement was raised to 30 cfs for new permits issued. In 1968 the bypass requirement was raised to 35 cfs and was then incrementally increased to 50 cfs by 1976. Many of these water permits have subsequently been cancelled due to abandonment or forfeiture. The most recent water permits issued in this reach contained a 43 cfs bypass requirement (Water Rights, 2018).

In the Big Sioux River reach immediately to the south between Dell Rapids where the Big Sioux River crosses Cliff Avenue on the eastern side of Sioux Falls there have been multiple water permits issued. These contain a 20 cfs bypass requirement. Earlier issued water permits require a 20 cfs bypassed at the diversion point while the later issued ones require a 20 cfs bypass at the United States Geologic Survey (USGS) stream gaging station at North Cliff Avenue in Sioux Falls (Water Rights, 2018 and USGS, 2018).

The southernmost river reach from where the river crosses North Cliff Avenue in eastern Sioux Falls to the confluence with Missouri River in southern Union County does not have any water permits with bypass requirements. This reach, even during drier climatic conditions has sufficient flow exceeding demand. The additional flow is attributed to effluent discharge from the Sioux Falls waste water treatment plant and contributions from downstream tributaries such as Split Rock Creek near Brandon (Water Rights, 2018).

Currently there are 59 active water permits authorized for the Big Sioux River from the headwaters in Roberts County to the mouth in Union County, Figure 1. There have been 49 water permits issued since 1960, when the first bypass requirement was enacted, to present which have subsequently been cancelled due to abandonment or forfeiture. Currently 21 of the existing water permits contain some sort of flow bypass qualification. When the water permits were issued with bypass qualifications, it was done because the senior priority water permits were active and being used, so the amount of the bypass requirement placed on the water permit was based on a level to protect senior priority water use. Since there has been significant attrition in the number of active water permits using Big Sioux River water since 1960, with many of them being cancelled, this leaves a somewhat disjointed system of bypass requirements for the remaining water permits. In addition, the City of Sioux Falls holds two active future use permits with 1977 priority dates reserving 30,000 acre-feet of Big Sioux River water in the river reach between the Dell Rapids gage and the North Cliff Avenue gage (Water Rights, 2018 and USGS, 2018).

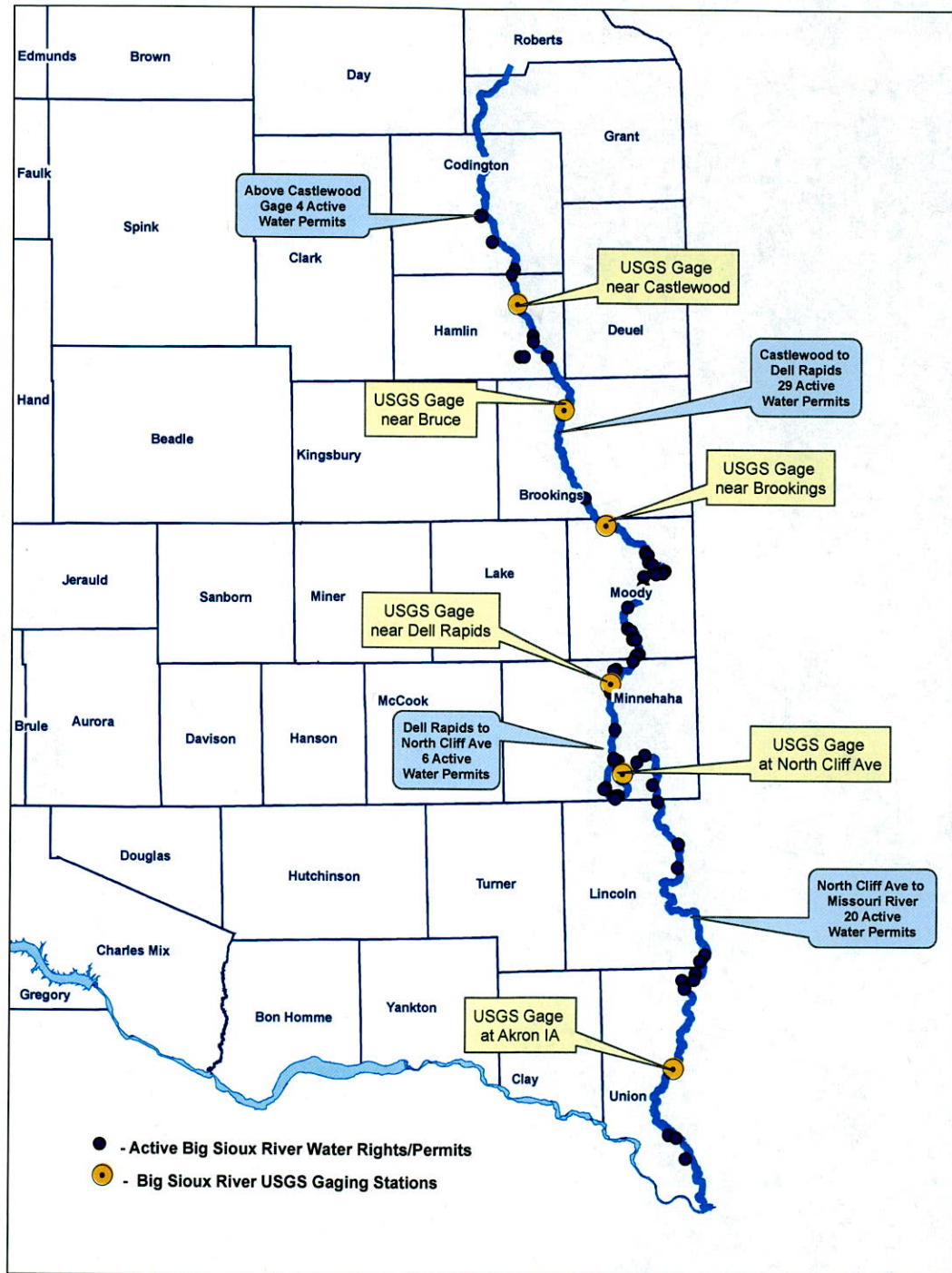


Figure 1. Area map of the Big Sioux River showing the locations of the active water rights/permits and USGS Big Sioux River stream flow gaging stations (Water Rights, 2018 and USGS, 2018).

It is proposed that the existing bypass qualifications for each of the active water permits be reviewed, taking into account the amount of bypass required, the presence of existing rights, the location of the diversions points, and the historical river flow conditions along the various reaches of the river. This review will determine if it is justified to recommend modifications of the existing bypass qualifications.

Authority

SDCL 46-1-14 gives the Water Management Board the authority to amend water right permits. Water permits issued by the board may be amended by the board with priority retained upon amendment. The board may alter terms, conditions, restrictions, qualifications or quantifications.

South Dakota Codified Law

46-1-14. Terms and conditions of permits and licenses--Amendment. The Water Management Board may issue any permit or license subject to terms, conditions, restrictions, qualifications, quantifications, or limitations on perpetuity consistent with this chapter which it considers necessary to protect the public interest and which are related to matters within the jurisdiction of the board. Water rights issued pursuant to this section may be amended by the board and priority is retained upon amendment. Upon amendment the board may alter terms, conditions, restrictions, qualifications, or quantifications consistent with this chapter.

46-2-3.1. Delegation of authority to chief engineer--Restrictions. The Water Management Board may delegate to the chief engineer authority to act on its behalf concerning the quasi-judicial functions of interpreting, applying, and enforcing existing rules and laws and ordering action or abatement of action. The board may not delegate any other quasi-judicial functions as defined in § 1-32-1, except as otherwise provided by law. The board may promulgate rules pursuant to chapter 1-26 to delegate to the chief engineer the authority to issue permits pursuant to § 46-1-14.

46-2-17. Chief engineer's general enforcement authority. The chief engineer may:

- 1) Investigate the use of the waters of the state and compliance with the provisions of water permits, licenses, rules, regulations, and laws relating to water rights;
- 2) Institute enforcement and other proceedings before the Water Management Board;
- 3) Enforce orders of the board; and
- 4) Perform other acts authorized by statute or regulation.

46-2-18. Chief engineer's authority to order discontinuance of water use. The provisions of chapter 1-26 notwithstanding, the chief engineer may, after appropriate investigation, issue an order to any person to shut off or limit the person's use of surface or groundwater, or to plug or otherwise control a well. The order may be issued only to protect another user who has higher or earlier priority or to cause a user of water to discontinue the use of water to which the user has no legal right. Upon a refusal to obey the order, the chief engineer may request a court of proper jurisdiction to issue a temporary restraining order or injunction to effectuate the provisions of the order.

The 21 remaining active water permits authorized to divert water from the Big Sioux River having bypass requirements are subject to SDCL 46-2-3.1, 46-2-17, and 46-2-18, as are all water permits. These statutes give the Chief Engineer the ability to issue written orders within the context of authority granted under the statutes. The remaining 37 active water permits without any bypass requirements authorized to use Big Sioux River water either have priority dates senior to 1960 or are located in the river reach between the North Cliff Avenue gage and the confluence with the Missouri River. There is no intent with this effort to place bypass qualifications on these 37 water permits that do not currently have bypass qualifications.

Evaluation of the Existing Flow Bypass Qualifications and River Reach

The active Big Sioux water permits containing bypass qualifications vary on where the flow bypass is to be measured. The ones with earlier priority dates require a minimum flow past the diversion point. Because it is

impractical for the water user to measure flow at their pump site the more recently issued permits contained bypass qualifications referenced to a nearby United States Geological Survey (USGS) stream flow gaging stations.

In the section of river from southern Codington County to a point where the Big Sioux River crosses North Cliff Avenue in eastern Sioux Falls, three of the USGS gaging stations allowing access to real-time stream flow information have been used as measuring points for bypass limits from the river. See Table 1 (USGS, 2018).

Station Number	Station Name	Years Operated
06479525	Big Sioux River near Castlewood SD	1977-2017
06481000	Big Sioux River near Dell Rapids SD	1949- 2017
06482020	Big Sioux River at North Cliff Ave at Sioux Falls SD	1972- 2017

Table 1. USGS Big Sioux River stream flow gaging stations located near Castlewood, near Dell Rapids and at North Cliff Avenue in Sioux Falls SD (USGS, 2018).

The USGS has collected daily flow data at these gaging stations over several years. The USGS maintains an archive of historical flow and statistical flow data for these gaging stations that can be accessed by the public. A major concern in setting bypass qualifications is to identify the times when the river is experiencing lower flows and also to identify when those lower flows occurred. A review will focus on events when a particular stream segment experiences the lower half of the daily flow. Median, otherwise referred to as 50 percentile (50%), is used to help understand the central tendency of a set of statistical results with the lower half of measured daily flow values being at or less than the 50% value. Based on the period of record for each gage site, the daily flow value or less would be expected to occur on average 10 out of 20 years. At the 25 percentile (25%) flow value, the daily flow would be expected to be at or below that value an average of 5 out of 20 years. At the 10 percentile (10%) flow value, the daily flow would be expected to be at or below that value an average of 2 out of 20 years, (USGS, 2018).

Analysis and Proposed Qualification Revisions

A fresh look was taken of the original bypass requirements to determine whether the original bypass levels would be effective limits for the existing active water rights. The review took into consideration the existing water rights, the qualifications, the authorized use, the location of the diversion points, the annual period of use, and historic stream flow data.

Based upon this review, the river was broken into four separate bypass management reaches. The upper most reach is from the headwaters down to the Castlewood gage. The next reach is from the Castlewood gage to the Dell Rapids gage. The third reach is from the Castlewood gage to the North Cliff Avenue gage at Sioux Falls, and the final reach is from the North Cliff Avenue gage to the confluence with the Missouri River at North Sioux City.

The bypass qualifications originally adopted in the 1960's by the Water Resources Commission of 5 cfs for the reach north of Castlewood and 20 cfs for the reach between Castlewood to Dell Rapids were based on Water Rights staff recommendations. The recommendations were based on water use and flow history for each of those reaches. The 20 cfs bypass requirement for the river reach between Dell Rapids and Sioux Falls was first placed on a water permit in 1989 by the Water Management Board, a successor to the Water Resources Commission, following a low flow analysis by Water Rights staff for the Big Sioux River in that reach (Water Rights, 2018).

Of the 21 existing water permits containing some sort of flow bypass qualification all but two are for irrigation use. The two permits not for irrigation are for municipal use and are held by the City of Sioux Falls. Since most of the water permits having bypass qualifications were issued for irrigation, the following discussion

references a typical crop irrigation season of May 1 to October 15. The analysis focused on the typical irrigation season because this is characteristically when water management actions, such as issuing of shutoff orders by the Chief Engineer, would occur.

The irrigation season for grasses, as would be grown on golf courses and parks, may extend outside the typical irrigation season and run from the early April through late October. Of the four existing water permits for irrigation one is for a golf course at Dell Rapids and three are for irrigating golf courses and soccer fields in Sioux Falls (Water Rights, 2018).

Headwaters to Castlewood Reach

On the upper Big Sioux River there are four existing water permits, two are for storage in lakes Pelican and Kampeska and the other two are for irrigation. The two irrigation water permits containing a bypass qualification both are located approximately five miles upstream from the USGS stream gaging station near Castlewood. The total current authorized diversion rate for this reach is 4.26 cfs. Figure 2 shows the total annual appropriated volume and reported usage volume for the years 1983 to 2016 (Water Rights, 2018).

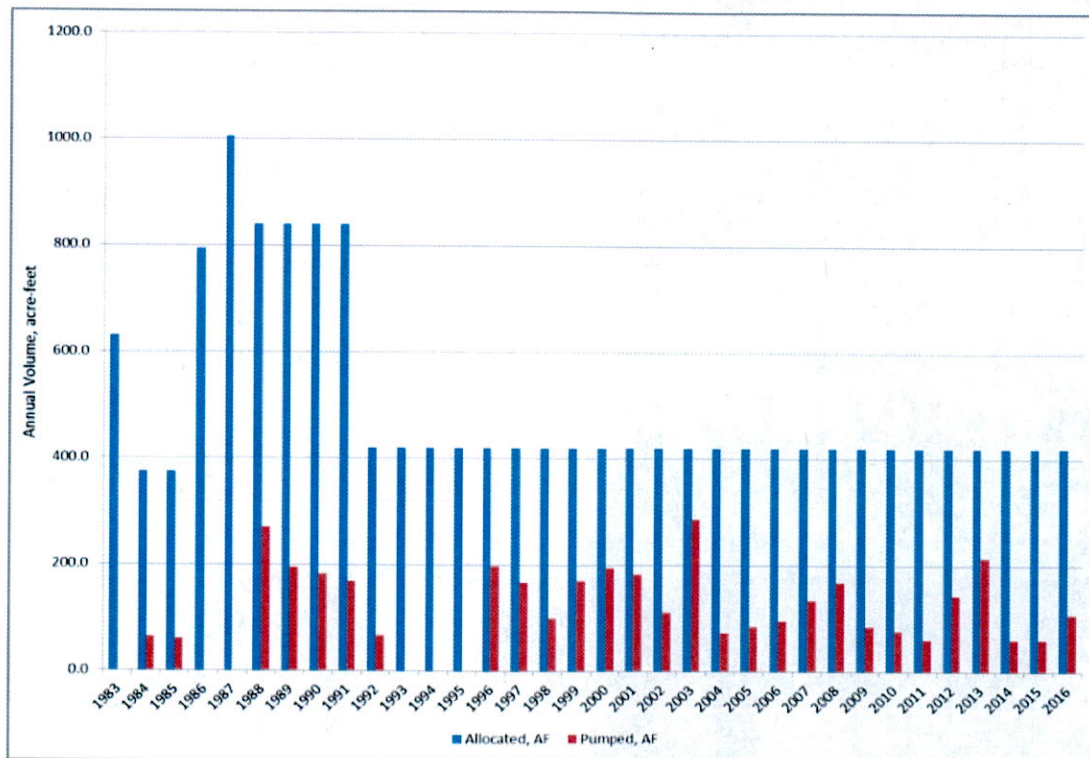


Figure 2. Total irrigation allocation and reported use from the Big Sioux River for the river reach upstream from the USGS gaging station near Castlewood (Water Rights, 2018).

On November 8, 1967, the Water Resources Commission set the initial bypass limit of 5 cfs on a water permit located in the upper river reach north of the Castlewood gage. The application for this water permit had been opposed at a previous meeting so the Commission deferred action and directed staff to investigate. At that time, staff determined excess water was available most years May through July, sometimes available in August and seldom available in September and October. In 2012, a permit was issued in this reach with a 35 cfs bypass qualification. This bypass requirement was the same one

previously placed on a downstream senior priority water permit located in the Castlewood to Dell Rapids reach (Water Rights, 2018).

Figure 3, is a hydrograph for the Castlewood gage showing the 50, 25 and 10 percentile daily flows for the 41 year period of record, 1977 to 2017. In Figure 3, the 10 percentile curve is above the 5 cfs line from the beginning of the irrigation season until the last 10 days of July. The 25 percentile curve is greater than 5 cfs throughout the irrigation season.

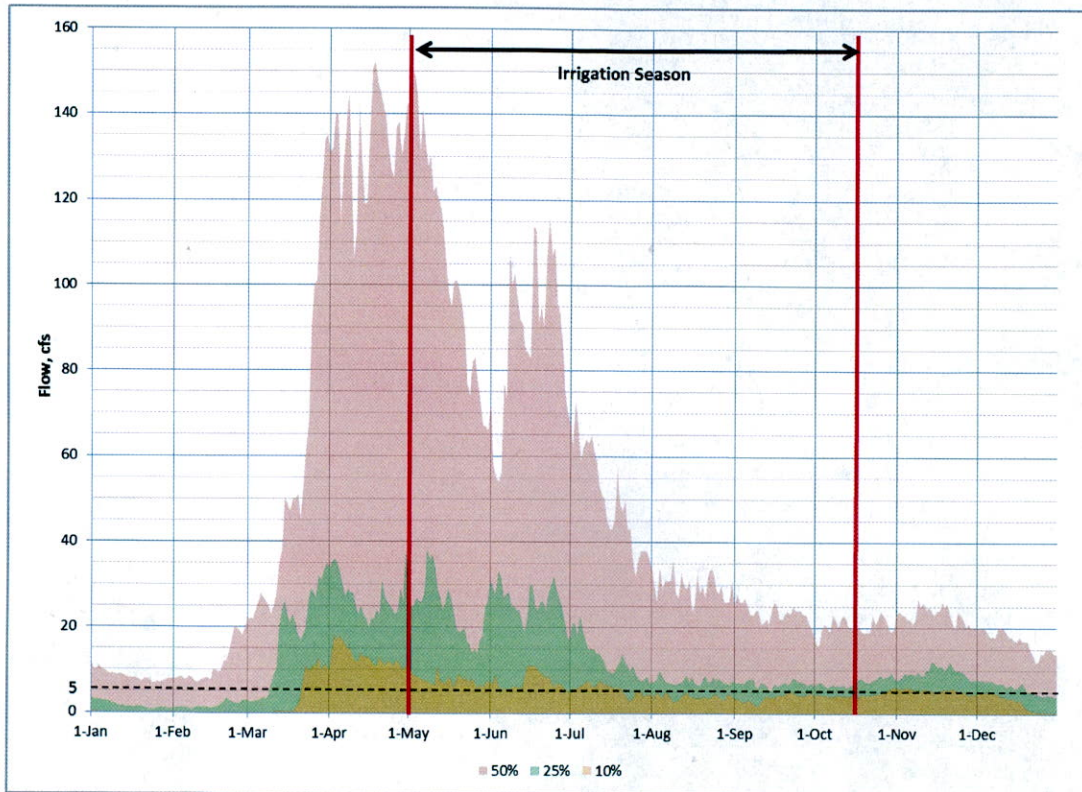


Figure 3. Daily percentile flow hydrographs for the USGS Big Sioux River near Castlewood 1977-2017, contributing drainage area 579 mi² (USGS, 2018).

The frequency of low flow events in the upper most river reach was examined by considering how many actual days the average daily flow was less than 5 cfs during the typical irrigation season of May through mid-October over the 41 year period of record. During that time frame 9.2% of the days that had flow less than 5 cfs fell within the May to mid-October irrigation season (USGS, 2018).

Figure 4 shows for the period of record at the Castlewood gage, the total number of days each year the average daily flow in the Big Sioux River was less than 5 cfs. This figure indicates this reach experiences dry climatic conditions causing several day periods of low flow less than 5cfs. The figure also shows there are many more years when the 5 cfs threshold is not met.

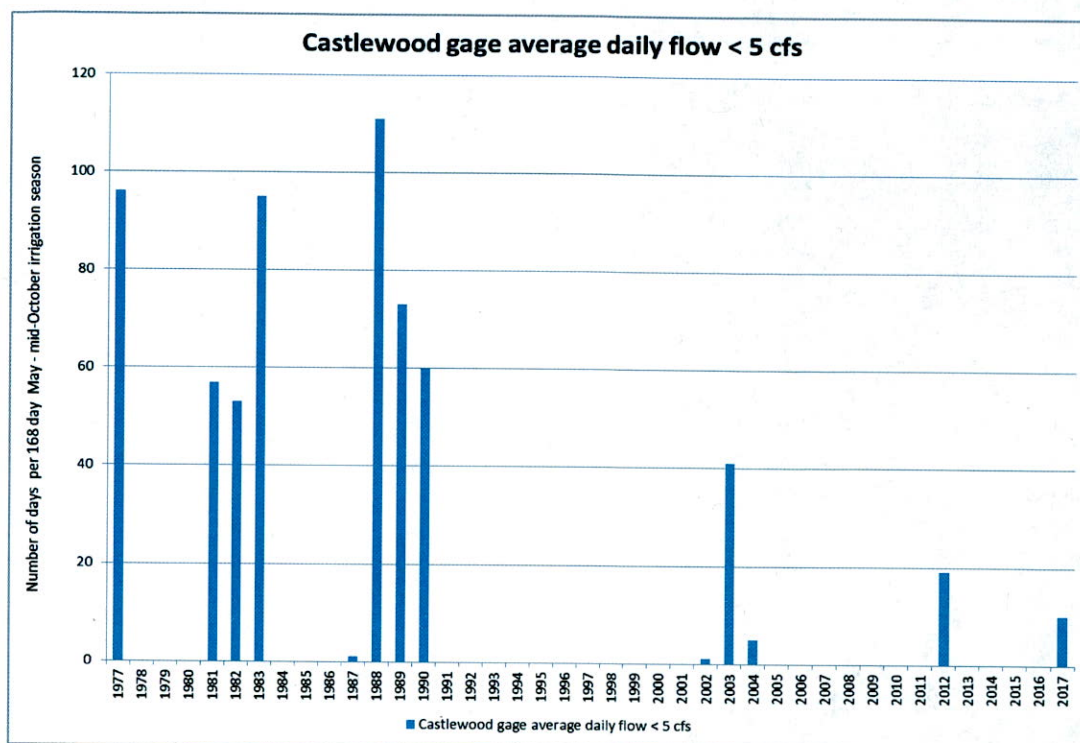


Figure 4. Total number of days for each year during the period of record the average daily flow in the Big Sioux River measured at the USGS gaging station near Castlewood was less than 5 cfs (USGS, 2018).

In this reach it is proposed for both of the existing irrigation water permits, the existing bypass qualification be amended to:

- Low flows as needed for downstream domestic use including livestock water and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, when pumping, unless at least 5 cfs is flowing past the USGS Gaging Station No. 06479525 near Castlewood, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.

Castlewood to Dell Rapids Reach

The river reach between the Castlewood gage and the Dell Rapids gage contains 29 active water permits. One of existing water permits is for flood flow diversion, two are for storage in Poinsett and Dry lakes and two water permits are for instream storage in Flandreau Dam and Dell Rapids Dam. The remaining 24 existing water permits are for irrigation, with 14 water permits containing bypass qualifications. The total current authorized diversion rate for this reach is 31.86 cfs. Figure 5 shows the total annual appropriated volume and reported usage volume for the years 1983 to 2016 (Water Rights, 2018).

In this Big Sioux River reach the original 20 cfs bypass requirement was placed on Big Sioux River water permits in April of 1960 by the Water Resources Commission based upon Water Rights staff review and recommendation to set bypass levels on permits. The bypass requirement was raised in 1966 to 30 cfs and was incrementally increased to 50 cfs by 1976. As stated earlier, many of these water permits have subsequently been cancelled due to abandonment or forfeiture (Water Rights, 2018).

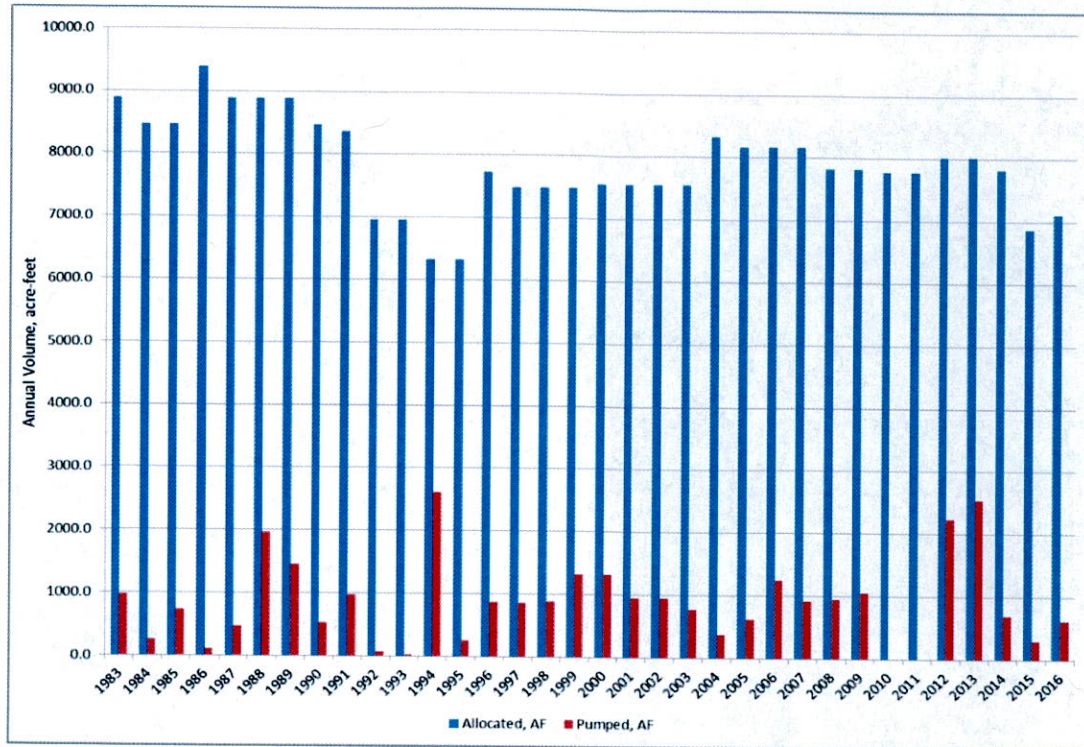


Figure 5. Total irrigation allocation and reported use from the Big Sioux River for the river reach between the USGS gaging stations near Castlewood to the gaging station near Dell Rapids (Water Rights, 2018).

The current bypass limits on existing water permits in this reach range from 20 cfs to 50 cfs with some of the limits set at the diversion point and some measured at the Dell Rapids gage. Using the original 20 cfs bypass as the benchmark, this bypass level was compared to the historic flow record for the Dell Rapids gage. Figure 6 shows the daily percentile flow hydrographs for a 68 year period of record dating back to 1948 for the USGS stream gaging station near Dell Rapids. The 10 percentile curve is above 20 cfs value from the beginning of the irrigation season until the last ten days of August (USGS, 2018).

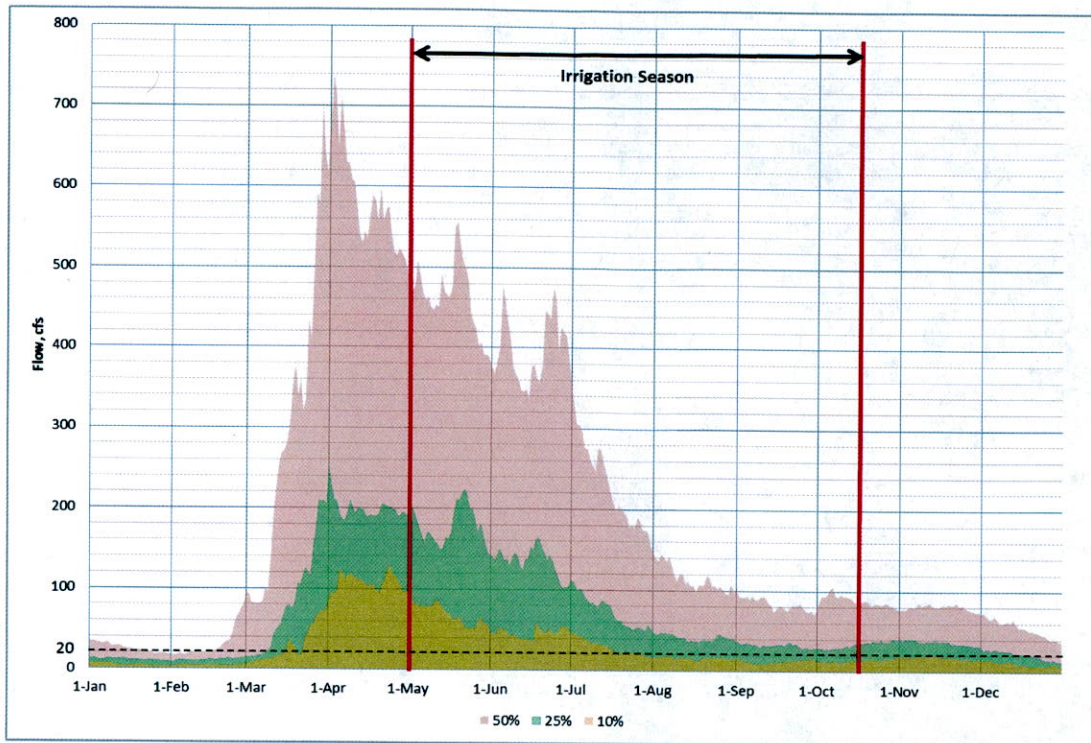


Figure 6. Daily percentile flow hydrographs for the USGS Big Sioux River gage near Dell Rapids 1949-2017, contributing drainage area 3057 mi² (USGS, 2018).

The frequency of low flow events in this reach was examined by considering how many actual days the average daily flow was less than 20 cfs during the typical irrigation season of May through mid-October over the 69 year period of record. During that time frame 7.2% of the days had flow less than 20 cfs within May to mid-October irrigation season (USGS, 2018).

Figure 7 shows for period of record at the Dell Rapids gage the total number of days for each year the average daily flow in the Big Sioux River was less than 20 cfs. Similar to what is seen in the upstream reach, this reach also experiences dry climatic conditions causing several days of low flow less than 20 cfs. The figure also shows there are many more years when the 20 cfs threshold is exceeded.

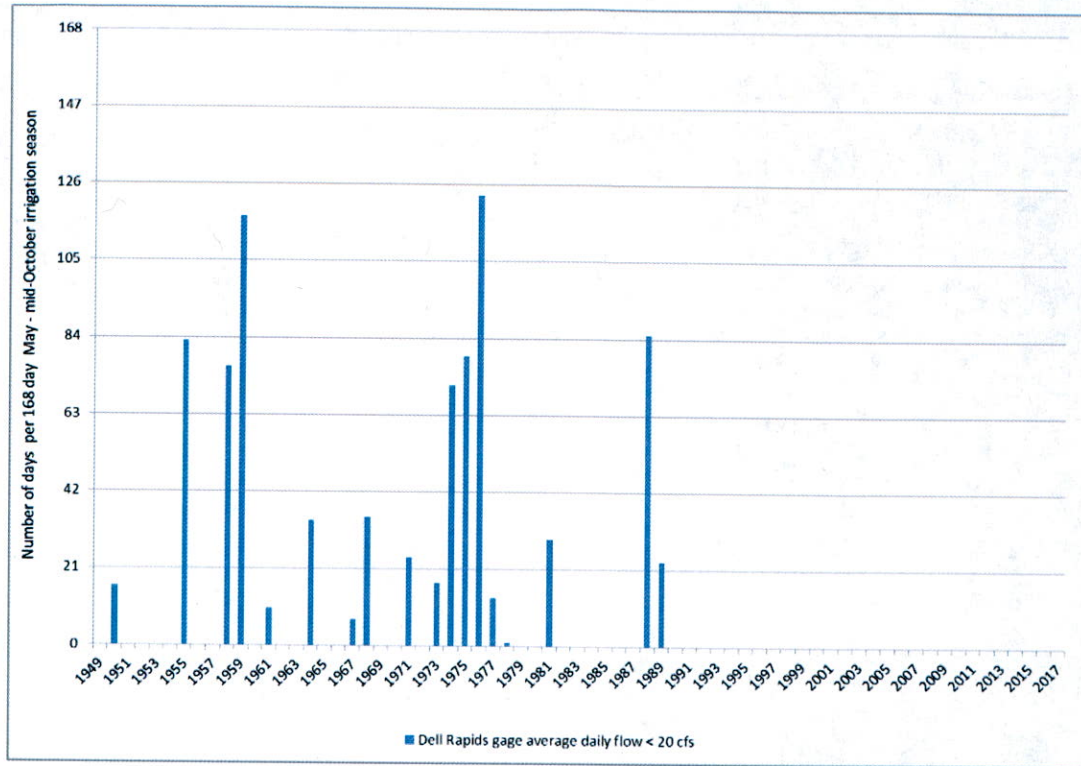


Figure 7. Total number of days for each year during the period of record the average daily flow in the Big Sioux River measured at the USGS gaging station near Dell Rapids was less than 20 cfs (USGS, 2018).

In this reach it is proposed for the 14 existing irrigation water permits the existing bypass qualification be amended to:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.

Dell Rapids to North Cliff Avenue at Sioux Falls Reach

In the river reach between the Dell Rapids gage and the North Cliff Avenue at Sioux Falls gage there are six existing water permits. The total current authorized diversion rate for this reach is 87.33 cfs. One right is for instream storage at Baltic Dam, two of the existing rights are for municipal use, and three are for irrigation. The bypass requirement for five existing rights with qualifications is 20 cfs. Three of the water permits require 20 cfs bypassing the diversion point and two requiring measurement of the flow bypass at the North Cliff Avenue gage. It should also be noted the City of Sioux Falls holds two future use permits located in this reach reserving up to 30,000 acre-feet from the Big Sioux River. The Water Management Board did a seven year status review of these permits in July of 2016. The Board ruled to allow these future use permits to remain in effect for the full 30,000 acre-feet for an additional seven years. Figure 8 shows the total annual appropriated volume and reported irrigation usage volume for the years 1983 to 2016, and Figure 9 shows the total annual appropriated volume and reported municipal usage volume for the years 1983 to 2016 in this reach (Water Rights, 2018).

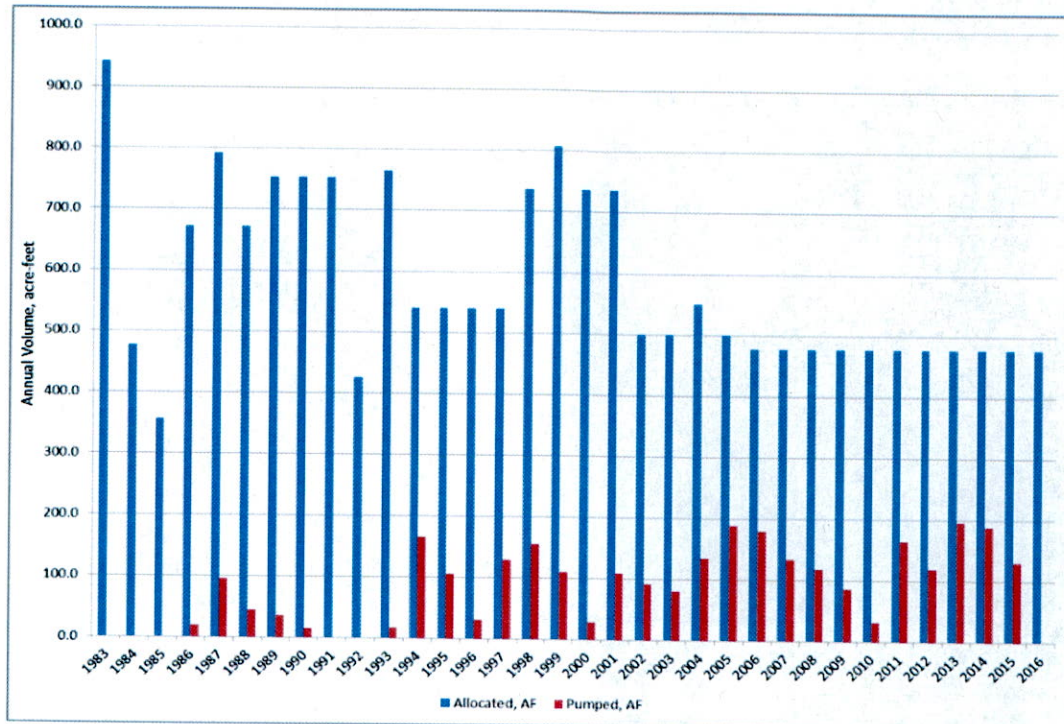


Figure 8. Total irrigation allocation and reported use from the Big Sioux River for the river reach between the USGS gaging stations near Dell Rapids to the gaging station at North Cliff Avenue at Sioux Falls (Water Rights, 2018).

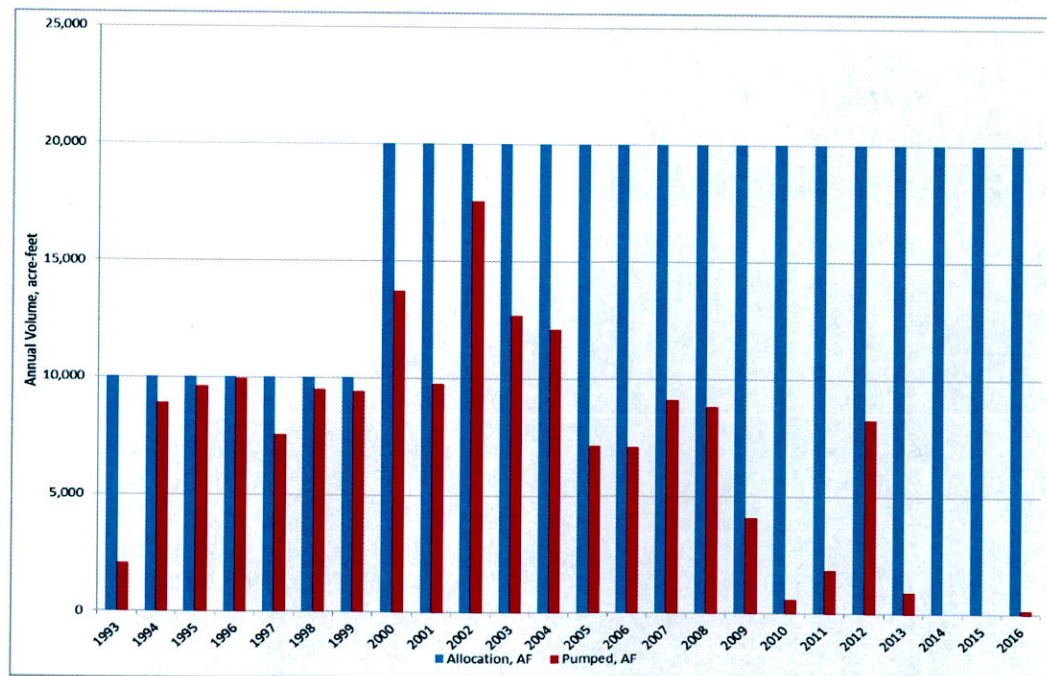


Figure 9. Total municipal allocation and reported use from the Big Sioux River for the river reach between the USGS gaging stations near Dell Rapids to the gaging station at North Cliff Avenue at Sioux Falls (Water Rights, 2018).

Figure 10 shows the daily percentile flow hydrographs for a 45 year period of record dating back to 1971 for the USGS stream gaging station at North Cliff Avenue at Sioux Falls. The 10 percentile curve is above 20 cfs value from the beginning of the irrigation season until the curve drops slightly below 20 cfs line for a few days the first part of September before rising above 20 cfs for the remainder of the irrigation season (USGS, 2018).

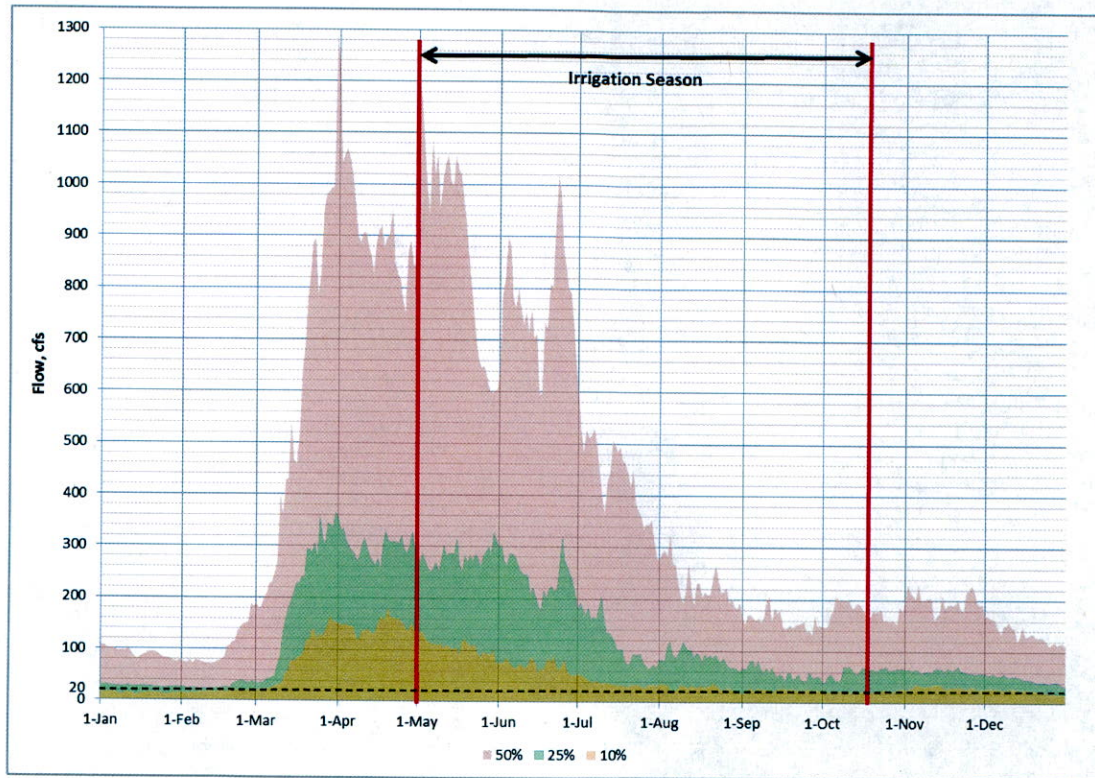


Figure 10. Daily percentile flow hydrographs for the USGS Big Sioux River gage at North Cliff Ave at Sioux Falls 1971-2017, contributing drainage area 3778 mi² (USGS, 2018).

The frequency of low flow events in this reach was examined by considering how many actual days the average daily flow was less than 20 cfs during the typical irrigation season of May through mid-October over the 45 year period of record. During that time frame 2.6% of the days had flow less than 20 cfs fell within May to mid-October irrigation season (USGS, 2018).

Figure 11 shows for period of record at the North Cliff Avenue gage the total number of days for each year the average daily flow in the Big Sioux River was less than 20 cfs. Similar to what was experienced in the upstream reaches, this reach can also experience during dry climatic conditions causing several day periods of low flow less than 20 cfs. The figure also shows there are many more years when the 20 cfs threshold is exceeded.

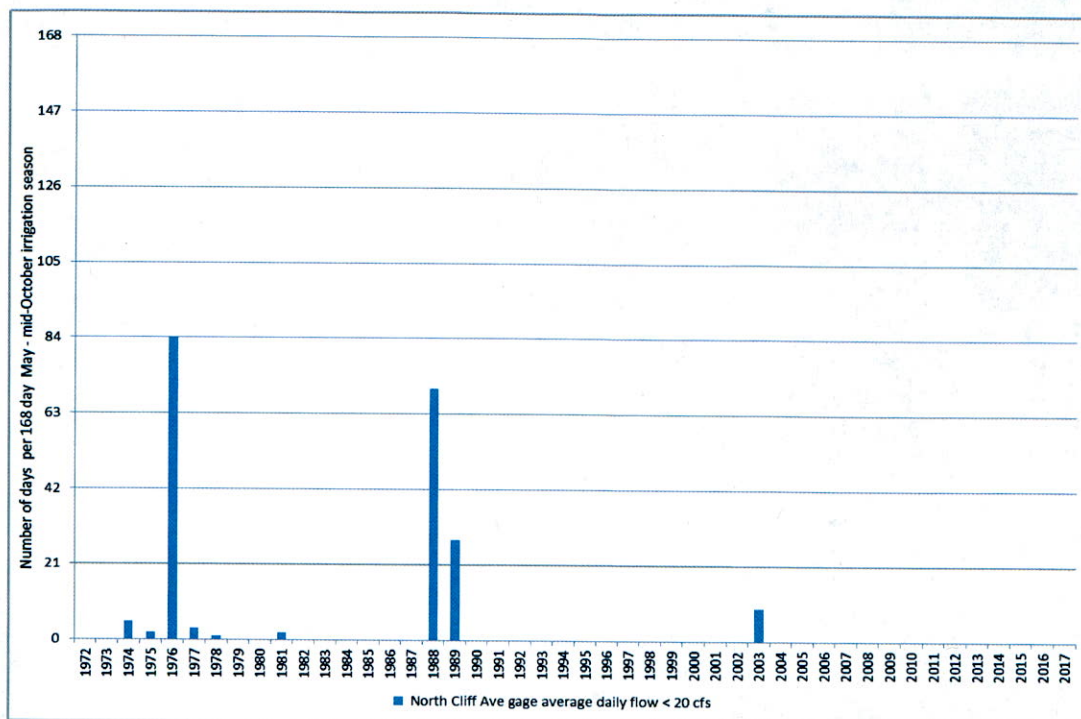


Figure 11. Total number of days for each year during the period of record the average daily flow in the Big Sioux River measured at the USGS gaging station at North Cliff Avenue at Sioux Falls was less than 20 cfs (USGS, 2018).

The five existing water permits in this Big Sioux River reach all contain a 20 cfs bypass requirement. The earlier issued water permits required 20 cfs bypassed at the diversion point while the later issued ones required a 20 cfs bypass at the USGS gaging station at North Cliff Avenue in Sioux Falls (Water Rights, 2018). In this reach it is proposed the existing bypass qualification on these five permits retain the 20 cfs bypass requirement but the qualification be amended to:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06482020 at North Cliff Avenue when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.

North Cliff Avenue at Sioux Falls to the Missouri River Confluence Reach

The southern reach of the Big Sioux River from the North Cliff Gage to the confluence with the Missouri River in southern Union County does not have any active water permits having bypass qualifications. As shown in Figure 12, the 10 percentile curve is above 50 cfs value throughout the entire irrigation season. This reach has not historically experienced a water shortage, and the Chief Engineer has not had to issue shutoff orders for any of the existing water permits located in this reach. There is not a proposal to amend any of the existing water permits in this lower reach of the Big Sioux River (USGS, 2018).

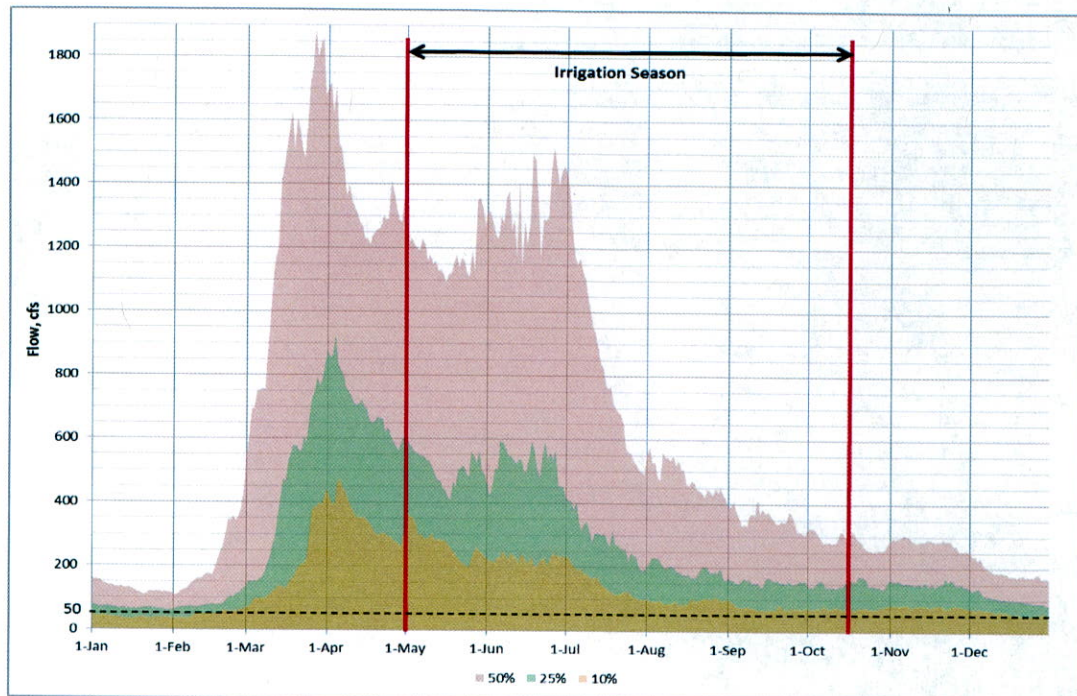


Figure 12. Daily percentile flow hydrographs for the USGS Big Sioux River gage at Akron IA 1971-2017, contributing drainage area 6995 mi² (USGS, 2018).

Considering Future Water Use

Anticipating future water demands from the Big Sioux River and climatic conditions may change over time. Particularly with the City of Sioux Falls holding two future use permits bearing a 1977 priority date reserving up to 30,000 acre-feet of water. It is proposed the following qualification be placed on all of the water permits being amended:

- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

The existing water permits without bypass qualifications and not targeted to be amended by this effort, will continue to be managed based upon their individual priority dates and location along the river.

Specific Proposed Qualification Revisions by Water Permit

In order to standardize the bypass qualifications for the existing water permits containing bypass qualifications in the Big Sioux River reach upstream from the USGS stream gaging station near Castlewood, the following changes are proposed.

Amendment to the qualifications contained in Water Right No. 1437-3

Delete Qualification:

- Diversions of water under this permit can only be made when there is flow of 5 or more cubic feet per second of water flowing at the diversion point.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, when pumping, unless at least 5 cfs is flowing past the USGS Gaging Station No. 06479525 near Castlewood, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Permit No. 7350-3

Delete Qualification:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, when pumping, unless at least 35 cfs is flowing past the USGS Gaging Station No. 06479525 near Castlewood, unless written orders have been issued by the Chief Engineer.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, when pumping, unless at least 5 cfs is flowing past the USGS Gaging Station No. 06479525 near Castlewood when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

To standardize the bypass qualifications for the 14 existing water rights/permits containing bypass qualifications in the Big Sioux River reach between the USGS stream gaging station near Castlewood downstream to the USGS stream gaging station near Dell Rapids, the following changes are proposed.

Amendment to the qualifications contained in Water Right No. 956-3

Delete Qualification:

- Natural flows in the Big Sioux River are not a dependable source of water during the latter part of the summer. Prior appropriative rights and downstream domestic use must be respected. This Permit is granted allowing withdrawals of water whenever 20 cfs or more is flowing past your diversion point.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 1175-3

Delete Qualification:

- Natural flows in the Big Sioux River are not a dependable source of water during the latter part of the summer. Prior appropriative rights and downstream domestic use must be respected. This Permit is granted allowing withdrawals of water whenever 20 cfs or more is flowing past your diversion point.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 1302-3

Delete Qualification:

- Natural flows in the Big Sioux River are not a dependable source of water during the latter part of the summer. Prior appropriative rights and downstream domestic use must be respected. This Permit is granted allowing withdrawals of water whenever 20 cfs or more is flowing past your diversion point.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 1350-3

Delete Qualification:

- Natural flows in the Big Sioux River are not a dependable source of water during the latter part of the summer. Prior appropriative rights and downstream domestic use must be respected. This Permit is granted allowing withdrawals of water whenever 30 cfs or more is flowing past your diversion point.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids

when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.

- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 1500-3

Delete Qualification:

- Natural flows in the Big Sioux River are not a dependable source of water during the latter part of the summer. Prior appropriative rights and downstream domestic use must be respected. This Permit is granted allowing withdrawals of water whenever 30 cfs or more is flowing past your diversion point.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 1696-3

Delete Qualification:

- Natural flows in the Sioux River are not a dependable source of water during the latter part of the summer. Prior appropriative rights and downstream domestic use must be respected. This Sioux River portion of this permit is granted allowing withdrawals of water whenever 35 cfs of water or more is flowing past your diversion point.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 1801-3

Delete Qualification:

- Natural flows in the Big Sioux River are not a dependable source of water during the latter part of the summer. Prior appropriative rights and downstream domestic use must be respected. This permit is granted allowing withdrawals of water whenever 35 cfs of water or more is flowing past your diversion point.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 1812-3**Delete Qualification:**

- Natural flows in the Big Sioux River are not a dependable source of water during the latter part of the summer. Prior appropriative rights and downstream domestic use must be respected. This permit is granted allowing withdrawals of water whenever 35 cfs of water or more is flowing past your diversion point.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 2065-3**Delete Qualification:**

- Natural flows in the Big Sioux River are not a dependable source of water during the latter part of the summer. Prior appropriative rights and downstream domestic use must be respected. This permit is approved allowing withdrawals whenever 45 cfs of water or more is flowing past your diversion point.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 2952-3**Delete Qualification:**

- Natural flows in the Big Sioux River are not a dependable source of water during the latter part of the summer. Prior appropriative rights and downstream domestic use must be respected. This permit is approved allowing withdrawals whenever 40 cfs of water or more is flowing past your diversion point.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 6042-3

Delete Qualification:

- Low flows as needed for downstream domestic use, including livestock water and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River unless at least 41 cfs is flowing past the Dell Rapids USGS Gaging Station, or unless written orders have been issued by the Chief Engineer. Diversions under this Permit are shall be in accordance with any written orders issued by the Chief Engineer.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 6124-3

Delete Qualification:

- Natural flows in the Big Sioux River are not a dependable source of water during the latter part of the summer. Prior appropriative rights and downstream domestic use must be respected. This permit is approved allowing withdrawals whenever 50 cfs of water or more is flowing past your diversion point.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.

- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 7110-3

Delete Qualification:

- Low flows as needed for domestic use, including livestock water and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, when pumping, unless at least 43 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, or unless written orders have been issued by the Chief Engineer. Diversions under this permit are shall be in accordance with any written orders issued by the Chief Engineer.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 8195-3

Delete Qualification:

- Low flows as needed for downstream domestic use, including livestock water and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, when pumping, unless at least 20 cfs is flowing at the North Cliff Avenue USGS Gaging Station No. 06482020 and 43 cfs is flowing at the Dell Rapids USGS Gaging Station No. 06481000, unless written orders have been issued by the Chief Engineer. Diversions under this Permit are shall be in accordance with any written orders issued by the Chief Engineer.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

To standardize the qualifications for the 5 existing water rights/permits containing bypass qualifications in the Big Sioux River reach between the USGS stream gaging station near Dell Rapids downstream to the USGS stream gaging station at North Cliff Avenue at Sioux Falls, the following changes are proposed.

Amendment to the qualifications contained in Water Right No. 5431-3

Delete Qualification:

- Permit No. 5431-3 does not authorize pumping from the Big Sioux River unless at least 20 cfs can be bypassed when pumping.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06482020 at North Cliff Avenue when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 5512-3

Delete Qualification:

- Permit No. 5512-3 does not authorize pumping from the Big Sioux River unless at least 20 cfs is being bypassed when pumping.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06482020 at North Cliff Avenue when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 5698-3

Delete Qualification:

- Permit No. 5698-3 does not authorize pumping from the Big Sioux River unless at least 20 cfs is being bypassed when pumping.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06482020 at North Cliff Avenue when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 6210-3

Delete Qualification:

- Low flows as needed for downstream domestic use, including livestock water and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River,

when pumping, unless at least 20 cfs is flowing at the Cliff Avenue USGS Gaging Station, or unless written orders have been issued by the Chief Engineer.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06482020 at North Cliff Avenue when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Amendment to the qualifications contained in Water Right No. 6210A-3

Delete Qualification:

- Low flows as needed for downstream domestic use, including livestock water and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, when pumping, unless at least 20 cfs is flowing at the North Cliff Avenue USGS Gaging Station No. 06482020, or unless written orders have been issued by the Chief Engineer. Diversions under this Permit are subject to senior water rights and any written orders issued by the Chief Engineer.

Add Qualifications:

- Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06482020 at North Cliff Avenue when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
- The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

Conclusions

1. Currently there are 58 active water permits authorized for the Big Sioux River from the headwaters in Roberts County to the mouth in Union County. Currently 21 of the existing water permits contain some sort of flow bypass qualification.
2. Since many water permits have been cancelled over the years, the system of various bypass requirements on several existing Big Sioux water permits are not putting water to beneficial use to the highest extent possible for the current water permit holders. The system is also difficult to manage for the Water Rights Program.
3. A fresh look was taken of the original bypass requirements to determine whether the original bypass levels would be effective limits for the existing active water rights. The review was completed of the original bypass requirements taking into consideration the existing water rights, the qualifications placed on them, their authorized use, the location of their diversion points, their annual period of use and historic stream flow data.

4. Based upon this review, the river was broken into four separate bypass management reaches and standardized qualifications are proposed for each of these reaches.
5. Anticipating future water demands from the Big Sioux River and climatic conditions may change over time, the amendments to the water permits being amended should also contain a qualification allowing the Water Management Board to retain jurisdiction to address future issues if as necessary.
6. On the reach upstream from the Castlewood gaging station, for the two water permits containing bypass requirements replace those qualifications with:
 - Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, when pumping, unless at least 5 cfs is flowing past the USGS Gaging Station No. 06479525 near Castlewood, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
 - The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.
7. On the reach between the Castlewood gaging station and the Dell Rapids gaging station, for the 14 water permits containing bypass requirements replace those qualifications with:
 - Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
 - The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.
8. On the reach upstream from the Dell Rapids gaging station to the North Cliff Avenue gaging station, for the five water permits containing bypass requirements replace those qualifications with:
 - Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06482020 at North Cliff Avenue when pumping, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.
 - The Water Management Board is retaining jurisdiction of this permit in the event additional information shows that adjustments need to be made to the bypass requirements.

9. The existing water permits without bypass qualifications and not targeted to be amended by this effort, will continue to be managed based upon their individual priority dates and location along the river.



Mark D. Rath
Natural Resources Engineer III

References

- Hoogestraat, G.K. and J. F. Stamm, 2015. Climate and Streamflow Characteristics for Selected Streamgages in Eastern South Dakota, Water Years 1945–2013. USGS Scientific Investigations Report 2015-5146.
- USGS. 2018. United States Geological Survey, National Water Information System – Stream Gaging Station Network for South Dakota.
- Water Rights. 2018. Water Right/Permit Files. SD DENR-Water Rights Program, Joe Foss Bldg., Pierre, South Dakota.

NOTICE OF HEARING ON CHIEF ENGINEER'S RECOMMENDATION FOR BIG SIOUX RIVER WATER RIGHTS

Notice is given that the Water Rights Program, Department of Environment and Natural Resources, 523 E Capitol Avenue, Pierre SD 57501 proposes that the Water Management Board amend conditions placed on many Big Sioux River water rights in South Dakota. The objective is to bring consistency among water rights from the river and the ability for the Chief Engineer to issue written orders to allow pumping to continue if climatic conditions are favorable. The amendments will not increase either the authorized diversion rate or number of irrigated acres authorized under existing Big Sioux River water rights.

Currently, water rights differ in the amount of water that must be bypassed at the pump site or at a United States Geological Survey (USGS) gaging station in order for pumping to occur. The Water Rights Program has reviewed all Big Sioux River water rights and determined that the conditions can be modified to a standard bypass at one of three gaging stations depending on the stream segment where the water right is located. It is proposed that the bypass condition along the river is best managed in three segments identified by USGS gaging stations as follows:

1. River reach upstream from the USGS gaging station near Castlewood;
2. River reach between USGS gaging station near Castlewood downstream to gaging station near Dell Rapids;
3. River reach between USGS gaging station near Dell Rapids downstream to gaging station near North Cliff Avenue in Sioux Falls.

Water rights that currently have a bypass condition will be amended such that those water rights upstream of the Castlewood gaging station will have a 5 cubic feet of water per second (cfs) bypass requirement. Those water rights in the two other reaches described above will have a 20 cfs bypass requirement referenced to either the Dell Rapids or North Cliff Avenue gaging station depending on the location of the water right. Water rights with senior priority dates that do not currently have a bypass requirement will see no change.

The proposed amendment will not impose any conditions more restrictive than the conditions currently in place on any water right. Big Sioux River water right holders whose bypass condition is proposed for amendment will be provided personal notice of the proposed amendment to their water right.

The Chief Engineer recommends that the Water Management Board approve deletion of the existing bypass condition on applicable water rights and add the following qualifications specific to the bypass flow at a referenced gaging station depending on the location of the water right.

1. Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This water right does not authorize diversion of water from the Big Sioux River, when pumping, unless at least "X" cfs is flowing past the USGS Gaging Station "IDENTIFY APPLICABLE STATION" unless written orders have been issued by the Chief Engineer. Diversions under this water right shall be in accordance with any written orders issued by the Chief Engineer.
2. The Water Management Board is retaining jurisdiction of this water right in the event additional information shows that adjustments need to be made to the bypass requirements.

Any interested person opposing or supporting the proposed amendment and intending to participate in the hearing shall file a petition with the Chief Engineer. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)". A petition filed by either an interested person or a water right holder must be filed by February 26, 2018.

The petition may be informal, but shall be in writing and shall include a statement describing the petitioner's interest, the petitioner's reasons for opposing or supporting the proposed change, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. The hearing is an adversary proceeding and any party has the right to be present at the hearing and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised at the hearing and decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

The staff report including affected water rights and the proposed changes is available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information, or other information, at the Water Rights Program address provided above.

The Water Management Board will consider the proposed changes at 11:30 a.m. on March 7, 2018, in the Matthew Training Center, Joe Foss Bldg, 523 E. Capitol Ave. Pierre SD. The hearing will be held pursuant to the provisions of SDCL 46-1-14 and 46-2-17.

The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) modify, 3) defer, or 4) deny the proposed amendments after it reaches a conclusion based on facts at the public hearing. The Board has legal authority and jurisdiction to consider this matter pursuant to SDCL 46-2-9 and 46-2-11.

The March 7, 2018 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from any person who has filed a petition to oppose or support the proposed change. The request for an automatic delay must be filed by February 26, 2018. If an automatic delay is requested, the hearing will be rescheduled for a future Board meeting and personal notice will be provided to all petitioners regarding the time, date and location.

Notice is given to individuals with disabilities that this hearing is being held in a physically accessible place. Please notify the Department of Environment and Natural Resources at least 48 hours before the hearing if you have a disability for which special arrangements must be made at the hearing. The telephone number for making arrangements is (605) 773-3352.

Under SDCL 1-26-18.3, in any contested case, if the amount in controversy exceeds \$2,500.00 "or if a property right may be terminated, any party to the contested case may require the agency to use the Office of Hearing Examiners by giving notice of the request to the agency no later than ten days after service of a notice of hearing issued pursuant to SDCL 1-26-17." If you choose to use the Office of Hearing Examiners rather than the hearing procedure before the Water Management Board set forth above, you need to notify the Chief Engineer (Water Rights Program, 523 E Capitol Avenue, Pierre SD) by February 26, 2018.

Steven M. Pirner, Secretary, Department of Environment and Natural Resources. Published once at an approximate cost of_____.

Schlaak, Karen

From: Schlaak, Karen
Sent: Friday, February 09, 2018 8:36 AM
To: allegals@argusleader.com
Subject: Notice of Hearing - Big Sioux River Water Rights
Attachments: BigSiouxWRqualif.wmb.docx; FORM8.FRM.doc

Attached is a notice to be published on February 15, 2018.

The Water Rights Program will pay for this publication.

Please send the affidavit or return the attached Proof of Publication form and the invoice as soon as possible to the Water Rights Program, 523 E Capitol, Pierre SD 57501.

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

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



Schlaak, Karen

From: Schlaak, Karen
Sent: Friday, February 09, 2018 8:37 AM
To: mce6@mcisweb.com
Subject: Notice of Hearing - Big Sioux River Water Rights
Attachments: BigSiouxWRqualif.wmb.docx; FORM8.FRM.doc

Attached is a notice to be published on February 14, 2018.

The Water Rights Program will pay for this publication.

Please send the affidavit or return the attached Proof of Publication form and the invoice as soon as possible to the Water Rights Program, 523 E Capitol, Pierre SD 57501.

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

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



Schlaak, Karen

From: Schlaak, Karen
Sent: Friday, February 09, 2018 8:35 AM
To: svn@siouxvalleynewsonline.com
Subject: Notice of Hearing - Big Sioux River Water Rights
Attachments: BigSiouxWRqualif.wmb.docx; FORM8.FRM.doc

Attached is a notice to be published on February 15, 2018.

The Water Rights Program will pay for this publication.

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

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



Schlaak, Karen

From: Schlaak, Karen
Sent: Friday, February 09, 2018 8:34 AM
To: Hamlin County Publishing (hcp@itctel.com)
Subject: Notice of Hearing - Big Sioux River Water Rights
Attachments: BigSiouxWRqualif.wmb.docx; FORM8.FRM.doc

Attached is a notice to be published on February 14, 2018 in the Hamlin County Republican, Castlewood SD.

The Water Rights Program will pay for this publication.

Please send the affidavit or return the attached Proof of Publication form and the invoice as soon as possible to the Water Rights Program, 523 E Capitol, Pierre SD 57501.

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

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



Schlaak, Karen

From: Schlaak, Karen
Sent: Friday, February 09, 2018 8:32 AM
To: legals@thepublicopinion.com
Subject: Notice of Hearing - Big Sioux River Water Rights
Attachments: BigSiouxWRqualif.wmb.docx; FORM8.FRM.doc

Attached is a notice to be published on February 15, 2018.

The Water Rights Program will pay for this publication.

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

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



Schlaak, Karen

From: Schlaak, Karen
Sent: Friday, February 09, 2018 8:37 AM
To: registerclassifieds (registerclassifieds@brookingsregister.com)
Subject: Notice of Hearing - Big Sioux River Water Rights
Attachments: BigSiouxWRqualif.wmb.docx; FORM8.FRM.doc

Attached is a notice to be published on February 15, 2018.

The Water Rights Program will pay for this publication.

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

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



Schlaak, Karen

From: Schlaak, Karen
Sent: Friday, February 09, 2018 8:38 AM
To: G5 (leader1@iw.net)
Subject: Notice of Hearing - Big Sioux River Water Rights
Attachments: BigSiouxWRqualif.wmb.docx; FORM8.FRM.doc

Attached is a notice to be published on February 15, 2018.

The Water Rights Program will pay for this publication.

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

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



CUSTOMER NUMBER:	78306	Argus Leader P.O. Box 677349, Dallas, TX 75267-7349
INVOICE NUMBER:	2727212	
RUN DATES:	2/15, 2018	
		AMOUNT DUE: \$162.36

RECEIVED
FEB 20 2018
WATER RIGHTS PROGRAM

Attn: Karen Schlaak
 Water Rights Program
 523 E. Capital - Jose Foss Building
 Pierre, SD 57501-0000

DETACH THIS STUB AND RETURN WITH PAYMENT

PAYMENT DUE UPON RECEIPT

AFFIDAVIT OF PUBLICATION

Customer Number: 78306
 Invoice Number: 902065

523 E. Capital - Jose Foss Building

Argus Leader

AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA

COUNTY OF MINNEHAHA } ss

Sara Kruse being duly sworn, says: That The **Argus Leader** is, and during all the times hereinafter mentioned was, a daily legal newspaper as defined by SDCL 17-2-2.1, as amended published at Sioux Falls, Minnehaha County, South Dakota; that affiant is and during all of said times, was an employee of the publisher of such newspaper and has personal knowledge of the facts stated in this affidavit; that the notice, order or advertisement, a printed copy of which is hereto attached, was published in said newspaper upon

Thursday	the	15	day of	February	2018	,
	the		day of		2018	,
	the		day of		2018	,
	the		day of		2018	,
	the		day of		2018	,
	the		day of		2018	,
	the		day of		2018	,
	the		day of		2018	,

and that \$162.36 was charged for publishing the same

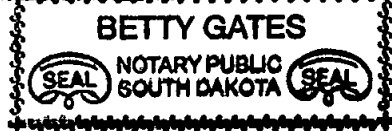
Sara Kruse

Subscribed and sworn to before me 2/15/18

Betty Gates

Notary Public, South Dakota

My Commission expires March 14, 2023



amendments will not increase either the authorized diversion rate or number of irrigated acres authorized under existing Big Sioux River water rights. Currently, water rights differ in the amount of water that must be bypassed at the pump site or at a United States Geological Survey (USGS) gaging station in or near the water right. The Water Rights Program has reviewed all Big Sioux River water rights and determined that the conditions can be modified to a standard bypass of one of three gaging stations depending on the stream segment where the water right is located. It is proposed that the bypass condition along the river is best managed in three segments identified by USGS gaging stations as follows:

1. River reach upstream from the USGS gaging station near Castlewood;
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3. River reach between USGS gaging station near Dell Rapids downstream to gaging station near North Cliff Avenue in Sioux Falls.

Water rights that currently have a bypass condition will be amended such that those water rights upstream of the Castlewood gaging station will have a 5 cubic feet per second (cfs) bypass requirement. Those water rights in the two other reaches described above will have a 20 cfs bypass requirement referenced to either the Dell Rapids or North Cliff Avenue gaging station depending on the location of the water right. Water rights with senior priority dates that do not currently have a bypass requirement will see no change.

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The staff report including affected water rights and the proposed changes is available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information, or other information, at the Water Rights Program address provided above.

The Board will consider the proposed changes at 11:30 a.m. on March 7, 2018, in the Matthew Training Center, Joe Foss Bldg, 523 E. Capitol Ave, Pierre SD. The hearing will be held pursuant to the provisions of SDCL 46-1-14 and 46-2-17. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to: 1) approve, 2) modify, 3) defer, or 4) deny the proposed amendments after it reaches a conclusion based on facts of the public hearing. The Board has legal authority and jurisdiction to consider this matter pursuant to SDCL 46-2-9 and 46-2-11.

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Under SDCL 1-26-18.3, in any contested case, if the amount in controversy exceeds \$2,500.00 "or if a party's right may be terminated, any party to the contested case may require the agency to use the Office of Hearing Examiners by giving notice of the request to the agency no later than ten days after service of a notice of hearing issued pursuant to SDCL 1-26-17." If you choose to use the Office of Hearing Examiners rather than the hearing procedure before the Water Management Board, you need to notify the Chief Engineer (Water Rights Program, 523 E. Capitol Avenue, Pierre SD) by February 26, 2018. Steven M. Pirner, Secretary, Department of Environment and Natural Resources. Published once on an approximate cost of \$162.36. 2727212 Feb 15, 2018

NOTICE OF HEARING ON CHIEF ENGINEER'S RECOMMENDATION FOR BIG SIOUX RIVER WATER RIGHTS
 Notice is given that the Water Rights Program, Department of Environment and Natural Resources, 523 Big Sioux River water right E. Capitol Avenue, Pierre SD 57501 proposes that the Water Management Board amend conditions placed on many Big Sioux River water rights in South Dakota. The objective is to bring consistency among the Water Rights Program and the ability for the Chief Engineer to issue written condition orders to allow pumping to continue if climatic conditions are favorable. The

February 20, 2018

PAYMENT REQUEST FORM

PAYEE: Argus Leader
PO Box 677349
Dallas, TX

FROM: DENR Water Rights Program
523 E. Capitol Ave
Pierre, SD 57501-3181

DESCRIPTION OF SERVICE, PRODUCE OR TRANSFER

Affidavit of Publication

AMOUNT: \$162.36

FUNDING SOURCE:

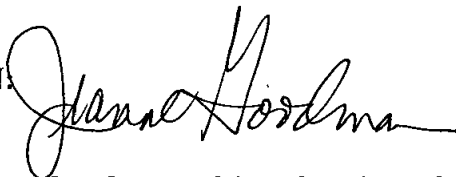
GENERAL: X

FEDERAL:

OTHER:

COMMENTS:

AUTHORIZATION:



I declare and affirm under the penalties of perjury that this claim is in all things, true and correct. I further agree to comply with the provisions of the Civil Rights Act of 1964 and regulations issued thereunder relating to nondiscrimination in federal assisted programs.

RECEIVED

MAR 07 2018

WATER RIGHTS
PROGRAM

Affidavit of Publication

State of South Dakota

Exhibit "A"

ss

County of Brookings

Katherine Foiles of said county, first duly sworn, on oath, says: That she is the office clerk of THE BROOKINGS REGISTER, a daily newspaper, printed and published in the City of Brookings, in said County of Brookings, and State of South Dakota; that she has full and personal knowledge of the facts herein stated; that said newspaper is a legal newspaper and has a bona fide circulation of at least two hundred copies of each issue daily; that said newspaper has been published within the said County of Brookings and State of South Dakota, for more than one year prior to the first publication of Exhibit "A," hereto attached and herein mentioned, and was and is printed that the

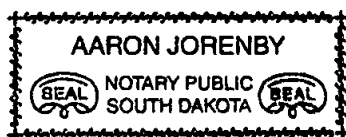
Leg#164 Notice on Hearing

same was published, is hereto attached marked Exhibit said newspaper for _____ 1 times, to-wit:

February 15, 2018

said Exhibit "A" inures to the sole benefit for the publishers of said newspaper; that no agreement or understanding for the division thereof has been made with any other person, and that no part thereof has been agreed to be paid to any person whomsoever; that the fees charged for the publication thereof are:

Sixty-Seven Dollars and Seventy-Three Cents \$67.73



KM Foiles

26 day of

February

2018

Notary Public in and for the County of Brookings, South Dakota.
My Commission expires February 22, 2020.

Legal 164, 1x, 2/15
NOTICE OF HEARING
ON CHIEF ENGINEER'S RECOMMENDATION FOR BIG SIOUX RIVER WATER RIGHTS

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The March 7, 2018 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from any person who has filed a petition to oppose or support the proposed change. The request for an automatic delay must be filed by February 26, 2018. If an automatic delay is requested, the hearing will be rescheduled for a future Board meeting and personal notice will be provided to all petitioners regarding the time, date and location. Notice is given to individuals with disabilities that this hearing is being held in a physically accessible place. Please notify the Department of Environment and Natural Resources at least 48 hours before the hearing if you have a disability for which special arrangements must be made at the hearing. The telephone number for making arrangements is (605)

773-3352.

Under SDCL 1-26-18.3, in any contested case, if the amount in controversy exceeds \$2,500.00 "or if a property right may be terminated, any party to the contested case may require the agency to use the Office of Hearing Examiners by giving notice of the request to the agency no later than ten days after service of a notice of hearing issued pursuant to SDCL 1-26-17." If you choose to use the Office of Hearing Examiners rather than the hearing procedure before the Water Management Board set forth above, you need to notify the Chief Engineer (Water Rights Program, 523 E Capitol Avenue, Pierre SD) by February 26, 2018. Steven M. Pirner, Secretary, Department of Environment and Natural Resources. Published once at the total approximate cost of \$67.73.

March 7, 2018

PAYMENT REQUEST FORM

PAYEE: Brookings Register
PO Box 177
Brookings, SD 57006-0177

FROM: DENR Water Rights Program
523 E. Capitol Ave
Pierre, SD 57501-3181

DESCRIPTION OF SERVICE, PRODUCE OR TRANSFER

Notice of Hearing

AMOUNT: \$67.73

FUNDING SOURCE:

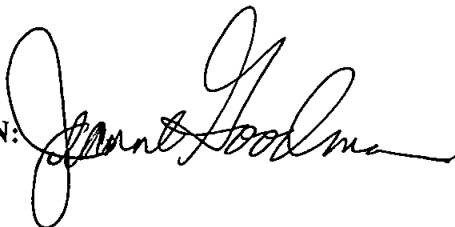
GENERAL: X

FEDERAL:

OTHER:

COMMENTS:

AUTHORIZATION:



I declare and affirm under the penalties of perjury that this claim is in all things, true and correct.
I further agree to comply with the provisions of the Civil Rights Act of 1964 and regulations issued thereunder relating to nondiscrimination in federal assisted programs.

312 5TH ST
P.O. BOX 177
BROOKINGS, SD 57006-0177
Phone (605) 692-6271 Fax (605) 692-2979

WATER RIGHTS PROGRAM

CUSTOMER
NUMBER 106003

AMOUNT \$ _____
ENCLOSED _____

REMIT TO: **BROOKINGS REGISTER** • P.O. BOX 177 • BROOKINGS, SD 57006-0177

Affidavit of Publication

STATE OF SOUTH DAKOTA
COUNTY OF MOODY) SS

MARY LYNN HEADRICK, of said county, being first duly sworn on oath says that she is the bookkeeper of the Moody County Enterprise, a weekly newspaper printed and published in said county of Moody and State of South Dakota, and has full and personal knowledge of all the facts herein stated; that said newspaper is a legal newspaper and has a bona fide circulation of at least 200 copies weekly, and has been published within said county for 52 consecutive weeks next prior to the publication of the notice herein mentioned, and was and is printed wholly or in part in an office maintained at said place of publication; that the advertisement headed:

*Notice of hearing on Chief
Engineer's Recommendation
for Big Sioux River Water Rights*

a printed copy of which, taken from the newspaper in which the same was published, is attached to this sheet and is made a part of this affidavit, was published in said newspaper at least once in each week for 1 successful weeks, on the day of each week on which said newspaper was regularly published, to wit:

2-14-18

that the full amount of the fee charged for the publication of said Notice inures to the benefit of the publisher of said newspaper; that no agreement or understanding for the division thereof has been made with any person, and that no part thereof has been agreed to be paid to any person whomsoever, and that the fees charged for the publication thereof are

\$ 75⁶²

M. L. Headrick bookkeeper
Subscribed and sworn to before me this

15th day of February AD 2018

Notary Public, County Moody, South Dakota
ROGER W. JANSSEN

NOTARY PUBLIC
SOUTH DAKOTA

My commission expires 2/14/18

RECEIVED

FEB 28 2018

WATER RIGHTS
PROGRAM

NOTICE OF HEARING ON CHIEF ENGINEER'S RECOMMENDATION FOR BIG SIOUX RIVER WATER RIGHTS

Notice is given that the Water Rights Program, Department of Environment and Natural Resources, 523 E Capitol Avenue, Pierre SD 57501 proposes that the Water Management Board amend conditions placed on many Big Sioux River water rights in South Dakota. The objective is to bring consistency among water rights from the river and the ability for the Chief Engineer to issue written orders to allow pumping to continue if climatic conditions are favorable. The amendments will not increase either the authorized diversion rate or number of irrigated acres authorized under existing Big Sioux River water rights.

Currently, water rights differ in the amount of water that must be bypassed at the pump site or at a United States Geological Survey (USGS) gaging station in order for pumping to occur. The Water Rights Program has reviewed all Big Sioux River water rights and determined that the conditions can be modified to a standard bypass at one of three gaging stations depending on the stream segment where the water right is located. It is proposed that the bypass condition along the river is best managed in three segments identified by USGS gaging stations as follows:

1. River reach upstream from the USGS gaging station near Castlewood;
2. River reach between USGS gaging station near Castlewood downstream to gaging station near Dell Rapids;
3. River reach between USGS gaging station near Dell Rapids downstream to gaging station near North Cliff Avenue in Sioux Falls.

Water rights that currently have a bypass condition will be amended such that those water rights upstream of the Castlewood gaging station will have a 5 cubic feet of water per second (cfs) bypass requirement. Those water rights in the two other reaches described above will have a 20 cfs bypass requirement referenced to either the Dell Rapids or North Cliff Avenue gaging station depending on the location of the water right. Water rights with senior priority dates that do not currently have a bypass requirement will see no change.

The proposed amendment will not impose any conditions more restrictive than the conditions currently in place

on any water right. Big Sioux River water right holders whose bypass condition is proposed for amendment will be provided personal notice of the proposed amendment to their water right.

The Chief Engineer recommends that the Water Management Board approve deletion of the existing bypass condition on applicable water rights and add the following qualifications specific to the bypass flow at a referenced gaging station depending on the location of the water right.

1. Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This water right does not authorize diversion of water from the Big Sioux River, when pumping, unless at least "X" cfs is flowing past the USGS Gaging Station "IDENTIFY APPLICABLE STATION" unless written orders have been issued by the Chief Engineer. Diversions under this water right shall be in accordance with any written orders issued by the Chief Engineer.

2. The Water Management Board is retaining jurisdiction of this water right in the event additional information shows that adjustments need to be made to the bypass requirements.

Any interested person opposing or supporting the proposed amendment and intending to participate in the hearing shall file a petition with the Chief Engineer. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)". A petition filed by either an interested person or a water right holder must be filed by February 26, 2018.

The petition may be informal, but shall be in writing and shall include a statement describing the petitioner's interest, the petitioner's reasons for opposing or supporting the proposed change, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. The hearing is an adversary proceeding and any party has the right to be present at the hearing and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised at the hearing and decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

The staff report including affected water rights and the proposed changes is available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information, or other information, at the

County of _____

AFFIDAVIT OF PUBLICATION

Filed in the office of _____

on the _____ day

Attorney for _____

Water Rights Program address provided above.

The Water Management Board will consider the proposed changes at 11:30 a.m. on March 7, 2018, in the Matthew Training Center, Joe Foss Bldg, 523 E. Capitol Ave. Pierre SD. The hearing will be held pursuant to the provisions of SDCL 46-1-14 and 46-2-17.

The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) modify, 3) defer, or 4) deny the proposed amendments after it reaches a conclusion based on facts at the public hearing. The Board has legal authority and jurisdiction to consider this matter pursuant to SDCL 46-2-9 and 46-2-11.

The March 7, 2018 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from any person who has filed a petition to oppose or support the proposed change. The request for an automatic delay must be filed by February 26, 2018. If an automatic delay is requested, the hearing will be rescheduled for a future Board meeting and personal notice will be provided to all petitioners regarding the time, date and location.

Notice is given to individuals with disabilities that this hearing is being held in a physically accessible place. Please notify the Department of Environment and Natural Resources at least 48 hours before the hearing if you have a disability for which special arrangements must be made at the hearing. The telephone number for making arrangements is (605) 773-3352.

Under SDCL 1-26-18.3, in any contested case, if the amount in controversy exceeds \$2,500.00 "or if a property right may be terminated, any party to the contested case may require the agency to use the Office of Hearing Examiners by giving notice of the request to the agency no later than ten days after service of a notice of hearing issued pursuant to SDCL 1-26-17." If you choose to use the Office of Hearing Examiners rather than the hearing procedure before the Water Management Board set forth above, you need to notify the Chief Engineer (Water Rights Program, 523 E Capitol Avenue, Pierre SD) by February 26, 2018.

Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

Published once at approximate cost of \$76

March 2, 2018

PAYMENT REQUEST FORM

PAYEE: Moody County Enterprise
PO Box 71
Flandreau, SD 57028

FROM: DENR Water Rights Program
523 E. Capitol Ave
Pierre, SD 57501-3181

DESCRIPTION OF SERVICE, PRODUCE OR TRANSFER

Notice of Hearing

AMOUNT: \$75.62

FUNDING SOURCE:

GENERAL: X

FEDERAL:

OTHER:

COMMENTS:

AUTHORIZATION: 

I declare and affirm under the penalties of perjury that this claim is in all things, true and correct. I further agree to comply with the provisions of the Civil Rights Act of 1964 and regulations issued thereunder relating to nondiscrimination in federal assisted programs.

Invoice
Moody County Enterprise
PO Box 71
Flandreau, SD 57028

Water Rights
523 E Capitol
Pierre SD 57501

Date	Item advertised	Rate
2-14-18	Notice of Hearing	75.62
Total		\$75.62

Payment can be sent to us at the above address.
Thank you

Affidavit of Publication

STATE OF SOUTH DAKOTA
COUNTY OF LINCOLN

ANDY WILCOX

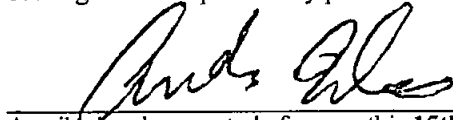
being first duly sworn on his oath says; that the Sioux Valley News is a legal weekly newspaper of general circulation as required by South Dakota Code of Nineteen Hundred Thirty-Nine, and any acts amendatory thereto, printed and published by the Sioux Valley News, Inc., in Canton, in said county and State, and has been such legal newspaper during the time hereinafter mentioned; that he is and during all of said time was publisher of said newspaper and has personal knowledge of the facts stated in this affidavit; that the advertisement headed:

**DENR Water Rights Program
Notice of Hearing**

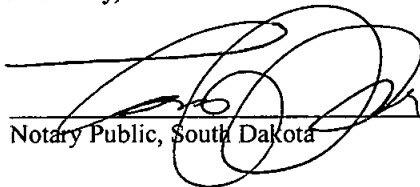
a printed copy of which is hereto attached, was printed and published in said newspaper for ONE successive week(s) upon the following dates, to-wit:

February 15, 2018

that the full amount of the fees charged for publishing the same to-wit: the sum of \$72.47 inures solely to the benefit of the publishers of said newspaper; that no agreement or understanding for any division of this sum has been made with any other person; and that no part of said sum has been agreed to be paid to any person whomsoever.

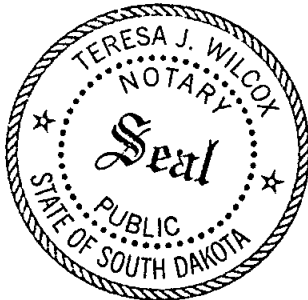


Ascribed and sworn to before me this 15th day of
February, 2018.



Notary Public, South Dakota

(Seal)



**NOTICE OF HEARING
ON CHIEF ENGINEER'S
RECOMMENDATION FOR BIG
SIOUX RIVER WATER RIGHTS**

Notice is given that the Water Rights Program, Department of Environment and Natural Resources, 523 E Capitol Avenue, Pierre SD 57501 proposes that the Water Management Board amend conditions placed on many Big Sioux River water rights in South Dakota. The objective is to bring consistency among water rights from the river and the ability for the Chief Engineer to issue written orders to allow pumping to continue if climatic conditions are favorable. The amendments will not increase either the authorized diversion rate or number of irrigated acres authorized under existing Big Sioux River water rights.

Currently, water rights differ in the amount of water that must be bypassed at the pump site or at a United States Geological Survey (USGS) gaging station in order for pumping to occur. The Water Rights Program has reviewed all Big Sioux River water rights and determined that the conditions can be modified to a standard bypass at one of three gaging stations depending on the stream segment where the water right is located. It is proposed that the bypass condition along the river is best managed in three segments identified by USGS gaging stations as follows:

1. River reach upstream from the USGS gaging station near Castlewood;
2. River reach between USGS gaging station near Castlewood downstream to gaging station near Dell Rapids;
3. River reach between USGS gaging station near Dell Rapids downstream to gaging station near North Cliff Avenue in Sioux Falls.

Water rights that currently have a bypass condition will be amended such that those water rights upstream of the Castlewood gaging station will have a 5 cubic feet of water per second (cfs) bypass requirement. Those

water rights in the two other reaches described above will have a 20 cfs bypass requirement referenced to either the Dell Rapids or North Cliff Avenue gaging station depending on the location of the water right. Water rights with senior priority dates that do not currently have a bypass requirement will see no change.

The proposed amendment will not impose any conditions more restrictive than the conditions currently in place on any water right. Big Sioux River water right holders whose bypass condition is proposed for amendment will be provided personal notice of the proposed amendment to their water right.

The Chief Engineer recommends that the Water Management Board approve deletion of the existing bypass condition on applicable water rights and add the following qualifications specific to the bypass flow at a referenced gaging station depending on the location of the water right.

1. Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This water right does not authorize diversion of water from the Big Sioux River, when pumping, unless at least "X" cfs is flowing past the USGS Gaging Station "IDENTIFY APPLICABLE STATION" unless written orders have been issued by the Chief Engineer. Diversions under this water right shall be in accordance with any written orders issued by the Chief Engineer.

2. The Water Management Board is retaining jurisdiction of this water right in the event additional information shows that adjustments need to be made to the bypass requirements.

Any interested person opposing or supporting the proposed amendment and intending to participate in the

My Commission Expires
December 9, 2020

RECEIVED

FEB 26 2018

WATER RIGHTS
PROGRAM

hearing shall file a petition with the Chief Engineer. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)". A petition filed by either an interested person or a water right holder must be filed by February 26, 2018.

The petition may be informal, but shall be in writing and shall include a statement describing the petitioner's interest, the petitioner's reasons for opposing or supporting the proposed change, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. The hearing is an adversary proceeding and any party has the right to be present at the hearing and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised at the hearing and decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

The staff report including affected water rights and the proposed changes is available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information, or other information, at the Water Rights Program address provided above.

The Water Management Board will consider the proposed changes at 11:30 a.m. on March 7, 2018, in the Matthew Training Center, Joe Foss Bldg, 523 E. Capitol Ave. Pierre SD. The hearing will be held pursuant to the provisions of SDCL 46-1-14 and 46-2-17.

The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) modify, 3) defer, or 4) deny the proposed amendments after it reaches a conclusion based on facts at the public hearing. The Board has legal authority and jurisdiction to consider this matter pursuant to SDCL 46-2-9 and 46-2-11.

* The March 7, 2018 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from any person who has filed a petition to oppose or support the proposed change. The request for an automatic delay must be filed by February 26, 2018. If an automatic delay is requested, the hearing will be rescheduled for a future Board meeting and personal notice will be provided to all petitioners regarding the time, date and location.

Notice is given to individuals with disabilities that this hearing is being held in a physically accessible place. Please notify the Department of Environment and Natural Resources at least 48 hours before the hearing if you have a disability for which special arrangements must be made at the hearing. The telephone number for making arrangements is (605) 773-3352.

Under SDCL 1-26-18.3, in any contested case, if the amount in controversy exceeds \$2,500.00 "or if a property right may be terminated, any party to the contested case may require the agency to use the Office of Hearing Examiners by giving notice of the request to the agency no later than ten days after service of a notice of hearing issued pursuant to SDCL 1-26-17." If you choose to use the Office of Hearing Examiners rather than the hearing procedure before the Water Management Board set forth above, you need to notify the Chief Engineer (Water Rights Program, 523 E Capitol Avenue, Pierre SD) by February 26, 2018.

Steven M. Pirner, Secretary,
Department of Environment and
Natural Resources.

Published in the Sioux Valley News
on February 15, 2018, at the total
approximate cost of \$72.47.

February 26, 2018

PAYMENT REQUEST FORM

PAYEE: Sioux Valley News Inc.
PO Box 255
Canton, SD

FROM: DENR Water Rights Program
523 E. Capitol Ave
Pierre, SD 57501-3181

DESCRIPTION OF SERVICE, PRODUCE OR TRANSFER

Affidavit of Publication-Big Sioux River

AMOUNT: \$72.47

FUNDING SOURCE:

GENERAL: X

FEDERAL:

OTHER:

COMMENTS:

AUTHORIZATION: 

I declare and affirm under the penalties of perjury that this claim is in all things, true and correct.
I further agree to comply with the provisions of the Civil Rights Act of 1964 and regulations issued thereunder relating to nondiscrimination in federal assisted programs.

Sioux Valley News Inc.
213 East 5th St P O Box 255
Canton SD 57013

Statement	2/22/2018	50
	DATE	NUMBER

Phone Number: (605) 764-2000
Please return yellow copy
with payment.

Next Closing Day March 29, 2018

ID# 541

Dept of Environment & Natural Resou
Attn: Karen Water Rights Program
523 East Capitol, Joe Foss Building
Pierre SD 57501

We now offer online Subscriptions!
www.SiouxValleyNewsOnline.com

Balance Due: 72.47

Date	Description	Units	Debit	Credit
02/15/2018	Legals		72.47	
	Big Sioux River Notice			
	Balance Due		72.47	

Current	30	60	90	90+
72.47	0.00	0.00	0.00	0.00

Service charge of 1-3/4% per month (21% per year) on accounts 30 days past due. Minimum charge \$30.
In addition, costs and reasonable attorney's fees for collection may be charged.

RECEIVED

FEB 22 2018

Form 8

WATER RIGHTS
PROGRAM

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)

County of Codington) SS

I, Jackie Wettstad

certify that the attached printed Notice was taken

from the Watertown

Public Opinion

printed and published in Watertown

County of Codington and

state of South Dakota. The notice was published

in the newspaper on the following date:

February 15, 2018

Cost of Printing \$131.01

Jackie Wettstad
(Signature)

Accounting Clerk
(Title)

2/19/18
(Date Signed)

DEPT OF ENVIRONMENT AND NATURAL RESOURCES

NOTICE OF HEARING
ON CHIEF ENGINEER'S
RECOMMENDATION FOR BIG
SIOUX RIVER WATER RIGHTS
Notice is given that the Water
Rights Program, Department
of Environment and Natural
Resources, 523 E Capitol Avenue,
Pierre SD 57501 proposes that
the Water Management Board
amend conditions placed on
many Big Sioux River water rights
in South Dakota. The objective is
to bring consistency among water
rights from the river and the ability
for the Chief Engineer to issue
written orders to allow pumping to
continue if climatic conditions are
favorable. The amendments will
not increase either the authorized
diversion rate or number of
irrigated acres authorized under
existing Big Sioux River water
rights.

Currently, water rights differ in
the amount of water that must be
bypassed at the pump site or at a
United States Geological Survey
(USGS) gaging station in order
for pumping to occur. The Water
Rights Program has reviewed all
Big Sioux River water rights and
determined that the conditions
can be modified to a standard
bypass at one of three gaging
stations depending on the stream
segment where the water right is
located. It is proposed that the
bypass condition along the river is
best managed in three segments
identified by USGS gaging
stations as follows:

1. River reach upstream from
the USGS gaging station near
Castlewood;
2. River reach between USGS
gaging station near Castlewood
downstream to gaging station
near Dell Rapids;
3. River reach between USGS
gaging station near Dell Rapids
downstream to gaging station
near North Cliff Avenue in Sioux
Falls.

Water rights that currently have a
bypass condition will be amended
such that those water rights
upstream of the Castlewood
gaging station will have a 5 cubic
feet of water per second (cfs)
bypass requirement. Those water
rights in the two other reaches
described above will have a 20 cfs
bypass requirement referenced to
either the Dell Rapids or North Cliff
Avenue gaging station depending
on the location of the water right.
Water rights with senior priority
dates that do not currently have
a bypass requirement will see no
change.

The proposed amendment will
not impose any conditions more
restrictive than the conditions
currently in place on any water
right. Big Sioux River water right
holders whose bypass condition
is proposed for amendment will
be provided personal notice of
the proposed amendment to their
water right.

The Chief Engineer recommends
that the Water Management
Board approve deletion of the
existing bypass condition on
applicable water rights and add
the following qualifications specific
to the bypass flow at a referenced
gaging station depending on the
location of the water right.

1. Low flows as needed for
downstream domestic use,
including livestock water, and
prior rights must be by-passed.
This water right does not
authorize diversion of water
from the Big Sioux River, when
pumping, unless at least "X"
cfs is flowing past the USGS
Gaging Station "IDENTIFY
APPLICABLE STATION" unless
written orders have been
issued by the Chief Engineer.
Divisions under this water right
shall be in accordance with any
written orders issued by the
Chief Engineer.

2. The Water Management
Board is retaining jurisdiction
of this water right in the
event additional information
shows that adjustments need
to be made to the bypass
requirements.

Any interested person opposing
or supporting the proposed
amendment and intending to
participate in the hearing shall file
a petition with the Chief Engineer.
The Chief Engineer's address is
"Water Rights Program, Foss
Building, 523 E Capitol, Pierre SD
57501 (605 773-3352)". A petition
filed by either an interested person
or a water right holder must be
filed by February 26, 2018.

The petition may be informal,
but shall be in writing and shall
include a statement describing
the petitioner's interest, the
petitioner's reasons for opposing
or supporting the proposed
change, and the signature and
mailing address of the petitioner
or the petitioner's legal counsel,
if legal counsel is obtained.

The hearing is an adversary
proceeding and any party has the
right to be present at the hearing
and to be represented by a lawyer.
These and other due process
rights will be forfeited if they are
not exercised at the hearing and
decisions of the Board may be
appealed to the Circuit Court and
State Supreme Court as provided
by law.

The staff report including affected
water rights and the proposed
changes is available at <http://denr.sd.gov/public> or contact Eric
Gronlund for this information, or
other information, at the Water
Rights Program address provided
above.

The Water Management Board
will consider the proposed
changes at 11:30 a.m. on March
7, 2018, in the Matthew Training
Center, Joe Foss Bldg, 523 E.
Capitol Ave, Pierre SD. The
hearing will be held pursuant to
the provisions of SDCL 46-1-14
and 46-2-17.

The Chief Engineer's
recommendation is not final or
binding upon the Board. The
Board is authorized to 1) approve,
2) modify, 3) defer, or 4) deny the
proposed amendments after it
reaches a conclusion based on
facts at the public hearing. The
Board has legal authority and
jurisdiction to consider this matter
pursuant to SDCL 46-2-9 and 46-
2-11.

The March 7, 2018 hearing date
will be automatically delayed
for at least 20 days upon written
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from any person who has filed a
petition to oppose or support the
proposed change. The request
for an automatic delay must be
filed by February 26, 2018. If
an automatic delay is requested,
the hearing will be rescheduled
for a future Board meeting and
personal notice will be provided to
all petitioners regarding the time,
date and location.

Notice is given to individuals with
disabilities that this hearing is be-
ing held in a physically accessible
place. Please notify the Depart-
ment of Environment and Natural
Resources at least 48 hours before
the hearing if you have a disabili-
ty for which special arrangements
must be made at the hearing. The
telephone number for making ar-
rangements is (605) 773-3352.

Under SDCL 1-26-18.3, in any
contested case, if the amount in
controversy exceeds \$2,500.00
"or if a property right may be
terminated, any party to the
contested case may require the
agency to use the Office of Hearing
Examiners by giving notice of the
request to the agency no later than
ten days after service of a notice of
hearing issued pursuant to SDCL
1-26-17." If you choose to use the
Office of Hearing Examiners rather
than the hearing procedure before
the Water Management Board
set forth above, you need to notify
the Chief Engineer (Water Rights
Program, 523 E Capitol Avenue,
Pierre SD) by February 26, 2018.
Steven M. Pinner, Secretary, De-
partment of Environment and Nat-
ural Resources.

Published once at an approxi-
mate cost of \$126.01.
(February 15, 2018)

February 22, 2018

PAYMENT REQUEST FORM

PAYEE: Watertown Public Opinion
120 3rd Avenue NW
Watertown, SD

FROM: DENR Water Rights Program
523 E. Capitol Ave
Pierre, SD 57501-3181

DESCRIPTION OF SERVICE, PRODUCE OR TRANSFER

Notice of Hearing-Big Sioux River

AMOUNT: \$131.01

FUNDING SOURCE:

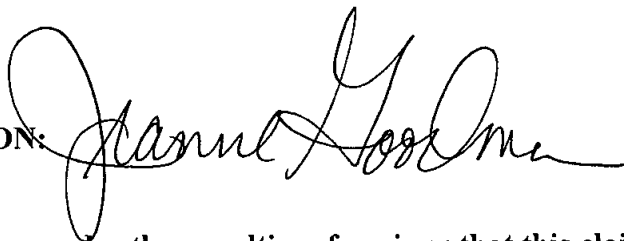
GENERAL: X

FEDERAL:

OTHER:

COMMENTS:

AUTHORIZATION:

A handwritten signature in black ink, appearing to read "Hannah Goodman", written over the "AUTHORIZATION:" label.

I declare and affirm under the penalties of perjury that this claim is in all things, true and correct. I further agree to comply with the provisions of the Civil Rights Act of 1964 and regulations issued thereunder relating to nondiscrimination in federal assisted programs.

FEB 20 2018

WATER RIGHTS
PROGRAM

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)

County of Hamlin) SSI, LeeAnne Dufek

certify that the attached printed Notice was taken

from the Hamlin County
Republicanprinted and published in CastlewoodCounty of Hamlin and

state of South Dakota. The notice was published

in the newspaper on the following date:

Feb 14, 2018Cost of Printing \$69.09LeeAnne Dufek
(Signature)Owner
(Title)2-14-2018
(Date Signed)NOTICE OF HEARING ON CHIEF
ENGINEER'S RECOMMENDA-
TION FOR BIG SIOUX RIVER
WATER RIGHTS

Notice is given that the Water Rights Program, Department of Environment and Natural Resources, 523 E Capitol Avenue, Pierre SD 57501 proposes that the Water Management Board amend conditions placed on many Big Sioux River water rights in South Dakota. The objective is to bring consistency among water rights from the river and the ability for the Chief Engineer to issue written orders to allow pumping to continue if climatic conditions are favorable. The amendments will not increase either the authorized diversion rate or number of irrigated acres authorized under existing Big Sioux River water rights.

Currently, water rights differ in the amount of water that must be bypassed at the pump site or at a United States Geological Survey (USGS) gaging station in order for pumping to occur. The Water Rights Program has reviewed all Big Sioux River water rights and determined that the conditions can be modified to a standard bypass at one of three gaging stations depending on the stream segment where the water right is located. It is proposed that the bypass condition along the river is best managed in three segments identified by USGS gaging stations as follows:

River reach upstream from the USGS gaging station near Castlewood;

River reach between USGS gaging station near Castlewood downstream to gaging station near Dell Rapids;

River reach between USGS gaging station near Dell Rapids downstream to gaging station near North Cliff Avenue in Sioux Falls.

Water rights that currently have a bypass condition will be amended such that those water rights upstream of the Castlewood gaging station will have a 5 cubic feet of water per second (cfs) bypass requirement. Those water rights in the two other reaches described above will have a 20 cfs bypass requirement referenced to either the Dell Rapids or North Cliff Avenue gaging station depending on the location of the water right. Water rights with senior priority dates that do not currently have a bypass requirement will see no change.

The proposed amendment will not impose any conditions more restrictive than the conditions currently in place on any water right. Big Sioux River water right holders whose bypass condition is proposed for amendment will be provided personal notice of the proposed amendment to their water right.

The Chief Engineer recommends that the Water Management Board approve deletion of the existing bypass condition on applicable water rights and add the following qualifications specific to the bypass flow at a referenced gaging station depending on the location of the water right.

Low flows as needed for downstream domestic use, including live-stock water, and prior rights must be by-passed. This water right does not authorize diversion of water from the Big Sioux River, when pumping, unless at least "X" cfs is flowing past the USGS Gaging Station "IDENTIFY APPLICABLE STATION" unless written orders have been issued by the Chief Engineer. Diversions under this water right shall be in accordance with any written orders issued by the Chief Engineer.

The Water Management Board is retaining jurisdiction of this water right in the event additional information shows that adjustments need to be made to the bypass requirements.

Any interested person opposing or supporting the proposed amendment and intending to participate in the hearing shall file a petition with the Chief Engineer. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)". A petition filed by either an interested person or a water right holder must be filed by February 26, 2018.

The petition may be informal, but shall be in writing and shall include a statement describing the petitioner's interest, the petitioner's reasons for opposing or supporting the proposed change, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. The hearing is an adversary proceeding and any party has the right to be present at the hearing and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised at the hearing and decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

The staff report including affected water rights and the proposed changes is available at <http://denr.sd.gov/public> or contact Eric Gronlund for this information, or other information, at the Water Rights Program address provided above.

The Water Management Board will consider the proposed changes at 11:30 a.m. on March 7, 2018, in the Matthew Training Center, Joe Foss Bldg, 523 E. Capitol Ave. Pierre SD. The hearing will be held pursuant to the provisions of SDCL 46-1-14 and 46-2-17.

The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) modify, 3) defer, or 4) deny the proposed amendments after it reaches a conclusion based on facts at the public hearing. The Board has legal authority and jurisdiction to consider this matter pursuant to SDCL 46-2-9 and 46-2-11.

The March 7, 2018 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from any person who has filed a petition to oppose or support the proposed change. The request for an automatic delay must be filed by February 26, 2018. If an automatic delay is requested, the hearing will be rescheduled for a future Board meeting and personal notice will be provided to all petitioners regarding the time, date and location.

Notice is given to individuals with disabilities that this hearing is being held in a physically accessible place. Please notify the Department of Environment and Natural Resources at least 48 hours before the hearing if you have a disability for which special arrangements must be made at the hearing. The telephone number for making arrangements is (605) 773-3352.

Under SDCL 1-26-18.3, in any contested case, if the amount in controversy exceeds \$2,500.00, "or if a property right may be terminated, any party to the contested case may require the agency to use the Office of Hearing Examiners by giving notice of the request to the agency no later than ten days after service of a notice of hearing issued pursuant to SDCL 1-26-17." If you choose to use the Office of Hearing Examiners rather than the hearing procedure before the Water Management Board set forth above, you need to notify the Chief Engineer (Water Rights Program, 523 E Capitol Avenue, Pierre SD) by February 26, 2018.

Steven M. Pimer, Secretary
Department of Environment and Natural Resources.

Published Feb. 14, 2018, at total cost of \$69.09.

February 20, 2018

PAYMENT REQUEST FORM

PAYEE: Hamlin County Publishing Inc.
PO Box 50
Castlewood, SD 57223

FROM: DENR Water Rights Program
523 E. Capitol Ave
Pierre, SD 57501-3181

DESCRIPTION OF SERVICE, PRODUCE OR TRANSFER

Notice of Hearing Big Sioux River

AMOUNT: \$69.09

FUNDING SOURCE:

GENERAL: X

FEDERAL:

OTHER:

COMMENTS:

AUTHORIZATION:

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

I declare and affirm under the penalties of perjury that this claim is in all things, true and correct.
I further agree to comply with the provisions of the Civil Rights Act of 1964 and regulations issued
thereunder relating to nondiscrimination in federal assisted programs.

Statement

B 2 0 2018

Bill To

DENR

Teresa Williams
Air Quality Program
523 E. Capitol, Joe Foss Bldg.
Pierre, SD 57501

[illegible]

Current	1-30 Days Past Due	31-60 Days Past Due	61-90 Days Past Due	OVER 90 Days Past Due	Amount Due
\$69.09	\$0.00	\$0.00	\$0.00	\$0.00	\$69.09

AFFIDAVIT OF PUBLICATION

State of South Dakota)

:ss

County of Union)

Bruce L. Odson,

the publisher of the Leader-Courier, deposes and says that

The Leader-Courier

is a legal weekly newspaper of a general circulation, printed and published in Elk Point, County of Union, State of South Dakota, and has been such legal newspaper during the time hereinafter mentioned, and that affiant is and was during all the time hereinafter mentioned in charge of the advertising department thereof, and has personal knowledge of all the facts stated in this affidavit: and that the notice and advertisement headed:

Notice of Hearing

a printed copy of which is hereunto attached and made a part hereof, was printed and published in the said newspaper at least once in

each week for 1 successive weeks; that said newspaper at the time of the first publication of said notice hereinafter stated, had, and still has, a bona fide circulation of over two hundred paid copies weekly, and had been published in the said County of Union for more than one year immediately prior to the date of the said publication of said notice, and that said newspaper during said times, was, and is, printed in part in an office maintained at said city of Elk Point, the said place of publication; that the first publication of said notice in said newspaper was

on Thursday, the 15 day of February, 2018

and that the succeeding publications were

on Thursday, the _____ day of _____, _____

on Thursday, the _____ day of _____, _____

on Thursday, the _____ day of _____, _____

that the fees for the printing and publishing of said notice and advertisement in said newspaper as aforesaid were

\$ 70.99, that the full amount of the fee charged insures to the benefit of the publisher of the said newspaper, that no agreement or understanding for the division thereof has been made with any other person and that no part thereof has been agreed to be paid to any other person whomsoever.


Subscribed and sworn to before me

this 15 day of February, 2018

My commission expires 7-12-23

SUSAN ODSON
NOTARY PUBLIC
SOUTH DAKOTA

Notary Public

NOTICE OF HEARING ON CHIEF ENGINEER'S RECOMMENDATION FOR BIG SIOUX RIVER WATER RIGHTS

Notice is given that the Water Rights Program, Department of Environment and Natural Resources, 523 E Capitol Avenue, Pierre SD 57501 proposes that the Water Management Board amend conditions placed on many Big Sioux River water rights in South Dakota. The objective is to bring consistency among water rights from the river and the ability for the Chief Engineer to issue written orders to allow pumping to continue if climatic conditions are favorable. The amendments will not increase either the authorized diversion rate or number of irrigated acres authorized under existing Big Sioux River water rights.

Currently, water rights differ in the amount of water that must be bypassed at the pump site or at a United States Geological Survey (USGS) gaging station in order for pumping to occur. The Water Rights Program has reviewed all Big Sioux River

water rights and determined that the conditions can be modified to a standard bypass at one of three gaging stations depending on the stream segment where the water right is located. It is proposed that the bypass condition along the river is best managed in three segments identified by USGS gaging stations as follows:

1. River reach upstream from the USGS gaging station near Castlewood;

2. River reach between USGS gaging station near Castlewood downstream to gaging station near Dell Rapids;

3. River reach between USGS gaging station near Dell Rapids downstream to gaging station near North Cliff Avenue in Sioux Falls.

Water rights that currently have a bypass condition will be amended such that those water rights upstream of the Castlewood gaging station will have a 5 cubic feet of water per second (cfs) bypass requirement. Those water rights in the two other reaches described above will have a 20 cfs bypass requirement referenced to either the Dell Rapids or North Cliff Avenue gaging station depending on the location of the water right. Water rights with senior priority dates that do not currently have a bypass requirement will see no change.

RECEIVED

FEB 20 2018

WATER RIGHTS
PROGRAM

The proposed amendment will not impose any conditions more restrictive than the conditions currently in place on any water right. Big Sioux River water right holders whose bypass condition is proposed for amendment will be provided personal notice of the proposed amendment to their water right.

The Chief Engineer recommends that the Water Management Board approve deletion of the existing bypass condition on applicable water rights and add the following qualifications specific to the bypass flow at a referenced gaging station depending on the location of the water right.

1. Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This water right does not authorize diversion of water from the Big Sioux River, when pumping, unless at least "X" cfs is flowing past the USGS Gaging Station "IDENTIFY APPLICABLE STATION" unless written orders have been issued by the Chief Engineer. Diversions under this water right shall be in accordance with any written orders issued by the Chief Engineer.

2. The Water Management Board is retaining jurisdiction of this water right in the event additional information

shows that adjustments need to be made to the bypass requirements.

Any interested person opposing or supporting the proposed amendment and intending to participate in the hearing shall file a petition with the Chief Engineer. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)". A petition filed by either an interested person or a water right holder must be filed by February 26, 2018.

The petition may be informal, but shall be in writing and shall include a statement describing the petitioner's interest, the petitioner's reasons for opposing or supporting the proposed change, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. The hearing is an adversary proceeding and any party has the right to be present at the hearing and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised at the hearing and decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

The staff report including affected water rights and the proposed changes is available at <http://denr.sd.gov/public> or

contact Eric Gronlund for this information, or other information, at the Water Rights Program address provided above.

The Water Management Board will consider the proposed changes at 11:30 a.m. on March 7, 2018, in the Matthew Training Center, Joe Foss Bldg, 523 E. Capitol Ave. Pierre SD. The hearing will be held pursuant to the provisions of SDCL 46-1-14 and 46-2-17.

The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) modify, 3) defer, or 4) deny the proposed amendments after it reaches a conclusion based on facts at the public hearing. The Board has legal authority and jurisdiction to consider this matter pursuant to SDCL 46-2-9 and 46-2-11.

The March 7, 2018 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from any person who has filed a petition to oppose or support the proposed change. The request for an automatic delay must be filed by February 26, 2018. If an automatic delay is requested, the hearing will be rescheduled for a future Board meeting and personal notice will be provided to all petitioners regarding the

time, date and location.

Notice is given to individuals with disabilities that this hearing is being held in a physically accessible place. Please notify the Department of Environment and Natural Resources at least 48 hours before the hearing if you have a disability for which special arrangements must be made at the hearing. The telephone number for making arrangements is (605) 773-3352.

Under SDCL 1-26-18.3, in any contested case, if the amount in controversy exceeds \$2,500.00 "or if a property right may be terminated, any party to the contested case may require the agency to use the Office of Hearing Examiners by giving notice of the request to the agency no later than ten days after service of a notice of hearing issued pursuant to SDCL 1-26-17." If you choose to use the Office of Hearing Examiners rather than the hearing procedure before the Water Management Board set forth above, you need to notify the Chief Engineer (Water Rights Program, 523 E Capitol Avenue, Pierre SD) by February 26, 2018.

Steven M. Pirner, Secretary, Department of Environment and Natural Resources.
Publish Feb. 15, 2018
Published once the total approximate cost of \$70.99
7-4-231

February 20, 2018

PAYMENT REQUEST FORM

PAYEE: Southern Union County Leader-Courier
PO Box 310
Elk Point, SD

FROM: DENR Water Rights Program
523 E. Capitol Ave
Pierre, SD 57501-3181

DESCRIPTION OF SERVICE, PRODUCE OR TRANSFER

Notice of Hearing-Big Sioux River

AMOUNT: \$70.99

FUNDING SOURCE:

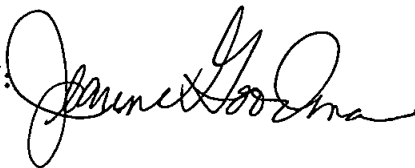
GENERAL: X

FEDERAL:

OTHER:

COMMENTS:

AUTHORIZATION:



I declare and affirm under the penalties of perjury that this claim is in all things, true and correct. I further agree to comply with the provisions of the Civil Rights Act of 1964 and regulations issued thereunder relating to nondiscrimination in federal assisted programs.

Southern Union County **LEADER-COURIER**

*The community newspaper of Dakota Dunes, Elk Point,
Jefferson, McCook Lake and North Sioux City.*

RECEIVED

FEB 20 2018

**WATER RIGHTS
PROGRAM**

**Water Rights Program
523 E Capitol Ave
Pierre, SD 57501**

2/15/18

DATE	INVOICE	DESCRIPTION	CHARGES	BALANCE
2/15/18	SJ073117	Notice of Hearing- Big Sioux River	\$70.99	\$70.99

Finance Charge \$0.00

AMOUNT DUE* \$70.99

*Includes finance charges on amounts more than 30 days past due.

**PO Box 310
Elk Point, SD 57025
Phone 605-356-2632
Fax 605-356-3626**

**PO Box 1457
North Sioux City, SD 57049
Phone 605-235-1914
Fax 605-232-3679**

FEB 26 2018

WATER RIGHTS
PROGRAM


City of
Sioux Falls



City Attorney

Providing a Better Quality of Life for You!

KAREN A. LEONARD
Deputy City Attorney
kleonard@siouxfalls.org

DANIEL J. BROWN
Assistant City Attorney
dbrown4@siouxfalls.org

RYAN J. SAGE
Assistant City Attorney
rsage@siouxfalls.org

100 S. Dakota Ave., Ste. 200
P.O. Box 7402
Sioux Falls, SD 57117-7402
605-367-8880

KEITH E. ALLENSTEIN, JR.
Assistant City Attorney
Police and Fire Legal Advisor
kallenstein@siouxfalls.org

(Law Enforcement Center)
320 W. Fourth Street
Sioux Falls, SD 57104-2413
605-367-8880

COLLEEN M. MORAN
Assistant City Attorney
ADA Coordinator
cmoran@siouxfalls.org

KATIE L. DUNN
Assistant City Attorney
Human Relations Legal Advisor
kdunn@siouxfalls.org

224 W. Ninth Street
P.O. Box 7402
Sioux Falls, SD 57117-7402
605-367-8745

PAUL M. BENGFORD
Assistant City Attorney
Public Works Legal Advisor
pbengford@siouxfalls.org

DIANE P. BEST
Assistant City Attorney
Public Works Legal Advisor
dbest@siouxfalls.org

(Public Works Administration)
224 W. Ninth Street
P.O. Box 7402
Sioux Falls, SD 57117-7402
605-367-8880

605-367-7039 TTY
605-367-7330 FAX
www.siouxfalls.org

February 23, 2018

SENT VIA U.S. MAIL AND EMAIL TO: DENRINTERNET@STATE.SD.US

Ms. Jeanne Goodman
Chief Engineer
Water Rights Program, DENR
523 E. Capitol Avenue,
Pierre, SD 57501

Re: Big Sioux River Recommendations

Dear Ms. Goodman,

Please consider this letter as the City of Sioux Falls' Petition to Intervene in the pending Big Sioux River Water Rights matter now scheduled for March 7, 2018.

The City of Sioux Falls ("*Sioux Falls*") appreciates the the Department of Environment & Natural Resources ("*DENR*") objective of bringing consistency to the water right permits and their administration along the Big Sioux River ("*BSR*"). Changing the qualifications to ensure they are all based on USGS river gages is a good thing. Sioux Falls does have some concerns that it would like to share with the South Dakota Water Management Board ("*Board*").

The proposed new qualifications for each stretch of the BSR would be based on the next USGS gage below the water permit involved. For example, irrigation above the Castlewood gage would be allowed so long as the Castlewood gage was at 5 cfs or more. As such, this qualification would tend to assure these upstream irrigators have the right to irrigate so long as the stream gage below them meets a particular criteria, without regard to what is happening to senior users further downstream. Under this scenario, a junior irrigator above the Castlewood gage could irrigate if the Castlewood gage was at 5 cfs regardless of whether the gages at Dell Rapids and Sioux Falls were below 20 cfs. At the same time, a senior appropriator would be constrained by the 20 cfs qualification at the downstream gages. While I understand these qualifications are intended to provide for flexibility by the Chief Engineer and as such, the Chief Engineer could seek cooperation among the upstream junior appropriators, the language of these qualifications seems to reduce the legal means for the senior water right holders to take action against junior water right holders that impair water rights downstream.

Ms. Jeanne Goodman
Page 2
February 23, 2018

Sioux Falls would suggest all downstream gage criteria be incorporated in the qualifications. For the two permits above Castlewood, we would propose the qualification state as follows:

Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, when pumping, unless at least 5 cfs is flowing past the USGS Gaging Station No. 06479525 near Castlewood, at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids, and at least 20 cfs is flowing past USGS Gaging Station No. 6482020 at North Cliff Avenue in Sioux Falls, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.

Similarly, for the 14 permits above Dell Rapids, we would propose the qualification state as follows:

Low flows as needed for downstream domestic use, including livestock water, and prior rights must be by-passed. This permit does not authorize diversion of water from the Big Sioux River, when pumping, unless at least 20 cfs is flowing past the USGS Gaging Station No. 06481000 near Dell Rapids, and at least 20 cfs is flowing past USGS Gaging Station No. 6482020 at North Cliff Avenue in Sioux Falls, unless written orders have been issued by the Chief Engineer. Diversions under this Permit shall be in accordance with any written orders issued by the Chief Engineer.

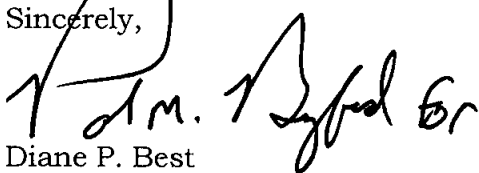
We appreciate the fact that administering these diversions during severe drought will be a challenge. We would respectfully submit, however, that the qualifications, as stated above, would protect the senior water rights and also be a better means to protect the flows in the river for the entire stretch impacted.

We also reserve our right to address any other issues that may be presented by other intervenors or the Board at a hearing.

At the hearing Sioux Falls may also address the extent to which releases from the Sioux Falls Water Reclamation Plant augment other available flows in the BSR.

Due to scheduling constraints, Sioux Falls is exercising its right to automatically delay the hearing for at least twenty (20) days as provided by state law.

Sincerely,



Diane P. Best
Assistant City Attorney

DPB/amr

Sioux Falls Ordinances

§ 53.015 USE OF PUBLIC SEWERS REQUIRED.

(a) It shall be unlawful for any person to place, deposit or permit to be deposited in any unsanitary manner on public or private property within the city, or in any area under the jurisdiction of the city, any human or animal excrement, garbage or other objectionable waste.

(b) It shall be unlawful to discharge to any natural outlet within the city or in any area under the jurisdiction of the city any wastewater or other polluted waters, except where suitable treatment has been provided in accordance with this subchapter, or permitted by the DENR or EPA.

(c) Except as provided in this subchapter, it shall be unlawful to construct or maintain any privy, privy vault, septic tank, cesspool or other facility intended or used for the disposal of wastewater.

(d) The owner of each house, building or property used for human occupancy, employment, recreation or other purposes, in the city and abutting on any street, alley or right-of-way in which there is located or may be located a public sanitary sewer of the city, shall at the owner's expense install suitable toilet facilities therein, and connect the facilities directly with the proper public sewer in accordance with the provisions of this subchapter, within five years after the date of official notice to do so, provided that the public sewer is within 200 feet of the property line and reasonably accessible as determined by the city engineer.

(1992 Code, § 41-111) (Ord. 47-81, passed 6-1-1981; Ord. 57-93, passed 7-12-1993; Ord. 102-96, passed 9-3-1996; Ord. 48-03, passed 6-9-2003) Penalty, see § 53.999

§ 53.016 PRIVATE WASTEWATER DISPOSAL.

(a) Where a public sanitary sewer is not available under the provisions of § 53.015(d), the building sewer shall be connected to a private wastewater disposal system complying with the provisions of this subchapter and State of South Dakota Administrative Rules for individual and small on-site wastewater systems (ARSD Chapter 74:03:01).

(b) Before commencement of construction of a private wastewater disposal system, the owner shall first obtain a written permit signed by the city engineer. The application for the permit shall be made on a form furnished by the city which the applicant shall supplement by any plans, specifications and other information deemed necessary by the city. A permit and inspection fee established by ordinance shall be paid to the city when the application is filed.

(c) A permit for a private wastewater disposal system shall not become effective until the installation is completed to the satisfaction of the city engineer. The city engineer shall be allowed to inspect the work at any stage of construction, and in any event, the applicant for the permit shall notify the city engineer when the work is ready for final inspection, and before any underground portions are covered. The inspection shall be made within three hours of the receipt of notice by the city engineer.

(d) The type, capacity, location and layout of a private wastewater disposal system shall comply with all recommendations of the state department of health. For persons with a public water supply, no permit shall be issued for any private wastewater disposal system employing subsurface soil absorption facilities where the area of the lot is less than one-half acre. For persons with a private well, no permit shall be issued for any private wastewater disposal system employing subsurface soil absorption facilities where the area of the lot is less than one acre. No septic tank or cesspool shall be permitted to discharge to any natural outlet.

(e) When a public sewer becomes available to a property served by a private wastewater disposal system, as provided in § 53.015(d), a direct connection shall be made to the public sewer within five years in compliance with this subchapter, and any septic tanks, cesspools and similar private wastewater disposal facilities shall be cleaned of sludge and filled with suitable material.

(f) The owner shall operate and maintain the private wastewater disposal facilities in a sanitary manner at all times, at no expense to the city.

(g) No statement contained in this subchapter shall be construed to interfere with any additional requirements that may be imposed by a health officer.

(1992 Code, § 41-112) (Ord. 47-81, passed 6-1-1981; Ord. 19-82, passed 3-8-1982; Ord. 57-93, passed 7-12-1993; Ord. 102-96, passed 9-3-1996; Ord. 48-03, passed 6-9-2003)



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

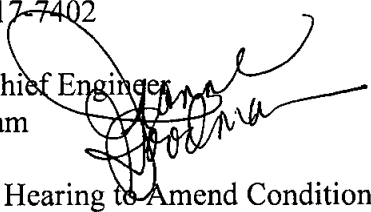
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

February 27, 2018

NOTICE

TO: Diane Best
Assistant City Attorney
City of Sioux Falls
PO Box 7402
Sioux Falls SD 57117-7402

FROM: Jeanne Goodman, Chief Engineer
Water Rights Program 

SUBJECT: Automatic Delay of Hearing to Amend Conditions Placed on Many Big Sioux River
Water Rights

The city of Sioux Falls filed a petition to intervene in response to the public notice regarding the Water Management Board hearing to consider an amendment to the conditions on many Big Sioux River water rights. The city's petition included a request for an automatic delay of the March 7, 2018 hearing date. Therefore, the hearing on this matter is automatically delayed pursuant to SDCL 46-2A-4 and 46-2A-5 and will not be held on March 7, 2018.

The hearing to consider amendment to the conditions on many Big Sioux River water rights is tentatively scheduled for the Water Management Board meeting to be held May 2 - 3, 2018, in Pierre. The Board will formalize its next meeting date at their March 7th meeting. Future notice of the time and place of the hearing will be provided.

Please contact Eric Gronlund at (605) 773-3352 if you have questions regarding the hearing process.

c: Ann Mines Bailey, Assistant Attorney General

CERTIFICATION

I hereby certify that on February 27, 2018, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated February 27, 2018, regarding automatic delay of the hearing to consider amendment to the conditions on many Big Sioux River water rights, as addressed below:

Diane Best
Assistant City Attorney
City of Sioux Falls
PO Box 7402
Sioux Falls SD 57117-7402

Sent Inter-office to:

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



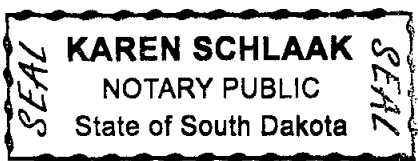
Eric Gronlund
Water Rights Program, DENR

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 27th day of February, 2018



Karen Schlaak
Notary Public
My Commission expires April 1, 2019





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

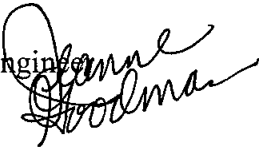
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

April 4, 2018

NOTICE

TO: Diane Best
Assistant City Attorney
City of Sioux Falls
PO Box 7402
Sioux Falls SD 57117-7402

FROM: Jeanne Goodman, Chief Engineer
Water Rights Program 

SUBJECT: Scheduling of Hearing to Amend Conditions Placed on Many Big Sioux River
Water Rights

The city of Sioux Falls filed a petition to intervene in response to the public notice published in the Argus Leader regarding proposed amendment to conditions placed on many Big Sioux River water rights. The March 7, 2018, hearing was postponed at the city's request. This notice reschedules the hearing for May 3, 2018.

The Water Management Board will now conduct a hearing to consider proposed amendment to conditions placed on many Big Sioux River water rights at 8:30 AM (Central Time) on Thursday, May 3, 2018, at the Floyd Matthew Training Center, Joe Foss Building, 523 E. Capitol Avenue, Pierre SD. The agenda time is an estimate and may be delayed due to prior items. Future notice will be provided to all parties if there is a significant change to the hearing time.

Applicable provisions of the public notice of hearing published in the Argus Leader on February 15, 2018, still apply.

Questions regarding the hearing process may be directed to Eric Gronlund, Water Rights Program at (605) 773-3352 or eric.gronlund@state.sd.us.

c: Ann Mines Bailey, Assistant Attorney General

CERTIFICATION

I hereby certify that on April 4, 2018, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated April 4, 2018, regarding scheduling of the hearing to consider amendment to the conditions on many Big Sioux River water rights, as addressed below:

Diane Best
Assistant City Attorney
City of Sioux Falls
PO Box 7402
Sioux Falls SD 57117-7402

Sent Inter-office to:

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



Eric Gronlund
Water Rights Program, DENR

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 4th day of April, 2018



Karen Schlaak
Notary Public
My Commission expires April 1, 2019

