

Considered: _____

Flood Control Permit
WATER PERMIT NO. _____

FC-10

MAP No. sameName of Applicant McCook CountyPost Office Address Box 550, Salem SD 57058Amount of Water Claimed none - Flood control Total Acres NASource of Water Supply Wolf CreekWater to be used for Flood control County HansonAbout 4 miles E of Farmer.

PROOF OF PUBLICATION: Received _____ Not Received _____

APPLICATION: Approved 3/1/89 Subject to _____

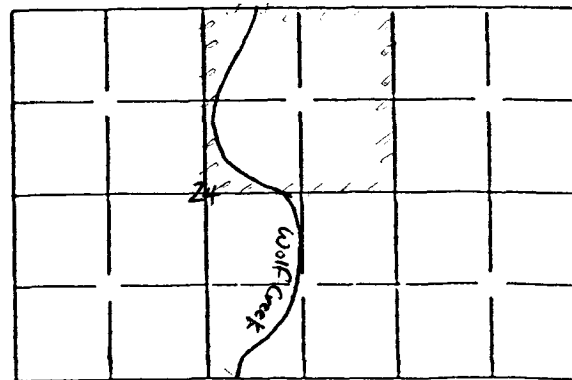
F.F. & C.L. Adopted _____ Not Approved _____ Deferred _____

PRIORITY _____ Date Received Dec 8, 1988 Fee \$50⁰⁰ Remarks _____12/8/88Corrected Application Received _____ Period of Annual Use Jan 1 - Dec 31WATER QUALITY APPROVAL RECEIVED NA APPROVED/CONDITIONAL (Circle one)

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

Diversion Point NE 1/4 section 24 - T103N -R57W

~~Land to be irrigated~~ This application proposes to lower
the creek channel through the Spencer quarry to
prevent upstream flooding during high runoff
periods

Well Log: Driller NA Licensed YES _____ NO _____

Depth of Well _____ REMARKS _____

Type of Map plat PREPARED BY _____ Reviewed and the Number

assigned on _____ By _____



Mail to: Water Rights Div.
DWN.R. Foss Bldg.
Pierre, SD 57501
(605) 773-3352

No. FC-10 Hydrologic Unit 10160011
Map No. same Basin James River
Newspaper Emery Enterprise, Box 244 57332 (Thurs)
Salem Special, Box 228 57058 (Wed)
Parkston Advance, Box J 57366 (Wed)
Miner Co Pioneer, Box P 57349 (Thurs)

A FLOOD CONTROL Application For Permit Within The State Of South Dakota

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

Type of Application: Check one or more of the following

- New ☒ Vested Right ☐ Future Use ☐ Change Use ☐
☐ Amend Permit No. _____ with old priority date retained
Change 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 MC COOK COUNTY Phone No. 425-2731
Post Office Address BOX 550, SALEM, SD 57058 State 57058
(Street, RR or Box) (City) (Zip Code)
2. Amount of water claimed (c.f.s) None
3. Source of water supply Wolf Creek
4. Location of point of diversion construction NE 1/4, Section 24, T103N, R57W

County Hanson
5. Counties where water will be used Hanson, McCook
6. Annual period during which water is to be used January 1 - to December 31
Flood Control
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)

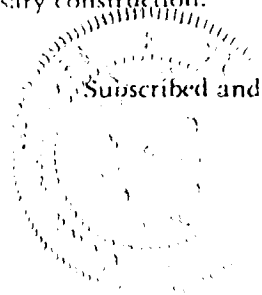
See Plans & Specifications.

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 _____)

I, Marty Pearson for McCook Co Hwy 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 Marty Pearson



Subscribed and sworn to before me this 7 day of Dec. 1988

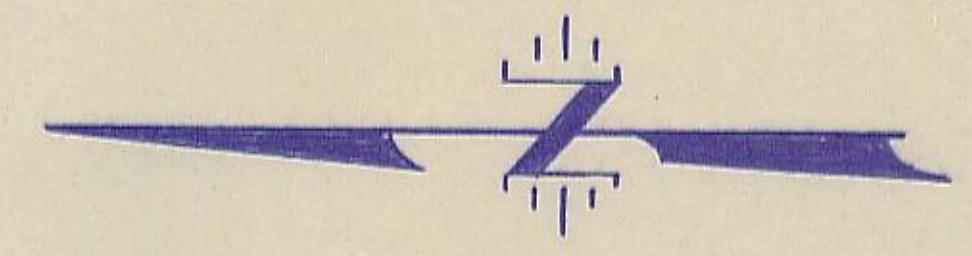
Joan Matthaei
Notary Public

Thy comm. expires 7/15/93

SOUTH SPENCER, DRAINAGE SURVEY
WOLF CREEK PROFILE IN SECTION 24-103-57

1 OF 8

Peter S. Johnson

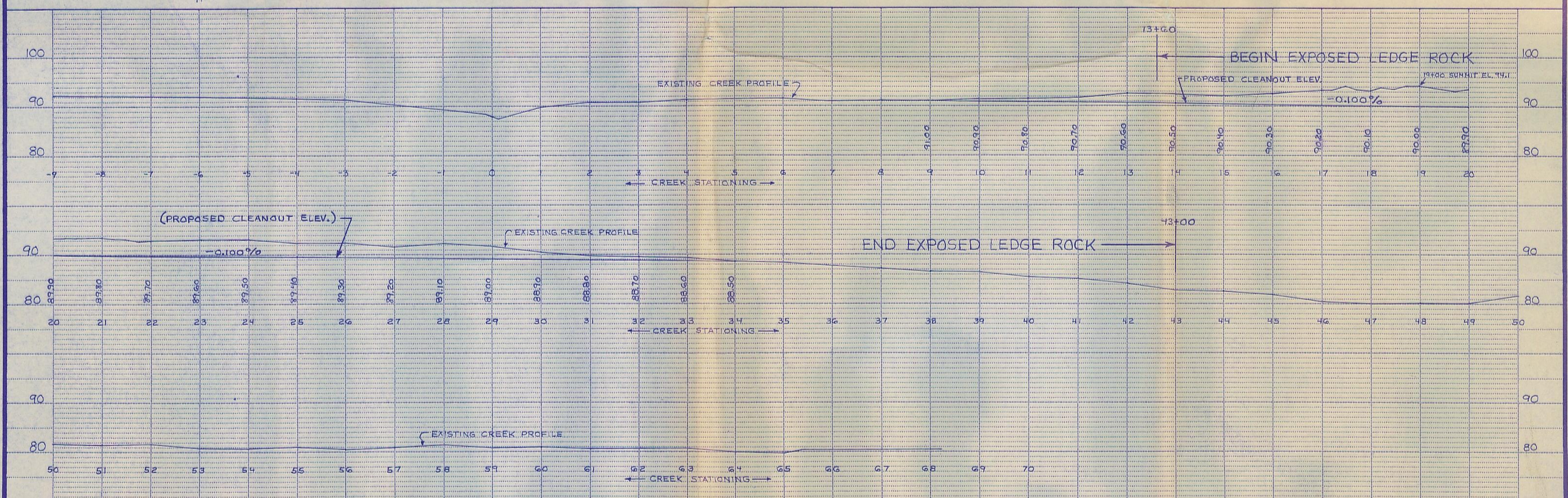
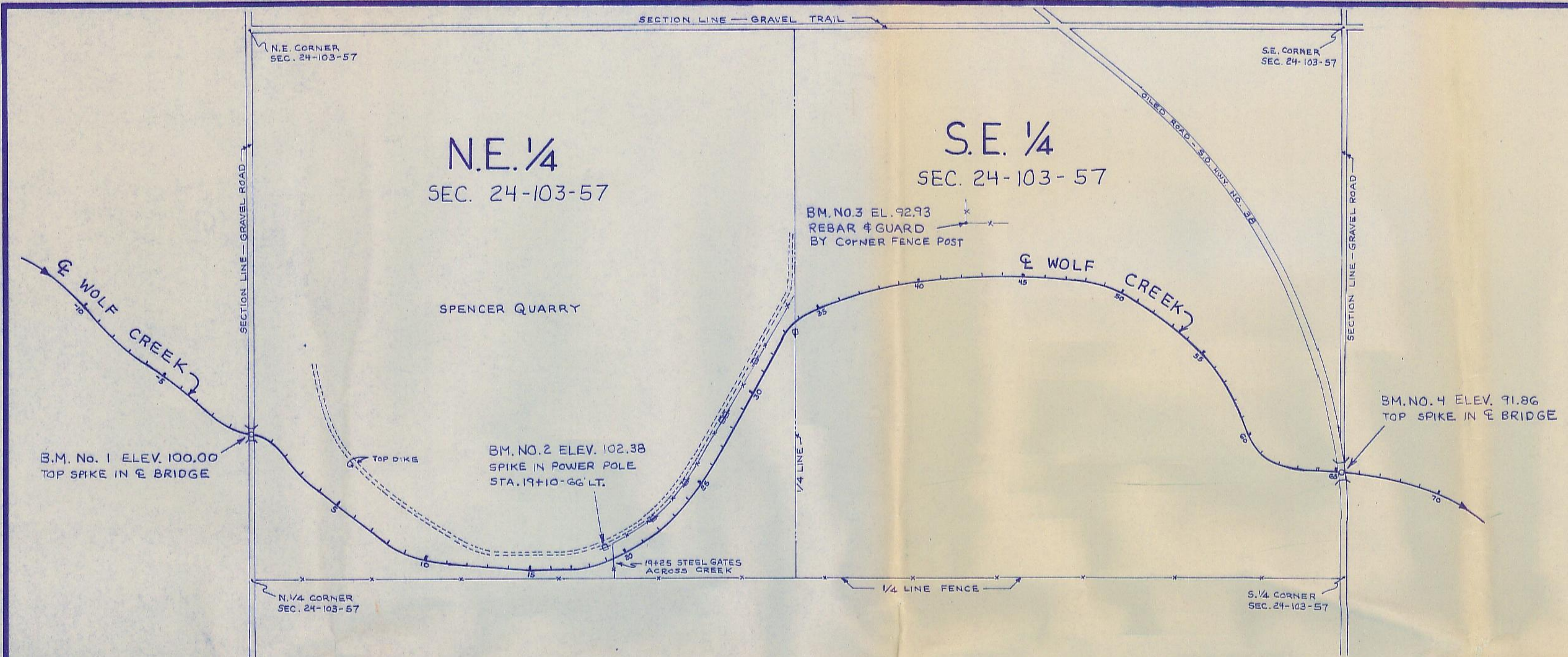


DRAWING SCALE: 1" = 300'

PROFILE SCALE: 1" = 100' HORIZ.
1" = 10' VERT.

PROPOSED CLEANOUT
STA. 9+00 TO 34+00

ESTIMATED EXCAVATION
DIRT 402 CU. YDS.
ROCK 4624 CU. YDS.



APPL NO. FC-10

FLOOD CONTROL PERMIT NO FC-10

The Water Management Board hereby approves Flood Control Permit No. FC-10 for McCook County, Box 550, Salem SD 57058 to excavate a restricted portion of the Wolf Creek channel caused by an outcrop of quartzite rock. The excavation is to be completed in accordance with the plans and specifications as submitted to the Division of Water Rights.

Approval of the permit does not increase the likelihood of severity of downstream flood damages, does not impair existing water rights or endanger human life or property. The permit authorizes construction of the proposed project to alleviate upstream flooding during high creek flows.

Date of first receipt of application December 8, 1988.

Date of return to applicant for correction January 5, 1989.

Date of receipt of corrected application January 12, 1989.

Approved March 1, 1989.

1. The date from which the applicant may claim right is December 8, 1988.
2. The whole of said work is to be completed on or before March 1, 1994.
3. The project shall be used for the purpose of flood control on the portion of the Wolf Creek channel located in the NE 1/4 Section 24-T103N-R57W.
4. The prior water rights of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to use the water must not be unlawfully impaired by this flood control project.

WATER MANAGEMENT BOARD

By: 
Chief Engineer, Water Rights Division
Department of Water and Natural Resources

JUN 13 1989

(date)

RECEIPT

Division of Water Rights

South Dakota Department of Water and Natural Resources

Pierre, December 6, 1936

RECEIVED OF McCook County Hwy. Dept., Salem, St 57073

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

Fee for Application for Permit No. <u>FE-10</u> to Appropriate Water, to construct works and to put water to beneficial use <u>FLOOD CONTROL</u>	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. _____		
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	50 00

By

Maxwell Stirling
Chief Engineer

JAMES RIVER BASIN

209

06478390 WOLF CREEK NEAR CLAYTON, SD

LOCATION.--Lat 43°22'18", long 97°36'12", in SE4SE4SW4 sec.20, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on left bank 5 ft (2 m) upstream from highway bridge, 4.1 mi (6.6 km) upstream from mouth and 5.6 mi (9.0 km) southeast of Clayton.

DRAINAGE AREA.--386 mi² (1,000 km²), approximately.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,210 ft (369 m), from topographic map.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,230 ft³/s (34.8 m³/s) Mar. 19, 1978, gage height, 11.39 ft (3.472 m); maximum gage height, 11.73 ft (3.575 m) Mar. 19, 1978 (backwater from ice); no flow at times in 1976, 1977.

EXTREMES FOR CURRENT PERIOD.--Water year 1977: Peak discharges above base of 175 ft³/s (4.96 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 15	unknown	250 7.08	ice jam	Sept. 23	1330	*406 11.5	*8.24 2.512
Sept. 12	unknown	393 11.1	8.17 2.490				

No flow for many days.

Water year 1978: Peak discharges above base of 175 ft³/s (4.96 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Oct. 1	0630	199 5.64	6.73 2.051	Apr. 19	0430	218 6.17	6.49 1.978
Mar. 19	1430	ice jam	*11.73 3.575	June 26	0530	204 5.78	6.61 2.015
Mar. 19	2400	*1230 34.8	11.39 3.472	July 23	1530	209 5.92	6.38 1.945
Apr. 6	1045	270 7.65	6.90 2.103				

Minimum daily discharge, 0.37 ft³/s (0.010 m³/s) Feb. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.16	9.8	2.1	.12	.00	.00	37
2	.00	.00	.00	.00	.00	.14	9.0	2.1	.04	.00	.00	20
3	.00	.00	.00	.00	.00	.12	8.1	2.3	.01	.00	.00	12
4	.00	.00	.00	.00	.00	.11	7.6	2.6	.00	.00	.00	13
5	.00	.00	.00	.00	.00	.10	7.5	2.8	.00	.00	.00	10
6	.00	.00	.00	.00	.00	.10	7.3	2.5	.00	.00	.00	9.2
7	.00	.00	.00	.00	.00	.10	6.6	2.2	.00	.00	.00	7.0
8	.00	.00	.00	.00	.00	.11	6.5	2.1	.00	.00	.00	5.6
9	.00	.00	.00	.00	.00	.15	5.9	1.7	.00	.00	.00	6.1
10	.00	.00	.00	.00	.00	.18	5.3	1.5	.00	.07	.00	30
11	.00	.00	.00	.00	.00	.80	5.0	1.3	.00	17	.00	80
12	.00	.00	.00	.00	.00	3.0	4.8	1.2	.00	6.6	.00	96
13	.00	.00	.00	.00	.00	9.0	4.5	1.0	.00	1.0	.00	21
14	.00	.00	.00	.00	.00	60	5.5	.84	.00	.11	.00	102
15	.00	.00	.00	.00	.00	200	5.4	.69	.00	.00	.00	54
16	.00	.00	.00	.00	.00	150	5.0	.58	.05	.00	19	31
17	.00	.00	.00	.00	.00	95	4.4	.44	1.4	.00	3.2	19
18	.00	.00	.00	.00	.00	58	4.2	.27	.75	.00	.37	14
19	.00	.00	.00	.00	.00	40	4.1	.24	.49	.00	.00	9.4
20	.00	.00	.00	.00	.00	31	5.5	.72	.18	.00	.00	5.7
21	.00	.00	.00	.00	.01	27	6.7	5.1	.11	.00	.00	3.9
22	.00	.00	.00	.00	.05	19	5.7	4.7	.30	.00	.00	3.3
23	.00	.00	.00	.00	.10	16	4.2	3.0	4.2	.00	9.7	110
24	.00	.00	.00	.00	.15	13	3.5	1.7	1.2	.00	.47	41
25	.00	.00	.00	.00	.25	11	3.1	.73	.59	.00	4.0	17
26	.00	.00	.00	.00	.23	11	2.8	.54	.25	.00	40	10
27	.00	.00	.00	.00	.20	10	2.4	.98	1.4	.00	7.0	6.4
28	.00	.00	.00	.00	.18	10	2.3	.94	.48	.00	1.8	4.3
29	.00	.00	.00	.00	---	18	2.1	.56	.02	.00	35	3.3
30	.00	.00	.00	.00	---	16	2.1	.26	.00	.00	30	15
31	.00	---	.00	.00	---	12	---	.27	---	.00	34	---
TOTAL	.00	.00	.00	.00	1.17	811.07	156.9	47.96	11.59	24.78	184.54	796.2
MEAN	.000	.000	.000	.000	.042	26.2	5.23	1.55	.39	.80	5.95	26.5
MAX	.00	.00	.00	.00	.25	200	9.8	5.1	4.2	17	40	110
MIN	.00	.00	.00	.00	.00	.10	2.1	.24	.00	.00	.00	3.3
AC-FT	.00	.00	.00	.00	2.3	1610	311	95	23	49	366	1580
CAL YR 1976	TOTAL	1497.41	MEAN 4.09	MAX 70	MIN .00	AC-FT 2970						
WTR YR 1977	TOTAL	2034.21	MEAN 5.57	MAX 200	MIN .00	AC-FT 4030						

JAMES RIVER BASIN

06478390 WOLF CREEK NEAR CLAYTON, SD--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	1.9	4.1	1.9	.38	1.5	97	31	20	30	12	31
2	58	2.0	3.6	1.8	.37	1.4	108	26	16	25	18	23
3	29	1.9	3.3	1.8	.39	1.4	151	23	14	20	29	17
4	16	1.9	3.2	1.8	.42	1.3	104	20	12	16	27	13
5	9.9	1.8	3.9	1.7	.46	1.3	170	19	11	15	22	11
6	7.2	1.9	3.6	1.7	.50	1.3	259	17	11	19	19	9.1
7	16	1.9	3.0	1.7	.58	1.3	201	21	10	43	15	7.8
8	17	3.2	2.4	1.6	.63	1.4	176	32	9.4	125	12	6.4
9	17	7.0	2.2	1.6	.70	1.5	136	37	9.2	81	9.4	5.2
10	16	10	2.2	1.5	.78	1.6	128	30	8.8	59	7.6	4.4
11	13	6.6	2.5	1.5	.83	1.8	97	23	8.4	44	6.1	4.4
12	10	12	2.9	1.4	.86	2.3	71	25	8.0	34	5.1	8.2
13	8.4	8.7	3.2	1.3	.89	10	55	29	7.3	27	4.2	5.4
14	6.9	7.3	3.9	1.3	.90	25	47	26	8.2	22	3.9	2.9
15	6.2	9.3	4.5	1.2	.92	120	44	21	9.9	17	6.2	20
16	5.0	18	4.6	1.2	.94	190	39	18	7.7	14	5.6	15
17	4.1	21	4.5	1.1	.96	180	43	15	7.0	12	5.6	12
18	3.4	27	4.4	1.1	.98	420	102	14	6.2	10	6.7	15
19	3.0	24	4.1	1.0	1.0	1000	180	14	5.0	10	5.3	24
20	2.4	25	3.7	.99	1.1	1100	105	14	4.1	9.3	4.1	27
21	2.1	17	3.3	.94	1.2	890	81	13	3.6	17	3.6	20
22	1.8	10	3.0	.70	1.4	897	75	12	26	54	3.7	16
23	1.9	6.7	2.8	.64	1.7	722	70	12	7.4	155	3.6	12
24	2.0	3.5	2.6	.64	1.8	565	71	12	4.4	116	3.3	9.7
25	1.8	2.8	2.4	.64	1.9	481	68	13	8.2	66	2.9	7.9
26	1.7	2.9	2.3	.64	1.8	376	56	12	135	47	35	6.4
27	1.5	3.1	2.2	.64	1.7	283	50	14	84	34	109	5.6
28	1.4	3.4	2.1	.52	1.6	216	46	15	72	26	71	5.0
29	1.4	3.9	2.0	.42	---	183	41	17	53	22	69	4.1
30	1.6	4.3	2.0	.40	---	142	36	31	40	17	59	3.6
31	2.1	---	1.9	.39	---	121	---	24	---	14	42	---
TOTAL	415.8	250.0	96.4	35.76	27.69	7919.1	2907	630	626.8	1200.3	625.9	426.8
MEAN	13.4	8.33	3.11	1.15	.99	255	96.9	20.3	20.9	38.7	20.2	14.2
MAX	148	27	4.6	1.9	1.9	1100	259	37	135	155	109	54
MIN	1.4	1.8	1.9	.39	.37	1.3	36	12	3.6	9.3	2.9	3.6
AC-FT	825	496	191	71	55	15710	5770	1250	1240	2380	1240	847

CAL YR 1977 TOTAL 2796.41 MEAN 7.66 MAX 200 MIN .00 AC-FT 5550
WTR YR 1978 TOTAL 15161.55 MEAN 41.5 MAX 1100 MIN .37 AC-FT 30070

JAMES RIVER BASIN

229

06478390 WOLF CREEK NEAR CLAYTON, SD

LOCATION---Lat 43°22'18", long 97°36'12", in SE&SE&SW& sec.20, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on left bank 5 ft (2 m) upstream from highway bridge, 4.1 mi (6.6 km) upstream from mouth and 5.6 mi (9.0 km) southeast of Clayton.

DRAINAGE AREA---386 mi² (1,000 km²), approximately.

PERIOD OF RECORD---October 1975 to current year.

GAGE---Water-stage recorder. Altitude of gage is 1,210 ft (369 m), from topographic map.

REMARKS---Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD---Maximum discharge, 1,280 ft³/s (36.2 m³/s) Mar. 22, 1979, gage height, 11.97 ft (3.648 m); maximum gage height, 12.22 ft (3.725 m) Mar. 19, 1979 (backwater from ice); no flow at times in 1976, 1977.

EXTREMES FOR CURRENT YEAR---Peak discharges above base of 175 ft³/s (4.96 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Mar. 19	1245	900 25.5	a*12.22 3.725	Apr. 12	1715	529 15.0	8.52 2.597
Mar. 22	2230	*1,280 36.2	11.97 3.648	July 29	0945	274 7.76	6.83 2.082
Mar. 25	0500	653 18.5	9.45 2.880				

a Ice jam.

Minimum daily discharge 0.45 ft³/s (0.013 m³/s) Feb. 9.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 21 to Apr. 9, Apr. 23 to May 11, July 17-30;
stage-discharge relation affected by ice Nov. 27 to Mar. 20)

2.7	0.28	3.0	2.4	4.0	29	6.0	165
2.8	.76	3.1	3.9	4.5	51	8.0	435
2.9	1.4	3.4	9.7	5.0	80	11.0	1,130

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	1.7	2.0	.83	.53	.68	129	29	12	3.3	16	7.5
2	3.1	1.9	2.0	.80	.52	.67	118	32	9.2	2.8	13	7.3
3	3.1	2.0	2.0	.75	.51	.67	103	29	8.6	2.7	13	7.1
4	3.0	1.9	1.9	.73	.51	.62	85	26	7.4	2.3	13	6.2
5	3.1	1.9	1.9	.70	.50	.64	80	24	6.7	2.2	12	5.4
6	2.8	1.6	1.9	.68	.49	3.0	69	22	6.3	2.1	11	5.3
7	2.6	1.7	1.9	.65	.48	5.0	63	20	9.3	2.0	9.7	4.6
8	2.7	1.7	1.9	.63	.47	10	57	23	9.0	2.1	10	4.0
9	2.7	1.8	1.9	.60	.45	10	56	36	11	2.0	11	3.4
10	2.4	1.7	1.8	.56	.46	11	50	82	13	1.9	9.9	2.9
11	2.4	1.7	1.8	.55	.48	18	65	141	10	1.9	9.1	3.4
12	2.3	1.6	1.8	.54	.52	30	355	109	7.7	1.7	8.6	10
13	3.1	2.8	1.8	.52	.55	50	382	77	5.8	1.7	9.0	8.8
14	2.6	2.4	1.8	.50	.60	55	249	59	4.9	1.7	8.7	5.9
15	2.4	2.2	1.8	.50	.64	45	200	47	4.3	1.6	8.0	4.6
16	2.0	2.2	1.7	.51	.64	50	171	37	5.6	1.5	7.5	3.7
17	2.1	2.3	1.7	.53	.64	100	141	32	5.1	2.0	6.9	3.2
18	2.1	2.2	1.6	.54	.63	700	113	30	4.2	1.3	6.8	2.8
19	2.2	2.9	1.5	.55	.62	800	91	27	3.4	1.5	9.1	2.6
20	2.3	2.4	1.5	.56	.58	700	87	24	6.7	3.5	21	2.8
21	2.2	2.3	1.4	.56	.49	521	80	21	8.0	2.9	30	2.6
22	2.0	2.4	1.4	.54	.47	885	66	19	8.2	32	15	2.3
23	1.9	2.5	1.3	.59	.48	1050	55	17	6.7	14	11	2.0
24	2.1	2.5	1.3	.58	.48	549	51	14	6.0	8.3	9.8	1.9
25	2.1	2.3	1.2	.58	.49	581	48	13	4.9	10	10	1.7
26	2.0	2.1	1.1	.58	.49	517	45	12	4.0	10	9.4	1.5
27	1.9	2.1	1.1	.56	.53	360	40	12	7.5	12	7.8	1.4
28	1.9	2.2	1.0	.56	.57	334	35	11	6.6	12	7.1	1.3
29	2.0	2.1	.96	.55	---	254	33	11	4.9	56	6.9	1.3
30	1.8	2.1	.90	.54	---	203	30	13	3.8	36	6.9	1.3
31	1.7	---	.86	.54	---	153	---	15	---	23	7.3	---
TOTAL	74.1	63.2	48.72	18.43	14.82	7998.08	3147	1064	210.8	258.0	334.5	118.8
MEAN	2.39	2.11	1.57	.59	.53	258	105	34.3	7.03	8.32	10.8	3.96
MAX	3.5	2.9	2.0	.83	.64	1050	382	141	13	56	30	10
MIN	1.7	1.6	.86	.50	.45	.68	30	11	3.4	1.3	6.6	1.3
AC-FT	147	125	97	37	29	15860	6240	2110	418	512	663	236

CAL YR 1978 TOTAL 14585.37 MEAN 40.0 MAX 1100 MIN .37 AC-FT 28930
WTR YR 1979 TOTAL 13350.45 MEAN 36.6 MAX 1050 MIN .45 AC-FT 26480

JAMES RIVER BASIN

241

06478390 WOLF CREEK NEAR CLAYTON, SD

LOCATION---Lat 43°22'18", long 97°36'12", in SE4SE4SW4 sec.20, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on left bank 5 ft (2 m) upstream from highway bridge, 4.1 mi (6.6 km) upstream from mouth and 5.6 mi (9.0 km) southeast of Clayton.

DRAINAGE AREA---386 mi² (1,000 km²), approximately.

PERIOD OF RECORD---October 1975 to current year.

GAGE---Water-stage recorder. Altitude of gage is 1,210 ft (369 m), from topographic map.

REMARKS---Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE---5 years, 18.2 ft³/s (0.515 m³/s), 13,190 acre-ft/yr (16.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD---Maximum discharge, 1,280 ft³/s (36.2 m³/s) Mar. 22, 1979, gage height, 11.97 ft (3.648 m); maximum gage height, 12.22 ft (3.725 m) Mar. 19, 1979 (backwater from ice); no flow at times in 1976, 1977, 1980.

EXTREMES FOR CURRENT YEAR---Maximum discharge, 23 ft³/s (0.65 m³/s) at 1600 hours, June 7, no peak above base of 175 ft³/s (4.96 m³/s); maximum gage height, 5.21 ft (1.588 m) Feb. 24 (backwater from ice); no flow July 13 to Sept. 30.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Nov. 16 to Mar. 19)

2.55	0	2.8	0.76	3.1	3.9
2.6	.05	2.9	1.4	3.4	9.7
2.7	.28	3.0	2.4	3.6	15

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	10	7.0	3.5	.65	1.5	5.4	2.2	2.4	1.1	.00	.00
2	1.1	7.5	7.4	3.5	.62	1.5	5.0	2.1	2.5	.96	.00	.00
3	1.1	6.3	5.0	3.5	.61	1.6	6.7	2.1	2.8	.82	.00	.00
4	1.1	5.5	4.7	3.4	.60	1.7	6.8	2.0	2.5	.77	.00	.00
5	1.1	5.7	5.4	3.3	.73	1.9	5.9	1.7	3.3	.75	.00	.00
6	1.0	5.0	6.6	2.9	.88	2.0	5.6	1.8	4.4	.70	.00	.00
7	1.1	4.7	7.3	2.2	.96	1.9	5.6	1.6	12	.56	.00	.00
8	1.1	4.1	7.5	1.8	1.0	2.0	7.4	1.5	15	.37	.00	.00
9	1.0	4.4	6.4	1.4	1.1	2.2	9.0	1.5	13	.28	.00	.00
10	1.1	5.7	4.7	1.3	1.2	2.7	9.0	1.5	9.3	.27	.00	.00
11	1.1	5.9	5.8	1.4	1.2	3.3	9.4	1.4	8.5	.18	.00	.00
12	1.1	3.4	6.0	1.5	1.2	3.8	9.6	1.4	7.5	.03	.00	.00
13	1.1	3.3	4.3	2.0	1.3	4.5	9.9	1.5	6.9	.00	.00	.00
14	1.2	3.2	4.3	3.3	1.3	5.6	11	1.6	5.4	.00	.00	.00
15	1.3	4.0	3.5	4.3	1.3	6.8	9.5	1.4	7.0	.00	.00	.00
16	1.4	2.3	2.0	4.8	1.3	8.0	8.5	1.2	5.7	.00	.00	.00
17	1.4	2.0	1.8	4.7	1.2	9.0	8.4	1.5	4.5	.00	.00	.00
18	1.9	2.8	1.2	4.0	1.1	10	8.2	1.8	3.5	.00	.00	.00
19	3.2	5.4	1.5	2.8	2.0	11	7.5	2.1	2.5	.00	.00	.00
20	2.9	7.5	3.0	2.3	2.7	12	6.8	1.8	1.7	.00	.00	.00
21	2.5	9.4	4.2	2.0	3.1	11	6.6	1.7	1.3	.00	.00	.00
22	2.8	8.6	5.0	1.8	3.0	6.6	6.4	1.7	.96	.00	.00	.00
23	2.5	8.0	5.4	1.7	3.0	6.1	5.0	1.5	.76	.00	.00	.00
24	2.4	7.4	4.7	1.6	2.9	6.0	4.0	1.4	.62	.00	.00	.00
25	2.2	6.3	4.2	1.5	2.8	5.1	3.5	1.3	.55	.00	.00	.00
26	2.3	5.6	3.9	1.4	1.5	5.8	3.2	1.6	.47	.00	.00	.00
27	2.4	8.6	3.6	1.3	1.6	5.6	3.1	2.3	1.3	.00	.00	.00
28	2.4	7.7	3.7	1.1	1.7	5.5	3.0	2.1	1.9	.00	.00	.00
29	2.4	6.8	3.7	.92	1.6	5.9	2.7	1.7	1.6	.00	.00	.00
30	3.6	6.5	3.6	.82	---	6.4	2.4	2.2	1.3	.00	.00	.00
31	11	---	3.6	.70	---	6.3	---	2.4	---	.00	.00	---
TOTAL	64.0	173.6	141.2	72.74	44.15	163.3	195.1	53.6	131.16	6.79	.00	.00
MEAN	2.06	5.79	4.55	2.35	1.52	5.27	6.50	1.73	4.37	.22	.000	.000
MAX	11	10	7.5	4.8	3.1	12	11	2.4	15	1.1	.00	.00
MIN	1.0	2.0	1.2	.70	.60	1.5	2.4	1.2	.47	.00	.00	.00
AC-FT	127	344	280	144	88	324	387	106	260	13	.00	.00
WYR 1979 TOTAL	13543.23			37.1	1050			.45	26860			
WYR 1980 TOTAL	1045.64			2.86	15			.00	2070			

JAMES RIVER BASIN

06473330 WOLF CREEK NEAR CLAYTON, SD

LOCATION.--Lat 43°22'18", long 97°36'12", in NW¼NE¼ sec.29, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 10 ft (3.0 m) downstream from highway bridge, 4.1 mi (6.6 km) upstream from mouth and 5.6 mi (9.0 km) southeast of Clayton.

DRAINAGE AREA.--386 mi² (1,000 km²), approximately.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Nonrecording gage Oct. 1-30. Water-stage recorder Oct. 31 to Sept. 30. Altitude of gage is 1,210 ft (369 m), from topographic map. Oct. 1, 1975, to July 29, 1980, recording gage 50 ft (15.2 m) upstream at different datum.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--6 years, 15.3 ft³/s (0.433 m³/s), 11,080 acre-ft/yr (13.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,280 ft³/s (36.2 m³/s) Mar. 22, 1979, gage height, 11.97 ft (3.648 m); maximum gage height, 12.22 ft (3.725 m) Mar. 19, 1979 (backwater from ice); no flow at times in 1976, 1977, 1980, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31 ft³/s (0.88 m³/s) at 0245 hours, Aug. 27, gage height, 6.19 ft (1.887 m), no peak above base of 175 ft³/s (4.96 m³/s); no flow for many days.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 19-30, Aug. 27 to Sept. 30;
stage-discharge relation affected by ice Nov. 14 to Mar. 10)

4.61	0	4.9	3.0
4.7	.43	5.5	18
4.8	1.2	6.0	34

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.78	.50	.80	.50	3.0	5.0	.41	.00	.00	.00	2.4
2	.00	.74	.50	.80	.50	3.0	4.2	.42	.00	.00	.00	1.2
3	.00	.56	.50	.70	.50	2.9	3.3	.46	.00	5.0	.00	.64
4	.00	.56	.50	.70	.50	2.5	3.8	.68	.00	6.4	.00	.24
5	.00	.59	.80	.60	.50	3.0	3.3	.61	.00	2.8	.00	.07
6	.00	.62	.80	.60	.60	3.0	2.7	.55	.00	1.7	.00	.06
7	.00	.49	.80	.50	.50	2.5	2.3	.44	.00	.69	.00	.29
8	.00	.51	.80	.50	.50	2.5	2.1	.44	.00	.30	.00	.07
9	.00	.47	.70	.50	.50	2.5	2.2	.39	.00	.02	.00	.00
10	.00	.43	.70	.50	.50	2.3	2.2	.31	.00	.00	.00	.00
11	.00	.55	.60	.50	.50	2.1	1.9	.42	.00	.00	.00	.00
12	.00	.63	.70	.60	.50	1.9	1.9	.43	.00	.00	.00	.00
13	.00	.57	.90	.60	.60	2.3	1.7	.69	.00	.00	.00	.00
14	.00	.56	1.0	.50	.70	1.8	1.5	.64	.41	.00	.00	.00
15	.00	.61	2.3	.50	1.0	1.2	1.4	.58	.59	.00	.00	.00
16	.00	.60	2.0	.50	3.0	1.2	1.2	.44	.29	.00	.00	.00
17	.00	.60	1.6	.50	5.0	.97	1.2	.49	.10	.00	.00	.00
18	.00	.60	1.3	.60	4.0	1.1	1.1	.51	.00	.00	.00	.00
19	.86	.65	1.0	.60	2.0	1.1	1.1	.45	.00	.00	.00	.00
20	.70	.60	.80	.60	.80	1.0	1.1	.33	.00	.00	.00	.00
21	.62	.70	.70	.70	.80	.99	.95	.28	.00	.00	.00	.00
22	.46	.60	.70	.80	.70	.98	1.0	.20	.00	.00	.00	.00
23	.54	.60	.70	.90	.80	1.1	1.0	.17	.05	.00	.00	.00
24	.42	.50	.70	1.0	1.0	1.0	.92	.18	.00	.00	.00	.00
25	.34	.50	.70	.90	.90	1.2	.90	.07	.00	.00	.00	.00
26	.26	.50	.70	.90	.80	1.2	.78	.11	.00	.00	.86	.00
27	.50	.60	.70	.80	.80	1.2	.84	.08	.00	.00	27	.00
28	.62	.60	.80	.60	2.0	1.8	.59	.02	.00	.00	20	.00
29	.66	.60	.80	.50	---	5.7	.56	.00	.00	.00	13	.00
30	.70	.60	.90	.50	---	5.7	.42	.00	.00	.00	8.7	.00
31	.86	---	.90	.50	---	4.5	---	.00	---	.00	4.8	---
TOTAL	7.54	17.52	27.10	19.80	31.00	67.24	53.16	10.80	1.44	16.91	74.36	4.97
MEAN	.24	.58	.87	.64	1.11	2.17	1.77	.35	.048	.55	2.40	.17
MAX	.86	.78	2.3	1.0	5.0	5.7	5.0	.69	.59	6.4	27	2.4
MIN	.00	.43	.50	.50	.50	.97	.42	.00	.00	.00	.00	.00
AC-FT	15	35	54	39	61	133	105	21	2.9	34	147	9.9

CAL YR 1980 TOTAL 719.00 MEAN 1.96 MAX 15 MIN .00 AC-FT 1430
WTR YR 1981 TOTAL 331.84 MEAN .91 MAX 27 MIN .00 AC-FT 656

JAMES RIVER BASIN

189

06478390 WOLF CREEK NEAR CLAYTON, SD

LOCATION.--Lat 43°22'18", long 97°36'12", in NW¼NE¼ sec.29, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 10 ft (3.0 m) downstream from highway bridge, 4.1 mi (6.6 km) upstream from mouth and 5.6 mi (9.0 km) southeast of Clayton.

DRAINAGE AREA.--386 mi² (1,000 km²), approximately.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder to Sept. 30, 1981. Nonrecording gage Oct. 1-30, 1981. Water-stage recorder Oct. 31, 1981, to current year. Altitude of gage is 1,210 ft (369 m), from topographic map. Oct. 1, 1975, to July 29, 1980, recording gage 50 ft (15.2 m) upstream at different datum.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--7 years, 14.6 ft³/s (0.413 m³/s), 10,580 acre-ft/yr (13.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,280 ft³/s (36.2 m³/s) Mar. 22, 1979, gage height, 11.97 ft (3.648 m); maximum gage height, 12.22 ft (3.725 m) Mar. 19, 1979 (backwater from ice), datum then in use; maximum gage height, 13.45 ft (4.100 m) May 30, 1982, present datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 175 ft³/s (4.96 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 21	--	330 9.35	ice jam	May 30	2100	*1140 32.3	*13.45 4.100

No flow for many days.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Dec. 13; stage-discharge relation affected by ice Dec. 14 to Mar. 9)

4.61	0	4.9	3.0	7.0	86	12.0	793
4.7	.43	5.5	18	8.0	168	13.5	1155
4.8	1.2	6.0	34	10.0	413		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
PEAK VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.23	2.3	.00	.00	90	7.6	2.6	158	3.7	.66	5.9
2	.00	.25	2.9	.00	.00	40	7.2	2.6	74	3.4	.49	2.6
3	.00	.24	2.9	.00	.00	15	5.4	2.5	52	5.6	.46	1.3
4	.00	.32	2.8	.00	.00	30	7.3	2.2	37	3.4	.39	.91
5	.00	.25	3.1	.00	.00	40	7.0	1.9	32	2.8	.37	1.0
6	.00	.23	2.3	.00	.00	35	7.2	2.0	42	7.4	.32	1.1
7	.00	.28	2.1	.00	.00	30	6.2	2.1	42	3.2	.31	1.7
8	.00	.31	2.3	.00	.00	25	6.7	1.9	33	2.2	.19	1.5
9	.00	.19	2.1	.00	.00	20	6.7	1.9	28	16	.09	1.0
10	.00	.40	2.6	.00	.00	21	6.9	2.0	24	5.4	.13	1.3
11	.00	.40	1.9	.00	.00	22	6.9	1.7	21	3.4	.09	.70
12	.00	.48	1.8	.00	.00	19	7.5	3.0	19	8.9	.01	1.5
13	5.0	.46	1.8	.00	.00	25	7.9	3.2	17	4.3	.16	1.0
14	2.0	.58	1.5	.00	.00	21	7.8	3.0	16	3.2	.24	.80
15	1.0	.49	1.2	.00	.00	15	7.1	8.2	15	4.9	.36	.70
16	.40	.33	1.0	.00	.00	14	6.5	3.7	13	4.4	.27	.60
17	1.0	.42	1.0	.00	.00	13	6.9	3.7	12	2.8	.16	.40
18	.70	.58	1.0	.00	1.0	12	6.4	3.0	11	2.0	.09	.70
19	.50	.45	1.0	.00	10	11	5.4	2.7	10	2.2	.07	.60
20	.49	.76	1.0	.00	50	12	4.9	2.8	9.5	1.6	2.3	.60
21	.51	.76	1.0	.00	260	12	4.7	3.7	8.9	3.6	1.5	.56
22	.47	.92	1.5	.00	238	11	5.1	3.6	8.2	3.0	.57	.50
23	.44	1.5	1.0	.00	100	11	4.0	2.9	6.9	2.3	.50	.38
24	.43	1.4	.96	.00	50	10	4.7	2.5	6.3	1.7	2.6	.28
25	.33	1.4	.70	.00	40	9.1	4.3	3.3	5.9	1.3	1.8	.24
26	.33	1.3	.50	.00	80	8.4	3.7	4.2	5.2	1.1	1.2	.31
27	.34	1.1	.40	.00	120	8.1	3.7	4.7	4.9	1.1	.35	.25
28	.30	.96	.30	.00	100	7.3	3.5	4.3	4.7	.95	.24	.20
29	.29	.94	.20	.00	---	7.1	3.1	4.1	4.0	.83	.39	.17
30	.29	2.0	.10	.00	---	7.1	2.7	395	4.3	.71	.78	.17
31	.18	---	.05	.00	---	7.5	---	658	---	.69	3.7	---
TOTAL	15.36	20.25	45.25	.00	989.00	608.6	175.4	1155.0	728.8	108.48	20.78	29.57
MEAN	.50	.68	1.46	.0000	35.3	19.4	5.85	37.3	24.3	3.51	.67	.99
MAX	5.0	2.0	3.1	.00	238	90	7.9	656	156	16	3.7	5.4
MIN	.00	.19	.05	.00	.00	7.1	2.7	1.7	4.0	.69	.01	.17
AC-FT	30	40	90	.00	1960	1210	348	2240	1450	214	41	59
CAL YR 1981	TOTAL	340.54	MEAN	.99	MAX	27	MIN	.00	AC-FT	715		
WTR YR 1982	TOTAL	3496.89	MEAN	10.7	MAX	658	MIN	.00	AC-FT	7730		

06478390 WOLF CREEK NEAR CLAYTON, SD

LOCATION---Lat 43°22'18", long 97°36'12", in NW¼NE¼ sec.29, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 10 ft downstream from highway bridge, 4.1 mi upstream from mouth and 5.6 mi southeast of Clayton.

DRAINAGE AREA---386 mi², approximately.

PERIOD OF RECORD---October 1975 to current year.

GAGE---Water-stage recorder to Sept. 30, 1981. Nonrecording gage Oct. 1-30, 1981. Water-stage recorder Oct. 31, 1981, to current year. Altitude of gage is 1,210 ft, from topographic map. Oct. 1, 1975, to July 29, 1980, recording gage 50 ft upstream at different datum.

REMARKS---Records good except those for winter period, Dec. 8 to Feb. 22, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE---8 years, 23.3 ft³/s (16,880 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD---Maximum discharge, 2,740 ft³/s June 20, 1983 (gage height, 16.67 ft); no flow at times in 1976, 1977, 1980-82.

EXTREMES FOR CURRENT YEAR---Peak discharges above base of 175 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov. 20	1300	188	8.02	Apr. 16	0500	431	9.67
Feb. 20	--	1000	ice jam	May 2	2145	321	8.99
Mar. 13	0400	494	10.00	June 20	1915	*2740	*16.67
Mar. 31	0600	406	9.54	June 29	1900	341	8.98
Apr. 13	1600	456	9.80	July 17	2245	305	8.88

Minimum daily discharge, 1.7 ft³/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	12	39	10	5.0	269	278	50	5.1	215	33	2.9
2	5.6	11	40	10	5.0	234	214	180	5.5	207	25	2.7
3	4.7	11	38	10	5.0	223	170	228	5.5	157	19	2.4
4	2.8	11	32	10	5.0	212	137	140	5.7	117	15	2.7
5	2.1	10	29	10	5.0	264	117	100	6.1	92	13	2.7
6	6.1	9.7	27	15	5.0	425	108	84	5.5	74	11	2.7
7	6.7	10	26	15	5.0	700	99	77	6.1	58	9.7	2.2
8	14	10	18	15	5.0	272	86	63	6.6	48	8.4	2.2
9	86	9.9	16	15	5.0	250	76	49	6.8	41	7.8	2.0
10	70	14	15	15	5.0	380	69	41	7.0	34	7.4	2.4
11	47	18	14	15	5.0	360	62	36	7.0	30	7.0	2.4
12	31	50	14	15	5.0	345	64	35	5.1	26	6.6	2.2
13	24	90	14	15	8.0	460	333	32	11	23	6.4	2.4
14	20	70	13	15	30	369	221	25	13	21	6.1	2.7
15	18	60	10	14	40	310	350	21	9.0	19	5.7	4.3
16	16	46	8.0	12	50	293	397	23	6.6	84	5.5	3.7
17	14	34	8.0	11	75	243	318	17	8.7	162	5.3	2.9
18	13	27	8.0	10	200	216	265	18	15	250	5.3	2.2
19	13	59	6.0	10	400	186	220	20	14	137	4.9	2.2
20	14	173	5.0	10	900	140	181	14	1340	78	4.5	2.4
21	13	131	5.0	10	800	110	149	13	1710	54	4.3	2.4
22	14	81	5.0	10	850	100	125	12	594	42	4.3	2.4
23	16	62	5.0	10	780	90	103	8.4	317	33	4.5	2.4
24	16	123	5.0	10	603	87	85	9.3	203	31	4.3	2.4
25	16	84	5.0	10	342	81	73	8.0	154	26	4.1	2.4
26	14	76	6.0	9.0	272	74	62	7.6	121	20	3.9	2.2
27	14	77	7.0	8.0	318	59	48	7.2	120	22	4.9	2.4
28	13	60	10	8.0	304	69	57	6.8	210	37	4.1	1.8
29	13	51	10	8.0	---	83	46	6.6	321	131	3.5	1.8
30	12	45	10	8.0	---	215	46	6.1	284	73	3.3	2.4
31	11	---	10	7.0	---	374	---	5.3	---	47	3.1	---
TOTAL	561.7	1525.6	458.0	350.0	6032.0	7493	4559	1343.3	5524.3	2389	250.9	74.9
MEAN	18.1	50.9	14.8	11.3	215	242	152	43.3	184	77.1	8.09	2.50
MAX	86	173	40	15	900	700	397	228	1710	250	33	4.3
MIN	1.7	9.7	5.0	7.0	5.0	59	46	5.3	5.1	19	3.1	1.8
AC-FT	1110	3030	908	694	11960	14860	9040	2660	10960	4740	498	149
CAL YR 1982	TOTAL	6361.33	MEAN	17.4	MAX	658	MIN	.00	AC-FT	12620		
WTR YR 1983	TOTAL	30561.70	MEAN	83.7	MAX	1710	MIN	1.7	AC-FT	60620		

JAMES RIVER BASIN

159

06478390 WOLF CREEK NEAR CLAYTON, SD

LOCATION.--Lat 43°22'18", long 97°36'12", in NW¼NE¼ sec.29, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 10 ft downstream from highway bridge, 4.1 mi upstream from mouth and 5.6 mi southeast of Clayton.

DRAINAGE AREA.--386 mi², approximately.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder to Sept. 30, 1981. Nonrecording gage Oct. 1-30, 1981. Water-stage recorder Oct. 31, 1981, to current year. Altitude of gage is 1,210 ft, from topographic map. Oct. 1, 1975, to July 29, 1980, recording gage 50 ft upstream at different datum.

REMARKS.--Records good except those for winter period, Nov. 23 to Mar. 24, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--9 years, 38.6 ft³/s (27,970 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,520 ft³/s June 21, 1984 (gage height, 18.01 ft); no flow at times in 1976, 1977, 1980-82.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 175 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 30	0815	846	10.90	May 7	1330	238	7.20
Apr. 4	0045	1180	11.92	June 12	1645	578	9.19
Apr. 12	1945	3260	15.95	June 21	1600	*6520	*18.01
Apr. 30	1030	445	8.52	July 9	1615	441	8.17

Minimum daily discharge, 2.2 ft³/s Oct. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	4.7	6.3	5.0	5.0	20	454	289	42	178	40	7.2
2	2.4	5.0	6.3	5.0	5.0	15	382	216	40	153	40	7.2
3	2.6	4.8	6.3	5.0	5.0	15	742	192	37	125	35	7.2
4	2.8	3.3	6.3	5.5	5.0	15	915	171	37	104	35	7.2
5	2.8	3.6	6.3	6.0	5.0	15	545	150	37	89	30	7.2
6	3.0	3.6	6.3	6.0	4.5	15	392	137	49	78	30	7.2
7	2.8	3.7	6.0	6.0	4.5	14	289	209	95	68	35	7.4
8	2.4	3.2	6.0	5.0	4.5	14	255	183	103	60	27	8.3
9	2.6	5.1	6.0	4.5	5.0	14	223	139	111	98	26	8.3
10	2.6	5.2	6.0	4.5	5.0	14	178	113	232	96	23	8.3
11	2.6	4.4	6.0	4.5	8.0	14	407	102	319	86	22	8.5
12	2.5	4.6	6.0	4.5	10	14	2560	88	558	71	22	8.7
13	2.4	4.9	6.0	4.5	15	14	2830	75	501	77	20	8.5
14	2.4	5.2	6.0	4.5	20	14	2070	66	448	75	18	7.9
15	2.2	4.9	6.0	4.0	15	15	1630	60	849	70	17	7.9
16	2.5	4.7	5.5	4.0	15	15	1180	53	1300	70	17	7.8
17	3.0	4.6	5.0	4.0	15	15	857	47	1510	65	19	7.3
18	3.2	4.8	5.0	4.0	15	15	593	44	1800	65	19	7.3
19	4.5	15	5.0	4.0	15	16	411	42	2090	65	17	7.1
20	4.8	15	5.0	4.0	20	18	292	40	2350	60	16	6.9
21	5.0	10	5.0	4.0	25	30	217	38	3360	60	17	6.5
22	4.3	8.9	5.0	4.0	30	50	185	37	4420	60	14	5.8
23	4.3	8.5	5.0	4.0	30	100	157	36	2680	55	13	5.8
24	3.8	8.0	5.0	4.0	30	200	124	35	1760	55	12	5.8
25	4.0	7.5	5.0	4.5	30	350	102	33	1210	50	11	6.1
26	4.2	6.5	5.0	4.5	25	571	91	32	871	60	10	6.5
27	4.2	6.5	5.0	5.0	20	472	106	45	610	55	9.6	6.5
28	4.0	6.5	5.0	5.0	20	516	97	78	441	50	9.3	6.5
29	4.0	6.5	5.0	5.0	20	677	110	77	316	50	8.6	6.6
30	4.3	6.3	5.0	5.0	---	768	379	59	231	45	8.3	6.8
31	4.5	---	5.0	5.0	---	632	---	48	---	45	7.8	---
TOTAL	103.1	183.5	172.3	144.5	426.5	4667	18773	2934	28407	2338	628.6	216.3
MEAN	3.33	6.12	5.56	4.66	14.7	151	626	94.6	947	75.4	20.3	7.21
MAX	5.0	15	6.3	6.0	30	768	2830	289	4420	178	40	8.7
MIN	2.2	3.2	5.0	4.0	4.5	14	91	32	37	45	7.8	5.8
AC-FT	20	364	342	287	846	9260	37240	5820	56350	4640	1250	429

CAL YR 1983	TOTAL	28475.3	MEAN	78.0	MAX	1710	MIN	1.8	AC-FT	56480
WTR YR 1984	TOTAL	58993.8	MEAN	161	MAX	4420	MIN	2.2	AC-FT	117000

JAMES RIVER BASIN

197

06478390 WOLF CREEK NEAR CLAYTON, SD

LOCATION.--Lat 43°22'18", long 97°36'12", in NW¼NE¼ sec.29, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 10 ft downstream from highway bridge, 4.1 mi upstream from mouth, and 5.6 mi south-east of Clayton.

DRAINAGE AREA.--386 mi², approximately.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder to Sept. 30, 1981. Nonrecording gage Oct. 1-30, 1981. Water-stage recorder Oct. 31, 1981, to current year. Elevation of gage is 1,210 ft above National Geodetic Vertical Datum of 1929, from topographic map. Oct. 1, 1975, to July 29, 1980, recording gage 50 ft upstream at different datum.

REMARKS.--Records good except those for winter period, Nov. 27 to Feb. 28, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--10 years, 37.8 ft³/s (27,390 acre-ft/yr); median of yearly mean discharge, 21 ft³/s (15,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,520 ft³/s June 21, 1984 (gage height, 18.01 ft); no flow at times in 1976, 1977, 1980-82.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 175 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 16	0415	*896	*10.14	No other peak greater than base discharge.			

Minimum daily discharge, 1.5 ft³/s Feb. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	11	8.0	4.0	2.0	33	43	38	32	3.8	3.1	5.0
2	9.5	8.3	6.1	4.0	2.0	26	40	33	25	3.7	2.8	5.0
3	9.5	9.5	8.0	4.0	1.5	31	38	29	19	3.4	3.0	4.8
4	9.5	10	8.0	4.0	1.5	30	64	25	17	3.3	2.9	4.9
5	10	12	8.0	4.0	2.0	30	100	23	14	3.0	2.7	12
6	14	13	8.0	4.0	2.0	30	82	21	12	3.0	2.7	8.4
7	14	13	9.0	4.0	2.0	44	68	19	10	2.9	2.4	5.9
8	11	13	10	4.0	2.0	81	57	17	9.2	2.8	2.6	5.2
9	13	13	9.0	3.5	2.0	113	49	14	7.6	2.7	2.3	5.2
10	12	13	8.0	3.5	2.5	165	43	13	8.2	2.5	2.6	5.3
11	12	15	8.0	3.5	3.0	239	40	13	9.7	2.4	2.5	5.4
12	13	12	8.0	3.5	3.5	327	38	12	9.0	2.6	5.1	6.5
13	12	13	8.0	3.5	3.5	319	35	10	7.8	2.7	4.3	18
14	12	13	8.0	3.5	3.5	497	34	16	7.1	3.1	3.6	17
15	23	12	8.0	3.5	3.5	747	31	19	6.6	3.1	3.2	11
16	27	10	8.0	3.5	3.5	824	26	20	6.4	2.9	3.8	9.4
17	21	9.3	8.0	3.5	6.0	700	24	18	5.6	2.7	5.9	7.9
18	19	11	7.0	3.5	10	582	22	15	5.1	2.6	4.3	6.6
19	29	9.1	6.0	3.0	25	471	21	12	5.0	2.4	3.6	6.2
20	28	9.1	6.0	3.0	50	332	23	10	4.8	2.2	3.5	5.8
21	21	11	6.0	3.0	90	225	24	9.0	4.3	2.8	3.7	5.4
22	18	8.9	6.0	3.0	75	161	31	8.2	3.9	2.9	3.5	6.1
23	15	8.7	6.0	2.5	65	127	80	9.2	3.6	2.5	6.3	6.0
24	13	8.7	5.0	2.5	55	102	113	9.1	3.4	11	6.8	5.6
25	14	8.7	5.0	2.5	47	83	89	8.2	3.4	7.9	5.8	5.7
26	14	8.7	5.0	2.5	40	67	79	7.7	6.9	4.7	5.4	5.4
27	13	8.5	5.0	2.5	45	62	73	7.4	6.5	3.5	5.4	5.4
28	12	8.5	5.0	2.5	45	54	60	7.2	5.3	3.1	6.8	5.2
29	12	7.5	4.5	2.0	---	48	48	62	4.5	2.9	19	5.2
30	12	8.0	4.0	2.0	---	44	42	79	4.0	3.0	6.4	5.2
31	11	---	4.0	2.0	---	43	---	42	---	3.4	5.4	---
TOTAL	462.2	316.5	212.6	100.0	593.0	6637	1517	626.0	266.9	105.5	141.4	210.7
MEAN	14.9	10.5	6.86	3.23	21.2	214	50.6	20.2	8.90	3.40	4.56	7.02
MAX	29	15	10	4.0	90	824	113	79	32	11	19	18
MIN	8.7	7.5	4.0	2.0	1.5	26	21	7.2	3.4	2.2	2.3	4.8
AC-FT	91	628	422	198	1180	13160	3010	1240	529	209	280	418
CAL YR 1984	TOTAL	59526.2		MEAN	163	MAX	4420	MIN	4.0	AC-FT	118100	
WTR YR 1985	TOTAL	11188.8		MEAN	30.7	MAX	824	MIN	1.5	AC-FT	22190	

JAMES RIVER BASIN

227

06478390 WOLF CREEK NEAR CLAYTON, SD

LOCATION.--Lat 43°22'18", long 97°36'12", in NW¼NE¼ sec.29, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 10 ft downstream from highway bridge, 4.1 mi upstream from mouth, and 5.6 mi south-east of Clayton.

DRAINAGE AREA.--396 mi² (revised).

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder to Sept. 30, 1981. Nonrecording gage Oct. 1-30, 1981. Water-stage recorder Oct. 31, 1981, to current year. Elevation of gage is 1,210 ft above National Geodetic Vertical Datum of 1929, from topographic map. Oct. 1, 1975, to July 29, 1980, recording gage 50 ft upstream at different datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 8 to Mar. 14 and Apr. 15-17. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--11 years, 42.6 ft³/s, 30,860 acre-ft/yr; median of yearly mean discharge, 31 ft³/s, 22,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,520 ft³/s, June 21, 1984, gage height, 18.01 ft; no flow at times in 1976, 1977, 1980-82.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 175 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 3	--	210	ice jam	May 11	2215	482	8.61
Mar. 18	--	800	ice jam	June 22	0700	199	6.83
Apr. 5	1330	674	9.52	Sept. 22	2215	1,410	12.32
Apr. 18	1010	*1,860	*13.35				

Minimum daily discharge, 3.0 ft³/s, Jan. 3-7.

CORRECTIONS.--Published acre-feet for October of 1984 and 1985 water years is in error. Correct figures are as follows: October 1983, 204; October 1984, 917.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	6.3	4.0	3.5	5.0	120	46	110	44	34	6.2	5.9
2	5.6	6.2	4.0	3.5	5.0	140	48	98	41	31	5.8	9.7
3	5.3	6.2	4.0	3.0	5.0	200	90	93	37	28	5.6	9.1
4	5.2	6.2	4.0	3.0	5.0	190	172	103	40	23	5.4	8.6
5	6.8	6.2	4.0	3.0	5.0	170	560	101	47	20	5.4	8.8
6	6.0	6.4	4.0	3.0	4.5	140	438	87	50	18	5.4	9.9
7	5.8	6.7	4.0	3.0	3.5	130	341	75	80	28	5.4	9.2
8	6.0	6.5	3.5	3.5	3.5	150	279	85	70	31	4.8	8.1
9	5.2	6.0	3.5	3.5	3.5	170	220	81	58	28	5.6	7.9
10	5.0	6.0	3.5	4.0	3.5	160	170	93	66	25	8.0	9.7
11	5.0	6.0	3.5	4.0	3.5	150	134	292	61	30	5.8	8.9
12	6.0	6.0	3.5	4.0	3.5	140	108	424	62	34	6.0	8.1
13	6.9	6.0	3.5	5.0	4.0	130	93	319	70	25	7.2	7.9
14	6.5	6.0	3.5	6.0	4.0	110	278	237	73	21	6.2	14
15	6.0	6.0	3.5	6.0	4.0	107	300	183	74	18	5.8	23
16	6.0	6.0	3.5	6.0	4.0	103	350	157	74	17	6.0	25
17	6.0	6.0	3.5	6.0	4.0	107	800	130	76	14	35	72
18	6.0	5.5	3.5	5.5	4.0	600	1760	106	72	12	13	116
19	6.7	5.0	3.5	5.5	4.0	439	1340	89	64	11	11	470
20	6.8	4.0	3.5	5.5	4.0	265*	953	78	58	8.6	22	777
21	6.5	4.0	4.0	5.5	4.0	327	719	69	52	7.9	13	1070
22	6.9	4.0	4.0	5.0	5.0	280	515	60	117	8.3	9.2	1310
23	6.9	4.0	4.0	5.0	7.0	205	358	56	108	9.0	9.2	1370
24	6.9	4.0	3.5	5.0	5.0	158	277	52	81	8.0	7.4	1120
25	6.8	4.0	3.5	5.0	10	135	215	49	63	8.0	7.3	870
26	6.4	4.0	3.5	5.0	90	116	173	46	48	7.4	7.2	659
27	5.9	4.0	3.5	5.0	100	94	153	46	38	6.8	6.8	504
28	6.5	4.0	3.5	5.0	80	79	158	47	34	7.7	6.6	389
29	5.6	4.0	3.5	5.0	---	69	142	47	34	8.2	6.1	303
30	5.9	4.0	3.5	5.0	---	62	124	49	34	8.2	6.3	235
31	6.1	---	3.5	5.0	---	54	---	47	---	6.7	5.9	---
TOTAL	188.5	159.2	113.5	142.0	383.5	5300	11314	3509	1826	542.8	260.6	9438.8
MEAN	6.08	5.31	3.66	4.58	13.7	171	377	113	60.9	17.5	8.41	315
MAX	6.9	6.7	4.0	6.0	100	600	1760	424	117	34	35	1370
MIN	5.0	4.0	3.5	3.0	3.5	54	46	46	34	6.7	4.8	5.9
AC-FT	374	316	225	282	761	10510	22440	6960	3620	1080	517	18720

CAL YR 1985	TOTAL	10658.7	MEAN	29.2	MAX	824	MIN	1.5	AC-FT	21140
WTR YR 1986	TOTAL	33177.9	MEAN	90.9	MAX	1760	MIN	3.0	AC-FT	65810

JAMES RIVER BASIN

219

06478390 WOLF CREEK NEAR CLAYTON, SD

LOCATION.--Lat 43°22'18", long 97°36'12", in NW¼NE¼ sec.29, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 10 ft downstream from highway bridge, 4.1 mi upstream from mouth, and 5.6 mi south-east of Clayton.

DRAINAGE AREA.--396 mi².

PERIOD OF RECORD.--October 1975 to current year.

REVISED RECORDS.--WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder to Sept. 30, 1981. Nonrecording gage Oct. 1-30, 1981. Water-stage recorder Oct. 31, 1981, to current year. Elevation of gage is 1,210 ft above National Geodetic Vertical Datum of 1929, from topographic map. Oct. 1, 1975, to July 29, 1980, recording gage 50 ft upstream at different datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 9 to Feb. 20, Mar. 29-30, and June 11-13, 17, 18. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--12 years, 42.5 ft³/s, 30,790 acre-ft/yr; median of yearly mean discharge, 34 ft³/s, 24,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,520 ft³/s, June 21, 1984, gage height, 18.01 ft; no flow at times in 1976, 1977, 1980-82.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 175 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 25	1915	*1,310	*11.82	July 5	1115	202	6.95

Minimum daily discharge, 3.9 ft³/s, Sept. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	179	27	20	9.0	8.0	15	377	18	12	7.1	4.1	4.3
2	142	27	15	9.0	8.0	14	292	16	10	6.5	4.2	4.3
3	121	26	15	9.0	8.0	14	238	15	9.5	8.5	4.3	4.2
4	107	25	15	9.0	8.0	14	197	15	9.3	38	4.2	4.1
5	93	24	15	8.0	9.0	14	167	15	8.5	130	4.3	4.2
6	83	24	15	8.0	9.0	14	145	16	7.0	74	5.4	4.2
7	75	23	15	8.0	9.0	15	127	15	6.7	43	5.3	4.2
8	69	23	15	8.0	9.0	16	111	13	6.4	32	6.0	4.1
9	64	20	12	8.0	10	16	99	12	6.8	30	5.5	4.1
10	60	19	12	8.0	10	17	89	12	10	29	4.9	4.1
11	57	18	12	8.0	11	18	83	10	9.0	32	4.3	4.1
12	55	17	12	9.0	12	18	76	9.7	8.5	33	4.3	4.5
13	51	16	12	9.0	13	18	72	9.0	7.5	23	4.5	4.2
14	48	15	12	8.0	13	18	71	8.0	6.6	18	4.4	3.9
15	46	15	12	7.0	12	19	65	7.9	6.2	15	4.2	4.0
16	44	15	12	6.0	12	19	60	7.3	6.5	12	5.0	9.1
17	42	15	12	6.0	12	35	54	8.1	6.8	10	4.5	12
18	40	15	12	5.0	13	71	50	81	7.7	9.4	4.1	7.7
19	39	15	10	5.0	13	111	44	40	8.3	9.1	4.6	7.2
20	37	16	10	5.0	13	102	39	22	7.3	9.2	4.7	6.8
21	37	17	10	5.0	13	108	37	32	14	7.4	4.6	6.3
22	36	18	10	5.0	12	122	36	33	11	6.5	4.4	5.9
23	38	19	10	4.8	13	137	34	21	7.6	6.0	4.4	5.6
24	37	19	10	5.0	12	581	31	17	8.0	6.1	4.8	5.3
25	37	20	10	5.0	13	1240	30	22	9.1	6.9	5.8	5.4
26	36	20	10	6.0	13	1180	27	30	8.2	5.8	5.6	5.4
27	34	25	10	6.0	13	1010	25	35	7.3	5.3	5.9	5.1
28	34	20	10	6.0	15	871	23	28	6.6	4.9	5.7	4.8
29	32	20	10	7.0	---	480	24	22	7.3	4.5	5.1	4.8
30	31	20	10	8.0	---	470	20	19	8.2	4.3	4.6	4.9
31	30	---	10	8.0	---	528	---	15	---	4.1	4.9	---
TOTAL	1834	593	375	217.8	316.0	7305	2743	624.0	247.9	630.6	148.6	158.8
MEAN	59.2	19.8	12.1	7.03	11.3	236	91.4	20.1	8.26	20.3	4.79	5.29
MAX	179	27	20	9.0	15	1240	377	81	14	130	6.0	12
MIN	30	15	10	4.8	8.0	14	20	7.3	6.2	4.1	4.1	3.9
AC-FT	3640	1180	744	432	627	14490	5440	1240	492	1250	295	315
CAL YR 1986	TOTAL	35518.7	MEAN	97.3	MAX	1760	MIN	3.0	AC-FT	70450		
WTR YR 1987	TOTAL	15193.7	MEAN	41.6	MAX	1240	MIN	3.9	AC-FT	30140		

Office of
COUNTY AUDITOR
HANSON COUNTY
Box 67
ALEXANDRIA, SOUTH DAKOTA 57311



Oct. 9, 1986

John Hatch - Chief Engineer
Office of Water Policy
Joe Foss Building
Pierre, SD 57501

Dear Sir:

Reference is made to the phone conversation on October 7, 1986 between James Winterton of your office and Glenn Soladay, the Civil Defense Director for Hanson County. Glenn Soladay had called concerning a flooding problem on Wolf Creek at the extreme eastern edge of Hanson County. There is a rock quarry on Wolf Creek near where it enters the county. It would appear that deepening the channel of the creek adjacent to the quarry would relieve a flooding problem up stream. However we are also concerned about the consequences down stream if this action is taken. And in addition we are wondering how much water may have been drained into Wolf Creek upstream from where it enters Hanson County during the last several wet years we've had.

We need some professional advice on this matter. Would it be possible for you to meet with us in the very near future - possibly this next week? Please advise us as soon as possible. My mailing address is RR2, Box 102, Alexandria, SD 57311 and the phone number is 449-4640. Thank you in advance for a prompt reply.

Yours truly,


Sherman Letcher-Chairman
Hanson County Board of
Commissioners

Conversation or File Documentation

NAME OF PERSON OR FILE: WOLF CREEK MODIFICATIONADDRESS: _____ COUNTY HANSONDATE: 10-22-86 TELEPHONE 449-4640

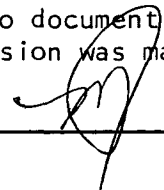
RE: _____

COMMENTS:

AS REQUESTED BY THE HANSON COUNTY COMMISSIONERS,
I INVESTIGATED THE PROPOSED MODIFICATIONS TO WOLF
CREEK. THE PEOPLE OF SPENCER (MCCOOK COUNTY) REQUESTED
THE HANSON COUNTY COMMISSIONERS TO ALTER WOLF CREEK
TO ELIMINATE A FLOODING PROBLEM NEAR THEIR LAGOON.
THEY ARE SUGGESTING THAT THE CHANNEL SLOPE BE
(TAKE OUT A "HIGH SPOT")
INCREASED NEAR THE SPENCER QUARRY (SEC 24, T103N, R.57W).
THE QUARRY IS WILLING TO DO THE WORK BUT DOES NOT
WANT TO ACCEPT THE RESPONSIBILITY OF INCREASING THE
FLOW RATE. THIS SEEMS TO BE THE ATTITUDE OF THE
HANSON COUNTY COMMISSIONERS AS WELL.

THEY WOULD LIKE THE STATE TO ISSUE A
PERMIT TO ~~THE~~ RELEASE THEM OF ANY LIABILITY.

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: 

October 24, 1986

Sherman Letcher
Hanson County Commissioner
RR-2, Box 102
Alexandria, South Dakota 576311

Dear Mr. Letcher:

I am writing in regard to an investigation October 21, 1986 by Mike Jensen, a Water Rights Division engineer, of a proposal to lower the Wolf Creek channel. The purpose of the change is to reduce the potential flooding of Spencer's sewage lagoons.

Prior to lowering the channel, an application for a flood control permit will need to be approved by the Water Management Board. Enclosed are the application forms. The Water Management Board's next meeting date is December 10, 1986. In order to meet the advertising deadlines, the application must be completed and returned by October 31, 1986. The next scheduled meeting of the Water Management Board will be March 4, 1987.

If you have any questions or need assistance with the application form, please do not hesitate to contact us.

Very truly yours,

John Hatch
Chief Engineer

SOUTH Dakota Department of
Water & Natural Resources

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

February 1, 1988

Richard Kirby, Mayor
City of Spencer
PO Box 46
Spencer SD 57374

Dear Mayor Kirby:

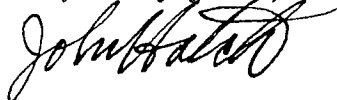
I am writing in response to questions on your flood control permit application to remove a natural rock obstruction in Wolf Creek channel, located in Section 24, T103N, R57W, near the McCook-Hanson County line. Staff engineer Tom Brandner, who attended your meeting in Spencer on December 17, 1987 concerning this drainage problem, has advised me of your request for our assistance in designing the rock removal plan.

The Division of Water Rights has a regulatory function which includes reviewing the plans and specifications for various water permit applications. Based upon staff review of an application, a recommendation is provided to the Water Management Board, which can deny, defer or approve the application. We can not develop project designs for permit applicants. We can not be in the position of reviewing and approving our own work. Also, such design assistance could conflict with services provided by private engineering consultants. We have and will continue to provide technical assistance to the counties on drainage problems; however, we cannot design a project. We do conduct survey work on completed or existing projects where there is a question on the legality and/or impacts caused by a project as it relates to drainage.

I suggest that you contact a reputable engineering firm to do the survey and hydraulic design work. Plans could be submitted with your Flood Control Permit application along with a \$50 application fee. We will then review the plans, prepare a recommendation, and bring your application before the Water Management Board for consideration.

If you have further questions on this, please contact us.

Very truly yours,



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

cc: Floyd McNames, Miner County Emergency and Disaster Services Director
Brad Striefvater, McCook County Emergency and Disaster Services Director
Ed Magera, Hutchinson County Emergency and Disaster Services Director
Glenn Soloday, Hanson County Emergency and Disaster Services Director
Kathy Zulk, Finance Officer

JOHNSON ENGINEERING COMPANY

CONSULTING ENGINEERS
221 WEST 3RD ST. BOX 672
YANKTON, SOUTH DAKOTA 57078
PHONE 605/665-5571

September 20, 1988

Mr. Marty Pearson
McCook Co. Hwy. Supt.
P.O. Box 550
Salem, SD 57058

Re: South Spencer Drainage
on Wolf Creek
Sec. 24-103-57

Dear Mr. Pearson,

At your request we have investigated a drainage problem at the above-referenced location. We have made a survey of Wolf Creek through the referenced Section 24. A plan and profile of the creek and cross sections of the creek channel have been prepared. Prints of these are enclosed for your reference, consisting of one plan and profile sheet and seven cross section sheets. The following paragraphs summarize information shown on these sheets.

Based on an assumed elevation datum of elevation 100.00 at the roadway centerline of the bridge at the north end of the section, the natural flowline of the creek at this point would be elevation 91.0. The flowline of the creek under the S.D. Hwy 38 bridge at the south end of the section is elevation 80.0.

An outcropping of quartzite ledge rock in the creek channel from 1360 feet to 3400 feet along the creek from the north end of the section is blocking the flow of water. The high point of this rock is elevation 94.1 located 1900 feet south of the north end of the section.

To remove the rock blocking the flow of the creek would involve approximately 4624 cubic yards of rock excavation. Associated dirt excavation would involve approximately 402 cubic yards. These quantities are based on a channel bottom-width of only 20 feet as shown on the cross sections. A new channel bottom-width of 40 feet would double the above excavation quantities.

The 20 feet wide channel bottom would carry a flow of approximately 240 cubic feet per second (cfs) in the available channel area of 96 square feet. Flood flows expected to occur with the noted interval are listed below:

Recurrence Interval (yrs)	Flow (cfs)
2	365
5	1195
10	2120
25	3715

The proposed 20 feet bottom-width channel has a capacity of less than the flood flow expected to occur every two years. The channel would, however, drain water ponded to the north and decrease the severity of flooding from any storm.

South Spencer Drainage on Wolf Creek
September 20, 1988
Page 2

For your information and for comparison, a channel with a 40 feet wide bottom would carry approximately 470 cfs. Also, the bridge at the north end of the section has an opening of 370 square feet compared to the 96 square feet for the 20 feet bottom-width channel and 176 square feet for the 40 feet bottom-width channel.

Before constructing the proposed channel you should contact the U.S. Army Corps of Engineers regarding the need for a permit. Also, due consideration must be given to the rights of downstream landowners with respect to increasing run-off volume and flow by lowering the natural channel.

Please let us know if there are any questions or if further information is desired. We are available to meet with you at your convenience to discuss this project further.

Sincerely,

Johnson Engineering Co.

Peter S. Johnson

Peter S. Johnson

JOHNSON ENGINEERING COMPANY

CONSULTING ENGINEERS
221 WEST 3RD ST. - P.O. BOX 672
YANKTON, SOUTH DAKOTA 57078
PHONE 605/665-5571

October 20, 1988



Mr. Jim Winterton
Division of Water Rights
Dept. of Water & Nat'l Resources
Joe Foss Building
523 East Capitol
Pierre, SD 57501

Re: South Spencer Drainage
on Wolf Creek
Sec. 24-103-57

Dear Mr. Winterton,

Enclosed please find the Plans and Report for the above-referenced project. These were sent for your review and comments at the request of Mr. Marty Pearson, McCook County Highway Superintendent.

Please contact us if you have any questions or if further information is desired.

Sincerely,

Johnson Engineering Co.

Peter S. Johnson

Peter S. Johnson

cc: Mr. Marty Pearson

 **Department of
Water & Natural Resources**

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

November 29, 1988

Marty Pearson
McCook Co. Hwy. Supt.
P.O. Box 550
Salem, SD 57058

Dear Mr. Pearson:

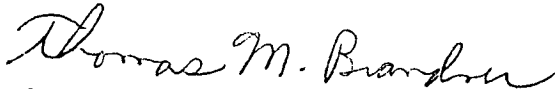
Our office has recently received a copy of the Plans and Report for the Wolf Creek drainage project near Spencer conducted by Johnson Engineering Company of Yankton, SD.

Enclosed you will find 2 copies of a permit application pertaining to the above mentioned project. We have sent the forms to you to help speed up the permitting process should you wish to apply for the Flood Control Permit.

Please fill out the pertinent information on the forms. Some of it has been completed for you. Please sign the forms, have them notarized, and return them to our office. The fee for the application is \$50 which should be submitted along with the completed application.

If you have any other questions concerning the application, please contact our office.

Sincerely,



Thomas M. Brandner
Natural Resources Engineer
605 773-3352

enclosures



JOHNSON ENGINEERING COMPANY

CONSULTING ENGINEERS
221 WEST 3RD ST. - P.O. BOX 672
YANKTON, SOUTH DAKOTA 57078
PHONE 605/665-5571
January 10, 1989

Mr. Ron Duvall
Natural Resources Engineer
Division of Water Rights
Dept. of Water & Nat'l Resources
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3181

Re: South Spencer Drainage
McCook County

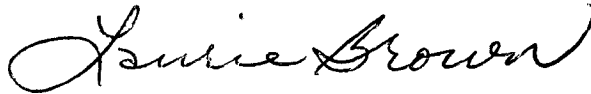
Dear Mr. Duvall,

Enclosed we are returning the plans and map for the above-referenced project, signed, as per your letter of January 5, 1989.

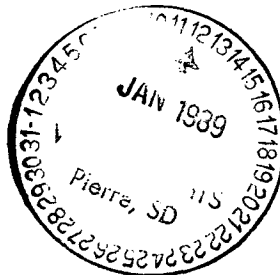
Please contact us if you have any questions.

Sincerely,

Johnson Engineering Co.



Laurie Brown





Department of Water & Natural Resources

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

January 5, 1989

Peter S Johnson
Johnson Engineering Company
221 W 3rd Street - PO Box 672
Yankton SD 57078

Dear Mr. Johnson:

This letter is in regard to plans received on October 21, 1988 for the proposed South Spencer Drainage Project on Wolf Creek. The plans and map are part of the flood control permit application submitted by McCook County on December 8, 1988.

Attached are the plans and map received on October 21, 1988. The flood control permit application needs to include a map that is signed by either a South Dakota registered land surveyor, a South Dakota registered professional engineer or a government employee that prepares maps as part of his or her employment. Please sign the plans and map and return to the Division of Water Rights.

If you have any questions, please contact me.

Sincerely,

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

Ron Duvall
Natural Resources Engineer
605 773-3352

enc.

cc: Marty Pearson, McCook County, Box 550, Salem SD 57058



February 16, 1989
(date)

page 1

Parties of Record before Water Management Board regarding Flood Control
Permit Application No. FC-10

Proponents:

Marty Pearson, McCook Co. Hwy. Supt.

McCook County

Box 550

Salem SD 57058

Richard L. Kirby, President

City of Spencer

PO Box 46

Spencer SD 57374

William Nafziger

Box 235

Spencer SD 57374

Pastor Ward M. Satterlee Sr.

Church of the Nazarene

PO Box 6

Spencer SD 57374

Report on Application No. FC-10
McCook County
January 23, 1989

Flood Control Permit Application FC-10 was submitted for McCook County to excavate an outcrop of quartzite rock located in the stream channel of Wolf Creek. This outcrop, located in the NE1/4 of Section 24, T103N, R57W, is at a higher elevation than the upstream channel bottom. It causes water to backup which increases upstream flooding potential during periods of runoff.

Discussion

Johnson Engineering Company of Yankton, South Dakota completed the plans and specifications for the proposed channel modification. The application proposes to remove a portion of the quartzite blockage by excavating 4624 cubic yards of rock and 402 cubic yards of soil from a 2500 foot channel length. The excavated channel is to have a 20 foot base width and a trapezoidal shape. A 40 foot wide channel was also considered but this would require doubling the amount of material to be removed. At the highest point in the blockage, 4.1 feet of rock will be removed for a maximum area of 96 square feet (based on a 20 foot wide channel). The slope through the excavated channel will be 0.001 foot/foot or 0.1% (Permit Application FC-10, 1989).

Hydrologic Impact

The maximum flow through the 20 foot wide excavated channel was determined to be 240 cubic feet per second (cfs). According to figures calculated by the consulting firm this flow capacity is less than the maximum annual discharge expected to occur every 2 years at this location. The channel modification would prevent the ponding of water upstream, reduce the severity of flooding by moving the water through earlier without significantly increasing flood flows downstream. The proposed channel modification will not provide enough capacity to prevent upstream flooding caused by large precipitation events.

A rough estimate of the storage behind the quartzite blockage is 150 to 200 acre-feet based on topographic maps. The engineering report stated that a maximum flow of approximately 365 cfs can be expected to occur in a 2 year return period. This one day flow rate would produce 724 acre-feet of water, about 4 times the present estimated storage.

A USGS gaging station with 12 years of record is located on Wolf Creek near Clayton in Hutchinson County. The drainage basin above this area is 396 square miles as opposed to approximately 137 square miles above the permit application area. Lowering the

discharge proportional to the drainage basin area produces a median discharge of 12 cfs and an annual volume of 8350 acre-feet moving past the application site. The mean flow is very similar, discharging about 15 cfs (USGS, 1978-1988).

The proposed channel excavation should work very well to prevent upstream ponding during the normal low to moderate flow periods. During spring runoff and heavy summer rains the channel will not be as effective. The channel capacity can often be exceeded and some flooding will occur.

The potential for any significant increased flooding downstream is believed to be minor because the storage behind the obstruction is relatively small compared to historic flood flows on Wolf Creek and as experienced during high flows in the past - what flows in will flow out. The storage behind the blockage will no longer exist. Under high runoff conditions the waters will still be backed up into the present storage area; therefore the channel modification will not have significant impacts on high flow conditions in Wolf Creek. The flows previously held in storage waters would move downstream during normal flow conditions and may be of benefit to downstream water users. Detrimental effects from flow through the channel should be minor as it is assumed that downstream culvert capacities exceed the 2 year flood event, which in turn is greater than the capacity of the proposed channel.

Existing Water Rights

There are no permits in the vicinity which take water from Wolf Creek. The City of Spencer, 2 miles from the application, has a Vested Right claim (4271-3) for a well 130 feet deep. The Spencer Quarry which is adjacent to the obstruction has Vested Water Right No. 4493-3 to use 1.8 cfs of water infiltrating the pit for their washing operation. This Vested Right Claim is for a non-consumptive use of the water (Permit Files, 1989). The water backed up by the obstruction may be a source for the domestic use of livestock watering, but adequate supplies should remain available in the channel for livestock use under most circumstances.

Spencer Quarry owns the land where the rock will be removed. They also will be doing the excavation work. The applicant (McCook County) should still obtain an easement from the company to protect against land ownership changes.

Prior to excavation of this channel, the U.S. Army Corps of Engineers should be contacted regarding the possible need for a permit.

Conclusions

1. Permit Application No. FC-10 is for flood control to reduce the area of lands flooded upstream of a high point in the Wolf Creek channel.
2. Existing water permits will not be adversely affected by the flood control application.
3. Easements from Spencer Quarry and other landowners should be obtained for the area affected by the construction activities.
4. The Corps of Engineers should be contacted concerning the possible need for a section 404 permit.
5. The excavated channel will prevent upstream ponding and reduce the severity of upstream flooding. However, potential flooding problems upstream will remain during high runoff periods.
6. The capacity of the 20 foot wide channel is less than the 2 year flood event on this drainage basin at this location.
7. Because of the relatively small storage behind the quartzite blockage, the removal will not significantly increase the downstream flooding from what has occurred in the past.
8. Eliminating or reducing the storage behind the present blockage may be beneficial to downstream Wolf Creek water users.



Thomas M. Brandner
Natural Resources Engineer

References

USGS, 1978-1988, Water Resources Data, South Dakota, United States Geological Survey Annual Water Data Report, Prepared in Cooperation with the State of South Dakota and other Agencies, Huron, SD.

Water Rights Division, 1989, Water Permit Application FC-10, DWNR, Joe Foss Bldg., Pierre, SD.

Water Rights Division, 1989, Permit Files, DWNR, Joe Foss Bldg., Pierre, SD.

 **Department of
Water & Natural Resources**

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

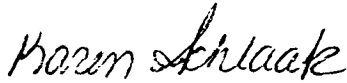
February 14, 1989

Marty Pearson
McCook County
Box 550
Salem SD 57058

Dear Mr. Pearson:

Enclosed are the Report and the Recommendation of the Chief Engineer for Flood Control Permit Application No. FC-10.

Sincerely,



KAREN SCHLAACK
Senior Secretary
605 773-3352

enclosures



Instruction to Newspaper - Publish first Notice on or before February 2, 1989 with 2nd publication 7 days later. The applicant is responsible for payment.

NOTICE OF HEARING on Application No. FC-10 For Flood Control Permit

Notice is given that McCook County, Box 550, Salem SD 57058 has filed an application for a flood control permit. Flow in a portion of Wolf Creek is restricted due to an outcrop of quartzite rock in the creek channel. The channel restriction causes upstream flooding during periods of high runoff. This application is for a flood control permit to allow excavation of the restricted portion of the Wolf Creek channel in the NE 1/4 Section 24-T103N-R57W to reduce upstream flooding during high creek flows.

Pursuant to SDCL 46-2A-2, the Chief Engineer of the Water Rights Division recommends APPROVAL of Application No. FC-10 because the project will reduce damage from flooding, 2) will not increase the likelihood or severity of flood damages downstream, 3) will not endanger human life or property, and 4) will not impair existing water rights. This application will be considered by the Water Management Board at the Howard Johnson's, Roosevelt Room, 1-90 at LaCrosse, Rapid City SD on March 1, 1989 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 February 17, 1989. 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 February 17, 1989.

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-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; 46-5-47; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. FC-10, McCook County

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 Flood Control Permit Application No. FC-10, McCook County, Box 550, Salem SD.

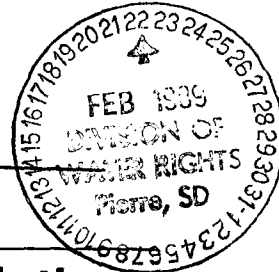
The Chief Engineer is recommending APPROVAL of Application No. FC-10 because 1) the project will reduce damage from flooding, 2) will not increase the likelihood or severity of flood damages downstream, 3) will not endanger human life or property, and 4) will not impair existing water rights.

See the attached report for additional information.

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

JOHN HATCH, Chief Engineer
January 25, 1989

No. _____



PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County McCook) ss.

I, Jerry Hollingsworth hereby

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

Water was taken from the Salem Special

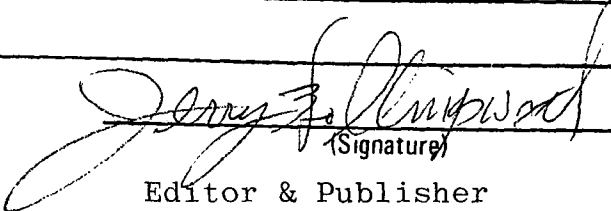
A newspaper which during the whole time of publication of said notice
herein after stated, has been and is printed and published in the _____

City Salem of _____

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

February 2, 1989

February 9, 1989


(Signature)
Editor & Publisher

(Title)

February 17, 1989

(Date Signed)

Cost of Printing: \$38.12

Engineer from the applicant or a
petitioner. The request for a delay must
be received by February 17, 1989.

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-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; 46-
5-47; and Board Rules ARSD
74:02:01:01 thru 74:02:01:15.

WNR-808-7/79
Proof of Publication

2/2, 2/9

Public Notice

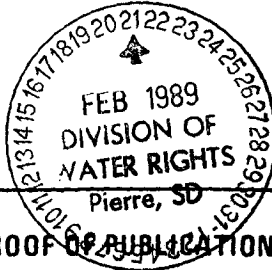
NOTICE OF HEARING
on Application No. FC-10
For Flood Control Permit

Notice is given that McCook County,
Box 550, Salem, S.D., 57058, has filed an
application for a flood control permit.
Flow in a portion of Wolf Creek is
restricted due to an outcrop of quartzite
rock in the creek channel. The channel
restriction causes upstream flooding
during periods of high runoff. This
application is for a flood control permit
to allow excavation of the restricted
portion of the Wolf Creek channel in the
NE 1/4 Section 24-T103N-R57W to
reduce upstream flooding during high
creek flows.

Pursuant to SDCL 46-2A-2, the Chief
Engineer of the Water Rights Division
recommends APPROVAL of Application
No. FC-10 because the project will
reduce damage from flooding, 2) will not
increase the likelihood or severity of
flood damages downstream, 3) will not
endanger human life or property, and 4)
will not impair existing water rights.
This application will be considered by
the Water Management Board at the
Howard Johnson's, Roosevelt Room, 1-
90 at LaCrosse, Rapid City, S.D. on
March 1, 1989, at 10:00 a.m. 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 February 17, 1989. The Chief
Engineer's address is "Water Rights
Division, Foss Building, 523 E. Capitol,
Pierre, S.D., 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



No. _____

**NOTICE OF HEARING
ON APPLICATION NO. FC-10
FOR
FLOOD CONTROL PERMIT**

STATE OF SOUTH DAKOTA)
County Miner) ss.

I, Paul C Munger hereby

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

Water was taken from the Miner County Pioneer

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

_____ of _____

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

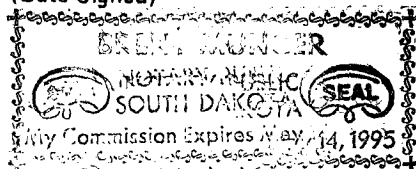
Feb 2, 1989

Feb 9, 1989

Brent Munger Paul Munger
(Signature)

Publisher
(Title)

Feb. 17, 1989
(Date Signed)



Cost of Printing: 39.00

Notice is given that McCook County, Box 550, Salem, SD 570 06 has filed an application for a flood control permit. Flow in a portion of Wolf Creek is restricted due to an outcrop of quartzite rock in the creek channel. The channel restriction causes upstream flooding during periods of high runoff. This application is for a flood control permit to allow excavation of the restricted portion of the Wolf Creek channel in the NE 1/4 Section 24-T103N-R57W to reduce upstream flooding during high creek flow.

Pursuant to SDCL 46-2A-2, the Chief Engineer of the Water Rights Division recommends APPROVAL of Application No. FC-10 because the project will reduce damage from flooding, 2) will not increase the likelihood or severity of flood damages downstream, 3) will not endanger human life or property, and 4) will not impair existing water rights. This application will be considered by the Water Management Board at the Howard Johnson's, Roosevelt Room, 1-90 at LaCrosse, Rapid City, SD on March 1, 1989 at 10:00am. 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 February 17, 1989. 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 be 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 February 17, 1989.

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-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; 46-5-47; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

(February 2-9)

No. FC-10



PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County Hanson) ss.

I, David L. Stoltz hereby

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

Water was taken from the Emery Enterprise

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 Emery

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

Feb 2, 1989

Feb 9, 1989

David L. Stoltz
(Signature)

Editor
(Title)

2-9-89
(Date Signed)

Cost of Printing: \$34.92

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 February 17, 1989.

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-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; 46-5-47; and Board
Rules ARSD 74:02:01:01 thru
74:02:01:15. 19-20

NOTICE OF HEARING

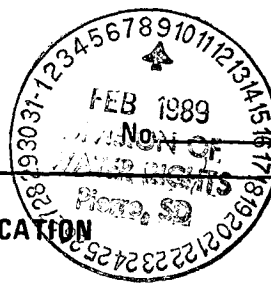
ON APPLICATION NO. FC-10 FOR FLOOD CONTROL PERMIT

Notice is given that McCook
County, Box 550, Salem, S.D. 57058
has filed an application for a flood
control permit. Flow in a portion of Wolf
Creek is restricted due to an outcrop of
quartzite rock in the creek channel.
The channel restriction causes up-
stream flooding during periods of high
runoff. This application is for a flood
control permit to allow excavation of
the restricted portion of the Wolf Creek
channel in the NE1/4 Section 24-
T103N-R57W to reduce upstream
flooding during high creek flows.

Pursuant to SDCL 46-2A-2, the
Chief Engineer of the Water Rights
Division recommends APPROVAL of
Application No. FC-10 because the
project will reduce damage from flood-
ing, 2) will not increase the likelihood
or severity of flood damages down-
stream, 3) will not endanger human life
or property, and 4) will not impair exist-
ing water rights. This application will
be considered by the Water Manage-
ment Board at the Howard Johnson's,
Roosevelt Room, I-90 at LaCrosse,
Rapid City, S.D. on March 1, 1989 at
10:00 a.m. The Chief Engineer's rec-
ommendation is not final or binding
upon the Board. The Board is author-
ized to 1) approve, 2) approve with
qualifications, 3) defer or 4) deny this
application based on the facts pre-
sented 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 peti-
tion with BOTH the applicant and Chief
Engineer by February 17, 1989. The
Chief Engineer's address is "Water
Rights Division, Foss Building, 523 E.
Capitol, Pierre S.D. 57501 (605 773-
3352)". The petition may be informal,
but must include a statement describ-
ing the petitioner's interest in the appli-
cation, 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 infor-
mation on this application or to assure
access to the hearing by the handi-
capped.

This hearing is an adversary pro-
ceeding. 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



PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County Hutchinson) ss.

I, Edward J. Ehler hereby
certify that the annexed printed copy of Notice of Intent to Appropriate

Water was taken from the Parkston Advance

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 Parkston

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

February 1, 1989

February 8, 1989

Edward J. Ehler
(Signature)

Publisher

(Title)

February 8, 1989

(Date Signed)

Cost of Printing: \$38.12

NOTICE OF HEARING ON
APPLICATION NO. FC-10
FOR FLOOD CONTROL PERMIT

Notice is given that McCook County, Box 550, Salem, S.D. 57058 has filed an application for a flood control permit. Flow in a portion of Wolf Creek is restricted due to an outcrop of quartzite rock in the creek channel. The channel restriction causes upstream flooding during periods of high runoff. This application is for a flood control permit to allow excavation of the restricted portion of the Wolf Creek channel in the NE¼ Section 24-T103N-R57W to reduce upstream flooding during high creek flows.

Pursuant to SDCL 46-2A-2, the Chief Engineer of the Water Rights Division recommends APPROVAL of Application No. FC-10 because the project will reduce damage from flooding, 2) will not increase the likelihood or severity of flood damages downstream, 3) will not endanger human life or property, and 4) will not impair existing water rights. This application will be considered by the Water Management Board at the Howard Johnson's, Roosevelt Room, I-90 at LaCrosse, Rapid City, S.D. on March 1, 1989 at 10:00 a.m. 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 February 17, 1989. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 E. Capitol, Pierre, S.D. 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 February 17, 1989.

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-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; 46-5-47; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.



Department of Water & Natural Resources

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

January 26, 1989

Emery Enterprise
Box 244
Emery SD 57332

Dear Sir:

Enclosed is a Notice of Hearing on Application No. FC-10 to be published twice. Please publish the first notice on or before February 2, 1989 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 McCook County, Box 550, Salem SD 57058.

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,

Ron Duvall
Natural Resources Engineer
605 773-3352

enclosures

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

FIRST TRANSMITTAL NOTICE

TO: Ron Duvall
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

January 26, 1989

Miner Co. Pioneer
Box P
Howard SD 57349

Dear Sir:

Enclosed is a Notice of Hearing on Application No. FC-10 to be published twice. Please publish the first notice on or before February 2, 1989 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 McCook County, Box 550, Salem SD 57058.

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,

Ron Duvall
Natural Resources Engineer
605 773-3352

enclosures

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

FIRST TRANSMITTAL NOTICE

TO: Ron Duvall
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

January 26, 1989

Salem Special
Box 220
Salem SD 57058

Dear Sir:

Enclosed is a Notice of Hearing on Application No. FC-10 to be published twice. Please publish the first notice on or before February 2, 1989 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 McCook County, Box 550, Salem SD 57058.

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,

Ron Duvall
Natural Resources Engineer
605 773-3352

enclosures

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

FIRST TRANSMITTAL NOTICE

TO: Ron Duvall
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

January 26, 1989

Parkston Advance
Box J
Parkston SD 57366

Dear Sir:

Enclosed is a Notice of Hearing on Application No. FC-10 to be published twice. Please publish the first notice on or before February 2, 1989 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 McCook County, Box 550, Salem SD 57058.

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,

Ron Duvall
Natural Resources Engineer
605 773-3352

enclosures

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

FIRST TRANSMITTAL NOTICE

TO: Ron Duvall
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

January 26, 1989

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

Marty Pearson
McCook County
Box 550
Salem SD 57058

Dear Mr. Pearson:

Application No. FC-10 for a flood control permit has been examined and found to comply with the South Dakota Water Laws and applicable rules. Notice of your intent has been sent to the Publishers of the Emery Enterprise, Emery, the Salem Special, Salem, the Parkston Advance, Parkston and the Miner Co. Pioneer, Howard SD. For your information, a copy of the notice is enclosed. The recommendation of the Chief Engineer and a report on the application will be sent later. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspapers to authorize publication of your Notice of Hearing and to arrange for payment. Early contact with the papers can eliminate delays. The publishers have 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,

Ron Duvall
Natural Resources Engineer
605 773-3352

enclosures





Spencer, So. Dak.

2/11/1989

Chief Engineer
Water Rights Division

Foss Bldg.
Pierre, So. Dak.

On behalf of the Citizens of Spencer, So. Dak. I Richard L. Kirby appointed President of the City Commission petition The Water Management Board to approve The flood Control Application

#FC-10 of McCook County.

Approval of this flood control permit will reduce the danger of flooding of City of Spencer, So. Dak. sanitary sewer pumping station, and I request to participate in the hearing before the Water Management Board of March 1, 1989 at 10:00 A.M. at the Howard Johnson Roosevelt Room, Rapid City, So. Dak..

Thank you;

City of Spencer, S. Dak.

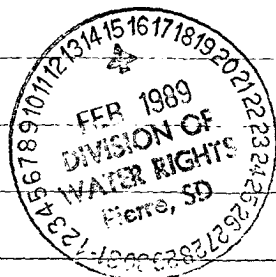
P.O. Box 46

Richard L. Kirby Pres.

CC
McCook County
Salem, So. Dak.

Feb. 13, 1989

The Chief Engineer
Water Rights Div.
Pierre, S.D.



Dear Sir:

The Church of the Nazarene
is in full favor of a
flood channel to reduce
flooding upstream, as
the church own 80 acres.
The land is E $\frac{1}{2}$ S $\frac{1}{2}$ W $\frac{1}{4}$.

Flooding has caused
much damage to this land
in past years.

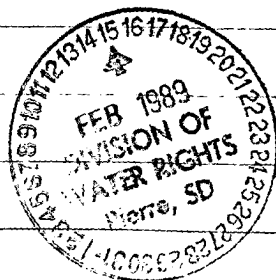
Your help will be much
appreciated.

Yours truly,

Ward M. Sattelle
Pastor

Feb. 13, 1989

The Chief Engineer
Water Rights Div.
Pierre, S.D.



Dear Sir:

This letter is in response
to the public hearing, app-
lication no. FC-10 to be
held on March 1, 1989 in
Rapid city, S.D.

D. Ward M. Sattler - Sr. Own
80 acres of land. West $\frac{1}{2}$ SW $\frac{1}{4}$
which is one mile west of
Spencer, S.D.

Flooding has been very
damaging to my land.
Has killed many of my
trees in my pasture land.

I am in full favor
of a channel in the NE
 $\frac{1}{4}$ section to reduce

flooding upstream during
high flows.

Yours Truly,

Ward M. Sathke-Sr.
P.O. Box 6
Spencer, S.D.

Feb: 13, 1989
SPENCER, S.D.

WATER RIGHTS Division
Foss Building
523 E. Capitol
Pierre, S.D. 57501



DEAR SIR:

My Interest in Application NO. FC-10
FOR A FLOOD CONTROL PERMIT STEMS FROM
my being a landowner directly upstream
FROM the the WOLF CREEK RESTRICTION. the
LEGAL DESCRIPTION OF my PROPERTY is:

E $\frac{1}{2}$ SECTION 13 T103 R57
SW $\frac{1}{4}$ SECTION 18 T103 R56

I AM IN SUPPORT OF the APPLICATION
TO ELIMINATE the RESTRICTION OF QUARTZITE
IN WOLF CREEK, which in my estimation,
WOULD HELP TO ALLEVIATE the PROBLEM OF
WATER RETENTION UP-STREAM AND RETURN
the WATERWAY back to it's NORMAL
FLOW.

Sincerely;
Wm. Maffziger
Box 235
SPENCER, S.D.
57374



Department of Water & Natural Resources

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

February 17, 1989

Marty Pearson, McCook Co. Hwy. Supt.
McCook County
Box 550
Salem SD 57058

Dear Mr. Pearson:

This letter is to inform you petition have been received from William Nafziger and Ward M Satterlee concerning Application No. FC-10. Enclosed for your information is a copy of the petitions.

Sincerely,

Ron Duvall
Natural Resources Engineer
605 773-3352

enc.





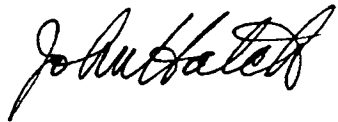
Department of Water & Natural Resources

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

March 8, 1989

NOTICE

TO: Marty Pearson, Highway Supt.
McCook County
Box 550
Salem SD 57058
and Parties of Record (see attached list)

FROM: John Hatch, Chief Engineer 
Water Rights Division
605 773-3352

SUBJECT: Approval of Flood Control Permit Application No. FC-10,
McCook County

This Notice is to inform you that on March 1, 1989, the Water Management Board approved Application No. FC-10 for flood control purposes. The flood control project consists of removing a quartzite channel restriction on a portion of Wolf Creek located in the NE1/4 section 24-T103N-R57W to reduce upstream flooding.

cc: Jim Suedkamp, Corps of Engineers

CERTIFICATION

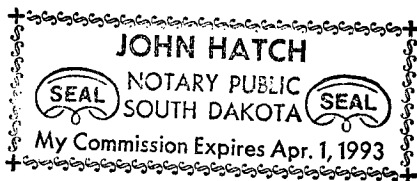
I hereby certify that on March 8, 1989 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice of Approval of Flood Control Permit Application No. FC-10, McCook County addressed as stated on the Parties of Record sheet and to:

Jim Suedkamp, Corps of Engineers
Federal Building
Pierre SD 57501

Karen Schlaak
KAREN SCHLAACK
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 9th day of March, 1989.



John Bates
Notary Public



Department of Water & Natural Resources

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

JUN 13 1989

Marty Pearson, McCook Co. Hwy. Supt.
McCook County
Box 550
Salem SD 57058

Dear Mr. Pearson:

Enclosed is Flood Control Permit No. FC-10 as approved by the Water Management Board. If you have any questions pertaining to the Permit, please contact this office.

Very truly yours,

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

enclosures



Water Rights Division - DENR

Conversation or File Documentation

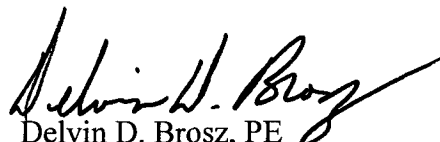
Name of Person: **Albert Reitz** File No.
Address: **Spencer, SD** County: **McCook**
Date: **January 28, 1997** Telephone: **605-246-2730**
RE: **Complaint against Spencer Quarries**

Comments:

Albert Reitz called to complain that Spencer Quarries had changed the channel of Wolf Creek. He is concerned that when the snow melts the town of Spencer will experience major flooding. He asked if the quarry could change the channel without a permit. I informed him that I would check our files and get back to him.

Flood Control Permit No. FC-10 was issued to McCook County in 1989. This permit allowed the removal of a quartzite rise in the channel of Wolf Creek. This rise was holding water back toward the town of Spencer. Spencer Quarries removed the rise in the channel for the County as allowed in the flood control permit. I called Spencer Quarries and they stated that nothing has been done to the creek channel since they removed the channel rise for FC-10.

I called Mr. Reitz and told him that nothing had been done to the Creek channel since the work was completed for FC-10. He stated that a surveyor that he hired found the creek channel near the quarry to be 15 feet higher then it is near the town of Spencer. According to a USGS topographic map, this is not possible. Mr. Reitz stated that he is ready to file a lawsuit against Spencer Quarries. I suggested that he discuss his concerns with the surveyor, the town of Spencer, and Spencer Quarries.


Delvin D. Brosz, PE
Natural Resources Engineer

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. FC-10

I have this day, July 8, 2024, made a thorough examination of the water use system constructed by McCook County, Box 550, Salem, SD 57058 of Permit No. FC-10, bearing the priority of December 8, 1988 authorizing the excavation of a restricted portion of the Wolf Creek channel caused by an outcrop of quartzite rock in Hanson County.

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

This is an unusual situation as McCook County requested a flood control project authorization in adjoining Hanson County where backup water from Hanson County was causing a problem in McCook County in 1988. The FC10-3 Permit was still listed as unlicensed on the DNR Intranet site, so I proceeded to make a field inspection.

It appears that there has been a significant change to the original Flood Control Permit regarding the planned path of the altered Wolf Creek. The original plan called for the lowering of the creek channel to enhance the flow of water but for the flow path of the creek to remain in place. Now the flow path of the creek has been straightened and moved west to the Spencer Quarry property line where it parallels the property line in a north-south direction for about one-half of its length in Section 24 as can be seen on the accompanying map.

The channel appears to be well maintained with good flow characteristics. Water was flowing in the creek very well at the time of the field inspection with no signs of flow impedance. All creek alterations were done on the Spencer Quarry property in Hanson County.

I talked to Mr. Todd Waldera, Quarry Superintendent, (605/999-2590, cell) during the field visit and he was unaware of and surprised by the unlicensed flood control permit. He said that the Quarry had complied with all state and federal requirements, to the best of his knowledge, when the Wolf Creek flow line was straightened and moved to the west property boundary. I could not answer all of his questions regarding the Permit.

I am suggesting that Ron Duvall give Mr. Waldera a call to explain any possible misunderstandings that Mr. Waldera may have as he was curious about the necessity of my visit. He mentioned he had a previous telephone conversation with Ron a few years ago about another issue so he seems comfortable talking to Ron. I sense that I did not do an adequate job of explaining the situation and do not want this to become an issue for the Water Rights Program.



Darrell DeBoer
Water Rights Inspector
DENR, Water Rights Program

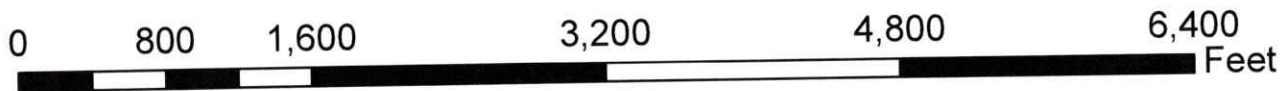
Date report completed: July 17, 2024



Photo #1. Looking northwest from the north bridge.



Photo #2. Looking northwest from atop a 30-foot berm on the east side of Wolf Creek.



Dewell, Amanda

From: Duvall, Ron
Sent: Thursday, July 18, 2024 9:31 AM
To: DeBoer, Darrell
Cc: Dewell, Amanda; Gronlund, Eric; Hullinger, Brittan
Subject: RE: FC10-3 (McCook - Hanson)

Darrell,

I am not surprised that Mr. Waldera was confused since the quarry is not the holder of the flood control permit. It does appear that the work for FC10-3 was completed by the quarry based on a file document signed by Del Brosz in response to a complaint ([see last page in the PDF file](#)) . However, verifying whether the work was completed via an onsite inspection will be difficult if there is high flow in the creek and would probably require surveying for elevation changes as well. Given the present conditions, I would not worry about licensing FC10-3 at this point in time.

Regarding the reroute of Wolf Creek around the quarry, the quarry has their own [flood control permit for that project – FC25-3](#) and it is licensed.

I will give Mr. Waldera a call.

Thanks Darrell,

Ron

From: DeBoer, Darrell <Darrell.DeBoer@state.sd.us>
Sent: Wednesday, July 17, 2024 6:54 PM
To: Dewell, Amanda <Amanda.Dewell@state.sd.us>; Gronlund, Eric <Eric.Gronlund@state.sd.us>; Duvall, Ron <Ron.Duvall@state.sd.us>
Subject: FC10-3 (McCook - Hanson)

Folks

Am interested in a reaction to this Permit.

Darrell