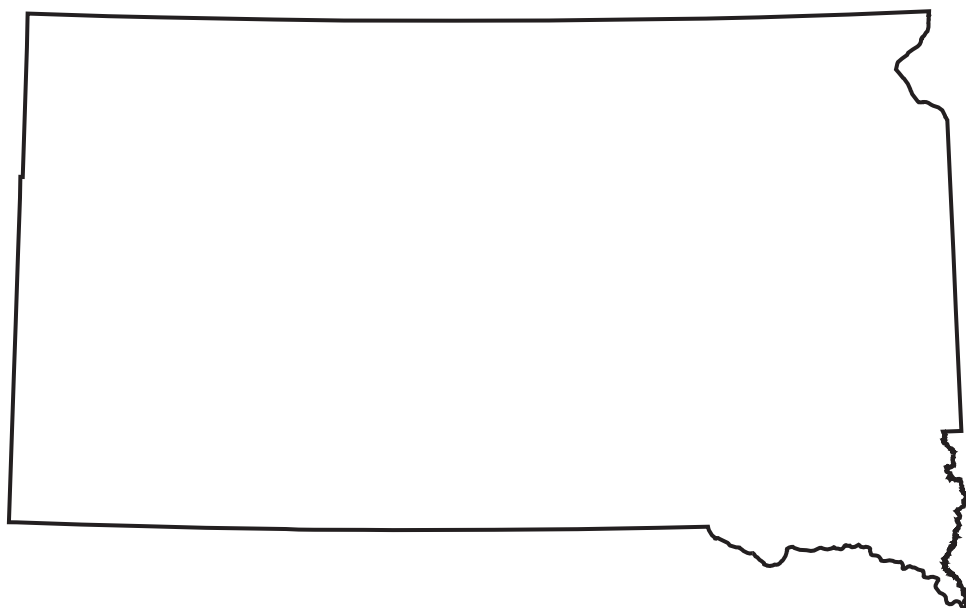


Water Resources Data South Dakota Water Year 2002

Water-Data Report SD-02-1



U.S. Department of the Interior
U.S. Geological Survey



Prepared in cooperation with the
State of South Dakota
and with other agencies

CALENDAR FOR WATER YEAR 2002

2001

OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6					1	2	3							1
7	8	9	10	11	12	13	4	5	6	7	8	9	10	2	3	4	5	6	7	8
14	15	16	17	18	19	20	11	12	13	14	15	16	17	9	10	11	12	13	14	15
21	22	23	24	25	26	27	18	19	20	21	22	23	24	16	17	18	19	20	21	22
28	29	30	31				25	26	27	28	29	30		23	24	25	26	27	28	29
														30	31					

2002

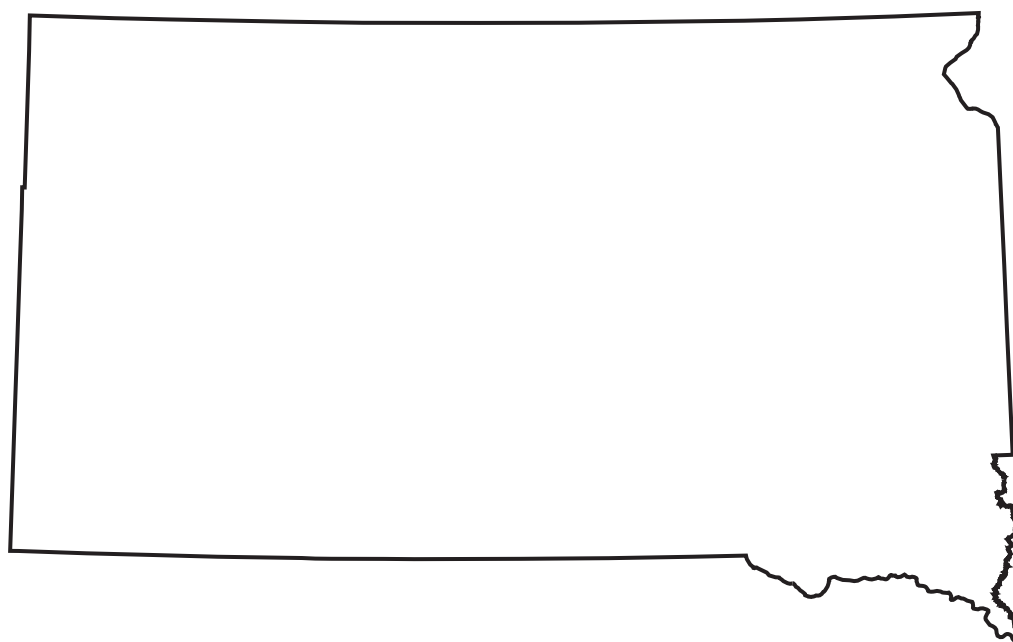
JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
		1	2	3	4	5						1	2						1	2
6	7	8	9	10	11	12	3	4	5	6	7	8	9	3	4	5	6	7	8	9
13	14	15	16	17	18	19	10	11	12	13	14	15	16	10	11	12	13	14	15	16
20	21	22	23	24	25	26	17	18	19	20	21	22	23	17	18	19	20	21	22	23
27	28	29	30	31			24	25	26	27	28			24	25	26	27	28	29	30
														31						
APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6				1	2	3	4							1
7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8
14	15	16	17	18	19	20	12	13	14	15	16	17	18	9	10	11	12	13	14	15
21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22
28	29	30					26	27	28	29	30	31		23	24	25	26	27	28	29
														30						
JULY							AUGUST							SEPTEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6					1	2	3	1	2	3	4	5	6	7
7	8	9	10	11	12	13	4	5	6	7	8	9	10	8	9	10	11	12	13	14
14	15	16	17	18	19	20	11	12	13	14	15	16	17	15	16	17	18	19	20	21
21	22	23	24	25	26	27	18	19	20	21	22	23	24	22	23	24	25	26	27	28
28	29	30	31				25	26	27	28	29	30	31	29	30					

U.S. Department of the Interior
U.S. Geological Survey

Water Resources Data South Dakota Water Year 2002

By M.J. Burr, R.W. Teller, and K.M. Neitzert

Water-Data Report SD-02-1



Prepared in cooperation with the
State of South Dakota and with other agencies



UNITED STATES DEPARTMENT OF THE INTERIOR

GALE A. NORTON, Secretary

U. S. GEOLOGICAL SURVEY

Charles G. Groat, Director

Prepared in cooperation with the
State of South Dakota
and with other agencies as listed
under cooperation

For additional information write to
District Chief, Water Resources Division
U.S. Geological Survey
1608 Mt. View Road
Rapid City, South Dakota 57702

PREFACE

This volume of the annual hydrologic data report of South Dakota is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each state, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and water quality provide the hydrologic information needed by state, local, and federal agencies, and the private sector for developing and managing our Nation's land and water resources.

This report was prepared by personnel of the South Dakota District of the Water Resources Division of the U.S. Geological Survey under the supervision of D.J. Fitzpatrick, District Chief, and R.W. Teller, Chief, Hydrologic Data Collection and Analysis Section. South Dakota personnel who contributed significantly to the collecting, processing, and tabulating of the data, and typing the manuscript were:

B.J. Athow	N.E. Dewald	D.D. Johnston	D.L. Rahder	J.L. Whitaker
M.J. Burr	D.G. Driscoll	K.L. Korkow	C.J. Ross	J.E. Williamson
J.M. Carter	B.C. Engle	D.K. Matthews	S.K. Sando	C.J. Winter
J.S. Clark	M.E. Freese	K.M. Neitzert	C.E. Solberg	
K.M. Converse	T.A. Harvey	J.A. Petersen	R.W. Teller	
E.M. Decker	D.M. Hernandez	L.D. Putnam	R.F. Thompson	

This report was prepared in cooperation with the State of South Dakota and other agencies.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE March 2003	3. REPORT TYPE AND DATES COVERED Annual--Oct. 1, 2001, to Sept. 30, 2002	
4. TITLE AND SUBTITLE Water Resources Data, South Dakota, Water Year 2002			5. FUNDING NUMBERS	
6. AUTHOR(S) M.J. Burr, R.W. Teller, and K.M. Neitzert				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Geological Survey, Water Resources Division 1608 Mt. View Road Rapid City, SD 57702			8. PERFORMING ORGANIZATION REPORT NUMBER USGS-WDR-SD-02-1	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Geological Survey, Water Resources Division 1608 Mt. View Road Rapid City, SD 57702			10. SPONSORING / MONITORING AGENCY REPORT NUMBER USGS-WDR-SD-02-1	
11. SUPPLEMENTARY NOTES Prepared in cooperation with the State of South Dakota and with other agencies.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT No restrictions on distribution. This report may be purchased from National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) Water-resources data for the 2002 water year for South Dakota consists of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; precipitation; and water levels in wells. This report contains discharge records for 127 streamflow-gaging stations; stage and contents records for 10 lakes and reservoirs, stage for 14 streams and 3 lakes; water-quality records for 6 streamflow-gaging stations, 2 daily sediment stations, 3 wells, 10 ungaged stream sites, 6 lakes, 1 sewage lagoon, and 1 precipitation site; water levels for 7 wells; daily precipitation records at 4 sites; and 74 partial-record crest-stage gage sites. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements and analyses. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in South Dakota.				
14. SUBJECT TERMS *South Dakota, *Hydrologic data, *Surface water, *Ground water, *Precipitation, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water levels, Water analyses			15. NUMBER OF PAGES 537	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	

CONTENTS

Preface	iii
List of gaging stations, in downstream order, for which records are published in this volume.....	vii
List of hydrologic stations for which records are published in this volume	xi
List of ground-water wells, by county, for which records are published in this volume	xi
List of discontinued surface-water stations	xii
Introduction	1
Cooperation	1
Summary of hydrologic conditions	1
Precipitation	2
Surface water.....	2
Water quality	4
Ground water.....	6
Special networks and programs.....	7
Explanation of records	10
Station identification numbers	10
Downstream order system	10
Latitude-Longitude System.....	10
Records of stage and water discharge	11
Data collection and computation	11
Data presentation	11
Station manuscript	15
Data table of daily mean values.....	15
Statistics of monthly mean data.....	15
Summary statistics	16
Identifying estimated daily discharge	16
Accuracy of records	16
Other records available	17
Records of surface-water quality	17
Classification of records	17
Arrangement of records	17
On-site measurements and sample collections	17
Water temperature	17
Sediment	18
Laboratory measurements.....	18
Data presentation	18
Records of hydrologic stations.....	19
Records of ground-water levels	19
Data collection and computation	19
Data presentation	19
Records of ground-water quality.....	19
Data collection and computation	20
Data presentation	20
Access to USGS water data.....	20
Reference cited.....	20
Definition of terms	20

CONTENTS—Continued

	Page
Publications on Techniques of Water-Resources Investigations	31
Surface-water-discharge and surface-water-quality records	34
Remarks codes	34
Station records, surface water	36
Partial-record stations	424
Daily precipitation stations	445
Miscellaneous water quality data	447
Miscellaneous temperature measurements and field determinations	456
Miscellaneous discharge measurements	489
Station records, ground water	499
Index	507

ILLUSTRATIONS

Figure 1. Comparison of 2002 monthly and annual means to long-term distributions of monthly and annual mean flows at five representative gaging stations.....	3
2. Comparison of monthend contents of Lake Oahe for water year 2002 with distributions of monthend contents for water years 1969-2001	4
3. Comparison of 2002 specific conductance measurements to the distributions of long-term monthly values	5
4. Water levels from selected observation wells	8
5. Map showing location of surface-water gaging stations	12
6. Map showing location of surface-water, ground-water, and precipitation water-quality stations and precipitation stations.....	14

TABLES

Table 1. Cumulative precipitation and departures from normal, in inches	2
2. Comparison of water year 2002 peak streamflow to peak for long-term period	2

SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH
RECORDS ARE PUBLISHED IN THIS VOLUME

vii

Note.--Data for partial-record stations and miscellaneous sites are published in separate sections of the data report. See references at the end of this list for page numbers for these sections.

[Letters after station names designate type of data: (d) discharge, (e) elevation, gage height, or contents, (c) chemical, (b) biological, (m) microbiological, (p) pesticide, (r) precipitation, (s) sediment]

	Station Number	Page
<u>RED RIVER OF THE NORTH BASIN</u>		
Mud Lake above White Rock Dam near White Rock (e)	05049995	36
Bois de Sioux River near White Rock (d)	05050000	38
<u>MISSISSIPPI RIVER BASIN</u>		
MINNESOTA RIVER BASIN		
Little Minnesota River:		
Jorgenson River:		
Big Coulee Creek near Peever (d)	05289985	40
Little Minnesota River near Peever (d)	05290000	42
Whetstone River near Big Stone City (d)	05291000	44
Minnesota River:		
Yellow Bank River:		
North Fork Yellow Bank River near Odessa, MN (d)	05292704	46
Lac qui Parle River:		
West Branch Lac qui Parle River:		
Florida Creek:		
Cobb Creek near Gary (d)	05299700	48
<u>MISSOURI RIVER BASIN</u>		
LITTLE MISSOURI RIVER BASIN		
Little Missouri River at Camp Crook (d)	06334500	50
<u>MISSOURI-OAHE BASIN</u>		
Missouri River at Bismarck, ND (d)	06342500	52
Oak Creek near Wakpala (d)	06354882	54
GRAND-MOREAU RIVER BASIN		
North Fork Grand River near White Butte (d)	06355500	56
Shadehill Reservoir at Shadehill (e)	06357000	58
Grand River at Little Eagle (d)	06357800	60
Moreau River near Faith (d)	06359500	62
Moreau River near Whitehorse (d)	06360500	64
CHEYENNE RIVER BASIN		
Cheyenne River:		
Beaver Creek:		
Stockade Beaver Creek:		
Beaver Creek at Mallo Camp, near Four Corners, WY (d,r)	06392900	66
Stockade Beaver Creek near Newcastle, WY (d)	06392950	70
Cheyenne River at Edgemont (d)	06395000	72
Hat Creek near Edgemont (d)	06400000	74
Horsehead Creek at Oelrichs (d)	06400875	76
Angostura Reservoir near Hot Springs (e)	06401000	78

SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH
RECORDS ARE PUBLISHED IN THIS VOLUME

	Station Number	Page
<u>MISSOURI RIVER BASIN—Continued</u>		
CHEYENNE RIVER BASIN—Continued		
Cheyenne River below Angostura Dam (d)	06401500	80
Fall River at Hot Springs (d)	06402000	82
Beaver Creek near Pringle (d)	06402430	84
Beaver Creek near Buffalo Gap (d)	06402500	86
French Creek above Fairburn (d)	06403300	88
Cheyenne River at Redshirt (d)	06403700	90
Battle Creek near Keystone (d)	06404000	92
Grace Coolidge Creek near Game Lodge, near Custer (d)	06404998	94
Battle Creek at Hermosa (d)	06406000	96
Battle Creek below Hermosa (d)	06406500	98
Spring Creek above Sheridan Lake, near Keystone (d)	06406920	100
Spring Creek near Keystone (d)	06407500	102
Spring Creek near Hermosa (d)	06408500	104
Rapid Creek:		
Rhoads Fork near Rochford (d)	06408700	106
Castle Creek above Deerfield Reservoir, near Hill City (d)	06409000	108
Deerfield Reservoir near Hill City (e)	06409500	110
Castle Creek below Deerfield Dam (d)	06410000	112
Rapid Creek above Pactola Reservoir, at Silver City (d)	06410500	114
Pactola Reservoir near Silver City (e)	06411000	116
Rapid Creek below Pactola Dam (d)	06411500	118
Rapid Creek above Canyon Lake, near Rapid City (d)	06412500	120
Cleghorn Springs at Rapid City (d)	06412810	122
Lime Creek at mouth, at Rapid City (d)	06413650	124
Rapid Creek at Rapid City (d)	06414000	126
Rapid Creek below Sewage Treatment Plant, near Rapid City (d)	06418900	128
Rapid Creek near Farmingdale (d)	06421500	130
Boxelder Creek near Nemo (d)	06422500	132
Boxelder Creek near Rapid City (d)	06423010	134
Cheyenne River near Wasta (d)	06423500	136
Elk Creek near Roubaix (d)	06424000	138
Elk Creek near Rapid City (d)	06425100	140
Elk Creek near Elm Springs (d)	06425500	142
BELLE FOURCHE RIVER BASIN		
Keyhole Reservoir near Moorcroft, WY (e)	06427000	144
Belle Fourche River at Wyoming-South Dakota State line (d)	06428500	146
Redwater Creek:		
Cold Springs Creek at Buckhorn, WY (d)	06429500	148
Sand Creek near Ranch A, near Beulah, WY (d)	06429905	150
Murray Ditch above Headgate at Wyoming-South Dakota State line (d)	06429997	152
Redwater Creek at Wyoming-South Dakota State line (d)	06430500	154
Crow Creek near Beulah, WY (d)	06430532	156
Spearfish Creek near Lead (d)	06430770	158
Annie Creek near Lead (d)	06430800	160
Little Spearfish Creek near Lead (d)	06430850	162
Spearfish Creek above Spearfish (d)	06430900	164
Spearfish Creek at Spearfish (d)	06431500	166
Redwater River above Belle Fourche (d)	06433000	168
Inlet Canal above Belle Fourche Reservoir (d)	06434505	170

SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH
RECORDS ARE PUBLISHED IN THIS VOLUME

ix

	Station Number	Page
<u>MISSOURI RIVER BASIN—Continued</u>		
BELLE FOURCHE RIVER BASIN—Continued		
Belle Fourche Reservoir near Belle Fourche (e)	06435000	172
Belle Fourche River near Fruitdale (d)	06436000	174
Whitewood Creek:		
Whitewood Creek above Whitewood (d,c,s)	06436180	176
Whitewood Creek near Whitewood (d)	06436190	180
Whitewood Creek above Vale (d,c,s)	06436198	182
Horse Creek above Vale (d)	06436760	186
Belle Fourche River near Sturgis (d)	06437000	188
Bear Butte Creek near Deadwood (d)	06437020	190
Bear Butte Creek at Sturgis (d)	06437400	192
Belle Fourche River near Elm Springs (d)	06438000	194
Cheyenne River near Plainview (d)	06438500	196
Cherry Creek near Plainview (d)	06439000	198
Lake Oahe near Pierre (e)	06439980	200
<u>MISSOURI-FORT RANDALL BASIN</u>		
Missouri River at Pierre (e)	06440000	202
South Fork Bad River near Cottonwood (d)	06440200	204
Bad River near Midland (d)	06441000	206
Bad River near Fort Pierre (d,s)	06441500	208
Missouri River at La Framboise Island, at Pierre (e)	06441590	214
Missouri River below La Framboise Island, at Pierre (e)	06441592	216
Missouri River at Farm Island, near Pierre (e)	06441595	218
Lake Sharpe near Fort Thompson (e)	06442700	220
Campbell Creek near Lee's Corner (d)	06442718	222
Lake Francis Case (American Creek Bay) at Chamberlain (e)	06442996	224
WHITE RIVER BASIN		
White River near Nebraska-South Dakota State line (d)	06445685	226
White River near Oglala (d)	06446000	228
Bear in the Lodge Creek near Wanblee (d)	06446700	230
White River near Kadoka (d)	06447000	232
Black Pipe Creek near Belvidere (d)	06447230	234
White River near White River (d)	06447450	236
Little White River near Martin (d)	06447500	240
Lake Creek above refuge, near Tuthill (d)	06448000	242
Lake Creek below refuge, near Tuthill (d)	06449000	244
Little White River near Vetol (d)	06449100	246
Little White River near Rosebud (d)	06449500	248
Little White River below White River (d)	06450500	250
White River near Oacoma (d,s)	06452000	252
Platte Creek near Platte (d)	06452320	258
Andes Creek near Armour (c,s)	06452380	260
Lake Andes tributary No. 3 near Armour (c,s)	06452383	261
Lake Andes tributary No. 2 near Lake Andes (c,s)	06452386	262
Lake Andes tributary No. 1 near Lake Andes (c,s)	06452389	263
Lake Andes above Ravinia (c,p,s)	06452390	264
Lake Andes near Ravinia (c,p,s)	06452391	268
Owens Bay near Ravinia (c,p,s)	06452403	271
Lake Andes above Lake Andes (c,p,s)	06452406	274

SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH
RECORDS ARE PUBLISHED IN THIS VOLUME

	Station Number	Page
<u>MISSOURI-LEWIS AND CLARK BASIN</u>		
Lake Francis Case at Pickstown (e)	06452500	277
Missouri River at Fort Randall Dam (d,e,c,b,m,p,s)	06453000	278
Missouri River below Greenwood (e)	06453020	282
Missouri River above Choteau Creek near Verdel, NE (c,s)	06453120	284
Choteau Creek near Wagner (c,s)	06453200	286
Choteau Creek near Dante (c,s)	06453252	287
Choteau Creek near Avon (d)	06453255	288
Choteau Creek below Avon (c,s)	06453300	290
Missouri River below Choteau Creek near Verdel, NE (c,s)	06453305	292
NIOBRARA RIVER BASIN		
Keya Paha River near Keyapaha (d)	06464100	296
Keya Paha River at Wewela (d)	06464500	298
Lewis and Clark Lake at Springfield (e)	06466700	300
Lewis and Clark Lake near Yankton (e)	06467000	302
Missouri River at Yankton (d,e,c,b,m,p,s)	06467500	304
JAMES RIVER BASIN		
James River at North Dakota-South Dakota State line (d)	06470878	314
James River at Columbia (d)	06471000	316
Elm River near Frederick (e)	06471065	318
Maple River at North Dakota-South Dakota State line (d)	06471200	320
Elm River at Westport (d)	06471500	322
Elm River near Ordway (e)	06471510	324
Moccasin Creek at Aberdeen (e)	06471770	326
Foot Creek near Aberdeen (d)	06471800	328
James River near Stratford (d)	06472000	330
James River at Ashton (d)	06473000	332
James River near Redfield (d)	06475000	334
James River at Huron (d)	06476000	336
James River near Forestburg (d)	06477000	338
Firesteel Creek near Mount Vernon (d)	06477500	340
James River near Mitchell (d,e)	06478000	342
James River near Scotland (d)	06478500	344
Missouri River near Gayville (e)	06478515	346
East Fork Vermillion River near Ramona (d)	06478535	348
Little Vermillion River near Salem (d)	06478540	350
East Fork Vermillion River near Parker (d)	06478600	352
West Fork Vermillion River near Parker (d)	06478690	354
Vermillion River near Vermillion (d)	06479010	356
BIG SIOUX RIVER BASIN		
Waubay Lakes Chain Closed Basin		
Bitter Lake		
Blue Dog Lake		
Blue Dog Lake inflow (Owens Creek) near Waubay (d)	06479159	358
Big Sioux River near Florence (d)	06479215	360
Big Sioux River near Watertown (d)	06479438	362
Lake Kampeska at Water Treatment Plant, at Watertown (e)	06479449	364

SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH
RECORDS ARE PUBLISHED IN THIS VOLUME

xi

	Station Number	Page
<u>MISSOURI-LEWIS AND CLARK BASIN—Continued</u>		
BIG SIOUX RIVER BASIN—Continued		
Big Sioux River at Watertown (d)	06479500	366
Willow Creek near Watertown (e)	06479515	368
Big Sioux River below Watertown (d)	06479520	370
Big Sioux River near Castlewood (d)	06479525	372
Big Sioux River near Bruce (d)	06479770	374
Big Sioux River near Brookings (d,c,s)	06480000	376
Big Sioux River near Dell Rapids (d)	06481000	388
Skunk Creek near Chester (d)	06481480	390
Skunk Creek at Sioux Falls (e)	06481500	392
Big Sioux River at North Cliff Avenue, at Sioux Falls (d,c,s)	06482020	394
Split Rock Creek at Corson (d)	06482610	406
Rock River near Rock Valley, IA (d)	06483500	408
Big Sioux River at Akron, IA (d,c,s)	06485500	410
<u>MISSOURI-LITTLE SIOUX RIVER BASIN</u>		
Missouri River at Sioux City, IA (d)	06486000	422

HYDROLOGIC STATIONS FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

Partial-record stations	424
Daily precipitation stations	445
Miscellaneous water quality data	447
Miscellaneous temperature measurements and field determinations	456
Miscellaneous discharge measurements	489

GROUND-WATER WELLS, BY COUNTY, FOR WHICH WATER LEVELS
ARE PUBLISHED IN THIS VOLUME

<u>AURORA COUNTY</u>	
Well 435039098263403 Local number 104N63W 6B.	499
<u>BEADLE COUNTY</u>	
Well 442112098174001 Local number 110N62W 9BCCC.	500
<u>CODINGTON COUNTY</u>	
Well 450905097072202 Local number 120N52W25BBBB	501
<u>LINCOLN COUNTY</u>	
Well 431619096460202 Local number 98N50W32AAAA2.	502
<u>MARSHALL COUNTY</u>	
Well 454745097450401 Local number 127N58W23DAD	503
<u>SHANNON COUNTY</u>	
Well 430027102311801 Local number 35N44W17CBD2	504
Well 430027102311806 Local number 35N44W17CBD	505

DISCONTINUED SURFACE-WATER STATIONS

The following surface-water stations in South Dakota have been discontinued. Surface-water stations include: daily or monthly discharge stations; daily or monthend stage stations; peak-flow only stations (crest-stage gages); and stations where water quality and/or sediment were collected on at least a quarterly basis for 1 year. Those stations with an asterisk (*) in the period of record column currently are operated as a surface-water station of another type; see index. Information regarding these stations or stations of a type not included in this list may be obtained from the District office at the address given on the back side of the title page of this report.

Station number	Station name	Contributing drainage area (mi ²)	Period of record for discontinued activity (water years)	Type of record discontinued
05050000	Bois De Sioux River near White Rock	1,160	1964-66*	Water quality/sediment
05051650	LaBelle Creek near Veblen	8.74	1988-99*	Daily discharge
05289950	Little Minnesota River tributary at Sisseton	4.21	1970-79	Peak flow
05290300	North Fork Whetstone River tributary near Wilmot	.96	1970-79	Peak flow
05290500	Whetstone River near Corona	170	1954-57	Daily discharge
05291000	Whetstone River near Big Stone City	389	1974-88*	Water quality/sediment
05291500	Big Stone Lake near Big Stone City (formerly "at Ortonville, MN")	--	1937-93	Stage/monthend
05292600	North Fork Yellow Bank River tributary near Stockholm	8.15	1970-79	Peak flow
06334500	Little Missouri River at Camp Crook	1,970	1972-73*	Water quality/sediment
06354830	Lake Oahe near Kenel	--	1972	Water quality
06354845	Spring Creek tributary near Greenway	.99	1970-79	Peak flow
06354860	Spring Creek near Herreid	220	1963-86 1978 1989-97	Daily discharge Water quality/sediment Peak flow
06354880	Spring Creek near Pollock	1,530	1959-62	Daily discharge
06355400	North Fork Grand River tributary near Lodgepole	3.07	1970-79	Peak flow
06355500	North Fork Grand River near White Butte	1,190	1950-51*	Water quality/sediment
06356000	South Fork Grand River at Buffalo	148	1955-94	Daily discharge
06356050	Wide Sandy Creek near Buffalo	38.8	1956, 1958-73	Peak flow
06356150	North Jack Creek near Ludlow	1.69	1970-79	Peak flow
06356500	South Fork Grand River near Cash	1,350	1950-51 1946-2001	Water quality/sediment Daily discharge
06356600	South Fork Grand River tributary near Bison	1.00	1970-79	Peak flow
06357000	Shadehill Reservoir at Shadehill	3,120	1960-76*	Water quality/sediment
06357500	Grand River at Shadehill	3,120	1951-88, 1991-92 1943-51 1950-80	Daily discharge Monthly discharge Water quality/sediment
06357800	Grand River at Little Eagle	5,370	1975-90*	Water quality/sediment
06358000	Grand River near Wakpala	5,510	1949-64 1912-18, 1928-48 1950-53	Daily discharge Monthly discharge Water quality/sediment
06358320	Claymore Creek near Mobridge	2.18	1956-68	Peak flow
06358350	Claymore Creek tributary near Trail City	1.98	1956-73	Peak flow
06358400	Claymore Creek tributary No. 2 near Trail City	.15	1956-73	Peak flow
06358500	Missouri River near Mobridge	208,700	1934-62 1928-34	Daily discharge Monthly discharge
06358520	Deadman Creek tributary near Mobridge	.30	1956-80	Peak flow
06358540	Blue Blanket Creek tributary near Glenham	.62	1970-79	Peak flow

DISCONTINUED SURFACE-WATER STATIONS

Station number	Station name	Contributing drainage area (mi ²)	Period of record for discontinued activity (water years)	Type of record discontinued
06358550	Battle Creek tributary near Castle Rock	1.57	1969-79	Peak flow
06358600	South Fork Moreau River tributary near Redig	2.33	1956, 1958-80	Peak flow
06358620	Sand Creek tributary near Redig	.06	1956, 1958-72	Peak flow
06358750	North Fork Moreau River tributary near Redig	4.00	1956, 1958-73	Peak flow
06359000	Moreau River at Bixby	1,570	1948-69 1970-73	Daily discharge Peak flow
06359300	Deep Creek tributary near Maurine	1.26	1970-79	Peak flow
06359700	Thunder Butte Creek tributary near Meadow	3.00	1970-79	Peak flow
06359800	Thunder Butte Creek tributary near Glad Valley	8.0	1970-77	Peak flow
06359850	Elm Creek tributary near Dupree	4.16	1970-79	Peak flow
06360000	Moreau River near Eagle Butte	4,320	1943-58 1950-51	Daily discharge Water quality/sediment
06360350	Little Moreau River tributary near Firesteel	2.09	1970-79	Peak flow
06360500	Moreau River near Whitehorse	4,880	1969, 1972-76, 1978-93*	Water quality/sediment
06361000	Moreau River at Promise	5,223	1935-58 1928-34 1950-51	Daily discharge Monthly discharge Water quality/sediment
06361020	Swan Lake tributary near Bowdle	27.1	1970-79	Peak flow
06394500	Beaver Creek near Burdock	1,540	1905-06, 1928-32	Monthly discharge
06394600	Hell Canyon near Jewel Cave, near Custer	Not determined	1978-80	Daily discharge
06394605	Hell Canyon near Custer	Not determined	1978-80	Daily discharge
06395000	Cheyenne River at Edgemont	7,143	1970-74*	Water quality/sediment
06396200	Fiddle Creek near Edgemont	.64	1956-80	Peak flow
06396300	Cottonwood Creek tributary near Edgemont	.09	1956-80	Peak flow
06396350	Red Canyon Creek tributary near Pringle	.20	1970-79	Peak flow
06399300	Hat Creek tributary near Ardmore	3.74	1956-79	Peak flow
06399700	Pine Creek near Ardmore	5.47	1956-75	Peak flow
06400497	Cascade Springs near Hot Springs	.47	1976-95 1996	Daily discharge Peak flow
06400500	Cheyenne River near Hot Springs	8,710	1914-20, 1943-72 1950-51	Daily discharge Water quality/sediment
06400870	Horsehead Creek near Oelrichs	108	1981-83	Daily discharge
06400900	Horsehead Creek tributary near Smithwick	1.52	1969-79	Peak flow
06401500	Cheyenne River below Angostura Dam	9,100	1968-80*	Water quality/sediment
06402100	Fall River tributary at Hot Springs	3.81	1970-79	Peak flow
06402470	Beaver Creek above Buffalo Gap	111	1991-97*	Daily discharge
06402600	Cheyenne River near Buffalo Gap	9,810	1969-80 1969-80	Daily discharge Water quality/sediment
06402990	French Creek below Custer	53.4	1990-92	Daily discharge
06402995	French Creek above Stockade, near Custer	68.7	1991-97*	Daily discharge
06403000	French Creek near Custer	98	1945-47	Monthly discharge
06403500	French Creek near Fairburn	129	1945-47	Monthly discharge

DISCONTINUED SURFACE-WATER STATIONS

Station number	Station name	Contributing drainage area (mi ²)	Period of record for discontinued activity (water years)	Type of record discontinued
06403800	Battle Creek tributary near Keystone	.63	1956-80	Peak flow
06403845	Grizzly Creek above E. Bear Falls, near Keystone	4.26	1999	Peak flow
06404000	Battle Creek near Keystone	66.0	1994*	Water quality/sediment
06404500	Battle Creek near Hermosa	173	1945-47	Monthly discharge
06404800	Grace Coolidge Creek near Hayward	7.48	1989* 1989-98	Water quality/sediment Daily discharge
06404998	Grace Coolidge Creek near Game Lodge, near Custer	25.2	1989*	Water quality/sediment
06405000	Grace Coolidge Creek near Custer	25.3	1967-76 1945-47	Daily discharge Monthly discharge
06405400	Grace Coolidge Creek near Fairburn	Not determined	1978-80	Daily discharge
06405500	Grace Coolidge Creek near Hermosa	27.5	1978-80 1945-47	Daily discharge Monthly discharge
06405800	Bear Gulch near Hayward	4.23	1989-98*	Daily discharge
06406100	Battle Creek tributary near Hermosa	3.49	1970-79	Peak flow
06406750	Sunday Gulch near Hill City	6.56	1956-69	Peak flow
06406800	Newton Fork near Hill City	8.17	1969-79	Peak flow
06406900	Palmer Creek near Hill City	13.3	1956-80	Peak flow
06406950	Horse Creek at 385, near Hill City	10.1	1972-73	Peak flow
06407000	Spring Creek near Hill City	142	1937-40	Monthly discharge
06408000	Spring Creek near Rapid City	171	1903-05, 1945-47	Monthly discharge
06408850	Silver Creek near Rochford	6.23	1969-79	Peak flow
06408860	Rapid Creek near Rochford	101	1989-94 1989-90	Daily discharge Water quality/sediment
06408900	Heeley Creek near Hill City	4.88	1969-79	Peak flow
06409000	Castle Creek above Deerfield Reservoir, near Hill City	79.2	1964-96*	Water quality/sediment
06411500	Rapid Creek below Pactola Dam	320	1969-92*	Water quality/sediment
06412000	Rapid Creek at Big Bend	332	1915-17, 1932-43*	Monthly discharge
06412200	Rapid Creek above Victoria Creek, near Rapid City	355	1989-90, 1992 1989-97*	Water quality/sediment Daily discharge
06412510	Rapid Creek above Rapid City	371	1991	Daily discharge
06412600	Cleghorn Springs main channel at Fish Hatchery	--	1988-92	Daily discharge
06412700	Cleghorn Springs south channel at Fish Hatchery, at Rapid City	--	1988-92	Daily discharge
06412800	Cleghorn Springs north channel at Fish Hatchery, at Rapid City	--	1988-92	Daily discharge
06412900	Rapid Creek below Cleghorn Springs, at Rapid City	378	1988-94	Daily discharge and water quality/sediment
06413000	Bennett Ditch at Rapid City	--	1946-50	Monthly discharge
06413200	Rapid Creek below Park Drive, at Rapid City	384	1987-89	Daily discharge and water quality/sediment
06413300	Leedy Ditch at headgate below Canyon Lake Dam, at Rapid City	--	1987-89	Daily discharge and monthly discharge
06413550	Leedy Ditch at mouth, at Rapid City	--	1946-50, 1988-89	Daily discharge
06413570	Rapid Creek above Jackson Boulevard, at Rapid City	391	1987-89	Daily discharge

DISCONTINUED SURFACE-WATER STATIONS

Station number	Station name	Contributing drainage area (mi ²)	Period of record for discontinued activity (water years)	Type of record discontinued
06413660	Storybook Ditch at headgate, at Rapid City	--	1988-89	Daily discharge
06413670	Storybook Ditch at mouth, at Rapid City	--	1987-89	Daily discharge
06413700	Rapid Creek above Water Treatment Plant, at Rapid City	404	1980-82, 1987-89	Daily discharge
06413800	Deadwood Avenue Drain at mouth, at Rapid City	2.18	1981-82, 1987-90	Daily discharge
06414500	Iowa Ditch at Rapid City	--	1946-50	Monthly discharge
06414700	Rapid Creek at East Main St., at Rapid City	416	1980-82	Daily discharge
06415000	Lockhart Ditch at Rapid City	--	1946-50	Monthly discharge
06415500	Hawthorne Ditch at Rapid City	--	1981-82 1946-53	Daily discharge Monthly discharge
06416000	Rapid Creek below Hawthorne Ditch, at Rapid City	418	1980-82* 1946-53 1953	Daily discharge Monthly discharge Water quality/sediment
06416300	Meade Street Drain at Rapid City	3.15	1973-77, 1980 1980-82	Daily discharge Water quality/sediment
06416500	Murphy Ditch near Rapid City	--	1946-50	Monthly discharge
06417000	Cyclone Ditch near Rapid City	--	1946-50	Monthly discharge
06417500	South Side Ditch near Rapid City	--	1946-50	Monthly discharge
06418000	Little Giant Ditch near Rapid City	--	1946-50	Monthly discharge
06418500	Rapid Creek below Little Giant Ditch, near Rapid City	447	1946-50	Monthly discharge
06419000	Lone Tree Ditch near Rapid City	--	1946-50	Monthly discharge
06419500	St. Germain Ditch at Caputa	--	1946-50	Monthly discharge
06420000	Rapid Creek at Caputa	509	1946-50	Monthly discharge
06420500	Hammerquist Ditch near Farmingdale	--	1946-50	Monthly discharge
06421500	Rapid Creek near Farmingdale	602	1953, 1956-58, 1969-80, 1989, 1992*	Water quality/sediment
06421750	Rapid Creek tributary near Farmingdale	1.50	1970-79	Peak flow
06422000	Rapid Creek at Creston	710	1989-90 1929-32	Daily discharge Monthly discharge
06422395	Boxelder Creek at Benchmark, near Nemo	37.2	1972-73	Peak flow
06422398	Boxelder Creek at Nemo	Not determined	1978-80	Daily discharge
06422400	Estes Creek near Nemo	6.15	1969-72	Peak flow
06422500	Boxelder Creek near Nemo	96.0	1989*	Water quality/sediment
06422600	Boxelder Creek at Camp Columbus, near Nemo	Not determined	1978-80	Daily discharge
06422650	Boxelder Creek at Doty School, near Blackhawk	Not determined	1978-80	Daily discharge
06423000	Boxelder Creek at Blackhawk	128	1903-06, 1945-47	Monthly discharge
06423250	Boxelder Creek tributary at New Underwood	.14	1970-73	Peak flow
06423400	Bull Creek tributary near Wall	.39	1970-78	Peak flow
06423500	Cheyenne River near Wasta	12,800	1956-57, 1983-84*	Water quality/sediment
06424500	Elk Creek above Piedmont	49	1945-47	Monthly discharge
06428500	Belle Fourche at Wyoming-South Dakota State line	3,280	1966-85*	Water quality/sediment
06429000	Belle Fourche River at Belle Fourche	3,360	1903-06	Monthly discharge
06430000	Murray Ditch at Wyoming-South Dakota State line		1954-87	Daily discharge

DISCONTINUED SURFACE-WATER STATIONS

Station number	Station name	Contributing drainage area (mi ²)	Period of record for discontinued activity (water years)	Type of record discontinued
06430500	Redwater Creek at Wyoming-South Dakota State line	471	1969-70*	Water quality/sediment
06430540	Cox Lake Outlet near Beulah, WY	.07	1991-95	Daily discharge
06430770	Spearfish Creek near Lead	63.5	1989* 1998	Water quality/sediment Peak flow
06430800	Annie Creek near Lead	3.55	1989-93*	Water quality/sediment
06430850	Little Spearfish Creek near Lead	25.8	1989 1999*	Water quality/sediment Peak flow
06430865	Iron Creek near Lead	Not determined	1989	Water quality/sediment
06430898	Squaw Creek near Spearfish	6.95	1989-92* 1989-98	Water quality/sediment Daily discharge
06430900	Spearfish Creek above Spearfish	139	1989 1998-2001*	Water quality/sediment Peak flow
06430950	Spearfish Creek below Robinson Gulch, near Spearfish	Not determined	1989-92	Water quality/sediment
06431000	Spearfish Creek near Spearfish	157	1904-07	Monthly discharge
06432000	Spearfish Creek at Toomey Ranch, near Spearfish	179	1903	Monthly discharge
06432020	Spearfish Creek below Spearfish	204	1989* 1989-98	Water quality/sediment Daily discharge
06432200	Polo Creek near Whitewood	10.3	1956-73	Peak flow
06432230	Miller Creek near Whitewood	6.72	1956-68	Peak flow
06432250	Polo Creek tributary near Whitewood	.06	1956-67	Peak flow
06432500	Redwater Canal at Minnesala	--	1903-06	Monthly discharge
06433500	Hay Creek at Belle Fourche	121	1954-96	Daily discharge
06434000	Redwater Creek at Belle Fourche	1,020	1903-06	Monthly discharge
06434500	Inlet Canal near Belle Fourche	--	1945-94 1969-94	Daily discharge Water quality/sediment
06434800	Owl Creek tributary near Belle Fourche	3.06	1970-79	Peak flow
06435500	Belle Fourche River near Belle Fourche	4,310	1904-05	Monthly discharge
06436000	Belle Fourche River near Fruitdale	4,540	1983-84*	Water quality/sediment
06436150	Whitewood Creek above Lead	Not determined	1983-84	Water quality/sediment
06436156	Whitetail Creek at Lead	6.15	1989-94* 1989-98	Water quality/sediment Daily discharge
06436170	Whitewood Creek at Deadwood	40.6	1981-95	Daily discharge
06436190	Whitewood Creek near Whitewood	77.4	1983-84*	Water quality/sediment
06436210	Belle Fourche River below Whitewood, near Vale	Not determined	1951	Water quality/sediment
06436250	Belle Fourche River at Vale	Not determined	1983-84	Water quality/sediment
06436500	Horse Creek near Newell	67	1962-69	Daily discharge
06436700	Indian Creek near Arpan	315	1962-81 1965, 1967	Daily discharge Water quality/sediment
06436760	Horse Creek above Vale	464	1988-91*	Water quality/sediment
06436770	Dry Creek tributary near Newell	.20	1970-74	Peak flow
06436800	Horse Creek near Vale	530	1962-80 1964-82	Daily discharge Water quality/sediment
06437000	Belle Fourche River near Sturgis	5,870	1954-58, 1969-98*	Water quality/sediment

DISCONTINUED SURFACE-WATER STATIONS

Station number	Station name	Contributing drainage area (mi ²)	Period of record for discontinued activity (water years)	Type of record discontinued
06437020	Bear Butte Creek near Deadwood	16.6	1989-90, 1992-93*	Water quality/sediment
06437100	Boulder Creek near Deadwood	1.32	1956-80	Peak flow
06437200	Bear Butte Creek near Galena	47.6	1965-69*	Daily discharge
06437500	Bear Butte Creek near Sturgis	192	1962-72* 1945-62	Daily discharge Peak flow
06437600	Belle Fourche River near Hereford	Not determined	1960	Water quality/sediment
06438000	Belle Fourche River near Elm Springs	7,210	1957-62, 1970-94*	Water quality/sediment
06438500	Cheyenne River near Plainview	21,600	1983-84*	Water quality/sediment
06439050	Cherry Creek tributary near Avance	.60	1956-80	Peak flow
06439060	Cherry Creek tributary No 2 near Avance	.11	1956-73	Peak flow
06439080	Cherry Creek tributary No 3 near Avance	4.58	1956-80	Peak flow
06439100	Beaver Creek near Faith	37.1	1956-80	Peak flow
06439300	Cheyenne River at Cherry Creek	23,900	1961-94 1971-95	Daily discharge Water quality/sediment
06439400	Plum Creek tributary near Milesville	.50	1970-79	Peak flow
06439430	Cottonwood Creek near Cherry Creek	120	1983-99	Daily discharge
06439500	Cheyenne River near Eagle Butte	24,500	1929-67 1950-53, 1973-81	Daily discharge Water quality/sediment
06440000	Missouri River at Pierre	243,500	1930-65, 1998-2000 1953-58, 1964, 1971-86, 1997-2000*	Daily discharge Water quality/sediment
06440200	South Fork Bad River near Cottonwood	250	1989-95*	Water quality/sediment
06440500	North Fork Bad River at Phillip	164	1938-44	Monthly discharge
06440700	Brady Creek tributary near Phillip	4.84	1970-78	Peak flow
06441000	Bad River near Midland	1,460	1950-51, 1956-57*	Water quality/sediment
06441110	Plum Creek below Hayes	252	1990-95*	Daily discharge and water quality/sediment
06441200	Powell Creek tributary near Fort Pierre	.40	1970-79	Peak flow
06441400	Willow Creek near Fort Pierre	102	1990	Daily discharge and water quality/sediment
06441530	Hilgers Gulch tributary near Pierre	1.33	1968-79	Peak flow
06441580	Hilgers Gulch at Pierre	6.49	1967-79	Peak flow
06441650	Mush Creek near Pierre	14.2	1956-80	Peak flow
06441670	Missouri River tributary near Pierre	.42	1956-74	Peak flow
06441750	Missouri River tributary near Canning	.20	1956-74	Peak flow
06442000	Medicine Knoll Creek near Blunt	317	1951-90 1991-97	Daily discharge Peak flow
06442050	Missouri River tributary near De Grey	1.73	1956-80	Peak flow
06442350	North Fork Medicine Creek near Vivian	47.0	1956-80	Peak flow
06442380	Medicine Creek tributary near Vivian	.30	1956-73	Peak flow
06442400	Medicine Creek tributary No 2 near Vivian	9.21	1956-80	Peak flow
06442500	Medicine Creek at Kennebec	464	1955-90*	Daily discharge

DISCONTINUED SURFACE-WATER STATIONS

Station number	Station name	Contributing drainage area (mi ²)	Period of record for discontinued activity (water years)	Type of record discontinued
06442850	Elm Creek tributary near Ree Heights	.70	1969-79	Peak flow
06442900	Elm Creek near Gann Valley	381	1988-99	Daily flow
06442950	Crow Creek near Gann Valley	670	1972-84	Daily discharge
06442960	Smith Creek tributary near Gann Valley	5.85	1972-80	Peak flow
06443000	Missouri River at Chamberlain	250,800	1945-54 1882, 1908-29	Daily discharge Monthly discharge
06445700	White River at Slim Butte	1,500	1962-70, 1991-97 1965-67	Daily discharge Water quality/sediment
06445980	White Clay Creek near Oglala	340	1966-81, 1988-99*	Daily discharge
06445990	South Fork Blacktail Creek tributary near Oelrichs	3.60	1969-79	Peak flow
06446000	White River near Oglala	340	1950-51*	Water quality/sediment
06446100	Wounded Knee Creek at Wounded Knee	82.5	1992-97*	Daily discharge
06446200	White River near Rockyford	3,000	1964-70 1971-73 1965-67	Daily discharge Peak flow Water quality/sediment
06446250	Porcupine Creek tributary near Rockyford	1.65	1968, 1970-79	Peak flow
06446300	Big Hollow Creek tributary near Scenic	2.71	1968, 1970-76	Peak flow
06446400	Cain Creek tributary at Imlay	15.8	1956-80	Peak flow
06446430	White River tributary near Conata	.17	1956-58, 1960-73	Peak flow
06446500	White River near Interior	4,120	1904-06, 1912-18, 1928-32, 1939-42	Monthly discharge
06446550	White River tributary near Interior	.32	1956-80	Peak flow
06446800	Cottonwood Creek near Wanblee	1.7	1971-79	Peak flow
06447000	White River near Kadoka	5,000	1950-51*	Water quality/sediment
06447200	Blackpipe Creek tributary near Norris	4.19	1971-79	Peak flow
06447490	Little White River tributary near Martin	8.9	1971-80	Peak flow
06448500	Elm Creek near Tuthill	10	1938-40	Monthly discharge
06449100	Little White River near Vetala	415	1986-89*	Water quality/sediment
06449250	Spring Creek near St. Francis	10.0	1960-74	Daily discharge
06449300	Little White River above Rosebud	630	1982-99	Daily discharge
06449400	Rosebud Creek at Rosebud	50.8	1975-97	Daily discharge
06449700	Little Oak Creek near Mission	2.58	1956-80	Peak flow
06449750	West Branch Horse Creek near Mission	6.31	1956-70	Peak flow
06449800	Little (South Fork) White River tributary near White River	9.50	1956-67	Peak flow
06450000	Little (South Fork) White River at White River	1,420	1929-32, 1938-40	Monthly discharge
06450500	Little White River below White River	1,310	1951-58*	Water quality/sediment
06451000	Little (South Fork) White River near Westover	1,640	1913-18	Monthly discharge
06451500	White River at Westover	7,850	1913-18	Monthly discharge
06451750	Cottonwood Creek tributary near Winner	4.00	1971-80	Peak flow
06452000	White River near Oacoma	9,940	1946-53, 1969, 1972-95*	Water quality
06452250	Fivemile Creek tributary near Iona	2.35	1970-79	Peak flow

DISCONTINUED SURFACE-WATER STATIONS

Station number	Station name	Contributing drainage area (mi ²)	Period of record for discontinued activity (water years)	Type of record discontinued
06452278	Lake Francis Case (Ft. Randall Reservoir) near Platte		1989-98	Daily stage
06452330	Campbell Creek near Geddes	8.37	1989-93	Peak flow
06452392	Lake Andes near Lake Andes	--	1983-86, 1988-89	Water quality/sediment
06452410	Lake Andes below Lake Andes	--	1986-88	Water quality/sediment
06453000	Missouri River at Fort Randall Dam	263,500	1947-87*	Daily discharge
06453007	Missouri River above Greenwood	Not determined	1989	Stage
06453010	Missouri River at Greenwood	Not determined	1957-85, 1988	Stage
06453150	Choteau Creek tributary near Tripp	.54	1970-79	Peak flow
06453250	Choteau Creek tributary near Wagner	15.6	1970-79*	Peak flow
06463950	Rock Creek tributary near Olsonville	8.1	1970-76	Peak flow
06464000	Keya Paha River near Hidden Timber	320	1948-53	Daily discharge
06464100	Keya Paha River near Keyapaha	466	1991*	Water quality/sediment
06467500	Missouri River at Yankton	279,500	1931-95* 1957-59, 1971-72*	Daily discharge Water quality/sediment
06470980	James River near Hecla	2,188	1983-90 1985	Daily stage Water quality/sediment
06470985	Mud Lake near Houghton	--	1985-88	Water quality
06470988	Sand Lake Bay site near Houghton	--	1988-89	Water quality
06470990	Sand Lake open water site near Columbia	--	1989-93	Water quality
06470991	Sand Lake Bay site #2 near Houghton	--	1989-93	Water quality
06470992	Sand Lake near Columbia	--	1985-93	Water quality
06471000	James River at Columbia	2,481	1958, 1960-64, 1967-93*	Water quality/sediment
06471050	Elm River tributary near Leola	18.0	1956-80	Peak flow
06471350	Maple River at Frederick	423	1956-69	Peak flow
06471400	Willow Creek tributary near Leola	6.69	1956-80	Peak flow
06471450	Willow Creek tributary near Barnard	.26	1956-76	Peak flow
06471550	James River below Columbia	3,573	1989-94	Daily discharge
06471750	Snake Creek tributary near Leola	4.49	1971-78	Peak flow
06471898	Moccasin Creek near Warner	304	1976-80	Daily discharge
06471900	Moccasin Creek near Nahon	Not determined	1960-62	Water quality/sediment
06472000	James River near Stratford	4,860	1950-72, 1977 1995, 1997*	Daily discharge Peak flow
06472200	Mud Creek tributary near Groton	56.7	1960-69, 1974-80	Peak flow
06472250	Mud Creek tributary No. 2 near Groton	75.8	1960-80	Peak flow
06472500	Mud Creek near Stratford	674	1955-69, 1977 1970-73	Daily discharge Peak flow
06473000	James River at Ashton	5,673	1978-90*	Water quality/sediment
06473350	South Fork Snake Creek tributary near Seneca	4.54	1971-80	Peak flow
06473400	North Fork Snake Creek tributary near Wecota	2.69	1971-79	Peak flow
06473500	South Fork Snake Creek near Athol	1,695	1950-72 1973	Daily discharge Peak flow

DISCONTINUED SURFACE-WATER STATIONS

Station number	Station name	Contributing drainage area (mi ²)	Period of record for discontinued activity (water years)	Type of record discontinued
06473700	Snake Creek near Ashton	2,609	1956-69, 1985-89 1970-72, 1977-79 1985-87 1997	Daily discharge Peak flow Water quality/sediment Peak flow
06473750	Wolf Creek near Ree Heights	334	1960-81, 1985-89	Daily discharge
06473800	Matter Creek tributary near Orient	5.41	1956-71	Peak flow
06473820	Shaefer Creek near Orient	51.3	1956-80	Peak flow
06473850	Shaefer Creek tributary near Orient	5.17	1956-80	Peak flow
06473880	Shaefer Creek tributary near Miller	5.95	1956-80	Peak flow
06474000	Turtle Creek near Tulare	1,124	1953-56, 1965-81, 1985-89* 1985-87	Daily discharge Daily discharge Water quality/sediment
06474300	Medicine Creek near Zell	202	1960-81, 1985-89 1985-87	Daily discharge Water quality/sediment
06474500	Turtle Creek at Redfield	1,481	1946-72 1960-65 1997	Daily discharge Water quality/sediment Peak flow
06475000	James River near Redfield	9,793	1950-90 1991-97*	Daily discharge Peak flow
06475500	Dry Run near Frankfort	201	1955-69 1970-78	Daily discharge Peak flow
06475550	Dry Run tributary near Frankfort	4.19	1967-79	Peak flow
06475950	Shue Creek tributary near Yale	6.90	1968-79	Peak flow
06476000	James River at Huron	11,721	1929-32, 1949-52, 1956-93*	Monthly discharge Water quality/sediment
06476050	James River at 21st Street bridge, at Huron	Not determined	1973	Water quality/sediment
06476500	Sand Creek near Alpena	261	1950-89 1990-97	Daily discharge Peak flow
06477140	Rock Creek tributary near Roswell	5.67	1970-79	Peak flow
06477150	Rock Creek near Fulton	240	1966-72 1973-79*	Daily discharge Peak flow
06477400	Firesteel Creek tributary near Wessington Springs	.22	1968-79	Peak flow
06478000	James River near Mitchell	14,916	1967-72 1995, 1997*	Water quality/sediment Peak flow
06478050	Enemy Creek tributary near Mount Vernon	3.38	1969-79	Peak flow
06478052	Enemy Creek near Mitchell	163	1976-87* 1981-93	Daily discharge Sediment
06478053	Pierre Creek near Alexandria	78.7	1982-83	Daily discharge
06478200	Coffee Creek tributary near Parkston	.81	1968-79	Peak flow
06478250	North Branch Dry Creek tributary near Parkston	3.19	1956-67	Peak flow
06478260	North Branch Dry Creek near Parkston	54.1	1956-78	Peak flow
06478280	South Branch Dry Creek near Parkston	25.8	1956-80	Peak flow
06478300	Dry Creek near Parkston	97.2	1956-80, 1989-97	Peak flow
06478320	Plum Creek near Milltown	55.2	1982-83	Daily discharge and water quality/sediment
06478390	Wolf Creek near Clayton	396	1976-88*	Daily discharge

DISCONTINUED SURFACE-WATER STATIONS

Station number	Station name	Contributing drainage area (mi ²)	Period of record for discontinued activity (water years)	Type of record discontinued
06478400	Lonetree Creek tributary near Kaylor	3.65	1970-79	Peak flow
06478420	Lonetree Creek at Olivet	110	1982-83	Daily discharge and water quality/sediment
06478500	James River near Scotland	16,505	1956-64, 1967-73, 1975-95*	Water quality/sediment
06478513	James River near Yankton	16,794	1982-95*	Daily discharge
06478514	Beaver Creek near Yankton	145	1982-83	Daily discharge and water quality/sediment
06478530	Lake Thompson near Oldham	472	1989-95	Daily stage
06478533	Lake Thompson near Ramona	494	1987-88	Daily stage
06478630	West Fork Vermillion River near De Smet	5.34	1970-79	Peak flow
06478650	West Fork Vermillion River tributary near Monroe	2.74	1969-79	Peak flow
06478800	Saddlerock Creek near Canton	13.0	1956-78	Peak flow
06478820	Saddlerock Creek tributary near Beresford	2.22	1956-80	Peak flow
06478840	Saddlerock Creek near Beresford	23.1	1956-70, 1972-80	Peak flow
06478950	Ash Creek near Beresford	5.00	1969-79	Peak flow
06479000	Vermillion River near Wakonda	1,676	1952-83* 1945-51 1967-72	Daily discharge Monthly discharge Water quality/sediment
06479020	Smoky Run near Irene	4.96	1969-79	Peak flow
06479136	Pickeral Lake outflow near Grenville	35.7	1999-2001	Daily discharge
06479142	Campbell Slough outflow near Waubay	48.4	1999-2001	Daily discharge
06479167	Little Rush Lake outflow near Waubay	293	1999-2001*	Daily discharge
06479200	Big Sioux River near Ortley	53.8	1956-68	Peak flow
06479230	Big Sioux River tributary near Summit	1.27	1956-67	Peak flow
06479240	Big Sioux River tributary No. 2 near Summit	.26	1956-73	Peak flow
06479260	Big Sioux River tributary No. 3 near Summit	6.61	1956-78	Peak flow
06479350	Soo Creek tributary near South Shore	1.56	1970-79	Peak flow
06479370	Big Sioux River tributary near Wallace	.50	1969-74	Peak flow
06479430	Still Lake outflow near Florence	224	1996-2001	Daily discharge
06479450	Lake Kampeska (inlet/outlet) near Watertown	28.8	1994-2000 1994-2001	Daily discharge Daily stage
06479500	Big Sioux River at Watertown	350	1946-72 1973-79 1997*	Daily discharge Water quality/sediment Peak flow
06479515	Willow Creek near Watertown	110	1972-86 1972-74 1997*	Daily discharge Water quality/sediment Peak flow
06479529	Stray Horse Creek near Castlewood	74.5	1969-85 1972-74	Daily discharge Water quality/sediment
06479550	Dolph Creek tributary near Lake Norden	5.91	1970-79	Peak flow
06479640	Hidewood Creek near Estelline	164	1969-85* 1972-74	Daily discharge Water quality/sediment
06479750	Peg Munky Run near Estelline	25.2	1956-80	Peak flow

DISCONTINUED SURFACE-WATER STATIONS

Station number	Station name	Contributing drainage area (mi ²)	Period of record for discontinued activity (water years)	Type of record discontinued
06479800	North Deer Creek near Estelline	48.3	1956-80	Peak flow
06479810	North Deer Creek tributary near Brookings	.33	1969-79	Peak flow
06479900	Sixmile Creek tributary near Brookings	9.78	1956-76	Peak flow
06479910	Sixmile Creek near Brookings	54	1971-80 1972-74	Daily discharge Water quality/sediment
06479928	Battle Creek near Nunda	158	1988-97 1988-89	Daily discharge Sediment
06479950	Deer Creek near Brookings	4.04	1956-80	Peak flow
06479980	Medary Creek near Brookings	200	1981-90*	Daily discharge
06480400	Spring Creek near Flandreau	63.2	1983-93	Daily discharge
06480500	Big Sioux River near Flandreau	Not determined	1929-32	Daily discharge
06480650	Flandreau Creek above Flandreau	100	1982-91*	Daily discharge
06480720	Bachelor Creek tributary near Wentworth	1.03	1969-79	Peak flow
06481000	Big Sioux River near Dell Rapids	3,004	1960-62, 1968-84*	Water quality/sediment
06481489	West Branch Skunk Creek near Hartford	80.5	1985-86	Daily discharge
06481500	Skunk Creek at Sioux Falls	613	1967-69, 1971-74 1949-2001*	Water quality/sediment Daily discharge
06482000	Big Sioux River at Sioux Falls	3,710	1944-60	Daily discharge
06482100	Big Sioux River at Brandon	3,774	1960-72 1967, 1970-72	Daily discharge Water quality/sediment
06482600	West Pipestone Creek tributary near Garretson	2.16	1969-79	Peak flow
06482610	Split Rock Creek at Corson	464	1972-74 1990-97*	Water quality/sediment Peak flow
06482700	Split Rock Creek near Brandon	Not determined	1967-69	Water quality/sediment
06482830	Beaver Creek near Canton	Not determined	1967, 1971-74	Water quality/sediment
06482848	Beaver Creek at Canton	124	1983-89*	Daily discharge
06482870	Little Beaver Creek tributary near Canton	.31	1956-73	Peak flow
06482875	Big Sioux River near Hudson	Not determined	1973	Water quality/sediment
06485550	West Union Creek near Alcester	3.48	1969-79	Peak flow
06485696	Brule Creek near Elk Point	204	1983-94	Daily discharge

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with Federal, State, and local agencies, obtains a large amount of data pertaining to the water resources of South Dakota each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - South Dakota."

This report includes records on both surface and ground water in the State. Specifically, it contains: (1) Discharge records for 127 streamflow-gaging stations; (2) stage and contents records for 10 lakes and reservoirs, stage for 14 stream sites and 3 lakes; (3) water-quality records for 6 streamflow-gaging stations, 2 daily sediment stations, 3 wells, 10 ungaged stream sites, 6 lakes, 1 sewage lagoon, and 1 precipitation site; (4) water levels for 7 wells; (5) precipitation records at 4 sites; and (6) 74 partial-record crest-stage gage stations. Locations of these sites are shown in figures 4, 5, and 6. Miscellaneous hydrologic data were collected at 80 measuring sites not involved in the systematic data-collection program. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey.

This series of annual reports for South Dakota began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for South Dakota were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 6A and 6B." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above-mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from the Books and Open-File Reports Section, Federal Center, Box 25425, Denver Colorado 80225.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report SD-02-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. Additional information, including current prices, for ordering

specific reports may be obtained from the District Chief at the address given on back of title page or by telephone (605) 355-4560.

COOPERATION

The U.S. Geological Survey and agencies of the State of South Dakota have had cooperative agreements for the collection of surface-water records since 1914, for ground-water levels since 1935, and for water-quality since 1947. Organizations that assisted in collecting the data in this report through cooperative agreements with the Survey are: South Dakota Department of Environment and Natural Resources; South Dakota Department of Transportation; South Dakota Department of Game, Fish and Parks; East Dakota Water Development District; James River Water Development District; Vermillion Basin Water Development District; West Dakota Water Development District; West River Water Development District; City of Aberdeen; City of Huron; City of Rapid City; City of Watertown; City of Sioux Falls; City of Castlewood; Custer County; Codington County; Pennington County; Lawrence County; Meade County; Rapid Valley Water Conservation District; Angostura Irrigation District; Belle Fourche Irrigation District; Lake Kampeska Water Project District; State of Wyoming; and Minnesota Area II River Basin Projects, Inc..

Assistance in the form of funds or services was given by the U.S. Army Corps of Engineers; U.S. Department of Agriculture, U.S. Forest Service; U.S. Department of Interior, U.S. Fish and Wildlife Service, National Park Service, Bureau of Indian Affairs, Bureau of Reclamation, Bureau of Land Management; U.S. Geological Survey, EROS Data Center; Rosebud Sioux Tribe, Sisseton-Wahpeton Sioux Tribe, Standing Rock Sioux Tribe, Ogalalla Sioux Tribe, Yankton Sioux Tribe, and Lower Brule Sioux Tribe. Organizations that supplied data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

By R.W. Teller, L.D. Putnam, and K.M. Neitzert

Hydrologic conditions for water year 2002 were markedly different than the previous 8 years. Precipitation and streamflows generally were well below normal especially in the northwest part of the State. This followed 1993, 1995, 1997, and 2001 flooding, when several streamflow-gaging stations had peaks exceeding the 100-year recurrence interval. Below-normal precipitation patterns in the northeast part of the State reversed a trend that had prevailed for the past several years. In the Northeast, the levels of some lakes have risen by nearly 24 feet since 1992. Despite decreased precipitation within the Waubay Lakes Chain in Day County, Bitter Lake rose another 1.7 feet to an elevation of 1,796.6 feet on September 17, which is about 23.8 feet higher than the lake elevation of 1,772.8 feet that existed in September 1992. This rise is attributed almost entirely to inflows from Rush Lake. Waubay Lake dropped to an elevation of about 1,800.4 feet on September 17. This is attributed to a combination of below-normal precipitation and reduced outflows from the upper Waubay Lake system via Rush Lake into Bitter Lake. Precipitation at the Waubay National Wildlife Refuge station during April-September of 2002 was down to 16.62 inches, compared to 17.24 inches during the same period in 2001. The level of Lake Oahe on the Missouri River on September 30, 2002, was 16.6 feet lower than at the same time in 2001.

Table 1. Cumulative precipitation and departures from normal¹, in inches

National Weather Service Division ²	October-December		October-March		October-June		October-September	
	Precipitation	Departure from normal	Precipitation	Departure from normal	Precipitation	Departure from normal	Precipitation	Departure from normal
Northwest	1.06	-.91	2.15	-1.48	5.40	-5.98	9.46	-6.56
North Central	1.80	-.28	2.80	-1.11	5.96	-5.80	12.58	-4.74
Northeast	2.75	.24	3.88	-.80	9.82	-2.98	18.45	-1.51
Black Hills	2.38	-.50	5.13	-.51	11.03	-4.47	18.64	-3.10
Southwest	1.79	-.23	3.46	-.36	7.78	-3.95	13.26	-.355
Central	2.30	.20	3.55	-.48	7.03	-4.72	13.87	-3.63
East Central	3.13	.14	5.30	-.19	11.22	-2.97	19.47	-2.17
South Central	2.93	.42	4.53	-.30	9.02	-4.82	14.96	-5.64
Southeast	4.40	1.17	5.85	-.04	11.36	-3.99	20.82	-2.61

¹Based on data from 1961 to 1990.²Shown in figure 1.

Precipitation

Precipitation for the water year generally was below normal in all of the State's nine National Weather Service divisions shown in table 1. Cumulative precipitation was below normal at the end of all four quarters of the water year in four of the nine divisions. Cumulative precipitation for the nine divisions for water year 2002 ranged from 9.46 inches in the Northwest to 20.82 inches in the Southeast. Departures ranged from -6.56 inches below normal in the Northwest to -1.51 inches below normal in the Northeast.

Surface Water

Annual streamflow for water year 2002, as recorded at five representative gaging stations, averaged about 89 percent of the long-term median (normal) streamflow. Annual streamflow ranged from 132 percent of the median for Castle Creek above Deerfield Reservoir, near Hill City, to 6.3 percent of the median for the Moreau River near Whitehorse. Monthly and annual streamflow for water year 2002 are compared with the maximum, minimum, and selected percentiles in figure 1 for the five representative gaging stations.

Streamflow at only one of the five representative gaging stations was consistently greater than normal during water year 2002. Monthly mean flows for Castle Creek above Deerfield Reservoir, near Hill City, were above normal for all months of the year. Monthly mean flows for the Moreau River near Whitehorse were near normal through February and then declined significantly in March. During July, August, and the last 20 days of June there was no flow. The annual mean of 8.85 ft³/s for this site was the second lowest on record. Monthly values for the White River near Oacoma were above or near normal from October through May and September. June, July, and August were significantly below normal. Streamflow for water year 2002 at the James River near Scotland was above normal from October through February and August through September. March through July were below normal. Monthly values for the Big Sioux River at Akron, Iowa, were significantly above normal from October through February, and near normal the rest of the year. Peak flows for the five representative gaging stations are shown in table 2. Peak flow during water year 2002 did not exceed the previous recorded maximum at any of the five stations.

Table 2. Comparison of water year 2002 peak streamflow to peak for long-term period

[ft³/s, cubic feet per second]

Gaging-station number and name			Long-term period used for frequency analysis (water years)	Peak streamflow					
				Water year 2002			Long-term period		
				Peak (ft ³ /s)	Date	Recurrence interval (years)	Peak	Date	Recurrence interval (years)
06360500	Moreau River near Whitehorse	1955-2001	159	09-01-02	<2	29,700	03-23-97	60	
06409000	Castle Creek above Deerfield Reservoir, near Hill City	1949-2001	388	03-09-02	30	1,120	05-22-52	>100	
06452000	White River near Oacoma	1929-2001	4,600	05-05-02	<2	51,900	03-30-52	80	
06478500	James River near Scotland	1929-2001	943	04-01-02	<2	29,400	06-23-84	70	
06485500	Big Sioux River at Akron, Iowa	1929-2001	3,660	04-02-02	<2	80,800	04-09-69	>100	

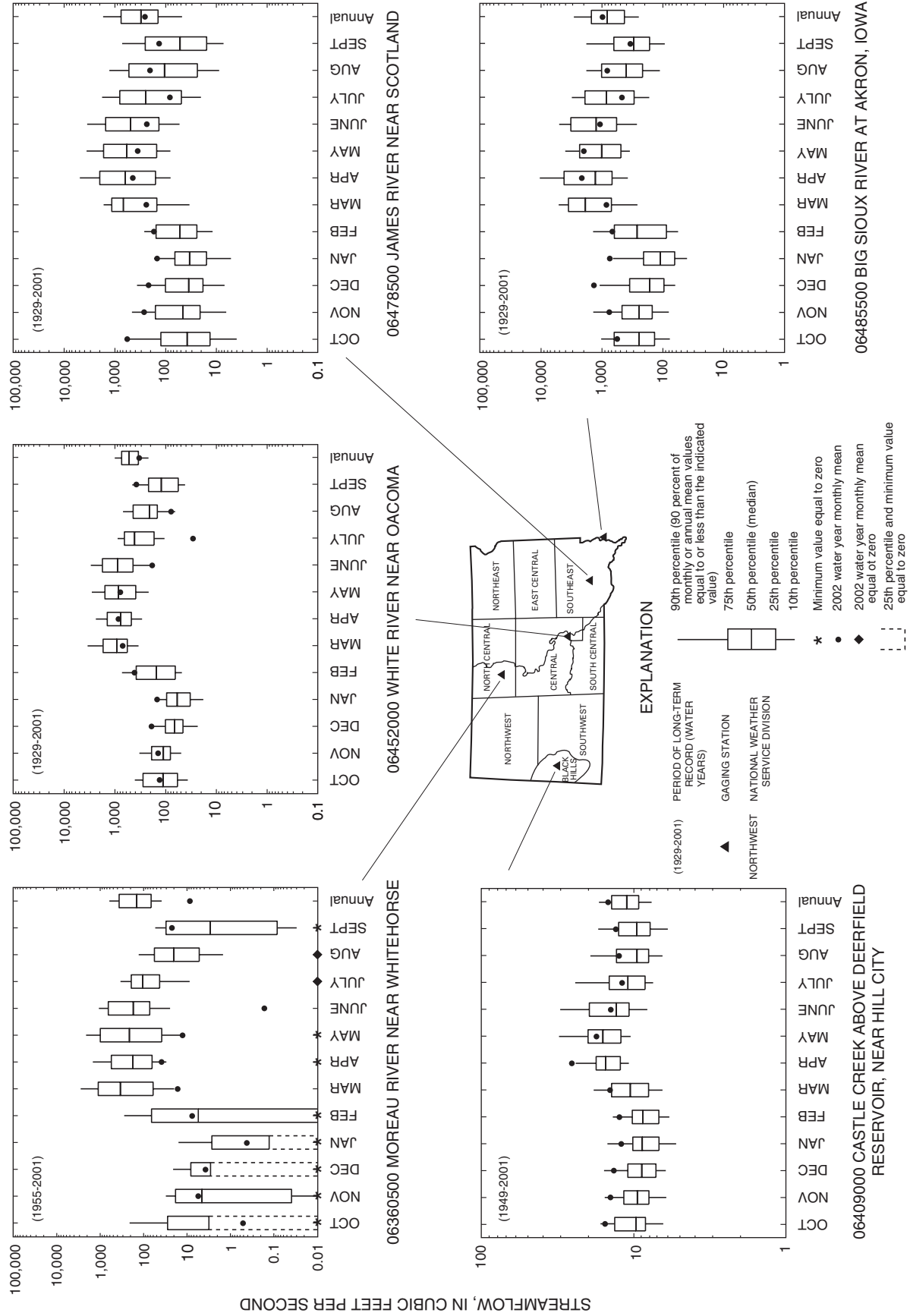


Figure 1. Comparison of 2002 monthly and annual means to long-term distributions of monthly and annual mean flows at five representative gaging stations.

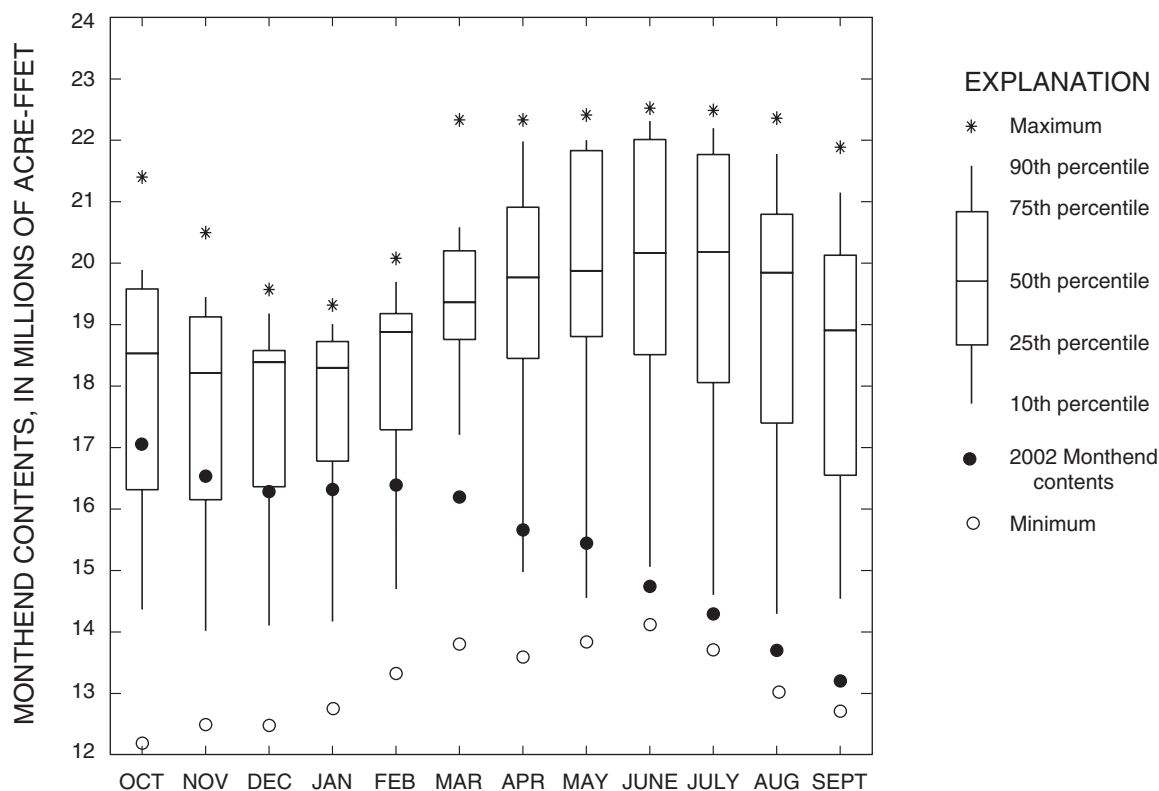


Figure 2. Comparison of monthend contents of Lake Oahe for water year 2002 with distributions of monthend contents for water years 1969-2001.

Combined storage in the four Missouri River reservoirs (Lakes Oahe, Sharpe, Francis Case, and Lewis and Clark) was 18,406,000 acre-feet on September 30, 2002, a decrease of 4,620,000 acre-feet during water year 2002. The maximum reservoir content for Lake Oahe of 22,764,000 acre-feet was recorded on May 14, 1986, and the maximum content for water year 2002 was 17,441,000 acre-feet on Oct. 1. The highest monthend content for Lake Oahe was 16,978,000 acre-feet on Oct. 31, or 5,575,000 acre-feet less than the record of 22,553,000 acre-feet, which occurred on June 30, 1996. In figure 2, monthend contents for water year 2002 are compared to the distribution of monthend contents since Lake Oahe first reached its normal maximum pool level in 1968.

Water Quality

Specific conductance measurements of surface-water samples collected during water year 2002 for five selected stations are compared to measurements in previous years using boxplots (fig. 3). Because specific conductance varies similarly to dissolved solids concentration, it provides a general indication of the total ionic concentration of a water sample.

Boxplots are a useful graphical technique to display water-quality data because they display the central tendency, variation, and skewness of a data set, as well as the presence or absence of unusual values. A boxplot consists of a centerline (the median) dividing a rectangle defined by the 75th and 25th percentiles. Whiskers are drawn from the ends of the box (75th and 25th percentiles) to the most extreme observation within 1.5 times the interquartile range

(the distance from the 25th to the 75th percentile values) beyond the ends of the box. Values more than 1.5 interquartile ranges from the box ends are unusual and may indicate extreme hydrologic and chemical conditions or sampling and analytical errors. Observations from 1.5 to 3 interquartile ranges from the box in either direction are plotted individually with an asterisk. Observations greater than three interquartile ranges from the ends of the box are plotted with an open circle. Water year 2002 values are plotted with a closed circle to show where these data lie with respect to the historic distribution of data. The small numbers located near the month represent the total number of samples measured during that specific month over the period of record.

The boxplots of specific conductance for selected South Dakota stations (fig. 3) generally illustrate an inverse relation with discharge (fig. 1). Smaller median specific conductance measurements generally occur during months that have larger mean discharges. Larger median specific conductance measurements generally occur during months that have smaller mean discharges. Of the five selected stations shown in figure 3, the inverse relation between discharge and specific conductance is especially strong for the Moreau River near Whitehorse, the James River near Scotland, and the Big Sioux River at Akron, Iowa; not as strong for the White River near Oacoma, and may not hold true during some years; and generally does not hold true for Castle Creek above Deerfield Reservoir, near Hill City.

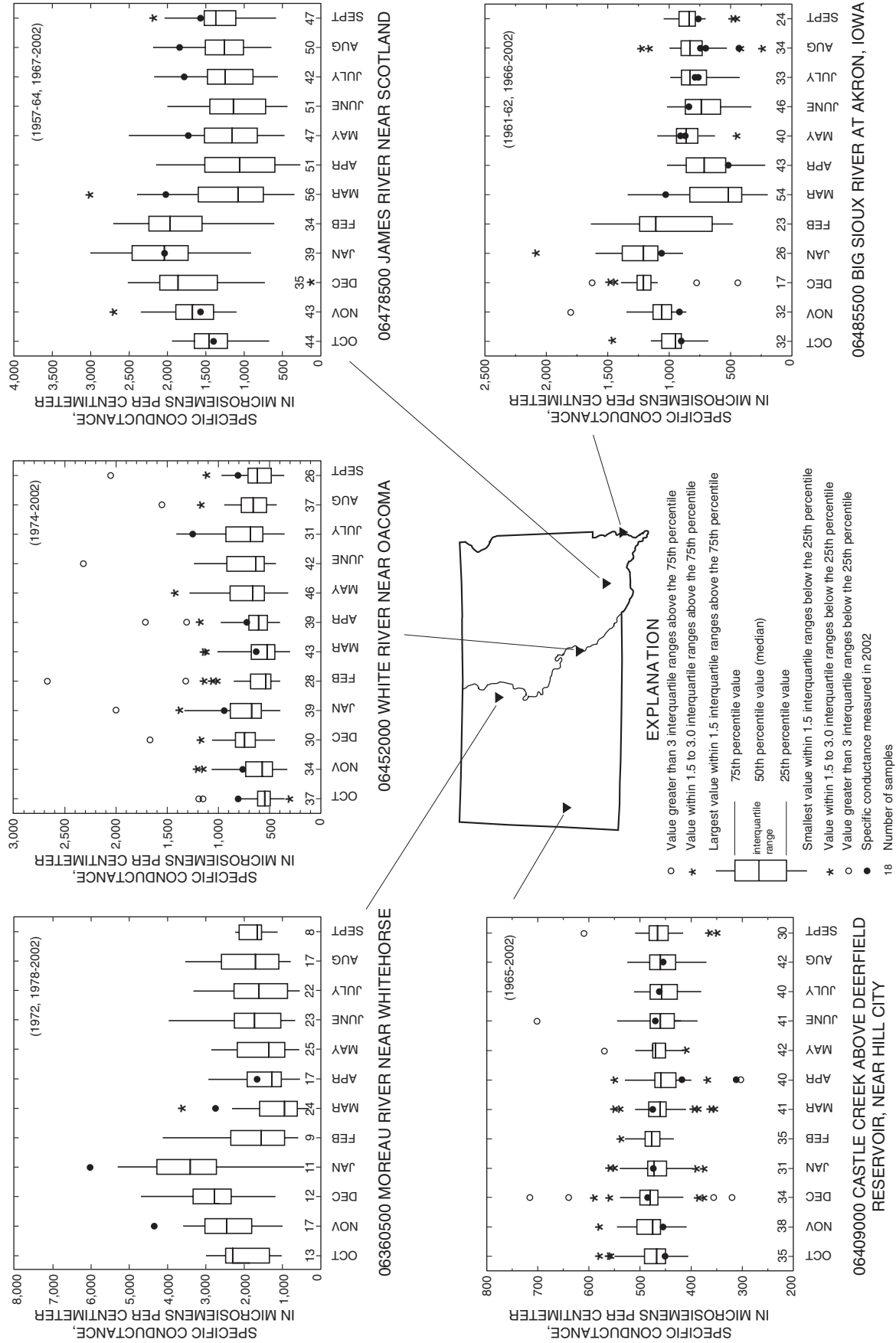


Figure 3. Comparison of 2002 specific conductance measurements to the distributions of long-term monthly values.

Some of the sites show seasonal differences in the variability of specific conductance measurements. At some sites during some years, the discharge remains at base flow during the winter and into the spring. During other years, the base flow during this period may be diluted by the melting of ice and snow and by seasonal precipitation. This may explain the large variability of specific conductance measurements at some sites during the winter and spring months. Small variability in specific conductance measurements often occurs during the months of August through November when base-flow conditions may occur.

Specific conductance measurements at the five selected stations ranged from as little as 312 microsiemens per centimeter for the April sample at the station Castle Creek above Deerfield Reservoir, to as much as 6,030 microsiemens per centimeter for the January sample at the station on the Moreau River near Whitehorse.

For the three selected stations west of the Missouri River, patterns of specific conductance measurements were variable and generally were associated with variable streamflow conditions during most of water year 2002. The station on Castle Creek above Deerfield Reservoir, near Hill City probably is representative of small streams draining the Black Hills that have flows dominated by ground-water discharge. There is very little variability in specific conductance measurements at this site due to the large contribution of ground-water discharge to the streamflow. Long-term monthly specific conductance medians range from about 455 microsiemens per centimeter for July to about 480 microsiemens per centimeter for December, a difference of only 25 microsiemens per centimeter. Because there is little variability in long-term specific conductance measurements at this site, unusually large or small measurements in a given year may appear as very extreme values relative to the long-term distributions, even though the differences between the measurements and the long-term medians are relatively small in terms of specific conductance units. During fall and winter months in water year 2002, specific conductance measurements were within 5 percent of long-term medians, and were made during much-above-normal base-flow conditions. During spring and summer months, specific conductance measurements generally were within 5 percent of the long-term medians, and generally were made during above-normal to much-above-normal base-flow conditions. The notable exceptions to this pattern were the April specific conductance measurements. The April 10 specific conductance measurement was near the record-low value and was made near the peak of a large runoff event; the April 12 specific conductance measurement was below the 25th percentile, and was made on the falling limb of this large runoff event.

The Moreau River near Whitehorse station probably is representative of moderately large basins draining the Great Plains physiographic region (Fenneman, 1946) in northwestern South Dakota. During fall and winter months in water year 2002, the specific conductance measurements were much above normal, and were generally made during near-normal to above-normal streamflow conditions. The November 13 specific conductance measurement was a record-high value for the month of November and was made on the rising limb of a small streamflow event, following an extended period of near-zero flow; the January 7 specific conductance measurement was a record-high value for the month of January and was associated with near-zero base-flow conditions. During spring months, specific conductance measurements were greater than long-term median values and were associated with below-normal streamflow conditions.

The White River near Oacoma station probably is representative of large streams draining the Great Plains physiographic region in southwestern South Dakota that also are influenced by the Sand Hills region of Nebraska. During fall and winter months in water year 2002, specific conductance measurements generally were greater than long-term 75th percentiles and generally were associated with near-normal to above-normal base-flow conditions. During spring and summer months, specific conductance measurements were near or above the 75th percentile and generally were associated with below-normal streamflow conditions. The notable exception to this pattern was the September 13 specific conductance measurement that was above the 75th percentile, but was made near the peak of a large runoff event that occurred following an extended period of below-normal streamflows.

The two selected stations east of the Missouri River (the James River near Scotland and the Big Sioux River at Akron, Iowa) probably are representative of large rivers draining the Central Lowlands physiographic region in eastern South Dakota. For the James River near Scotland station, water year 2002 fall and winter specific conductance measurements generally were near the long-term medians, and were associated with above-normal streamflow conditions. During spring and summer months, the specific conductance measurements were much above the long-term medians, and generally were associated with below-normal to near-normal streamflow conditions.

For the Big Sioux River at Akron station, water year 2002 fall and winter specific conductance measurements were below long-term medians and were associated with above-normal base-flow conditions. During spring and summer months, the specific conductance measurements were varied and were associated with varied streamflow conditions. During early spring, the March 25 specific conductance measurement was above the 75th percentile and was made during below-normal streamflow conditions; the April 4 specific conductance measurement was near the 25th percentile and was made near the peak of a large streamflow event. During late spring, specific conductance measurements generally were above the 50th percentile and were associated with near-normal streamflow conditions. The summer specific conductance measurements were below the long-term median values. The August 22 and 23 specific conductance measurements were below the 25th percentile and were made on the rising limb of a large streamflow event. The September 19 specific conductance measurement was below the 25th percentile and was made on the falling limb of a runoff event.

Ground Water

During water year 2002, the U.S. Geological Survey participated with other Federal, State, and local agencies in monitoring trends in ground-water levels and selected water-quality data for about 2,000 wells in the State as part of the observation-well network and various site-specific studies. These key measurements are useful for observing short- and long-term ground-water trends as affected by climatic variations and land use. Long-term hydrographs for the seven wells in the observation-well network are shown in figure 4. Water levels recorded during water year 2002 for the seven wells shown on the map in figure 4 are presented in the Ground-Water Levels section of this report.

The Aurora County well in the southeastern part of the State is completed in the Niobrara aquifer and is 134 feet deep. In previous

years, sharp declines in water levels occurred during the summer months in response to nearby irrigation pumping. During wet years, such as 1986, 1993, 1995, and 1997, water-level declines related to irrigation did not occur, whereas significant water-level declines occurred during the less-than-normal precipitation period from 1987 through 1990. During water year 2002, water levels gradually decreased about 1 foot during the year because of below normal precipitation.

The Beadle County well in the east-central part of the State is completed in the Warren aquifer and is 74 feet deep. Water levels are affected by nearby municipal production wells. Annually, water levels decline during winter months due to pumping and minimal recharge, rise due to recharge during spring and fall months, and slightly decline during the summer probably due to irrigation and evapotranspiration. Long-term trends show changes in water levels related to climatic variations, such as a general decline during the drought of 1975-81. A general rise occurred during wet years in the 1990's. Some of the long-term decline from 1975-90 possibly is related to increased withdrawals from the aquifer. Water levels decreased in water year 2002 about 5 feet during October through March. However, water levels did not follow the usual pattern during the spring and summer and continued to decline an additional 11 feet because of below-normal precipitation and increased withdrawals.

The Codington County well in the northeastern part of the State is completed in the Prairie Coteau aquifer and is 172 feet deep. Water levels show a long-term trend that generally is steady, but fluctuations are common throughout each year in response to pumping for irrigation. Long-term trends show response to climatic variations. Water levels in water year 2002 followed a similar pattern of recovery in the fall, steady to small increases in the winter, increases in the spring, and sharp declines in the summer from irrigation. The water-level decline in the summer was about 20 feet compared to as much as 30 feet during very dry periods. Although precipitation during most of the spring and summer was below normal, August precipitation was above normal, which resulted in water-level recovery in August.

The Lincoln County well in the southeastern part of the State is completed in the Dakota Sandstone aquifer and is 383 feet deep. Long-term trends generally show a steady decline in water levels since 1979, which probably is related to pumping. Climatic variations generally are not apparent in this well due to the great depth; however, slight water-level rises in 1987, 1992, and 1994 may be due either to delayed recharge from wet years in 1986, 1991, and 1993 or to decreased water use associated with these wet periods. Water levels in water year 2002 increased about 3 feet, which possibly could be a delayed response to an earlier wet period.

The Marshall County well in the northeastern part of the State is completed in the Dakota Sandstone aquifer and is 1,060 feet deep. Long-term trends in water levels show only slight fluctuations. Slight rises and declines probably are related to changes in pumping during wet or dry periods. Water levels during water year 2001 fluctuated about 0.7 foot with a slight increase during the year.

The Shannon County wells in the southwestern part of the State both are completed in the Arikaree aquifer; one is 180 feet deep and the other is 835 feet deep. Water levels in the shallow well fluctuated little between 1989 through 1993. Water levels increased from 1993 through 2000 because of above-normal precipitation, especially during the late 1990's. Water levels during 2002 decreased about

1 foot. Water levels in the deep well generally rose slightly between 1989 and mid-1994. Sharp 1- to 1.5-foot fluctuations during 1994-96 were in response to pumping from the aquifer. The water levels during water year 2002 followed a pattern similar to water levels during 1998 through 2001, with declines in the summer from pumping and recovery beginning in the fall. The water level trend has declined about 3 feet from 1998 through 2002.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the streamflow representative of undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by human activities. At 10 of these sites, water-quality information is being gathered on major ions and nutrients, primarily to assess the effects of acid deposition on stream chemistry. Additional information on the Hydrologic Benchmark Program can be found at <http://water.usgs.gov/hbn/>.

National Stream-Quality Accounting Network (NASQAN) monitors the water quality of large rivers within the Nation's largest river basins. From 1995 through 1999, a network of approximately 40 stations was operated in the Mississippi, Columbia, Colorado, and Rio Grande basins. For the period 2000 through 2004, sampling was reduced to a few index stations on the Colorado and Columbia so that a network of 5 stations could be implemented on the Yukon River. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals. Additional information about the NASQAN Program can be found at <http://water.usgs.gov/nasqan/>.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) provides continuous measurement and assessment of the chemical constituents in precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of 225 precipitation chemistry monitoring sites. This long-term, nationally consistent monitoring program, coupled with ecosystem research, provides critical information toward a national scorecard to evaluate the effectiveness of ongoing and future regulations intended to reduce atmospheric emissions and subsequent impacts to the Nation's land and water resources. Reports and other information on the NADP/NTN Program, as well as all data from the individual sites, can be found at <http://bqs.usgs.gov/acidrain/>.

WATER RESOURCES DATA—SOUTH DAKOTA, 2002

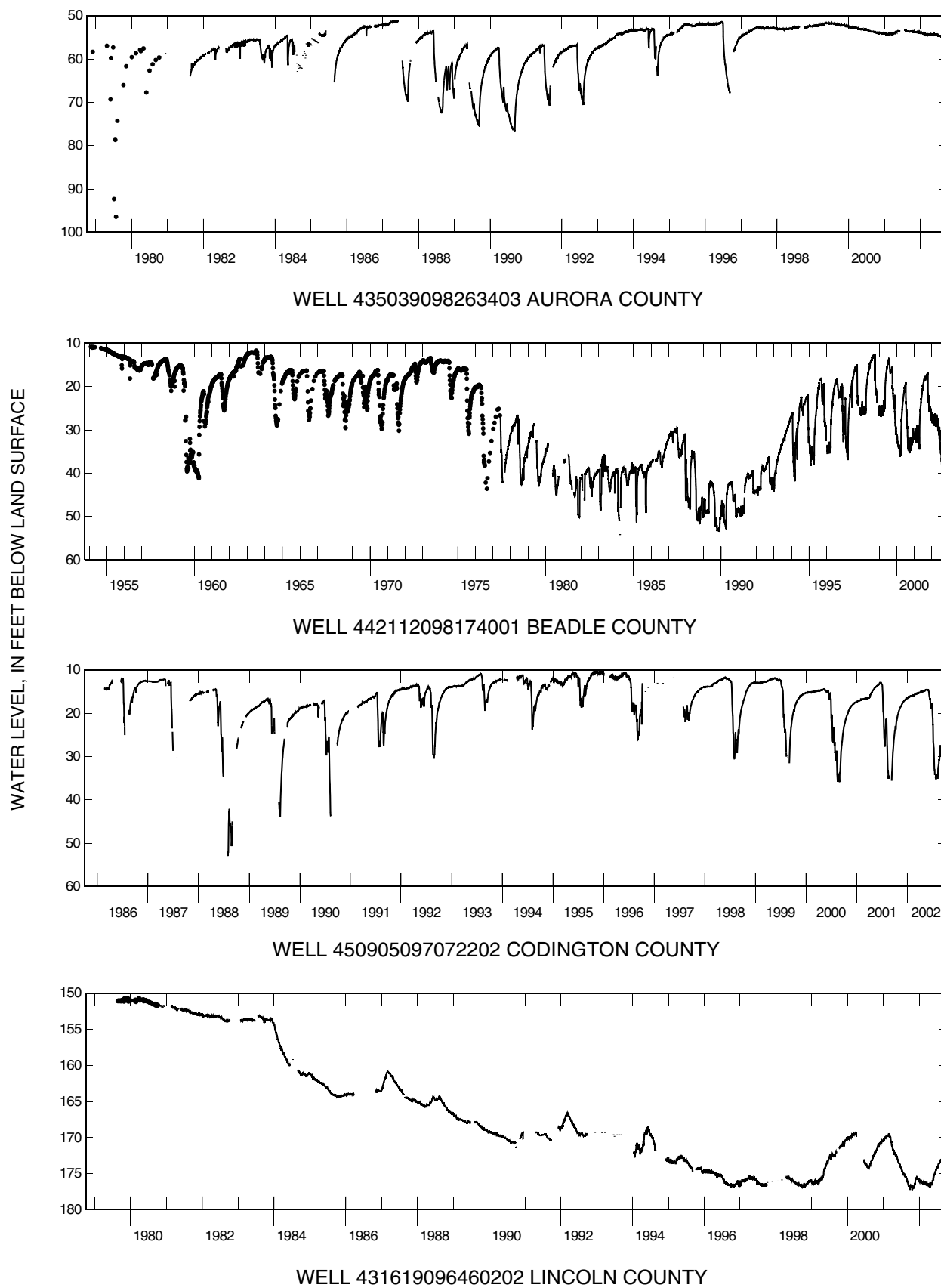


Figure 4. Water levels from selected observation wells.

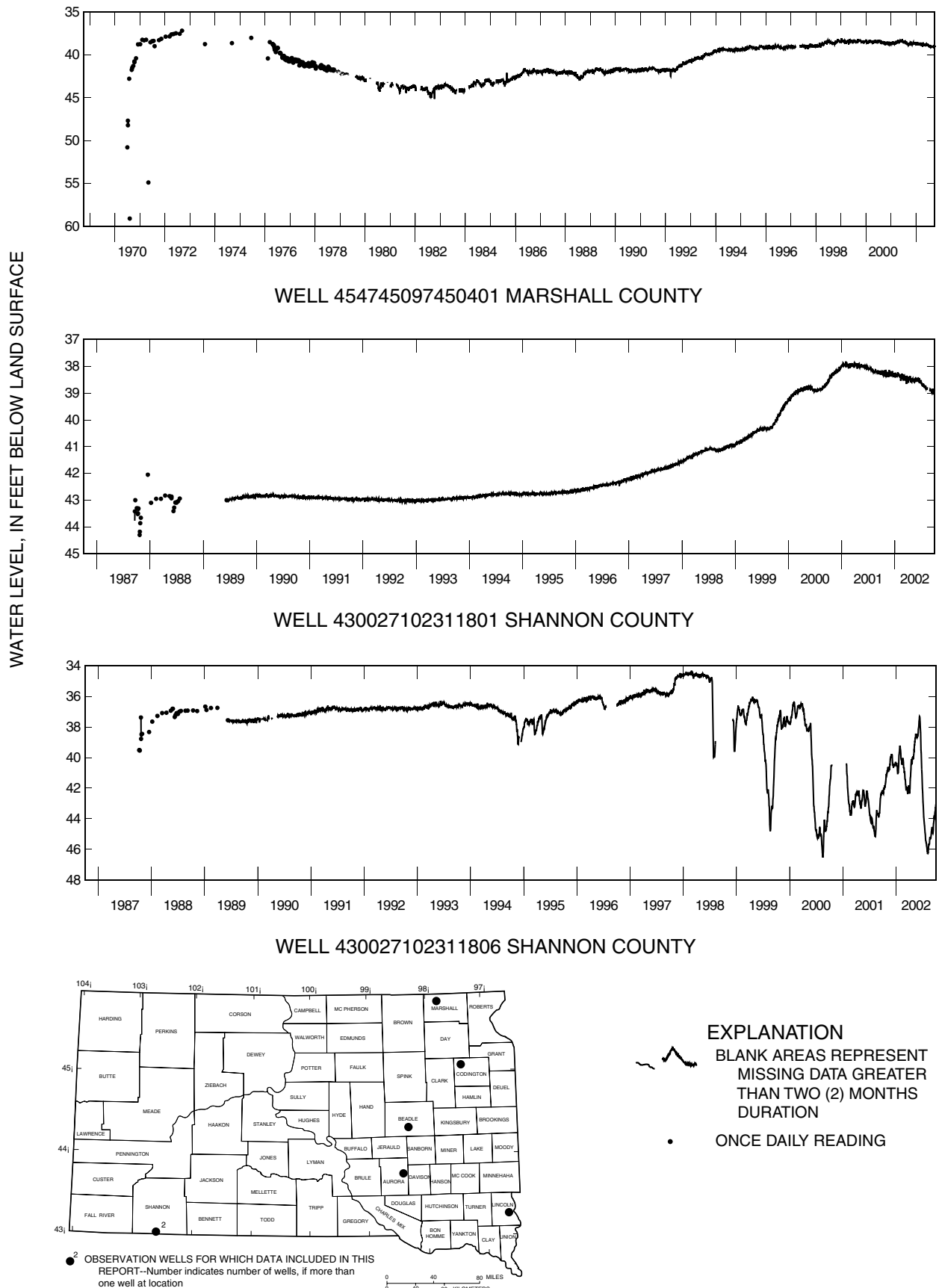


Figure 4. Water levels from selected observation wells.--Continued

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, representative part of the Nation's ground- and surface-water resources; provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 59 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representatives from key federal, State, and local water resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies. Additional information about the NAWQA Program can be found at <http://water.usgs.gov/nawqa/>

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 2002 water year that began October 1, 2001, and ended September 30, 2002. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data; precipitation data; stage and content data for lakes and reservoirs; water-quality data for precipitation, surface water, and ground water; and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 4, 5, and 6. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station, whether streamsite, precipitation site, or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The system used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for precipitation sites, wells, and in South Dakota, for surface-water stations where only miscellaneous measurements are made.

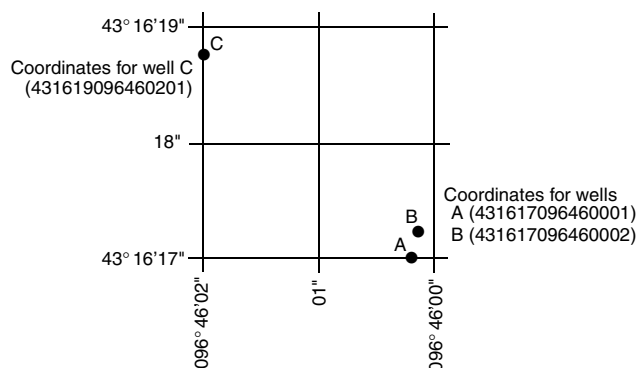
Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of indentation show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 06452000, which appears just to the left of the station name, includes the two-digit Part number "06" plus the six-digit downstream-order number "452000." The Part number designates the major river basin; for example, part "06" is the Missouri River basin.

Latitude-Longitude System

The identification numbers for precipitation sites, wells, and miscellaneous surface-water-quality sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. This site-identification number, once assigned, is a pure number, and does not necessarily have locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure below.)



System for numbering wells and miscellaneous sites (latitude and longitude).

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges commonly are published for such stations, they are referred to as “daily stations.” By contrast, partial records are obtained through discrete measurements. The nature of the partial record is indicated by table title such as “Monthend elevation and contents.”

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relation between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relation between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage, with digital recorders that punch stage values on paper tapes at selected time intervals, and/or with electronic data loggers that record stage at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, Water-Supply Paper 2175, and the U.S. Geological Survey Techniques of Water-Resources Investigations (TWRI's), Book 3, Chapter A1 through A19 and Book 8, Chapters A2 and B2. The methods are consistent with the American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the

measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some gaging stations, acoustic velocity meter (AVM) systems are used to compute discharge. The AVM system measures the stream's velocity at one or more paths in the cross section. Coefficients are developed to relate this path velocity to the mean velocity in the cross section. Because the AVM sensors are fixed in position, the adjustment coefficients generally vary with stage. Cross-sectional area curves are developed to relate stage, recorded as noted above, to cross section area. Discharge is computed by multiplying path velocity by the appropriate stage related coefficient and area.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relation of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relation changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relation. Even when this is done, the contents computed may become increasingly in error as time since the last survey increases. Discharges over lake or reservoir spillways are computed from stage-discharge relation much as other stream discharges are computed.

For some gaging stations there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes/orifices are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, “Data Presentation” (REMARKS paragraph) and “Identifying Estimated Daily Discharge.”

Data Presentation

Streamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1992 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

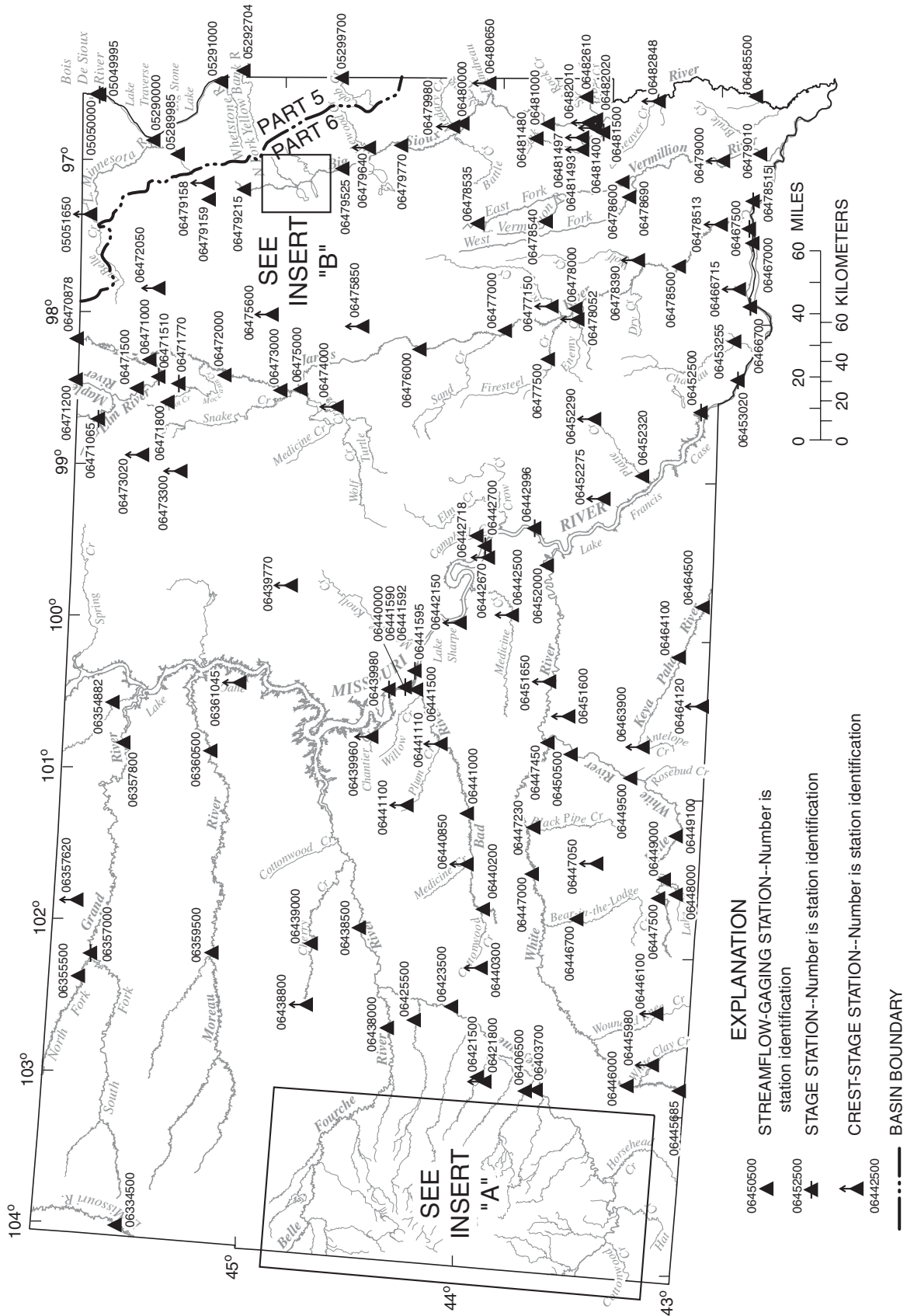


Figure 5. Location of surface-water gaging stations.

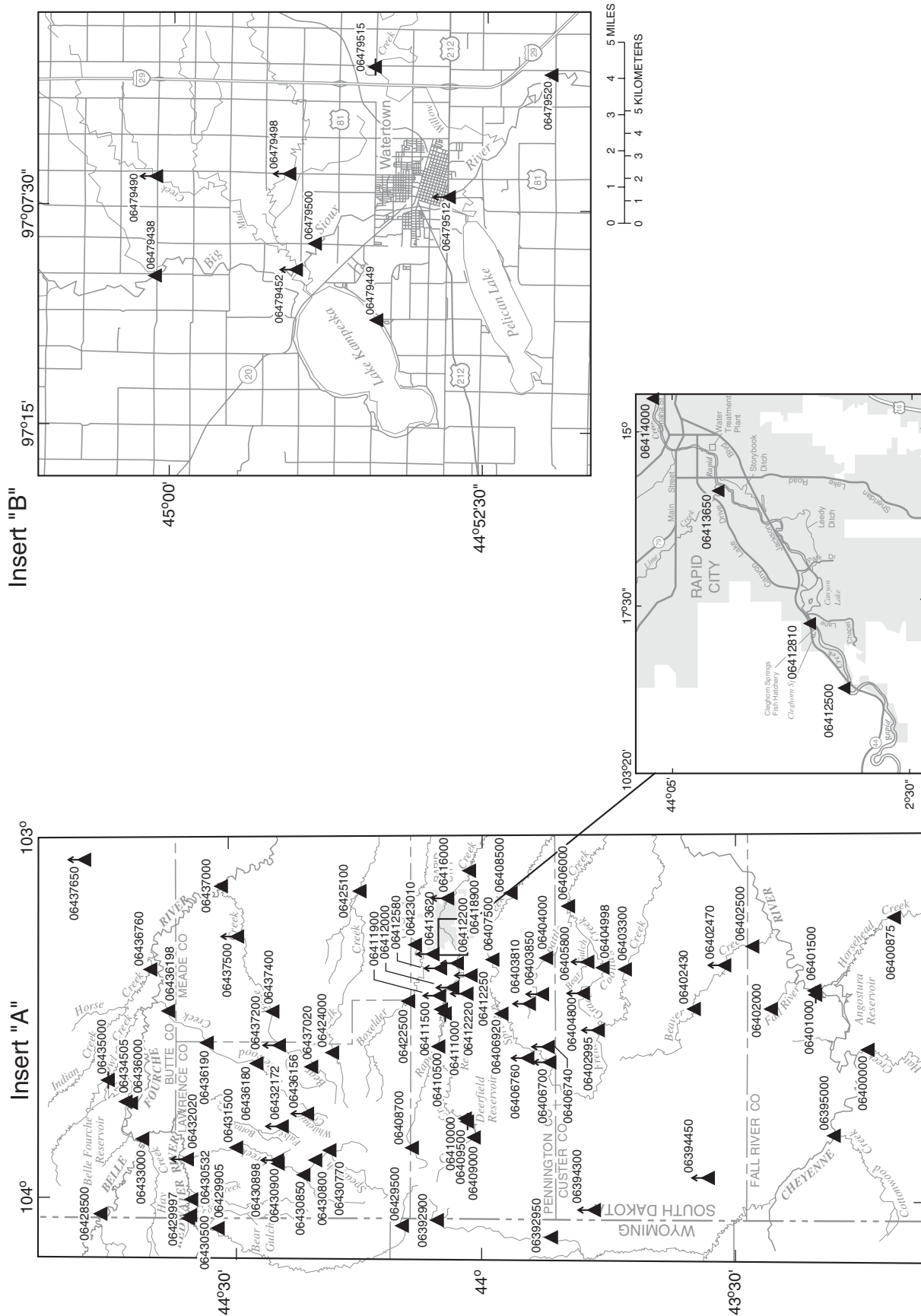


Figure 5. Location of surface-water gaging stations.--Continued



Figure 6. Location of surface-water, ground-water, and precipitation-water quality stations and precipitation stations.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of five parts; the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period, by water year; a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration; and a graphic representation of the daily mean discharge values for the current year.

Station manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gaging station with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which records have been published for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not and whose location was such that flow at it can reasonably be considered equivalent to flow at the present station.

REVISED RECORDS.--Because of new information, published records occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use; the datum of the current gage referred to sea level (see glossary); and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily discharge will either be identified by date in this paragraph of the station

description for water-discharge stations or flagged in the daily discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a REMARKS paragraph is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computation, and to conditions that affect natural flow at the station. In addition, information may be presented pertaining to average discharge data for the period of record; to extremes data for the period of record and the current year; and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the U.S. Geological Survey by a cooperating organization are identified here.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made in the U.S. Geological Survey's distributed data system, NWIS, and subsequently to its web-based National data system, NWISWeb [<http://water.usgs.gov/nwis/nwis>]. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from NWIS or NWISWeb to ensure the most recent updates. Updates to NWISWeb are currently made on an annual basis.

Data table of daily mean values

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed "TOTAL" gives the sum of the daily figures for each month; the line headed "MEAN" gives the average flow in cubic feet per second for the month; and the lines headed "MAX" and "MIN" give the maximum and minimum daily mean discharges, respectively, for each month. Discharge for the month also is usually expressed in acre-feet (line headed "AC-FT"). At some stations monthly and (or) yearly observed discharge are adjusted for reservoir storage or diversion, or diversion data or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean-values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those figures. The designated period will be expressed as "FOR WATER YEARS ____-____, BY WATER YEAR (WY)," and will list the first and last water years of the range of complete years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water

years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

Summary statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, "WATER YEARS ____-____," will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (see line headings below), except for the "ANNUAL 7-DAY MINIMUM" statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date and water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data also are given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN.--The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

MAXIMUM PEAK FLOW.--The maximum instantaneous peak discharge occurring for the water year or designated period. Occasionally the maximum flow for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak flow is given in the table and the maximum flow may be reported in a footnote or in the REMARKS paragraph in the manuscript.

MAXIMUM PEAK STAGE.--The maximum instantaneous peak stage occurring for the water year or designated period. Occasionally the maximum stage for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak stage is given in the table and the maximum stage may be reported in the REMARKS paragraph in the manuscript or in a footnote. If the dates of occurrence of the maximum peak stage and maximum peak flow are different, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

ANNUAL RUNOFF.--Indicates the total quantity of water in runoff for a drainage area for the year. Annual runoff data are given in acre-feet:

Acre-foot (AC-FT) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

10 PERCENT EXCEEDS.--The discharge that has been exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.--The discharge that has been exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.--The discharge that has been exceeded 90 percent of the time for the designated period.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e-Estimated," or by listing the dates of the estimated record in the "REMARKS" paragraph of the station description.

Accuracy of the Records

The accuracy of streamflow records depends primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements; and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s; to the nearest tenth between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures for more than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables are on file in the South Dakota District office. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the District office.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions.

A careful distinction needs to be made between “continuing records” as used in this report and “continuous recordings,” which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records of the quality of surface water are shown in figure 8.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are

the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the tables of daily precipitation stations.

On-site Measurements and Sample Collection

In obtaining water-quality data, a major objective is assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in publications on “Techniques of Water-Resources Investigations,” Book 1, Chap. D2; Book 3, Chap. A1, A3, and A4; Book 9, Chap. A1-A9. These references are listed in the PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS section of this report. These methods are consistent with ASTM standards and generally follow ISO standards. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network generally are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis.

Historical and current (2002) dissolved trace-element concentrations are reported herein for water that was collected, processed, and analyzed by using either ultraclean or other than ultraclean techniques. If other than ultraclean techniques were used, then those concentrations could reflect contamination introduced during some phase of the procedure.

Water Temperature

Water temperatures are measured at all of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day.

Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements can be found in the sections titled "MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS" or "MISCELLANEOUS DISCHARGE MEASUREMENTS."

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment are included for some stations.

Methods used in the computation of sediment records are described in the TWRI Book 3, Chapters C1 and C3. These methods are consistent with ASTM standards and generally follow ISO standards.

Laboratory Measurements

Samples for biochemical oxygen demand, indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratories in Arvada, Colo., or Iowa City, Ia. Methods used to analyze sediment samples and to compute sediment records are described in the TWRI Book 5, Chapter C1. Methods used by the U.S. Geological Survey laboratories are given in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, A4, and A5. These methods are consistent with ASTM standards and generally follow ISO standards.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Records for Hydrologic Stations

Data collected at PARTIAL-RECORD STATIONS follow the information for continuous-record sites. Data for partial-record discharge stations contain the annual and period-of-record maximum stage and discharge at crest-stage stations. The table of partial-record stations is followed by the section, "DAILY PRECIPITATION STATIONS," which is a listing of daily-precipitation tables at sites not located with continuous-record stations. The next section is titled, "MISCELLANEOUS WATER QUALITY DATA," and consists of water-quality data from a precipitation site, operated in cooperation with the Acid Rain National Trends Network, water-quality samples obtained at sites not located with continuous-record stations. This section is followed by the section "MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS" which is a listing, obtained at continuous-record or partial-record sites, of air/water temperatures, specific conductance, and discharge for which no other water-quality sample was obtained. Following is a section listing discharge measurements and/or gage heights made at sites other than continuous-record or partial-record stations titled, "MISCELLANEOUS DISCHARGE MEASUREMENTS." These measurements are made for a variety of reasons including in times of drought or flood to give better areal coverage to those events. The final section is titled, "GROUND-WATER LEVELS," for which tables of ground-water levels at selected sites are given.

Records of Ground-Water Levels

Records of water levels are presented for 7 wells. Records are obtained through cooperative efforts of many Federal, State, and local agencies and are placed in computer storage. Information about the availability of the data in the water-level file may be obtained from the District Chief, South Dakota District. (See address on back of front page.)

Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well.

Water-level records are obtained from direct measurements with a steel tape, from an analog chart or punched paper tape of a water-stage recorder, or from the memory of an electronic data logger. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Maximum depth to water level in wells equipped with recording gages is reported for each day.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given to a tenth of a foot.

Data Presentation

Each well record consists of two parts, the station description and the data table of water levels observed during the water year. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings.

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); a landline location designation; the hydrologic-unit number; the distance and direction from a geographic point of reference; and the owner's name.

AQUIFER.--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

INSTRUMENTATION.--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base, etc.), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) sea level (see Definition of Terms); it is reported with a precision dependant on the method of determination.

PERIOD OF RECORD.--This entry indicates the period for which there are records for the well. It reports the month and year of the start of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

A table of water levels follows the station description for each well. Water levels are reported in feet above or below land-surface datum. Taped measurements of water level are listed for sites with no recording device. For wells equipped with recorders, generally, only daily water-level lows are listed for each day. Missing records are indicated by dashes in place of the water level.

Records of Ground-Water Quality

Records of ground-water quality in this report differ from other types of records in that for most sampling sites they consist of only

one set of measurements for the water year. The quality of ground water generally changes slowly; therefore, for most purposes, annual or intermittent sampling is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring trends in nitrate concentration. In special cases where the quality of ground water may change rapidly, more frequent measurements are made to identify the nature of the changes.

Data Collection and Computation

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey TWRI publications referred to in the "On-site Measurements and Sample Collection" and the "Laboratory Measurements" sections in this data report. In addition, the TWRI Book 1, Chapter D2, describes guidelines for the collection and field analysis of ground-water samples for selected unstable constituents. The values reported in this report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. These methods are consistent with ASTM standards and generally follow ISO standards. All samples were obtained by trained personnel. The wells sampled were pumped long enough to assure that the water collected came directly from the aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

Historical and current (2002) dissolved trace-element concentrations are reported herein for water that was collected, processed, and analyzed by using either ultraclean or other than ultraclean techniques. If other than ultraclean techniques were used, then those concentrations could reflect contamination introduced during some phase of the procedure.

Data Presentation

Data for quality of ground water are identified by well number. The prime identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water.

ACCESS TO USGS WATER DATA

The USGS provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the world wide web (WWW). These data may be accessed at:

<http://water.usgs.gov>

Some water-quality and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on magnetic tape or 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division District Offices (see address on the back of the title page).

REFERENCE CITED

Fenneman, N.M., 1946, Physical divisions of the United States: Washington, D.C., U.S. Geological Survey special map, scale 1:7,000,000.

DEFINITION OF TERMS

Specialized technical terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Definitions of common terms such as algae, water level, and precipitation are given in standard dictionaries. Not all terms defined in this alphabetical list apply to every State. See also table for converting inch/pound units to International System (SI) units on the inside of the back cover.

Acid neutralizing capacity (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point. This term designates titration of an "unfiltered" sample (formerly reported as alkalinity).

Acre-foot (AC-FT, acre-ft) is a unit of volume, commonly used to measure quantities of water used or stored, equivalent to the volume of water required to cover 1 acre to a depth of 1 foot and equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters. (See also "Annual runoff")

Adenosine triphosphate (ATP) is an organic, phosphate-rich compound important in the transfer of energy in organisms. Its central role in living cells makes ATP an excellent indicator of the presence of living material in water. A measurement of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample. (See also "Biomass" and "Dry weight")

Alkalinity is the capacity of solutes in an aqueous system to neutralize acid. This term designates titration of a "filtered" sample.

Annual runoff is the total quantity of water that is discharged ("runs off") from a drainage basin in a year. Data reports may present annual runoff data as volumes in acre-feet, as discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches.

Annual 7-day minimum is the lowest mean value for any 7-consecutive-day period in a year. Annual 7-day minimum values are reported herein for the calendar year and the water year (October 1 through September 30). Most low-flow frequency analyses use a climatic year (April 1-March 31), which tends to prevent the low-flow period from being artificially split between adjacent years. The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day, 10-year low-flow statistic.)

Aroclor is the registered trademark for a group of polychlorinated biphenyls that were manufactured by the Monsanto Company prior to 1976. Aroclors are assigned specific 4-digit reference numbers dependent upon molecular type and degree of substitution of the biphenyl ring hydrogen atoms by chlorine atoms.

The first two digits of a numbered aroclor represent the molecular type, and the last two digits represent the percentage weight of the hydrogen-substituted chlorine.

Artificial substrate is a device that is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is collected. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection. (See also "Substrate")

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500 °C for 1 hour. Ash mass of zooplankton and phytoplankton is expressed in grams per cubic meter (g/m³), and periphyton and benthic organisms in grams per square meter (g/m²). (See also "Biomass" and "Dry mass")

Aspect is the direction toward which a slope faces with respect to the compass.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, whereas others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Bankfull stage, as used in this report, is the stage at which a stream first overflows its natural banks formed by floods with 1- to 3-year recurrence intervals.

Base discharge (for peak discharge) is a discharge value, determined for selected stations, above which peak discharge data are published. The base discharge at each station is selected so that an average of about three peak flows per year will be published. (See also "Peak flow")

Base flow is sustained flow of a stream in the absence of direct runoff. It includes natural and human-induced streamflows. Natural base flow is sustained largely by ground-water discharge.

Bedload is material in transport that is supported primarily by the streambed. In this report, bedload is considered to consist of particles in transit from the bed to an elevation equal to the top of the bedload sampler nozzle (ranging from 0.25 to 0.5 foot) that are retained in the bedload sampler. A sample collected with a pressure-differential bedload sampler also may contain a component of the suspended load.

Bedload discharge (tons per day) is the rate of sediment moving as bedload, reported as dry weight, that passes through a cross section in a given time. NOTE: Bedload discharge values in this report may include a component of the suspended-sediment discharge. A correction may be necessary when computing the total sediment discharge by summing the bedload discharge and the suspended-sediment discharge. (See also "Bedload," "Dry weight," "Sediment," and "Suspended-sediment discharge")

Bed material is the sediment mixture of which a stream-bed, lake, pond, reservoir, or estuary bottom is composed. (See also "Bedload" and "Sediment")

Benthic organisms are the group of organisms inhabiting the bottom of an aquatic environment. They include a number of types

of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are useful as indicators of water quality.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as mass per unit area or volume of habitat.

Biomass pigment ratio is an indicator of the total proportion of periphyton that are autotrophic (plants). This is also called the Autotrophic Index.

Blue-green algae (*Cyanophyta*) are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

Bottom material (See "Bed material")

Bulk electrical conductivity is the combined electrical conductivity of all material within a doughnut-shaped volume surrounding an induction probe. Bulk conductivity is affected by different physical and chemical properties of the material including the dissolved solids content of the pore water and lithology and porosity of the rock.

Cells/volume refers to the number of cells of any organism that is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample volume, and are generally reported as cells or units per milliliter (mL) or liter (L).

Cells volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are frequently used in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume (μm³) is determined by obtaining critical cell measurements or cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

$$\text{sphere } \frac{4}{3} \pi r^3 \quad \text{cone } \frac{1}{3} \pi r^2 h \quad \text{cylinder } \pi r^2 h.$$

pi (π) is the ratio of the circumference to the diameter of a circle; π = 3.14159....

From cell volume, total algal biomass expressed as biovolume (μm³/mL) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes for all species.

Cfs-day (See "Cubic foot per second-day")

Channel bars, as used in this report, are the lowest prominent geomorphic features higher than the channel bed.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material

present. The determined value may correlate with BOD or with carbonaceous organic pollution from sewage or industrial wastes. [See also “Biochemical oxygen demand (BOD)”]

Clostridium perfringens (*C. perfringens*) is a spore-forming bacterium that is common in the feces of human and other warmblooded animals. Clostridial spores are being used experimentally as an indicator of past fecal contamination and presence of microorganisms that are resistant to disinfection and environmental stresses. (See also “Bacteria”)

Coliphages are viruses that infect and replicate in coliform bacteria. They are indicative of sewage contamination of water and of the survival and transport of viruses in the environment.

Color unit is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Confined aquifer is a term used to describe an aquifer containing water between two relatively impermeable bound-aries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases, the water level can rise above the ground surface, yielding a flowing well.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Continuous-record station is a site where data are collected with sufficient frequency to define daily mean values and variations within a day.

Control designates a feature in the channel that physically affects the water-surface elevation and thereby determines the stage-discharge relation at the gage. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure, as used in this report, is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of saltwater.

Cubic foot per second (CFS, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point in 1 second. It is equivalent to approximately 7.48 gallons per second or approximately 449 gallons per minute, or 0.02832 cubic meters per second. The term “second-foot” sometimes is used synonymously with “cubic foot per second” but is now obsolete.

Cubic foot per second-day (CFS-DAY, Cfs-day, $[(\text{ft}^3/\text{s})/\text{d}]$) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.98347 acre-feet, 646,317 gallons, or 2,446.6 cubic meters. The daily mean discharges reported in the daily value data tables are numerically equal to the daily volumes in cfs-days, and the totals also represent volumes in cfs-days.

Cubic foot per second per square mile [CFSM, $(\text{ft}^3/\text{s})/\text{mi}^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area. (See also “Annual runoff”)

Daily mean suspended-sediment concentration is the time-weighted concentration of suspended sediment passing a stream

cross section during a 24-hour day. (See also “Sediment” and “Suspended-sediment concentration”)

Daily-record station is a site where data are collected with sufficient frequency to develop a record of one or more data values per day. The frequency of data collection can range from continuous recording to periodic sample or data collection on a daily or near-daily basis.

Data Collection Platform (DCP) is an electronic instrument that collects, processes, and stores data from various sensors, and transmits the data by satellite data relay, line-of-sight radio, and/or landline telemetry.

Data logger is a microprocessor-based data acquisition system designed specifically to acquire, process, and store data. Data are usually downloaded from onsite data loggers for entry into office data systems.

Datum is a surface or point relative to which measurements of height and/or horizontal position are reported. A vertical datum is a horizontal surface used as the zero point for measurements of gage height, stage, or elevation; a horizontal datum is a reference for positions given in terms of latitude-longitude, State Plane coordinates, or UTM coordinates. (See also “Gage datum,” “Land-surface datum,” “National Geodetic Vertical Datum of 1929,” and “North American Vertical Datum of 1988”)

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample. (See also “Phytoplankton”)

Diel is of or pertaining to a 24-hour period of time; a regular daily cycle.

Discharge, or **flow**, is the rate that matter passes through a cross section of a stream channel or other water body per unit of time. The term commonly refers to the volume of water (including, unless otherwise stated, any sediment or other constituents suspended or dissolved in the water) that passes a cross section in a stream channel, canal, pipeline, etc., within a given period of time (cubic feet per second). Discharge also can apply to the rate at which constituents, such as suspended sediment, bedload, and dissolved or suspended chemicals, pass through a cross section, in which cases the quantity is expressed as the mass of constituent that passes the cross section in a given period of time (tons per day).

Dissolved refers to that material in a representative water sample that passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal and State agencies that collect water-quality data. Determinations of “dissolved” constituent concentrations are made on sample water that has been filtered.

Dissolved oxygen (DO) is the molecular oxygen (oxygen gas) dissolved in water. The concentration in water is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved-solids concentration. Photosynthesis and respiration by plants commonly cause diurnal variations in dissolved-oxygen concentration in water from some streams.

Dissolved-solids concentration in water is the quantity of dissolved material in a sample of water. It is determined either analytically by the “residue-on-evaporation” method, or mathematically by totaling the concentrations of individual

constituents reported in a comprehensive chemical analysis. During the analytical determination, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. In the mathematical calculation, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to convert it to carbonate. Alternatively, alkalinity concentration (as mg/L CaCO_3) can be converted to carbonate concentration by multiplying by 0.60.

Diversity index (H) (Shannon index) is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^s \frac{n_i}{n} \log_2 \frac{n_i}{n},$$

where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area upstream from the location, measured in a horizontal plane, that has a common outlet at the site for its surface runoff from precipitation that normally drains by gravity into a stream. Drainage areas given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the Earth's surface that contains a drainage system with a common outlet for its surface runoff. (See "Drainage area")

Dry mass refers to the mass of residue present after drying in an oven at 105 °C, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass. (See also "Ash mass," "Biomass," and "Wet mass")

Dry weight refers to the weight of animal tissue after it has been dried in an oven at 65 °C until a constant weight is achieved. Dry weight represents total organic and inorganic matter in the tissue. (See also "Wet weight")

Embeddedness is the degree to which gravel-sized and larger particles are surrounded or enclosed by finer-sized particles. (See also "Substrate embeddedness class")

Enterococcus bacteria are commonly found in the feces of humans and other warmblooded animals. Although some strains are ubiquitous and not related to fecal pollution, the presence of enterococci in water is an indication of fecal pollution and the possible presence of enteric pathogens. Enterococcus bacteria are those bacteria that produce pink to red colonies with black or reddish-brown precipitate after incubation at 41 °C on mE agar (nutrient medium for bacterial growth) and subsequent transfer to EIA medium. Enterococci include *Streptococcus fecalis*, *Streptococcus fecium*, *Streptococcus avium*, and their variants. (See also "Bacteria")

EPT Index is the total number of distinct taxa within the insect orders Ephemeroptera, Plecoptera, and Trichoptera. This index summarizes the taxa richness within the aquatic insects that are generally considered pollution sensitive; the index usually decreases with pollution.

Escherichia coli (*E. coli*) are bacteria present in the intestine and feces of warmblooded animals. *E. coli* are a member species of the fecal coliform group of indicator bacteria. In the laboratory, they are defined as those bacteria that produce yellow or yellow-brown colonies on a filter pad saturated with urea substrate broth after primary culturing for 22 to 24 hours at 44.5 °C on mTEC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Estimated (E) concentration value is reported when an analyte is detected and all criteria for a positive result are met. If the concentration is less than the method detection limit (MDL), an 'E' code will be reported with the value. If the analyte is qualitatively identified as present, but the quantitative determination is substantially more uncertain, the National Water Quality Laboratory will identify the result with an 'E' code even though the measured value is greater than the MDL. A value reported with an 'E' code should be used with caution. When no analyte is detected in a sample, the default reporting value is the MDL preceded by a less than sign (<).

Euglenoids (*Euglenophyta*) are a group of algae that are usually free-swimming and rarely creeping. They have the ability to grow either photosynthetically in the light or heterotrophically in the dark. (See also "Phytoplankton")

Extractable organic halides (EOX) are organic compounds that contain halogen atoms such as chlorine. These organic compounds are semivolatile and extractable by ethyl acetate from air-dried streambed sediment. The ethyl acetate extract is combusted, and the concentration is determined by microcoulometric determination of the halides formed. The concentration is reported as micrograms of chlorine per gram of the dry weight of the streambed sediment.

Fecal coliform bacteria are present in the intestines or feces of warmblooded animals. They often are used as indicators of the sanitary quality of the water. In the laboratory, they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5 °C plus or minus 0.2 °C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Fecal streptococcal bacteria are present in the intestines of warmblooded animals and are ubiquitous in the environment. They are characterized as gram-positive, cocci bacteria that are capable of growth in brain-heart infusion broth. In the laboratory, they are defined as all the organisms that produce red or pink colonies within 48 hours at 35 °C plus or minus 1.0 °C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

Fire algae (*Pyrrhophyta*) are free-swimming unicells characterized by a red pigment spot. (See also "Phytoplankton")

Flow-duration percentiles are values on a scale of 100 that indicate the percentage of time for which a flow is not exceeded. For example, the 90th percentile of river flow is greater than or equal to 90 percent of all recorded flow rates.

Gage datum is a horizontal surface used as a zero point for measurement of stage or gage height. This surface usually is located

slightly below the lowest point of the stream bottom such that the gage height is usually slightly greater than the maximum depth of water. Because the gage datum itself is not an actual physical object, the datum usually is defined by specifying the elevations of permanent reference marks such as bridge abutments and survey monuments, and the gage is set to agree with the reference marks. Gage datum is a local datum that is maintained independently of any national geodetic datum. However, if the elevation of the gage datum relative to the national datum (North American Vertical Datum of 1988 or National Geodetic Vertical Datum of 1929) has been determined, then the gage readings can be converted to elevations above the national datum by adding the elevation of the gage datum to the gage reading.

Gage height (G.H.) is the water-surface elevation, in feet above the gage datum. If the water surface is below the gage datum, the gage height is negative. Gage height often is used interchangeably with the more general term “stage,” although gage height is more appropriate when used in reference to a reading on a gage.

Gage values are values that are recorded, transmitted, and/or computed from a gaging station. Gage values typically are collected at 5-, 15-, or 30-minute intervals.

Gaging station is a site on a stream, canal, lake, or reservoir where systematic observations of stage, discharge, or other hydrologic data are obtained.

Gas chromatography/flame ionization detector (GC/FID) is a laboratory analytical method used as a screening technique for semivolatile organic compounds that are extractable from water in methylene chloride.

Geomorphic channel units, as used in this report, are fluvial geomorphic descriptors of channel shape and stream velocity. Pools, riffles, and runs are types of geomorphic channel units considered for National Water-Quality Assessment (NAWQA) Program habitat sampling.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating “moss” in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample. (See also “Phytoplankton”)

Habitat, as used in this report, includes all nonliving (physical) aspects of the aquatic ecosystem, although living components like aquatic macrophytes and riparian vegetation also are usually included. Measurements of habitat are typically made over a wider geographic scale than are measurements of species distribution.

Habitat quality index is the qualitative description (level 1) of instream habitat and riparian conditions surrounding the reach sampled. Scores range from 0 to 100 percent with higher scores indicative of desirable habitat conditions for aquatic life. Index only applicable to wadable streams.

Hardness of water is a physical-chemical characteristic that commonly is recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations (primarily calcium and magnesium) and is expressed as the equivalent concentration of calcium carbonate (CaCO_3).

Hilsenhoff’s Biotic Index (HBI) is an indicator of organic pollution that uses tolerance values to weight taxa abundances; usually increases with pollution. It is calculated as follows:

$$HBI = \frac{\sum (n)(a)}{N},$$

where n is the number of individuals of each taxon, a is the tolerance value of each taxon, and N is the total number of organisms in the sample.

Horizontal datum (See “Datum”)

Hydrologic index stations referred to in this report are continuous-record gaging stations that have been selected as representative of streamflow patterns for their respective regions. Station locations are shown on index maps.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as defined by the former Office of Water Data Coordination and delineated on the State Hydrologic Unit Maps by the USGS. Each hydrologic unit is identified by an 8-digit number.

Inch (IN., in.), as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were uniformly distributed on it. (See also “Annual runoff”)

Instantaneous discharge is the discharge at a particular instant of time. (See also “Discharge”)

Island, as used in this report, is a mid-channel bar that has permanent woody vegetation, is flooded once a year on average, and remains stable except during large flood events.

Laboratory reporting level (LRL) is generally equal to twice the yearly determined long-term method detection level (LT-MDL). The LRL controls false negative error. The probability of falsely reporting a nondetection for a sample that contained an analyte at a concentration equal to or greater than the LRL is predicted to be less than or equal to 1 percent. The value of the LRL will be reported with a “less than” (<) remark code for samples in which the analyte was not detected. The National Water Quality Laboratory (NWQL) collects quality-control data from selected analytical methods on a continuing basis to determine LT-MDLs and to establish LRLs. These values are reevaluated annually on the basis of the most current quality-control data and, therefore, may change. [Note: In several previous NWQL documents (NWQL Technical Memorandum 98.07, 1998), the LRL was called the nondetection value or NDV—a term that is no longer used.]

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Latent heat flux (often used interchangeably with latent heat-flux density) is the amount of heat energy that converts water from liquid to vapor (evaporation) or from vapor to liquid (condensation) across a specified cross-sectional area per unit time. Usually expressed in watts per square meter.

Light-attenuation coefficient, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation:

$$I = I_0 e^{-\lambda L},$$

where I_o is the source light intensity, I is the light intensity at length L (in meters) from the source, λ is the light-attenuation coefficient, and e is the base of the natural logarithm. The light-attenuation coefficient is defined as

$$\lambda = -\frac{1}{L} \log_e \frac{I}{I_o}.$$

Lipid is any one of a family of compounds that are insoluble in water and that make up one of the principal components of living cells. Lipids include fats, oils, waxes, and steroids. Many environmental contaminants such as organochlorine pesticides are lipophilic.

Long-term method detection level (LT-MDL) is a detection level derived by determining the standard deviation of a minimum of 24 method detection limit (MDL) spike sample measurements over an extended period of time. LT-MDL data are collected on a continuous basis to assess year-to-year variations in the LT-MDL. The LT-MDL controls false positive error. The chance of falsely reporting a concentration at or greater than the LT-MDL for a sample that did not contain the analyte is predicted to be less than or equal to 1 percent.

Macrophytes are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that usually are arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

Mean concentration of suspended sediment (Daily mean suspended-sediment concentration) is the time-weighted concentration of suspended sediment passing a stream cross section during a given time period. (See also "Daily mean suspended-sediment concentration" and "Suspended-sediment concentration")

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period. (See also "Discharge")

Mean sea level is a local tidal datum. It is the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; for example, monthly mean sea level and yearly mean sea level. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. (See also "Datum")

Measuring point (MP) is an arbitrary permanent reference point from which the distance to water surface in a well is measured to obtain water level.

Membrane filter is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Method detection limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99-percent confidence that the analyte concentration is greater than zero. It is

determined from the analysis of a sample in a given matrix containing the analyte. At the MDL concentration, the risk of a false positive is predicted to be less than or equal to 1 percent.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram (UG/G, µg/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per kilogram (UG/KG, µg/kg) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter. One microgram per liter is equivalent to 1 part per billion.

Microsiemens per centimeter (US/CM, µS/cm) is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of Units nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in water as the mass (milligrams) of constituent per unit volume (liter) of water. Concentration of suspended sediment also is expressed in milligrams per liter and is based on the mass of dry sediment per liter of water-sediment mixture.

Minimum reporting level (MRL) is the smallest measured concentration of a constituent that may be reliably reported by using a given analytical method.

Miscellaneous site, miscellaneous station, or miscellaneous sampling site is a site where streamflow, sediment, and/or water-quality data or water-quality or sediment samples are collected once, or more often on a random or discontinuous basis to provide better areal coverage for defining hydrologic and water-quality conditions over a broad area in a river basin.

Most probable number (MPN) is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. MPN is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

Multiple-plate samplers are artificial substrates of known surface area used for obtaining benthic invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

Nanograms per liter (NG/L, ng/L) is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1 milligram per liter.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It was formerly called "Sea Level Datum of 1929" or "mean sea level." Although the datum was derived from the mean sea level at 26 tide stations, it does not necessarily represent local mean sea level at any particular place. See NOAA web site: <http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88> (See "North American Vertical Datum of 1988")

Natural substrate refers to any naturally occurring immersed or submersed solid surface, such as a rock or tree, upon which an organism lives. (See also "Substrate")

Nekton are the consumers in the aquatic environment and consist of large free-swimming organisms that are capable of sustained, directed mobility.

Nephelometric turbidity unit (NTU) is the measurement for reporting turbidity that is based on use of a standard suspension of formazin. Turbidity measured in NTU uses nephelometric methods that depend on passing specific light of a specific wavelength through the sample.

North American Vertical Datum of 1988 (NAVD 1988) is a fixed reference adopted as the official civilian vertical datum for elevations determined by Federal surveying and mapping activities in the United States. This datum was established in 1991 by minimum-constraint adjustment of the Canadian, Mexican, and United States first-order terrestrial leveling networks.

Open or screened interval is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

Organic carbon (OC) is a measure of organic matter present in aqueous solution, suspension, or bottom sediment. May be reported as dissolved organic carbon (DOC), particulate organic carbon (POC), or total organic carbon (TOC).

Organic mass or volatile mass of a living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. Organic mass is expressed in the same units as for ash mass and dry mass. (See also "Ash mass," "Biomass," and "Dry mass")

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m²), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Organochlorine compounds are any chemicals that contain carbon and chlorine. Organochlorine compounds that are important in investigations of water, sediment, and biological quality include certain pesticides and industrial compounds.

Parameter code is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property.

Partial-record station is a site where discrete measurements of one or more hydrologic parameters are obtained over a period of time without continuous data being recorded or computed. A

common example is a crest-stage gage partial-record station at which only peak stages and flows are recorded.

Particle size is the diameter, in millimeters (mm), of a particle determined by sieve or sedimentation methods. The sedimentation method utilizes the principle of Stokes law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, sedigraph) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification, as used in this report, agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay	0.00024 - 0.004	Sedimentation
Silt	0.004 - 0.062	Sedimentation
Sand	0.062 - 2.0	Sedimentation/sieve
Gravel	2.0 - 64.0	Sieve
Cobble	>64 - 256	Manual measurement
Boulder	>256	Manual measurement

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. For the sedimentation method, most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Peak flow (peak stage) is an instantaneous local maximum value in the continuous time series of streamflows or stages, preceded by a period of increasing values and followed by a period of decreasing values. Several peak values ordinarily occur in a year. The maximum peak value in a year is called the annual peak; peaks lower than the annual peak are called secondary peaks. Occasionally, the annual peak may not be the maximum value for the year; in such cases, the maximum value occurs at midnight at the beginning or end of the year, on the recession from or rise toward a higher peak in the adjoining year. If values are recorded at a discrete series of times, the peak recorded value may be taken as an approximation of the true peak, which may occur between the recording instants. If the values are recorded with finite precision, a sequence of equal recorded values may occur at the peak; in this case, the first value is taken as the peak.

Percent composition or percent of total is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, weight, mass, or volume.

Percent shading is a measure of the amount of sunlight potentially reaching the stream. A clinometer is used to measure left and right bank canopy angles. These values are added together, divided by 180, and multiplied by 100 to compute percentage of shade.

Periodic-record station is a site where stage, discharge, sediment, chemical, physical, or other hydrologic measurements are made one or more times during a year but at a frequency insufficient to develop a daily record.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. Although primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton are useful indicators of water quality.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7.0 standard units are termed "acidic," and solutions with a pH greater than 7.0 are termed "basic." Solutions with a pH of 7.0 are neutral. The presence and concentration of many dissolved chemical constituents found in water are affected, in part, by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms also are affected, in part, by the hydrogen-ion activity of water.

Phytoplankton is the plant part of the plankton. They are usually microscopic, and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and commonly are known as algae. (See also "Plankton")

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactive nuclide represented by a curie (Ci). A curie is the quantity of radioactive nuclide that yields 3.7×10^{10} radioactive disintegrations per second (dps). A picocurie yields 0.037 dps, or 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Polychlorinated naphthalenes (PCNs) are industrial chemicals that are mixtures of chlorinated naphthalene compounds. They have properties and applications similar to polychlorinated biphenyls (PCBs) and have been identified in commercial PCB preparations.

Pool, as used in this report, is a small part of a stream reach with little velocity, commonly with water deeper than surrounding areas.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photo-synthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated (carbon method) by the plants.

Primary productivity (carbon method) is expressed as milligrams of carbon per area per unit time [$\text{mg C}/(\text{m}^2/\text{time})$] for periphyton and macrophytes or per volume [$\text{mg C}/(\text{m}^3/\text{time})$] for phytoplankton. The carbon method defines the amount of carbon dioxide consumed as measured by radioactive carbon (carbon-14).

The carbon-14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use with unenriched water samples. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

Primary productivity (oxygen method) is expressed as milligrams of oxygen per area per unit time [$\text{mg O}/(\text{m}^2/\text{time})$] for periphyton and macrophytes or per volume [$\text{mg O}/(\text{m}^3/\text{time})$] for phytoplankton. The oxygen method defines production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

Radioisotopes are isotopic forms of elements that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus; for example, ordinary chlorine is a mixture of isotopes having atomic weights of 35 and 37, and the natural mixture has an atomic weight of about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron. There are 275 isotopes of the 81 stable elements, in addition to more than 800 radioactive isotopes.

Reach, as used in this report, is a length of stream that is chosen to represent a uniform set of physical, chemical, and biological conditions within a segment. It is the principal sampling unit for collecting physical, chemical, and biological data.

Recoverable from bed (bottom) material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. (See also "Bed material")

Recurrence interval, also referred to as return period, is the average time, usually expressed in years, between occurrences of hydrologic events of a specified type (such as exceedances of a specified high flow or nonexceedance of a specified low flow). The terms "return period" and "recurrence interval" do not imply regular cyclic occurrence. The actual times between occurrences vary randomly, with most of the times being less than the average and a few being substantially greater than the average. For example, the 100-year flood is the flow rate that is exceeded by the annual maximum peak flow at intervals whose average length is 100 years (that is, once in 100 years, on average); almost two-thirds of all exceedances of the 100-year flood occur less than 100 years after the previous exceedance, half occur less than 70 years after the previous exceedance, and about one-eighth occur more than 200 years after the previous exceedance. Similarly, the 7-day, 10-year low flow ($7Q_{10}$) is the flow rate below which the annual minimum 7-day-mean flow dips at intervals whose average length is 10 years (that is,

once in 10 years, on average); almost two-thirds of the nonexceedances of the $7Q_{10}$ occur less than 10 years after the previous nonexceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous nonexceedance. The recurrence interval for annual events is the reciprocal of the annual probability of occurrence. Thus, the 100-year flood has a 1-percent chance of being exceeded by the maximum peak flow in any year, and there is a 10-percent chance in any year that the annual minimum 7-day-mean flow will be less than the $7Q_{10}$.

Replicate samples are a group of samples collected in a manner such that the samples are thought to be essentially identical in composition.

Return period (See “Recurrence interval”)

Riffle, as used in this report, is a shallow part of the stream where water flows swiftly over completely or partially submerged obstructions to produce surface agitation.

River mileage is the curvilinear distance, in miles, measured upstream from the mouth along the meandering path of a stream channel in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council and typically is used to denote location along a river.

Run, as used in this report, is a relatively shallow part of a stream with moderate velocity and little or no surface turbulence.

Runoff is the quantity of water that is discharged (“runs off”) from a drainage basin during a given time period. Runoff data may be presented as volumes in acre-feet, as mean discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches. (See also “Annual runoff”)

Sea level, as used in this report, refers to one of the two commonly used national vertical datums (NGVD 1929 or NAVD 1988). See separate entries for definitions of these datums.

Sediment is solid material that originates mostly from disintegrated rocks; when transported by, suspended in, or deposited from water, it is referred to as “fluvial sediment.” Sediment includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are affected by environmental and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of pre-precipitation.

Sensible heat flux (often used interchangeably with latent sensible heat-flux density) is the amount of heat energy that moves by turbulent transport through the air across a specified cross-sectional area per unit time and goes to heating (cooling) the air. Usually expressed in watts per square meter.

Seven-day, 10-year low flow ($7Q_{10}$) is the discharge below which the annual 7-day minimum flow falls in 1 year out of 10 on the long-term average. The recurrence interval of the $7Q_{10}$ is 10 years; the chance that the annual 7-day minimum flow will be less than the $7Q_{10}$ is 10 percent in any given year. (See also “Annual 7-day minimum” and “Recurrence interval”)

Shelves, as used in this report, are streambank features extending nearly horizontally from the flood plain to the lower limit of persistent woody vegetation.

Sodium adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an

index of sodium or alkali hazard to the soil. Sodium hazard in water is an index that can be used to evaluate the suitability of water for irrigating crops.

Soil heat flux (often used interchangeably with soil heat-flux density) is the amount of heat energy that moves by conduction across a specified cross-sectional area of soil per unit time and goes to heating (or cooling) the soil. Usually expressed in watts per square meter.

Soil-water content is the water lost from the soil upon drying to constant mass at 105 °C; expressed either as mass of water per unit mass of dry soil or as the volume of water per unit bulk volume of soil.

Specific electrical conductance (conductivity) is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific electrical conductance is a function of the types and quantity of dissolved substances in water and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stable isotope ratio (per MIL) is a unit expressing the ratio of the abundance of two radioactive isotopes. Isotope ratios are used in hydrologic studies to determine the age or source of specific water, to evaluate mixing of different water, as an aid in determining reaction rates, and other chemical or hydrologic processes.

Stage (See “Gage height”)

Stage-discharge relation is the relation between the water-surface elevation, termed stage (gage height), and the volume of water flowing in a channel per unit time.

Streamflow is the discharge that occurs in a natural channel. Although the term “discharge” can be applied to the flow of a canal, the word “streamflow” uniquely describes the discharge in a surface stream course. The term “streamflow” is more general than “runoff” as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Substrate embeddedness class is a visual estimate of riffle streambed substrate larger than gravel that is surrounded or covered by fine sediment (<2mm, sand or finer). Below are the class categories expressed as the percentage covered by fine sediment:

0	no gravel or larger substrate	3	26-50 percent
1	> 75 percent	4	5-25 percent
2	51-75 percent	5	< 5 percent

Surface area of a lake is that area (acres) encompassed by the boundary of the lake as shown on USGS topographic maps, or other available maps or photographs. Because surface area changes with lake stage, surface areas listed in this report represent those determined for the stage at the time the maps or photographs were obtained.

Surficial bed material is the upper surface (0.1 to 0.2 foot) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is defined operationally as the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative suspended water-sediment sample that is retained on a 0.45-micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the “total” amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. Determinations of “suspended, recoverable” constituents are made either by directly analyzing the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total recoverable concentrations of the constituent. (See also “Suspended”)

Suspended sediment is the sediment maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid. (See also “Sediment”)

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 foot above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The analytical technique uses the mass of all of the sediment and the net weight of the water-sediment mixture in a sample to compute the suspended-sediment concentration. (See also “Sediment” and “Suspended sediment”)

Suspended-sediment discharge (tons/d) is the rate of sediment transport, as measured by dry mass or volume, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) $\times$ discharge (ft³/s) $\times$ 0.0027. (See also “Sediment,” “Suspended sediment,” and “Suspended-sediment concentration”)

Suspended-sediment load is a general term that refers to a given characteristic of the material in suspension that passes a point during a specified period of time. The term needs to be qualified, such as “annual suspended-sediment load” or “sand-size suspended-sediment load,” and so on. It is not synonymous with either suspended-sediment discharge or concentration. (See also “Sediment”)

Suspended, total is the total amount of a given constituent in the part of a water-sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. Knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as “suspended, total.” Determinations of “suspended, total” constituents are made either by directly analyzing portions of the

suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total concentrations of the constituent. (See also “Suspended”)

Suspended solids, total residue at 105 °C concentration is the concentration of inorganic and organic material retained on a filter, expressed as milligrams of dry material per liter of water (mg/L). An aliquot of the sample is used for this analysis.

Synoptic studies are short-term investigations of specific water-quality conditions during selected seasonal or hydrologic periods to provide improved spatial resolution for critical water-quality conditions. For the period and conditions sampled, they assess the spatial distribution of selected water-quality conditions in relation to causative factors, such as land use and contaminant sources.

Taxa (Species) richness is the number of species (taxa) present in a defined area or sampling unit.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, *Hexagenia limbata*, is the following:

Kingdom:	Animal
Phylum:	Arthropoda
Class:	Insecta
Order:	Ephemeroptera
Family:	Ephemeridae
Genus:	<i>Hexagenia</i>
Species:	<i>Hexagenia limbata</i>

Thalweg is the line formed by connecting points of minimum streambed elevation (deepest part of the channel).

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term “temperature recorder” is used in the table descriptions and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water resulting from the mixing of flow proportionally to the duration of the concentration.

Tons per acre-foot (T/acre-ft) is the dry mass (tons) of a constituent per unit volume (acre-foot) of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY, tons/d) is a common chemical or sediment discharge unit. It is the quantity of a substance in solution, in suspension, or as bedload that passes a stream section during a 24-hour period. It is equivalent to 2,000 pounds per day, or 0.9072 metric tons per day.

Total is the amount of a given constituent in a representative whole-water (unfiltered) sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined at least 95 percent of the constituent in the sample.)

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. This group includes coliforms that inhabit the intestine of warmblooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48 hours at 35 °C. In the laboratory, these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C plus or minus 1.0 °C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milliliters of sample. (See also "Bacteria")

Total discharge is the quantity of a given constituent, measured as dry mass or volume, that passes a stream cross section per unit of time. When referring to constituents other than water, this term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total in bottom material is the amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total length (fish) is the straight-line distance from the anterior point of a fish specimen's snout, with the mouth closed, to the posterior end of the caudal (tail) fin, with the lobes of the caudal fin squeezed together.

Total load refers to all of a constituent in transport. When referring to sediment, it includes suspended load plus bed load.

Total organism count is the number of organisms collected and enumerated in any particular sample. (See also "Organism count/volume")

Total recoverable is the amount of a given constituent in a whole-water sample after a sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data for whole-water samples, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures may produce different analytical results.

Total sediment discharge is the mass of suspended-sediment plus bed-load transport, measured as dry weight, that passes a cross section in a given time. It is a rate and is reported as tons per day. (See also "Bedload," "Bedload discharge," "Sediment," "Suspended sediment," and "Suspended-sediment concentration")

Total sediment load or **total load** is the sediment in transport as bedload and suspended-sediment load. The term may be qualified, such as "annual suspended-sediment load" or "sand-size suspended-sediment load," and so on. It differs from total sediment discharge in that load refers to the material, whereas discharge refers to the quantity of material, expressed in units of mass per unit time. (See also "Sediment," "Suspended-sediment load," and "Total load")

Transect, as used in this report, is a line across a stream perpendicular to the flow and along which measurements are taken, so that morphological and flow characteristics along the line are described from bank to bank. Unlike a cross section, no attempt is made to determine known elevation points along the line.

Turbidity is the reduction in the transparency of a solution due to the presence of suspended and some dissolved substances. The measurement technique records the collective optical properties of the solution that cause light to be scattered and attenuated rather than transmitted in straight lines; the higher the intensity of scattered or attenuated light, the higher the value of the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU). Depending on the method used, the turbidity units as NTU can be defined as the intensity of light of a specified wavelength scattered or attenuated by suspended particles or absorbed at a method specified angle, usually 90 degrees, from the path of the incident light. Currently approved methods for the measurement of turbidity in the USGS include those that conform to U.S. EPA Method 180.1, ASTM D1889-00, and ISO 7027. Measurements of turbidity by these different methods and different instruments are unlikely to yield equivalent values.

Ultraviolet (UV) absorbance (absorption) at 254 or 280 nanometers is a measure of the aggregate concentration of the mixture of UV absorbing organic materials dissolved in the analyzed water, such as lignin, tannin, humic substances, and various aromatic compounds. UV absorbance (absorption) at 254 or 280 nanometers is measured in UV absorption units per centimeter of pathlength of UV light through a sample.

Unconfined aquifer is an aquifer whose upper surface is a water table free to fluctuate under atmospheric pressure. (See "Water-table aquifer")

Vertical datum (See "Datum")

Volatile organic compounds (VOCs) are organic compounds that can be isolated from the water phase of a sample by purging the water sample with inert gas, such as helium, and subsequently analyzed by gas chromatography. Many VOCs are human-made chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They are often components of fuels, solvents, hydraulic fluids, paint thinners, and dry cleaning agents commonly used in urban settings. VOC contamination of drinking-water supplies is a human health concern because many are toxic and are known or suspected human carcinogens.

Water table is that surface in a ground-water body at which the water pressure is equal to the atmospheric pressure.

Water-table aquifer is an unconfined aquifer within which the water table is found.

Water year in USGS reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 2002, is called the “2002 water year.”

WDR is used as an abbreviation for “Water-Data Report” in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports. (WRD was used as an abbreviation for “Water-Resources Data” in reports published prior to 1976.)

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

Wet mass is the mass of living matter plus contained water. (See also “Biomass” and “Dry mass”)

Wet weight refers to the weight of animal tissue or other substance including its contained water. (See also “Dry weight”)

WSP is used as an acronym for “Water-Supply Paper” in reference to previously published reports.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and often are large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers. (See also “Plankton”)

TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS OF THE U.S. GEOLOGICAL SURVEY

The USGS publishes a series of manuals titled the “Techniques of Water-Resources Investigations” that describe procedures for planning and conducting specialized work in water-resources investigations. The material in these manuals is grouped under major subject headings called books and is further divided into sections and chapters. For example, section A of book 3 (Applications of Hydraulics) pertains to surface water. Each chapter then is limited to a narrow field of the section subject matter. This publication format permits flexibility when revision or printing is required.

Manuals in the Techniques of Water-Resources Investigations series, which are listed below, are available online at <http://water.usgs.gov/pubs/twri/>. Printed copies are available for sale from the USGS, Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (an authorized agent of the Superintendent of Documents, Government Printing Office). Please telephone “1-888-ASK-USGS” for current prices, and refer to the title, book number, section number, chapter number, and mention the “U.S. Geological Survey Techniques of Water-Resources Investigations.” Other products can be viewed online at

<http://www.usgs.gov/sales.html>, or ordered by telephone or by FAX to (303)236-4693. Order forms for FAX requests are available online at <http://mac.usgs.gov/isb/pubs/forms/>. Prepayment by major credit card or by a check or money order payable to the “U.S. Geological Survey” is required.

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

- 1-D1. *Water temperature—Influential factors, field measurement, and data presentation*, by H.H. Stevens, Jr., J.F. Ficke, and G.F. Smoot: USGS–TWRI book 1, chap. D1. 1975. 65 p.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W. Wood: USGS–TWRI book 1, chap. D2. 1976. 24 p.

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

- 2-D1. *Application of surface geophysics to ground-water investigations*, by A.A.R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS–TWRI book 2, chap. D1. 1974. 116 p.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS–TWRI book 2, chap. D2. 1988. 86 p.

Section E. Subsurface Geophysical Methods

- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W.S. Keys and L.M. MacCary: USGS–TWRI book 2, chap. E1. 1971. 126 p.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS–TWRI book 2, chap. E2. 1990. 150 p.

Section F. Drilling and Sampling Methods

- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W.E. Teasdale: USGS–TWRI book 2, chap. F1. 1989. 97 p.

Book 3. Applications of Hydraulics

Section A. Surface-Water Techniques

- 3-A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS–TWRI book 3, chap. A1. 1967. 30 p.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M.A. Benson: USGS–TWRI book 3, chap. A2. 1967. 12 p.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS–TWRI book 3, chap. A3. 1968. 60 p.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS–TWRI book 3, chap. A4. 1967. 44 p.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS–TWRI book 3, chap. A5. 1967. 29 p.

- 3-A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS-TWRI book 3, chap. A6. 1968. 13 p.
- 3-A7. *Stage measurement at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS-TWRI book 3, chap. A7. 1968. 28 p.
- 3-A8. *Discharge measurements at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS-TWRI book 3, chap. A8. 1969. 65 p.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS-TWRI book 3, chap. A9. 1989. 27 p.
- 3-A10. *Discharge ratings at gaging stations*, by E.J. Kennedy: USGS-TWRI book 3, chap. A10. 1984. 59 p.
- 3-A11. *Measurement of discharge by the moving-boat method*, by G.F. Smoot and C.E. Novak: USGS-TWRI book 3, chap. A11. 1969. 22 p.
- 3-A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS-TWRI book 3, chap. A12. 1986. 34 p.
- 3-A13. *Computation of continuous records of streamflow*, by E.J. Kennedy: USGS-TWRI book 3, chap. A13. 1983. 53 p.
- 3-A14. *Use of flumes in measuring discharge*, by F.A. Kilpatrick and V.R. Schneider: USGS-TWRI book 3, chap. A14. 1983. 46 p.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS-TWRI book 3, chap. A15. 1984. 48 p.
- 3-A16. *Measurement of discharge using tracers*, by F.A. Kilpatrick and E.D. Cobb: USGS-TWRI book 3, chap. A16. 1985. 52 p.
- 3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS-TWRI book 3, chap. A17. 1985. 38 p.
- 3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS-TWRI book 3, chap. A18. 1989. 52 p.
- 3-A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS-TWRI book 3, chap. A19. 1990. 31 p.
- 3-A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F.A. Kilpatrick: USGS-TWRI book 3, chap. A20. 1993. 38 p.
- 3-A21. *Stream-gaging cableways*, by C. Russell Wagner: USGS-TWRI book 3, chap. A21. 1995. 56 p.
- Section B. Ground-Water Techniques**
- 3-B1. *Aquifer-test design, observation, and data analysis*, by R.W. Stallman: USGS-TWRI book 3, chap. B1. 1971. 26 p.
- 3-B2. *Introduction to ground-water hydraulics, a programmed text for self-instruction*, by G.D. Bennett: USGS-TWRI book 3, chap. B2. 1976. 172 p.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS-TWRI book 3, chap. B3. 1980. 106 p.
- 3-B4. *Regression modeling of ground-water flow*, by R.L. Cooley and R.L. Naff: USGS-TWRI book 3, chap. B4. 1990. 232 p.
- 3-B4. *Supplement 1. Regression modeling of ground-water flow—Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems*, by R.L. Cooley: USGS-TWRI book 3, chap. B4. 1993. 8 p.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction*, by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS-TWRI book 3, chap. B5. 1987. 15 p.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS-TWRI book 3, chap. B6. 1987. 28 p.
- 3-B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow*, by E.J. Wexler: USGS-TWRI book 3, chap. B7. 1992. 190 p.
- 3-B8. *System and boundary conceptualization in ground-water flow simulation*, by T.E. Reilly: USGS-TWRI book 3, chap. B8. 2001. 29 p.
- Section C. Sedimentation and Erosion Techniques**
- 3-C1. *Fluvial sediment concepts*, by H.P. Guy: USGS-TWRI book 3, chap. C1. 1970. 55 p.
- 3-C2. *Field methods for measurement of fluvial sediment*, by T.K. Edwards and G.D. Glysson: USGS-TWRI book 3, chap. C2. 1999. 89 p.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS-TWRI book 3, chap. C3. 1972. 66 p.
- Book 4. Hydrologic Analysis and Interpretation**
- Section A. Statistical Analysis**
- 4-A1. *Some statistical tools in hydrology*, by H.C. Riggs: USGS-TWRI book 4, chap. A1. 1968. 39 p.
- 4-A2. *Frequency curves*, by H.C. Riggs: USGS-TWRI book 4, chap. A2. 1968. 15 p.
- 4-A3. *Statistical methods in water resources*, by D.R. Helsel and R.M. Hirsch: USGS-TWRI book 4, chap. A3. 1991. Available only online at <http://water.usgs.gov/pubs/twri/twri4a3/>. (Accessed August 30, 2002.)
- Section B. Surface Water**
- 4-B1. *Low-flow investigations*, by H.C. Riggs: USGS-TWRI book 4, chap. B1. 1972. 18 p.
- 4-B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS-TWRI book 4, chap. B2. 1973. 20 p.
- 4-B3. *Regional analyses of streamflow characteristics*, by H.C. Riggs: USGS-TWRI book 4, chap. B3. 1973. 15 p.

Section D. Interrelated Phases of the Hydrologic Cycle

- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C.T. Jenkins: USGS-TWRI book 4, chap. D1. 1970. 17 p.

Book 5. Laboratory Analysis*Section A. Water Analysis*

- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M.J. Fishman and L.C. Friedman, editors: USGS-TWRI book 5, chap. A1. 1989. 545 p.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P.R. Barnett and E.C. Mallory, Jr.: USGS-TWRI book 5, chap. A2. 1971. 31 p.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS-TWRI book 5, chap. A3. 1987. 80 p.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L.J. Britton and P.E. Greeson, editors: USGS-TWRI book 5, chap. A4. 1989. 363 p.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS-TWRI book 5, chap. A5. 1977. 95 p.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L.C. Friedman and D.E. Erdmann: USGS-TWRI book 5, chap. A6. 1982. 181 p.

Section C. Sediment Analysis

- 5-C1. *Laboratory theory and methods for sediment analysis*, by H.P. Guy: USGS-TWRI book 5, chap. C1. 1969. 58 p.

Book 6. Modeling Techniques*Section A. Ground Water*

- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M.G. McDonald and A.W. Harbaugh: USGS-TWRI book 6, chap. A1. 1988. 586 p.
- 6-A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model*, by S.A. Leake and D.E. Prudic: USGS-TWRI book 6, chap. A2. 1991. 68 p.
- 6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L.J. Torak: USGS-TWRI book 6, chap. A3. 1993. 136 p.
- 6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R.L. Cooley: USGS-TWRI book 6, chap. A4. 1992. 108 p.
- 6-A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3:*

Design philosophy and programming details, by L.J. Torak: USGS-TWRI book 6, chap. A5. 1993. 243 p.

- 6-A6. *A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction*, by Eric D. Swain and Eliezer J. Wexler: USGS-TWRI book 6, chap. A6. 1996. 125 p.
- 6-A7. *User's guide to SEAWAT: A computer program for simulation of three-dimensional variable-density ground-water flow*, by Weixing Guo and Christian D. Langevin: USGS-TWRI book 6, chap. A7. 2002. 77 p.

Book 7. Automated Data Processing and Computations*Section C. Computer Programs*

- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS-TWRI book 7, chap. C1. 1976. 116 p.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L.F. Konikow and J.D. Bredehoeft: USGS-TWRI book 7, chap. C2. 1978. 90 p.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS-TWRI book 7, chap. C3. 1981. 110 p.

Book 8. Instrumentation*Section A. Instruments for Measurement of Water Level*

- 8-A1. *Methods of measuring water levels in deep wells*, by M.S. Garber and F.C. Koopman: USGS-TWRI book 8, chap. A1. 1968. 23 p.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS-TWRI book 8, chap. A2. 1983. 57 p.

Section B. Instruments for Measurement of Discharge

- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G.F. Smoot and C.E. Novak: USGS-TWRI book 8, chap. B2. 1968. 15 p.

Book 9. Handbooks for Water-Resources Investigations*Section A. National Field Manual for the Collection of Water-Quality Data*

- 9-A1. *National field manual for the collection of water-quality data: Preparations for water sampling*, by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A1. 1998. 47 p.
- 9-A2. *National field manual for the collection of water-quality data: Selection of equipment for water sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A2. 1998. 94 p.
- 9-A3. *National field manual for the collection of water-quality data: Cleaning of equipment for water sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A3. 1998. 75 p.

- 9–A4. *National field manual for the collection of water-quality data: Collection of water samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A4. 1999. 156 p.
- 9–A5. *National field manual for the collection of water-quality data: Processing of water samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A5. 1999. 149 p.
- 9–A6. *National field manual for the collection of water-quality data: Field measurements*, edited by F.D. Wilde and D.B. Radtke: USGS–TWRI book 9, chap. A6. 1998. Various paginated.
- 9–A7. *National field manual for the collection of water-quality data: Biological indicators*, edited by D.N. Myers and F.D. Wilde: USGS–TWRI book 9, chap. A7. 1997 and 1999. Various paginated.
- 9–A8. *National field manual for the collection of water-quality data: Bottom-material samples*, by D.B. Radtke: USGS–TWRI book 9, chap. A8. 1998. 48 p.
- 9–A9. *National field manual for the collection of water-quality data: Safety in field activities*, by S.L. Lane and R.G. Fay: USGS–TWRI book 9, chap. A9. 1998. 60 p.

SURFACE-WATER-DISCHARGE AND SURFACE-WATER-QUALITY RECORDS

Remarks Codes

The following remark codes may appear with the water-quality data in this section:

<u>PRINT OUTPUT</u>	<u>REMARK</u>
E	Value is estimated.
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
M	Presence of material verified, but not quantified.
N	Presumptive evidence of presence of material.
U	Material specifically analyzed for, but not detected.
A	Value is an average.
V	Analyte was detected in both the environmental sample and the associated blanks.
S	Most probable value.

Dissolved Trace-Element Concentrations

NOTE.--Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter ($\mu\text{g/L}$) level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's to 100's of nanograms per liter (ng/L). Data above the $\mu\text{g/L}$ level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols at some stations in water year 1994.

Change in National Trends Network Procedures

NOTE.--Sample handling procedures at all National Trends Network stations were changed substantially on January 11, 1994, in order to reduce contamination from the sample shipping container. The data for samples before and after that date are different and not directly comparable. A tabular summary of the differences based on a special intercomparison study, is available from the NADP/NTN Coordination Office, Colorado State University, Fort Collins, CO 80523 (Telephone: 303-491-5643).

Quality-Control Data

Data generated from quality-control (QC) samples are a requisite for evaluating the quality of the sampling and processing techniques as well as data from the actual samples themselves. Without QC data, environmental sample data cannot be adequately interpreted because the errors associated with the sample data are unknown. The various types of QC samples collected by this District are described in the following section. Procedures have been established for the storage of water-quality-control data within the USGS. These procedures allow for storage of all derived QC data and are identified so that they can be related to corresponding environmental samples.

BLANK SAMPLES—Blank samples are collected and analyzed to ensure that environmental samples have not been contaminated by the overall data-collection process. The blank solution used to develop specific types of blank samples is a solution that is free of the analytes of interest. Any measured value signal in a blank samples for an analyte (a specific component measured in a chemical analysis) that was absent in the blank solution is believed to be due to contamination. There are many types of blank samples possible, each designed to segregate a different part of the overall data-collection process. The types of blank samples collected in this District are:

Source solution blank – a blank solution that is transferred to a sample bottle in an area of the office laboratory with an atmosphere that is relatively clean and protected with respect to target analytes.

Ambient blank – a blank solution that is put in the same type of bottle used for an environmental sample, kept with the set of sample bottles before sample collection, and opened at the site and exposed to the ambient conditions.

Field blank – a blank solution that is subjected to all aspects of sample collection, field processing preservation, transportation, and laboratory handling as an environmental sample.

Trip blank – a blank solution that is put in the same type of bottle used for an environmental sample and kept with the set of sample bottles before and after sample collection.

Equipment blank – a blank solution that is processed through all equipment used for collecting and processing an environmental sample (similar to a field blank but normally done in the more controlled conditions of the office.)

Sampler blank – a blank solution that is poured or pumped through the same field sampler used for collecting an environmental sample.

Pump blank – a blank solution that is processed through the same pump-and-tubing system used for an environmental sample.

Standpipe blank – a blank solution that is poured from the containment vessel (stand-pipe) before the pump is inserted to obtain the pump blank.

Filter blank – a blank solution that is filtered in the same manner and through the same filter apparatus used for an environmental sample.

Splitter blank - a blank solution that is mixed and separated using a field splitter in the same manner and through the same apparatus used for an environmental sample.

Preservation blank – a blank solution that is treated with the sampler preservatives used for an environmental sample.

Canister blank – a blank solution that is taken directly from a stainless steel canister just before the VOC sampler is submerged to obtain a field blank sample.

REFERENCE SAMPLES—Reference material is a solution or material prepared by a laboratory whose composition is certified for one or more properties so that it can be used to assess a measurement method. Samples of reference material are submitted for analysis to ensure that an analytical method is accurate for the known properties of the reference material. Generally, the selected reference material properties are similar to the environmental sample properties.

REPLICATE SAMPLES—Replicate samples are a set of environmental samples collected in a manner such that the samples are thought to be essentially identical in composition. Replicate is the general case for which a duplicate is the special case consisting of two samples. Replicate samples are collected and analyzed to establish the amount of variability in the data contributed by some part of the collection and analytical process. There are many types of replicate samples possible, each of which may yield slightly different results in a dynamic hydrologic setting, such as a flowing stream. The types of replicate samples collected in this district are:

Concurrent sample – a type of replicate sample in which the samples are collected simultaneously with two or more samplers or by using one sampler and alternating collection of samples into two or more compositing containers.

Sequential sample – a type of replicate sample in which the samples are collected one after the other, typically over a short time.

Split sample – a type of replicate sample in which a sample is split into subsamples contemporaneous in time and space.

SPIKE SAMPLES—Spike samples are samples to which known quantities of a solution with one or more well-established analyte concentrations have been added. These samples are analyzed to determine the extent of matrix interference or degradation on the analyte concentration during sample processing and analysis.

Concurrent sample – a type of spike sample that is collected at the same time with the same sampling and compositing devices then spiked with the same spike solution containing laboratory-certified concentrations of selected analytes.

Split sample – a type of spike sample in which a sample is split into subsamples contemporaneous in time and space then spiked with the same spike solution containing laboratory-certified concentrations of selected analytes.

05049995 MUD LAKE ABOVE WHITE ROCK DAM NEAR WHITE ROCK, SD

LOCATION.--Lat 45°51'41", long 96°34'20", in NW¹/₄NW¹/₄ sec. 34, T.128 N., R.47 W., Roberts County, Hydrologic Unit 09020101, on Sisseton Indian Reservation, on left bank, 10 ft west of White Rock Dam, 4 mi south of White Rock and 5 mi northwest of Wheaton, MN.

DRAINAGE AREA.--To be determined.

PERIOD OF RECORD.--October 2000 to current year. Gage height record prior to October 2000 can be obtained from Corp of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 960.00 ft, adjustment of 1912 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records fair. Lake regulated by Lake Traverse-Boise de Sioux Flood Control and Water Conservation project.

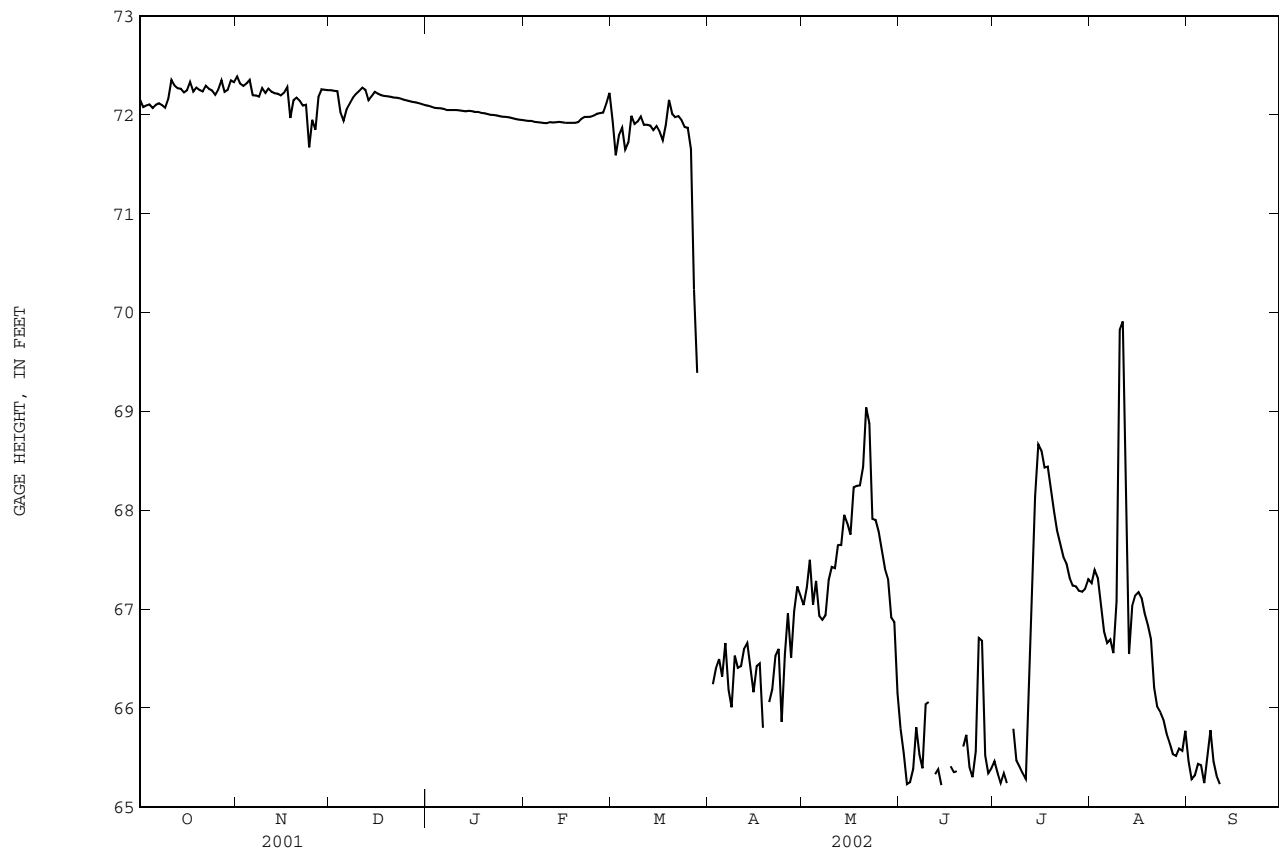
EXTREMES FOR PERIOD OF RECORD.---Maximum gage height, 80.90 ft, Apr. 29, 2001; maximum daily, 80.76 ft, Apr. 19, 2001; minimum gage-height recorded, 65.14 ft, many days in September 2002, but may have been lower in April, June, July, or September 2002 when stage was below detection limits of gage; minimum daily recorded, 65.22 ft, June 14, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 72.64 ft, Nov. 1; maximum daily, 72.39 ft, Nov. 1; minimum gage height recorded, 65.14 ft, many days in September, but may have been lower in April, June, July, or September when stage was below detection limits of gage; minimum daily recorded, 65.22 ft, June 14.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72.16	72.39	72.25	72.09	71.95	71.93	---	67.04	65.79	65.46	67.26	65.46
2	72.08	72.32	72.24	72.08	71.94	71.59	66.24	67.22	65.54	65.34	67.40	65.28
3	72.10	72.29	72.24	72.07	71.94	71.79	66.40	67.50	65.23	65.24	67.32	65.32
4	72.11	72.32	72.03	72.07	71.93	71.87	66.49	67.04	65.25	65.34	67.05	65.43
5	72.07	72.35	71.94	72.07	71.93	71.65	66.32	67.29	65.38	65.24	66.77	65.42
6	72.10	72.20	72.06	72.06	71.92	71.72	66.66	66.93	65.80	---	66.66	65.24
7	72.12	72.20	72.12	72.05	71.92	71.99	66.18	66.89	65.53	65.79	66.69	65.49
8	72.10	72.18	72.17	72.05	71.92	71.91	66.01	66.94	65.39	65.47	66.56	65.78
9	72.07	72.27	72.21	72.05	71.93	71.93	66.53	67.30	66.04	65.41	67.08	65.46
10	72.16	72.22	72.24	72.05	71.92	71.98	66.41	67.43	66.06	65.34	69.83	65.31
11	72.35	72.27	72.28	72.05	71.93	71.90	66.42	67.41	---	65.28	69.91	65.23
12	72.30	72.23	72.25	72.04	71.93	71.90	66.60	67.65	65.33	66.22	67.95	---
13	72.27	72.22	72.15	72.04	71.93	71.89	66.66	67.65	65.38	67.20	66.55	---
14	72.27	72.21	72.19	72.04	71.92	71.85	66.43	67.95	65.22	68.14	67.03	---
15	72.23	72.20	72.23	72.04	71.92	71.89	66.16	67.87	---	68.67	67.14	---
16	72.25	72.22	72.22	72.03	71.92	71.83	66.42	67.75	---	68.60	67.17	---
17	72.33	72.28	72.20	72.03	71.92	71.75	66.45	68.23	65.41	68.43	67.11	---
18	72.24	71.97	72.19	72.02	71.93	71.90	65.80	68.25	65.35	68.44	66.96	---
19	72.28	72.15	72.19	72.02	71.96	72.15	---	68.25	65.36	68.23	66.84	---
20	72.25	72.17	72.18	72.01	71.98	72.01	66.06	68.44	---	67.99	66.70	---
21	72.24	72.14	72.18	72.00	71.98	71.98	66.19	69.04	65.61	67.80	66.20	---
22	72.30	72.10	72.17	72.00	71.98	71.99	66.53	68.88	65.73	67.66	66.01	---
23	72.26	72.10	72.17	71.99	71.99	71.95	66.60	67.91	65.40	67.53	65.96	---
24	72.25	71.67	72.16	71.99	72.01	71.88	65.86	67.90	65.30	67.46	65.88	---
25	72.20	71.95	72.15	71.98	72.02	71.87	66.54	67.79	65.56	67.32	65.74	---
26	72.26	71.85	72.14	71.98	72.02	71.65	66.96	67.60	66.71	67.24	65.64	---
27	72.35	72.18	72.13	71.98	72.12	70.23	66.51	67.41	66.68	67.23	65.53	---
28	72.23	72.26	72.13	71.97	72.22	69.39	66.98	67.30	65.52	67.19	65.52	---
29	72.25	72.26	72.12	71.96	---	---	67.23	66.91	65.34	67.18	65.59	---
30	72.35	72.25	72.11	71.95	---	---	67.14	66.87	65.39	67.21	65.57	---
31	72.33	---	72.10	71.95	---	---	---	66.15	---	67.30	65.77	---
MEAN	72.22	72.18	72.17	72.02	71.96	---	---	67.57	---	---	66.75	---
MAX	72.35	72.39	72.28	72.09	72.22	---	---	69.04	---	---	69.91	---
MIN	72.07	71.67	71.94	71.95	71.92	---	---	66.15	---	---	65.52	---

05049995 MUD LAKE ABOVE WHITE ROCK DAM NEAR WHITE ROCK, SD--Continued



RED RIVER OF THE NORTH BASIN

05050000 BOIS DE SIOUX RIVER NEAR WHITE ROCK, SD

LOCATION.--Lat 45°51'45", long 96°34'25", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 27, T.128 N., R.47 W., Roberts County, Hydrologic Unit 09020101, on Sisseton Indian Reservation, on left bank at Big Slough Outlet, 300 ft downstream from White Rock Dam, 4 mi south of White Rock and 5 mi northwest of Wheaton, MN.

DRAINAGE AREA.--1,160 mi² (approximately).

PERIOD OF RECORD.--October 1941 to current year.

GAGE.--Water-stage recorder. Datum of gage is 960.00 ft above NGVD of 1929 (adjustment of 1912, levels by U.S. Army Corps of Engineers). Prior to Jan. 14, 1943, nonrecording gage at same site at datum 0.11 ft lower. Jan. 15, 1943, to Sept. 30, 1963, water-stage recorder at same site at datum 0.11 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Lake Traverse-Boise de Sioux Flood Control and Water Conservation project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	7.3	e14	e6.9	e4.4	148	156	183	31	7.2	217	23
2	5.0	6.8	e15	e6.5	e4.3	e250	64	203	10	5.3	238	12
3	5.0	6.6	e21	e6.2	e4.2	e250	139	235	4.4	2.4	228	12
4	4.8	6.3	167	e6.0	e4.2	e250	106	185	4.8	3.5	185	21
5	4.7	6.2	354	e5.8	4.2	e340	77	205	7.0	2.0	124	20
6	4.7	6.3	344	e5.6	4.3	e440	118	160	29	1.1	90	9.2
7	4.6	12	338	e5.5	4.4	e440	64	149	7.4	6.0	91	28
8	4.9	19	348	e5.6	4.9	e500	51	167	7.7	43	66	43
9	5.2	22	342	e6.3	5.9	e540	104	235	54	21	27	8.8
10	22	20	328	8.0	5.7	e540	92	233	e30	8.5	2.2	8.5
11	40	22	319	9.9	5.4	e540	107	227	e17	9.8	1.9	7.5
12	27	20	313	10	5.9	e540	128	257	e9.5	98	66	3.6
13	18	19	259	9.5	6.0	e540	139	264	4.7	283	128	2.9
14	15	18	111	8.1	6.0	e460	107	287	3.5	418	213	2.3
15	13	17	25	7.7	6.2	e460	80	283	2.8	494	236	2.0
16	11	19	20	7.4	6.5	e460	110	268	2.6	548	250	2.1
17	8.6	22	21	7.0	6.8	e440	112	303	4.9	552	243	2.2
18	8.0	12	22	6.6	7.8	381	34	302	3.8	554	220	3.8
19	7.4	14	21	6.3	10	264	20	301	4.5	502	198	2.0
20	7.2	15	18	6.2	11	228	55	307	3.1	442	175	1.9
21	6.9	14	14	5.8	9.7	146	71	327	18	387	90	1.8
22	6.7	12	14	5.7	9.7	137	114	321	34	334	58	1.4
23	6.7	13	12	5.8	11	84	124	268	11	300	52	0.77
24	7.3	7.1	12	5.4	11	82	47	267	6.4	276	45	0.63
25	7.0	17	e10	5.4	8.4	35	116	254	4.2	243	31	0.77
26	6.9	14	e9.5	5.7	9.4	144	172	233	2.4	225	23	0.77
27	6.9	e18	e9.2	5.6	12	292	110	208	4.4	222	14	0.77
28	7.7	e16	e8.6	5.3	17	316	177	192	5.8	211	14	1.3
29	7.6	e15	e8.1	5.0	---	277	213	143	5.1	206	24	2.2
30	7.0	e14	e7.7	4.7	---	244	198	123	4.1	211	29	1.9
31	7.0	---	e7.3	4.6	---	186	---	71	---	222	45	---
TOTAL	298.8	430.6	3512.4	200.1	206.3	9954	3205	7161	337.1	6837.8	3424.1	228.11
MEAN	9.639	14.35	113.3	6.455	7.368	321.1	106.8	231.0	11.24	220.6	110.5	7.604
MAX	40	22	354	10	17	540	213	327	54	554	250	43
MIN	4.6	6.2	7.3	4.6	4.2	35	20	71	2.4	1.1	1.9	0.63
AC-FT	593	854	6970	397	409	19740	6360	14200	669	13560	6790	452
CFSM	0.01	0.01	0.10	0.01	0.01	0.28	0.09	0.20	0.01	0.19	0.10	0.01
IN.	0.01	0.01	0.11	0.01	0.01	0.32	0.10	0.23	0.01	0.22	0.11	0.01

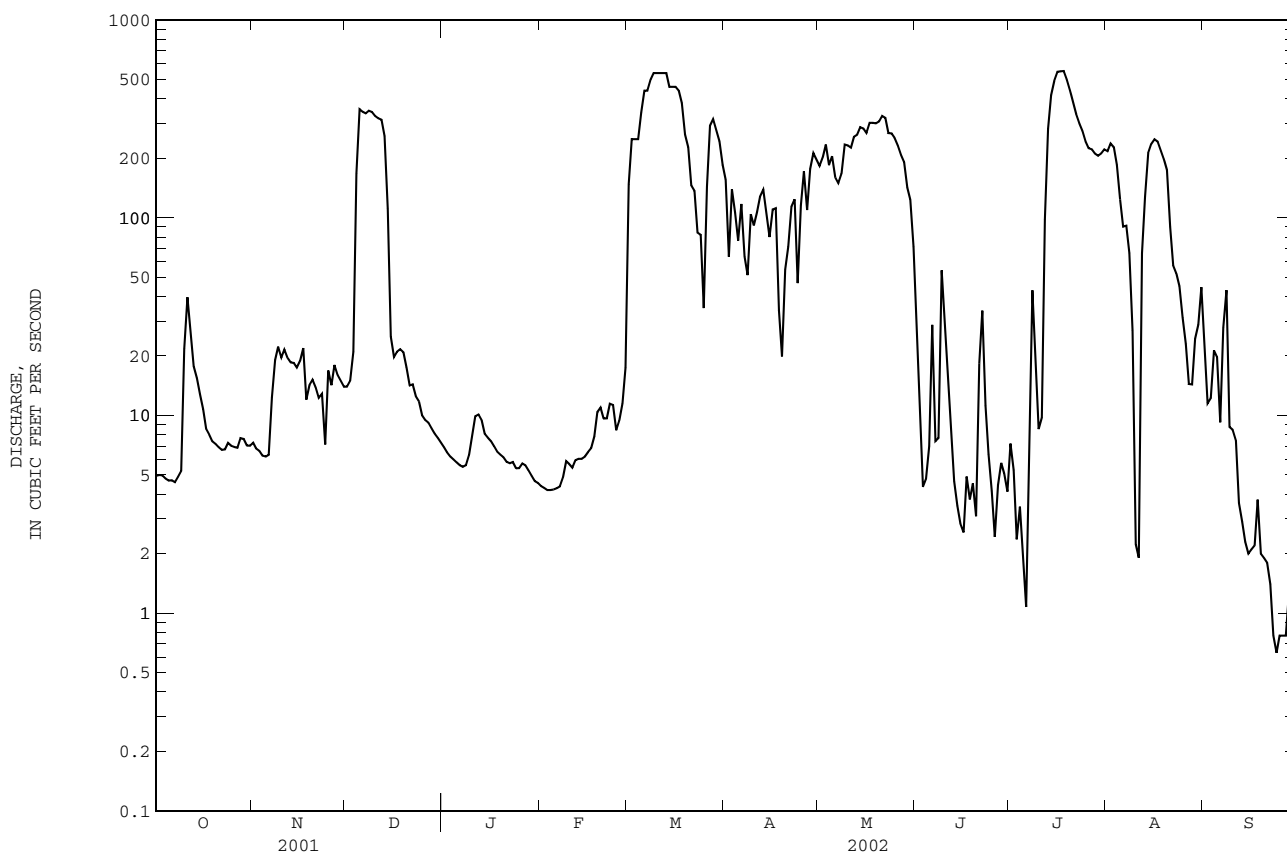
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2002, BY WATER YEAR (WY)

	MEAN	28.62	16.29	10.37	3.437	7.552	73.20	331.5	316.7	253.7	175.4	72.18	35.23
MAX	535	307	207	42.4	148	628	3814	1445	1103	1035	1182	1062	
(WY)	1994	1996	1999	1997	1997	1996	1997	1997	1986	1962	1993	1993	
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.23	0.010	0.000	0.000	0.000	
(WY)	1942	1942	1942	1942	1942	1942	1942	1977	1977	1961	1970	1960	

05050000 BOIS DE SIOUX RIVER NEAR WHITE ROCK, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1942 - 2002	
ANNUAL TOTAL	188883.71		35795.31		110.6a	
ANNUAL MEAN	517.5		98.07		536	
HIGHEST ANNUAL MEAN					0.38	
LOWEST ANNUAL MEAN					7710	
HIGHEST DAILY MEAN	3780	Apr 13	554	Jul 18	0.00	Oct 1 1941b
LOWEST DAILY MEAN	0.95	Aug 24	0.63	Sep 24	0.00	Oct 1 1941
ANNUAL SEVEN-DAY MINIMUM	1.2	Aug 19	0.92	Sep 22	8750	Apr 20 1997d
MAXIMUM PEAK FLOW			566	Jul 18c	16.90	Apr 20 1997d
MAXIMUM PEAK STAGE			9.46	Mar 9f	80110	
ANNUAL RUNOFF (AC-FT)	374700		71000		0.095	
ANNUAL RUNOFF (CFSM)	0.45		0.085		1.30	
ANNUAL RUNOFF (INCHES)	6.06		1.15		360	
10 PERCENT EXCEEDS	1260		302		3.4	
50 PERCENT EXCEEDS	21		18		0.00	
90 PERCENT EXCEEDS	1.2		4.3			

- a Median of annual mean discharges is 64 ft³/s.
b Many days, several years; result of regulation.
c Gage height 7.74 ft.
d Estimated, from observed readings made under non-ideal conditions.
Some evidence that peak occurred Apr. 16 at 7930 ft³/s.
e Estimated.
f Backwater from ice.



MINNESOTA RIVER BASIN

05289985 BIG COULEE CREEK NEAR PEEVER, SD

LOCATION.--Lat 45°29'14", long 96°57'26", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.29, T.124 N., R.50 W., Roberts County, Hydrologic Unit 07020001, on right downstream side of county highway bridge, 1.5 mi downstream of I-29, 7 mi northeast of Wilmot, and 3.9 mi south of Peever.

DRAINAGE AREA.--12.1 mi².

PERIOD OF RECORD.--October 1987 to current year.

REVISED RECORDS.--WDR SD-01-1: 1989 (Mar. 25 daily and maximum), 1991(P), 1993(P), 1995(P), 1997(M), 1998 (Apr. 26, May 12 daily and peaks), 1999(P).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,240 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.04	0.86	e0.25	e0.12	e0.25	e0.85	e1.6	3.6	1.6	0.37	0.02	0.16
2	0.07	0.58	e0.30	e0.12	e0.27	e0.75	e1.4	3.1	1.6	0.25	0.02	0.15
3	0.05	0.61	e0.35	e0.13	e0.27	e0.70	e1.2	2.9	1.9	0.20	0.05	0.12
4	0.03	0.62	e0.35	e0.14	e0.30	e0.68	e1.4	2.8	2.0	0.16	0.05	0.11
5	0.03	0.69	e0.35	e0.15	e0.32	e0.66	e1.4	2.8	1.9	0.15	0.04	0.13
6	0.04	0.71	e0.33	e0.16	e0.38	e0.64	e3.5	2.8	1.6	0.12	0.05	0.11
7	0.04	0.69	e0.30	e0.18	e0.40	e0.62	e16	2.9	1.7	0.14	0.05	0.09
8	0.05	0.58	e0.30	e0.20	e0.45	e0.61	11	24	1.4	0.13	0.04	0.07
9	0.08	0.70	e0.35	e0.20	e0.50	e0.60	6.6	33	1.5	0.11	0.31	0.07
10	0.13	0.66	e0.38	e0.20	e0.60	e0.58	11	10	1.3	0.12	0.36	0.08
11	0.29	0.70	e0.30	e0.20	e0.65	e0.58	11	8.5	0.57	0.13	0.21	0.08
12	0.24	0.72	e0.32	e0.19	e0.70	e0.74	7.3	21	0.43	0.10	1.8	0.07
13	0.34	0.68	e0.31	e0.18	e0.90	e0.86	7.3	10	0.43	0.08	0.83	0.05
14	0.57	0.72	e0.29	e0.17	e1.0	e0.80	6.7	6.7	0.64	0.07	0.43	0.07
15	0.22	0.80	e0.30	e0.16	e1.2	e0.74	5.5	5.6	0.84	0.05	0.36	0.05
16	0.16	0.79	e0.32	e0.15	e2.0	e0.70	3.6	4.8	1.5	0.03	0.28	0.05
17	0.28	0.84	e0.34	e0.13	e5.0	e0.74	3.0	4.4	0.50	0.02	0.22	0.04
18	0.36	1.1	e0.35	e0.13	17	e0.76	2.6	4.2	0.30	0.05	0.16	0.02
19	0.24	0.34	e0.31	e0.14	27	e0.70	2.3	4.0	0.29	0.06	0.16	0.03
20	0.33	e0.35	e0.30	e0.17	13	e0.65	2.1	3.7	0.23	0.05	0.14	0.02
21	0.21	e0.40	e0.28	e0.18	5.1	e0.60	2.4	3.5	8.4	0.09	0.24	0.02
22	0.36	e0.45	e0.25	e0.20	2.5	e0.64	2.7	3.1	5.1	0.09	0.20	0.01
23	0.51	e0.45	e0.24	e0.25	2.3	e0.70	2.8	2.9	3.3	0.06	0.21	0.02
24	0.30	e0.44	e0.21	e0.28	e1.8	e0.70	2.3	3.0	2.4	0.08	0.18	0.01
25	0.44	e0.40	e0.20	e0.30	e1.3	e0.60	1.8	2.5	1.8	0.10	0.16	0.01
26	0.50	e0.30	e0.20	e0.30	e1.0	e0.50	1.8	2.9	1.0	0.07	0.14	0.01
27	0.50	e0.20	e0.20	e0.30	e1.0	e0.90	3.0	2.6	0.82	0.07	0.14	0.01
28	1.2	e0.18	e0.19	e0.27	e0.95	e15	5.8	2.4	0.68	0.06	0.13	0.03
29	0.43	e0.18	e0.17	e0.23	---	e30	6.0	2.3	0.51	0.05	0.13	0.03
30	0.66	e0.20	e0.15	e0.23	---	e14	4.5	2.2	0.42	0.04	0.20	0.03
31	0.87	---	e0.13	e0.23	---	e6.0	---	1.8	---	0.03	0.18	---
TOTAL	9.57	16.94	8.62	5.99	88.14	83.60	139.6	190.0	46.66	3.13	7.49	1.75
MEAN	0.31	0.56	0.28	0.19	3.15	2.70	4.65	6.13	1.56	0.10	0.24	0.058
MAX	1.2	1.1	0.38	0.30	27	30	16	33	8.4	0.37	1.8	0.16
MIN	0.03	0.18	0.13	0.12	0.25	0.50	1.2	1.8	0.23	0.02	0.02	0.01
AC-FT	19	34	17	12	175	166	277	377	93	6.2	15	3.5

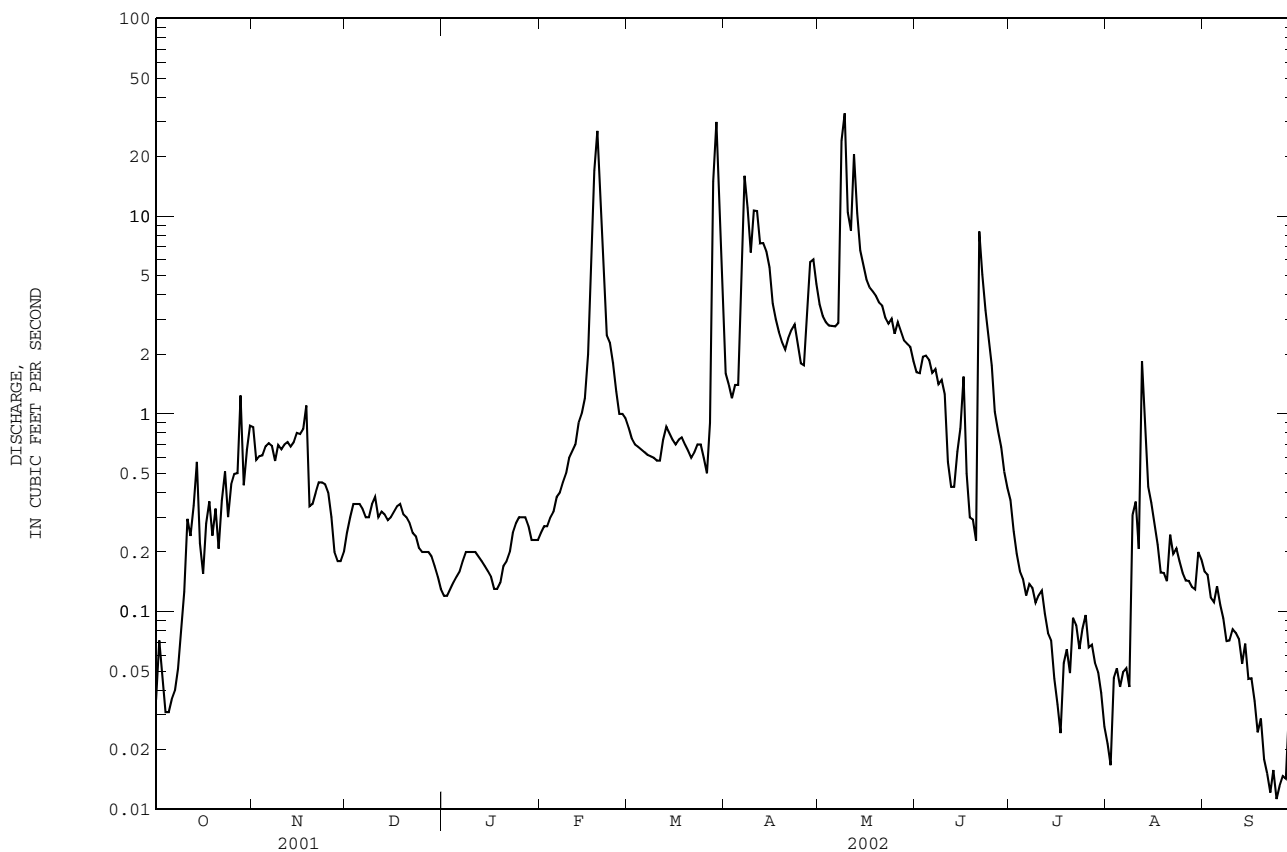
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2002, BY WATER YEAR (WY)

	1988	1988	1988	1988	1989	1991	1990	1988	1988	1988	1988	1988
MEAN	1.36	1.13	0.61	0.32	2.36	9.66	12.6	6.54	3.97	3.41	1.15	0.81
MAX	4.48	3.69	1.66	0.96	7.15	23.4	44.9	19.0	11.1	16.6	3.69	2.91
(WY)	1996	1994	1999	1997	1998	1995	2001	1995	1991	1993	1993	1992
MIN	0.000	0.000	0.000	0.000	0.000	1.42	1.52	1.09	0.013	0.000	0.000	0.000
(WY)	1988	1988	1988	1988	1989	1991	1990	1988	1988	1988	1988	1988

05289985 BIG COULEE CREEK NEAR PEEVER, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1988 - 2002	
ANNUAL TOTAL	1935.80		601.49		3.66	
ANNUAL MEAN	5.30		1.65		6.86	
HIGHEST ANNUAL MEAN					0.63	
LOWEST ANNUAL MEAN					250	
HIGHEST DAILY MEAN	173	Apr 12	33	May 9	Mar 12	1995
LOWEST DAILY MEAN	0.01	Aug 27	0.01	Sep 22	0.00	Oct 1 1987a
ANNUAL SEVEN-DAY MINIMUM	0.01	Aug 27	0.01	Sep 21	0.00	Oct 1 1987
MAXIMUM PEAK FLOW			100	Mar 28	322	Jun 21 1991b
MAXIMUM PEAK STAGE			6.94	Mar 28c	9.43	Mar 27 1997d
ANNUAL RUNOFF (AC-FT')	3840		1190		2650	
10 PERCENT EXCEEDS	16		3.6		9.0	
50 PERCENT EXCEEDS	0.32		0.36		0.89	
90 PERCENT EXCEEDS	0.03		0.05		0.00	

- a No flow for many days in most years.
b Gage height, 8.21 ft.
c Backwater from ice.
d Backwater from beaver dam.
e Estimated.



MINNESOTA RIVER BASIN

05290000 LITTLE MINNESOTA RIVER NEAR PEEVER, SD

LOCATION.--Lat 45°36'05", long 96°52'18", in SW¹/₄SW¹/₄ sec. 13, T.125 N., R.50 W., Roberts County, Hydrologic Unit 07020001, on Sisseton Indian Reservation, on right bank 2 mi northwest of town of Browns Valley, MN, 5.3 mi northeast of Peever, 7.2 mi downstream from Jorgenson River, and 8 mi upstream from Big Stone Lake.

DRAINAGE AREA.--438 mi².

PERIOD OF RECORD.--October 1939 to September 1981, October 1989 to September 2002 (discontinued).

REVISED RECORDS.--WSP 1308: 1943(M).

GAGE.--Water-stage recorder. Datum of gage is 1,002.20 ft above sea level (NGVD of 1929). Oct. 1, 1939 to Mar. 20, 1940, nonrecording gage at site 4.5 mi downstream at different datum. Mar. 21 to Apr. 12, 1940, nonrecording gage at site 100 ft downstream at present datum. April 13 to Aug. 27, 1940, nonrecording gage at present site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are fair to poor. Breakout flow into Lake Traverse (Red River of the North Basin) may occur 3.5 miles downstream when the stage exceeds approximately 8.0 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	8.3	13	e12	e9.6	e22	138	100	41	16	4.4	3.6
2	3.4	8.3	12	e12	e9.5	e23	125	91	35	14	3.7	3.6
3	3.4	8.3	12	e11	e9.5	e24	92	81	30	13	4.2	3.5
4	3.1	7.9	14	e12	e9.5	e23	82	71	28	11	7.0	3.3
5	3.1	7.9	15	e13	e9.5	e21	75	62	25	10	14	3.1
6	3.1	7.9	15	e14	e9.6	e20	72	57	24	9.6	12	2.9
7	3.3	7.9	16	e15	e9.7	e18	74	54	23	8.9	9.7	2.5
8	3.8	7.9	16	e14	e9.8	e16	120	63	20	8.7	7.8	2.1
9	4.2	7.9	15	e14	e10	e15	116	256	20	8.5	6.2	1.8
10	8.4	7.9	15	e13	e10	e12	105	318	19	10	6.7	1.7
11	12	7.9	15	e13	e10	e14	121	244	18	11	6.0	1.7
12	15	7.9	15	e13	e11	e19	132	246	17	11	7.0	1.6
13	13	8.2	15	e13	e11	e18	120	269	15	9.5	6.7	1.4
14	11	8.9	14	e12	e11	e18	113	231	15	8.3	7.6	1.4
15	9.1	9.2	14	e12	e12	e19	106	200	14	7.4	8.1	1.3
16	8.4	8.9	14	e11	e13	e19	98	173	13	6.2	6.7	1.2
17	7.9	9.4	14	e10	e13	e25	91	145	12	5.1	5.6	1.2
18	7.3	9.6	15	e10	e14	e24	83	125	11	5.6	4.5	1.1
19	7.0	9.6	13	e10	e16	e23	75	109	12	5.9	3.9	1.1
20	6.6	9.2	15	e10	e27	e23	69	94	11	7.4	3.6	1.1
21	6.4	9.2	14	e10	40	e22	64	82	16	7.4	3.9	0.99
22	6.3	9.5	14	e10	46	e22	64	74	58	7.1	4.1	0.95
23	6.4	9.6	14	e10	44	e22	65	69	71	11	5.2	0.90
24	6.6	11	18	e10	36	e22	62	63	50	9.0	5.7	0.89
25	7.0	13	21	e11	e29	e22	59	61	42	8.1	5.2	0.90
26	7.0	15	25	e11	e28	e22	54	60	42	6.8	4.6	0.95
27	7.4	15	22	e10	e24	e23	52	58	33	6.2	4.3	0.94
28	7.4	16	e16	e10	e24	e31	63	56	26	5.9	3.8	1.2
29	7.4	15	e15	e9.8	---	e50	96	53	22	6.1	3.5	2.0
30	7.4	14	e14	e9.7	---	e158	104	51	19	5.7	3.1	2.0
31	7.9	---	e13	e9.6	---	e159	---	46	---	5.0	3.5	---
TOTAL	213.9	296.3	473	355.1	505.7	949	2690	3662	782	265.4	182.3	52.92
MEAN	6.900	9.877	15.26	11.45	18.06	30.61	89.67	118.1	26.07	8.561	5.881	1.764
MAX	15	16	25	15	46	159	138	318	71	16	14	3.6
MIN	3.1	7.9	12	9.6	9.5	12	52	46	11	5.0	3.1	0.89
AC-FT	424	588	938	704	1000	1880	5340	7260	1550	526	362	105
CFSM	0.02	0.02	0.03	0.03	0.04	0.07	0.20	0.27	0.06	0.02	0.01	0.00
IN.	0.02	0.03	0.04	0.03	0.04	0.08	0.23	0.31	0.07	0.02	0.02	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2002, BY WATER YEAR (WY)

	MEAN	6.233	7.276	4.478	1.977	5.138	116.7	235.3	105.9	73.11	53.92	12.94	5.137
MAX	73.9	74.5	61.2	11.5	57.0	603	1321	531	355	865	235	52.0	
(WY)	1996	1999	1999	2002	1998	1997	1952	1962	1942	1993	1993	1999	
MIN	0.21	0.25	0.10	0.000	0.000	0.51	2.89	2.20	0.41	0.041	0.059	0.074	
(WY)	1940	1940	1940	1940	1940	1956	1981	1981	1976	1976	1976	1976	

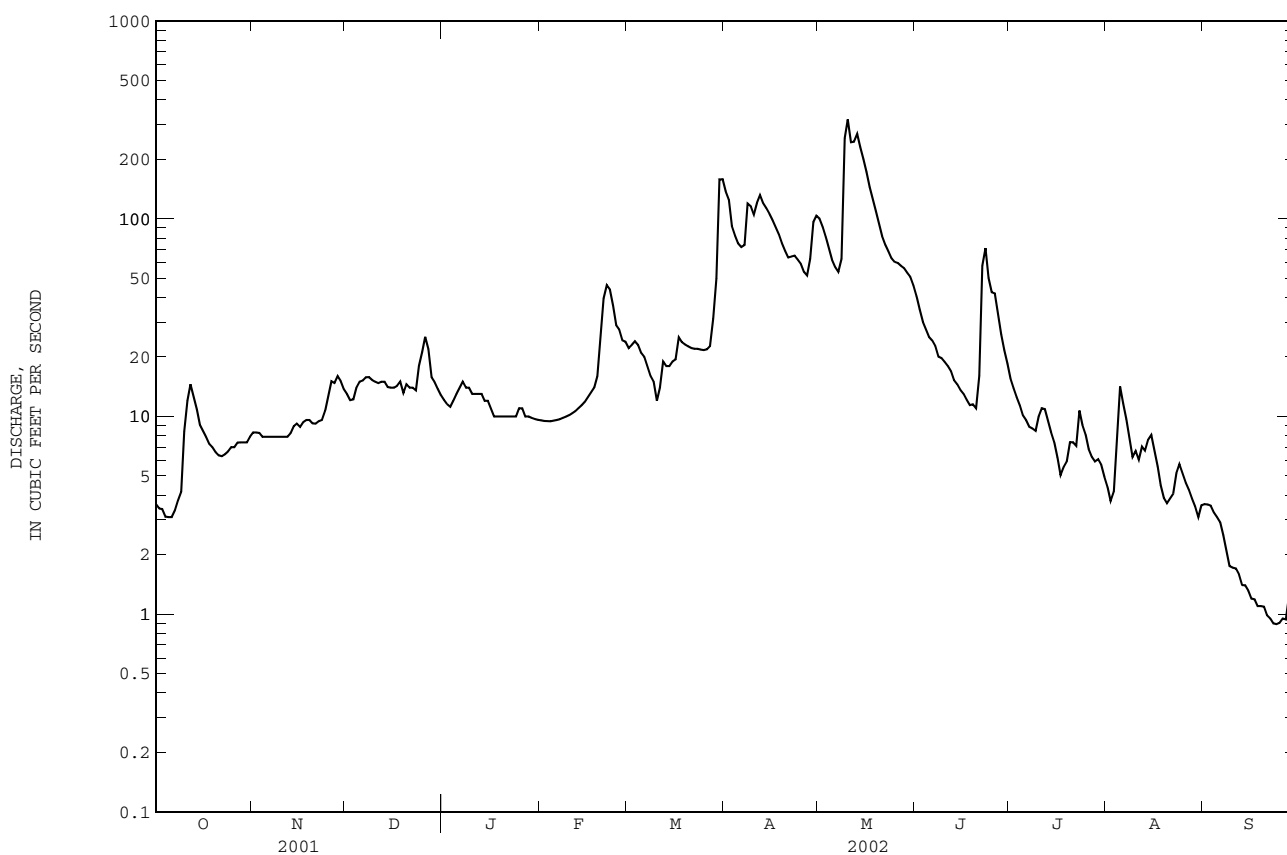
05290000 LITTLE MINNESOTA RIVER NEAR PEEVER, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1940 - 2002	
ANNUAL TOTAL	47437.8		10427.62		52.41a	
ANNUAL MEAN	130.0		28.57		172	
HIGHEST ANNUAL MEAN					1.37	
LOWEST ANNUAL MEAN					5400	
HIGHEST DAILY MEAN	2960	Apr 13	318	May 10	0.00	Jul 25 1993
LOWEST DAILY MEAN	2.0	Sep 13	0.89	Sep 24	0.00	Jan 1 1940b
ANNUAL SEVEN-DAY MINIMUM	2.5	Sep 8	0.93	Sep 21	0.00	Jan 1 1940
MAXIMUM PEAK FLOW			373	May 9	8900	Jul 25 1993
MAXIMUM PEAK STAGE			4.69	May 9	14.40	Mar 27 1997
INSTANTANEOUS LOW FLOW			0.89	Sep 23	0.00	Jan 1 1940b
ANNUAL RUNOFF (AC-FT)	94090		20680		37970	
ANNUAL RUNOFF (CFMS)	0.30		0.065		0.12	
ANNUAL RUNOFF (INCHES)	4.03		0.89		1.63	
10 PERCENT EXCEEDS	410		75		118	
50 PERCENT EXCEEDS	10		12		4.3	
90 PERCENT EXCEEDS	4.5		3.5		0.30	

a Median of annual mean discharges is 38 ft³/s.

b Many days, several years.

e Estimated.



MINNESOTA RIVER BASIN

05291000 WHETSTONE RIVER NEAR BIG STONE CITY, SD

LOCATION.--Lat 45°17'30", long 96°29'14", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 18, T.121 N., R.46 W., Grant County, Hydrologic Unit 07020001, on right bank 20 ft downstream from former highway bridge site, 1.5 mi west of Big Stone City, S.D., and 4.5 mi upstream from Big Stone Lake.

DRAINAGE AREA.--398 mi².

PERIOD OF RECORD.--March 1910 to November 1912 (no winter records), and March 1931 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 895: Drainage area. WSP 1308: 1932(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 996.96 ft in sea level (NGVD of 1912). Mar. 8, 1910 to Nov. 30, 1912, nonrecording gage 2 mi downstream at different datum. Mar. 18, 1931 to May 3, 1939, nonrecording gage, at site 20 ft upstream at present datum. May 4, 1939 to Nov. 8, 1952, water-stage recorder at site 80 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 26 ft in June 1919, present site and datum, from information by local resident, discharge 29,000 ft³/s, from dam break.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 230 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 30	0200	*1,690	*7.89	May 13	2300	278	3.38
Apr 8	1900	233	3.12	Jun 23	0000	550	4.80
May 10	1500	243	3.17				

Minimum discharge, 4.0 ft³/s, Sept. 25, gage height, 0.79 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	15	22	e22	e20	e42	320	108	34	23	9.3	8.1
2	9.6	15	24	e22	e20	e38	220	86	32	20	8.3	7.8
3	9.5	15	26	e22	e20	e35	130	72	30	20	14	7.3
4	9.3	15	26	e21	e20	e33	97	63	29	18	16	6.9
5	9.8	15	26	e21	e20	e32	89	57	29	17	14	6.9
6	10	15	28	e21	e21	e31	88	54	30	16	13	7.4
7	9.5	15	30	e21	e21	e30	108	53	29	15	12	7.0
8	10	16	27	e22	e22	e29	197	64	30	14	11	6.0
9	11	17	27	e23	e22	e28	195	133	32	13	10	6.0
10	13	16	25	e23	e23	e27	148	225	29	13	10	6.4
11	13	17	26	e23	e24	e27	133	185	26	13	10	6.3
12	15	16	26	e23	e25	e27	134	164	24	13	15	6.3
13	17	15	24	e22	e27	e26	119	220	23	13	18	6.2
14	16	17	24	e22	e29	e26	108	247	22	12	22	6.1
15	15	18	23	e21	e31	e26	98	169	20	11	22	5.9
16	14	17	24	e21	e33	e27	90	121	19	11	18	5.2
17	13	17	24	e21	e37	e27	79	94	18	9.4	15	4.8
18	14	17	22	e20	e43	e27	70	81	17	10	12	4.9
19	13	17	e28	e20	e64	e27	62	71	17	9.7	10	4.9
20	13	16	24	e20	e89	e27	55	66	16	10	9.8	4.9
21	12	17	e23	e20	e95	e26	55	62	74	12	15	4.6
22	12	16	e22	e20	e97	e26	56	60	442	15	18	4.4
23	12	17	e22	e20	e90	e26	56	59	427	16	14	4.4
24	13	22	e23	e21	e83	e26	56	55	204	15	13	4.3
25	13	31	e23	e21	e74	e26	54	54	101	15	11	4.8
26	18	29	e23	e20	e65	e25	51	53	67	14	11	5.3
27	17	e36	e23	e20	e53	e32	52	51	52	13	11	6.5
28	15	33	e22	e20	e47	e79	66	51	40	12	9.6	5.5
29	15	26	e22	e20	---	e362	82	49	33	12	8.8	6.2
30	15	23	e22	e20	---	1080	101	45	26	11	8.4	6.2
31	15	---	e22	e20	---	549	---	41	---	9.8	8.3	---
TOTAL	401.5	571	753	653	1215	2849	3169	2913	1972	425.9	397.5	177.5
MEAN	12.95	19.03	24.29	21.06	43.39	91.90	105.6	93.97	65.73	13.74	12.82	5.917
MAX	18	36	30	23	97	1080	320	247	442	23	22	8.1
MIN	9.3	15	22	20	20	25	51	41	16	9.4	8.3	4.3
AC-FT	796	1130	1490	1300	2410	5650	6290	5780	3910	845	788	352
CFSM	0.03	0.05	0.06	0.05	0.11	0.23	0.27	0.24	0.17	0.03	0.03	0.01
IN.	0.04	0.05	0.07	0.06	0.11	0.27	0.30	0.27	0.18	0.04	0.04	0.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 2002, BY WATER YEAR (WY)

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
MEAN	14.75	14.81	9.997	6.623	15.38	155.9	224.2	93.53	79.29	57.36	19.58	10.45
MAX	280	122	56.0	36.3	168	612	1677	491	478	885	327	77.0
(WY)	1996	1996	1999	1994	1998	1978	1997	1972	1984	1993	1991	1995
MIN	0.60	0.40	0.20	0.000	0.000	2.85	3.63	0.77	1.42	0.035	0.000	0.36
(WY)	1932	1935	1935	1934	1934	1969	1934	1934	1936	1934	1934	1935

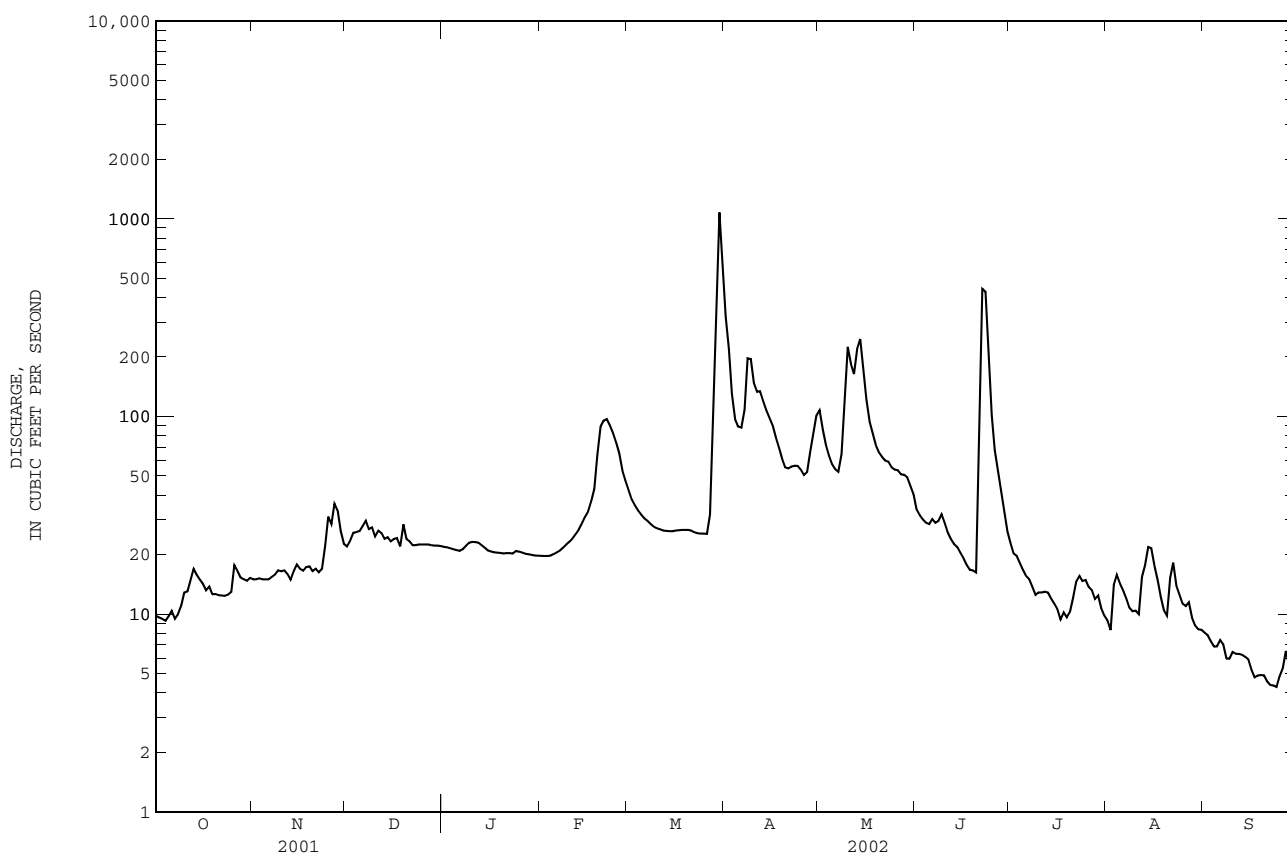
05291000 WHETSTONE RIVER NEAR BIG STONE CITY, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1910 - 2002	
ANNUAL TOTAL	62342.7		15497.4		60.21a	
ANNUAL MEAN	170.8		42.46		232	
HIGHEST ANNUAL MEAN					1.52	
LOWEST ANNUAL MEAN					8090	
HIGHEST DAILY MEAN	8090	Apr 8	1080	Mar 30	0.00	Apr 8 2001
LOWEST DAILY MEAN	5.2	Jan 1	4.3	Sep 24	0.00	Sep 13 1931b
ANNUAL SEVEN-DAY MINIMUM	6.0	Jan 1	4.6	Sep 19	0.00	Jul 31 1933
MAXIMUM PEAK FLOW			1690	Mar 30	9930	Apr 8 2001
MAXIMUM PEAK STAGE			7.89	Mar 30	15.93	Apr 8 2001
INSTANTANEOUS LOW FLOW			4.0	Sep 25	0.00	Sep 13 1931b
ANNUAL RUNOFF (AC-FT)	123700		30740		43620	
ANNUAL RUNOFF (CFSM)	0.43		0.11		0.15	
ANNUAL RUNOFF (INCHES)	5.83		1.45		2.06	
10 PERCENT EXCEEDS	387		89		112	
50 PERCENT EXCEEDS	17		22		9.0	
90 PERCENT EXCEEDS	7.0		9.4		1.4	

a Median of annual mean discharges is 46.1 ft³/s.

b Many days, several years.

e Estimated.



MINNESOTA RIVER BASIN

05292704 NORTH FORK YELLOW BANK RIVER NEAR ODESSA, MN

LOCATION.--Lat 45°11'21", long 96°24'54", in NW¹/₄ NW¹/₄ SW¹/₄ sec.22, T.120 N., R.46 W., Lac qui Parle County, Hydrologic Unit 07020001, on left bank at upstream side of County Highway #7 bridge, 11.0 mi east-southeast of Milbank, SD, 6.4 mi southwest of Odessa, and 2.9 mi upstream from mouth.

DRAINAGE AREA.--208 mi².

PERIOD OF RECORD.--May 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,020 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	6.8	e5.5	e4.4	e3.0	e15	506	54	24	4.9	1.1	0.78
2	4.5	7.2	e6.0	e4.5	e3.2	e14	311	42	19	4.1	0.80	0.75
3	3.9	7.1	e6.0	e5.0	e3.5	e14	212	35	15	4.9	1.2	0.68
4	4.2	7.1	e6.0	e5.0	e4.0	e13	161	32	14	4.3	1.8	0.63
5	4.5	7.9	e6.0	e5.0	e6.0	e13	137	27	13	3.6	1.5	0.64
6	4.4	8.2	e6.0	e5.0	e10	e12	98	24	12	2.8	1.8	0.63
7	4.3	8.5	e5.5	e5.0	e15	e12	108	24	11	2.5	2.0	0.63
8	5.0	8.0	e5.5	e6.0	e20	e11	157	31	11	2.5	1.3	0.55
9	5.5	6.2	e5.5	e7.0	e30	e10	151	43	10	2.3	1.0	0.54
10	5.8	6.4	e5.5	e8.0	e30	e15	110	68	9.6	2.2	0.96	0.76
11	6.0	6.4	e5.5	e8.0	e40	e20	96	63	8.9	2.5	0.89	0.94
12	6.1	6.3	e5.8	e7.5	e50	e25	87	61	8.1	2.3	1.3	0.75
13	6.6	6.3	e5.8	e7.5	e65	e35	78	100	8.0	1.7	1.1	0.65
14	6.5	6.4	e5.8	e7.5	80	e50	72	98	7.8	1.4	0.89	0.65
15	6.5	6.4	e5.5	e7.5	92	e48	71	67	7.4	1.3	0.78	0.71
16	6.5	6.5	e5.5	e6.0	100	e48	60	51	7.1	1.2	0.96	0.67
17	6.5	6.5	e5.5	e5.5	96	e50	52	40	6.5	1.1	0.71	0.56
18	6.7	7.1	e5.2	e5.5	99	e50	46	34	6.2	1.3	0.64	0.56
19	7.1	6.9	e5.0	e5.5	132	e48	41	29	6.1	1.4	0.65	0.58
20	5.6	6.7	e5.0	e5.5	154	e45	35	26	5.8	1.7	0.77	0.59
21	5.4	6.6	e5.0	e5.5	159	e40	33	24	8.4	1.6	2.3	0.58
22	5.3	6.6	e4.5	e5.5	134	e45	34	22	13	1.9	2.4	0.58
23	6.0	6.6	e4.0	e5.0	100	e50	32	22	13	1.6	1.5	0.51
24	6.1	e6.0	e4.0	e4.5	e40	e45	32	21	10	1.5	1.3	0.54
25	6.1	e5.8	e4.0	e4.5	e20	e40	31	20	9.0	1.6	1.0	0.64
26	6.0	e5.5	e4.0	e4.0	e20	e40	26	18	10	1.4	0.83	0.68
27	6.0	e5.5	e4.0	e3.3	e17	e50	26	18	12	2.2	0.90	0.71
28	6.2	e5.5	e4.0	e3.0	e15	e100	32	18	8.6	2.5	0.96	0.83
29	6.4	e5.5	e4.0	e3.0	---	e250	41	20	7.4	1.6	0.92	0.75
30	6.5	e5.5	e4.0	e3.0	---	743	56	45	6.0	1.4	0.90	0.90
31	6.8	---	e4.0	e3.0	---	1100	---	45	---	1.1	0.96	---
TOTAL	177.4	198.0	157.6	165.2	1537.7	3051	2932	1222	307.9	68.4	36.12	19.97
MEAN	5.723	6.600	5.084	5.329	54.92	98.42	97.73	39.42	10.26	2.206	1.165	0.666
MAX	7.1	8.5	6.0	8.0	159	1100	506	100	24	4.9	2.4	0.94
MIN	3.9	5.5	4.0	3.0	3.0	10	26	18	5.8	1.1	0.64	0.51
AC-FT	352	393	313	328	3050	6050	5820	2420	611	136	72	40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2002, BY WATER YEAR (WY)

	MEAN	43.47	26.42	13.42	7.938	39.06	160.3	298.6	91.10	83.04	110.3	23.18	15.82
MAX	342	122	32.7	19.5	166	422	977	267	212	501	107	72.5	
(WY)	1996	1996	1996	1996	1996	1997	1997	1995	1992	1993	1995	1995	
MIN	0.94	2.42	0.57	0.34	0.56	9.73	12.7	9.14	7.20	2.21	0.79	0.48	
(WY)	2001	2001	2001	2001	2001	2001	2000	1992	2000	2002	2000	2000	

05292704 NORTH FORK YELLOW BANK RIVER NEAR ODESSA, MN--Continued

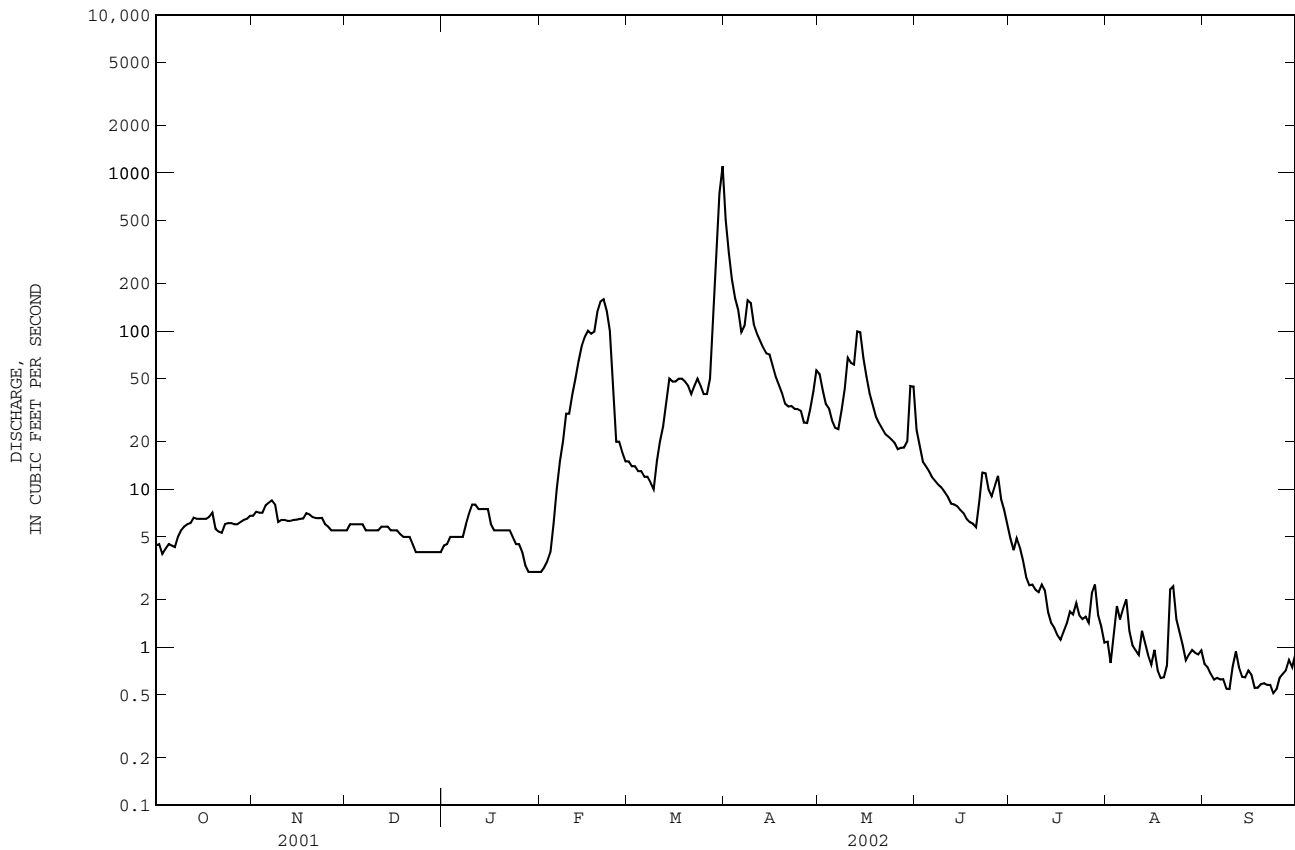
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR			FOR 2002 WATER YEAR			WATER YEARS 1992 - 2002		
ANNUAL TOTAL	37306.36			9873.29			76.00a		
ANNUAL MEAN	102.2			27.05			134		
HIGHEST ANNUAL MEAN							7.33		
LOWEST ANNUAL MEAN							5000		
HIGHEST DAILY MEAN	5000	Apr	8	1100	Mar	31	1997		
LOWEST DAILY MEAN	0.10	Jan	2	0.51	Sep	23	2000		
ANNUAL SEVEN-DAY MINIMUM	0.18	Jan	1	0.56	Sep	18	0.10	Jan	2 2001
MAXIMUM PEAK FLOW				1410	Mar	31	0.13	Dec	28 2000
MAXIMUM PEAK STAGE				11.71	Mar	31	6840	Apr	8 2001b
ANNUAL RUNOFF (AC-FT)	74000			19580			18.02	Mar	29 1997c
10 PERCENT EXCEEDS	184			60			55060		
50 PERCENT EXCEEDS	6.0			6.2			150		
90 PERCENT EXCEEDS	0.50			0.89			16		
							2.7		

a Median of annual mean discharges, 97 ft³/s.

b Gage height, 16.72 ft, backwater from ice.

c Backwater from ice.

e Estimated.



05299700 COBB CREEK NEAR GARY, SD

LOCATION.--Lat 44°44'22", long 96°27'26", in NW¹/₄ NW¹/₄ SW¹/₄ sec.27, T.115 N., R.47 W., Deuel County, Hydrologic Unit 07020003, on right bank at upstream side of State Highway 22, 2.8 mi downstream from mouth of North Branch Cobb Creek, 0.3 mi upstream from South Dakota-Minnesota State line, and 3.5 mi south of Gary.

DRAINAGE AREA.--70.3 mi².

PERIOD OF RECORD.--May 1992 to September 30, 2002 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,580 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	5.8	e7.0	e1.9	e4.2	e2.8	82	21	8.6	1.8	1.4	1.8
2	2.4	5.1	e7.5	e1.9	e4.5	e2.6	60	18	8.9	1.8	1.4	1.7
3	3.0	4.6	8.0	e1.8	e4.8	e2.5	64	16	8.9	2.3	1.4	1.9
4	3.3	4.8	8.1	e1.7	e5.1	e3.0	87	15	8.2	2.2	1.8	1.9
5	3.6	4.6	8.7	e1.7	e5.8	e3.2	83	15	6.9	1.7	2.2	2.0
6	3.8	4.5	8.7	e1.9	6.2	e3.2	86	14	5.8	1.6	3.4	2.4
7	4.1	4.7	7.5	e2.0	6.7	e3.0	80	14	5.0	1.7	6.0	2.3
8	4.5	4.8	6.0	e3.0	7.7	e3.0	52	29	4.5	1.6	2.7	1.9
9	4.4	4.8	5.7	e4.0	8.1	e3.0	39	37	4.4	1.8	1.8	1.9
10	7.2	4.7	5.7	e4.0	9.6	e3.0	36	28	4.0	1.8	2.0	2.5
11	7.0	4.6	5.5	e5.0	11	e3.5	36	23	4.0	2.5	3.2	e3.0
12	5.0	4.7	5.6	e5.3	7.7	e6.0	34	32	3.6	2.9	2.3	e2.5
13	5.7	5.2	5.3	e4.0	7.5	e14	31	32	3.6	2.0	3.4	e2.5
14	6.6	5.4	4.9	e3.5	7.2	e16	30	27	3.7	1.8	2.1	e2.5
15	5.0	5.4	5.1	e3.0	6.3	e25	26	24	4.5	1.6	1.7	e2.5
16	4.5	5.1	6.3	e3.0	6.3	e15	25	22	3.5	1.5	1.6	e2.5
17	4.3	5.1	6.2	e3.0	7.1	e10	26	20	3.2	1.4	1.9	e2.5
18	4.4	5.0	5.4	e2.5	8.6	e9.0	23	18	2.7	1.4	1.9	e2.7
19	4.5	4.9	4.5	e3.0	10	e8.0	21	17	2.7	1.7	1.5	e2.5
20	4.2	4.5	4.1	e3.2	7.8	e8.0	18	16	3.0	1.7	3.9	e2.5
21	4.1	4.7	3.8	e3.5	6.7	e9.0	17	15	5.4	2.2	16	e2.5
22	4.1	4.7	e3.8	e3.5	5.6	e10	19	14	9.6	7.1	9.6	e2.5
23	4.2	4.7	e3.7	e3.2	5.6	e10	20	13	5.5	3.7	4.6	e2.5
24	4.4	9.0	e3.2	e3.5	5.6	e9.0	17	13	4.7	2.3	3.7	e2.5
25	4.2	12	e3.0	e4.0	e4.8	e9.0	15	12	4.2	2.5	2.9	e3.0
26	4.3	e7.5	e2.8	e4.2	e4.0	e10	13	12	3.3	2.3	2.4	e2.8
27	4.5	e4.0	e2.5	e4.0	e3.5	e12	16	12	3.0	1.8	2.2	e2.5
28	5.6	e1.2	e2.3	e4.0	e3.0	e17	29	12	2.8	1.8	2.0	e4.0
29	5.7	e0.90	e2.2	e3.5	---	e130	34	14	2.4	1.9	2.0	e3.0
30	5.2	e1.0	e2.1	e3.5	---	250	29	12	2.0	1.9	1.9	e2.8
31	5.1	---	e2.0	e4.0	---	171	---	9.6	---	1.6	2.0	---
TOTAL	141.2	148.00	157.2	100.3	181.0	780.8	1148	576.6	142.6	65.9	96.9	74.1
MEAN	4.55	4.93	5.07	3.24	6.46	25.2	38.3	18.6	4.75	2.13	3.13	2.47
MAX	7.2	12	8.7	5.3	11	250	87	37	9.6	7.1	16	4.0
MIN	2.3	0.90	2.0	1.7	3.0	2.5	13	9.6	2.0	1.4	1.4	1.7
AC-FT	280	294	312	199	359	1550	2280	1140	283	131	192	147

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2002, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	10.1	8.83	6.45	4.00	9.47	45.2	109	40.2	43.1	19.3
MAX	28.4	19.1	9.33	5.62	37.2	119	317	98.9	159	84.9
(WY)	1996	1996	1999	1997	1998	1994	1997	1995	1993	1993
MIN	2.69	4.39	4.09	2.33	2.68	4.22	6.39	6.54	4.75	2.13
(WY)	2001	2000	2000	1999	2001	2001	2000	2000	2002	2002

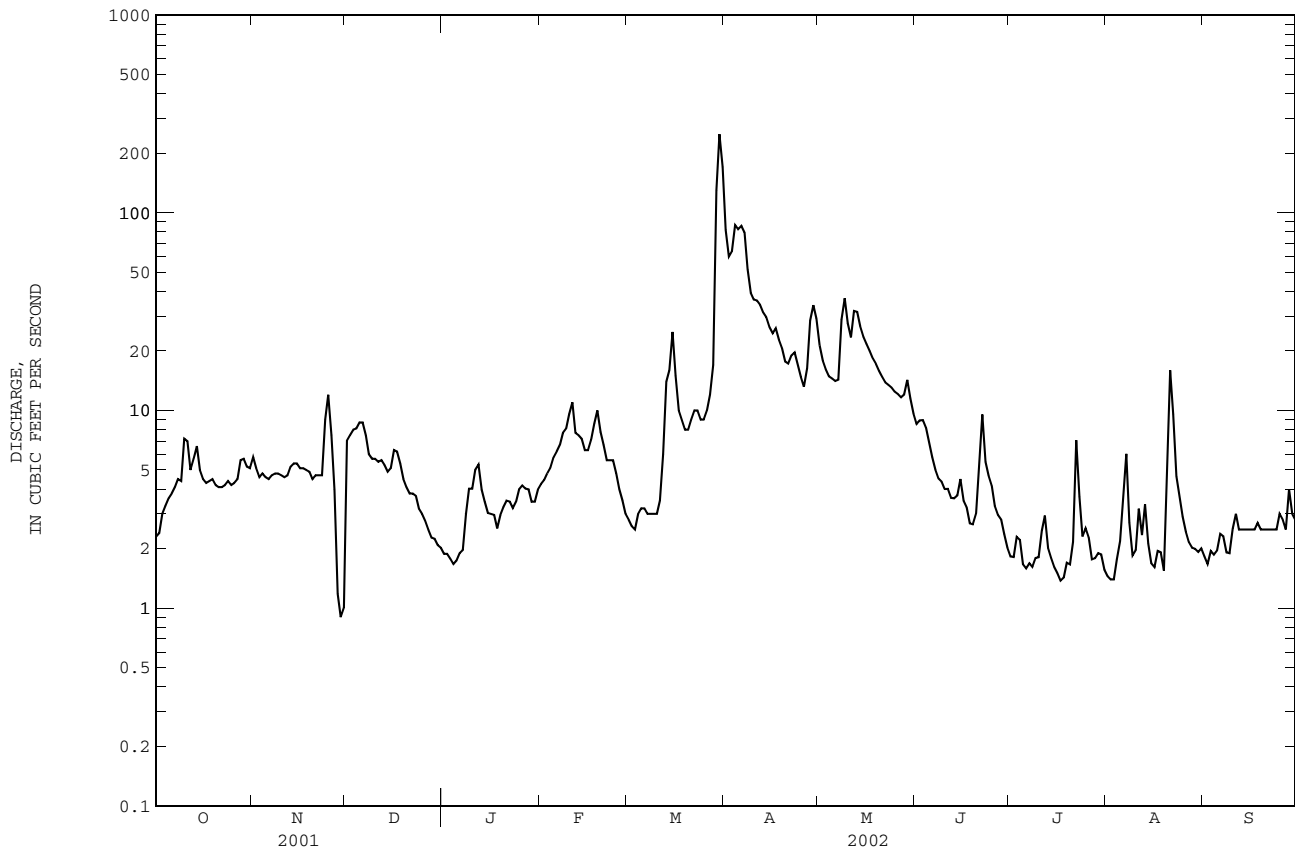
05299700 COBB CREEK NEAR GARY, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1993 - 2002	
ANNUAL TOTAL	10884.90		3612.60		26.9a	
ANNUAL MEAN	29.8		9.90		53.8	
HIGHEST ANNUAL MEAN					4.92	
LOWEST ANNUAL MEAN					1420	
HIGHEST DAILY MEAN	1000	Apr 9	250	Mar 30	1997	1993
LOWEST DAILY MEAN	0.90	Nov 29	0.90	Nov 29	2000	2000
ANNUAL SEVEN-DAY MINIMUM	1.7	Sep 8	1.6	Jul 14	2001	2001
MAXIMUM PEAK FLOW			440	Mar 29	2002	2002
MAXIMUM PEAK STAGE			10.10	Mar 29b	1997	1997
ANNUAL RUNOFF (AC-FT)	21590		7170		19500	1997b
10 PERCENT EXCEEDS	52		20		52	
50 PERCENT EXCEEDS	4.7		4.5		7.0	
90 PERCENT EXCEEDS	2.4		1.9		2.8	

a Median of annual mean discharges, 27 ft³/s.

b Backwater from ice.

e Estimated.



LITTLE MISSOURI RIVER BASIN

06334500 LITTLE MISSOURI RIVER AT CAMP CROOK, SD

LOCATION.--Lat 45°32'49", long 103°58'23", in SW¹/₄ sec.2, T.18 N., R.1 E., Harding County, Hydrologic Unit 10110201, on left bank 15 ft upstream from bridge on State Highway 20 at east edge of Camp Crook.

DRAINAGE AREA.--1,970 mi², approximately.

PERIOD OF RECORD.--September 1903 to November 1906, May 1956 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1904. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,108.98 ft above NGVD of 1929. Sept. 2, 1903, to Nov. 30, 1906, nonrecording gage at site 0.5 mi upstream at different datum. May 1956 to Oct. 8, 1957, nonrecording gage at site 15 ft downstream, and Oct. 9, 1957, to Sept. 30, 1976, water-stage recorder at present site both at datum 2.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Small diversions upstream from station for irrigation. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1952 reached a stage of about 18 ft, present datum, from local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	4.8	e8.1	e2.1	e2.1	e4.6	e15	8.3	5.2	1.5	0.60	1.0
2	3.8	4.9	e7.9	e2.2	e2.3	e4.7	e17	7.7	5.7	1.5	0.72	0.99
3	3.8	4.9	e7.3	e2.3	e2.5	e5.0	e25	7.2	4.8	1.5	0.75	0.70
4	3.9	4.9	e7.1	e2.4	e2.7	e5.1	e26	7.3	3.6	1.6	0.70	0.64
5	3.9	4.9	e6.9	e2.5	e2.9	e4.6	e24	7.0	3.5	1.3	1.0	0.73
6	3.7	4.9	e7.0	e2.8	e3.1	e3.8	e22	6.9	3.1	1.1	1.2	0.75
7	5.5	5.0	e7.1	e3.2	e3.3	e3.0	21	7.0	3.0	1.1	0.90	1.2
8	6.4	4.9	e7.3	e3.4	e3.8	e2.8	21	8.2	3.1	1.1	1.6	1.5
9	6.4	6.8	e7.1	e3.4	e4.1	e2.8	19	7.7	3.3	1.1	1.1	1.8
10	6.1	9.1	e6.7	e3.3	e4.7	e3.1	18	7.5	7.1	0.88	0.99	2.2
11	5.3	7.5	e6.0	e3.2	e5.0	e4.0	16	7.0	10	0.94	1.0	2.0
12	5.5	6.4	e5.3	e3.1	e5.1	e5.3	16	6.8	5.7	0.85	0.86	1.6
13	5.4	6.1	e5.4	e3.0	e5.2	e7.2	13	6.2	4.5	0.80	0.85	2.0
14	5.1	5.9	e5.6	e2.8	e5.3	e9.8	11	5.6	4.5	0.72	0.84	1.9
15	5.1	5.5	e6.2	e2.6	e5.5	e10	11	5.5	4.1	0.76	1.0	1.9
16	4.9	5.2	e6.3	e2.5	e5.8	e9.2	9.9	5.6	3.4	0.74	0.82	1.7
17	4.9	5.4	e6.2	e2.4	e6.0	e8.1	9.5	5.5	2.6	0.74	0.78	1.5
18	4.7	5.6	e5.8	e2.3	e6.3	e7.2	11	5.2	3.2	1.9	0.79	1.2
19	4.7	e5.7	e5.3	e2.2	e6.8	e6.6	11	4.9	7.6	1.4	0.70	1.2
20	4.6	e7.4	e4.8	e2.3	e7.3	e5.6	8.7	4.6	17	1.5	0.73	1.0
21	4.7	e8.0	e4.3	e2.4	e8.0	e5.0	8.4	4.6	9.3	1.1	0.94	0.70
22	4.6	e8.0	e3.9	e2.6	e8.8	e4.9	9.3	5.1	8.5	0.97	1.1	0.79
23	5.0	e7.1	e3.4	e2.7	e7.0	e5.0	8.3	5.0	6.0	0.82	1.1	0.81
24	5.2	e7.4	e3.2	e2.9	e6.0	e5.3	9.6	5.9	6.2	0.70	1.2	0.72
25	5.1	e8.3	e2.8	e3.1	e5.1	e6.2	8.7	5.5	6.7	0.71	1.2	0.88
26	5.0	e7.7	e2.6	e3.3	e4.8	e7.4	9.3	5.4	4.4	0.68	1.3	0.93
27	4.9	e7.0	e2.6	e3.1	e4.6	e8.9	9.4	5.5	3.1	0.71	1.3	0.77
28	5.7	e6.8	e2.5	e2.8	e4.5	e9.8	9.7	5.2	2.6	0.85	1.2	0.93
29	5.3	e7.7	e2.4	e2.3	---	e10	8.8	5.3	2.5	0.75	1.2	1.1
30	4.9	e8.1	e2.3	e1.9	---	e11	8.3	5.3	1.6	0.65	1.4	0.84
31	4.6	---	e2.2	e2.0	---	e12	---	5.4	---	0.61	1.2	---
TOTAL	152.5	191.9	161.6	83.1	138.6	198.0	414.9	189.9	155.9	31.58	31.07	35.98
MEAN	4.919	6.397	5.213	2.681	4.950	6.387	13.83	6.126	5.197	1.019	1.002	1.199
MAX	6.4	9.1	8.1	3.4	8.8	12	26	8.3	17	1.9	1.6	2.2
MIN	3.7	4.8	2.2	1.9	2.1	2.8	8.3	4.6	1.6	0.61	0.60	0.64
AC-FT	302	381	321	165	275	393	823	377	309	63	62	71

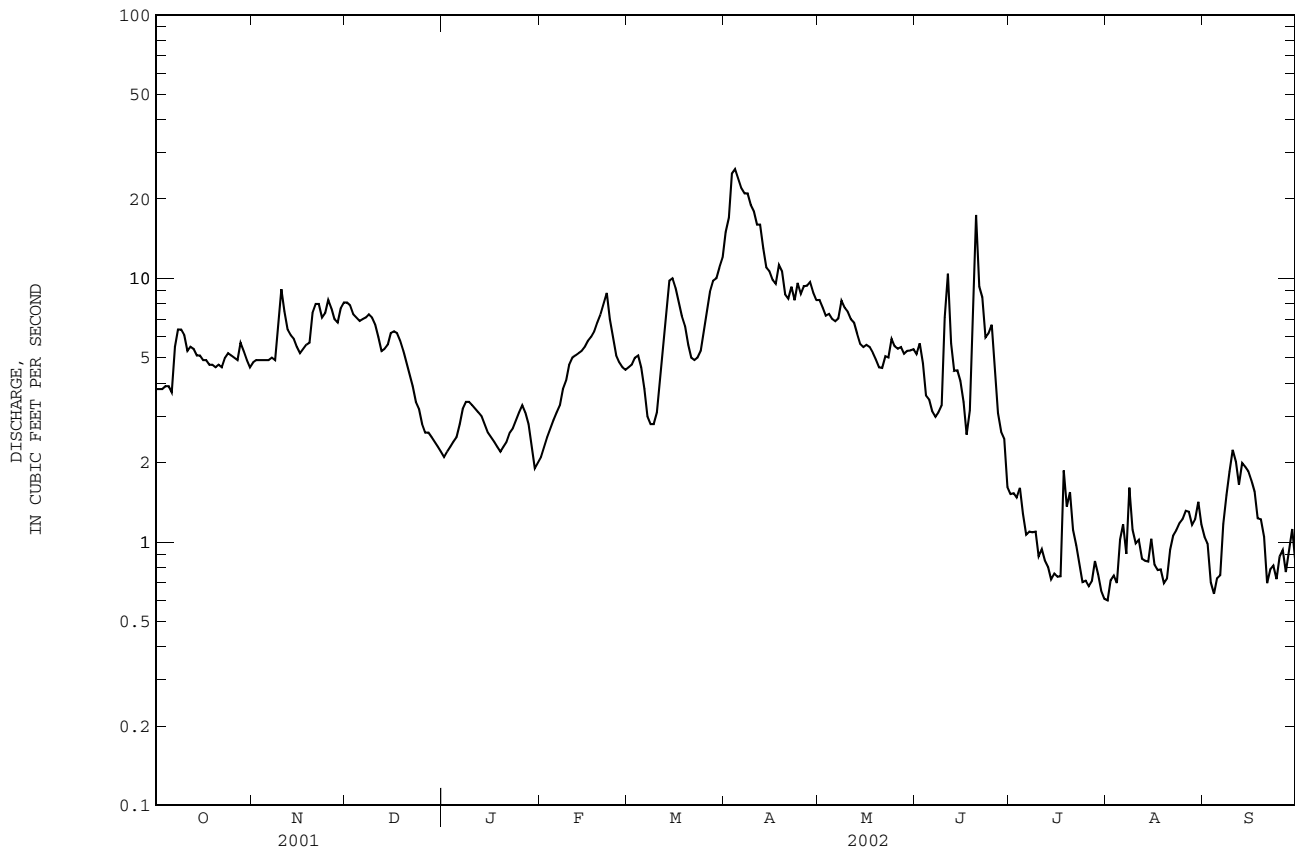
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1904 - 1905, 1957 - 2002, BY WATER YEAR (WY)

	1904	1905	1905	1905	1905	1905	1905	1905	1905	1905	1905	1905
MEAN	57.15	12.85	6.832	7.503	84.02	346.7	207.4	337.1	258.5	96.78	41.24	30.29
MAX	876	103	34.9	59.7	1112	2121	1198	1894	1107	961	537	244
(WY)	1972	1972	1972	1974	1996	1978	1971	1978	1967	1905	1906	1905
MIN	0.29	0.000	0.000	0.000	0.000	1.95	1.97	1.12	0.11	0.000	0.000	0.61
(WY)	1905	1905	1905	1905	1969	1992	1981	1992	1961	1961	1904	1958

06334500 LITTLE MISSOURI RIVER AT CAMP CROOK, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1904-1905, 1957-2002	
ANNUAL TOTAL	47285.0		1785.03		124.3a	
ANNUAL MEAN	129.5		4.890		492	
HIGHEST ANNUAL MEAN					1978	
LOWEST ANNUAL MEAN					4.68	
HIGHEST DAILY MEAN	2000	Mar 10	26	Apr 4	8560	Mar 24 1978
LOWEST DAILY MEAN	1.7	Feb 11	0.60	Aug 1	0.00	Jul 31 1904b
ANNUAL SEVEN-DAY MINIMUM	1.8	Feb 7	0.68	Jul 29	0.00	Jul 31 1904
MAXIMUM PEAK FLOW			46	Mar 28e	9420	Mar 24 1978
MAXIMUM PEAK STAGE			3.14	Mar 28c	16.90	Mar 24 1978
ANNUAL RUNOFF (AC-FT)	93790		3540		90030	
10 PERCENT EXCEEDS	430		8.8		237	
50 PERCENT EXCEEDS	7.6		4.7		10	
90 PERCENT EXCEEDS	2.9		0.86		1.2	

a Median of annual mean discharges, 110 ft³/s.
b No flow at times in some years.
c Backwater from ice.
e Estimated.



MISSOURI RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, ND

LOCATION.--Lat 46°48'51", long 100°49'12", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.31, T.139 N., R.80 W., Burleigh County, Hydrologic Unit 10130101, on left bank 40 ft upstream from Bismarck City waterplant, 2,100 ft downstream from Burlington Northern Railway bridge, 1.6 mi northwest of Bismarck Post Office, 3.5 mi upstream from Heart River, and at mile 1,314.5.

DRAINAGE AREA.--186,400 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October to November 1927, April 1928 to current year. See WSP 1729 or 1917 for history of data prior to April 1928.

GAGE.--Water-stage recorder. Datum of gage is 1,618.28 ft above NGVD of 1929, revised. See WSP 1729 or 1917 for history of changes prior to Sept. 30, 1937.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by Lake Sakakawea (station 06338000), 75.4 mi upstream, since November 1953.

EXTREMES PRIOR TO COMPLETION OF GARRISON DAM.--Maximum discharge, 500,000 ft³/s, Apr. 6, 1952, gage height, 27.90 ft.

EXTREMES SINCE COMPLETION OF GARRISON DAM.--Since completion of Garrison Dam in 1953, maximum discharge, 68,900 ft³/s, July 13, 1975, gage height, 14.24 ft; maximum gage height, 14.58 ft, Dec. 18, 1979, backwater from ice.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 31.6 ft, Mar. 31, 1881, present site and datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10100	10300	13100	e13100	e13500	e14200	13100	11200	21800	21600	22200	23300
2	9830	9950	13000	e13200	e13500	e13900	12900	11200	21900	21600	22000	23000
3	9950	9850	13300	e13300	e13500	e13600	12800	11100	22300	21200	21600	22700
4	9970	9790	13400	e13300	e13700	e13400	12600	11400	22300	21500	22000	22900
5	9890	10200	13200	e13300	e13500	e13500	12600	11300	21600	21700	21900	22600
6	9980	10200	13200	e13300	e13400	e13900	12300	11300	22000	21700	22200	22300
7	10200	10100	13000	e13400	e13500	e13800	12300	11700	21900	21400	22400	22100
8	10100	10400	13100	e13400	e13500	e13400	12100	e11700	22000	21400	22500	22100
9	10600	10100	13300	e13400	e13600	e13500	12000	e12300	22000	22000	22700	22300
10	10300	10300	13400	e13600	e13500	e13500	11900	e12400	22400	21700	22400	22400
11	10300	10200	13400	e13600	e13400	e13200	11500	e12600	e22200	21400	22300	22000
12	10100	10000	13400	e13300	e13500	e13200	11500	e14100	22000	21400	22100	22000
13	10300	10100	13200	e13300	e13700	e13100	11600	15500	22200	21700	21900	21600
14	10100	10200	13300	e13200	e13500	e12900	11300	e14500	22400	21600	22100	22000
15	10100	10300	13400	e13000	e13200	e12800	11100	e12500	22600	21800	22200	21900
16	9960	10200	13400	e13300	e13300	e12600	11100	e11200	22400	22100	22300	20500
17	10000	10300	13400	e13400	e13400	e12500	11100	10700	22300	21800	22200	18600
18	10200	10400	13400	e13500	e13500	e12400	11300	10600	22200	22000	22200	15800
19	9980	10200	13200	e13500	e13700	e12400	11400	10400	21700	21800	22100	15100
20	9970	10500	13200	e13200	e13500	e12500	11100	10300	22100	22000	22000	14000
21	10000	10400	13200	e13400	e13400	e12500	11400	10300	21800	22100	21800	14600
22	10000	10300	13200	e13500	e13400	e12600	11200	10500	21800	21900	22600	14400
23	10100	10600	13100	e13400	e13500	e12900	11300	10900	22000	21400	21800	14500
24	10200	10200	e13500	e13400	e13500	e12500	11400	10300	22100	21700	21800	14200
25	10500	10300	e13500	e13300	e13400	e12400	11100	10200	22100	22200	22500	14700
26	10400	10600	e13200	e13300	e13600	e12500	11000	10900	21800	22100	22700	14400
27	10300	11000	e13300	e13500	e13900	e12600	12700	12800	21900	22000	22200	14700
28	10200	12600	e13300	e13500	e14100	e12700	12200	15700	21700	22100	22700	14700
29	10400	12800	e13200	e13500	---	e12800	11800	18900	21800	22000	22500	14500
30	10100	13000	e13000	e13400	---	e12900	12300	e21400	21700	22000	22900	14700
31	10800	---	e13000	e13500	---	e13200	---	21700	---	22100	23300	---
TOTAL	314930	315390	410800	414300	378700	403900	354000	391600	661000	675200	690100	564600
MEAN	10160	10510	13250	13360	13520	13030	11800	12630	22030	21780	22260	18820
MAX	10800	13000	13500	13600	14100	14200	13100	21700	22600	22200	23300	23300
MIN	9830	9790	13000	13000	13200	12400	11000	10200	21600	21200	21600	14000
AC-FT	624700	625600	814800	821800	751200	801100	702200	776700	1311000	1339000	1369000	1120000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2002, BY WATER YEAR (WY)

	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
MEAN	21280	21280	20690	22770	24840	22500	21280	22760	24360	25310	25110	22210
MAX	48180	43240	31690	32350	34840	34370	40370	42030	43540	64610	57010	45060
(WY)	1998	1998	1970	1969	1969	1972	1972	1972	1975	1975	1975	1997
MIN	8399	8155	7890	6519	5883	6317	10420	9234	8445	10840	9271	8121
(WY)	1963	1963	1955	1955	1956	1955	1993	1963	1960	1960	1962	1962

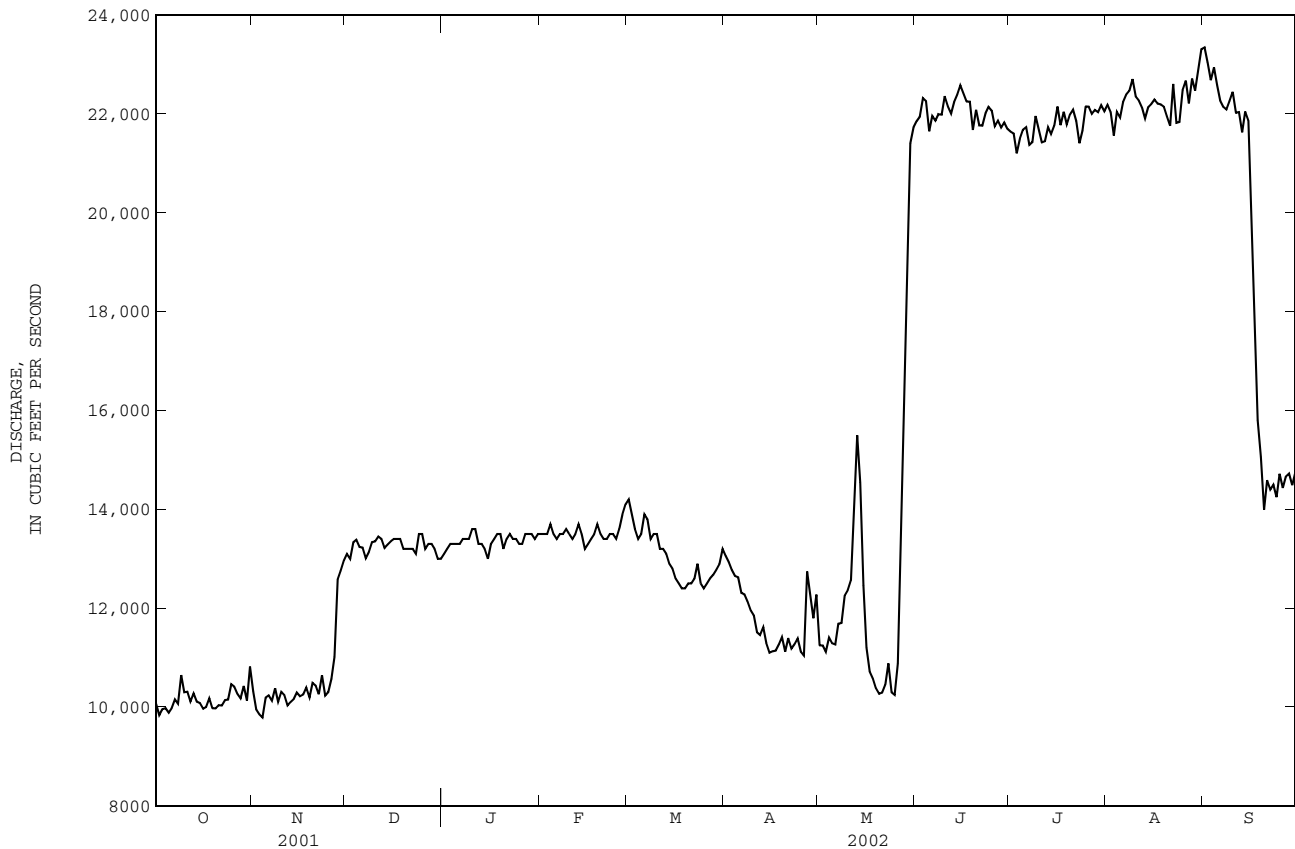
06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1954 - 2002a	
ANNUAL TOTAL	5101070		5574520		22860	
ANNUAL MEAN	13980		15270		35630	
HIGHEST ANNUAL MEAN					14320	
LOWEST ANNUAL MEAN					68800	
HIGHEST DAILY MEAN	20200	Jan 26	23300	Aug 31	68800	Jul 13 1975
LOWEST DAILY MEAN	9580	Sep 23	9790	Nov 4	4000	Mar 25 1955
ANNUAL SEVEN-DAY MINIMUM	9760	Sep 21	9990	Oct 1	4860	Mar 21 1955
MAXIMUM PEAK FLOW			24800	Aug 31	68900	Jul 13 1975
MAXIMUM PEAK STAGE			10.25	Dec 27b	14.80	Jan 13 1983b
ANNUAL RUNOFF (AC-FT)	10120000		11060000		16560000	
10 PERCENT EXCEEDS	18400		22200		34000	
50 PERCENT EXCEEDS	13900		13400		21900	
90 PERCENT EXCEEDS	10200		10200		11900	

a Since completion of Garrison Dam.

b Backwater from ice.

e Estimated.



MISSOURI-OAHE RIVER BASIN

06354882 OAK CREEK NEAR WAKPALA, SD

LOCATION.--Lat 45°42'43", long 100°33'32", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.9, T.20 N., R.29 E., Corson County, Hydrologic Unit 10130102, on right bank at upstream side of bridge on farm access road, 1.6 mi east of Rattlesnake Butte, and 4.0 mi northwest of Wakpala.

DRAINAGE AREA.--356 mi², approximately.

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,690 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.5	e0.97	4.0	1.1	e1.1	e1.8	31	6.0	0.00	3.6	0.00	0.00
2	e0.80	e0.84	3.5	1.2	e1.1	e1.6	23	5.8	0.00	3.4	0.00	0.00
3	e0.85	e0.96	3.6	1.1	e1.1	e1.4	15	4.7	0.00	2.9	0.00	0.00
4	e1.0	e1.1	3.7	0.91	e1.1	e1.6	13	3.2	0.00	2.4	0.00	0.00
5	e0.54	e1.3	4.0	0.77	e1.1	e1.4	11	2.7	0.00	2.0	0.00	0.00
6	e0.21	e1.3	3.8	1.0	e1.1	e1.3	9.8	1.4	0.00	1.5	0.00	0.00
7	e0.13	e1.4	3.7	1.1	e1.1	e1.2	9.3	1.8	0.13	1.9	0.00	0.00
8	e0.10	e1.6	3.4	1.8	e1.1	e1.1	7.2	2.6	0.00	1.3	0.00	0.00
9	e0.36	e1.7	3.5	e2.3	e1.1	e1.0	7.5	2.2	0.00	1.0	0.00	0.00
10	e0.32	e1.9	3.6	e2.6	e0.99	e0.90	6.9	2.5	0.00	0.91	0.00	0.00
11	e0.35	e1.8	3.2	e2.0	e1.2	e0.90	5.7	4.3	0.00	0.82	0.00	0.00
12	e0.39	e2.1	3.6	e2.0	e1.3	e1.0	5.2	4.6	0.00	0.73	0.00	0.00
13	e0.30	2.0	3.3	e1.8	e1.5	e2.0	6.6	3.9	0.00	0.59	0.00	0.00
14	e0.21	2.0	3.3	e2.0	e1.9	e3.7	8.2	2.4	0.00	0.48	0.00	0.00
15	e0.21	2.2	2.7	e1.7	e2.4	e6.4	7.9	2.7	0.00	0.34	0.00	0.00
16	e0.05	2.0	3.1	e1.4	e2.4	e3.2	7.4	1.1	0.00	0.20	0.00	0.00
17	e0.14	2.2	2.6	e1.4	e2.8	e3.1	6.8	0.63	0.00	0.11	0.00	0.00
18	e0.14	2.5	2.9	e1.0	e3.5	e3.9	8.1	0.41	0.00	0.03	0.00	0.00
19	e0.14	2.0	2.4	e0.99	e3.6	e5.8	8.1	0.00	0.25	0.00	0.00	0.00
20	e0.19	2.4	2.0	e1.2	e3.5	e8.9	9.7	0.00	0.39	0.00	0.00	0.00
21	e0.29	3.3	2.0	e1.3	e3.8	e14	12	0.00	0.66	0.00	0.00	0.00
22	e0.40	3.3	2.2	e1.5	e4.7	e16	12	0.00	1.2	0.00	0.00	0.00
23	e0.46	3.0	1.7	e1.5	e3.8	e11	13	0.00	2.4	0.00	0.00	0.00
24	e0.50	3.6	1.5	e1.2	e3.6	e11	10	0.00	8.2	0.00	0.00	0.00
25	e0.54	3.2	1.4	e1.4	e3.0	e9.5	9.6	0.00	4.2	0.00	0.00	0.00
26	e0.56	3.0	1.1	e1.6	e2.3	9.3	10	0.00	3.3	0.00	0.00	0.00
27	e0.71	e2.9	1.6	e1.5	e2.0	11	8.1	0.00	2.9	0.00	0.00	0.00
28	e0.96	2.8	1.7	e0.96	e1.8	14	8.8	0.00	3.2	0.00	0.00	0.00
29	e1.2	2.5	1.7	e1.0	---	16	9.3	0.00	3.5	0.00	0.00	0.00
30	e0.97	3.8	1.7	e1.0	---	17	13	0.00	3.6	0.00	0.00	0.00
31	e0.99	---	1.5	e1.0	---	21	---	0.00	---	0.00	0.00	---
TOTAL	15.51	65.67	84.0	43.33	59.99	202.00	313.2	52.94	33.93	24.21	0.00	0.00
MEAN	0.50	2.19	2.71	1.40	2.14	6.52	10.4	1.71	1.13	0.78	0.000	0.000
MAX	1.5	3.8	4.0	2.6	4.7	21	31	6.0	8.2	3.6	0.00	0.00
MIN	0.05	0.84	1.1	0.77	0.99	0.90	5.2	0.00	0.00	0.00	0.00	0.00
AC-FT	31	130	167	86	119	401	621	105	67	48	0.00	0.00

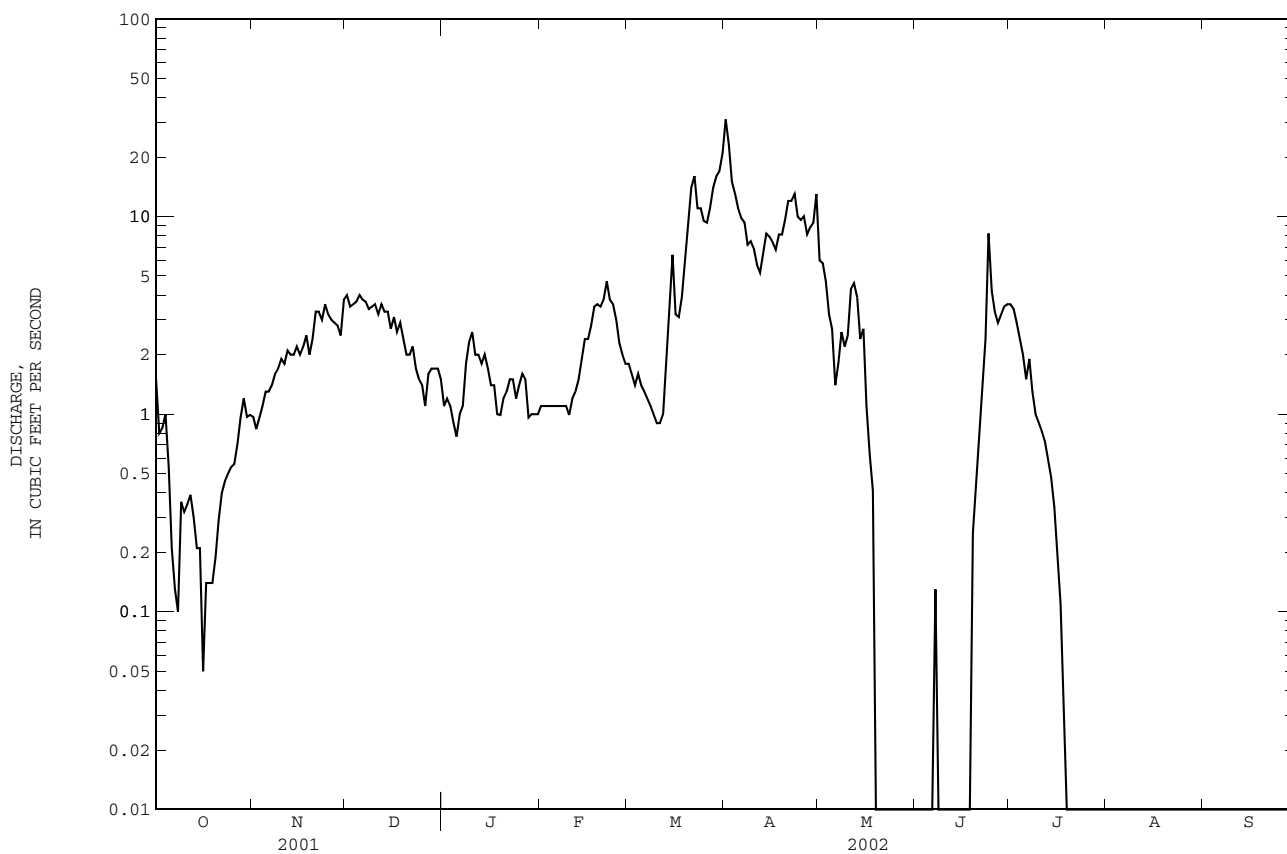
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2002, BY WATER YEAR (WY)

	MEAN	2.76	1.74	1.46	21.0	171	69.5	45.2	11.6	18.1	3.35	1.33
MAX	33.5	17.7	6.80	5.53	149	820	511	240	49.0	134	20.3	13.3
(WY)	1997	1999	1999	1996	1995	1997	1997	1999	1995	2001	1998	1999
MIN	0.000	0.000	0.000	0.000	0.000	1.81	0.79	0.096	0.000	0.000	0.000	0.000
(WY)	1985	1989	1989	1989	1985	1992	1992	1992	1992	1985	1987	1987

06354882 OAK CREEK NEAR WAKPALA, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1985 - 2002	
ANNUAL TOTAL	12546.08		894.78		29.5a	
ANNUAL MEAN	34.4		2.45		126	
HIGHEST ANNUAL MEAN					0.65	
LOWEST ANNUAL MEAN					6800	
HIGHEST DAILY MEAN	1800	Jul 17	31	Apr 1	Mar 28	1997
LOWEST DAILY MEAN	0.05	Oct 16	0.00	May 19	Oct 1	1984b
ANNUAL SEVEN-DAY MINIMUM	0.15	Oct 14	0.00	May 19	Oct 1	1984b
MAXIMUM PEAK FLOW			38	Apr 1	7500	Mar 27 1997
MAXIMUM PEAK STAGE			4.53	Apr 1	19.83	Mar 27 1997c
ANNUAL RUNOFF (AC-FT)	24890		1770		21380	
10 PERCENT EXCEEDS	50		7.4		30	
50 PERCENT EXCEEDS	2.0		1.2		1.4	
90 PERCENT EXCEEDS	0.56		0.00		0.00	

a Median of annual mean discharges, 20 ft³/s.
b No flow for many days in most years.
c Backwater from ice.
e Estimated.



GRAND-MOREAU RIVER BASIN

06355500 NORTH FORK GRAND RIVER NEAR WHITE BUTTE, SD

LOCATION.--Lat 45°48'08", long 102°21'43", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.11, T.21 N., R.14 E., Perkins County, Hydrologic Unit 10130301, on left bank on upstream side of highway bridge and 9.8 mi south of White Butte.

DRAINAGE AREA.--1,190 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1279: 1947, 1950.

GAGE.--Water-stage recorder. Elevation of gage is 2,296 ft above NGVD of 1929, from topographic map. See WSP 1917 for history of changes prior to June 12, 1951. June 12, 1951, to Aug. 20, 1975, water-stage recorder, and Aug. 21 to Sept. 10, 1975, nonrecording gage at site 100 ft upstream; Sept. 11, 1975, to Mar. 22, 1976, nonrecording gage, and July 29, 1976, to Sept. 30, 1989, water-stage recorder at site 1,400 ft upstream, and Mar. 23 to July 28, 1976, nonrecording gage at present site, all at present datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Bowman-Haley Dam, capacity, 93,000 acre-ft, 71 mi upstream, beginning August 1966. Maximum discharge prior to October 1966, 30,900 ft³/s, Apr. 16, 1950, gage height, 20.0 ft, from floodmarks, from rating curve extended above 19,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times most years. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	13	e10	e2.4	e1.6	e5.2	e5.0	10	0.00	1.9	0.00	0.00
2	15	12	e11	e2.1	e1.7	e4.8	2.3	9.5	0.00	2.0	0.00	0.00
3	14	12	e12	e1.8	e1.8	e4.2	2.5	11	0.00	2.0	0.00	0.00
4	13	11	e13	e1.9	e1.9	e4.3	2.8	13	0.00	1.7	0.00	0.00
5	11	12	e14	e2.0	e2.1	e4.5	2.2	9.8	0.00	1.2	0.00	0.00
6	8.7	11	e14	e2.2	e2.3	e4.6	2.2	9.1	0.00	0.58	0.00	0.00
7	6.9	9.5	e14	e2.4	e2.5	e4.4	2.3	8.8	0.00	0.10	0.00	0.00
8	5.4	8.7	e14	e2.5	e2.7	e4.2	2.2	9.4	0.00	0.00	0.00	0.00
9	5.2	8.2	e14	e2.5	e2.8	e4.1	2.0	9.0	0.00	0.00	0.00	0.00
10	e5.7	8.1	e14	e2.4	e2.9	e4.0	2.2	8.0	0.05	0.00	0.00	0.00
11	6.1	7.9	e13	e2.3	e3.1	e5.1	3.0	7.6	0.00	0.00	0.00	0.00
12	7.3	7.0	e13	e2.2	e3.7	e8.0	3.3	8.5	0.00	0.00	0.00	0.00
13	8.4	6.1	e13	e2.0	e4.8	e13	4.6	6.0	0.00	0.00	0.00	0.00
14	9.7	5.8	e12	e1.8	e6.2	e17	7.0	5.8	0.00	0.00	0.00	0.00
15	8.8	5.4	e12	e1.7	e7.8	e19	11	5.6	0.00	0.00	0.00	0.00
16	8.3	5.8	e11	e1.6	e8.2	e23	12	6.4	0.00	0.00	0.00	0.00
17	9.3	6.2	e11	e1.6	e8.9	e25	12	6.2	0.00	0.00	0.00	0.00
18	11	6.7	e10	e1.8	e9.0	e22	12	5.1	0.00	0.00	0.00	0.00
19	11	6.8	e9.2	e1.9	e9.0	e18	13	4.0	0.32	0.00	0.00	0.00
20	10	7.7	e8.5	e2.1	e9.0	e12	15	2.9	0.00	0.00	0.00	0.00
21	9.7	7.7	e7.7	e2.3	e9.4	e10	16	2.8	0.00	0.00	0.00	0.00
22	9.5	8.6	e6.6	e2.4	e9.4	e9.3	15	3.0	0.27	0.00	0.00	0.00
23	11	8.8	e5.8	e2.6	e9.0	e9.1	14	2.8	0.23	0.00	0.00	0.00
24	13	9.0	e4.8	e2.8	e8.8	e8.8	13	3.0	0.06	0.00	0.00	0.00
25	14	9.2	e4.2	e3.0	e8.0	e8.6	12	2.9	0.18	0.00	0.00	0.00
26	12	e8.0	e3.8	e3.1	e7.2	e8.0	11	1.8	2.1	0.00	0.00	0.00
27	11	e8.0	e3.5	e3.0	e6.5	e10	11	0.08	3.7	0.00	0.00	0.00
28	12	e8.1	e3.3	e2.5	e5.8	e9.0	11	0.18	4.7	0.00	0.00	0.00
29	13	e8.8	e3.2	e2.1	---	e7.1	11	0.38	3.3	0.00	0.00	0.00
30	12	e9.6	e2.9	e1.7	---	e4.9	11	0.22	2.3	0.00	0.00	0.00
31	12	---	e2.8	e1.5	---	e3.9	---	0.00	---	0.00	0.00	---
TOTAL	320.0	256.7	291.3	68.2	156.1	295.1	243.6	172.86	17.21	9.48	0.00	0.00
MEAN	10.3	8.56	9.40	2.20	5.58	9.52	8.12	5.58	0.57	0.31	0.000	0.000
MAX	16	13	14	3.1	9.4	25	16	13	4.7	2.0	0.00	0.00
MIN	5.2	5.4	2.8	1.5	1.6	3.9	2.0	0.00	0.00	0.00	0.00	0.00
AC-FT	635	509	578	135	310	585	483	343	34	19	0.00	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2002, BY WATER YEAR (WY) *

	7.73	7.68	4.82	6.60	16.9	174	128	90.0	55.7	26.0	10.9	4.15
MEAN	7.73	7.68	4.82	6.60	16.9	174	128	90.0	55.7	26.0	10.9	4.15
MAX	72.1	56.9	21.2	61.1	169	964	895	414	230	154	79.7	27.1
(WY)	1983	1983	1983	1973	1999	1978	1997	1982	1982	1993	2001	1979
MIN	0.000	0.000	0.000	0.000	0.000	2.22	0.007	0.071	0.032	0.000	0.000	0.000
(WY)	1969	1989	1989	1991	1969	1975	1981	1981	1981	1980	1968	1968

06355500 NORTH FORK GRAND RIVER NEAR WHITE BUTTE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1967 - 2002*	
ANNUAL TOTAL	29392.45		1830.55		44.5a	
ANNUAL MEAN	80.5		5.02		160	
HIGHEST ANNUAL MEAN					2.72	
LOWEST ANNUAL MEAN					6030	
HIGHEST DAILY MEAN	1450	Mar 11	25	Mar 17	0.00	Aug 3 1967b
LOWEST DAILY MEAN	0.00	Jan 1	0.00	May 31	0.00	Aug 3 1967
ANNUAL SEVEN-DAY MINIMUM	0.12	Jan 1	0.00	May 31	0.00	Aug 3 1967
MAXIMUM PEAK FLOW			29	Mar 17c	6710	Mar 28 1978d
MAXIMUM PEAK STAGE			2.66	Dec 11f	12.08	Mar 23 1978f
ANNUAL RUNOFF (AC-FT)	58300		3630		32270	
10 PERCENT EXCEEDS	179		12		90	
50 PERCENT EXCEEDS	17		3.0		5.8	
90 PERCENT EXCEEDS	2.1		0.00		0.00	

* Regulated period only (1967-2002). See REMARKS.

a Median of annual mean discharges, 36 ft³/s.

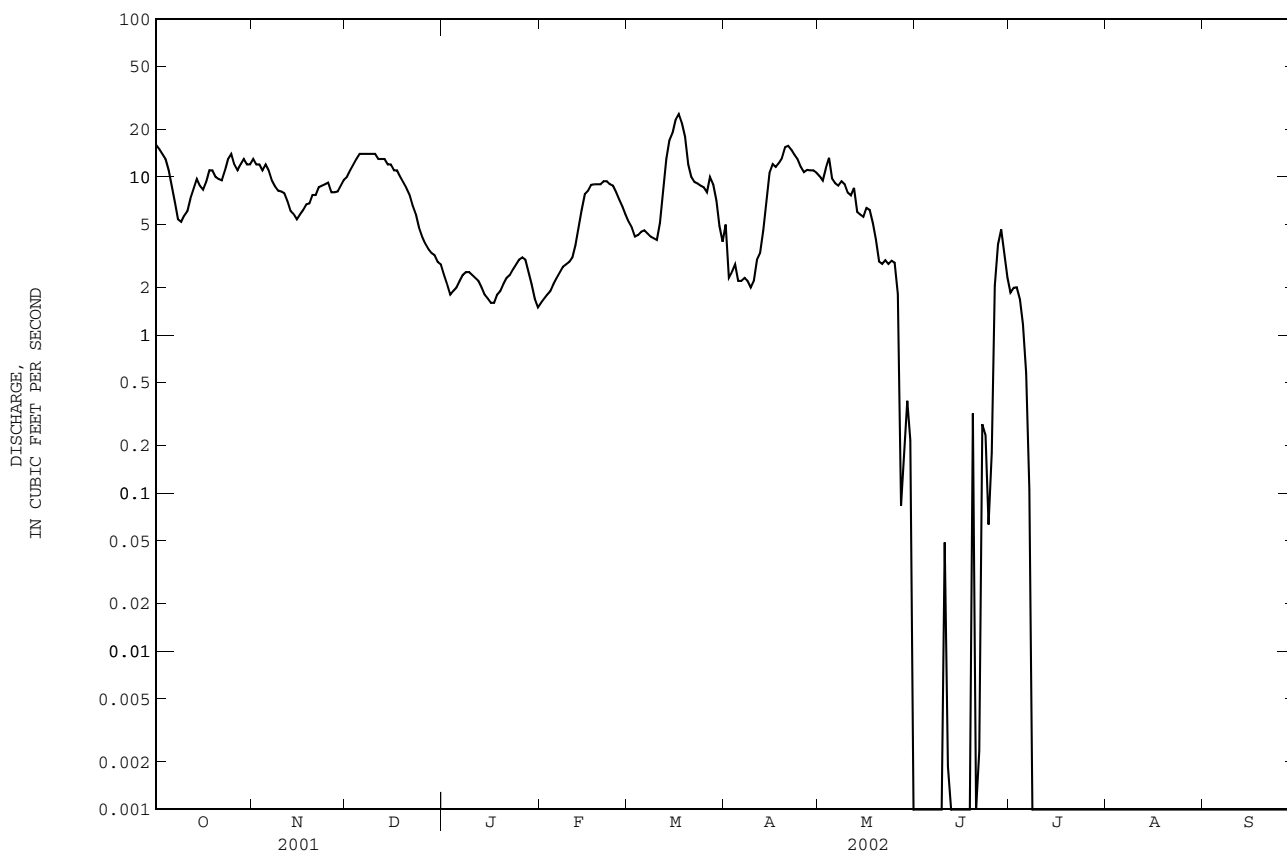
b No flow at times in most years.

c Gage height, 2.55 ft.

d Gage height, 11.63 ft, backwater from ice.

e Estimated.

f Backwater from ice.



06357000 SHADEHILL RESERVOIR AT SHADEHILL, SD

LOCATION.--Lat 45°45'12", long 102°12'12", in E¹/₂ sec.25, T.21 N., R.15 E., Perkins County, Hydrologic Unit 10130302, at dam on Grand River, 1.3 mi southwest of Shadehill.

DRAINAGE AREA.--3,120 mi², approximately.

PERIOD OF RECORD.--June 1950 to current year (monthend contents only).

GAGE.--Water-stage recorder. Elevations listed to NGVD of 1929. Prior to Apr. 3, 1952, occasional elevations obtained by level circuits and Apr. 3, 1952, to Apr. 28, 1970, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by earthfill dam. Storage began July 1, 1950; dam completed August 1951. Conservation storage, 81,400 acre-ft between elevations 2,250.8 ft (invert of canal and river outlet) and elevation 2,272.0 ft (crest of morning-glory spillway). Dead storage, 58,231 acre-ft below elevation 2,250.8 ft. Flood control, 217,708 acre-ft between elevations 2,272.0 ft and 2,302.0 ft (crest of emergency spillway). Surcharge, 111,203 acre-ft at elevation 2,312.0 ft (maximum pool elevation). Total reservoir capacity is 468,585 acre-ft at elevation 2,312.0 ft. The reservoir provides flood control and water for irrigation purposes. Figures given herein represent usable contents above elevation 2,250.8 ft. Prior to Oct. 1, 1968, reservoir contents published as total contents and included dead storage.

COOPERATION.--Records of elevation and contents provided by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum usable contents observed, 259,900 acre-ft, Apr. 10, 1952, elevation, 2,297.86 ft; minimum usable observed since first filling to spillway level, 24,941 acre-ft, Nov. 17, 1981, elevation, 2,258.62 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 47,000 acre-ft, Oct. 1, elevation, 2,268.89 ft; minimum, 23,000 acre-ft, Sept. 30, elevation, 2,263.19 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,268.94	47,200	--
Oct. 31	2,267.86	42,300	-4,900
Nov. 30	2,267.42	40,400	-1,900
Dec. 31	2,266.99	38,500	-1,900
CAL YR 2001	--	--	+11,400
Jan. 31	2,266.58	36,700	-1,800
Feb. 28	2,266.32	35,600	-1,100
Mar. 31	2,266.30	35,500	-100
Apr. 30	2,266.38	35,900	+400
May 31	2,265.98	34,200	-1,700
June 30	2,265.40	31,700	-2,500
July 31	2,264.61	28,500	-3,200
Aug. 31	2,263.98	26,000	-2,500
Sept. 30	2,263.19	23,000	-3,000
WTR YR 2002	--	--	-24,200

THIS PAGE IS INTENTIONALLY BLANK

GRAND-MOREAU RIVER BASIN

06357800 GRAND RIVER AT LITTLE EAGLE, SD

LOCATION.--Lat 45°39'28", long 100°49'04", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.32, T.20 N., R.27 E., Corson County, Hydrologic Unit 10130303, on left bank at downstream side of bridge on State Highway 63, 1.3 mi southwest of Little Eagle, and 4.7 mi downstream from Little Oak Creek.

DRAINAGE AREA.--5,370 mi², approximately.

PERIOD OF RECORD.--July 1958 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,624.63 ft above NGVD of 1929. Prior to May 12, 1959, nonrecording gage, and May 12, 1959, to Aug. 11, 1970, water-stage recorder at site 0.6 mi downstream at datum 2.00 ft higher. From Aug. 12, 1970, to Sept. 30, 1997, at present site at datum 4.00 ft higher than original datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite data-collection platform at station. Flow regulated by Shadehill Dam 144 mi upstream since July 1, 1950. (See station 06357000.) Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128	66	e42	e21	e23	e55	e80	54	36	21	33	18
2	129	66	e40	e21	e22	e52	e85	52	38	19	33	17
3	128	66	e40	e22	e22	e50	e90	50	36	20	24	16
4	128	65	e39	e22	e23	e48	e85	50	35	21	19	14
5	128	59	e38	e23	e24	e47	e88	48	35	19	17	13
6	129	56	e37	e24	e25	e49	e95	48	34	21	15	13
7	130	55	e36	e24	e27	e48	e110	48	33	26	14	13
8	118	55	e35	e25	e29	e47	116	50	34	22	15	13
9	111	54	e34	e26	e32	e46	112	49	31	21	22	15
10	117	53	e33	e28	e34	e44	99	48	30	20	23	18
11	120	53	e32	e30	e34	e46	88	51	29	19	42	18
12	141	53	e31	e30	e36	e44	86	52	27	19	51	18
13	142	53	e30	e30	e40	e50	79	52	27	19	44	22
14	123	53	e29	e30	e45	e60	72	51	27	18	35	28
15	108	53	e28	e29	e50	e75	69	48	27	17	27	24
16	97	53	e27	e28	e55	e77	65	44	27	16	21	21
17	92	53	e26	e27	e60	e85	61	42	28	15	18	18
18	91	53	e25	e26	e65	e95	59	41	28	17	18	16
19	90	51	e25	e25	e70	e105	59	40	38	16	17	16
20	90	e51	e24	e25	e75	e95	59	39	34	17	17	15
21	90	51	e24	e26	e78	e85	64	37	32	23	18	15
22	87	52	e23	e26	e80	e80	64	35	33	22	18	15
23	74	58	e23	e26	e80	e75	64	34	45	21	18	15
24	70	56	e23	e26	e75	e70	61	35	42	22	20	16
25	68	53	e23	e27	e70	e65	58	34	31	20	20	17
26	74	37	e23	e27	e65	e58	57	36	42	21	20	18
27	72	43	e23	e28	e60	e62	57	37	79	19	19	17
28	69	e46	e23	e27	e57	e70	55	39	50	27	18	19
29	67	e48	e22	e26	---	e68	59	38	34	22	19	19
30	66	e44	e22	e25	---	e70	57	37	25	27	18	20
31	66	---	e21	e24	---	e75	---	38	---	37	18	---
TOTAL	3143	1609	901	804	1356	1996	2253	1357	1047	644	711	517
MEAN	101	53.6	29.1	25.9	48.4	64.4	75.1	43.8	34.9	20.8	22.9	17.2
MAX	142	66	42	30	80	105	116	54	79	37	51	28
MIN	66	37	21	21	22	44	55	34	25	15	14	13
AC-FT	6230	3190	1790	1590	2690	3960	4470	2690	2080	1280	1410	1030

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2002, BY WATER YEAR (WY)

MEAN	93.4	59.5	36.5	47.6	154	849	586	494	326	216	113	90.0
MAX	317	204	103	867	1564	3866	4919	2292	1045	2298	554	318
(WY)	1995	1961	1983	1973	1999	1987	1997	1986	1967	1993	1993	1996
MIN	2.92	2.14	0.000	0.000	0.000	18.2	10.3	5.45	20.5	10.8	0.000	2.29
(WY)	1959	1960	1960	1959	1959	1981	1981	1981	1989	1991	1959	1960

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1959 - 2002	
ANNUAL TOTAL	91827.0		16338		256a	
ANNUAL MEAN	252		44.8		1007	
HIGHEST ANNUAL MEAN					44.8	
LOWEST ANNUAL MEAN					26500	
HIGHEST DAILY MEAN	6330	Jul 17	142	Oct 13	Mar 23	1987
LOWEST DAILY MEAN	6.0	Jan 1	13	Sep 5	0.00	Oct 2 1958b
ANNUAL SEVEN-DAY MINIMUM	11	Jan 1	14	Sep 3	0.00	Oct 2 1958
MAXIMUM PEAK FLOW			152	Oct 12c	31000	Mar 23 1987d
MAXIMUM PEAK STAGE			5.99	Mar 18f	21.76	Mar 18 1966g
ANNUAL RUNOFF (AC-FT)	182100		32410		185500	
10 PERCENT EXCEEDS	635		85		489	
50 PERCENT EXCEEDS	117		36		70	
90 PERCENT EXCEEDS	15		18		5.0	

a Median of annual mean discharges, 190 ft³/s.

b No flow at times in some years.

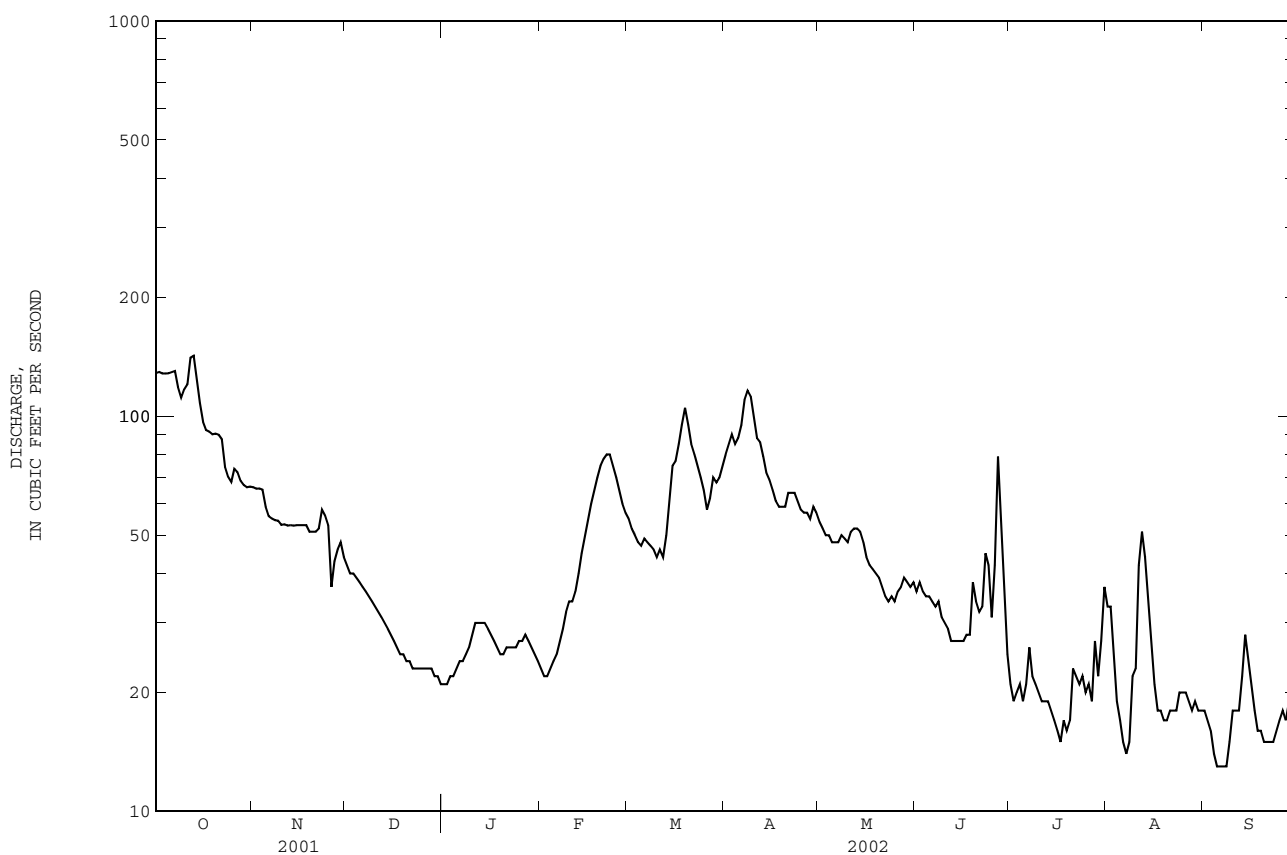
c Gage height, 4.96 ft.

d Gage height, 19.16 ft, datum then in use.

e Estimated.

f Backwater from ice.

g From floodmarks, ice jam, site and datum then in use.



GRAND-MOREAU RIVER BASIN

06359500 MOREAU RIVER NEAR FAITH, SD

LOCATION.--Lat 45°11'52", long 102°09'22", in NW¹/₄ NW¹/₄ sec.10, T.14 N., R.16 E., Perkins County, Hydrologic Unit 10130306, on left bank 10 ft downstream from bridge on State Highway 73, 3.1 mi downstream from Rabbit Creek, and 13.5 mi northwest of Faith.

DRAINAGE AREA.--2,660 mi², approximately.

PERIOD OF RECORD.--March 1943 to current year.

REVISED RECORDS.--WSP 1176: 1944. WSP 1279: 1946(M).

GAGE.--Water-stage recorder. Datum of gage is 2,238.68 ft above NGVD of 1929. Prior to Oct. 5, 1949, nonrecording gage 0.3 mi upstream and Oct. 5, 1949, to July 16, 1959, nonrecording gage and crest-stage gage at present site; both at datum 1.0 ft higher. July 17, 1959, to Sept. 1, 1971, recording gage at site 500 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	8.4	e9.3	e5.4	e2.4	e10	e58	14	4.1	0.00	0.00	27
2	13	8.2	e9.8	e3.4	e2.3	e9.2	e54	14	3.4	0.00	0.00	18
3	13	8.2	e11	e2.2	e2.7	e9.1	e50	13	3.6	0.00	0.00	13
4	13	8.3	e12	e1.7	e3.6	e9.9	e60	12	4.0	0.00	0.00	9.6
5	12	8.7	e13	e1.5	e4.7	e11	e63	12	3.8	0.00	0.00	7.6
6	12	8.8	e13	e1.6	e5.7	e12	e48	12	3.5	0.00	0.00	5.7
7	11	8.8	e13	e1.8	e6.3	e13	e42	13	3.1	0.00	0.00	4.1
8	9.7	8.8	e13	e2.2	e7.0	e14	e38	14	2.5	0.00	0.00	3.4
9	15	8.7	e13	e3.0	e7.8	e17	31	14	2.2	0.00	0.79	4.5
10	29	9.0	e13	e3.9	e8.6	e19	30	13	1.8	0.00	0.65	9.3
11	18	9.2	e12	e4.4	e9.2	e22	26	14	1.4	0.00	0.00	7.3
12	15	9.2	e12	e4.9	e10	e24	25	17	1.1	0.00	0.00	5.4
13	17	9.5	e11	e5.0	e11	e24	24	15	1.0	0.00	0.00	4.9
14	14	9.2	e10	e5.0	e12	e23	22	14	0.93	0.00	0.00	3.7
15	12	9.8	e10	e4.7	e12	e22	21	13	1.4	0.00	0.00	4.3
16	12	12	e11	e4.4	e13	e22	20	11	1.1	0.00	0.00	4.1
17	14	12	e11	e4.3	e13	e23	19	11	1.0	0.00	0.20	3.0
18	13	10	e11	e4.4	e14	e23	20	11	1.4	0.00	0.50	3.0
19	11	11	e11	e4.5	e14	e23	19	9.7	1.5	0.00	0.70	2.6
20	7.8	11	e11	e4.7	e14	e23	19	8.4	0.90	0.00	0.70	2.9
21	7.6	11	e10	e4.9	e14	e23	21	7.0	0.59	0.00	0.80	1.9
22	7.4	10	e10	e5.0	e14	e23	20	5.9	0.52	0.00	0.80	1.3
23	7.5	11	e8.0	e5.3	e13	e22	19	6.6	6.0	0.00	0.90	1.3
24	8.1	11	e8.4	e5.6	e13	e23	17	5.3	5.5	0.00	1.2	1.7
25	7.3	10	e8.0	e5.2	e12	e23	15	4.5	2.9	0.00	18	3.9
26	6.5	e10	e7.8	e4.8	e12	e24	14	3.8	1.3	0.00	43	3.0
27	6.4	e9.7	e7.1	e4.2	e11	e26	15	4.1	0.51	0.00	673	2.5
28	7.2	e9.7	e6.7	e3.7	e11	e29	15	4.9	0.05	0.00	222	2.0
29	7.5	e9.9	e6.2	e3.1	---	e33	15	6.6	0.00	0.00	109	1.9
30	7.1	e9.5	e5.8	e2.8	---	e39	14	4.6	0.00	0.00	100	1.5
31	8.1	---	e5.5	e2.6	---	e48	---	3.3	---	0.00	54	---
TOTAL	356.2	290.6	313.6	120.2	273.3	666.2	854	311.7	61.10	0.00	1226.24	164.4
MEAN	11.49	9.687	10.12	3.877	9.761	21.49	28.47	10.05	2.037	0.000	39.56	5.480
MAX	29	12	13	5.6	14	48	63	17	6.0	0.00	673	27
MIN	6.4	8.2	5.5	1.5	2.3	9.1	14	3.3	0.00	0.00	0.00	1.3
AC-FT	707	576	622	238	542	1320	1690	618	121	0.00	2430	326

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2002, BY WATER YEAR (WY)

	MEAN	33.53	15.26	7.649	7.301	73.78	402.7	384.4	305.2	282.1	115.7	34.07	16.21
MAX	463	139	44.8	99.0	1045	2757	4355	2203	1850	1530	258	262	
(WY)	1983	1999	1999	1973	1996	1978	1952	1982	1944	1993	1993	1986	
MIN	0.000	1.10	0.000	0.000	0.000	0.19	5.27	4.60	2.04	0.000	0.000	0.003	
(WY)	1959	1946	1956	1944	1944	1944	1981	1980	2002	2002	1949	1958	

06359500 MOREAU RIVER NEAR FAITH, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1944 - 2002	
ANNUAL TOTAL	38177.3		4637.54		139.9a	
ANNUAL MEAN	104.6		12.71		496	
HIGHEST ANNUAL MEAN					7.60	
LOWEST ANNUAL MEAN					25300	
HIGHEST DAILY MEAN	5000	Mar 8	673	Aug 27	0.00	Apr 8 1944
LOWEST DAILY MEAN	2.5	Sep 3	0.00	Jun 29b	0.00	Dec 15 1943b
ANNUAL SEVEN-DAY MINIMUM	3.4	Aug 29	0.00	Jun 29	0.00	Dec 15 1943
MAXIMUM PEAK FLOW			1460	Aug 27	26000	Apr 9 1944c
MAXIMUM PEAK STAGE			6.24	Aug 27	20.90	Apr 9 1944d
ANNUAL RUNOFF (AC-FT)	75720		9200		101400	
10 PERCENT EXCEEDS	163		23		197	
50 PERCENT EXCEEDS	15		8.2		12	
90 PERCENT EXCEEDS	5.9		0.00		0.20	

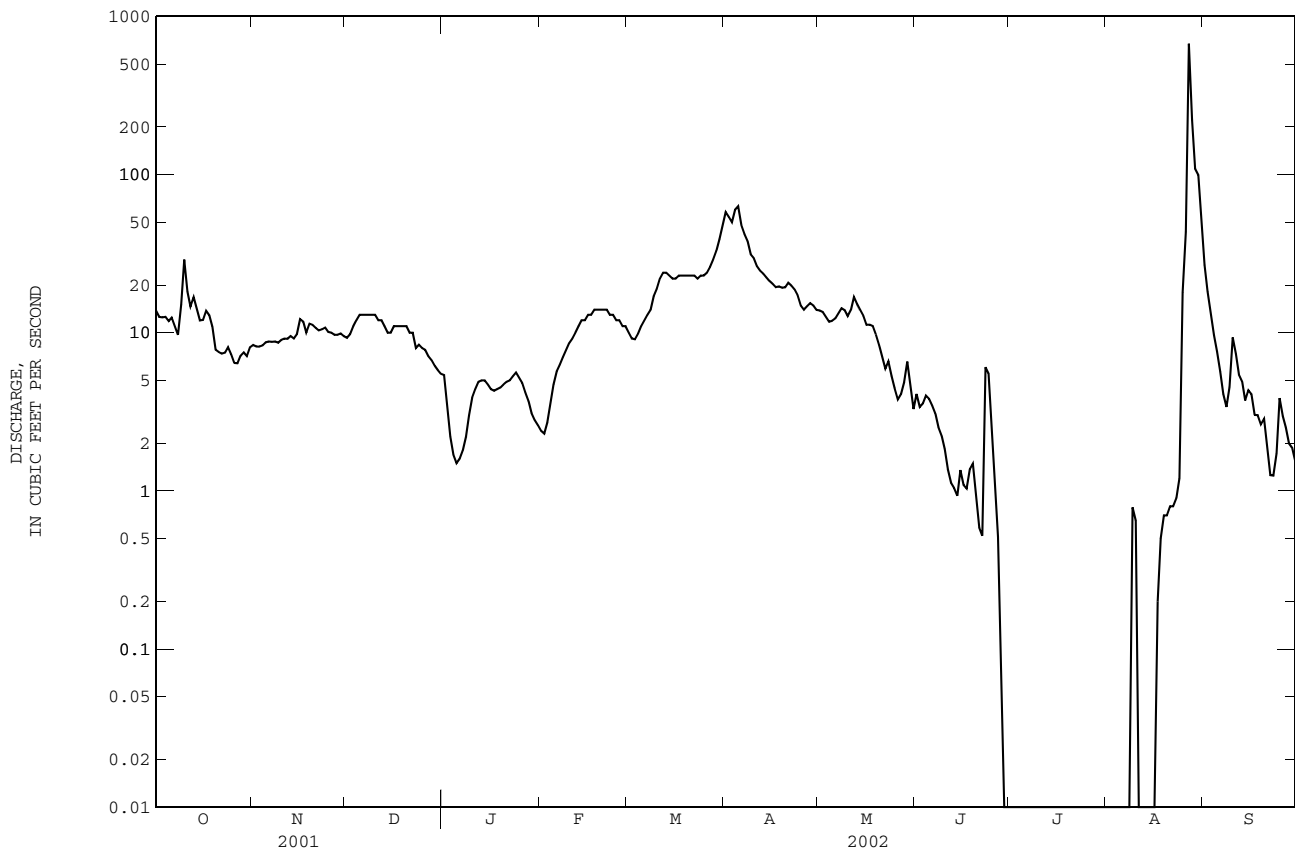
a Median of annual mean discharges, 95 ft³/s.

b No flow at times in most years.

c From rating curve extended above 12,000 ft³/s on basis of slope-area measurement of peak flow.

d From floodmarks, site and datum then in use.

e Estimated.



GRAND-MOREAU RIVER BASIN

06360500 MOREAU RIVER NEAR WHITEHORSE, SD

LOCATION.--Lat 45°15'21", long 100°50'33", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.17, T.15 N., R.27 E., Dewey County, Hydrologic Unit 10130306, on left bank 30 ft downstream from bridge, 2.4 mi southeast of Whitehorse, 8.8 mi downstream from Little Moreau River, and 16.3 mi southeast of town of Timber Lake.

DRAINAGE AREA.--4,880 mi², approximately.

PERIOD OF RECORD.--June 1954 to current year.

REVISED RECORDS.--WDR SD-78-1: 1977.

GAGE.--Water-stage recorder. Datum of gage is 1,661.48 ft above NGVD of 1929. Prior to Nov. 24, 1954, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1953 reached a stage of about 26.2 ft. Flood in March 1947 was probably higher.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	e1.5	e3.5	e0.09	e0.50	e14	e44	22	e1.3	0.00	0.00	105
2	0.00	e1.7	e3.0	e0.09	e0.50	e13	e40	21	e1.1	0.00	0.00	117
3	e0.00	e1.9	e2.5	e0.08	e0.50	e13	e40	19	e0.90	0.00	0.00	95
4	e0.00	e3.4	e2.0	e0.08	e0.50	e14	e40	18	e0.70	0.00	0.00	82
5	e0.00	3.7	e1.6	e0.07	e0.60	e13	e45	17	e0.50	0.00	0.00	69
6	e0.00	4.1	e1.3	e0.07	e0.80	e12	e55	17	e0.35	0.00	0.00	49
7	e0.00	4.3	e1.1	e0.07	e1.0	e11	e53	17	e0.20	0.00	0.00	34
8	e0.00	4.1	e0.95	e0.15	e1.3	e10	e50	17	e0.10	0.00	0.00	25
9	e0.10	4.2	e0.85	e0.20	e1.6	e10	e80	17	e0.05	0.00	0.00	22
10	e0.40	4.7	e0.80	e0.30	e2.0	e10	80	19	e0.02	0.00	0.00	21
11	e0.60	4.4	e0.75	e0.40	e4.0	e10	58	19	e0.00	0.00	0.00	18
12	e0.80	5.3	e0.65	e0.50	e5.0	e12	50	21	e0.00	0.00	0.00	15
13	e1.0	4.8	e0.60	e0.60	e5.5	e13	47	20	0.00	0.00	0.00	12
14	e0.95	5.5	e0.55	e0.60	e6.0	e14	41	20	0.00	0.00	0.00	7.9
15	e0.90	5.7	e0.50	e0.55	e7.0	e15	35	17	0.00	0.00	0.00	4.6
16	e0.85	6.5	e0.45	e0.50	e8.0	e16	32	16	0.00	0.00	0.00	3.4
17	e0.80	7.7	e0.40	e0.45	e9.0	e17	30	16	0.00	0.00	0.00	2.4
18	e0.75	7.5	e0.35	e0.40	e10	e17	30	15	0.00	0.00	0.00	e1.8
19	e0.70	e7.4	e0.30	e0.40	e11	e16	29	13	0.00	0.00	0.00	e1.3
20	e0.70	e7.3	e0.27	e0.45	e12	e15	29	12	0.00	0.00	0.00	e0.90
21	e0.65	5.8	e0.23	e0.50	e15	e14	29	9.9	0.00	0.00	0.00	e0.60
22	e0.65	9.5	e0.20	e0.55	e17	e13	29	7.4	0.00	0.00	0.00	e0.40
23	e0.65	8.9	e0.18	e0.55	e18	e13	29	5.2	0.00	0.00	0.00	e0.25
24	e0.60	10	e0.16	e0.60	e18	e13	27	4.6	0.00	0.00	0.00	e0.15
25	e0.60	e10	e0.15	e0.80	e17	e13	27	4.6	0.00	0.00	0.00	e0.09
26	e0.60	e8.5	e0.14	e1.0	e17	e14	25	5.1	0.00	0.00	0.00	e0.05
27	e0.65	e7.0	e0.13	e0.95	e16	e17	25	3.3	0.00	0.00	0.00	e0.02
28	e0.70	e6.0	e0.12	e0.80	e15	e25	26	2.6	0.00	0.00	0.00	e0.00
29	e0.80	e5.0	e0.11	e0.70	---	e35	25	2.3	0.00	0.00	0.00	e0.00
30	e0.90	e4.0	e0.10	e0.60	---	e50	24	e2.0	0.00	0.00	0.00	e0.00
31	e1.2	---	e0.10	e0.50	---	e47	---	e1.6	---	0.00	0.00	---
TOTAL	16.55	170.4	24.04	13.60	219.80	519	1174	401.6	5.22	0.00	0.00	687.86
MEAN	0.53	5.68	0.78	0.44	7.85	16.7	39.1	13.0	0.17	0.000	0.000	22.9
MAX	1.2	10	3.5	1.0	18	50	80	22	1.3	0.00	0.00	117
MIN	0.00	1.5	0.10	0.07	0.50	10	24	1.6	0.00	0.00	0.00	0.00
AC-FT	33	338	48	27	436	1030	2330	797	10	0.00	0.00	1360

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 2002, BY WATER YEAR (WY)

	MEAN	54.2	16.6	6.81	7.93	102	969	494	643	394	191	56.0	28.0
MAX	642	182	59.1	210	1253	8022	5071	3759	2433	2438	452	362	
(WY)	1983	1999	1999	1973	1996	1997	1997	1982	1967	1993	1993	1996	
MIN	0.000	0.000	0.000	0.000	0.000	0.000	2.28	0.000	0.000	0.17	0.000	0.000	0.000
(WY)	1957	1959	1956	1956	1955	1964	1981	1981	2002	2002	1955	1958	

06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1955 - 2002	
ANNUAL TOTAL	58231.60		3232.07		248a	
ANNUAL MEAN	160		8.85		1428	
HIGHEST ANNUAL MEAN					8.39	
LOWEST ANNUAL MEAN					28100	
HIGHEST DAILY MEAN	5000	Mar 14	117	Sep 2	Mar 23	1997
LOWEST DAILY MEAN	0.00	Sep 3	0.00	Oct 1	0.00	1980
ANNUAL SEVEN-DAY MINIMUM	0.00	Sep 3	0.00	Oct 1	0.00	Jan 12 1955b
MAXIMUM PEAK FLOW			159	Sep 1c	29700	Mar 23 1997d
MAXIMUM PEAK STAGE			3.32	Apr 6f	27.68	Mar 21 1997f
ANNUAL RUNOFF (AC-FT')	115500		6410		179700	
10 PERCENT EXCEEDS	278		25		457	
50 PERCENT EXCEEDS	9.0		0.85		13	
90 PERCENT EXCEEDS	0.14		0.00		0.00	

a Median of annual mean discharges, 140 ft³/s.

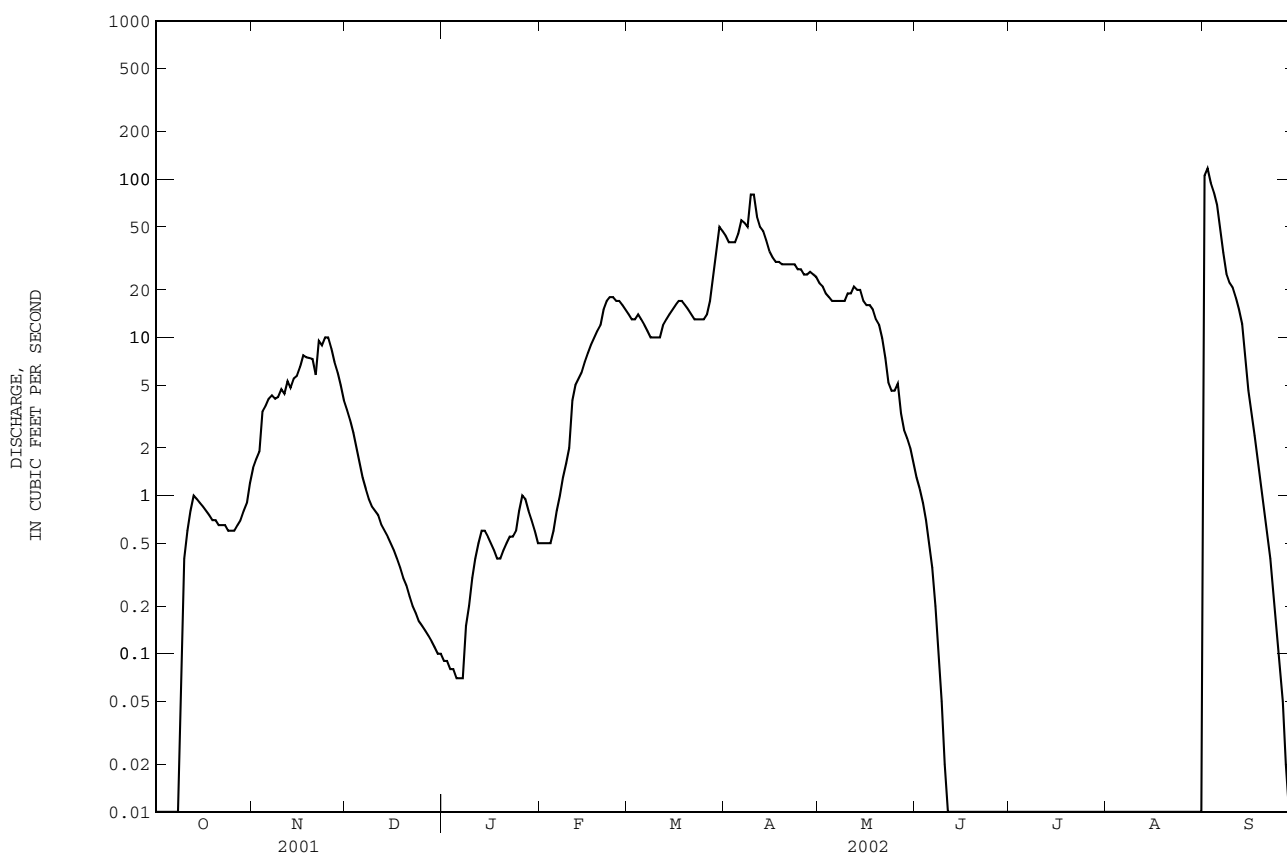
b No flow at times in most years.

c Gage height, 3.16 ft.

d Gage height, 26.93 ft.

e Estimated.

f Backwater from ice.



CHEYENNE RIVER BASIN

06392900 BEAVER CREEK AT MALLO CAMP, NEAR FOUR CORNERS, WY

LOCATION.--Lat 44°05'06", long 104°03'36", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.4, T.47 N., R.60 W., Weston County, Hydrologic Unit 10120107, on right bank in Mallo Campgrounds, 250 ft upstream from mouth, 750 ft upstream from dam on Stockade Beaver Creek, and 3.8 mi east of Four Corners.

DRAINAGE AREA.--10.3 mi².

PERIOD OF RECORD.--October 1974 to September 1982, April 1991 to current year.

REVISED RECORD.--WDR-85-1: 1981, 1982.

GAGE.--Water-stage recorder. Elevation of gage is 6,030 ft above NGVD of 1929, from topographic map. October 1974 to September 1982, at site 50 ft upstream and datum 3.11 ft lower. U.S. Geological Survey data collection with satellite telemetry at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. No diversions upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	2.1	e1.9	e1.3	1.5	1.4	1.2	2.0	1.8	2.5	1.8	1.9
2	2.6	2.0	1.9	e1.3	1.5	1.4	1.2	2.3	2.0	2.5	1.8	1.9
3	2.5	2.0	1.9	e1.3	1.5	1.4	1.0	2.3	1.8	2.4	1.8	1.9
4	1.6	2.0	1.9	e1.4	1.5	e1.3	1.3	2.2	1.7	2.4	1.9	1.9
5	1.7	1.9	1.9	e1.4	1.5	e1.3	1.3	1.3	1.7	2.3	1.8	1.9
6	1.7	1.9	1.8	e1.4	1.5	1.4	1.4	2.5	1.7	2.3	1.9	1.8
7	1.6	2.0	1.8	e1.4	1.5	1.4	1.9	2.1	2.2	2.1	1.9	1.7
8	1.6	1.7	1.8	e1.6	1.5	1.4	1.8	2.4	1.9	2.0	1.9	1.7
9	1.9	1.8	1.9	e1.5	1.5	1.2	e1.5	2.2	1.9	2.3	1.9	2.2
10	3.4	1.8	1.9	1.5	1.5	1.3	e2.0	2.2	2.4	2.1	1.8	1.5
11	3.0	1.8	1.9	1.5	1.5	1.4	e2.9	2.4	2.9	2.1	1.8	1.4
12	3.0	1.9	e1.9	1.5	1.5	1.4	e2.5	2.3	2.8	2.0	1.7	1.4
13	3.0	1.9	e1.9	1.5	1.5	1.4	e2.4	2.2	2.8	1.9	1.7	1.4
14	2.9	1.9	e1.9	1.5	1.5	1.4	e2.2	2.1	2.8	1.9	1.6	1.3
15	2.2	1.9	1.8	1.5	1.4	1.3	2.1	2.1	2.7	1.9	1.5	1.2
16	2.4	1.9	e1.8	1.5	1.4	1.2	1.9	2.2	2.6	1.8	1.6	1.2
17	2.4	1.9	e1.8	1.4	1.4	1.3	1.7	2.3	2.6	1.7	1.4	1.2
18	2.2	1.9	1.9	1.5	1.4	1.3	1.6	2.3	2.5	2.3	2.2	1.1
19	2.2	2.1	e1.7	1.5	1.4	1.3	1.5	2.2	2.2	2.0	1.9	2.3
20	2.2	1.9	e1.7	1.5	1.4	1.3	1.5	2.1	3.1	1.8	1.9	1.9
21	2.2	1.9	e1.6	1.5	1.4	1.2	1.4	2.1	2.7	1.7	1.9	2.0
22	2.2	1.9	e1.6	1.5	1.4	1.3	1.5	2.5	2.7	1.5	2.0	1.8
23	2.2	1.9	e1.6	1.5	1.4	1.4	1.5	2.3	2.4	1.5	1.9	1.1
24	2.1	1.9	e1.5	1.4	1.4	1.3	1.4	2.3	2.3	1.6	2.1	1.4
25	2.0	1.9	e1.5	1.5	e1.0	1.3	1.4	2.2	2.2	1.5	2.0	1.3
26	2.1	e1.8	e1.5	1.5	e1.0	1.2	1.4	2.2	2.2	1.4	1.9	1.3
27	2.1	e1.8	e1.5	1.5	e1.2	1.2	1.5	2.2	2.9	2.2	1.9	1.1
28	2.1	e1.9	e1.5	1.5	1.4	1.3	1.4	2.0	2.7	1.8	1.9	0.99
29	2.1	e1.9	e1.5	1.5	---	1.3	2.9	2.0	2.5	1.7	2.0	0.99
30	2.1	e1.9	e1.5	1.2	---	1.3	2.3	1.9	2.5	1.7	2.0	0.99
31	2.1	---	e1.4	1.4	---	1.2	---	1.8	---	1.8	1.9	---
TOTAL	70.1	57.1	53.7	45.0	39.6	40.8	51.6	67.2	71.2	60.7	57.3	45.77
MEAN	2.261	1.903	1.732	1.452	1.414	1.316	1.720	2.168	2.373	1.958	1.848	1.526
MAX	3.4	2.1	1.9	1.6	1.5	1.4	2.9	2.5	3.1	2.5	2.2	2.3
MIN	1.6	1.7	1.4	1.2	1.0	1.2	1.0	1.3	1.7	1.4	1.4	0.99
AC-FT	139	113	107	89	79	81	102	133	141	120	114	91

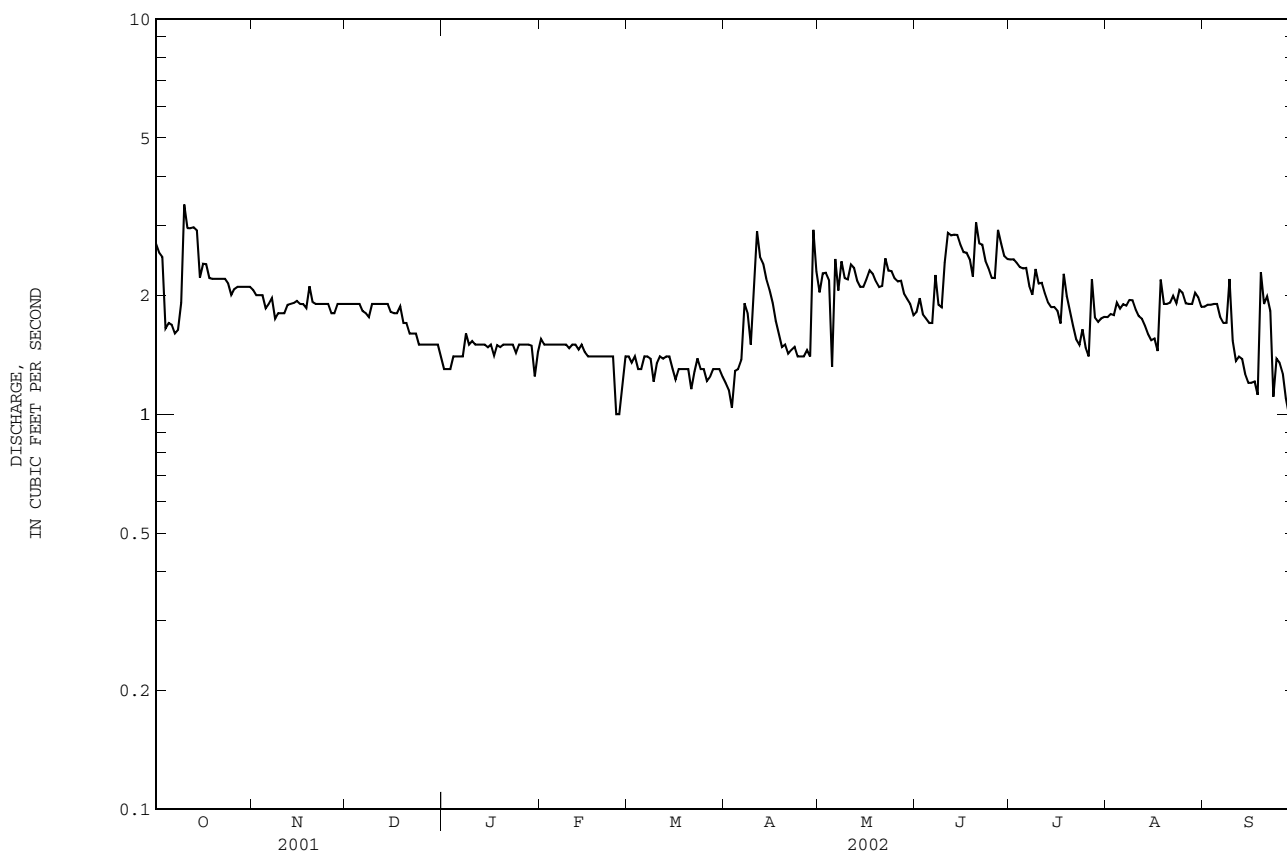
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2002, BY WATER YEAR (WY)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
MEAN	1.948	1.802	1.692	1.610	1.771	2.038	2.322	2.253	2.426	2.148	2.019	1.923
MAX	3.16	3.30	2.68	2.95	2.90	5.83	4.07	3.44	4.05	3.09	2.89	3.08
(WY)	2000	2000	1999	1999	1999	1999	1994	1978	1980	1979	1978	2000
MIN	0.31	0.47	0.44	0.42	0.46	0.71	0.88	0.81	1.34	1.34	0.75	0.62
(WY)	1977	1977	1977	1993	1977	1977	1993	1993	1994	1993	1976	1976

06392900 BEAVER CREEK AT MALLO CAMP, NEAR FOUR CORNERS, WY--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1975 - 2002	
ANNUAL TOTAL	783.9		660.07		--	
ANNUAL MEAN	2.148		1.808		2.008	
HIGHEST ANNUAL MEAN	--		--		3.20	
LOWEST ANNUAL MEAN	--		--		0.94	
HIGHEST DAILY MEAN	3.8	Apr 23	3.4	Oct 10	34	Mar 26 1999
LOWEST DAILY MEAN	1.0	Sep 15	0.99	Sep 28	0.10	Jan 20 1993
ANNUAL SEVEN-DAY MINIMUM	1.3	Sep 15	1.2	Sep 24	0.12	Jan 17 1993
MAXIMUM PEAK FLOW	--	--	30	Oct 10a	103	Apr 22 1994b
MAXIMUM PEAK STAGE	--	--	2.28	Apr 9c	2.88	Dec 25 1998c
ANNUAL RUNOFF (AC-FT)	1550	--	1310	--	1450	--
10 PERCENT EXCEEDS	2.8		2.4		2.9	
50 PERCENT EXCEEDS	2.0		1.8		1.9	
90 PERCENT EXCEEDS	1.6		1.3		1.2	

a Gage height, 1.57 ft.
b From rating curve extended above 85 ft³/s.
c Backwater from ice.
e Estimated.



06392900 BEAVER CREEK AT MALLO CAMP, NEAR FOUR CORNERS, WY-Continued

PRECIPITATION RECORDS

PERIOD OF RECORD.--May 1989 to current year.

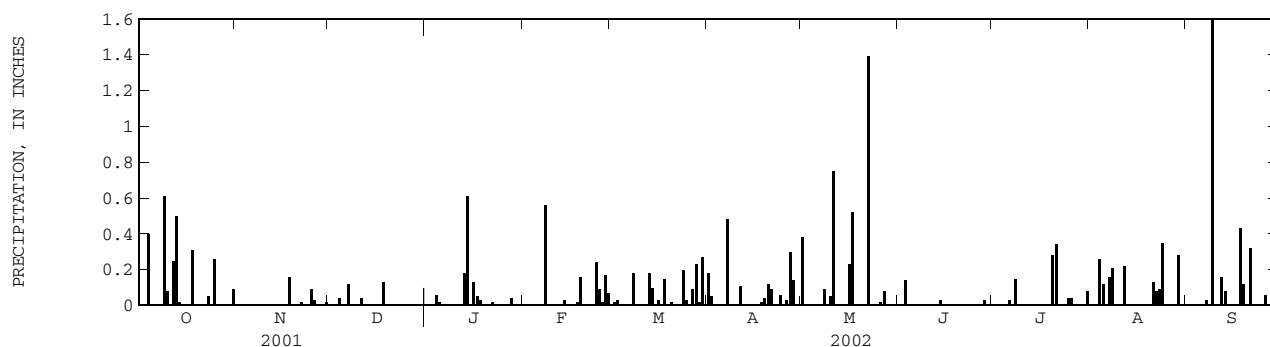
INSTRUMENTATION.--Precipitation recorder with shielded 8.0-in. orifice and 12-in. capacity. Elevation of gage is 6,000 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair. Precipitation gage is located 0.2 mi south of streamflow gaging station.

PRECIPITATION INCHES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.38	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.14	0.00	0.00	0.00
4	0.40	0.00	0.04	0.06	0.00	0.01	0.00	0.00	0.00	0.00	0.26	0.00
5	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00
7	0.00	0.00	0.12	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.16	0.03
8	0.00	0.00	0.00	0.00	0.56	0.18	0.01	0.09	0.00	0.15	0.21	0.00
9	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00
11	0.00	0.00	0.04	0.00	0.00	0.00	0.11	0.75	0.00	0.00	0.00	0.00
12	0.25	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.16
13	0.50	0.00	0.00	0.18	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.08
14	0.02	0.00	0.00	0.61	0.03	0.10	0.00	0.00	0.03	0.00	0.00	0.00
15	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.13	0.00	0.03	0.00	0.23	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.52	0.00	0.00	0.00	0.00
18	0.31	0.16	0.13	0.03	0.02	0.15	0.02	0.00	0.00	0.00	0.01	0.43
19	0.00	0.00	0.00	0.00	0.16	0.00	0.04	0.00	0.00	0.00	0.00	0.12
20	0.00	0.00	0.00	0.00	0.01	0.02	0.12	0.00	0.00	0.28	0.01	0.01
21	0.00	0.00	0.00	0.00	0.00	0.01	0.09	0.00	0.00	0.34	0.13	0.32
22	0.00	0.02	0.00	0.02	0.00	0.00	0.00	1.39	0.00	0.00	0.08	0.00
23	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00
24	0.00	0.00	0.00	0.00	0.24	0.20	0.06	0.00	0.00	0.00	0.35	0.00
25	0.26	0.09	0.00	0.00	0.09	0.03	0.00	0.00	0.00	0.04	0.00	0.01
26	0.00	0.03	0.00	0.00	0.02	0.00	0.03	0.02	0.00	0.04	0.00	0.06
27	0.00	0.00	0.00	0.00	0.17	0.09	0.30	0.08	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.04	0.07	0.23	0.14	0.00	0.03	0.00	0.00	0.00
29	0.00	0.00	0.01	0.00	---	0.02	0.00	0.00	0.00	0.00	0.28	0.00
30	0.00	0.02	0.00	0.00	---	0.27	0.00	0.00	0.00	0.00	0.00	0.00
31	0.09	---	0.00	0.00	---	0.00	---	0.00	---	0.08	0.00	---
TOTAL	2.57	0.32	0.34	1.16	1.37	1.57	1.63	3.51	0.20	0.96	1.92	2.82

WTR YR 2002 TOTAL 18.37



THIS PAGE IS INTENTIONALLY BLANK

CHEYENNE RIVER BASIN

06392950 STOCKADE BEAVER CREEK NEAR NEWCASTLE, WY

LOCATION.--Lat 43°51'32", long 104°06'24", in SW¹/₄ SW¹/₄ SE¹/₄ sec.19, T.45 N., R.60 W., Weston County, Hydrologic Unit 10120107, on right bank 20 ft upstream from culverts on county road, 0.6 mi upstream from South Draw, 2.5 mi upstream from LAK Reservoir Dam, and 4.7 mi east of Newcastle.

DRAINAGE AREA.--107 mi².

PERIOD OF RECORD.--October 1974 to September 1982, April 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,460 ft above NGVD of 1929, from topographic map. October 1974 to September 1982, at same site and datum. U.S. Geological Survey data collection platform with satellite telemetry at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. A few small diversions upstream from station for irrigation.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	16	15	e12	15	14	15	15	16	8.5	16	e18
2	14	16	15	e13	15	14	15	16	16	9.0	17	e17
3	14	15	15	13	15	15	15	16	18	8.5	17	e17
4	14	15	15	14	15	15	15	16	17	7.2	17	17
5	15	16	15	13	15	14	15	16	17	7.1	18	17
6	14	15	15	13	15	14	15	16	17	7.4	18	16
7	14	15	15	13	15	14	16	16	16	7.4	18	13
8	14	15	14	13	16	14	15	16	17	7.3	18	13
9	16	15	15	14	16	15	15	16	17	e8.0	18	19
10	17	15	15	14	15	15	15	16	17	e9.0	18	17
11	15	15	15	13	15	15	15	20	11	e10	18	17
12	14	15	15	14	15	15	15	17	9.7	e12	19	19
13	14	15	14	14	15	14	15	16	9.1	e13	19	19
14	15	15	14	14	16	13	15	16	10	e14	18	14
15	14	15	14	14	16	14	15	16	11	e14	18	12
16	14	15	14	14	16	14	16	18	11	e14	17	12
17	14	15	14	14	16	14	14	20	13	e14	17	12
18	15	15	14	14	16	14	13	17	11	e14	17	12
19	15	15	14	15	16	14	16	16	9.7	e14	17	12
20	15	15	14	14	16	14	15	16	8.7	e14	17	11
21	15	15	14	14	16	14	16	17	9.4	e14	18	13
22	15	15	13	15	16	14	15	20	8.5	e14	18	12
23	15	15	13	14	16	14	11	17	8.9	e14	18	12
24	15	15	13	15	16	14	10	17	10	e14	18	12
25	15	15	13	15	16	14	10	17	11	14	19	12
26	15	15	13	15	e15	15	11	16	11	14	18	12
27	15	15	13	15	e14	15	12	16	9.5	14	18	13
28	15	15	13	15	14	15	11	16	9.4	14	18	13
29	15	15	13	15	---	15	12	16	9.0	13	21	14
30	15	15	13	16	---	15	11	16	8.4	13	20	15
31	16	---	13	16	---	15	---	15	---	13	19	---
TOTAL	457	453	435	437	432	445	419	514	367.3	363.4	557	432
MEAN	14.74	15.10	14.03	14.10	15.43	14.35	13.97	16.58	12.24	11.72	17.97	14.40
MAX	17	16	15	16	16	15	16	20	18	14	21	19
MIN	14	15	13	12	14	13	10	15	8.4	7.1	16	11
AC-FT	906	899	863	867	857	883	831	1020	729	721	1100	857

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2002, BY WATER YEAR (WY)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
MEAN	13.41	13.58	13.37	13.09	13.47	14.73	13.85	11.70	11.73	11.74	12.39	12.93
MAX	18.9	19.0	18.1	17.6	17.6	21.3	19.4	18.5	17.8	17.0	20.9	20.0
(WY)	2000	2001	2000	2000	2000	1996	2000	2000	1999	1999	1999	1999
MIN	9.40	9.74	10.2	9.52	10.6	10.8	9.53	6.45	5.92	8.24	6.33	8.89
(WY)	1982	1994	1993	1980	1993	1993	1981	1992	1992	1981	1992	1991

06392950 STOCKADE BEAVER CREEK NEAR NEWCASTLE, WY--Continued

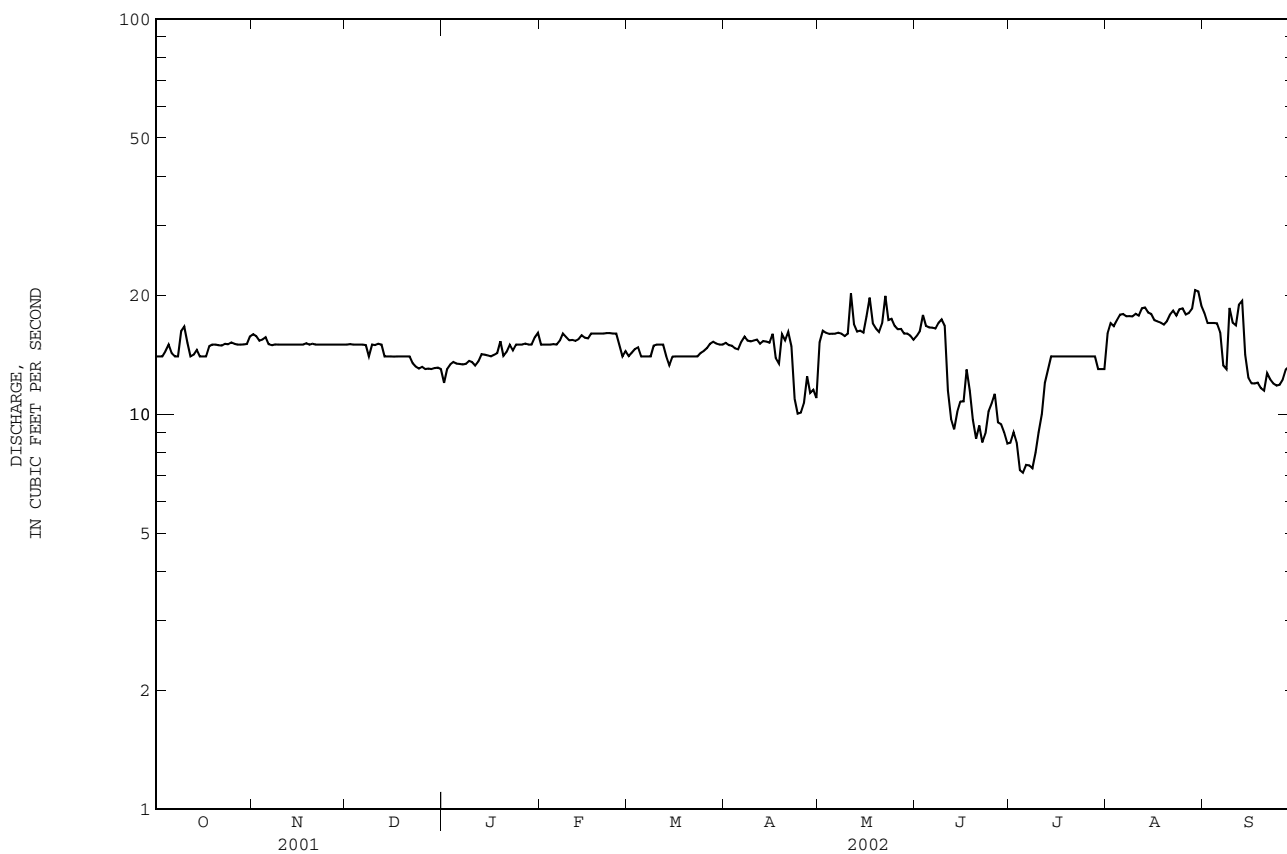
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1975 - 2002	
ANNUAL TOTAL	5724.6		5311.7		--	
ANNUAL MEAN	15.68		14.55		13.05	
HIGHEST ANNUAL MEAN	--		--		17.4	
LOWEST ANNUAL MEAN	--		--		9.80	
HIGHEST DAILY MEAN	21	Apr 7	21	Aug 29	143	Jul 16 1993
LOWEST DAILY MEAN	9.1	Jul 7	7.1	Jul 5	3.9	May 21 1992
ANNUAL SEVEN-DAY MINIMUM	9.6	Jun 27	7.6	Jul 3	4.6	Aug 2 1992
MAXIMUM PEAK FLOW	--		31	Aug 29a	776	Jul 16 1993b
MAXIMUM PEAK STAGE	--		7.26	Feb 26c	12.44	Jul 16 1993
ANNUAL RUNOFF (AC-FT)	11350		10540		9450	
10 PERCENT EXCEEDS	19		17		17	
50 PERCENT EXCEEDS	16		15		13	
90 PERCENT EXCEEDS	13		11		9.1	

a Gage height, 7.04 ft.

b From rating curve extended above 18 ft³/s on basis of culvert backwater computation.

c Backwater from ice.

e Estimated.



CHEYENNE RIVER BASIN

06395000 CHEYENNE RIVER AT EDMONT, SD

LOCATION.--Lat 43°18'20", long 103°49'14", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.36, T.8 S., R.2 E., Fall River County, Hydrologic Unit 10120106, on right bank at downstream side of bridge on old U.S. Highway 18, at Edgemont, 300 ft downstream from Burlington Northern Railroad bridge, and 600 ft upstream from Cottonwood Creek.

DRAINAGE AREA.--7,143 mi².

PERIOD OF RECORD.--June 1903 to November 1906 (no winter records), April 1928 to February 1933 (monthly discharge only), October 1946 to current year.

REVISED RECORDS.--WSP 1086: Drainage area. WSP 1116: 1947. WDR SD-78-1: 1977.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 3,414.56 ft above NGVD of 1929. Prior to Dec. 1, 1906, nonrecording gage 20 ft upstream at datum 0.7 ft lower. Apr. 11, 1928, to Feb. 28, 1933, Oct. 4, 1946, to Oct. 23, 1947, and Jan. 11, 1961, to Apr. 24, 1963, nonrecording gage, and Oct. 24, 1947, to Jan. 10, 1961, and Apr. 25, 1963, to Sept. 30, 1972, water-stage recorder all at present site at datum 2.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Many small reservoirs above station used for stock and irrigation water, total capacity, about 45,000 acre-ft. U.S. Bureau of Reclamation satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 12, 1920, reached a stage of 13.0 ft and May 1, 1922, 14.0 ft, present datum, from floodmarks at railroad bridge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	9.0	e4.8	e4.0	e5.1	e10	e120	12	5.0	0.60	0.15	52
2	3.7	8.2	e7.0	e4.0	e5.1	e10	74	13	4.9	0.65	0.14	24
3	3.6	13	e13	e4.0	e5.2	e12	57	18	5.6	0.62	0.12	14
4	8.6	14	e13	e6.0	e5.2	e20	61	14	5.5	0.81	0.12	10
5	8.9	11	e13	e10	e5.3	e25	51	10	4.3	0.85	1.8	8.9
6	5.7	10	e14	e10	e5.3	e22	40	8.6	3.8	0.70	0.78	7.6
7	4.3	9.0	e11	e10	e7.0	e20	42	7.8	3.3	0.68	0.21	6.4
8	3.5	7.6	e10	e10	e9.5	e17	54	7.7	3.2	0.60	0.22	5.4
9	3.7	9.7	e10	e7.0	e9.5	e16	56	7.2	3.2	8.2	0.22	12
10	3.1	15	e10	e7.0	e9.5	e15	45	6.8	2.9	3.3	0.26	61
11	2.4	14	e10	e7.0	e11	e15	30	8.7	2.5	1.9	0.16	64
12	2.4	16	e9.5	e7.0	e9.9	e20	32	8.5	2.3	1.0	0.19	39
13	2.5	16	e7.0	e7.5	e7.5	e30	26	9.2	2.2	0.70	0.20	34
14	2.4	16	e7.0	e10	e7.0	e47	22	9.1	2.0	0.47	0.17	39
15	2.3	14	e5.0	e7.0	e7.0	e49	18	9.3	1.9	0.38	0.14	38
16	1.7	16	e7.0	e6.5	e7.5	e47	22	11	1.9	0.36	0.18	23
17	2.0	16	e10	e5.0	e11	e35	16	10	1.6	0.35	0.15	14
18	4.0	20	e10	e5.0	e16	e34	16	10	1.5	0.39	0.18	10
19	6.6	14	e5.0	e5.0	e20	e34	16	7.5	1.5	0.40	0.13	8.8
20	7.3	23	e5.0	e7.0	e24	e23	13	6.4	1.2	0.38	0.07	7.2
21	6.9	20	e5.0	e10	e27	e19	11	6.5	2.2	0.29	0.08	7.1
22	8.3	25	e5.0	e7.0	e31	e15	9.8	8.2	1.4	0.30	0.08	6.8
23	9.0	19	e5.0	e5.0	e30	e20	8.8	7.3	1.3	0.23	0.09	8.2
24	8.7	21	e4.0	e5.0	e26	e20	7.8	7.3	1.3	0.21	0.07	8.4
25	9.4	18	e7.0	e5.0	e20	e18	7.3	7.4	1.2	0.29	14	6.1
26	6.8	7.0	e10	e10	e17	e30	7.2	6.8	1.0	0.20	75	5.2
27	9.6	e6.0	e11	e10	e14	e45	10	6.9	1.1	0.17	18	4.4
28	10	e5.5	e9.0	e8.0	e12	e70	10	6.9	1.0	0.17	11	3.8
29	8.9	e5.0	e7.0	e5.0	---	e95	8.7	6.6	0.93	0.15	6.8	3.4
30	9.1	e5.0	e5.0	e5.0	---	e110	7.7	6.1	0.70	0.15	32	3.0
31	9.5	---	e4.5	e5.0	---	e120	---	5.4	---	0.15	181	---
TOTAL	178.4	403.0	253.8	214.0	364.6	1063	899.3	270.2	72.43	25.65	343.71	534.7
MEAN	5.755	13.43	8.187	6.903	13.02	34.29	29.98	8.716	2.414	0.827	11.09	17.82
MAX	10	25	14	10	31	120	120	18	5.6	8.2	181	64
MIN	1.7	5.0	4.0	4.0	5.1	10	7.2	5.4	0.70	0.15	0.07	3.0
AC-FT	354	799	503	424	723	2110	1780	536	144	51	682	1060

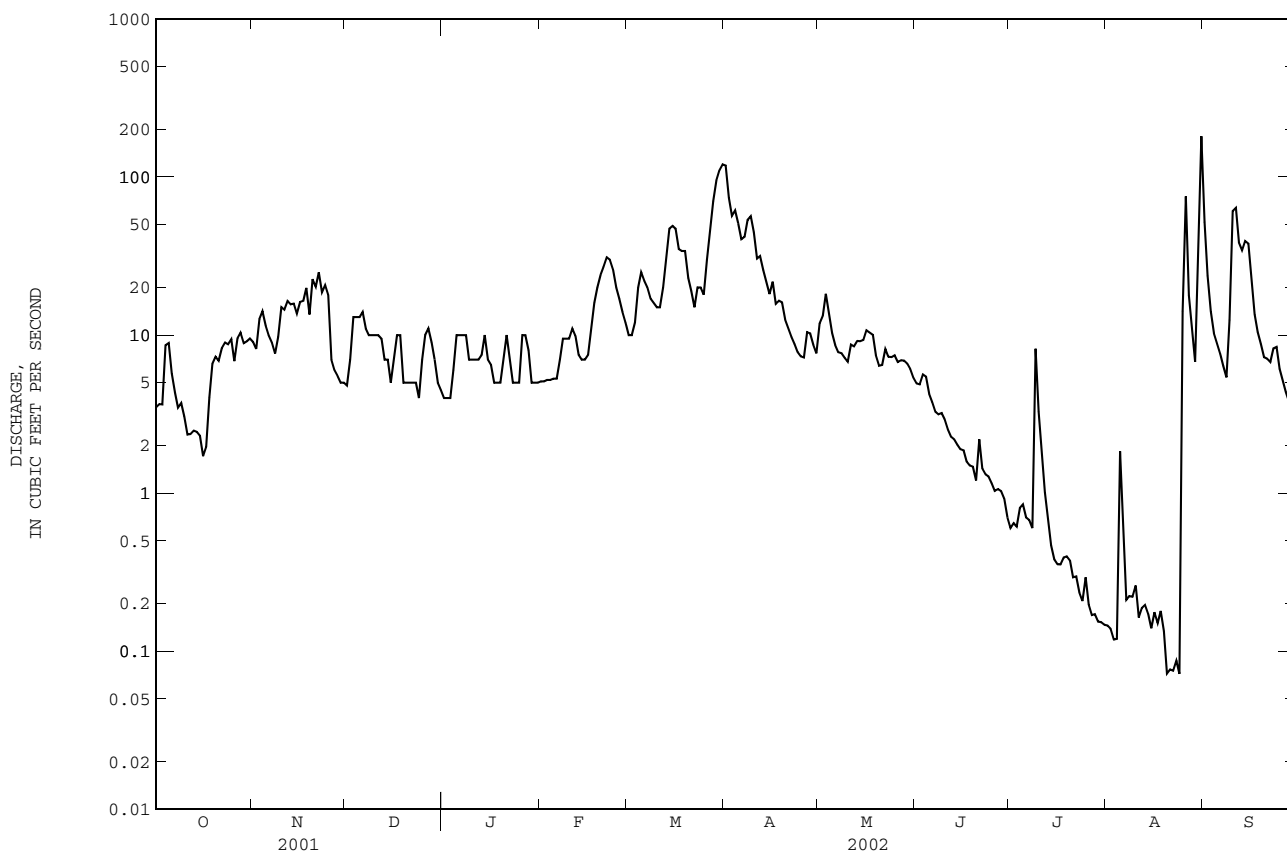
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2002, BY WATER YEAR (WY)

	MEAN	21.77	16.66	8.978	8.884	41.55	121.7	67.57	209.8	247.4	122.6	65.62	26.28
MAX	291	266	50.5	37.3	302	506	558	2192	2084	806	388	275	
(WY)	1999	1999	1999	1999	1997	1994	1955	1978	1962	1958	1955	1973	
MIN	0.000	0.023	0.000	0.000	0.000	3.39	0.22	0.27	1.76	0.15	0.000	0.000	
(WY)	1961	1962	1960	1950	1960	1961	1961	1960	1966	1985	1960	1956	

06395000 CHEYENNE RIVER AT EDMONT, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1929-1932, 1947-2002	
ANNUAL TOTAL	19651.81		4622.79		80.08a	
ANNUAL MEAN	53.84		12.67		434	
HIGHEST ANNUAL MEAN					12.0	
LOWEST ANNUAL MEAN					24000	
HIGHEST DAILY MEAN	877	Jul 12	181	Aug 31	May 20	1978
LOWEST DAILY MEAN	0.75	Jul 6	0.07	Aug 20	Jan 5	1947b
ANNUAL SEVEN-DAY MINIMUM	2.0	Jul 1	0.10	Aug 18	Aug 31	1947c
MAXIMUM PEAK FLOW			375	Aug 31	28000	May 20 1978
MAXIMUM PEAK STAGE			3.10	Aug 31	13.65	May 20 1978
ANNUAL RUNOFF (AC-FT)	38980		9170		58020	
10 PERCENT EXCEEDS	168		30		151c	
50 PERCENT EXCEEDS	15		7.5		12c	
90 PERCENT EXCEEDS	3.7		0.38		0.11c	

a Median of annual mean discharge, 72 ft³/s.
b No flow at times in most years.
c Reflects water years 1947-2000 only.
e Estimated.



CHEYENNE RIVER BASIN

06400000 HAT CREEK NEAR EDMONT, SD

LOCATION.--Lat 43°14'24", long 103°35'16", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.25, T.9 S., R.4 E., Fall River County, Hydrologic Unit 10120108, on right bank at upstream side of bridge on State Highway 71, 2.4 mi upstream from mouth, 2.0 mi west of Heppner, and 12.5 mi southeast of Edgemont.

DRAINAGE AREA.--1,044 mi².

PERIOD OF RECORD.--April 1905 to September 1906, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 3,295.71 ft above NGVD of 1929. Nonrecording gage Apr. 8, 1905, to May 2, 1906, at site 0.6 mi downstream and May 3 to July 7, 1906, at site 0.4 mi upstream at different datum. Nov. 6, 1950, to May 1, 1951, and July 18 to Sept. 7, 1975, nonrecording gage and May 2, 1951, to July 17, 1975, recording gage, at site 0.4 mi downstream at present datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. A few small diversions upstream from station for irrigation. Lander ditch diverts water from Hat Creek 0.4 mi upstream from gaging station for irrigating hay meadows downstream from station. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. Results of discharge measurements, in cubic feet per second, of Lander ditch during water year 2002 are given herewith:

Oct. 1	0	Jan. 14	0	May 1	0	July 22	0	Aug. 26	0
Oct. 30	0	Mar. 21	0	May 9	0	Aug. 6	0	Sept. 4	0
Nov. 8	0	Apr. 10	0	May 10	0	Aug. 16	0	Sept. 30	0
Dec. 3	0	Apr. 30	0	June 11	0				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	e1.0	e0.70	e1.2	e1.1	e58	1.5	0.49	0.00	0.00	0.78
2	0.00	0.00	e1.8	e0.65	e1.1	e1.1	e50	4.7	0.44	0.00	0.00	0.76
3	0.00	0.00	e2.5	e0.63	e1.1	e1.1	e42	2.2	0.38	0.00	0.00	0.82
4	0.00	0.00	2.2	e0.74	e1.1	e1.1	e35	1.7	0.81	0.00	0.00	0.89
5	0.00	0.00	2.2	e0.93	e1.1	e1.3	27	6.0	0.96	0.00	12	0.86
6	0.00	0.00	2.0	e1.1	e1.1	e1.2	21	7.7	0.96	0.00	157	0.62
7	0.00	0.09	2.0	e1.1	e1.1	e1.1	13	11	1.2	0.00	13	0.73
8	0.00	0.42	2.0	e1.3	e1.1	e0.94	11	6.0	1.3	0.00	19	0.83
9	0.00	0.39	e1.9	e1.3	e1.1	e1.1	12	3.9	1.2	0.00	19	0.99
10	0.00	0.47	e1.8	e1.3	e1.1	e1.1	16	2.7	0.56	0.00	14	0.83
11	0.00	0.89	e1.6	e1.3	e1.2	e1.2	10	2.1	0.29	0.00	10	0.76
12	0.00	1.1	e1.5	e1.3	e1.2	e1.5	4.1	1.8	0.19	0.00	9.2	0.98
13	0.00	1.4	e1.4	e1.2	e1.2	e1.4	2.9	1.4	0.13	0.00	8.4	1.0
14	0.00	1.5	e1.2	e1.3	e1.2	e1.3	3.6	1.5	0.07	0.00	7.4	1.1
15	0.00	1.4	e1.2	e1.2	e1.3	e1.5	2.8	1.5	0.03	0.00	5.9	1.9
16	0.00	1.3	e1.2	e1.2	e1.3	e1.7	2.8	1.4	0.02	0.00	4.8	2.0
17	0.00	1.5	e1.1	e1.1	e1.4	e1.8	1.9	1.7	0.00	0.00	4.5	1.0
18	0.00	1.4	e1.0	e1.1	e1.5	e1.8	1.7	1.8	0.00	0.00	4.5	0.81
19	0.00	1.4	e1.0	e1.1	e1.5	e1.8	1.6	1.6	0.00	0.00	5.0	0.76
20	0.00	1.3	e1.0	e1.1	e1.4	e2.0	1.4	1.4	0.00	0.00	5.1	0.55
21	0.00	1.5	e0.95	e1.1	e1.2	e2.1	1.4	1.2	0.00	0.00	4.1	0.75
22	0.00	1.9	e0.90	e1.2	e1.3	e2.2	1.6	1.2	0.00	0.00	3.8	0.70
23	0.00	2.1	e0.90	e1.4	e1.2	e2.1	1.7	1.2	0.00	0.00	2.8	0.65
24	0.00	2.3	e0.85	e1.6	e1.1	e2.4	1.4	0.98	0.00	0.00	2.1	0.63
25	0.00	2.4	e0.85	e1.3	e1.1	e2.6	1.4	0.93	0.00	0.00	1.5	0.57
26	0.00	e1.9	e0.85	e1.4	e1.1	e2.6	1.4	0.88	0.00	0.00	1.3	0.57
27	0.00	e1.4	e0.80	e1.4	e1.1	e3.0	1.5	0.77	0.00	0.00	1.0	0.65
28	0.00	e1.0	e0.80	e1.35	e1.1	e3.6	1.6	0.58	0.00	0.00	1.2	0.56
29	0.00	e1.0	e0.75	e1.3	---	e4.5	1.5	0.84	0.00	0.00	1.2	0.51
30	0.00	e1.0	e0.75	e1.25	---	e14	1.3	0.71	0.00	0.00	1.2	0.45
31	0.00	---	e0.70	e1.22	---	e37	---	0.58	---	0.00	0.93	---
TOTAL	0.00	31.06	40.70	36.17	33.5	103.24	332.6	73.47	9.03	0.00	319.93	25.01
MEAN	0.000	1.04	1.31	1.17	1.20	3.33	11.1	2.37	0.30	0.000	10.3	0.83
MAX	0.00	2.4	2.5	1.6	1.5	37	58	11	1.3	0.00	157	2.0
MIN	0.00	0.00	0.70	0.63	1.1	0.94	1.3	0.58	0.00	0.00	0.00	0.45
AC-FT	0.00	62	81	72	66	205	660	146	18	0.00	635	50

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2002, BY WATER YEAR (WY)

MEAN	1.64	2.55	1.59	2.21	5.27	22.8	29.1	45.7	68.7	19.0	6.33	2.71
MAX	19.8	68.7	16.0	25.5	52.6	150	456	444	1223	174	68.4	70.1
(WY)	1999	1999	1956	1974	1980	1993	2000	1957	1967	1951	1955	1955
MIN	0.000	0.000	0.000	0.000	0.000	0.097	0.040	0.20	0.062	0.000	0.000	0.000
(WY)	1954	1951	1954	1954	1954	1981	1981	1989	1980	1953	1960	1954

06400000 HAT CREEK NEAR EDMONT, SD--Continued

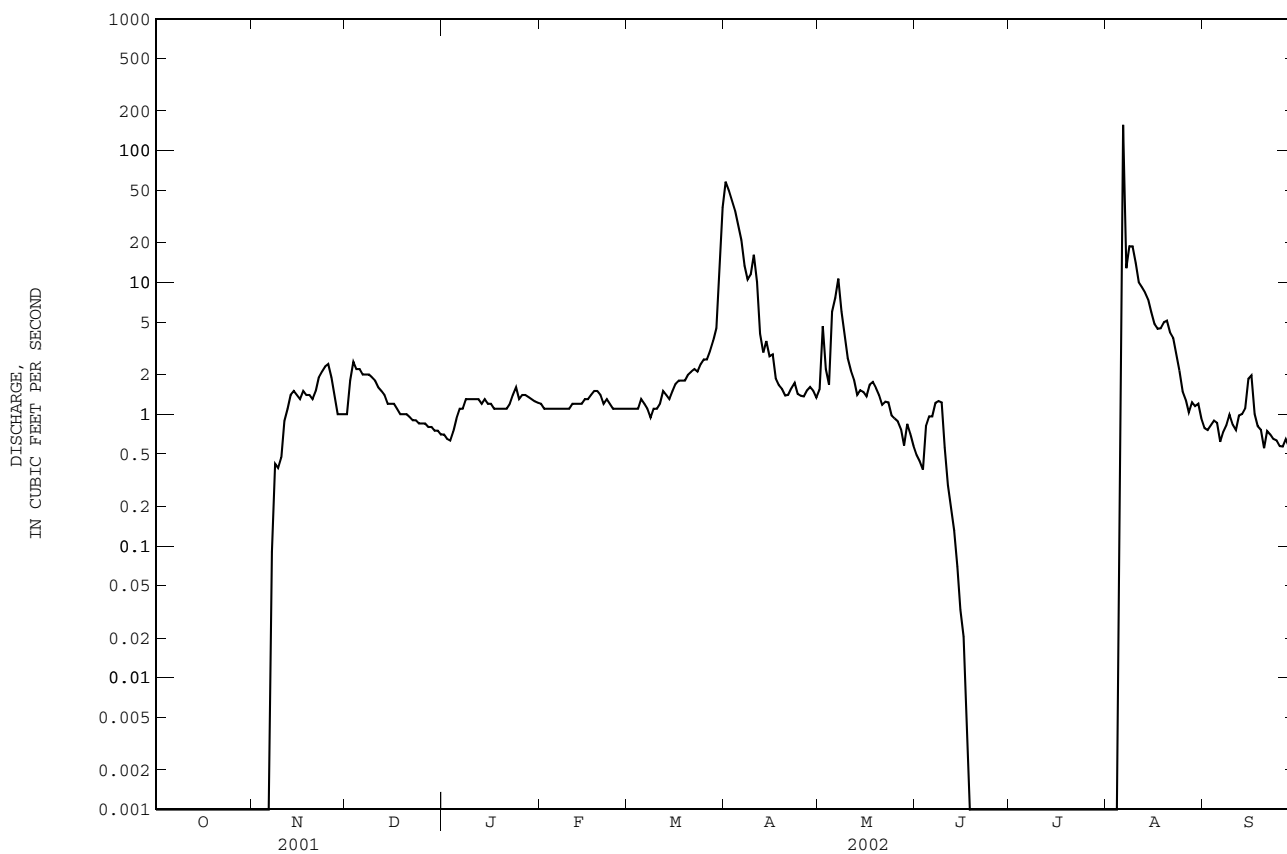
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1951 - 2002	
ANNUAL TOTAL	3312.56		1004.71		17.3a	
ANNUAL MEAN	9.08		2.75		112	
HIGHEST ANNUAL MEAN					0.16	
LOWEST ANNUAL MEAN					8350	
HIGHEST DAILY MEAN	427	Jul 11	157	Aug 6	0.00	Jun 16 1967
LOWEST DAILY MEAN	0.00	Sep 1	0.00	Oct 1b	0.00	Nov 1 1950b
ANNUAL SEVEN-DAY MINIMUM	0.00	Sep 1	0.00	Oct 1	0.00	Nov 1 1950
MAXIMUM PEAK FLOW			497	Aug 6	13300	Jun 16 1967c
MAXIMUM PEAK STAGE			11.30	Aug 6	15.40	Apr 23 2000
ANNUAL RUNOFF (AC-FT)	6570		1990		12540	
10 PERCENT EXCEEDS	19		4.1		20	
50 PERCENT EXCEEDS	2.0		1.1		0.55	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a Median of annual mean discharges, 12 ft³/s.

b No flow for many days in most years.

c Gage height, 13.35 ft at different site, same datum.

e Estimated.



CHEYENNE RIVER BASIN

06400875 HORSEHEAD CREEK AT OELRICHS, SD

LOCATION.--Lat 43°11'17", long 103°13'34", in SW¹/₄ SW¹/₄ SW¹/₄ SW¹/₄ sec.7, T.10 S., R.8 E., Fall River County, Hydrologic Unit 10120106, on left bank on downstream side of bridge on Highway 18, 1.5 mi upstream from Lone Well Creek, and 0.6 mi northeast of Oelrichs.

DRAINAGE AREA.--187 mi².

PERIOD OF RECORD.--June 1983 to current year.

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 3,320 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diversions for irrigation of 624 acres upstream from station. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.06	e0.15	e0.13	e0.25	e0.30	e3.5	0.65	0.03	0.00	0.00	0.00
2	0.01	0.06	e0.24	e0.10	e0.25	e0.30	e2.7	0.71	0.03	0.00	0.00	0.00
3	0.02	0.06	0.26	e0.20	e0.22	e0.30	e1.5	0.89	0.03	0.00	0.00	0.00
4	0.04	0.06	0.34	e0.32	e0.20	e1.2	e1.0	0.84	0.05	0.00	0.00	0.00
5	0.05	0.07	0.45	e0.31	e0.25	e1.1	0.80	0.47	0.03	0.00	0.00	0.00
6	0.04	0.07	0.44	e0.30	e0.30	e1.0	0.78	0.36	0.03	0.00	0.00	0.00
7	0.04	0.07	0.42	e0.38	e0.40	e1.0	0.75	0.29	0.02	0.00	0.00	0.00
8	0.04	0.07	0.36	e0.45	e0.35	e1.0	0.88	0.25	0.02	0.00	0.00	0.00
9	0.05	0.07	0.35	e0.43	e0.30	e1.0	0.85	0.18	0.02	0.00	0.00	0.00
10	0.05	0.06	0.39	e0.40	e0.25	e1.1	0.71	0.18	0.02	0.00	0.00	0.00
11	0.05	0.07	0.37	e0.42	e0.30	e1.1	0.60	0.30	0.02	0.00	0.00	0.00
12	0.04	0.07	e0.37	e0.40	e0.25	e1.2	0.48	0.30	0.01	0.00	0.00	0.00
13	0.05	0.07	0.37	e0.44	e0.25	e1.0	0.43	0.31	0.00	0.00	0.00	0.00
14	0.05	0.07	0.37	e0.38	e0.30	1.0	0.28	0.27	0.00	0.00	0.00	0.00
15	0.05	0.10	0.38	e0.34	0.58	0.87	0.22	0.22	0.00	0.00	0.00	0.00
16	0.05	0.13	0.40	e0.27	0.57	0.87	0.19	0.30	0.00	0.00	0.00	0.00
17	0.05	0.13	0.37	e0.25	0.57	0.86	0.14	0.30	0.00	0.00	0.00	0.00
18	0.05	0.14	0.38	e0.20	0.51	0.79	0.10	0.27	0.00	0.00	0.00	0.00
19	0.05	0.14	0.40	e0.20	0.56	0.71	0.09	0.27	0.00	0.00	0.00	0.00
20	0.06	0.16	0.40	e0.25	0.57	0.67	0.14	0.27	0.00	0.00	0.00	0.00
21	0.06	0.16	0.39	e0.30	0.54	0.55	0.18	0.26	0.00	0.00	0.00	0.00
22	0.06	0.17	0.43	e0.30	0.56	0.37	0.15	0.28	0.00	0.00	0.00	0.00
23	0.06	0.18	0.39	e0.25	0.58	0.40	0.17	0.25	0.01	0.00	0.00	0.00
24	0.05	0.19	0.23	e0.25	e0.49	0.38	0.18	0.18	0.01	0.00	0.00	0.00
25	0.05	e0.12	0.33	e0.35	e0.43	0.37	0.21	0.16	0.00	0.00	0.00	0.00
26	0.05	e0.11	0.34	e0.40	e0.39	0.43	0.17	0.17	0.00	0.00	0.00	0.00
27	0.06	e0.10	0.20	e0.25	e0.38	0.62	0.39	0.15	0.00	0.00	0.00	0.00
28	0.07	e0.10	e0.18	e0.15	e0.36	1.2	0.45	0.09	0.00	0.00	0.00	0.00
29	0.06	e0.10	e0.16	e0.15	---	e1.1	0.33	0.07	0.00	0.00	0.00	0.00
30	0.07	e0.10	e0.15	e0.15	---	e1.8	0.37	0.08	0.00	0.00	0.00	0.00
31	0.07	---	e0.14	e0.15	---	e2.7	---	0.05	---	0.00	0.00	---
TOTAL	1.50	3.06	10.15	8.87	10.96	27.29	18.74	9.37	0.33	0.00	0.00	0.00
MEAN	0.048	0.10	0.33	0.29	0.39	0.88	0.62	0.30	0.011	0.000	0.000	0.000
MAX	0.07	0.19	0.45	0.45	0.58	2.7	3.5	0.89	0.05	0.00	0.00	0.00
MIN	0.00	0.06	0.14	0.10	0.20	0.30	0.09	0.05	0.00	0.00	0.00	0.00
AC-FT	3.0	6.1	20	18	22	54	37	19	0.7	0.00	0.00	0.00

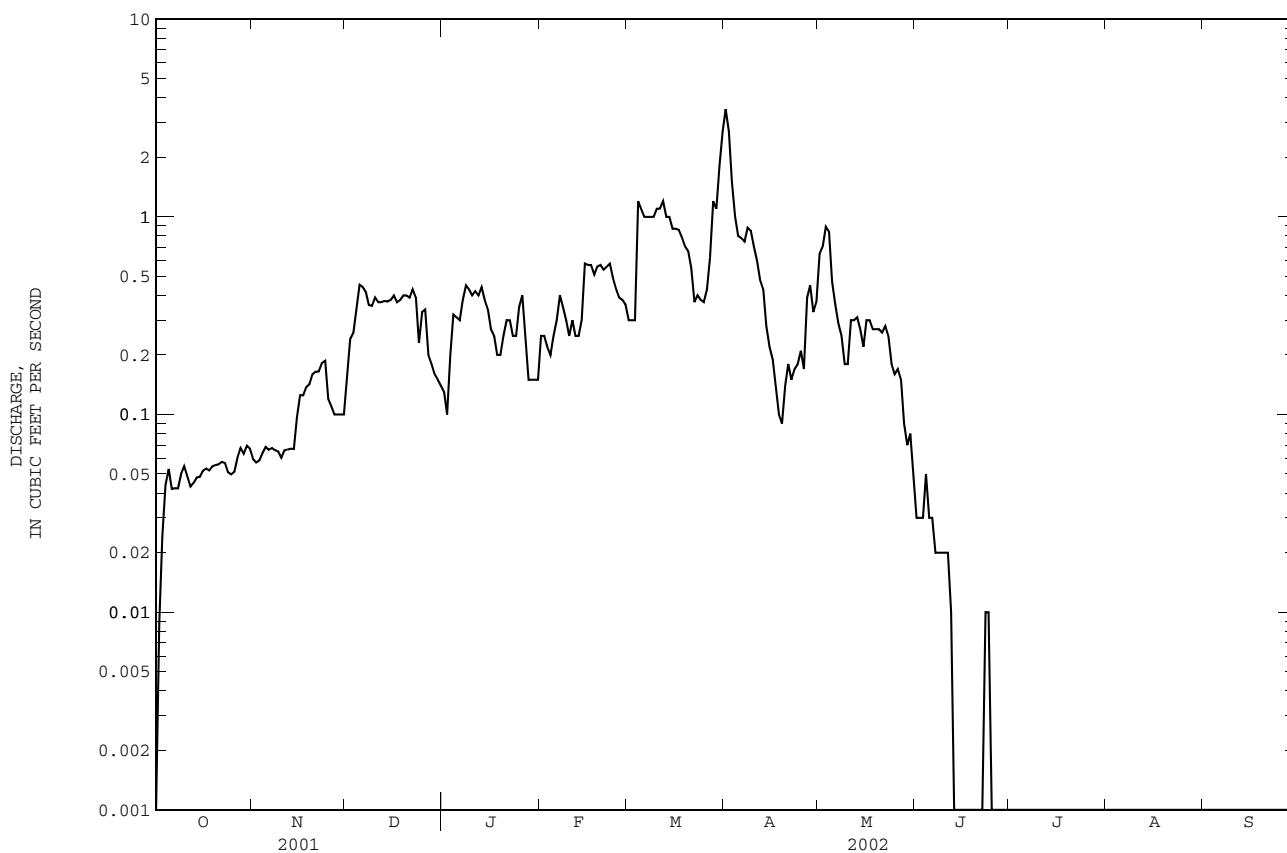
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	1984	1984	1984	1985	1989	1989	1989	1985	1985	1985	1985	1984
MEAN	0.054	0.37	0.24	0.45	1.47	8.02	21.6	22.3	26.2	4.01	0.12	0.005
MAX	0.46	5.66	2.72	6.39	11.6	58.9	164	246	187	31.4	0.74	0.070
(WY)	2000	1999	1997	1997	1994	1986	2000	1991	1986	1993	1986	1999
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1984	1984	1984	1985	1989	1989	1989	1985	1985	1985	1985	1984

06400875 HORSEHEAD CREEK AT OELRICHS, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1984 - 2002	
ANNUAL TOTAL	1539.49		90.27		7.06	
ANNUAL MEAN	4.22		0.25		29.3	
HIGHEST ANNUAL MEAN					0.000	
LOWEST ANNUAL MEAN					4080	
HIGHEST DAILY MEAN	215	Jul 11	3.5	Apr 1	May 11	1991
LOWEST DAILY MEAN	0.00	Jun 26	0.00	Oct 1	0.00	Oct 1 1983a
ANNUAL SEVEN-DAY MINIMUM	0.00	Jun 26	0.00	Jun 13	0.00	Oct 1 1983
MAXIMUM PEAK FLOW			5.5	Apr 1	8270	May 11 1991
MAXIMUM PEAK STAGE			3.20	Apr 1b	18.57	May 11 1991
ANNUAL RUNOFF (AC-FT)	3050		179		5110	
10 PERCENT EXCEEDS	9.8		0.61		4.4	
50 PERCENT EXCEEDS	0.35		0.13		0.02	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a No flow for many days in most years.
b Backwater from ice.
e Estimated.



LOCATION.--Lat 43°20'35", long 103°26'16", in SW¹/₄ NW¹/₄ sec.20, T.8 S., R.6 E., Fall River County, Hydrologic Unit 10120106, at dam on Cheyenne River, 6.5 mi southeast of Hot Springs.

DRAINAGE AREA.--9,100 mi², approximately.

PERIOD OF RECORD.--October 1949 to current year (monthend contents only).

GAGE.--Water-stage recorder. Elevations listed to NGVD of 1929. Prior to Aug. 26, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by concrete gravity dam with earth embankment with gated concrete gravity spillway section. Storage began Oct. 3, 1949; dam completed December 1949. Conservation capacity, 82,400 acre-ft between elevations 3,163.0 ft and 3,187.2 ft (top of spillway gates). Inactive storage, 39,700 acre-ft between elevations 3,139.75 ft (invert of lowest outlet) and 3,163.0 ft. Dead storage below elevation 3,139.75 ft, 8,600 acre-ft. Surcharge capacity, 56,400 acre-ft between elevations 3,187.2 ft and 3,198.1 ft (maximum water surface). Figures given herein represent contents above elevation 3,139.75 ft. Water stored for irrigation.

COOPERATION.--Records of elevation, contents, and diversions to Angostura project provided by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 145,200 acre-ft, June 18, 1962, elevation, 3,189.00 ft; minimum observed since normal operating level reached, 45,350 acre-ft, Sept. 28, 1960, elevation, 3,162.90 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 110,600 acre-ft, May 17, elevation, 3,184.60 ft; minimum, 68,600 acre-ft, Sept. 11, elevation, 3,173.38 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,180.72	94,600	--
Oct. 31	3,180.81	95,000	+400
Nov. 30	3,181.06	96,000	+1,000
Dec. 31	3,181.53	97,800	+1,800
CAL YR 2001	--	--	+12,400
Jan. 31	3,181.94	99,500	+1,700
Feb. 28	3,182.40	101,400	+1,900
Mar. 31	3,183.44	105,700	+4,300
Apr. 30	3,184.33	109,400	+3,700
May 31	3,183.98	107,900	-1,500
June 30	3,181.69	98,500	-9,400
July 31	3,177.03	80,800	-17,700
Aug. 31	3,173.89	70,200	-10,600
Sept. 30	3,173.70	69,600	-600
WTR YR 2002	--	--	-25,000

THIS PAGE IS INTENTIONALLY BLANK

CHEYENNE RIVER BASIN

06401500 CHEYENNE RIVER BELOW ANGOSTURA DAM, SD

LOCATION.--Lat 43°20'42", long 103°26'12", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.20, T.8 S., R.6 E., Fall River County, Hydrologic Unit 10120109, on right bank 800 ft downstream from Angostura Dam, 4.8 mi upstream from Fall River, and 6.5 mi southeast of Hot Springs.

DRAINAGE AREA.--9,100 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year, seasonal records only beginning October 1978. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1946(M). WDR SD-78-1: 1962(M), 1967(M), 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 3,058.02 ft above NGVD of 1929 (Bureau of Reclamation bench mark). Prior to Oct. 17, 1946, nonrecording gage and Oct. 17, 1946, to July 7, 1953, water-stage recorder at site 4.8 mi downstream at different datum.

REMARKS.--Records good. Flow regulated by Angostura Dam 800 ft upstream since October 1949. Bureau of Reclamation satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,300 ft³/s, May 20, 1978, gage height, 15.97 ft, from rating curve extended above 12,000 ft³/s; no flow Oct. 9, 1949, to Feb. 5, 1950, Apr. 28, Aug. 26, 30, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period February through July, 33 ft³/s, June 30, gage height, 3.72 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	3.4	3.5	2.9	e3.7	4.1	3.5	---	---
2	---	---	---	---	3.3	3.5	3.0	e3.7	4.4	3.0	---	---
3	---	---	---	---	3.3	3.4	3.0	3.7	4.4	2.9	---	---
4	---	---	---	---	3.3	3.2	3.0	3.7	4.3	2.8	---	---
5	---	---	---	---	3.4	3.2	2.9	3.5	4.3	2.8	---	---
6	---	---	---	---	3.4	3.6	2.8	3.6	4.1	2.8	---	---
7	---	---	---	---	3.4	3.6	2.8	3.7	3.8	2.7	---	---
8	---	---	---	---	3.5	3.7	2.9	e3.7	3.8	2.8	---	---
9	---	---	---	---	3.6	3.6	2.8	e3.6	3.7	2.8	---	---
10	---	---	---	---	3.6	3.6	2.8	e3.6	3.7	2.8	---	---
11	---	---	---	---	3.4	3.7	2.8	e4.0	3.8	2.8	---	---
12	---	---	---	---	3.6	3.6	2.8	e4.0	3.2	2.7	---	---
13	---	---	---	---	3.5	3.8	2.9	e4.0	3.1	2.7	---	---
14	---	---	---	---	3.4	3.8	2.8	e4.0	3.2	2.7	---	---
15	---	---	---	---	3.3	3.7	2.8	e4.0	3.3	2.7	---	---
16	---	---	---	---	3.1	3.6	2.9	e4.2	3.2	2.7	---	---
17	---	---	---	---	3.1	3.6	3.0	4.1	3.2	2.6	---	---
18	---	---	---	---	3.3	3.6	3.0	3.9	3.3	2.7	---	---
19	---	---	---	---	3.3	3.5	3.2	3.8	3.3	2.7	---	---
20	---	---	---	---	3.4	3.6	3.2	3.9	3.5	2.7	---	---
21	---	---	---	---	3.3	3.7	3.2	3.9	3.4	3.1	---	---
22	---	---	---	---	3.3	3.6	3.0	3.9	3.3	2.8	---	---
23	---	---	---	---	3.4	3.6	2.8	4.2	3.3	2.8	---	---
24	---	---	---	---	3.6	3.7	4.2	4.3	3.4	2.6	---	---
25	---	---	---	---	3.6	3.6	3.7	4.2	3.4	2.2	---	---
26	---	---	---	---	3.6	3.6	3.6	4.3	3.4	2.1	---	---
27	---	---	---	---	3.6	3.4	e3.6	4.2	3.4	2.1	---	---
28	---	---	---	---	3.6	3.5	e3.6	4.2	3.3	2.1	---	---
29	---	---	---	---	---	3.4	3.7	4.1	3.4	2.3	---	---
30	---	---	---	---	---	3.2	3.7	4.1	5.4	2.4	---	---
31	---	---	---	---	---	3.0	---	4.1	---	2.4	---	---
TOTAL	---	---	---	---	95.6	109.7	93.4	121.9	109.4	82.8	---	---
MEAN	---	---	---	---	3.41	3.54	3.11	3.93	3.65	2.67	---	---
MAX	---	---	---	---	3.6	3.8	4.2	4.3	5.4	3.5	---	---
MIN	---	---	---	---	3.1	3.0	2.8	3.5	3.1	2.1	---	---
AC-FT	---	---	---	---	190	218	185	242	217	164	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1978, BY WATER YEAR (WY)*

	MEAN	9.65	11.2	14.1	18.1	27.7	31.7	30.5	205	314	108	25.2	10.9
	MAX	104	103	108	118	211	174	188	2203	2802	1210	201	158
	(WY)	1953	1953	1953	1953	1974	1967	1952	1978	1962	1962	1958	1952
	MIN	0.81	0.79	0.75	0.84	0.66	0.82	0.87	0.42	0.78	0.89	0.70	0.70
	(WY)	1961	1961	1961	1961	1970	1970	1962	1951	1977	1961	1961	1960

06401500 CHEYENNE RIVER BELOW ANGOSTURA DAM, SD--Continued

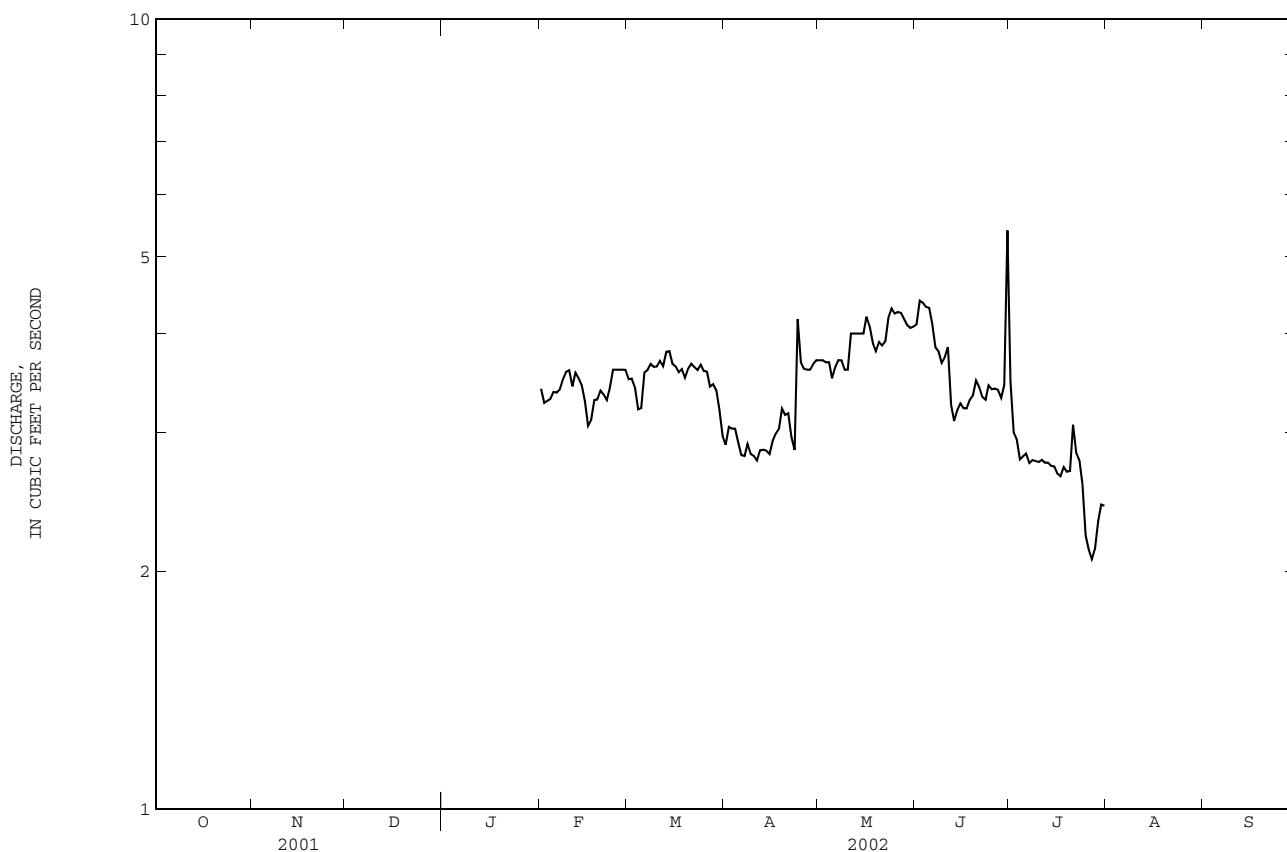
SUMMARY STATISTICS

WATER YEARS 1951 - 1978*

ANNUAL MEAN	67.1	
HIGHEST ANNUAL MEAN	404	1962
LOWEST ANNUAL MEAN	0.83	1961
HIGHEST DAILY MEAN	20600	Jun 18 1962
LOWEST DAILY MEAN	0.00	Apr 28 1951
ANNUAL SEVEN-DAY MINIMUM	0.20	Apr 26 1951
MAXIMUM PEAK FLOW	30300	May 20 1978
MAXIMUM PEAK STAGE	15.97	May 20 1978
ANNUAL RUNOFF (AC-FT)	48630	
10 PERCENT EXCEEDS	107	
50 PERCENT EXCEEDS	1.4	
90 PERCENT EXCEEDS	0.91	

* Period reflects regulated and complete water years.

e Estimated.



CHEYENNE RIVER BASIN

06402000 FALL RIVER AT HOT SPRINGS, SD

LOCATION.--Lat 43°25'50", long 103°28'33", in NW 1/4 NW 1/4 sec.24, T.7 S., R.5 E., Fall River County, Hydrologic Unit 10120109, on left bank at intersection of River Street and University Avenue in Hot Springs, and 6.0 mi upstream from mouth.

DRAINAGE AREA.--137 mi².

PERIOD OF RECORD.--October 1937 to current year (monthly discharge only for October 1937, published in WSP 1309). Daily discharge November 1937 to September 2001, stage only October 2001 to September 2002.

REVISED RECORDS.--WSP 1279: 1938, 1941(M), 1947(M). WSP 1729: 1959(M).

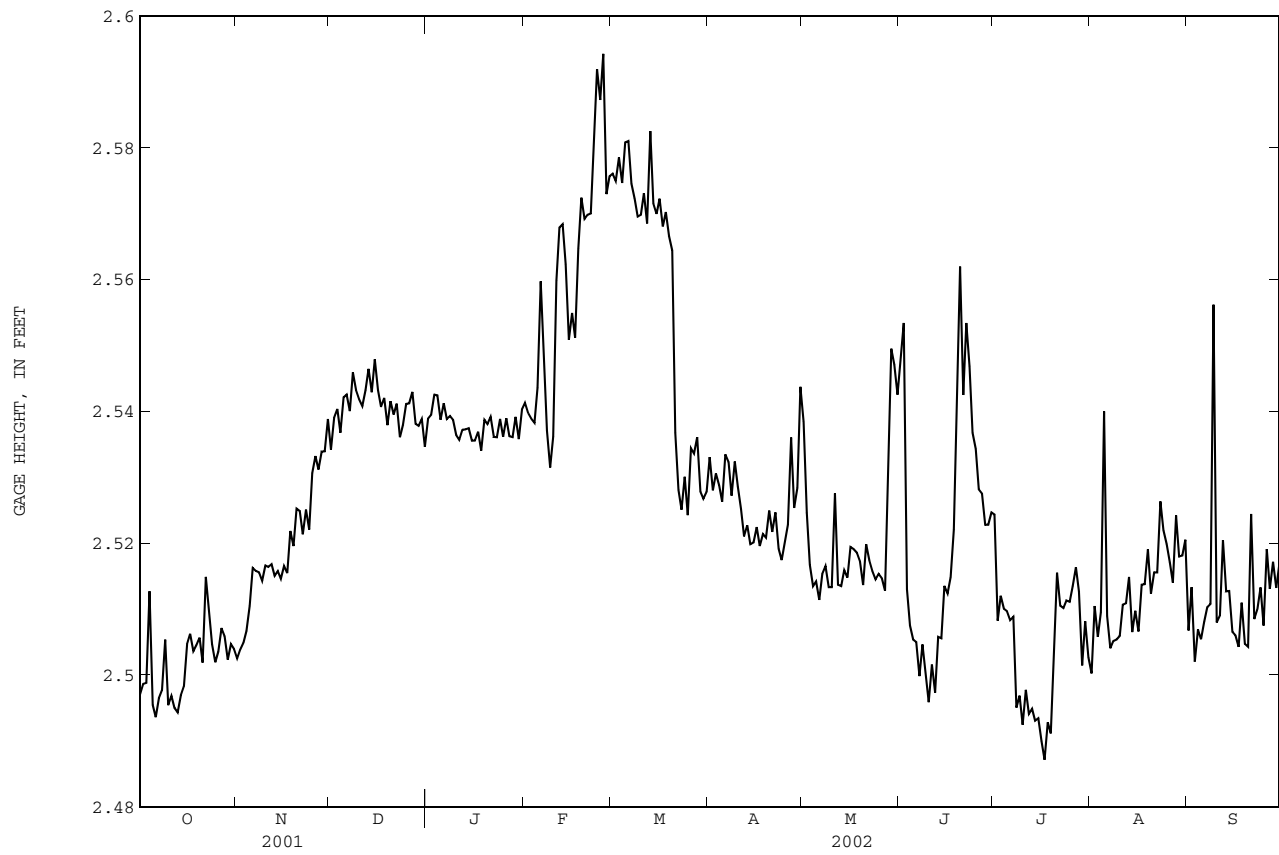
GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 3,413.20 ft above NGVD of 1929. Prior to June 2, 1939, nonrecording gage at site 300 ft upstream at datum 3.00 ft higher.

REMARKS.--Records good. Flow regulated by dam forming Coldbrook Reservoir, capacity, 7,200 acre-ft, since September 1952, and dam forming Cottonwood Springs Lake, capacity, 8,385 acre-ft since June 1969. Some diversions above station for municipal supply of Hot Springs. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.50	2.50	2.53	2.54	2.54	2.58	2.53	2.54	2.55	2.52	2.50	2.51
2	2.50	2.50	2.54	2.54	2.54	2.58	2.53	2.52	2.55	2.51	2.51	2.51
3	2.50	2.50	2.54	2.54	2.54	2.58	2.53	2.52	2.51	2.51	2.51	2.50
4	2.51	2.51	2.54	2.54	2.54	2.57	2.53	2.51	2.51	2.51	2.51	2.51
5	2.50	2.51	2.54	2.54	2.54	2.58	2.53	2.51	2.51	2.51	2.54	2.51
6	2.49	2.52	2.54	2.54	2.56	2.58	2.53	2.51	2.50	2.51	2.51	2.51
7	2.50	2.52	2.54	2.54	2.55	2.57	2.53	2.52	2.50	2.51	2.50	2.51
8	2.50	2.52	2.55	2.54	2.54	2.57	2.53	2.52	2.50	2.50	2.51	2.51
9	2.51	2.51	2.54	2.54	2.53	2.57	2.53	2.51	2.50	2.50	2.51	2.56
10	2.50	2.52	2.54	2.54	2.54	2.57	2.53	2.51	2.50	2.49	2.51	2.51
11	2.50	2.52	2.54	2.54	2.56	2.57	2.53	2.53	2.50	2.50	2.51	2.51
12	2.50	2.52	2.54	2.54	2.57	2.57	2.52	2.51	2.50	2.49	2.51	2.52
13	2.49	2.52	2.55	2.54	2.57	2.58	2.52	2.51	2.51	2.49	2.51	2.51
14	2.50	2.52	2.54	2.54	2.56	2.57	2.52	2.52	2.51	2.49	2.51	2.51
15	2.50	2.51	2.55	2.54	2.55	2.57	2.52	2.51	2.51	2.49	2.51	2.51
16	2.50	2.52	2.54	2.54	2.55	2.57	2.52	2.52	2.51	2.49	2.51	2.51
17	2.51	2.52	2.54	2.54	2.55	2.57	2.52	2.52	2.51	2.49	2.51	2.50
18	2.50	2.52	2.54	2.53	2.56	2.57	2.52	2.52	2.52	2.49	2.51	2.51
19	2.50	2.52	2.54	2.54	2.57	2.57	2.52	2.52	2.54	2.49	2.52	2.50
20	2.51	2.53	2.54	2.54	2.57	2.56	2.52	2.51	2.56	2.50	2.51	2.50
21	2.50	2.52	2.54	2.54	2.57	2.54	2.52	2.52	2.54	2.52	2.52	2.52
22	2.51	2.52	2.54	2.54	2.57	2.53	2.52	2.52	2.55	2.51	2.52	2.51
23	2.51	2.53	2.54	2.54	2.58	2.53	2.52	2.52	2.55	2.51	2.53	2.51
24	2.50	2.52	2.54	2.54	2.59	2.53	2.52	2.51	2.54	2.51	2.52	2.51
25	2.50	2.53	2.54	2.54	2.59	2.52	2.52	2.52	2.53	2.51	2.52	2.51
26	2.50	2.53	2.54	2.54	2.59	2.53	2.52	2.51	2.53	2.51	2.52	2.52
27	2.51	2.53	2.54	2.54	2.57	2.53	2.54	2.51	2.53	2.52	2.51	2.51
28	2.51	2.53	2.54	2.54	2.58	2.54	2.53	2.53	2.52	2.51	2.52	2.52
29	2.50	2.53	2.54	2.54	---	2.53	2.53	2.55	2.52	2.50	2.52	2.51
30	2.50	2.54	2.54	2.54	---	2.53	2.54	2.55	2.52	2.51	2.52	2.52
31	2.50	---	2.53	2.54	---	2.53	---	2.54	---	2.50	2.52	---
MEAN	2.50	2.52	2.54	2.54	2.56	2.56	2.53	2.52	2.52	2.50	2.51	2.51
MAX	2.51	2.54	2.55	2.54	2.59	2.58	2.54	2.55	2.56	2.52	2.54	2.56
MIN	2.49	2.50	2.53	2.53	2.53	2.52	2.52	2.51	2.50	2.49	2.50	2.50

06402000 FALL RIVER AT HOT SPRINGS, SD--Continued



CHEYENNE RIVER BASIN

06402430 BEAVER CREEK NEAR PRINGLE, SD

LOCATION.--Lat 43°34'53", long 103°28'34", in NE¹/₄ SW¹/₄ SW¹/₄ sec.25, T.5 S., R.5 E., Custer County, Hydrologic Unit 10120109, on right bank 2.0 mi north of Wind Cave National Park Headquarters.

DRAINAGE AREA.--45.8 mi².

PERIOD OF RECORD.--October 1990 to current year. Partial monthly discharge October 1990.

GAGE.--Water-stage recorder. Datum of gage is 4,180 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. Minor diversions for irrigation of hay meadows and domestic use may occur upstream of the gage. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.5	1.3	0.33	0.90	e0.40	1.3	2.2	1.1	0.37	0.38	0.50
2	1.0	1.5	1.4	0.34	0.93	e0.40	1.1	2.0	1.3	0.33	0.39	0.49
3	1.0	1.5	1.4	0.42	0.90	e0.68	1.1	1.8	2.0	0.34	0.38	0.50
4	1.4	1.5	1.3	0.53	0.92	0.93	1.1	1.4	2.2	0.36	0.39	0.54
5	1.3	1.5	1.2	0.63	0.90	0.97	1.1	1.2	1.6	0.48	0.70	0.49
6	1.2	1.5	1.1	0.73	0.94	0.87	1.3	1.2	1.4	0.75	0.81	0.49
7	1.2	1.5	1.1	0.80	0.93	0.83	1.6	1.2	1.3	0.75	0.47	0.49
8	1.2	1.5	1.0	0.85	0.92	0.79	1.6	1.1	1.5	0.49	0.44	0.70
9	1.4	1.4	1.2	0.91	0.86	0.77	1.3	1.0	1.5	0.39	0.47	1.6
10	1.4	1.4	1.2	0.86	0.84	0.97	1.3	0.98	1.3	0.39	0.46	0.96
11	1.2	1.4	1.2	0.84	0.89	0.99	1.3	2.3	1.2	0.39	0.42	0.67
12	1.2	1.4	0.76	0.84	0.82	1.0	1.0	1.5	1.1	0.43	0.48	0.87
13	1.3	1.4	1.0	0.87	0.85	0.84	0.95	1.2	1.2	0.40	0.55	1.1
14	1.3	1.4	1.1	0.86	0.90	0.81	0.95	1.2	1.2	0.38	0.47	0.86
15	1.3	1.4	1.1	0.86	0.88	e0.80	0.95	1.1	1.2	0.37	0.42	0.71
16	1.3	1.4	1.1	e0.84	0.92	e0.74	0.92	1.2	1.2	0.37	0.41	0.68
17	1.3	1.4	1.1	e0.80	1.0	e0.67	0.88	2.0	1.1	0.37	0.39	0.65
18	1.3	1.4	1.1	e0.78	0.94	e0.66	0.92	1.5	0.91	0.38	0.38	0.68
19	1.3	1.4	0.95	e0.85	0.83	e0.64	0.89	1.3	0.86	0.39	0.37	0.72
20	1.3	1.6	0.85	0.88	0.70	e0.64	1.0	1.2	0.82	0.45	0.38	0.66
21	1.3	1.5	1.1	0.89	0.66	e0.63	1.2	1.1	0.78	1.1	0.43	0.78
22	1.3	1.5	0.91	0.90	0.71	e0.63	1.1	1.4	0.75	0.96	0.50	0.82
23	1.3	1.4	0.77	0.86	0.73	e0.60	0.97	1.2	0.65	0.55	0.43	0.73
24	1.3	1.4	e0.60	0.83	0.64	e0.59	0.96	1.2	0.55	0.65	0.51	0.74
25	1.3	1.4	e0.70	0.88	0.54	e0.58	0.94	1.2	0.52	0.53	0.47	0.72
26	1.3	1.2	0.77	0.89	e0.52	0.86	0.95	1.1	0.61	0.54	0.50	0.82
27	1.3	e1.1	0.76	0.86	e0.50	1.9	2.0	1.1	0.53	0.48	0.59	0.73
28	1.3	1.1	0.72	0.79	e0.47	1.8	1.3	1.2	0.47	0.46	0.47	0.75
29	1.4	1.2	0.58	0.76	---	1.7	1.1	1.1	0.45	0.46	0.62	0.72
30	1.5	1.4	0.47	0.68	---	1.6	1.1	1.1	0.40	0.44	0.53	0.72
31	1.5	---	0.38	0.78	---	1.4	---	0.98	---	0.40	0.47	---
TOTAL	39.8	42.2	30.22	23.94	22.54	27.69	34.18	41.26	31.70	15.15	14.68	21.89
MEAN	1.28	1.41	0.97	0.77	0.80	0.89	1.14	1.33	1.06	0.49	0.47	0.73
MAX	1.5	1.6	1.4	0.91	1.0	1.9	2.0	2.3	2.2	1.1	0.81	1.6
MIN	1.0	1.1	0.38	0.33	0.47	0.40	0.88	0.98	0.40	0.33	0.37	0.49
AC-FT	79	84	60	47	45	55	68	82	63	30	29	44

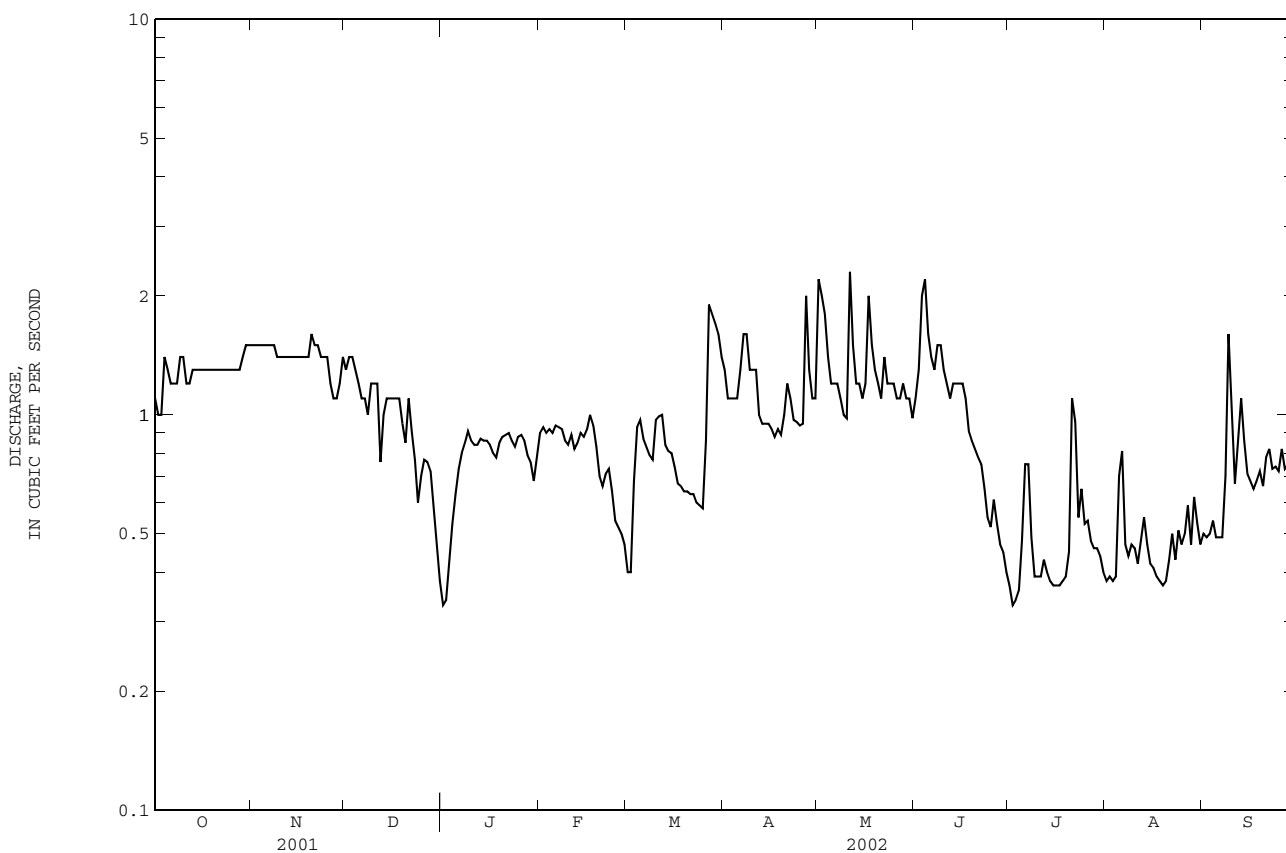
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2002, BY WATER YEAR (WY)

MEAN	2.43	2.59	2.09	1.70	1.73	2.73	3.33	5.25	7.82	5.08	3.38	2.64
MAX	5.78	6.90	5.35	4.19	3.81	4.72	8.24	16.2	35.8	16.8	12.0	7.69
(WY)	2000	1999	1999	1999	1997	1997	1999	1999	1995	1999	1999	1999
MIN	0.095	0.21	0.22	0.14	0.25	0.45	0.39	0.54	0.59	0.49	0.23	0.18
(WY)	1992	1992	1993	1992	1992	1992	1992	1992	1992	2002	1992	1992

06402430 BEAVER CREEK NEAR PRINGLE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1992 - 2002	
ANNUAL TOTAL	506.70		345.25		3.40	
ANNUAL MEAN	1.39		0.95		8.93	
HIGHEST ANNUAL MEAN					0.32	
LOWEST ANNUAL MEAN					85	
HIGHEST DAILY MEAN	9.5	Jul 9	2.3	May 11	0.06	Oct 1 1991
LOWEST DAILY MEAN	0.38	Dec 31	0.33	Jan 1	0.07	Oct 1 1991
ANNUAL SEVEN-DAY MINIMUM	0.60	Feb 20	0.38	Jul 13	90	Jun 10 1995
MAXIMUM PEAK FLOW			3.0	Mar 27a	9.17	Jun 10 1995
MAXIMUM PEAK STAGE			8.10	Mar 27a	2460	
ANNUAL RUNOFF (AC-FT)	1010		685		7.2	
10 PERCENT EXCEEDS	1.8		1.4		1.9	
50 PERCENT EXCEEDS	1.3		0.90		0.38	
90 PERCENT EXCEEDS	0.78		0.44			

a Also May 11.
e Estimated.



LOCATION.--Lat 43°28'00", long 103°18'20", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.5, T.7 S., R.7 E., Fall River County, Hydrologic Unit 10120109, on left bank 1.5 mi south of Buffalo Gap and 4.5 mi upstream from mouth.

DRAINAGE AREA.--130 mi², approximately.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for October, November, 1957, published in WSP 1309.

REVISED RECORDS.--WSP 956: 1941. WSP 1309: 1939-40(M), 1947(M).

GAGE.--Water-stage recorder. Elevation of gage is 3,150 ft above NGVD of 1929, from topographic map. Prior to June 20, 1939, nonrecording gage at site 0.8 mi downstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Nearly all flow is diverted above station during irrigation season. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1927 reached a stage of 18.0 ft, former site and datum, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	9.5	9.7	e5.0	e7.8	e8.7	9.4	7.0	2.5	1.2	1.1	1.3
2	7.2	9.5	9.7	e5.0	8.1	e8.6	9.3	5.6	2.3	1.1	1.2	1.0
3	7.2	9.4	9.4	e5.0	8.1	e8.5	9.2	4.4	3.5	1.3	1.3	1.5
4	9.6	9.5	9.3	e6.1	8.1	e9.0	9.4	6.1	3.2	1.2	1.4	1.2
5	9.3	9.5	9.4	e6.8	8.1	9.3	9.4	5.6	3.0	0.95	2.0	1.3
6	9.3	9.5	9.4	7.3	8.1	9.2	9.3	5.9	4.0	2.0	2.0	1.3
7	8.2	9.7	9.4	7.5	8.1	9.2	9.3	5.2	4.0	1.1	1.4	1.3
8	8.2	9.7	8.3	7.7	8.2	e9.1	9.3	5.7	4.1	0.56	1.3	1.6
9	9.6	9.6	7.4	7.5	8.0	e9.0	9.4	5.8	3.9	0.52	1.5	2.6
10	9.5	9.5	7.3	7.5	8.1	e9.0	9.4	5.9	3.9	0.59	1.5	2.2
11	9.3	9.6	7.3	7.5	8.1	9.3	9.4	7.0	3.7	0.61	0.46	2.1
12	9.3	9.6	7.2	7.4	8.1	9.4	9.3	6.5	3.8	0.63	0.36	3.1
13	9.3	9.6	7.3	7.5	8.1	9.6	9.2	6.5	3.8	0.82	0.78	5.9
14	9.3	9.5	6.7	7.3	8.1	9.5	9.2	6.5	3.8	0.57	0.67	5.4
15	9.3	9.5	5.1	7.0	8.1	9.5	9.2	6.2	3.2	0.40	0.48	4.6
16	9.2	9.4	5.0	e6.8	8.1	9.4	9.3	6.0	2.5	0.60	0.83	5.3
17	9.3	9.4	4.8	e6.5	8.2	9.4	9.2	6.7	2.8	0.54	1.7	5.4
18	9.3	9.2	5.3	e6.3	8.4	e9.1	9.1	6.2	3.1	0.48	3.3	5.9
19	9.4	9.4	7.0	e6.0	9.3	e9.0	9.1	5.9	3.2	0.51	3.3	5.9
20	9.3	9.4	6.9	e6.8	9.3	e9.0	8.9	5.9	2.9	0.62	3.3	5.7
21	9.3	9.5	6.3	7.2	9.2	e9.0	9.2	5.9	3.2	0.84	2.4	6.2
22	9.3	9.5	6.4	7.1	9.3	e9.1	8.9	5.6	2.7	1.0	1.2	5.9
23	9.3	9.5	e6.3	7.4	9.2	e9.3	8.9	3.5	2.0	0.98	1.2	5.9
24	9.4	9.4	e6.0	8.1	9.2	e9.3	8.2	3.7	1.6	1.0	1.7	6.0
25	9.3	e9.3	e6.0	8.2	9.1	9.4	7.5	3.4	1.7	0.92	1.4	5.8
26	9.3	e9.1	6.7	8.1	e9.0	9.4	7.0	2.7	1.6	0.68	1.4	5.9
27	9.3	e9.0	6.6	8.1	e8.9	9.5	8.5	3.4	0.82	0.35	1.7	5.9
28	9.3	e9.0	6.8	8.1	e8.8	9.5	8.7	3.2	1.5	0.37	1.9	5.9
29	9.3	e9.5	e6.5	e7.8	---	9.4	7.8	2.4	0.82	0.46	2.3	5.9
30	9.4	9.8	e6.0	e7.5	---	9.4	4.7	2.5	0.70	0.88	2.2	5.8
31	9.5	---	e5.8	e7.5	---	9.4	---	2.7	---	0.37	1.2	---
TOTAL	280.6	283.6	221.3	219.6	237.2	285.5	264.7	159.6	83.84	24.15	48.48	123.8
MEAN	9.05	9.45	7.14	7.08	8.47	9.21	8.82	5.15	2.79	0.78	1.56	4.13
MAX	9.6	9.8	9.7	8.2	9.3	9.6	9.4	7.0	4.1	2.0	3.3	6.2
MIN	6.8	9.0	4.8	5.0	7.8	8.5	4.7	2.4	0.70	0.35	0.36	1.0
AC-FT	557	563	439	436	470	566	525	317	166	48	96	246

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2002, BY WATER YEAR (WY)

	MEAN	7.41	9.09	9.69	9.91	9.92	9.26	6.80	5.15	7.68	5.62	4.22	5.56
MAX	16.0	19.9	19.3	18.4	15.1	16.1	16.9	21.7	43.4	32.4	22.3	15.4	
(WY)	1999	1999	1999	1999	1999	1999	1978	1941	1999	1999	1999	1999	
MIN	0.67	3.40	5.96	7.08	7.00	4.34	0.79	0.61	0.39	0.24	0.25	0.37	
(WY)	1961	1950	1991	2002	1942	1961	1967	1960	1974	1953	1961	1960	

06402500 BEAVER CREEK NEAR BUFFALO GAP, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1939 - 2002	
ANNUAL TOTAL	2776.0		2232.37		7.51	
ANNUAL MEAN	7.61		6.12		21.2	
HIGHEST ANNUAL MEAN					3.78	
LOWEST ANNUAL MEAN					313	
HIGHEST DAILY MEAN	26	Jul 9	9.8	Nov 30	0.00	Jul 29 1952a
LOWEST DAILY MEAN	2.0	Aug 26	0.35	Jul 27	0.06	Jul 28 1952
ANNUAL SEVEN-DAY MINIMUM	2.8	Aug 24	0.53	Jul 14	11700	Sep 4 1938b
MAXIMUM PEAK FLOW			22	Mar 9c	16.46	Sep 4 1938d
MAXIMUM PEAK STAGE			4.68	Mar 9c	5440	
ANNUAL RUNOFF (AC-FT)	5510		4430		12	
10 PERCENT EXCEEDS	9.6		9.4		8.0	
50 PERCENT EXCEEDS	8.2		7.0		0.73	
90 PERCENT EXCEEDS	4.3		1.1			

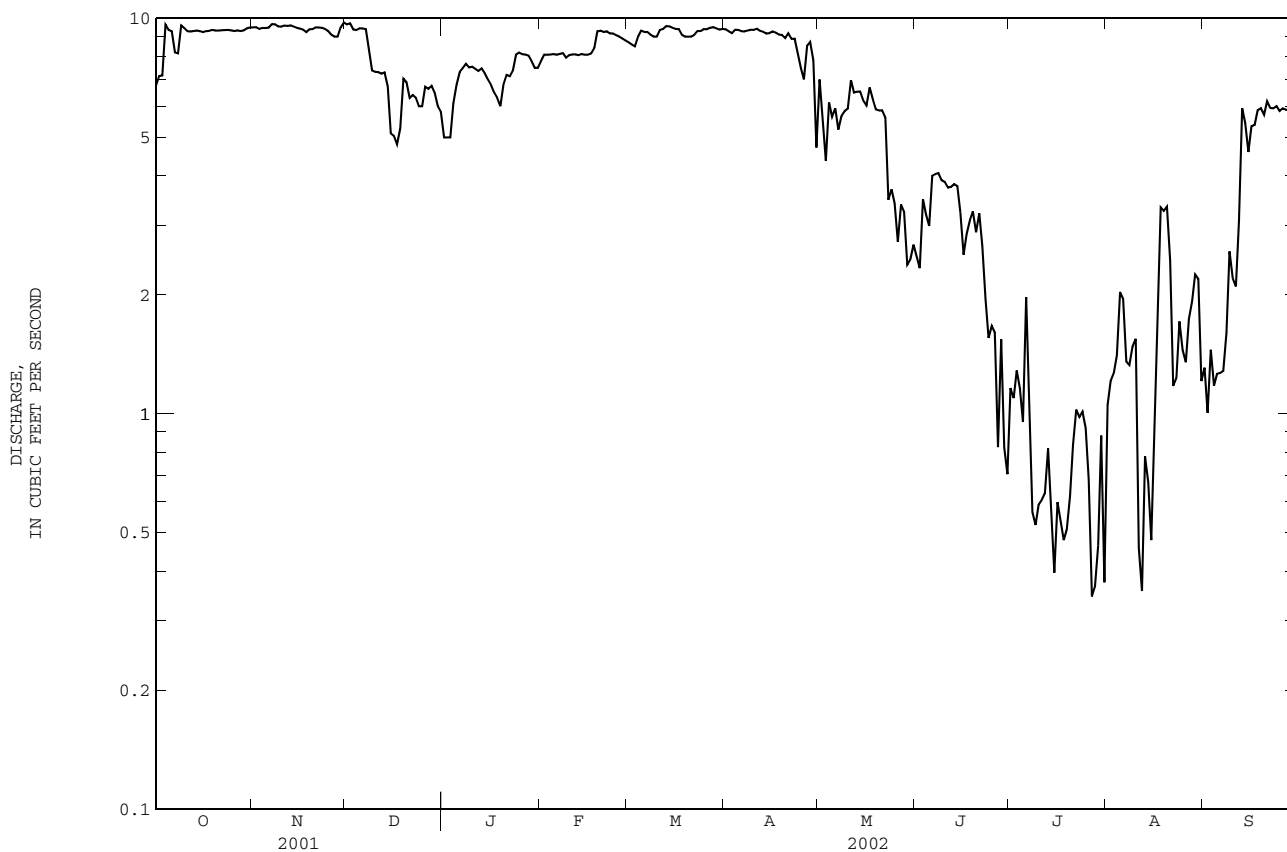
a No flow at times in some years.

b From rating curve extended above 11 ft³/s on basis of slope-area measurement.

c Backwater from ice.

d Site and datum then in use.

e Estimated.



CHEYENNE RIVER BASIN

06403300 FRENCH CREEK ABOVE FAIRBURN, SD

LOCATION.--Lat 43°43'02", long 103°22'03", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.11, T.4 S., R.6 E., Custer County, Hydrologic Unit 10120109, on right bank 500 ft upstream from concrete diversion dam, 1.0 mi southwest of landing strip in Custer State Park, 1.5 mi west of east boundary of Custer State Park, 2.6 mi southwest of abandoned Fairview School, and 3.5 mi southeast of Custer State Park Headquarters.

DRAINAGE AREA.--105 mi², approximately.

PERIOD OF RECORD.--April 1982 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,850 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Stockade Reservoir, capacity, 1,820 acre-ft, 12 mi upstream. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	3.1	e0.30	e1.7	e5.0	e1.0	6.3	16	7.8	2.4	0.90	1.4
2	2.7	3.0	e0.40	e1.6	e3.8	e1.0	e4.3	17	7.6	2.1	0.80	1.2
3	2.6	3.0	e0.50	e6.0	e3.0	e1.0	e4.0	15	8.3	1.8	0.73	1.1
4	3.2	3.0	e0.60	e14	e2.7	e1.5	e8.0	17	14	1.6	0.73	0.95
5	3.7	3.0	e0.80	e15	e3.0	e1.8	e12	15	17	1.5	0.96	0.86
6	3.6	3.0	e1.0	e10	e3.0	e1.7	e16	14	13	1.4	2.5	0.86
7	4.0	3.0	e2.4	e8.0	e2.0	e1.3	e21	14	10	2.2	2.3	0.89
8	5.3	2.9	e6.3	e6.0	e2.0	e1.0	e26	12	9.1	2.5	2.0	1.2
9	6.2	2.9	3.0	e11	e2.0	e1.0	e29	11	8.2	2.4	1.5	2.3
10	6.1	2.9	2.6	e10	e3.0	e1.0	22	9.4	8.2	2.4	1.3	2.4
11	5.6	2.9	2.5	e10	e4.0	e0.98	20	11	6.9	2.1	1.1	2.7
12	5.0	3.1	e2.5	e8.0	e3.9	e0.97	21	22	5.6	2.2	1.2	3.9
13	5.1	5.5	e3.1	e4.0	e3.9	e0.96	17	22	4.8	1.8	1.2	4.3
14	5.2	6.0	2.5	e4.0	e3.9	e1.1	14	19	4.3	1.6	1.1	5.9
15	5.3	6.5	2.4	e3.7	e3.8	e1.0	12	16	4.0	1.3	1.0	5.2
16	5.2	6.6	4.1	e3.4	e3.8	e0.98	12	14	3.7	1.1	1.1	3.8
17	5.3	6.6	2.8	e2.8	e3.7	e0.97	10	14	3.5	0.99	0.91	3.0
18	5.7	e6.7	2.6	e2.5	e3.6	e0.97	9.5	15	3.3	0.93	0.82	2.7
19	5.8	e5.4	e2.6	e4.0	e3.5	e0.96	8.6	14	3.1	0.94	0.76	2.5
20	5.8	e6.9	2.9	e4.8	e3.4	e0.96	8.2	13	3.1	0.94	0.72	2.1
21	5.8	6.6	2.4	e4.0	e3.3	e0.95	8.3	11	2.9	2.1	0.80	2.1
22	5.7	5.6	e2.3	e3.0	3.3	e0.94	8.8	11	2.6	3.5	1.1	2.2
23	5.8	4.8	e2.3	e3.0	3.3	e0.93	8.3	12	2.5	4.5	1.0	2.1
24	5.9	3.7	e2.1	e3.0	5.5	e0.93	8.1	11	2.6	3.6	1.5	2.0
25	5.7	3.2	e2.1	e2.6	6.2	e0.93	8.1	9.7	2.5	2.6	1.6	1.9
26	5.4	e2.7	e2.0	e2.1	e3.5	e0.93	7.4	8.9	2.7	2.2	1.5	1.9
27	4.1	e2.2	e2.0	e2.0	e2.5	e0.96	9.4	8.5	2.3	1.8	1.5	1.8
28	3.5	e1.8	e1.9	e2.0	e1.0	e2.5	17	8.4	2.9	1.6	1.4	1.9
29	3.1	e1.3	e1.9	e2.0	---	e5.0	17	10	3.3	1.5	1.6	1.8
30	3.1	e0.75	e1.8	e2.0	---	5.7	14	9.7	2.7	1.2	1.8	1.7
31	3.0	---	e1.7	e3.0	---	6.2	---	8.7	---	1.1	1.6	---
TOTAL	145.2	118.65	68.40	159.2	95.6	48.12	387.3	409.3	172.5	59.90	39.03	68.66
MEAN	4.68	3.96	2.21	5.14	3.41	1.55	12.9	13.2	5.75	1.93	1.26	2.29
MAX	6.2	6.9	6.3	15	6.2	6.2	29	22	17	4.5	2.5	5.9
MIN	2.6	0.75	0.30	1.6	1.0	0.93	4.0	8.4	2.3	0.93	0.72	0.86
AC-FT	288	235	136	316	190	95	768	812	342	119	77	136

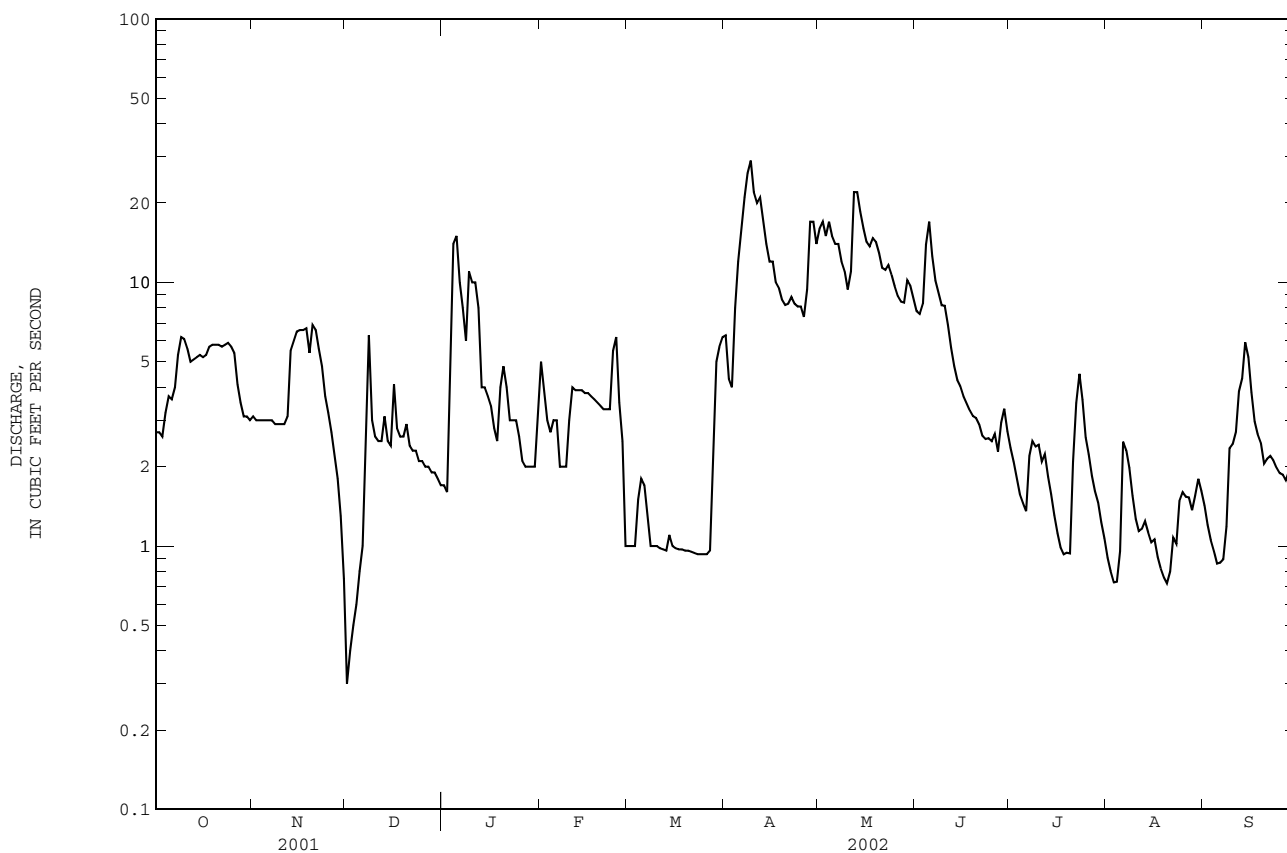
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2002, BY WATER YEAR (WY)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	7.21	7.57	4.42	4.04	4.67	10.8	13.6	28.2	30.6	13.6	9.85	5.61								
MAX	24.8	46.0	24.5	15.0	17.8	24.8	45.4	147	143	46.4	42.7	17.3								
(WY)	1999	1999	1999	1999	1999	1987	1999	1995	1995	1995	1997	1999								
MIN	0.84	1.07	0.69	0.39	0.19	1.55	1.63	1.00	0.46	0.44	0.53	0.65								
(WY)	1988	1986	1990	1989	1989	2002	1989	1989	1989	1985	1985	1987								

06403300 FRENCH CREEK ABOVE FAIRBURN, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1983 - 2002
ANNUAL TOTAL	3269.45	1771.86	
ANNUAL MEAN	8.96	4.85	11.7a
HIGHEST ANNUAL MEAN			34.7
LOWEST ANNUAL MEAN			1.01
HIGHEST DAILY MEAN	33 Jul 8	29 Apr 9	536 May 8 1995
LOWEST DAILY MEAN	0.30 Dec 1	0.30 Dec 1	0.02 Feb 3 1989b
ANNUAL SEVEN-DAY MINIMUM	0.62 Nov 30	0.62 Nov 30	0.03 Feb 2 1989
MAXIMUM PEAK FLOW		68 Apr 8	1060 May 8 1995c
MAXIMUM PEAK STAGE		1.62 Apr 8d	4.08 May 8 1995f
ANNUAL RUNOFF (AC-FT')	6480	3510	8480
10 PERCENT EXCEEDS	22	12	26
50 PERCENT EXCEEDS	6.2	3.0	5.3
90 PERCENT EXCEEDS	2.6	0.98	0.90

- a Median of annual mean discharges, 8.3 ft³/s.
b Also Feb. 4, 5, 1989.
c Peak flow determined from slope-area measurement.
d Backwater from ice.
e Estimated.
f From floodmark.



CHEYENNE RIVER BASIN

06403700 CHEYENNE RIVER AT REDSHIRT, SD

LOCATION.--Lat 43°40'23", long 102°53'36", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.26, T.4 S., R.10 E., Custer County, Hydrologic Unit 10120109, 0.8 mi northeast of Redshirt, approximately 22 mi southeast of Hermosa on State Highway 40, on right stream bank.

DRAINAGE AREA.--10,220 mi², revised, approximately.

PERIOD OF RECORD.--October 1998 to current year.

REVISED RECORDS.--WDR SD-99-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,670 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Angostura Dam, conservation capacity, 82,400 acre-ft, 45 mi upstream since October 1949. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	91	e120	e20	e55	e54	91	154	64	29	38	71
2	69	88	e100	e30	e55	e53	86	152	65	29	33	69
3	72	88	e95	e40	e57	e52	82	112	71	31	39	64
4	83	87	e80	e50	e60	e55	80	98	83	27	44	69
5	104	87	e70	e60	e60	e56	81	92	77	30	55	65
6	91	88	e65	e70	e65	e53	79	88	73	29	112	62
7	85	87	e60	e80	e70	e55	80	81	63	35	104	63
8	83	89	e70	e80	e80	e56	84	83	58	34	81	76
9	82	88	e70	e80	e80	e55	83	84	64	30	67	131
10	94	87	e70	e75	e80	e60	79	81	60	24	59	112
11	94	87	e70	e72	e85	e90	87	107	55	24	63	84
12	87	87	e71	e60	e80	e119	87	103	57	32	59	105
13	87	87	e100	e62	e77	e100	80	88	49	34	59	173
14	88	87	e130	e60	e75	e100	76	84	55	29	61	109
15	86	86	e130	e58	e73	e98	74	82	66	33	58	82
16	86	87	e100	e56	e70	e95	74	82	60	30	54	80
17	86	88	e80	e40	e70	e87	73	87	62	31	48	81
18	87	87	e75	e40	e70	82	73	89	58	32	48	83
19	86	88	e70	e40	e65	81	76	84	53	33	52	107
20	87	90	e65	e45	e65	78	77	81	53	32	53	91
21	86	88	e62	e57	e70	e65	79	90	62	40	55	86
22	86	88	e60	e60	e64	e60	81	118	60	51	58	94
23	88	88	e58	e80	e60	e55	79	112	55	57	56	89
24	88	88	e58	e80	e57	e54	80	99	47	50	57	86
25	88	88	e60	e85	e55	e51	72	90	40	44	67	83
26	88	86	e60	e90	e55	e77	66	88	38	45	65	84
27	89	e87	e62	e75	e54	96	91	82	39	44	67	83
28	90	e94	e55	e65	e54	119	92	79	33	40	67	84
29	89	e95	e40	e58	---	119	84	77	32	36	72	83
30	88	e100	e38	e55	---	106	73	74	30	37	72	84
31	90	---	e30	e55	---	97	---	66	---	40	77	---
TOTAL	2676	2656	2274	1878	1861	2378	2399	2887	1682	1092	1900	2633
MEAN	86.3	88.5	73.4	60.6	66.5	76.7	80.0	93.1	56.1	35.2	61.3	87.8
MAX	104	100	130	90	85	119	92	154	83	57	112	173
MIN	69	86	30	20	54	51	66	66	30	24	33	62
AC-FT	5310	5270	4510	3730	3690	4720	4760	5730	3340	2170	3770	5220

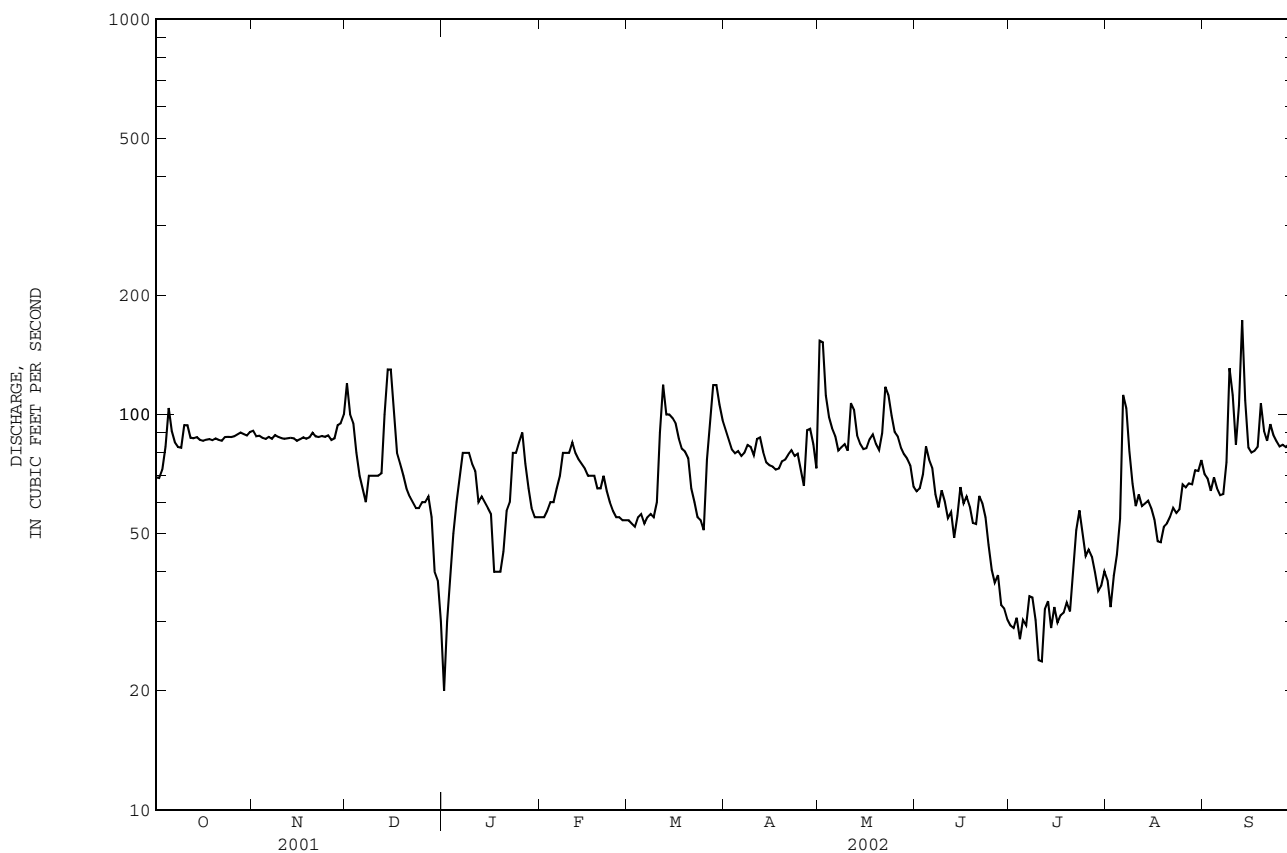
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2002, BY WATER YEAR (WY)

	1999	2000	2001	2002
MEAN	143	304	95.8	78.0
MAX	277	926	147	116
(WY)	1999	1999	1999	1999
MIN	86.3	84.6	59.4	60.6
(WY)	2002	2001	2001	2002

06403700 CHEYENNE RIVER AT REDSHIRT, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1999 - 2002	
ANNUAL TOTAL	35120		26316		195	
ANNUAL MEAN	96.2		72.1		395	
HIGHEST ANNUAL MEAN					72.1	
LOWEST ANNUAL MEAN					7320	
HIGHEST DAILY MEAN	1250	Mar 4	173	Sep 13	20	Apr 24 2000
LOWEST DAILY MEAN	30	Dec 31	20	Jan 1	20	Jan 1 2002
ANNUAL SEVEN-DAY MINIMUM	40	Aug 3	29	Jun 30	29	Jun 30 2002
MAXIMUM PEAK FLOW			267	Sep 9a	9070	Apr 23 2000
MAXIMUM PEAK STAGE			12.38	Mar 22b	17.48	Apr 23 2000
ANNUAL RUNOFF (AC-FT)	69660		52200		140900	
10 PERCENT EXCEEDS	116		95		377	
50 PERCENT EXCEEDS	78		74		90	
90 PERCENT EXCEEDS	50		40		55	

a Gage height, 10.86 ft.
b Backwater from ice.
e Estimated.



CHEYENNE RIVER BASIN

06404000 BATTLE CREEK NEAR KEYSTONE, SD

LOCATION.--Lat 43°52'21", long 103°20'10", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.18, T.2 S., R.7 E., Pennington County, Hydrologic Unit 10120109, at right downstream end county highway bridge, 0.6 mi downstream from Iron Creek, and 4.5 mi southeast of Keystone.

DRAINAGE AREA.--66 mi².

PERIOD OF RECORD.--July 1945 to July 1947, October 1961 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,800 ft above NGVD of 1929, from topographic map. Prior to Nov. 13, 1961, nonrecording gage at site 250 ft downstream at different datum and Nov. 13 to Dec. 5, 1961, at same site at present datum. Dec. 6, 1961, to June 9, 1972, water-stage recorder at site 210 ft downstream at present datum (destroyed by flood); June 10 to Nov. 20, 1972, nonrecording gage 180 ft downstream at present datum; Nov. 21, 1972, to Nov. 27, 1973, water-stage recorder at present site and datum; Nov. 28, 1973, to Nov. 7, 1974, nonrecording gage 180 ft downstream at present datum.

REMARKS.--Records good except these for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.92	3.0	2.5	e0.90	e1.3	e0.38	4.1	12	5.1	1.3	0.09	0.00
2	0.97	2.7	3.2	e0.80	0.41	e0.36	e2.5	11	5.9	1.1	0.02	0.00
3	0.84	2.9	4.3	e2.1	0.51	e1.7	e1.0	12	7.1	0.97	0.00	0.00
4	1.6	3.0	4.0	e1.9	0.45	0.86	e1.0	12	9.3	0.80	0.00	0.00
5	2.2	2.9	4.2	e1.4	0.38	0.84	2.5	12	7.4	0.64	0.17	0.00
6	2.4	3.0	2.7	e6.0	0.55	0.90	3.7	12	5.7	0.67	1.7	0.00
7	2.2	3.0	3.0	e3.9	0.63	0.79	7.2	11	4.8	0.87	0.77	0.00
8	1.9	2.9	2.7	1.9	0.81	e0.70	8.9	10	4.5	1.1	0.42	0.00
9	3.1	2.9	3.2	0.97	e0.81	e0.70	9.7	8.8	4.5	1.5	0.31	0.33
10	5.8	2.8	3.2	1.4	e0.80	e0.80	11	7.8	4.1	1.3	0.20	0.45
11	4.3	2.9	3.0	0.95	e0.88	0.84	11	17	3.7	1.0	0.13	0.27
12	3.4	3.0	e2.8	2.2	e0.90	0.96	11	22	4.1	0.79	0.12	0.58
13	2.9	3.1	e2.5	1.2	e1.1	1.1	9.8	21	3.8	0.48	0.19	2.0
14	2.8	3.0	2.1	e1.1	0.54	e0.90	9.7	17	3.6	0.28	0.16	2.7
15	2.5	3.0	2.6	e1.0	0.74	e0.86	9.7	14	3.4	0.14	0.04	1.5
16	2.4	3.0	2.8	e1.0	0.64	e0.87	8.9	13	3.2	0.05	0.02	0.97
17	2.3	2.9	2.6	e0.90	0.63	e0.88	7.1	15	2.9	0.00	0.00	0.69
18	2.6	3.1	e2.4	e0.70	0.59	e0.88	6.2	15	2.8	0.00	0.00	0.97
19	2.6	2.8	e2.0	e0.55	0.69	e0.89	5.4	13	2.7	0.00	0.00	2.1
20	2.7	3.1	e1.9	0.47	e0.65	e0.89	4.9	11	2.8	2.0	0.00	1.5
21	2.9	3.2	e1.6	0.35	e0.82	e0.90	5.6	11	2.8	7.5	0.00	1.3
22	2.8	3.4	e1.3	0.55	e0.80	e0.91	5.5	11	2.5	4.3	0.00	1.0
23	2.9	e3.7	e1.1	e0.55	e0.70	e0.85	5.5	10	2.2	2.5	0.00	0.95
24	2.9	e3.5	0.83	e0.75	e0.60	e0.98	5.3	9.7	2.1	1.8	0.07	0.89
25	3.2	e3.6	0.83	0.49	e0.60	e1.0	4.7	9.4	6.8	1.3	0.06	0.80
26	2.8	e3.1	0.86	0.85	e0.55	1.2	4.3	9.5	3.6	1.3	0.02	0.76
27	2.8	e3.0	1.6	0.79	e0.45	2.3	11	12	2.7	1.1	0.01	0.78
28	3.0	e2.6	e1.5	e0.60	e0.40	4.3	15	10	2.4	0.80	0.00	0.76
29	3.1	e2.2	e1.2	e0.60	---	3.9	12	8.9	1.9	0.64	0.00	0.76
30	3.0	2.5	e1.1	e0.58	---	3.3	10	7.5	1.4	0.43	0.00	0.70
31	3.0	---	e1.0	e0.50	---	3.1	---	5.5	---	0.22	0.00	---
TOTAL	82.83	89.8	70.62	37.95	18.93	39.84	214.2	371.1	119.8	36.88	4.50	22.76
MEAN	2.67	2.99	2.28	1.22	0.68	1.29	7.14	12.0	3.99	1.19	0.15	0.76
MAX	5.8	3.7	4.3	6.0	1.3	4.3	15	22	9.3	7.5	1.7	2.7
MIN	0.84	2.2	0.83	0.35	0.38	0.36	1.0	5.5	1.4	0.00	0.00	0.00
AC-FT	164	178	140	75	38	79	425	736	238	73	8.9	40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2002, BY WATER YEAR (WY)

MEAN	3.11	3.55	2.55	1.84	2.07	3.92	10.0	29.4	38.4	12.3	5.09	2.27
MAX	22.5	36.0	25.8	12.7	9.57	12.8	38.8	153	199	46.3	20.5	7.20
(WY)	1999	1999	1999	1997	1996	1987	1971	1995	1972	1962	1999	1997
MIN	0.000	0.000	0.000	0.000	0.000	0.46	1.49	1.24	0.22	0.039	0.000	0.000
(WY)	1962	1989	1989	1962	1989	1962	1981	1985	1985	1989	1989	1975

06404000 BATTLE CREEK NEAR KEYSTONE, SD--Continued

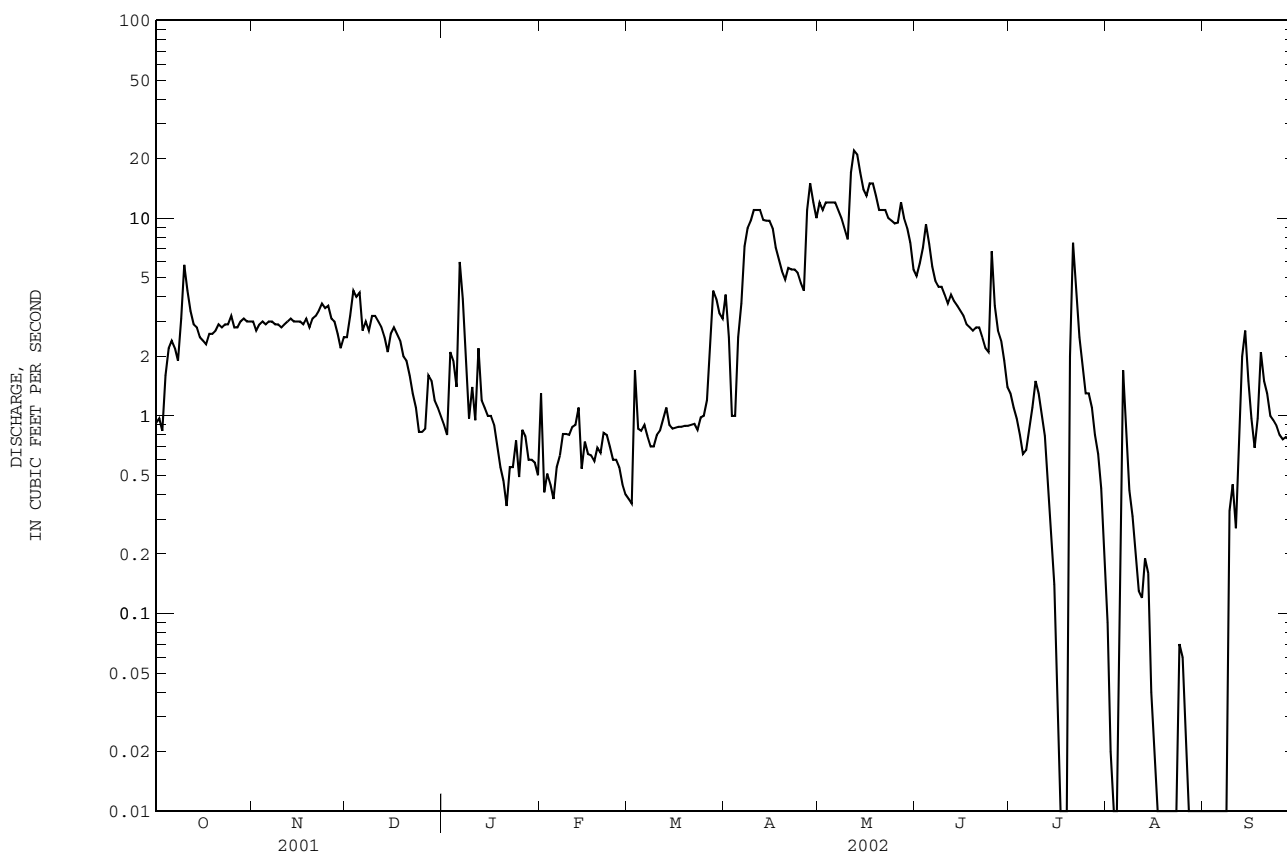
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1962 - 2002	
ANNUAL TOTAL	2820.19		1109.21		9.56a	
ANNUAL MEAN	7.73		3.04		27.7	
HIGHEST ANNUAL MEAN					0.69	
LOWEST ANNUAL MEAN					2400	
HIGHEST DAILY MEAN	150	Jul 12	22	May 12	Jun 10	1972
LOWEST DAILY MEAN	0.79	Sep 5	0.00	Jul 17	Oct 1	1961b
ANNUAL SEVEN-DAY MINIMUM	1.1	Sep 27	0.00	Aug 17	Oct 1	1961
MAXIMUM PEAK FLOW			27	May 12	Jun 9	1972c
MAXIMUM PEAK STAGE			3.87	May 12	Jun 9	1972c
ANNUAL RUNOFF (AC-FT)	5590		2200		6920	
10 PERCENT EXCEEDS	16		9.4		18	
50 PERCENT EXCEEDS	4.0		1.9		2.6	
90 PERCENT EXCEEDS	1.5		0.15		0.30	

a Median of annual mean discharges, 7.3 ft³/s.

b No flow at times in some years.

c From floodmarks, site then in use, from rating curve extended above 5.5 ft³/s on basis of slope-area measurement of peak flow.

e Estimated.



CHEYENNE RIVER BASIN

06404998 GRACE COOLIDGE CREEK NEAR GAME LODGE, NEAR CUSTER, SD

LOCATION.--Lat 43°45'40", long 103°21'49", in SW¹/₄ NE¹/₄ sec.26, T.3 S., R.6 E., Custer County, Hydrologic Unit 10120109, on right bank 0.3 mi downstream from bridge on U.S. Highway 16A, 0.9 mi east of Game Lodge, 1.5 mi southwest of junction of State Highway 36 and U.S. Highway 16A, and 11.5 mi east of Custer.

DRAINAGE AREA.--25.2 mi².

PERIOD OF RECORD.--October 1976 to current year.

REVISED RECORDS.--WDR SD-88-1: 1988 (M).

GAGE.--Water-stage recorder. Elevation of gage is 4,100 ft above NGVD of 1929, from topographic map. From July 17, 1945, to July 31, 1947, nonrecording gage at site 1,800 ft upstream and different datum. June 1967 to June 13, 1976, at site 500 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Considerable loss occurs to sinkholes downstream from gage. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD:--Flood of June 10, 1972, reached a stage of 10.35 ft, from floodmarks, discharge, 709 ft³/s from slope-area measurement of peak flow. Flood of June 15, 1976, reached a stage of 10.90 ft, from floodmarks, discharge, 980 ft³/s on basis of slope-area measurement of 10.35 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.6	e1.6	e1.7	e2.0	e1.1	2.5	6.3	3.1	1.1	0.65	0.74
2	1.4	1.6	e1.8	e2.2	e2.2	e1.1	2.5	5.7	3.6	1.0	0.81	0.70
3	1.4	1.6	e2.1	e3.0	e2.3	e1.1	e2.2	6.3	3.9	0.99	0.69	0.71
4	1.9	1.6	2.0	e3.2	e2.5	e1.1	e2.0	5.9	5.0	0.92	0.72	0.65
5	2.1	1.6	1.8	e4.1	e3.5	e2.0	e2.2	5.2	4.0	0.91	1.0	0.62
6	1.8	1.6	2.4	e3.7	1.9	e1.0	2.6	5.7	3.4	1.0	1.8	0.59
7	1.6	1.6	1.8	e5.0	1.4	e0.98	3.2	5.3	3.0	1.4	1.2	0.63
8	1.6	1.8	3.8	e2.4	1.4	e0.90	4.5	4.9	3.3	2.2	1.1	0.87
9	2.1	1.6	2.3	1.5	1.4	e0.80	2.9	4.3	3.4	1.8	1.0	2.0
10	2.6	1.6	1.8	1.4	e1.3	e0.80	2.7	3.9	2.9	1.4	0.92	1.4
11	1.9	1.6	e1.9	1.4	e1.2	e0.85	3.9	8.7	2.5	1.2	0.85	1.1
12	1.9	1.6	e1.9	1.4	e1.8	e1.1	3.9	9.6	2.3	1.1	0.92	1.3
13	1.6	1.6	e1.9	1.4	e1.9	1.6	3.2	8.9	2.3	0.99	1.0	2.1
14	1.8	1.7	e1.9	1.4	e1.2	3.8	3.0	7.6	2.2	0.95	0.88	1.8
15	1.5	1.7	1.8	e1.3	e1.2	2.9	2.9	6.7	2.0	0.84	0.93	1.4
16	1.6	1.6	2.5	e1.3	1.2	e2.2	2.7	6.3	1.9	0.76	0.83	1.2
17	1.5	1.6	3.2	e1.3	1.2	e1.5	2.4	6.9	1.9	0.74	0.72	1.2
18	1.6	1.8	2.1	e1.1	1.2	e1.5	2.3	6.6	1.8	0.70	0.78	1.4
19	1.7	e1.8	e2.1	e2.2	1.2	e1.4	2.4	5.7	1.8	0.74	0.70	1.7
20	1.6	1.8	e2.0	e2.7	1.8	e1.3	2.4	5.2	1.7	0.83	0.73	1.3
21	1.6	1.8	e1.8	e3.3	1.2	e1.2	2.8	5.0	1.7	2.4	0.78	1.3
22	1.6	1.8	e1.5	e3.8	1.2	e1.0	2.7	5.1	1.6	2.2	1.2	1.3
23	1.6	1.8	e1.5	3.5	1.2	e0.95	2.5	4.6	1.7	1.6	0.92	1.2
24	1.9	2.0	e1.5	6.2	1.3	e1.0	2.5	4.4	1.5	1.2	1.4	1.2
25	2.1	1.8	e1.5	6.8	e1.1	e1.2	2.2	4.2	1.5	1.1	1.1	1.2
26	1.6	e1.8	e1.9	4.9	e1.1	1.6	2.2	3.9	1.5	1.1	0.96	1.3
27	1.5	e1.7	e2.2	1.4	e1.1	1.9	5.8	3.8	1.5	0.97	0.90	1.2
28	1.5	e1.6	e2.2	1.6	e1.1	2.5	7.1	4.1	1.3	0.92	0.88	1.2
29	1.5	e1.4	e2.0	1.7	---	2.1	5.2	4.0	1.3	0.86	1.0	1.2
30	1.5	e1.4	e1.9	1.7	---	2.3	4.3	3.7	1.1	0.79	0.91	1.2
31	1.5	---	e1.8	e1.9	---	2.4	---	3.3	---	0.71	0.77	---
TOTAL	52.5	50.1	62.5	80.5	43.1	47.18	93.7	171.8	70.7	35.42	29.05	35.71
MEAN	1.69	1.67	2.02	2.60	1.54	1.52	3.12	5.54	2.36	1.14	0.94	1.19
MAX	2.6	2.0	3.8	6.8	3.5	3.8	7.1	9.6	5.0	2.4	1.8	2.1
MIN	1.4	1.4	1.5	1.1	1.1	0.80	2.0	3.3	1.1	0.70	0.65	0.59
AC-FT	104	99	124	160	85	94	186	341	140	70	58	77

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 2002, BY WATER YEAR (WY)

MEAN	3.29	3.41	2.28	1.96	1.78	2.47	4.66	17.1	13.4	5.70	4.08	2.71
MAX	14.7	25.2	11.9	8.13	6.44	6.41	25.3	115	66.8	22.3	14.3	7.51
(WY)	1999	1999	1999	1999	1999	1999	1999	1995	1995	1979	1997	1997
MIN	0.36	0.41	0.32	0.45	0.004	0.61	0.63	0.67	0.25	0.097	0.26	0.13
(WY)	1989	1986	1986	1988	1989	1981	1981	1977	1988	1988	1985	1988

06404998 GRACE COOLIDGE CREEK NEAR GAME LODGE, NEAR CUSTER, SD--Continued

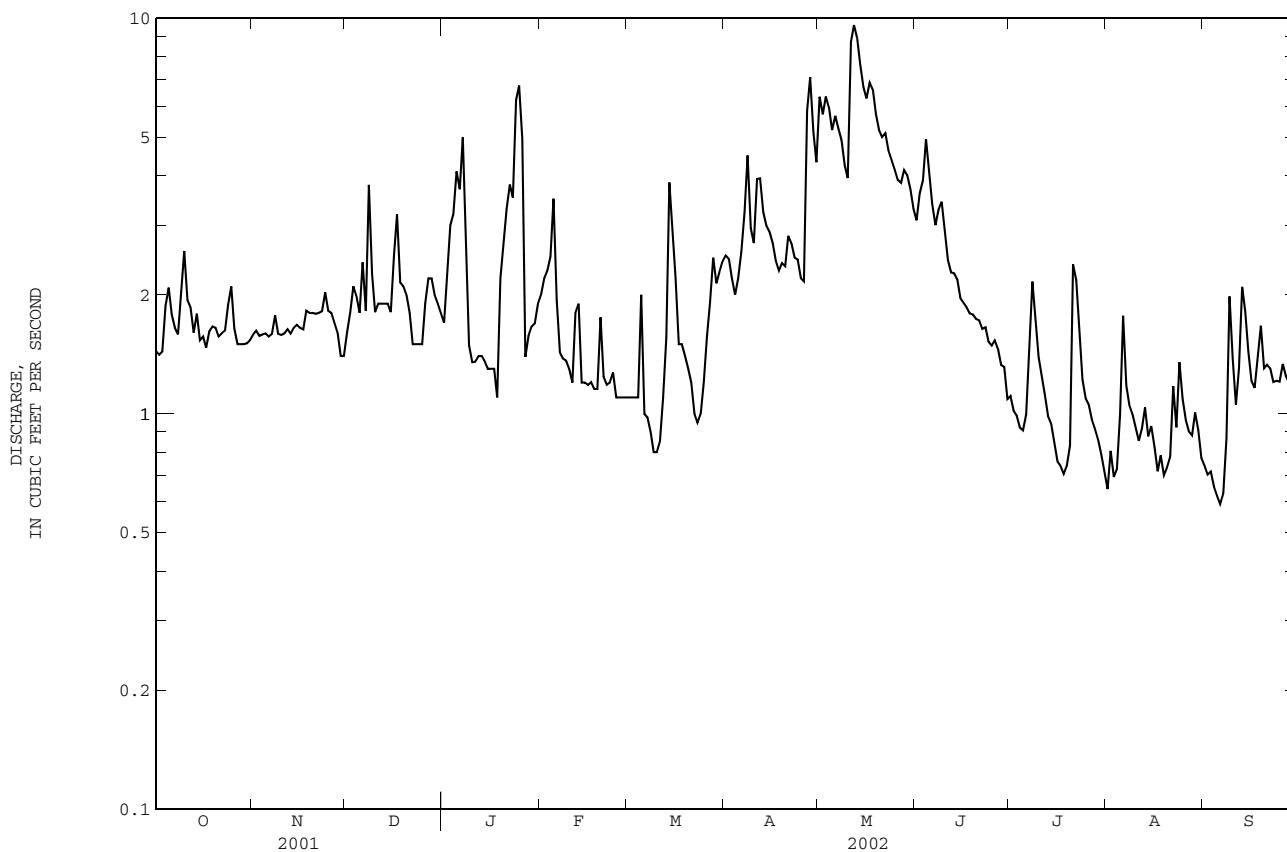
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1977 - 2002	
ANNUAL TOTAL	1217.1		772.26		5.25	
ANNUAL MEAN	3.33		2.12		19.1	
HIGHEST ANNUAL MEAN					0.61	
LOWEST ANNUAL MEAN					505	
HIGHEST DAILY MEAN	21	Jun 5	9.6	May 12	1995	1995
LOWEST DAILY MEAN	1.1	Sep 5	0.59	Sep 6	1988	1988
ANNUAL SEVEN-DAY MINIMUM	1.4	Sep 1	0.66	Sep 1	0.00	Jun 5 1977a
MAXIMUM PEAK FLOW			11	May 11	1030	Sep 7 1989b
MAXIMUM PEAK STAGE			7.19	May 11	12.76	Feb 9 1979c
ANNUAL RUNOFF (AC-FT)	2410		1530		3810	
10 PERCENT EXCEEDS	6.4		4.0		10	
50 PERCENT EXCEEDS	2.3		1.6		2.2	
90 PERCENT EXCEEDS	1.5		0.91		0.58	

a No flow for some days in 1977, 1985, 1988, 1989, and part of June 14, 1979.

b Gage height, 10.84 ft, from floodmarks, from rating curve extended above 709 ft³/s on basis of slope-area measurement of peak flow.

c Backwater from ice.

e Estimated.



CHEYENNE RIVER BASIN

06406000 BATTLE CREEK AT HERMOSA, SD

LOCATION.--Lat 43°49'41", long 103°11'44", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.32, T.2 S., R.8 E., Custer County, Hydrologic Unit 10120109, on right bank 50 ft downstream from Chicago and North Western Transportation Company bridge, 0.8 mi south of Hermosa, and 2.9 mi downstream from Grace Coolidge Creek.

DRAINAGE AREA.--178 mi².

PERIOD OF RECORD.--August to December 1903 (gage heights only), July 1949 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,290 ft above NGVD of 1929, from topographic map. Nonrecording gage, August to December 1903, at site 50 ft upstream, July 7, 1949, to Nov. 2, 1950, at site 0.5 mi upstream, Nov. 3, 1950, to Dec. 6, 1961, at site 170 ft downstream, all at different datum. Dec. 7, 1961, to June 10, 1972, water-stage recorder (destroyed by flood), and June 11, 1972, to Aug. 28, 1972, nonrecording gage at site 80 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	19	17	e11	14	e12	11	21	14	11	4.8	4.5
2	17	19	16	e11	14	e12	11	19	14	11	5.2	5.1
3	17	19	16	e14	13	e12	13	19	18	11	5.5	5.2
4	19	19	16	13	14	e12	16	19	19	8.3	5.6	5.8
5	19	19	16	13	15	e12	15	19	17	8.2	6.6	4.9
6	19	19	16	13	13	e12	15	19	16	8.8	12	4.9
7	18	19	16	12	13	12	16	19	15	9.2	8.7	4.8
8	18	19	15	13	13	e12	17	20	17	9.2	8.1	6.8
9	19	19	16	12	14	e12	16	19	16	11	8.0	10
10	19	19	15	12	15	12	15	19	15	10	8.1	9.6
11	18	19	15	12	13	12	15	25	15	11	7.9	9.7
12	18	18	15	12	13	12	15	21	15	7.9	8.2	11
13	19	19	15	13	13	e13	15	20	15	7.6	8.9	12
14	19	18	15	13	13	14	15	20	14	8.7	8.3	11
15	19	18	15	e12	13	12	15	20	11	6.3	8.1	10
16	19	18	15	e12	13	12	16	20	11	6.5	7.9	9.4
17	19	18	15	e12	13	12	16	21	11	5.9	7.6	9.2
18	20	19	15	e12	13	12	16	20	11	6.0	8.4	9.5
19	20	18	14	e12	13	12	16	20	12	6.0	8.2	10
20	19	19	14	e12	13	e12	16	20	13	6.8	7.2	10
21	19	19	15	12	13	e11	17	20	14	10	4.5	10
22	20	19	15	13	13	e11	16	20	13	7.8	4.2	10
23	20	19	e14	12	13	e11	16	20	13	7.1	4.5	10
24	20	19	14	20	13	e11	15	20	13	7.4	4.7	9.9
25	20	19	14	14	e13	e11	16	20	14	7.3	4.4	9.9
26	20	19	14	14	e12	e11	16	20	12	8.5	4.9	10
27	20	e16	14	14	e12	e11	20	20	12	9.5	5.0	10
28	20	e13	14	e14	e12	e11	18	20	12	7.5	5.3	10
29	19	e13	14	e13	---	12	17	19	11	7.4	6.7	9.6
30	19	e18	13	13	---	11	18	19	11	6.9	4.9	9.2
31	19	---	e11	14	---	11	---	16	---	5.9	4.4	---
TOTAL	588	548	459	399	369	365	469	614	414	255.7	206.8	262.0
MEAN	19.0	18.3	14.8	12.9	13.2	11.8	15.6	19.8	13.8	8.25	6.67	8.73
MAX	20	19	17	20	15	14	20	25	19	11	12	12
MIN	17	13	11	11	12	11	11	16	11	5.9	4.2	4.5
AC-FT	1170	1090	910	791	732	724	930	1220	821	507	410	520

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2002, BY WATER YEAR (WY)

	MEAN	7.68	8.29	7.08	6.36	6.00	6.46	9.28	32.9	43.3	16.7	9.37	7.28
MAX	39.5	62.4	48.3	41.6	38.0	34.8	68.7	234	231	75.5	53.1	41.7	
(WY)	1999	1999	1999	1999	1999	1999	1999	1995	1995	1962	1999	1999	
MIN	0.10	0.10	0.10	0.19	0.31	0.41	0.34	0.74	0.78	0.23	0.17	0.050	
(WY)	1956	1962	1962	1962	1962	1962	1962	1955	1954	1989	1961	1955	

06406000 BATTLE CREEK AT HERMOSA, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1950 - 2002	
ANNUAL TOTAL	7732		4947.3		13.4a	
ANNUAL MEAN	21.2		13.6		59.8	
HIGHEST ANNUAL MEAN					0.99	
LOWEST ANNUAL MEAN					1750	
HIGHEST DAILY MEAN	157	Jul 12	25	May 11	0.00	Jun 10 1972
LOWEST DAILY MEAN	11	Dec 31	4.2	Aug 22	0.00	Oct 6 1954b
ANNUAL SEVEN-DAY MINIMUM	13	Aug 31	4.6	Aug 21	0.00	Oct 9 1954
MAXIMUM PEAK FLOW			29	May 11c	21400	Jun 10 1972d
MAXIMUM PEAK STAGE			3.02	Nov 27f	17.72	Jun 10 1972d
ANNUAL RUNOFF (AC-FT)	15340		9810		9720	
10 PERCENT EXCEEDS	25		19		30	
50 PERCENT EXCEEDS	19		13		4.4	
90 PERCENT EXCEEDS	15		7.4		1.2	

a Median of annual mean discharges, 6.9 ft³/s.

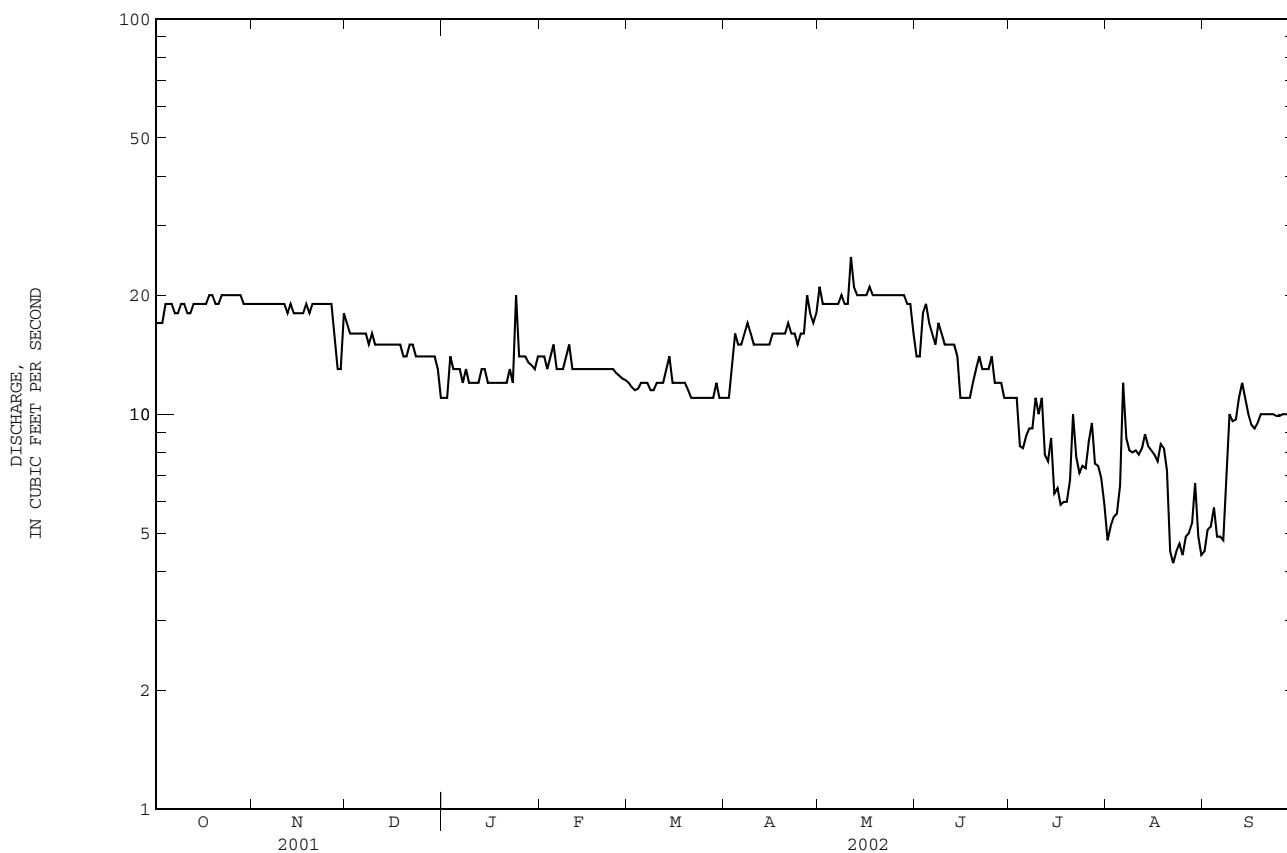
b No flow at times in 1954-57, 1959, and 1989.

c Gage height, 2.99 ft.

d From floodmarks, from rating curve extended above 2,800 ft³/s on basis of contracted-opening and flow-over-railroad embankment measurement of peak flow.

e Estimated.

f Backwater from ice.



06406500 BATTLE CREEK BELOW HERMOSA, SD

LOCATION.--Lat 43°43'30", long 102°54'15", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.3, T.4 S., R.10 E., Pennington County, Hydrologic Unit 10120109, at left downstream side of bridge on State Highway 40, approximately 9 mi upstream from mouth, and 18.0 mi southeast of Hermosa.

DRAINAGE AREA.--285 mi².

PERIOD OF RECORD.--October 1950 to September 1953, October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,810 ft above NGVD of 1929, from topographic map. Oct. 1, 1950, to Sept. 30, 1953, nonrecording gage at same site and different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Most of the flow is diverted, except after large storm events, for irrigation of about 1,000 acres upstream from station during irrigation season. Satellite data-collection platform at site. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of about 4 ft (present datum) higher than that of May 23, 1952, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	20	e18	e13	e16	e12	19	22	16	3.6	1.9	1.6
2	15	20	e17	e13	e14	e11	16	22	14	3.6	1.1	1.5
3	14	20	e17	e14	e12	e10	e16	21	12	4.0	0.67	1.1
4	16	19	e17	e15	e12	e12	16	20	18	3.5	0.41	0.68
5	17	19	e17	e14	e12	e14	15	19	19	3.0	0.91	0.77
6	17	19	e17	e14	e14	e16	14	19	20	2.9	2.6	1.6
7	17	20	e17	e13	e15	e12	15	19	17	2.9	2.2	1.1
8	17	19	e16	e13	e16	e11	16	20	18	2.2	2.6	0.93
9	18	19	e17	e13	e16	e11	15	20	19	3.0	1.9	3.2
10	18	19	e16	e13	e16	e15	16	20	19	2.7	1.7	4.1
11	19	19	e16	e13	e14	e17	16	23	17	3.4	1.6	5.5
12	18	20	e16	e13	e16	e20	17	25	16	3.6	1.9	6.6
13	18	20	e16	e14	e16	e15	17	23	16	4.6	2.2	8.8
14	18	20	e16	e14	e14	e15	17	21	15	3.5	1.9	8.1
15	18	19	e16	e14	e16	e15	17	21	15	2.9	2.0	8.4
16	18	19	e17	e13	e14	e15	18	20	12	2.7	1.8	7.0
17	18	19	e18	e13	e16	e15	18	21	9.0	2.4	2.1	5.8
18	18	19	e17	e13	e14	e14	18	17	7.1	1.9	2.0	6.3
19	18	e20	e16	e13	e14	e12	18	17	6.4	1.6	1.9	7.0
20	19	e21	e15	e13	e15	e11	18	18	6.9	1.4	2.8	7.2
21	18	e23	e15	e13	e17	e11	20	16	7.6	1.4	2.4	8.0
22	18	e20	e16	e14	19	e11	21	17	8.1	1.7	3.7	7.6
23	18	e20	e16	e13	17	e11	23	16	9.3	2.6	2.6	8.0
24	19	e20	e16	e13	17	e11	22	13	9.5	1.6	2.2	8.3
25	19	e20	e15	e14	e16	e11	18	15	8.3	1.1	1.8	8.0
26	20	e20	e15	e15	e15	e12	18	16	7.5	1.2	2.1	8.1
27	20	e19	e15	e15	e14	e15	22	17	7.0	1.4	2.2	8.2
28	20	e16	e15	e15	e12	22	22	18	5.1	1.7	2.1	8.1
29	20	e14	e15	e14	---	20	21	18	5.0	1.8	1.9	8.1
30	20	e19	e15	e13	---	20	20	18	4.3	1.7	1.3	7.1
31	20	---	e14	e14	---	20	---	17	---	2.1	1.0	---
TOTAL	559	581	499	421	419	437	539	589	364.1	77.7	59.49	166.78
MEAN	18.0	19.4	16.1	13.6	15.0	14.1	18.0	19.0	12.1	2.51	1.92	5.56
MAX	20	23	18	15	19	22	23	25	20	4.6	3.7	8.8
MIN	14	14	14	13	12	10	14	13	4.3	1.1	0.41	0.68
AC-FT	1110	1150	990	835	831	867	1070	1170	722	154	118	331

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1953, 1989 - 2002, BY WATER YEAR (WY)

	1951	1952	1953	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	14.2	16.6	13.2	12.4	15.2	15.2	19.9	65.6	73.5	24.0	17.2	13.6					
MAX	41.5	59.7	39.4	37.4	68.9	41.5	78.9	233	266	72.1	57.9	44.4					
(WY)	1999	1999	1999	1997	1997	1999	1999	1995	1995	1999	1999	1999					
MIN	0.000	0.000	0.000	0.000	0.000	0.44	0.59	0.71	0.032	0.000	0.000	0.000					
(WY)	1953	1989	1989	1989	1989	1990	1990	1989	1989	1989	1989	1952					

06406500 BATTLE CREEK BELOW HERMOSA, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR				FOR 2002 WATER YEAR				WATER YEARS 1951-1953, 1989-2002			
ANNUAL TOTAL	8810				4712.07							
ANNUAL MEAN	24.1				12.9				25.1a			
HIGHEST ANNUAL MEAN									63.3			
LOWEST ANNUAL MEAN									0.40			
HIGHEST DAILY MEAN	120	Mar	4		25	May	12		1760	May	23	1952
LOWEST DAILY MEAN	13	Sep	3		0.41	Aug	4		0.00	Oct	1	1950b
ANNUAL SEVEN-DAY MINIMUM	13	Sep	2		1.1	Sep	2		0.00	Oct	1	1950
MAXIMUM PEAK FLOW					36	Mar	28c		2060	May	23	1952d
MAXIMUM PEAK STAGE					3.91	Dec	26f		9.30	May	9	1995
ANNUAL RUNOFF (AC-FT)	17470				9350				18170			
10 PERCENT EXCEEDS	32				20				48			
50 PERCENT EXCEEDS	22				15				12			
90 PERCENT EXCEEDS	16				2.0				0.00			

a Median of annual mean discharges, 22 ft³/s.

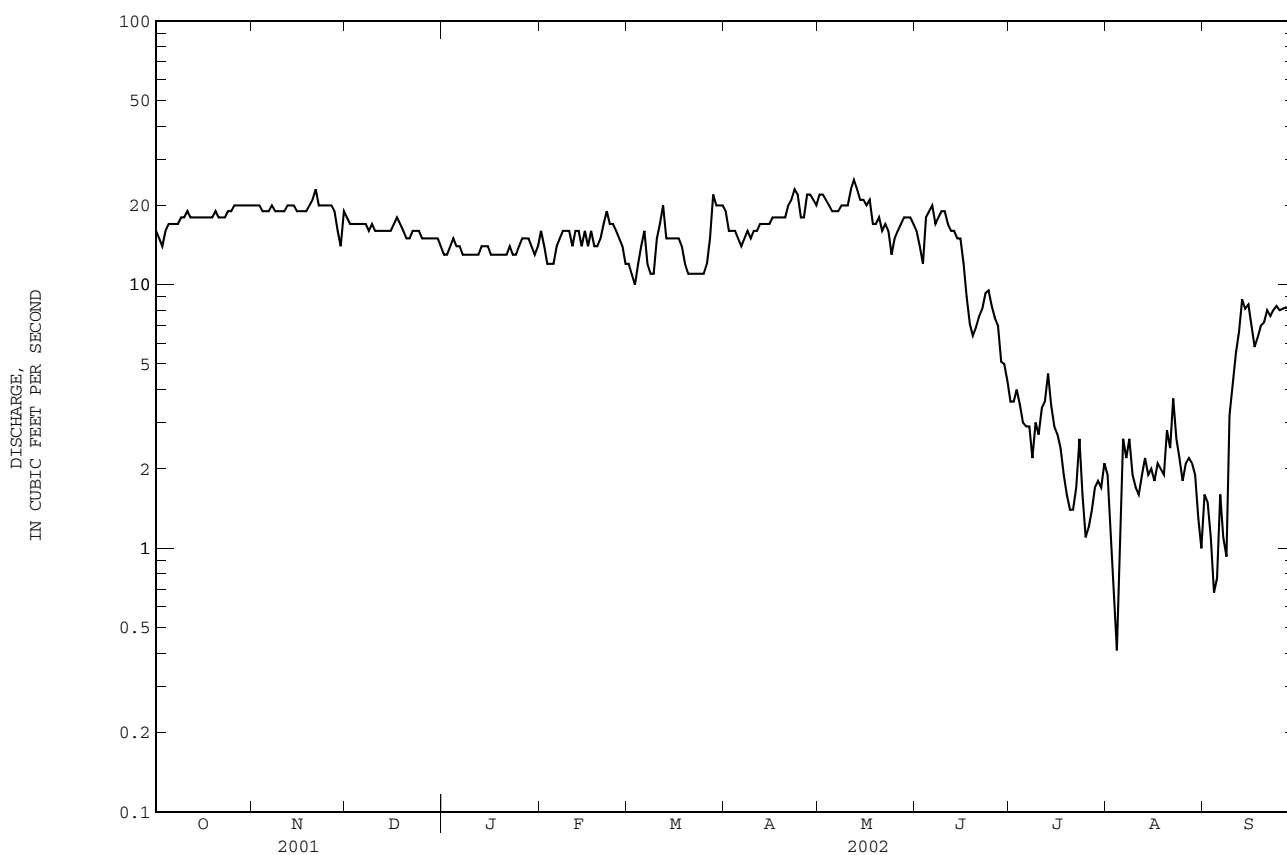
b No flow for many days in most years.

c Gage height, 2.90 ft.

d From rating curve extended above 110 ft³/s, gage height, 8.13 ft, different datum.

e Estimated.

f Backwater from ice.



CHEYENNE RIVER BASIN

06406920 SPRING CREEK ABOVE SHERIDAN LAKE, NEAR KEYSTONE, SD

LOCATION.--Lat 43°57'39", long 103°29'18", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.14, T.1 S., R.5 E., Pennington County, Hydrologic Unit 10120109, on left bank 0.25 mi upstream from Sheridan Lake and 1.5 mi northeast of the junction of State Highways 16 and 385.

DRAINAGE AREA.--127 mi².

REVISED RECORDS.--WDR SD-93-1: Drainage area.

PERIOD OF RECORD.--August 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 4,650 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	7.0	e5.6	e1.0	e2.2	e2.6	e11	14	13	4.3	1.5	2.8
2	5.5	6.8	e5.9	e0.90	e2.2	e2.6	e13	12	14	3.8	1.4	2.2
3	5.3	6.7	e5.8	e0.80	e2.0	e2.7	e14	18	16	3.4	1.2	1.8
4	6.6	6.8	e5.1	e1.7	e1.9	e2.8	e13	15	21	3.2	1.2	1.7
5	7.9	6.9	e4.8	e1.8	e2.0	e2.9	e13	15	16	3.0	3.5	1.5
6	7.5	6.9	e4.5	e1.8	e2.1	e2.8	e14	16	14	3.5	18	1.4
7	7.4	6.8	e4.1	e1.7	e2.1	e2.8	e15	15	12	4.3	7.7	1.2
8	7.4	7.4	e3.9	e1.7	e2.2	e3.0	e17	14	13	4.3	5.2	1.3
9	9.9	7.1	e3.8	e1.7	e2.2	e3.2	18	12	14	5.5	3.9	15
10	14	8.8	e3.7	e1.8	e2.3	e3.5	20	12	12	4.1	3.2	17
11	10	7.7	e3.5	e1.7	e2.2	e3.8	21	18	11	3.2	2.6	9.0
12	8.5	7.7	e3.7	e1.7	e2.1	e4.1	18	19	10	2.7	2.4	9.0
13	8.0	7.3	e3.9	e1.9	e2.1	e3.8	16	21	9.7	2.3	2.3	13
14	8.5	7.1	e3.8	e2.0	e2.1	e4.6	16	22	9.3	1.9	2.3	11
15	8.1	6.7	e3.6	e2.0	e2.1	e5.8	16	20	8.6	1.5	1.8	7.6
16	7.7	6.8	e3.5	e2.1	e2.2	e6.7	14	19	8.1	1.3	1.9	6.0
17	7.7	e7.0	e3.7	e2.0	e2.2	e5.2	13	23	7.5	1.0	2.0	5.2
18	8.6	e6.0	e3.7	e1.9	e2.1	e4.3	12	25	6.9	1.0	1.9	7.6
19	8.7	e6.1	e3.6	e1.8	e2.1	e4.1	11	21	6.7	1.3	1.7	8.1
20	8.3	e6.0	e3.5	e1.8	e2.2	e4.1	9.6	19	6.5	14	1.4	6.7
21	8.0	e5.5	e3.4	e2.0	e2.3	e4.1	9.1	19	6.3	8.8	1.6	5.9
22	7.8	e5.3	e3.4	e2.1	e2.6	e4.1	9.7	19	6.3	9.2	4.8	5.8
23	7.5	e5.3	e3.4	e2.1	e2.7	e4.1	11	18	6.2	7.1	4.7	5.5
24	7.3	e5.2	e3.5	e2.1	e2.7	e4.2	10	17	6.8	5.7	5.4	5.1
25	6.9	e5.3	e3.4	e2.1	e2.7	e5.0	8.6	16	15	4.6	4.6	4.7
26	6.9	e5.4	e3.0	e2.1	e2.7	e5.2	8.7	16	13	4.1	4.3	4.7
27	7.5	e5.5	e2.7	e2.1	e2.6	e6.3	15	16	8.7	3.7	3.7	4.5
28	7.4	e5.2	e2.2	e2.1	e2.6	e7.2	15	18	6.8	3.1	7.5	4.2
29	7.1	e5.1	e1.8	e2.2	---	e7.9	16	16	5.8	2.5	7.6	4.1
30	7.1	e5.2	e1.6	e2.2	---	e10	14	14	4.8	2.0	5.1	3.7
31	7.1	---	e1.2	e2.2	---	e11	---	14	---	1.8	3.7	---
TOTAL	241.8	192.6	113.3	57.10	63.5	144.5	411.7	533	309.0	122.2	120.1	177.3
MEAN	7.80	6.42	3.65	1.84	2.27	4.66	13.7	17.2	10.3	3.94	3.87	5.91
MAX	14	8.8	5.9	2.2	2.7	11	21	25	21	14	18	17
MIN	5.3	5.1	1.2	0.80	1.9	2.6	8.6	12	4.8	1.0	1.2	1.2
AC-FT	480	382	225	113	126	287	817	1060	613	242	238	352

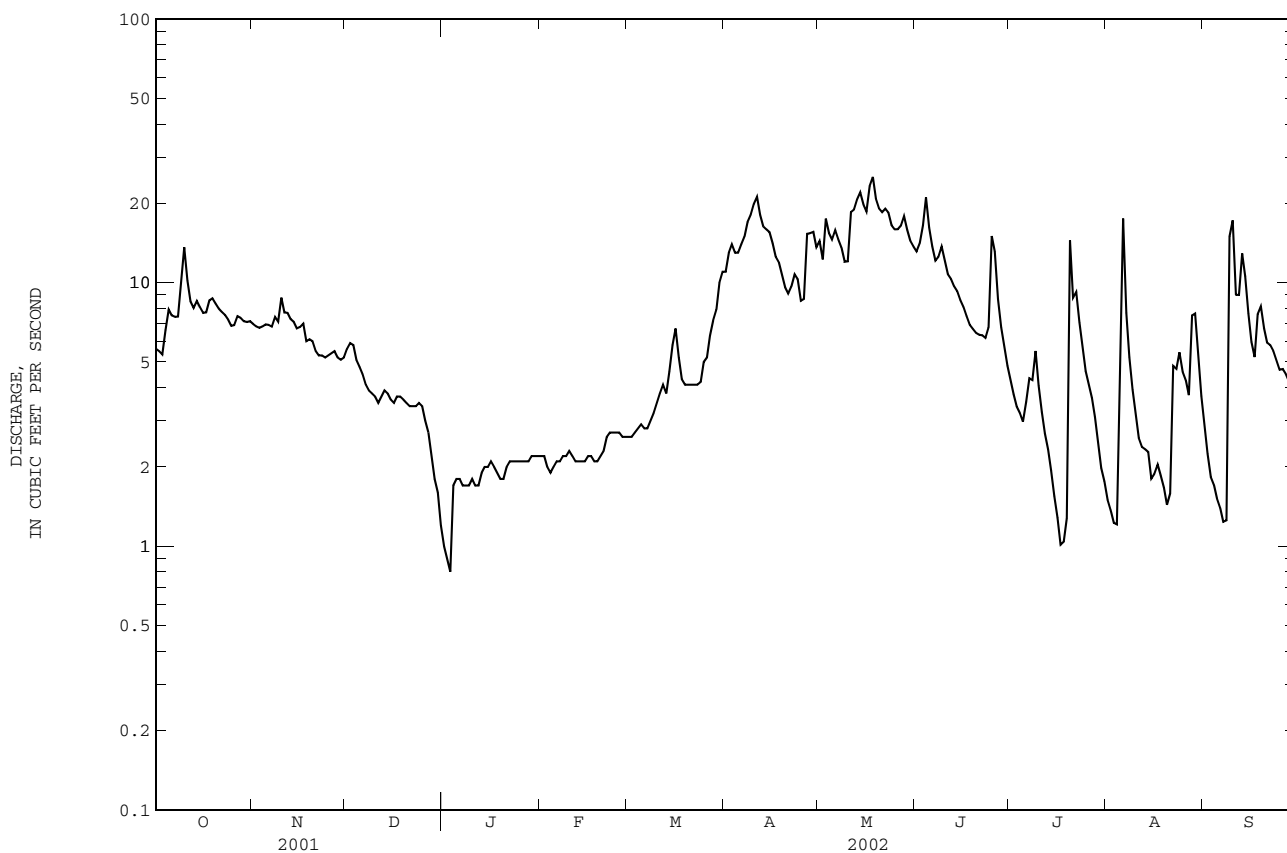
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2002, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	12.2	12.6	9.21	6.52	6.93	12.4	22.6	61.2	82.2	32.5	19.6	12.2
MAX	35.8	51.2	34.8	21.9	19.2	21.8	64.2	144	185	63.3	50.1	26.2
(WY)	1999	1999	1999	1999	1999	1999	1999	1995	1995	1998	1997	1997
MIN	2.61	2.37	1.62	1.80	2.16	4.66	7.20	5.64	8.14	3.94	2.78	1.54
(WY)	1991	1993	1993	1993	1991	2002	1992	1992	1992	2002	1994	1994

06406920 SPRING CREEK ABOVE SHERIDAN LAKE, NEAR KEYSTONE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1991 - 2002	
ANNUAL TOTAL	4056.7		2486.10		24.2	
ANNUAL MEAN	11.1		6.81		50.7	
HIGHEST ANNUAL MEAN					6.06	
LOWEST ANNUAL MEAN					525	
HIGHEST DAILY MEAN	51	Jul 14	25	May 18	0.80	May 8 1995
LOWEST DAILY MEAN	1.2	Dec 31	0.80	Jan 3	1.2	Jan 3 2002
ANNUAL SEVEN-DAY MINIMUM	2.3	Dec 25	1.3	Dec 29	809	Sep 25 1994
MAXIMUM PEAK FLOW			56	Jul 20a	12.58	Jun 18 1999
MAXIMUM PEAK STAGE			12.21	Mar 27b	17550	
ANNUAL RUNOFF (AC-FT)	8050		4930		53	
10 PERCENT EXCEEDS	22		15		12	
50 PERCENT EXCEEDS	8.0		5.2		2.7	
90 PERCENT EXCEEDS	3.4		1.8			

a Gage height, 8.81 ft.
b Backwater from ice.
e Estimated.



CHEYENNE RIVER BASIN

06407500 SPRING CREEK NEAR KEYSTONE, SD
(Formerly published as 06407900 Spring Creek near Rockerville)

LOCATION.--Lat 43°58'45", long 103°20'25", in SW¹/₄ NE¹/₄ sec.12, T.1 S., R.6 E., Pennington County, Hydrologic Unit 10120109, on right bank 0.5 mi upstream from Deadman Creek tributary at bottom of Stratosphere Bowl.

DRAINAGE AREA.--163 mi².

PERIOD OF RECORD.--July 1945 to July 1947, October 1986 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 3,885 ft above NGVD of 1929, from topographic map. Prior to October 1986, nonrecording gage 0.2 mi downstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Sheridan Lake, capacity, 12,657 acre-ft, 11.2 mi upstream from station. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1972, reached a stage of about 14 ft, present datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	6.5	e6.1	e2.0	e3.0	e3.5	14	20	18	4.5	1.5	1.5
2	5.2	6.2	e6.8	e1.8	e2.9	e3.4	15	20	17	3.6	1.3	1.3
3	4.6	6.1	e7.1	e1.7	e2.9	e3.4	16	18	18	2.9	0.91	1.1
4	4.9	6.0	e5.9	e3.0	e2.9	e3.7	15	19	20	2.3	0.73	0.87
5	5.8	6.0	e5.2	e3.2	e3.0	e3.8	14	19	20	2.2	0.67	0.72
6	6.0	5.9	e5.0	e2.8	e3.1	e3.8	14	19	19	2.0	1.0	0.55
7	5.7	5.8	e4.8	e2.4	e3.2	e3.9	19	19	17	1.8	5.4	0.44
8	5.9	5.8	e4.7	e2.5	e3.1	e4.0	27	18	16	2.1	7.0	0.49
9	7.7	5.5	e4.4	e2.5	e3.1	e4.3	29	17	15	2.8	5.7	1.2
10	12	5.2	e4.2	e2.4	e3.3	e4.7	25	15	15	3.0	4.5	4.1
11	11	5.1	e4.1	e2.4	e3.3	e4.9	25	21	13	2.6	3.4	7.3
12	10	5.2	e4.3	e2.3	e3.1	e5.4	25	26	12	1.9	2.8	8.2
13	8.7	5.3	e4.4	e2.7	e3.2	e4.6	22	25	11	1.5	2.2	11
14	8.3	5.6	e4.6	e2.9	e3.2	e5.8	20	23	9.8	1.2	1.8	12
15	7.0	5.9	e4.1	e3.0	e3.0	e7.7	19	26	8.9	0.94	1.4	11
16	6.5	5.9	e4.0	e3.0	e3.1	e9.2	19	25	8.6	0.72	1.2	9.2
17	6.2	5.9	e4.2	e2.9	e3.2	e6.5	17	26	8.4	0.57	0.92	7.7
18	7.2	6.1	e4.1	e2.8	e3.1	e6.0	15	27	8.0	0.46	0.76	7.8
19	7.8	6.7	e4.0	e2.7	e3.1	e5.9	14	27	7.6	0.35	0.93	9.9
20	7.6	6.6	e3.9	e2.7	e3.4	e5.4	13	25	7.3	0.44	0.68	8.7
21	7.3	6.0	e3.8	e2.8	e3.4	e5.4	13	24	6.3	4.9	0.56	7.5
22	7.3	e5.9	e3.7	e2.9	e3.8	e5.6	13	25	6.2	10	0.50	6.4
23	7.0	e6.2	e3.7	e2.9	e3.7	e5.1	12	22	6.5	9.3	0.41	5.5
24	7.5	e6.2	e3.8	e2.9	e3.6	e5.0	12	20	6.1	9.4	0.40	4.7
25	6.8	e6.2	e3.9	e2.9	e3.6	e6.1	11	20	6.8	8.6	0.36	4.5
26	4.8	e6.2	e3.6	e3.0	e3.5	e6.3	10	19	9.1	7.1	0.61	4.2
27	4.7	e6.1	e3.2	e3.0	e3.5	e7.8	16	20	9.5	5.5	0.71	4.1
28	5.1	e5.8	e2.9	e3.0	e3.5	9.1	20	21	8.8	4.4	0.84	4.0
29	5.2	e5.9	e2.5	e3.1	---	9.2	19	21	7.6	3.4	0.75	3.7
30	5.6	e6.0	e2.2	e3.1	---	12	18	20	5.9	2.8	0.93	3.9
31	6.1	---	e2.0	e3.1	---	13	---	19	---	2.1	1.7	---
TOTAL	210.8	177.8	131.2	84.4	90.8	184.5	521	666	342.4	105.38	52.57	153.57
MEAN	6.80	5.93	4.23	2.72	3.24	5.95	17.4	21.5	11.4	3.40	1.70	5.12
MAX	12	6.7	7.1	3.2	3.8	13	29	27	20	10	7.0	12
MIN	4.6	5.1	2.0	1.7	2.9	3.4	10	15	5.9	0.35	0.36	0.44
AC-FT	418	353	260	167	180	366	1030	1320	679	209	104	305

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2002, BY WATER YEAR (WY)*

	MEAN	12.0	12.2	8.63	6.68	6.66	13.4	23.6	65.3	88.0	35.4	19.3	10.4
MAX	42.1	63.8	43.6	29.7	22.6	25.2	76.9	211	292	95.8	67.0	32.5	
(WY)	1999	1999	1999	1999	1999	1999	1999	1995	1995	1995	1997	1997	
MIN	0.000	0.006	0.076	0.10	0.010	0.74	3.47	5.11	1.58	0.047	0.001	0.000	
(WY)	1989	1989	1989	1989	1989	1989	1989	1989	1988	1988	1989	1988	

06407500 SPRING CREEK NEAR KEYSTONE, SD--Continued
(Formerly published as 06407900 Spring Creek near Rockerville)

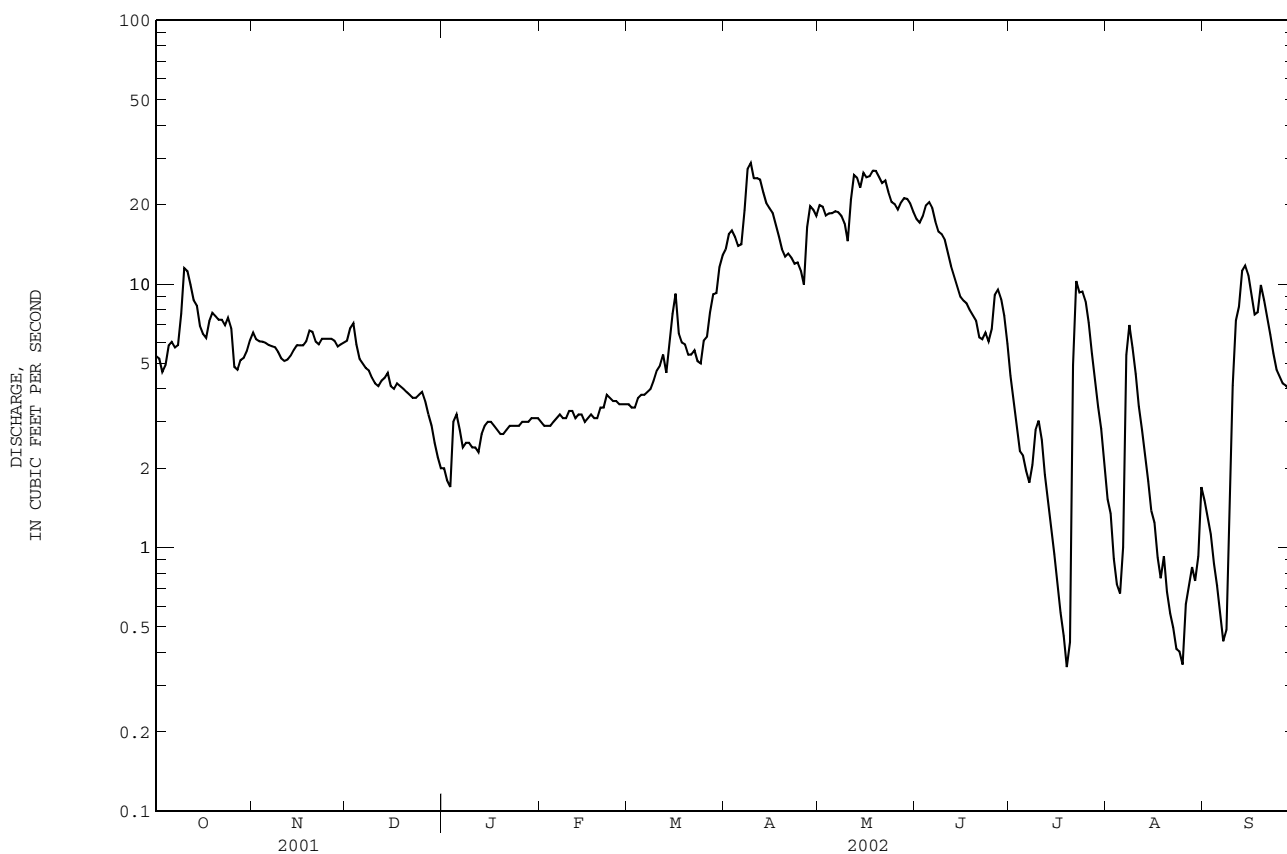
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1987 - 2002*	
ANNUAL TOTAL	4913.6		2720.42		25.2a	
ANNUAL MEAN	13.5		7.45		64.7	
HIGHEST ANNUAL MEAN					0.98	
LOWEST ANNUAL MEAN					771	
HIGHEST DAILY MEAN	54	Jun 6	29	Apr 9	0.00	May 9 1995
LOWEST DAILY MEAN	2.0	Dec 31	0.35	Jul 19	0.00	Jul 27 1988b
ANNUAL SEVEN-DAY MINIMUM	2.9	Dec 25	0.50	Aug 20	0.00	Jul 27 1988
MAXIMUM PEAK FLOW			31	Apr 8	913	May 9 1995
MAXIMUM PEAK STAGE			5.00	Apr 8	7.96	May 9 1995
ANNUAL RUNOFF (AC-FT)	9750		5400		18240	
10 PERCENT EXCEEDS	28		19		58	
50 PERCENT EXCEEDS	9.9		5.4		9.6	
90 PERCENT EXCEEDS	4.4		1.5		0.61	

* Period using present site and datum only. See GAGE.

a Median of annual mean discharges, 16 ft³/s.

b No flow for many days in 1988-89.

e Estimated.



CHEYENNE RIVER BASIN

06408500 SPRING CREEK NEAR HERMOSA, SD

LOCATION.--Lat 43°56'31", long 103°09'32", in SE¹/₄ SE¹/₄ SE¹/₄ sec.21, T.1 S., R.8 E., Pennington County, Hydrologic Unit 10120109, at left upstream end of county highway bridge, 0.3 mi upstream from Dakota Minnesota and Eastern Railroad bridge, and 7.5 mi north of Hermosa.

DRAINAGE AREA.--199 mi².

PERIOD OF RECORD.--July 1949 to current year.

REVISED RECORDS.--WSP 1729: 1950.

GAGE.--Water-stage recorder. Datum of gage is 3,265.30 ft above NGVD of 1929. Prior to Mar. 30, 1973, nonrecording gage and crest-stage gage 210 ft upstream, and Mar. 30 to Sept. 30, 1973, water-stage recorder at present site, both at datum 2.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Considerable loss occurs to sinkholes in reach 10 to 15 mi upstream from station. Flow slightly regulated by Sheridan Lake, capacity, 12,657 acre-ft, 24 mi upstream from station. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	2.4	3.0	e2.4	e2.4	e1.5	1.7	1.9	0.90	0.31	0.19	0.21
2	1.2	2.5	2.9	e2.5	e2.4	e1.6	1.6	1.7	0.97	0.32	0.20	0.21
3	1.1	2.5	2.8	e2.6	e2.5	e1.7	1.5	1.6	0.97	0.33	0.20	0.21
4	1.3	2.5	e2.8	e2.7	e2.5	e1.8	1.5	1.6	0.88	0.33	0.20	0.21
5	1.4	2.4	e2.8	e2.7	e2.6	e1.7	1.5	1.6	0.87	0.31	0.23	0.21
6	1.4	2.2	2.7	e2.8	e2.7	e1.6	1.6	1.7	0.89	0.34	0.23	0.21
7	1.4	2.3	2.7	e2.8	e2.8	e1.6	1.6	1.6	0.97	0.35	0.20	0.20
8	1.4	2.2	2.7	e2.8	e2.8	e1.6	1.7	1.6	0.98	0.30	0.19	0.23
9	1.7	2.4	2.7	e2.8	e2.7	e1.7	1.6	1.5	0.88	0.30	0.19	0.31
10	1.8	2.3	2.7	e2.7	e2.6	e1.8	1.7	1.5	0.90	0.27	0.19	0.27
11	1.6	2.3	e2.7	e2.7	e2.5	e1.8	1.8	2.9	0.88	0.29	0.19	0.25
12	1.6	2.3	2.7	e2.6	e2.5	e1.8	1.7	2.0	0.88	0.28	0.18	0.28
13	1.7	2.5	e2.7	e2.5	e2.6	e1.8	1.7	1.7	0.81	0.27	0.21	0.36
14	1.7	2.5	2.7	e2.3	e2.7	e1.8	1.6	1.7	0.79	0.26	0.20	0.30
15	1.7	2.5	2.7	e2.2	e2.8	e1.7	1.6	1.7	0.79	0.24	0.17	0.28
16	1.6	2.5	2.6	e2.2	e2.8	e1.7	1.6	1.5	0.80	0.23	0.18	0.28
17	1.7	2.5	2.6	e2.2	e2.7	e1.7	1.6	1.6	0.71	0.24	0.18	0.29
18	1.8	2.5	2.4	e2.2	e2.5	e1.7	1.6	1.5	0.63	0.23	0.19	0.35
19	1.8	2.4	e2.4	e2.3	e2.3	e1.6	1.7	1.5	0.60	0.24	0.20	0.42
20	1.8	2.5	e2.4	e2.4	e2.2	e1.6	1.7	1.3	0.61	0.24	0.20	0.38
21	2.1	2.4	e2.5	e2.5	e2.1	e1.6	1.8	1.2	0.62	0.26	0.21	0.40
22	2.3	2.4	e2.5	e2.6	e2.1	e1.6	1.7	1.2	0.62	0.29	0.22	0.49
23	2.4	2.4	e2.4	e2.7	e2.1	e1.6	1.6	1.2	0.59	0.26	0.21	0.46
24	2.4	2.5	e2.3	e2.7	e2.1	e1.6	1.6	1.2	0.52	0.26	0.22	0.42
25	2.3	2.6	e2.4	e2.7	e1.9	e1.7	1.6	1.1	0.53	0.25	0.23	0.38
26	2.3	e2.7	e2.6	e2.6	e1.9	e1.7	1.6	1.1	0.48	0.25	0.21	0.39
27	2.4	e2.7	e2.8	e2.5	e1.7	e1.8	2.1	1.1	0.47	0.24	0.22	0.38
28	2.4	e2.8	e2.7	e2.3	e1.6	1.9	1.8	1.1	0.43	0.24	0.21	0.42
29	2.3	e3.0	e2.6	e2.2	---	1.9	1.7	1.0	0.37	0.23	0.22	0.50
30	2.3	3.1	e2.5	e2.2	---	1.9	1.6	0.94	0.34	0.21	0.22	0.50
31	2.4	---	e2.4	e2.3	---	1.7	---	0.91	---	0.20	0.21	---
TOTAL	56.5	74.8	81.4	77.7	67.1	52.8	49.7	45.75	21.68	8.37	6.30	9.80
MEAN	1.82	2.49	2.63	2.51	2.40	1.70	1.66	1.48	0.72	0.27	0.20	0.33
MAX	2.4	3.1	3.0	2.8	2.8	1.9	2.1	2.9	0.98	0.35	0.23	0.50
MIN	1.1	1.2	2.3	2.2	1.6	1.5	1.5	0.91	0.34	0.20	0.17	0.20
AC-FT	112	148	161	154	133	105	99	91	43	17	12	1

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2002, BY WATER YEAR (WY)

MEAN	1.98	2.57	1.93	1.43	1.84	1.42	2.87	18.9	41.7	12.6	4.46	1.85
MAX	24.6	48.2	28.9	10.1	20.8	7.35	54.0	166	271	73.2	53.8	17.0
(WY)	1999	1999	1999	1999	1971	1999	1999	1997	1972	1962	1997	1997
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1956	1956	1957	1957	1957	1957	1961	1960	1956	1954	1951	1954

06408500 SPRING CREEK NEAR HERMOSA, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1950 - 2002	
ANNUAL TOTAL	662.89		551.90		7.79a	
ANNUAL MEAN	1.82		1.51		50.7	
HIGHEST ANNUAL MEAN					0.000	
LOWEST ANNUAL MEAN					3300	
HIGHEST DAILY MEAN	3.5	Jan 4	3.1	Nov 30	0.00	Jun 10 1972
LOWEST DAILY MEAN	0.42	Sep 5	0.17	Aug 15	0.00	Jan 26 1951b
ANNUAL SEVEN-DAY MINIMUM	0.46	Aug 31	0.19	Aug 11	0.00	Jan 26 1951
MAXIMUM PEAK FLOW			5.5	May 11c	13400	Jun 10 1972d
MAXIMUM PEAK STAGE			2.94	Jan 31f	13.12	Jun 10 1972g
ANNUAL RUNOFF (AC-FT)	1310		1090		5650	
10 PERCENT EXCEEDS	2.7		2.7		8.2	
50 PERCENT EXCEEDS	2.0		1.6		0.86	
90 PERCENT EXCEEDS	0.61		0.22		0.00	

a Median of annual mean discharges, 1.7 ft³/s.

b No flow for many days in most years.

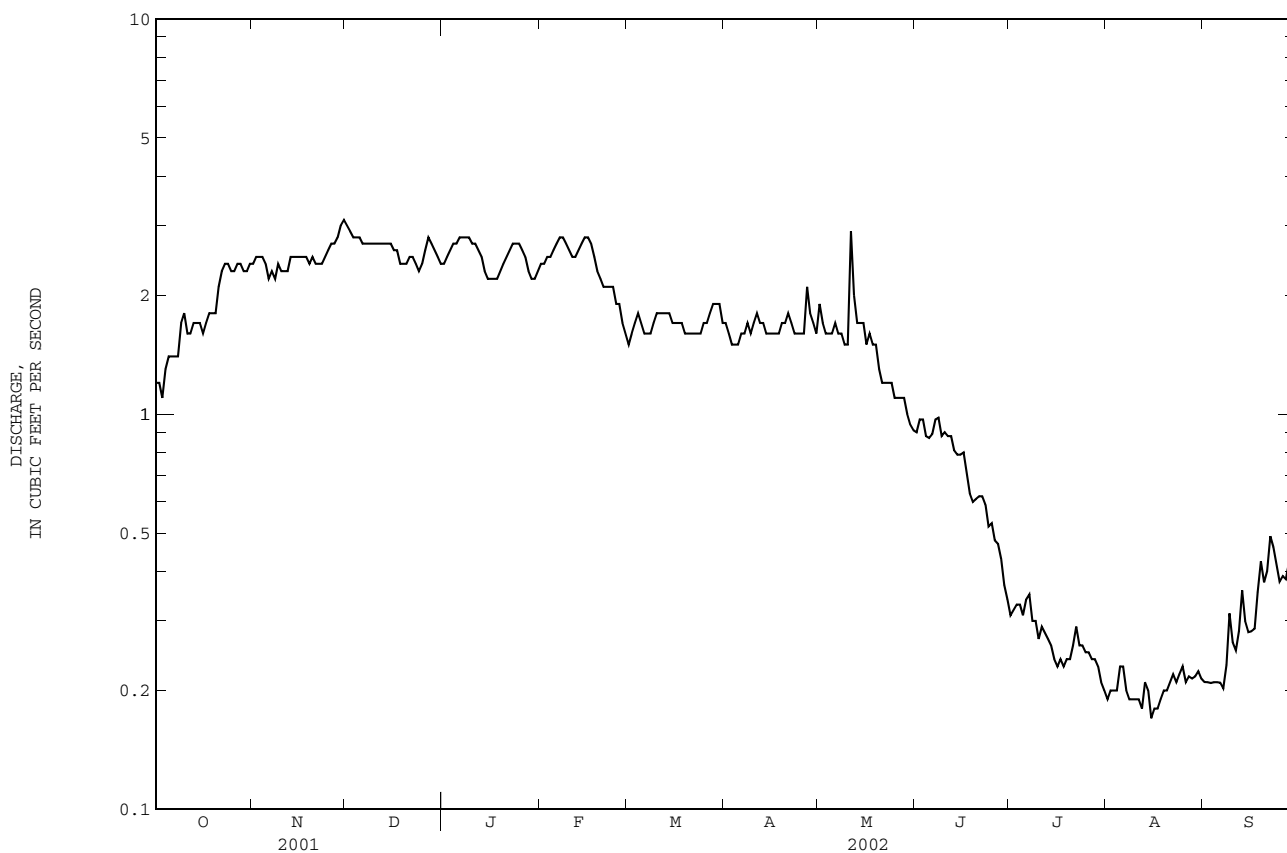
c Gage height, 2.47 ft.

d From rating curve extended above 350 ft³/s on basis of contracted-opening measurement of peak flow.

e Estimated.

f Backwater from ice.

g From floodmarks, site and datum then in use.



CHEYENNE RIVER BASIN

06408700 RHOADS FORK NEAR ROCHFORD, SD

LOCATION.--Lat 44°08'12", long 103°51'29", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.15, T.2 N., R.2 E., Pennington County, Hydrologic Unit 10120110, Black Hills National Forest, on left bank 1.1 mi upstream from South Fork Rapid Creek and 8.7 mi west of Rochford.

DRAINAGE AREA.--7.95 mi², approximately.

PERIOD OF RECORD.--November 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,965 ft above NGVD of 1929, from topographic map. Prior to Oct. 1, 1992, at site 35 ft downstream at datum 1.82 ft lower.

REMARKS.--Records good. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	6.3	6.2	5.5	6.2	5.8	6.1	5.9	5.7	5.8	5.6	5.2
2	6.3	6.3	6.2	5.4	5.7	5.8	6.0	5.9	5.8	5.8	5.6	5.1
3	6.3	6.2	6.2	5.4	5.5	5.7	5.9	5.8	5.8	5.8	5.6	5.1
4	6.4	6.2	6.2	5.4	5.5	5.7	6.2	5.8	5.7	5.8	5.6	5.1
5	6.3	6.2	6.2	5.4	5.5	5.8	6.1	5.8	5.7	5.8	5.6	5.1
6	6.4	6.2	6.2	5.4	5.5	5.8	6.3	5.8	5.7	5.8	5.5	5.1
7	6.5	6.2	6.1	5.5	5.6	6.0	6.5	5.8	5.7	5.7	5.5	5.1
8	6.4	6.2	6.0	5.7	5.7	5.9	6.2	5.7	5.7	5.8	5.5	5.1
9	6.6	6.2	6.2	5.7	5.8	5.9	6.2	5.7	5.7	5.8	5.4	6.0
10	6.3	6.2	6.2	5.7	5.7	5.8	7.1	5.7	5.7	5.7	5.3	5.2
11	6.3	6.2	6.2	5.8	5.7	5.8	8.0	6.0	5.7	5.7	5.3	5.1
12	6.4	6.2	6.1	5.9	5.8	5.9	7.4	5.8	5.7	5.6	5.4	5.3
13	6.5	6.2	6.1	6.0	5.9	6.0	6.7	5.8	5.7	5.6	5.4	5.2
14	6.3	6.2	6.2	6.0	6.0	5.9	6.5	5.8	5.7	5.6	5.3	5.1
15	6.3	6.2	6.2	5.9	5.8	6.0	6.3	5.8	5.7	5.6	5.3	5.1
16	6.3	6.2	6.0	5.8	5.8	6.1	6.2	5.8	5.7	5.6	5.3	5.2
17	6.3	6.2	6.1	5.8	5.9	6.0	6.0	5.8	5.7	5.7	5.3	5.2
18	6.4	6.2	6.0	5.8	6.0	6.0	5.9	5.7	5.7	5.7	5.3	6.0
19	6.4	6.2	6.0	5.8	6.0	6.0	5.8	5.7	5.8	5.7	5.3	5.4
20	6.3	6.2	6.0	5.9	6.0	6.0	5.8	5.7	5.7	5.9	5.4	5.3
21	6.3	6.2	6.1	6.0	6.0	6.0	5.8	5.9	5.7	6.1	5.5	5.2
22	6.3	6.2	6.0	6.0	6.0	6.1	5.8	6.0	5.7	5.8	5.4	5.2
23	6.3	6.2	6.0	5.8	6.0	6.0	5.8	5.8	5.8	5.7	5.6	5.1
24	6.4	6.2	6.0	5.8	6.0	6.0	5.7	5.8	5.9	5.7	5.2	5.1
25	6.3	6.2	6.0	5.8	5.6	6.0	5.7	5.8	5.8	5.7	5.2	5.1
26	6.2	6.2	6.0	5.9	6.0	6.1	5.7	5.9	5.8	5.7	5.1	5.1
27	6.3	6.2	6.0	5.9	6.1	6.1	6.0	5.8	5.8	5.6	5.1	5.1
28	6.3	6.2	6.0	5.9	6.0	6.1	5.9	5.8	5.8	5.6	5.1	5.1
29	6.2	6.2	5.9	5.8	---	6.0	5.8	5.8	5.8	5.6	5.1	5.1
30	6.2	6.2	5.8	5.7	---	6.1	5.8	5.7	5.8	5.6	5.1	5.1
31	6.3	---	5.7	6.5	---	6.1	---	5.7	---	5.6	5.2	---
TOTAL	196.4	186.2	188.1	178.9	163.3	184.5	185.2	179.8	172.2	177.2	166.1	156.2
MEAN	6.34	6.21	6.07	5.77	5.83	5.95	6.17	5.80	5.74	5.72	5.36	5.21
MAX	6.6	6.3	6.2	6.5	6.2	6.1	8.0	6.0	5.9	6.1	5.6	6.0
MIN	6.2	6.2	5.7	5.4	5.5	5.7	5.7	5.7	5.7	5.6	5.1	5.1
AC-FT	390	369	373	355	324	366	367	357	342	351	329	310

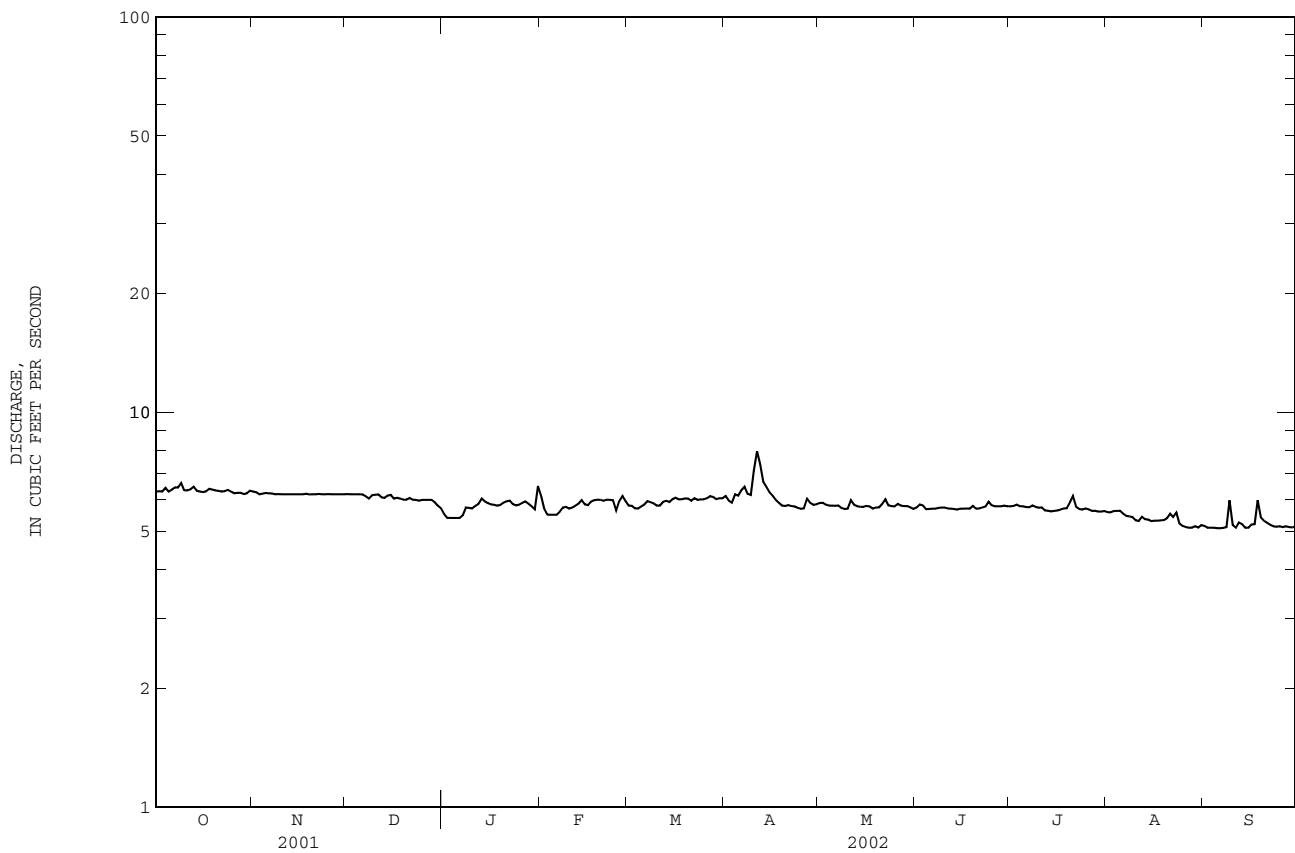
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2002, BY WATER YEAR (WY)

MEAN	6.02	5.96	5.83	5.79	5.84	5.90	5.97	6.06	6.15	6.17	6.04	6.02
MAX	9.41	9.70	9.78	10.0	10.0	9.82	9.82	9.51	9.51	9.50	9.53	9.96
(WY)	2000	2000	2000	2000	2000	2000	2000	2000	2000	1999	1998	1999
MIN	3.66	3.42	3.30	3.25	3.57	3.60	3.77	3.92	3.79	3.82	3.74	3.78
(WY)	1991	1991	1991	1991	1993	1993	1993	1992	1992	1992	1992	1992

06408700 RHOADS FORK NEAR ROCHFORD, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1983 - 2002	
ANNUAL TOTAL	2581.4		2134.1		5.98	
ANNUAL MEAN	7.07		5.85		9.55	
HIGHEST ANNUAL MEAN					3.69	
LOWEST ANNUAL MEAN					12	
HIGHEST DAILY MEAN	8.1	Jan 1	8.0	Apr 11	3.1	Jun 18 1998
LOWEST DAILY MEAN	5.7	Dec 31	5.1	Aug 26	3.1	Jan 19 1991
ANNUAL SEVEN-DAY MINIMUM	5.9	Dec 25	5.1	Sep 2	3.1	Jan 18 1991
MAXIMUM PEAK FLOW			9.2	Jul 21	17	Jul 9 2001
MAXIMUM PEAK STAGE			3.86	Jul 21a	4.13	Jul 9 2001
ANNUAL RUNOFF (AC-FT)	5120		4230		4330	
10 PERCENT EXCEEDS	8.0		6.3		8.8	
50 PERCENT EXCEEDS	7.1		5.8		5.6	
90 PERCENT EXCEEDS	6.2		5.3		3.8	

a Also Apr. 10.



CHEYENNE RIVER BASIN

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD
(Hydrologic bench-mark station)

LOCATION.--Lat 44°00'49", long 103°49'48", in NE¹/₄, SW¹/₄, SW¹/₄ sec.25, T.1 N., R.2 E., Pennington County, Hydrologic Unit 10120110, at downstream end of highway culvert, 330 ft downstream from South Fork Castle Creek, 500 ft upstream from high-water line of Deerfield Reservoir, 2.5 mi southwest of Deerfield Dam, and 14 mi northwest of Hill City.

DRAINAGE AREA.--79.2 mi².

PERIOD OF RECORD.--June 1948 to current year. Prior to October 1953, published as "above Deerfield Reservoir, near Deerfield."

REVISED RECORDS.--WSP 1917: 1952(M). WDR SD-84-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 5,920 ft above NGVD of 1929, from Highway Department bench mark. Prior to Aug. 31, 1948, nonrecording gage at site 130 ft upstream at datum 2.05 ft higher. Sept. 1, 1948, to May 17, 1983, at same location and datum. May 18, 1983, to Oct. 11, 1985, at site 300 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	e14	e10	e12	e13	15	18	16	12	12	11
2	15	15	e15	e11	13	14	12	19	17	12	12	11
3	15	15	e16	e12	12	14	68	18	17	11	12	11
4	16	14	e16	e13	12	14	14	17	17	11	12	11
5	16	14	e16	e14	12	14	17	17	16	11	12	11
6	16	14	e16	e14	12	14	23	17	16	11	12	11
7	16	14	e15	e13	12	14	31	16	15	11	12	10
8	15	15	e15	12	12	13	21	16	15	11	12	11
9	18	14	e15	12	12	37	35	15	15	12	12	20
10	16	15	e14	12	13	13	70	16	14	11	12	14
11	16	14	e14	12	13	14	50	18	14	11	12	14
12	16	14	e13	12	13	14	32	20	14	11	12	14
13	16	14	e14	12	12	13	32	19	14	11	13	16
14	15	14	e14	12	12	13	30	18	14	11	12	14
15	15	14	e14	13	12	13	24	18	14	11	12	14
16	15	14	e13	12	12	13	22	18	14	11	12	13
17	15	14	e12	12	13	13	21	21	14	11	12	13
18	16	e14	e11	12	13	13	20	19	14	12	12	15
19	15	e13	e12	12	13	13	19	18	13	12	12	14
20	15	e14	e13	12	13	13	19	17	13	12	12	13
21	15	e15	e14	12	13	12	19	17	13	19	13	15
22	15	e15	e13	12	13	14	20	21	13	14	13	14
23	15	15	e12	12	13	13	19	18	13	12	13	13
24	15	15	e11	12	13	13	18	18	13	12	16	13
25	16	15	e13	12	e12	13	17	17	13	12	15	13
26	15	e14	e14	12	e11	15	18	17	13	12	13	13
27	15	e13	e13	12	e12	17	22	17	13	12	14	13
28	15	e12	e12	12	e13	14	19	16	13	12	13	13
29	15	e13	e11	12	---	13	18	16	12	13	12	12
30	15	e14	e11	e12	---	13	18	16	12	13	12	12
31	15	---	e11	e12	---	14	---	16	---	12	12	---
TOTAL	478	425	417	376	348	443	763	544	424	369	387	392
MEAN	15.42	14.17	13.45	12.13	12.43	14.29	25.43	17.55	14.13	11.90	12.48	13.07
MAX	18	15	16	14	13	37	70	21	17	19	16	20
MIN	15	12	11	10	11	12	12	15	12	11	12	10
AC-FT	948	843	827	746	690	879	1510	1080	841	732	768	770

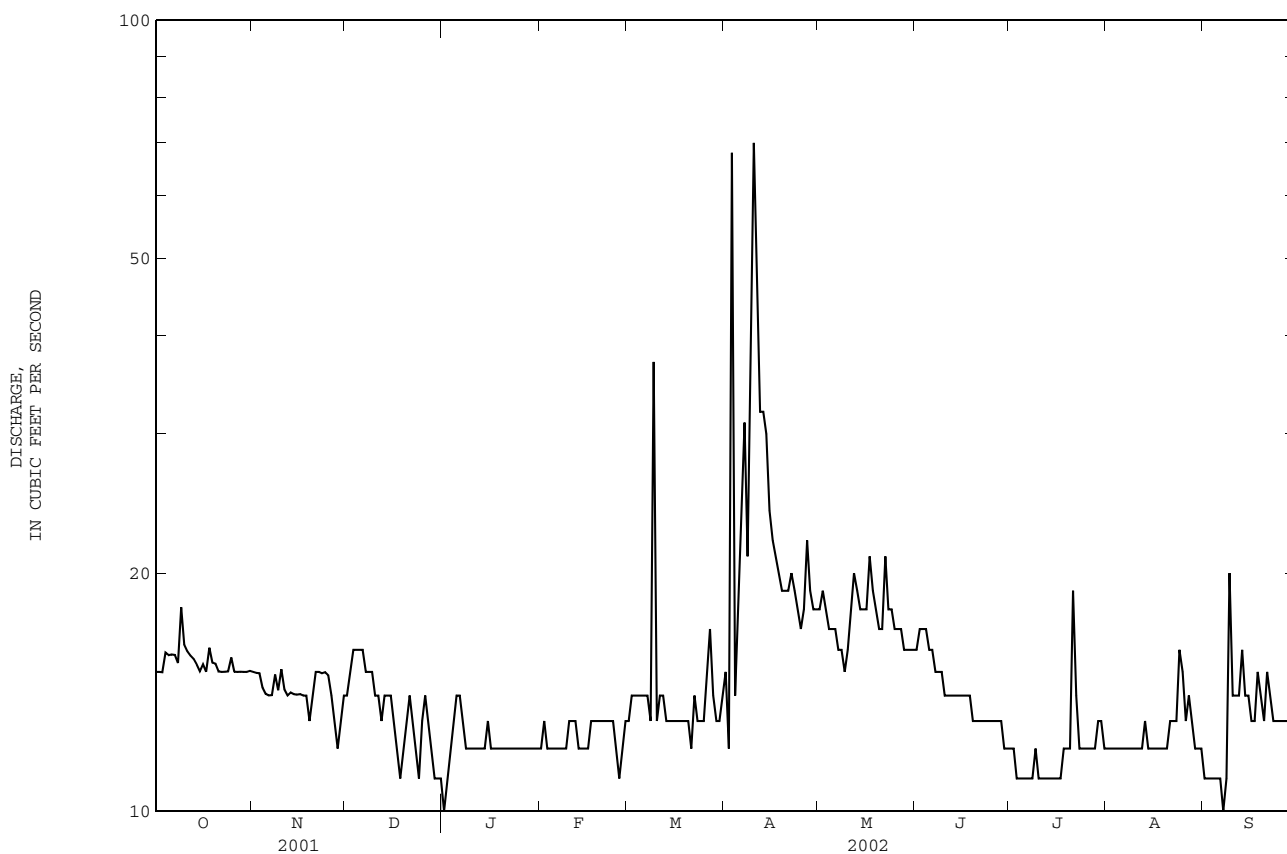
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2002, BY WATER YEAR (WY)

[illegible]

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued
(Hydrologic bench-mark station)

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1949 - 2002	
ANNUAL TOTAL	5898		5366		12.48	
ANNUAL MEAN	16.16		14.70		32.1	
HIGHEST ANNUAL MEAN					5.13	
LOWEST ANNUAL MEAN					232	
HIGHEST DAILY MEAN	32	Apr 6	70	Apr 10	2.0	Dec 10 1961
LOWEST DAILY MEAN	11	Dec 18	10	Jan 1	2.2	Dec 15 1961
ANNUAL SEVEN-DAY MINIMUM	12	Dec 24	11	Sep 1	1120	May 22 1952b
MAXIMUM PEAK FLOW			388	Mar 9a	5.81	May 22 1952
MAXIMUM PEAK STAGE			5.03	Dec 23c	9040	
ANNUAL RUNOFF (AC-FT')	11700		10640		21	
10 PERCENT EXCEEDS	19		18		10	
50 PERCENT EXCEEDS	15		14		6.3	
90 PERCENT EXCEEDS	14		12			

- a Gage height, 4.61 ft.
b From rating curve extended on basis of slope-area measurement.
c Backwater from ice.
e Estimated.



LOCATION.--Lat 44°01'41", long 103°47'09", in NE¹/₄ SW¹/₄ sec.20, T.1 N., R.3 E., at dam on Castle Creek, Hydrologic Unit 10120110, 0.4 mi upstream from Dutchman Creek and 12.5 mi northwest of Hill City.

DRAINAGE AREA.--95 mi², approximately.

PERIOD OF RECORD.--May 1947 to current year (monthend contents only). Some elevations obtained during period of initial filling, December 1945 to May 1947, are available in Bureau of Reclamation files. Prior to October 1953, published as "near Deerfield."

GAGE.--Water-stage recorder. Elevations listed to NGVD of 1929 (levels by Bureau of Reclamation). Prior to July 20, 1964, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam. Storage began Dec. 3, 1945; dam completed in 1947. Conservation capacity, 15,504 acre-ft between elevations 5,839.0 ft (lowest outlet) and 5,908.0 ft (crest of spillway). Dead storage below elevation 5,839.0 ft, 151 acre-ft. Surcharge capacity, 26,700 acre-ft between elevations 5,908.0 ft and 5,953.0 ft. Figures given herein represent conservation and surcharge contents above elevation 5,839.0 ft. Water is used to supplement Rapid City water supply and for irrigation in Rapid Creek basin downstream from Rapid City.

COOPERATION.--Records of elevation and contents provided by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 16,006 acre-ft Feb. 25, 1985 (elevation, 5,909.05 ft); minimum observed, 429 acre-ft, Oct. 2, 1959 (elevation, 5,839.10 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 15,500 acre-ft, Apr. 14, elevation, 5,907.94 ft; minimum, 14,800 acre-ft, Aug. 19, elevation, 5,906.22 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	5,906.30	14,800	--
Oct. 31	5,906.70	15,000	+200
Nov. 30	5,906.63	14,900	-100
Dec. 31	5,906.66	15,000	+100
CAL YR 2001.	--	--	-100
Jan. 31	5,906.60	14,900	-100
Feb. 28	5,906.52	14,900	0
Mar. 31	5,906.71	15,000	+100
Apr. 30	5,907.63	15,400	+400
May 31	5,907.46	15,300	-100
June 30	5,906.64	14,900	-400
July 31	5,906.46	14,900	0
Aug. 31	5,906.29	14,800	-100
Sept. 30	5,906.55	14,900	+100
WTR YR 2002.	--	--	+100

THIS PAGE IS INTENTIONALLY BLANK

CHEYENNE RIVER BASIN

06410000 CASTLE CREEK BELOW DEERFIELD DAM, SD

LOCATION.--Lat 44°01'45", long 103°46'53", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.20, T.1 N., R.3 E., Pennington County, Hydrologic Unit 10120110, on left bank 200 ft upstream from Dutchman Creek, 1,100 ft downstream from Deerfield Dam, and 12.5 mi northwest of Hill City.

DRAINAGE AREA.--96 mi², approximately.

PERIOD OF RECORD.--July 1946 to current year, seasonal records only beginning October 1983.

GAGE.--Water-stage recorder. Datum of gage is 5,784.52 ft above NGVD of 1929 (Bureau of Reclamation bench mark). Prior to Oct. 15, 1947, at site 400 ft downstream at datum 0.23 ft higher. Oct. 15, 1947, to Sept. 1, 1948, at site 550 ft downstream at datum 1.77 ft lower, and Sept. 2, 1948, to Nov. 2, 1971, at site 300 ft upstream at datum 4.0 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated by Deerfield Dam, 1,100 ft upstream. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 200 ft³/s, May 22, 1952; maximum gage height, 5.08 ft, present datum, June 5, 1991; no flow at times in 1948, 1950-60.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period March to September, 32 ft³/s, Apr. 21, gage height, 3.90 ft; minimum daily discharge, 11 ft³/s, Apr. 4, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	20	13	19	20	12	13	13
2	---	---	---	---	---	15	12	19	20	12	13	13
3	---	---	---	---	---	15	12	19	20	12	13	13
4	---	---	---	---	---	15	11	19	20	12	13	13
5	---	---	---	---	---	14	12	19	20	12	13	13
6	---	---	---	---	---	15	11	19	19	12	12	13
7	---	---	---	---	---	14	12	19	19	12	12	13
8	---	---	---	---	---	18	13	19	20	12	12	13
9	---	---	---	---	---	17	13	19	20	12	12	13
10	---	---	---	---	---	16	12	18	20	12	12	13
11	---	---	---	---	---	16	12	19	20	12	12	13
12	---	---	---	---	---	16	16	19	20	13	13	13
13	---	---	---	---	---	16	19	20	20	13	13	13
14	---	---	---	---	---	16	19	20	19	13	13	13
15	---	---	---	---	---	14	26	22	18	13	12	12
16	---	---	---	---	---	14	29	21	18	13	12	13
17	---	---	---	---	---	14	29	22	18	13	12	13
18	---	---	---	---	---	14	29	20	18	12	12	13
19	---	---	---	---	---	14	30	20	18	12	12	13
20	---	---	---	---	---	14	30	20	18	12	12	13
21	---	---	---	---	---	14	29	20	18	12	13	13
22	---	---	---	---	---	14	28	20	19	13	13	13
23	---	---	---	---	---	14	24	21	19	13	13	13
24	---	---	---	---	---	13	20	21	18	13	13	13
25	---	---	---	---	---	14	20	22	18	12	12	13
26	---	---	---	---	---	14	20	21	16	12	13	14
27	---	---	---	---	---	14	20	20	12	13	13	14
28	---	---	---	---	---	15	21	20	12	13	13	14
29	---	---	---	---	---	13	21	20	12	13	13	14
30	---	---	---	---	---	14	20	19	12	13	13	14
31	---	---	---	---	---	16	---	20	---	13	13	---
TOTAL	---	---	---	---	---	462	583	616	541	386	390	394
MEAN	---	---	---	---	---	14.9	19.4	19.9	18.0	12.5	12.6	13.1
MAX	---	---	---	---	---	20	30	22	20	13	13	14
MIN	---	---	---	---	---	13	11	18	12	12	12	12
AC-FT	---	---	---	---	---	916	1160	1220	1070	766	774	781

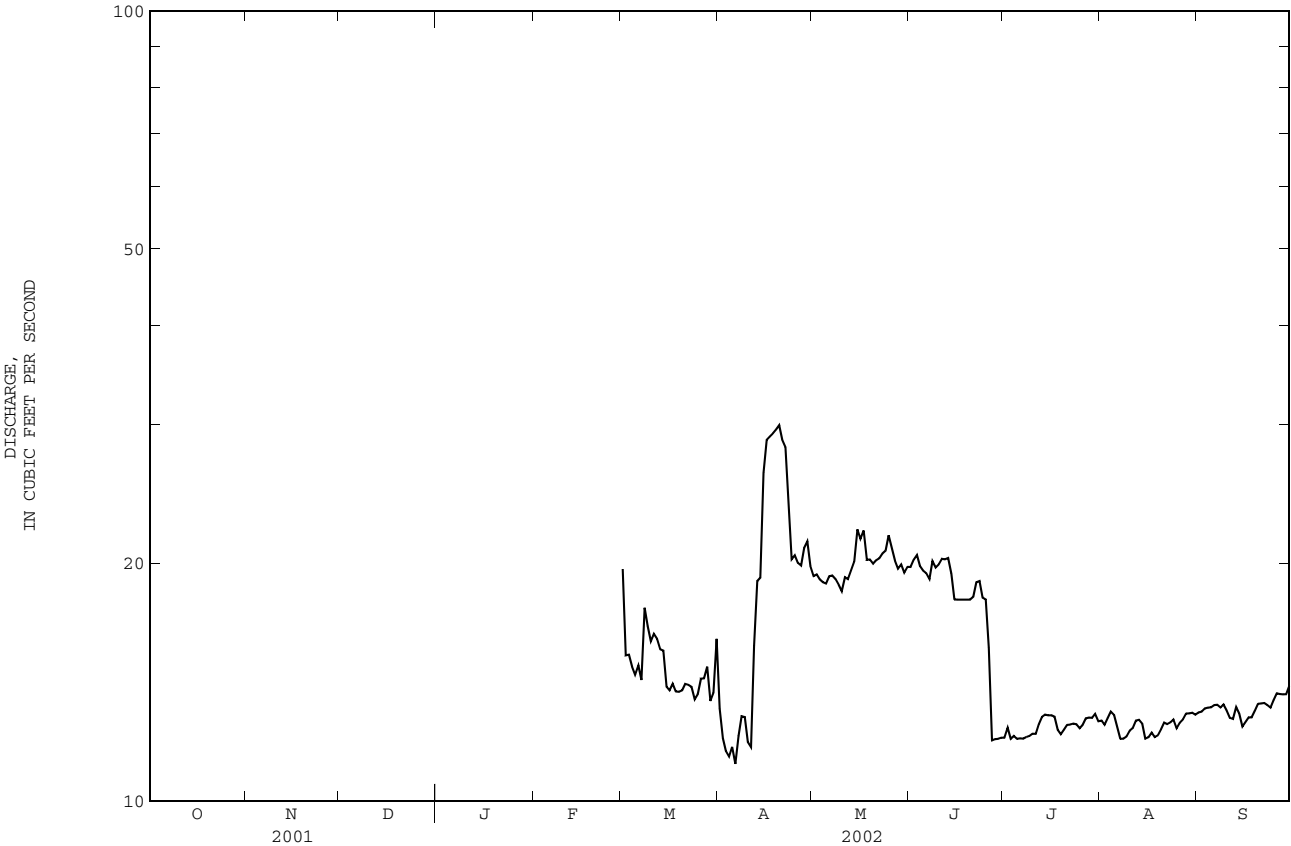
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1983, BY WATER YEAR (WY) *

	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958
MEAN	11.2	2.43	2.08	2.22	2.85	5.25	14.1	19.0	16.9	16.7	18.8	21.1
MAX	40.0	7.69	2.72	3.48	12.6	15.5	44.1	46.8	50.0	81.1	72.7	64.2
(WY)	1966	1949	1948	1978	1979	1982	1978	1982	1965	1982	1982	1959
MIN	0.20	0.017	0.22	1.53	1.26	1.56	1.59	1.59	2.39	2.13	3.78	4.05
(WY)	1947	1960	1947	1983	1971	1960	1960	1960	1962	1962	1962	1983

06410000 CASTLE CREEK BELOW DEERFIELD DAM, SD--Continued

SUMMARY STATISTICS		WATER YEARS 1947 - 1983*	
ANNUAL MEAN	11.1		
HIGHEST ANNUAL MEAN	30.9		1982
LOWEST ANNUAL MEAN	2.62		1960
HIGHEST DAILY MEAN	200	May 22	1952
LOWEST DAILY MEAN	0.00	Sep 9	1948
ANNUAL SEVEN-DAY MINIMUM	0.00	Oct 15	1959
ANNUAL RUNOFF (AC-FT)	8030		
10 PERCENT EXCEEDS	26		
50 PERCENT EXCEEDS	4.9		
90 PERCENT EXCEEDS	1.9		

* Period reflects complete water years.



06410500 RAPID CREEK ABOVE PACTOLA RESERVOIR, AT SILVER CITY, SD

LOCATION.--Lat 44°05'05", long 103°34'48", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.36, T.2 N., R.4 E., Pennington County, Hydrologic Unit 10120110, on right bank 0.8 mi west of Silver City and 3.0 mi downstream from Slate Creek.

DRAINAGE AREA.--292 mi².

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,620.00 ft above NGVD of 1929 (Bureau of Reclamation bench mark).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Deerfield Dam on Castle Creek since December 1945. Satellite data-collection platform at site. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	36	e34	e19	e23	e23	e46	52	45	25	23	26
2	29	35	e35	e20	e24	e24	e52	50	44	25	22	25
3	29	35	e35	e21	e25	e27	e57	56	49	25	22	24
4	31	35	e34	e22	e26	e29	e62	52	48	25	22	24
5	33	35	e34	e23	e28	e31	e67	47	46	25	25	23
6	33	35	e33	e24	e30	e32	e73	47	44	26	25	22
7	33	35	e33	e25	e31	e33	e96	46	42	27	23	22
8	32	33	e32	e26	e32	e33	99	45	42	27	23	23
9	36	34	e31	e26	e32	e34	74	43	42	26	23	38
10	40	34	e29	e25	e32	e34	86	43	40	25	22	36
11	35	34	e26	e24	e32	e34	88	58	40	25	22	29
12	34	34	e25	e24	e32	e34	77	62	40	24	23	27
13	35	34	e24	e23	e33	e34	77	67	39	24	24	32
14	35	35	e25	e23	e33	e34	75	61	39	24	22	30
15	34	35	e26	e22	e35	e33	73	59	38	25	21	28
16	33	35	e27	e22	e36	e33	76	60	36	23	21	27
17	33	34	e26	e21	e37	e32	67	64	35	23	21	27
18	35	35	e26	e21	e37	e31	66	61	35	24	23	36
19	35	36	e25	e21	e36	e29	63	56	34	25	23	55
20	36	37	e24	e21	e34	e28	63	55	34	28	24	35
21	35	40	e23	e22	e32	e28	67	52	34	40	24	32
22	35	41	e23	e23	e29	e29	65	57	33	36	28	31
23	34	37	e22	e24	e27	e30	64	58	33	30	30	30
24	34	37	e22	e24	e26	e31	56	55	33	29	39	30
25	33	36	e22	e23	e25	e32	51	50	37	26	32	30
26	34	e33	e21	e23	e24	e33	48	50	34	26	30	32
27	34	e30	e21	e23	e24	e35	56	50	31	27	31	33
28	35	e31	e21	e22	e23	e36	61	50	28	25	31	36
29	34	e32	e21	e22	---	e37	50	48	26	25	30	32
30	35	e33	e21	e22	---	e38	49	47	26	24	29	28
31	35	---	e20	e22	---	e38	---	45	---	23	27	---
TOTAL	1048	1046	821	703	838	989	2004	1646	1127	812	785	903
MEAN	33.8	34.9	26.5	22.7	29.9	31.9	66.8	53.1	37.6	26.2	25.3	30.1
MAX	40	41	35	26	37	38	99	67	49	40	39	55
MIN	29	30	20	19	23	23	46	43	26	23	21	22
AC-FT	2080	2070	1630	1390	1660	1960	3970	3260	2240	1610	1560	1790

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2002, BY WATER YEAR (WY)

MEAN	33.7	24.9	20.0	19.2	21.9	36.8	69.2	97.2	103	59.9	48.6	40.8
MAX	134	129	103	83.7	68.4	118	232	322	330	230	205	117
(WY)	1999	1999	1999	1999	1999	1996	1997	1997	1999	1998	1997	1998
MIN	10.2	10.3	7.77	8.61	8.34	12.1	16.5	14.5	14.7	15.2	11.5	10.5
(WY)	1962	1962	1962	1962	1993	1962	1961	1961	1961	1961	1961	1961

06410500 RAPID CREEK ABOVE PACTOLA RESERVOIR, AT SILVER CITY, SD--Continued

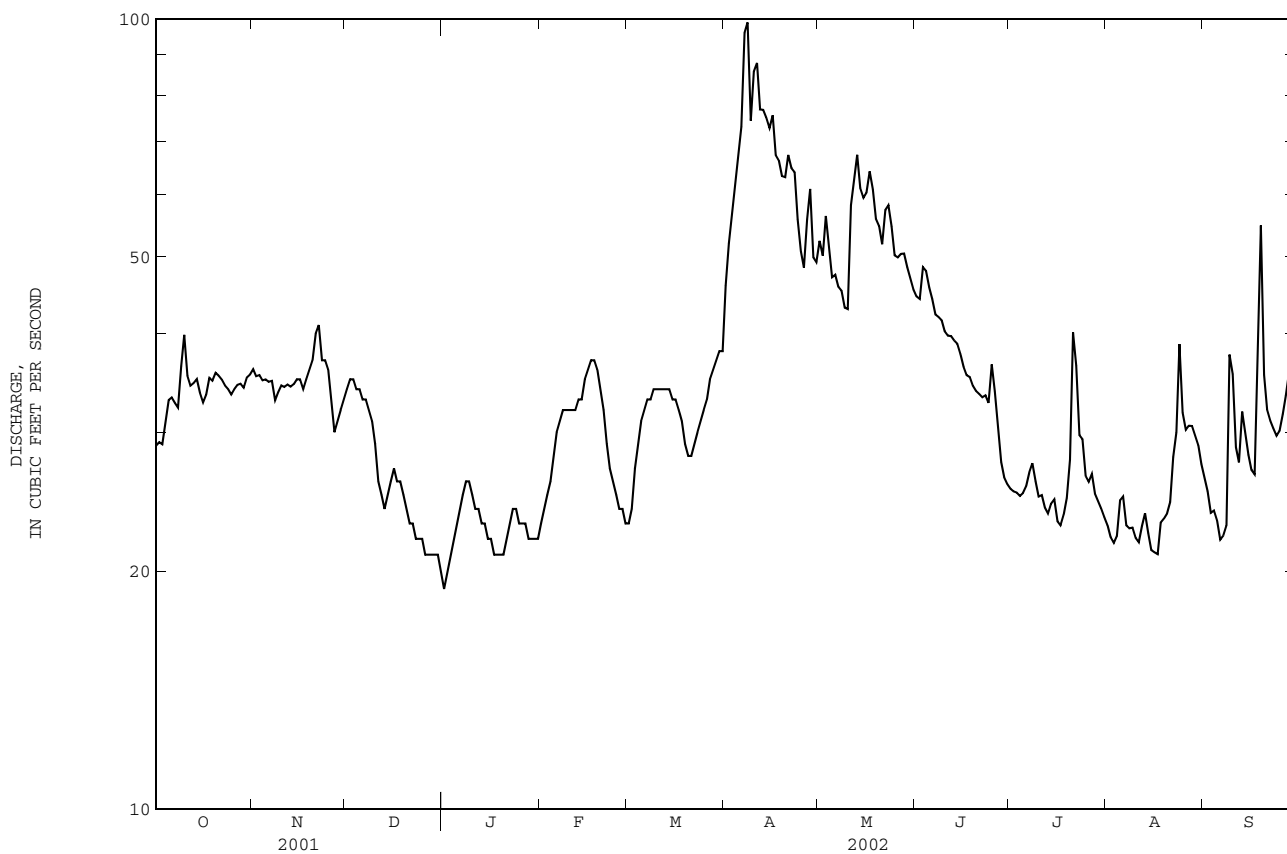
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1954 - 2002	
ANNUAL TOTAL	16594		12722		48.0	
ANNUAL MEAN	45.5		34.9		142	
HIGHEST ANNUAL MEAN					15.1	
LOWEST ANNUAL MEAN					1330	
HIGHEST DAILY MEAN	100	Apr 7	99	Apr 8	2.5	May 15 1965
LOWEST DAILY MEAN	20	Dec 31	19	Jan 1	3.6	Dec 2 1985
ANNUAL SEVEN-DAY MINIMUM	21	Dec 25	20	Dec 27	2060	Nov 27 1985
MAXIMUM PEAK FLOW			137	Apr 8a	10.44	May 15 1965b
MAXIMUM PEAK STAGE			6.83	Feb 28c	34760	May 15 1965
ANNUAL RUNOFF (AC-FT)	32910		25230		13	
10 PERCENT EXCEEDS	72		55			
50 PERCENT EXCEEDS	42		32			
90 PERCENT EXCEEDS	29		23			

a Gage height, 5.39 ft.

b From rating curve extended above 1,000 ft³/s on basis of slope-area measurement of peak flow.

c Backwater from ice.

e Estimated.



06411000 PACTOLA RESERVOIR NEAR SILVER CITY, SD

LOCATION.--Lat 44°04'20", long 103°29'17", in NE¹/₄ SW¹/₄ sec.2, T.1 N., R.5 E., Pennington County, Hydrologic Unit 10120110, in outlet works of dam on Rapid Creek, 3.8 mi east of Silver City.

DRAINAGE AREA.--319 mi².

PERIOD OF RECORD.--August 1956 to current year (monthend contents only).

GAGE.--Water-stage recorder. Elevations listed to NGVD of 1929 (Bureau of Reclamation datum). Prior to Feb. 18, 1970, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by an earthfill dam completed August 1956. Storage began Aug. 22, 1956. Conservation capacity, 54,955 acre-ft between elevations 4,456.1 ft and 4,580.2 ft. Combined dead and inactive storage below elevation 4,456.1 ft is 1,017 acre-ft. Flood storage capacity, 43,057 acre-ft between elevations 4,580.2 ft and 4,621.5 ft (crest of spillway). Surcharge capacity, 41,892 acre-ft between elevations 4,621.5 ft and 4,651.7 ft (maximum pool elevation). Figures given herein represent contents above elevation 4,456.1 ft. Reservoir provides flood control and water for municipal and irrigation uses.

COOPERATION.--Records of elevation and contents provided by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 60,970 acre-ft, May 19, 1965, elevation, 4,585.87 ft; minimum observed, 24,000 acre-ft, Sept. 30, 1990, elevation, 4,531.74 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 55,100 acre-ft, May 14, elevation, 4,580.39 ft; minimum, 45,200 acre-ft, Sept. 30, elevation, 4,568.00 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	4,576.53	51,900	--
Oct. 31	4,577.07	52,300	+400
Nov. 30	4,577.43	52,600	+300
Dec. 31	4,577.17	52,400	-200
CAL YR 2001	--	--	-600
Jan. 31	4,577.25	52,400	0
Feb. 28	4,577.36	52,500	+100
Mar. 31	4,577.90	53,000	+500
Apr. 30	4,579.89	54,700	+1,700
May 31	4,580.18	54,900	+200
June 30	4,578.55	53,600	-1,300
July 31	4,573.26	49,200	-4,400
Aug. 31	4,569.08	46,000	-3,200
Sept. 30	4,568.00	45,200	-800
WTR YR 2002	--	--	-6,700

THIS PAGE IS INTENTIONALLY BLANK

06411500 RAPID CREEK BELOW PACTOLA DAM, SD

LOCATION.--Lat 44°04'36", long 103°28'54", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.2, T.1 N., R.5 E., Pennington County, Hydrologic Unit 10120110, on right bank 2,000 ft downstream from Pactola Dam, 3.9 mi upstream from Deer Creek, and 13.0 mi west of Rapid City.

DRAINAGE AREA.--320 mi², approximately.

PERIOD OF RECORD.--October 1928 to September 1932 (combined records of Creek and Dakota Power and Light Co. flume), July 1946 to current year. Prior to October 1953, published as "near Pactola." Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1931(M).

GAGE.--Water-stage recorder and concrete control since Oct. 16, 1962. Datum of gage is 4,406.00 ft above NGVD of 1929 (Bureau of Reclamation bench mark). Apr. 19, 1929, to June 30, 1932, nonrecording gage at site 3,500 ft upstream at different datum. July 24, 1946, to Aug. 24, 1947, nonrecording gage and Aug. 25, 1947, to Nov. 18, 1953, water-stage recorder, at site 2.0 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by dam on Castle Creek since Dec. 3, 1945, and completely regulated by Pactola Dam 2,000 ft upstream since Aug. 22, 1956 (reservoir filled from August 1956 to June 1963). Maximum discharge prior to Sept. 30, 1963, 2,170 ft³/s, May 22, 1952, gage height, 6.74 ft, site and datum then in use; minimum daily discharge, 0.0 ft³/s, Oct. 11-17, 1962. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	23	26	28	27	27	28	36	46	79	61	62
2	14	23	29	27	27	27	28	36	47	101	72	62
3	14	23	29	27	27	27	28	36	47	105	80	62
4	14	23	29	27	27	28	28	36	52	117	81	59
5	17	23	29	28	27	28	28	36	55	124	81	60
6	21	23	29	28	27	27	28	37	54	125	72	56
7	21	23	29	28	27	28	28	37	54	125	65	54
8	21	23	29	28	27	28	28	36	55	119	68	55
9	22	23	28	28	27	27	28	36	55	106	69	47
10	22	23	28	28	27	27	29	36	61	100	69	41
11	22	23	28	27	27	27	28	50	65	100	70	42
12	23	23	28	28	27	28	28	57	65	100	72	42
13	26	23	28	28	27	28	28	57	65	100	74	42
14	26	23	28	28	27	28	29	57	65	100	79	41
15	26	23	28	28	27	28	33	60	65	94	86	42
16	26	23	28	27	27	28	35	65	66	90	82	42
17	25	23	28	28	27	28	36	65	66	91	78	43
18	26	23	28	28	27	28	35	64	70	97	78	44
19	26	23	28	27	27	28	35	64	70	99	79	38
20	26	23	28	27	27	28	35	64	61	97	79	34
21	26	23	28	27	27	28	35	63	58	73	79	34
22	26	23	28	27	27	28	35	64	58	51	69	34
23	26	24	28	27	27	28	35	65	59	50	63	34
24	26	24	27	27	27	28	35	53	56	49	62	34
25	26	24	28	27	27	28	35	46	55	48	62	34
26	26	24	28	27	27	28	35	46	54	48	71	34
27	26	24	28	27	27	28	36	46	54	48	68	34
28	26	24	28	27	27	28	36	46	54	48	63	34
29	24	24	27	27	---	28	36	46	54	50	63	33
30	22	24	28	27	---	28	36	46	54	64	63	33
31	24	---	28	27	---	28	---	46	---	67	62	---
TOTAL	710	698	871	850	756	861	957	1532	1740	2665	2220	1306
MEAN	22.9	23.3	28.1	27.4	27.0	27.8	31.9	49.4	58.0	86.0	71.6	43.5
MAX	26	24	29	28	27	28	36	65	70	125	86	62
MIN	14	23	26	27	27	27	28	36	46	48	61	33
AC-FT	1410	1380	1730	1690	1500	1710	1900	3040	3450	5290	4400	2590

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2002, BY WATER YEAR (WY) *

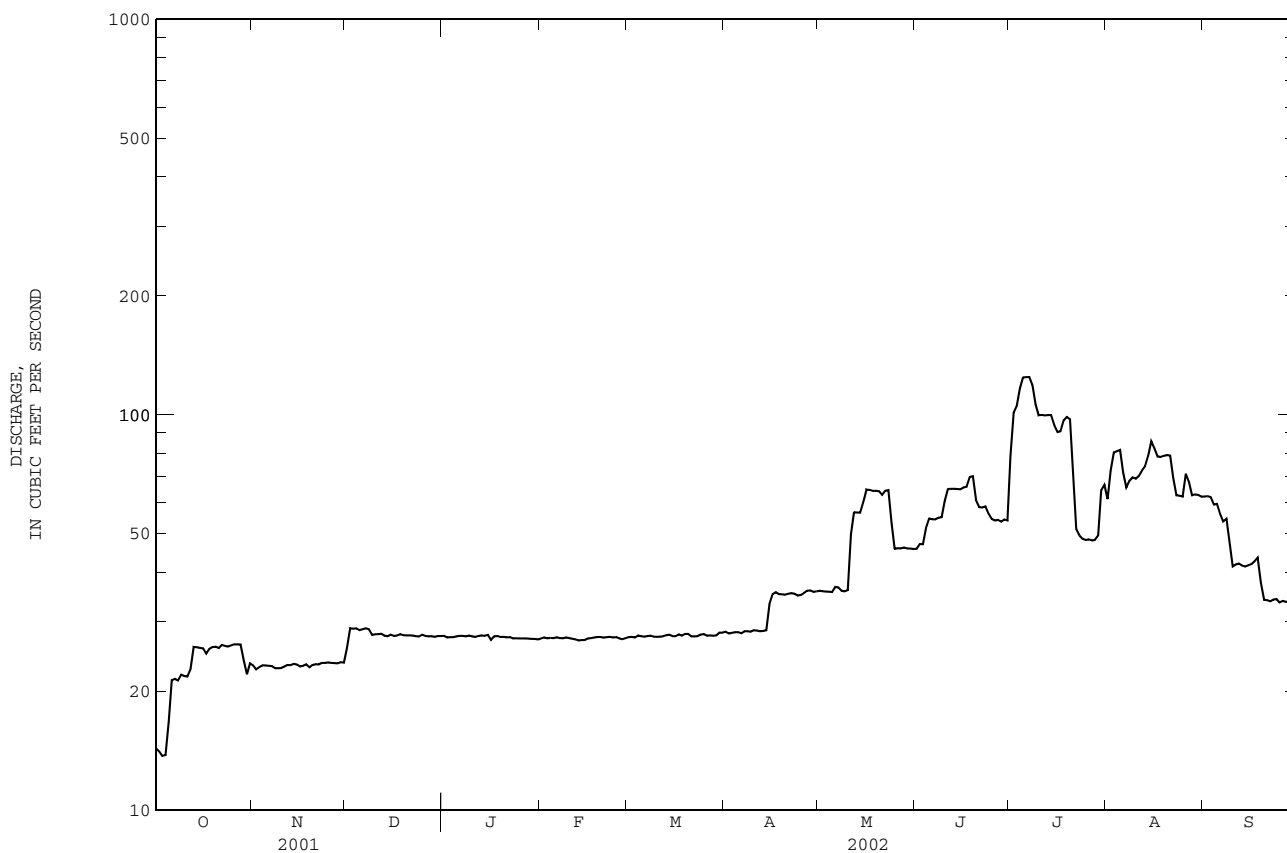
	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
MEAN	29.2	25.3	25.5	23.4	23.7	32.9	55.6	102	117	92.5	71.9	48.4
MAX	127	150	130	71.4	73.8	125	182	324	415	227	213	120
(WY)	1999	1999	1999	1997	1997	1996	1999	1997	1965	1998	1998	1997
MIN	11.1	9.07	12.3	10.6	10.9	11.2	11.3	11.1	17.7	30.5	29.5	21.5
(WY)	1991	1982	1991	1991	1991	1991	1991	1991	1991	1992	1966	1989

06411500 RAPID CREEK BELOW PACTOLA DAM, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1964 - 2002*	
ANNUAL TOTAL	16856		15166		54.1	
ANNUAL MEAN	46.2		41.6		149	
HIGHEST ANNUAL MEAN					20.7	
LOWEST ANNUAL MEAN					515	
HIGHEST DAILY MEAN	94	Apr 11	125	Jul 6	1.4	Oct 9 1971
LOWEST DAILY MEAN	14	Sep 30	14	Oct 1	6.7	Oct 6 1971
ANNUAL SEVEN-DAY MINIMUM	14	Sep 28	16	Oct 1	547	May 19 1965
MAXIMUM PEAK FLOW			130	Jul 4	9.00	May 19 1965
MAXIMUM PEAK STAGE			8.02	Jul 4		
ANNUAL RUNOFF (AC-FT)	33430		30080		39200	
10 PERCENT EXCEEDS	76		71		108	
50 PERCENT EXCEEDS	43		28		34	
90 PERCENT EXCEEDS	23		24		14	

* Regulated period only (1964-2002). See REMARKS.

a Also May 28, 29, 1965.



06412500 RAPID CREEK ABOVE CANYON LAKE, NEAR RAPID CITY, SD

LOCATION.--Lat 44°03'10", long 103°18'41", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.17, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on left bank between bridges on State Highway 44, at city limits of Rapid City, and 2.9 mi downstream from Victoria Creek.

DRAINAGE AREA.--371 mi².

PERIOD OF RECORD.--July 1946 to current year.

GAGE.--Water-stage recorder and concrete broad-crested, V-notch weir. Datum of gage is 3,398.17 ft above NGVD of 1929. Prior to Oct. 6, 1947, nonrecording gage, Oct. 6, 1947, to Nov. 2, 1967, and Oct. 1, 1968, to Sept. 30, 1976, water-stage recorder all at datum 9.25 ft higher. Nov. 3, 1967, to Sept. 30, 1968, nonrecording gage at site 0.1 mi downstream at datum 6.13 ft higher. Oct. 1, 1968, to Oct. 1, 1989, at datum 7.22 ft higher. Prior to Oct. 1, 1991, at site 0.1 mi upstream at datum 7.25 ft higher.

REMARKS.--Records good. Flow regulated by Deerfield Reservoir since December 1945 and by Pactola Dam 21.0 mi upstream since August 1956 (reservoir filled from August 1956 to June 1963). Maximum discharge prior to Sept. 30, 1963, 2,600 ft³/s, May 23, 1952, gage height, 10.08 ft, site and datum then in use; minimum daily discharge, no flow Jan. 6-8, 1959, Apr. 4-5, 1960. Gage located in loss zone and analysis of low-flow data would be unreliable due to differences in respective gage locations. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. Satellite data-collection platform and National Weather Service telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	20	22	12	20	20	26	35	43	50	50	50
2	10	20	24	16	24	16	25	34	43	91	53	49
3	10	19	25	20	22	17	24	33	44	102	70	49
4	11	19	25	29	22	26	25	32	44	108	72	49
5	11	19	24	30	22	28	25	32	50	126	73	47
6	15	19	24	27	24	25	26	32	50	129	72	46
7	19	19	24	26	24	23	27	33	49	129	57	41
8	19	19	23	26	23	21	26	32	50	126	57	41
9	22	19	23	26	22	15	25	31	50	113	60	49
10	23	19	23	25	19	26	25	32	49	100	59	33
11	e20	19	23	24	26	27	26	42	58	100	59	31
12	19	19	18	23	22	27	25	54	59	98	60	32
13	21	19	16	24	21	26	25	54	59	98	63	32
14	22	19	26	20	25	25	25	53	59	98	64	31
15	22	19	26	16	23	23	25	54	59	95	72	30
16	21	19	23	16	24	25	29	64	59	86	75	30
17	22	19	24	16	24	25	30	64	61	85	69	29
18	24	19	24	17	23	25	31	64	58	88	69	33
19	22	19	18	18	23	24	31	63	65	97	68	32
20	22	20	20	20	24	25	32	63	59	98	69	25
21	22	20	25	24	23	21	33	63	52	96	70	24
22	22	20	15	25	24	24	32	62	51	48	68	24
23	22	20	9.0	24	23	27	32	63	51	44	53	24
24	22	20	13	21	22	25	31	61	50	41	52	24
25	22	20	18	24	14	24	31	45	47	39	51	23
26	22	19	24	25	13	26	31	44	46	39	53	24
27	23	13	24	24	21	28	37	45	45	38	63	24
28	22	12	21	22	23	27	34	45	45	38	52	24
29	21	19	16	16	---	26	32	43	44	38	51	24
30	19	25	15	16	---	26	32	43	45	41	50	23
31	19	---	13	17	---	26	---	43	---	60	49	---
TOTAL	602	571	648.0	669	620	749	858	1458	1544	2539	1903	997
MEAN	19.42	19.03	20.90	21.58	22.14	24.16	28.60	47.03	51.47	81.90	61.39	33.23
MAX	24	25	26	30	26	28	37	64	65	129	75	50
MIN	10	12	9.0	12	13	15	24	31	43	38	49	23
AC-FT	1190	1130	1290	1330	1230	1490	1700	2890	3060	5040	3770	1980

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2002, BY WATER YEAR (WY) *

	MEAN	25.95	21.06	19.63	18.30	19.19	29.31	54.88	111.8	141.8	96.74	69.30	43.01
MAX	135	154	135	80.4	84.1	133	217	449	466	275	239	123	
(WY)	1999	1999	1999	1997	1997	1996	1997	1997	1999	1998	1997	1997	
MIN	1.38	0.71	0.12	0.087	0.094	0.29	3.55	22.0	20.8	23.2	27.0	14.1	
(WY)	1991	1982	1991	1991	1991	1991	1991	1986	1990	1992	1966	1989	

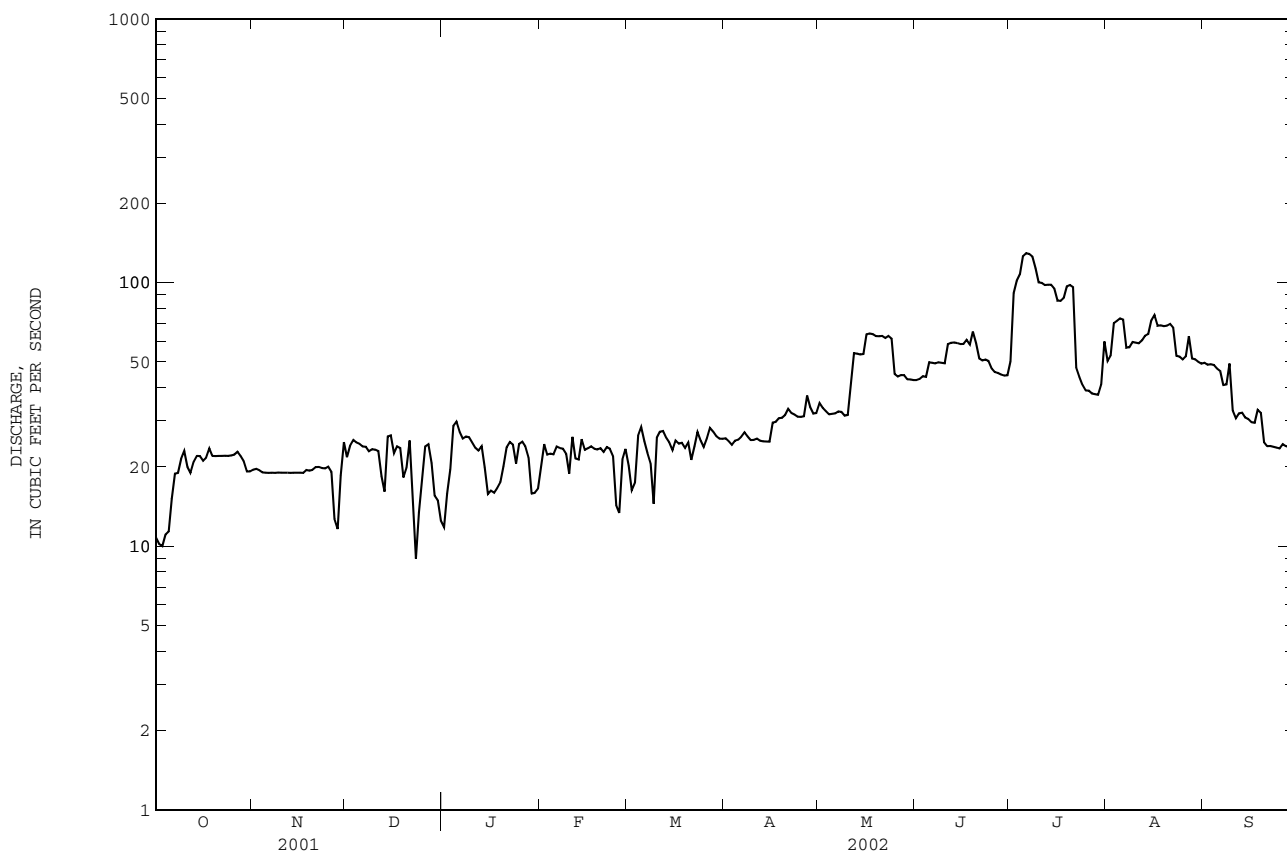
06412500 RAPID CREEK ABOVE CANYON LAKE, NEAR RAPID CITY, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1964 - 2002*	
ANNUAL TOTAL	16188.0		13158.0		54.39	
ANNUAL MEAN	44.35		36.05		173	
HIGHEST ANNUAL MEAN					17.5	
LOWEST ANNUAL MEAN					2600	
HIGHEST DAILY MEAN	95	Apr 10	129	Jul 6	Jun 10	1972
LOWEST DAILY MEAN	9.0	Dec 23	9.0	Dec 23	0.00	Dec 12 1990a
ANNUAL SEVEN-DAY MINIMUM	11	Sep 29	12	Oct 1	0.00	Dec 20 1990
MAXIMUM PEAK FLOW			139	Jul 6	31200	Jun 9 1972
MAXIMUM PEAK STAGE			2.82	Jul 6	17.77	Jun 9 1972
ANNUAL RUNOFF (AC-FT)	32110		26100		39410	
10 PERCENT EXCEEDS	80		64		115	
50 PERCENT EXCEEDS	42		26		29	
90 PERCENT EXCEEDS	19		19		6.9	

* Regulated period only (1964-2002). See REMARKS.

a No flow for many days in 1991 water year.

e Estimated.



CHEYENNE RIVER BASIN

06412810 CLEGHORN SPRINGS AT RAPID CITY, SD

LOCATION.--Lat 44°03'32", long 103°17'49", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.8, T.1 N, R.7 E., Pennington County, Hydrologic Unit 10120110, on left bank of the outflow of Cleghorn Springs, within Cleghorn Springs Fish Hatchery, and 0.2 mi west of Canyon Lake on State Highway 44.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--October 1992 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 3,369.1 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. Discharges are the result of three springs routed into one. Flows may vary depending on operational activities of fish hatchery. From October 1987 to September 1992, Cleghorn Springs was published as three gaging stations: 06412600, 06412700, and 06412800. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

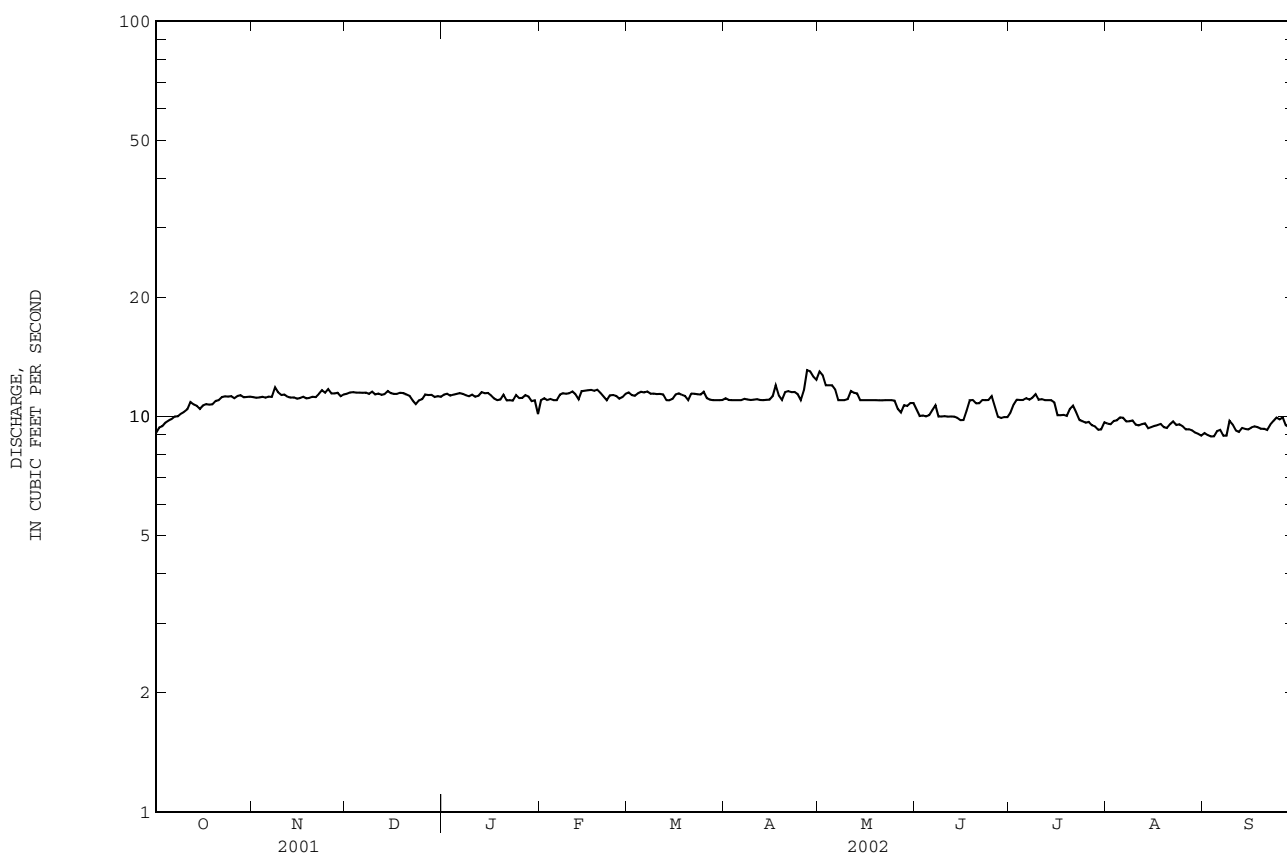
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.1	11	11	11	11	12	11	13	10	10	9.6	9.1
2	9.4	11	12	11	11	11	11	13	10	11	9.6	9.0
3	9.4	11	12	11	11	11	11	12	10	11	9.7	8.9
4	9.7	11	11	11	11	11	11	12	10	11	9.8	8.9
5	9.8	11	11	11	11	12	11	12	10	11	9.9	9.2
6	9.9	11	11	11	11	12	11	12	10	11	9.9	9.2
7	10	11	11	11	11	12	11	11	11	11	9.7	8.9
8	10	12	11	11	11	11	11	11	10	11	9.7	8.9
9	10	12	12	11	11	11	11	11	10	11	9.8	9.8
10	10	11	11	11	11	11	11	11	10	11	9.5	9.5
11	10	11	11	11	12	11	11	12	10	11	9.5	9.2
12	11	11	11	11	11	11	11	11	10	11	9.6	9.1
13	11	11	11	12	11	11	11	11	10	11	9.6	9.4
14	11	11	12	11	12	11	11	11	9.9	11	9.3	9.3
15	10	11	11	11	12	11	11	11	9.8	11	9.4	9.3
16	11	11	11	11	12	11	11	11	9.8	10	9.5	9.4
17	11	11	11	11	12	11	12	11	10	10	9.5	9.4
18	11	11	11	11	12	11	11	11	11	10	9.6	9.4
19	11	11	11	11	12	11	11	11	11	10	9.4	9.3
20	11	11	11	11	11	11	12	11	11	10	9.4	9.3
21	11	11	11	11	11	11	12	11	11	11	9.6	9.2
22	11	11	11	11	11	11	12	11	11	10	9.7	9.5
23	11	12	11	11	11	11	12	11	11	9.8	9.5	9.7
24	11	11	11	11	11	11	11	11	11	9.7	9.6	9.9
25	11	12	11	11	11	12	11	11	11	9.6	9.5	9.8
26	11	11	11	11	11	11	12	10	11	9.7	9.3	9.9
27	11	11	11	11	11	11	13	10	10	9.5	9.3	9.5
28	11	11	11	11	11	11	13	11	9.9	9.4	9.2	9.4
29	11	11	11	11	---	11	13	11	10	9.3	9.1	9.3
30	11	11	11	11	---	11	12	11	10	9.3	9.0	9.3
31	11	---	11	10	---	11	---	11	---	9.7	8.9	---
TOTAL	326.3	334	345	341	315	346	343	348	309.4	321.0	294.7	280.0
MEAN	10.5	11.1	11.1	11.0	11.2	11.2	11.4	11.2	10.3	10.4	9.51	9.33
MAX	11	12	12	12	12	12	13	13	11	11	9.9	9.9
MIN	9.1	11	11	10	11	11	11	10	9.8	9.3	8.9	8.9
AC-FT	647	662	684	676	625	686	680	690	614	637	585	555

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2002, BY WATER YEAR (WY)

MEAN	11.7	11.8	11.8	11.8	11.5	11.7	12.4	13.0	13.0	11.8	11.2	11.1
MAX	14.2	14.0	13.9	13.1	13.0	13.0	13.7	15.0	14.9	13.7	13.7	12.9
(WY)	1999	1999	1999	1999	1997	1997	1997	1997	1999	1998	1998	1998
MIN	10.5	9.81	9.89	10.3	10.3	10.2	11.3	11.1	10.3	10.0	9.51	9.33
(WY)	2002	1993	1993	1993	1993	1993	1993	1993	2002	1994	2002	2002

06412810 CLEGHORN SPRINGS AT RAPID CITY, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1993 - 2002	
ANNUAL TOTAL	4066.8		3903.4		11.9	
ANNUAL MEAN	11.1		10.7		13.3	
HIGHEST ANNUAL MEAN					10.7	
LOWEST ANNUAL MEAN					17	
HIGHEST DAILY MEAN	13	Jan 1	13	Apr 27	17	Jun 2 1997
LOWEST DAILY MEAN	9.1	Sep 29	8.9	Aug 31	8.8	Sep 7 1994
ANNUAL SEVEN-DAY MINIMUM	9.3	Sep 27	9.0	Aug 29	9.0	Aug 29 2002
MAXIMUM PEAK FLOW			20	Jul 20	22	Jun 9 2001
MAXIMUM PEAK STAGE			3.01	Jul 20	3.09	Jun 9 2001
ANNUAL RUNOFF (AC-FT)	8070		7740		8630	
10 PERCENT EXCEEDS	12		12		14	
50 PERCENT EXCEEDS	11		11		12	
90 PERCENT EXCEEDS	10		9.4		10	



CHEYENNE RIVER BASIN

06413650 LIME CREEK AT MOUTH, AT RAPID CITY, SD

LOCATION.--Lat 44°04'30", long 103°16'00", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.3, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on left bank, 1,500 ft above mouth, and 75 ft downstream from Canyon Lake Drive.

DRAINAGE AREA.--10.0 mi², approximately.

PERIOD OF RECORD.--April 24, 1981, to July 21, 1982 (seasonal records only), October 1987 to September 2002 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 3,286 ft above NGVD of 1929, from topographic map. Prior to June 22, 1993, gage located about 1,000 ft downstream, at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 25, 1982, reached a stage of 3.6 ft, present datum, from floodmarks. A discharge of 103 ft³/s was measured July 22, 1982.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	2.2	2.0	2.0	2.0	2.0	2.4	4.5	1.9	1.2	1.0	0.89
2	2.1	2.2	2.1	2.0	1.8	2.0	2.3	2.3	2.7	1.2	1.0	0.86
3	2.0	2.3	2.2	2.1	1.8	2.1	2.3	2.2	2.3	1.1	0.97	0.85
4	2.1	2.2	2.1	2.1	1.8	2.1	2.2	2.1	2.0	1.1	0.99	1.0
5	2.1	2.3	2.0	2.0	1.8	2.1	2.1	2.4	1.9	1.2	1.1	0.91
6	2.1	2.3	2.0	2.0	1.8	2.1	2.1	2.2	1.9	1.3	1.8	0.86
7	2.1	2.2	2.0	2.0	1.8	2.1	3.4	2.2	1.8	1.3	0.99	0.84
8	2.1	2.2	2.0	2.0	1.8	2.0	2.3	2.2	2.0	2.0	1.5	1.1
9	3.9	2.2	2.0	1.9	2.0	2.1	2.1	2.0	2.0	1.3	1.1	5.0
10	2.2	2.2	2.0	2.0	1.9	2.0	2.1	2.0	1.8	1.1	1.0	1.3
11	2.2	2.2	2.0	1.9	2.1	2.4	2.9	7.9	1.7	1.1	0.98	1.1
12	2.2	2.2	2.0	2.0	1.9	2.2	2.2	2.8	1.7	1.0	1.1	1.6
13	2.1	2.1	2.0	2.0	1.8	2.2	2.2	2.6	1.7	1.0	1.1	1.7
14	2.2	2.1	2.0	2.0	1.9	2.2	2.3	2.5	1.7	1.0	1.0	1.2
15	2.3	2.1	2.0	2.0	1.8	2.4	2.2	2.4	1.7	0.96	0.99	1.1
16	2.1	2.1	2.0	2.0	1.8	2.1	2.1	2.7	1.6	0.94	1.0	1.1
17	2.2	2.1	2.1	2.1	1.8	2.1	2.1	2.4	1.5	0.92	1.0	1.0
18	3.0	2.2	2.1	2.1	1.8	2.1	2.1	2.3	1.5	0.91	1.0	2.7
19	2.2	2.1	2.1	2.1	1.9	2.1	2.0	2.2	1.6	1.3	0.95	1.3
20	2.2	2.1	2.1	2.1	1.8	2.1	2.2	2.2	1.5	4.0	1.0	1.1
21	2.2	2.1	2.0	2.1	1.8	2.0	2.4	2.2	1.5	3.5	2.5	1.0
22	2.2	2.2	2.0	2.1	1.8	2.0	2.1	2.2	1.6	1.4	1.4	1.1
23	2.3	2.1	2.0	2.1	1.8	2.1	2.0	2.1	1.7	1.3	1.2	1.1
24	2.2	2.2	2.0	2.1	1.9	2.1	1.8	2.3	1.6	1.5	1.1	1.0
25	2.3	2.1	2.0	2.1	1.9	2.1	1.8	2.1	1.5	1.3	1.0	1.0
26	2.2	2.1	2.0	2.1	2.0	2.7	2.1	2.1	1.4	1.2	0.98	1.1
27	2.2	2.1	2.0	2.1	2.0	3.0	6.7	2.8	1.4	1.2	0.96	1.0
28	2.2	2.1	2.0	2.1	2.0	2.7	2.9	3.0	1.3	1.2	0.97	1.0
29	2.2	2.1	2.0	2.0	---	2.8	2.2	2.1	1.2	1.1	0.98	1.1
30	2.2	2.0	2.0	2.1	---	2.5	2.5	2.0	1.2	1.0	0.93	1.0
31	2.3	---	2.0	2.1	---	2.4	---	1.9	---	1.0	0.92	---
TOTAL	70.0	64.7	62.8	63.4	52.3	68.9	72.1	78.9	50.9	41.63	34.51	37.91
MEAN	2.26	2.16	2.03	2.05	1.87	2.22	2.40	2.55	1.70	1.34	1.11	1.26
MAX	3.9	2.3	2.2	2.1	2.1	3.0	6.7	7.9	2.7	4.0	2.5	5.0
MIN	2.0	2.0	2.0	1.9	1.8	2.0	1.8	1.9	1.2	0.91	0.92	0.84
AC-FT	139	128	125	126	104	137	143	156	101	83	68	75

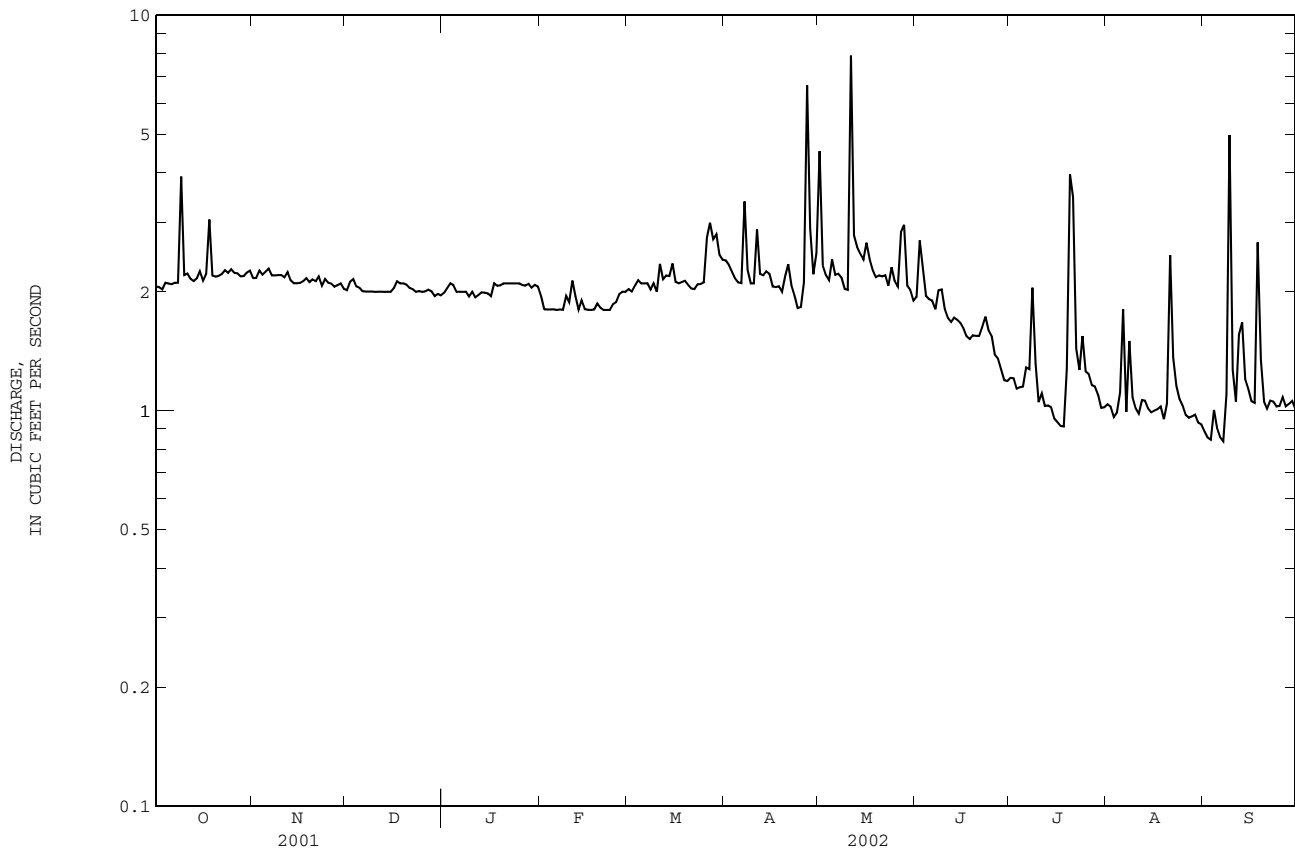
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2002, BY WATER YEAR (WY)*

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	2.12	2.13	1.92	1.82	1.84	2.02	2.49	3.53	3.89	2.89	2.38	1.90			
MAX	5.38	4.95	4.38	3.90	3.77	3.81	5.37	7.16	11.4	6.57	5.34	4.02			
(WY)	1999	1999	1999	1997	1997	1996	1999	1997	1999	1999	1999	1999			
MIN	0.19	0.23	0.25	0.23	0.25	0.40	0.63	0.74	0.71	0.80	0.31	0.20			
(WY)	1993	1993	1993	1991	1993	1991	1992	1992	1992	1989	1992	1992			

06413650 LIME CREEK AT MOUTH, AT RAPID CITY, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1988 - 2002*	
ANNUAL TOTAL	981.8		698.05		2.41	
ANNUAL MEAN	2.69		1.91		5.29	
HIGHEST ANNUAL MEAN					0.62	
LOWEST ANNUAL MEAN					33	
HIGHEST DAILY MEAN	11	Jul 15	7.9	May 11	0.10	Jun 2 1999
LOWEST DAILY MEAN	2.0	Feb 20	0.84	Sep 7	0.13	Jan 15 1991
ANNUAL SEVEN-DAY MINIMUM	2.0	Dec 5	0.89	Sep 1	505	Jun 2 1999
MAXIMUM PEAK FLOW			31	May 11	5.71	Jun 2 1999
MAXIMUM PEAK STAGE			2.32	May 11	0.10	Jan 15 1991
INSTANTANEOUS LOW FLOW			0.78	Sep 1	1750	
ANNUAL RUNOFF (AC-FT)	1950		1380		4.6	
10 PERCENT EXCEEDS	3.5		2.3		2.1	
50 PERCENT EXCEEDS	2.4		2.0		0.51	
90 PERCENT EXCEEDS	2.1		1.0			

* Period reflects only complete years.



06414000 RAPID CREEK AT RAPID CITY, SD

LOCATION.--Lat 44°05'09", long 103°14'31", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.35, T.2 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on left bank 1,300 ft upstream from 12th Street in Rapid City and 3.6 mi downstream from Canyon Lake Dam.

DRAINAGE AREA.--410 mi², approximately.

PERIOD OF RECORD.--June 1903 to November 1906, July 1942 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 3,230.14 ft above NGVD of 1929. Prior to Nov. 30, 1906, nonrecording gage at site 1.0 mi downstream at different datum, and June 10, 1972, to Nov. 1, 1972, nonrecording gage at site 800 ft downstream at datum 0.80 ft higher. July 1942 to June 9, 1972, water-stage recorder at site 300 ft downstream at datum 0.80 ft higher (destroyed by flood).

REMARKS.--No estimated daily discharges. Records good. Several small diversions upstream from station to municipal park pools and for irrigation of about 320 acres. Flow regulated by Pactola Dam 25.4 mi upstream since Aug. 22, 1956 (reservoir filled from August 1956 to June 1963). Maximum discharge prior to Sept. 30, 1963, 3,300 ft³/s, July 13, 1962, gage height, 8.37 ft, datum then in use; minimum daily discharge, 2.0 ft³/s, Apr. 20, 1962. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. National Weather Service telemeter at station. U.S. Army Corps of Engineers satellite data-collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 12, 13, 1920, reached a stage of 14.4 ft present datum, from floodmarks.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	46	49	37	46	49	51	82	63	37	59	61
2	27	47	51	40	52	50	49	71	68	76	58	60
3	25	47	52	44	51	49	48	68	69	85	73	59
4	26	47	51	53	50	52	49	65	66	94	76	55
5	28	47	50	55	50	58	49	65	70	115	82	53
6	30	47	50	57	51	54	50	65	69	123	87	53
7	35	47	49	55	52	51	57	64	64	121	70	51
8	34	48	47	55	53	51	53	64	65	118	68	54
9	46	47	50	55	54	57	49	59	65	115	67	87
10	45	47	50	54	47	51	50	58	61	94	66	52
11	43	46	48	52	53	57	53	96	64	95	64	45
12	46	46	45	52	49	55	51	85	67	93	66	51
13	47	46	39	54	47	54	51	82	68	91	69	54
14	51	45	51	50	54	53	51	80	66	89	68	49
15	51	46	53	46	50	50	51	79	66	85	69	47
16	51	45	49	42	53	49	55	85	64	79	74	45
17	51	45	49	43	52	47	57	86	61	78	69	45
18	55	46	50	43	52	48	57	89	47	78	72	58
19	53	46	42	45	51	48	56	89	53	84	71	53
20	53	47	45	50	51	45	60	86	50	122	69	43
21	51	47	51	53	50	40	64	86	39	128	74	41
22	50	47	44	54	52	40	61	85	44	71	74	41
23	48	47	33	55	54	53	60	85	50	64	63	41
24	48	47	38	52	53	50	55	86	53	59	65	43
25	47	47	43	53	41	48	54	73	48	55	63	42
26	47	48	50	54	45	49	58	71	49	54	64	44
27	49	39	53	54	49	55	93	73	42	51	74	42
28	49	39	49	50	52	55	76	76	38	51	64	42
29	48	42	43	43	---	54	68	69	39	45	62	41
30	48	52	41	41	---	53	67	65	40	34	62	38
31	46	---	38	40	---	51	---	62	---	62	63	---
TOTAL	1354	1383	1453	1531	1414	1576	1703	2349	1708	2546	2125	1490
MEAN	43.7	46.1	46.9	49.4	50.5	50.8	56.8	75.8	56.9	82.1	68.5	49.7
MAX	55	52	53	57	54	58	93	96	70	128	87	87
MIN	25	39	33	37	41	40	48	58	38	34	58	38
AC-FT	2690	2740	2880	3040	2800	3130	3380	4660	3390	5050	4210	2960

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2002, BY WATER YEAR (WY) *

	MEAN	MAX	MIN	(WY)
1964	45.6	170	15.4	1969
1965	41.8	192	20.8	1970
1966	40.1	167	20.1	1971
1967	37.7	112	15.9	1972
1968	38.4	111	15.9	1973
1969	48.2	152	18.3	1974
1970	74.7	232	17.6	1975
1971	133	490	42.7	1976
1972	162	505	28.0	1977
1973	106	296	45.8	1978
1974	80.9	263	39.5	1979
1975	58.9	158	26.5	1980
1976	1997	1997	1997	1997
1977	1997	1997	1997	1997
1978	1997	1997	1997	1997
1979	1997	1997	1997	1997
1980	1997	1997	1997	1997
1981	1997	1997	1997	1997
1982	1997	1997	1997	1997
1983	1997	1997	1997	1997
1984	1997	1997	1997	1997
1985	1997	1997	1997	1997
1986	1997	1997	1997	1997
1987	1997	1997	1997	1997
1988	1997	1997	1997	1997
1989	1997	1997	1997	1997
1990	1997	1997	1997	1997
1991	1997	1997	1997	1997
1992	1997	1997	1997	1997
1993	1997	1997	1997	1997
1994	1997	1997	1997	1997
1995	1997	1997	1997	1997
1996	1997	1997	1997	1997
1997	1997	1997	1997	1997
1998	1997	1997	1997	1997
1999	1997	1997	1997	1997
2000	1997	1997	1997	1997
2001	1997	1997	1997	1997
2002	1997	1997	1997	1997

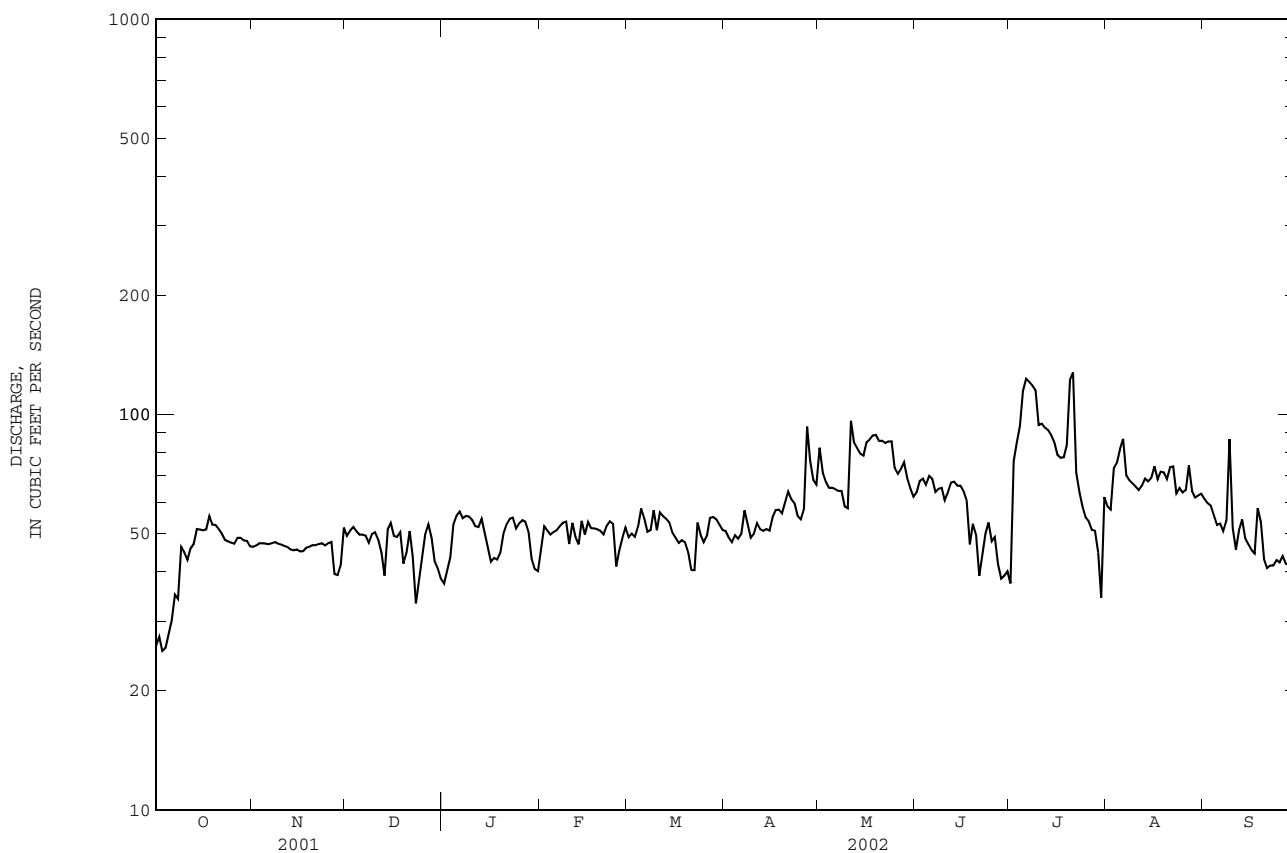
06414000 RAPID CREEK AT RAPID CITY, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1964 - 2002*	
ANNUAL TOTAL	24886		20632		72.4	
ANNUAL MEAN	68.2		56.5		207	
HIGHEST ANNUAL MEAN					31.5	
LOWEST ANNUAL MEAN					5600	
HIGHEST DAILY MEAN	153	Jul 15	128	Jul 21	6.7	Apr 17 1981
LOWEST DAILY MEAN	25	Oct 3	25	Oct 3	8.6	Jan 24 1978
ANNUAL SEVEN-DAY MINIMUM	26	Sep 29	28	Oct 1	50000	Jun 9 1972a
MAXIMUM PEAK FLOW			489	Jul 20	19.66	Jun 9 1972b
MAXIMUM PEAK STAGE			5.21	Jul 20		
ANNUAL RUNOFF (AC-FT)	49360		40920		52430	
10 PERCENT EXCEEDS	109		78		137	
50 PERCENT EXCEEDS	65		52		47	
90 PERCENT EXCEEDS	42		42		23	

* Regulated period only (1964-2002). See REMARKS.

a On basis of slope-area measurement of peak flow.

b From floodmarks.



CHEYENNE RIVER BASIN

06418900 RAPID CREEK BELOW SEWAGE TREATMENT PLANT, NEAR RAPID CITY, SD

LOCATION.--Lat 44°01'24", long 103°05'43", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.25, T.1 N., R.8 E., Pennington County, Hydrologic Unit 10120110, on right bank 120 ft downstream from sewage treatment plant effluent and 6.7 mi southeast of Rapid City.

DRAINAGE AREA.--452 mi², approximately.

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,000 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Pactola Dam 40.9 mi upstream since Aug. 22, 1956. Reservoir filled from August 1956 to June 1963. Diversions for irrigation of about 7,000 acres upstream from station. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

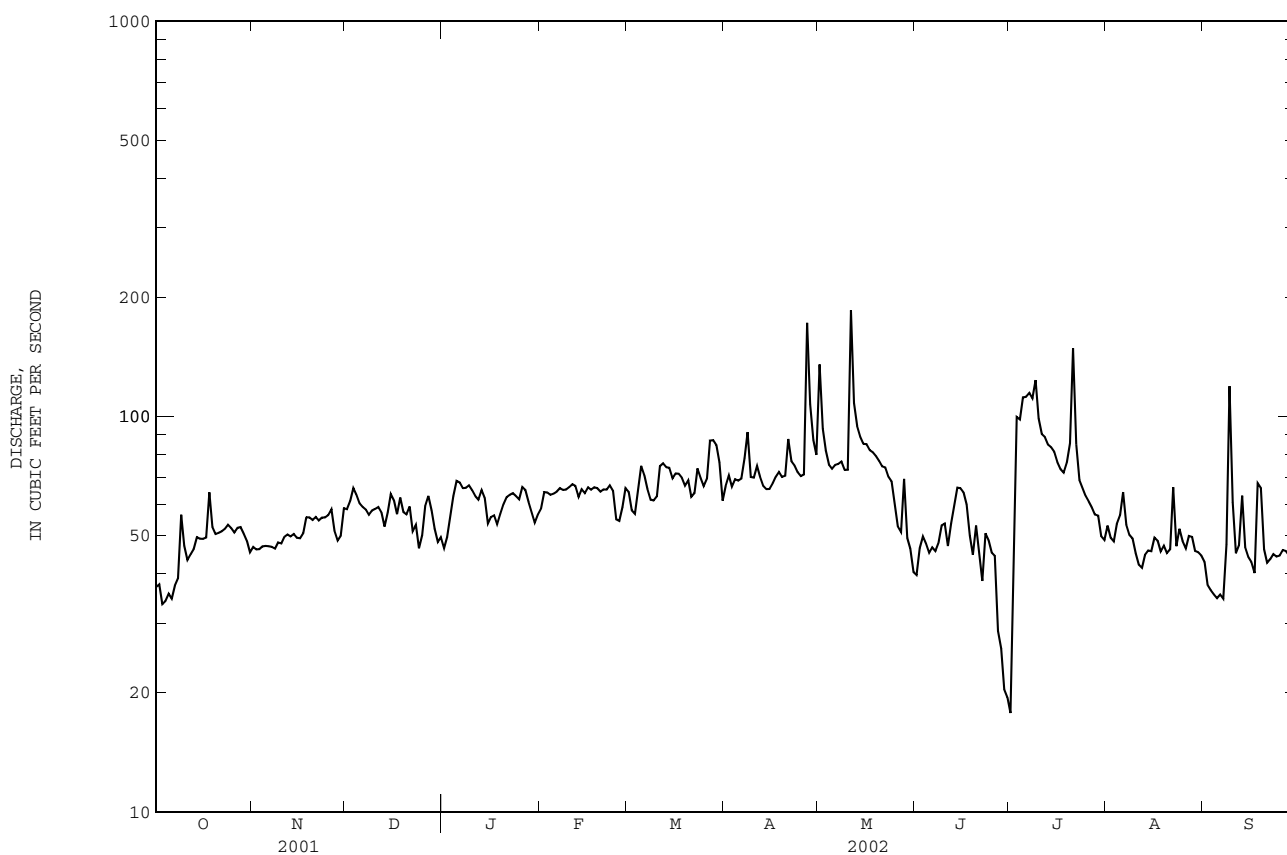
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	47	58	46	58	64	67	135	40	18	53	43
2	38	46	61	50	64	58	71	93	47	57	49	37
3	34	46	66	56	64	57	66	82	50	100	48	36
4	34	47	63	63	63	65	69	75	48	98	54	35
5	36	47	60	69	64	75	69	74	45	112	56	35
6	35	47	59	68	65	71	70	75	47	112	64	35
7	37	47	58	66	66	66	78	76	46	115	53	35
8	39	46	56	66	65	62	91	77	48	111	50	47
9	56	48	58	67	65	61	70	73	53	124	49	119
10	47	48	58	65	66	63	70	73	54	99	45	61
11	43	50	59	63	67	75	75	186	47	90	42	45
12	45	50	57	62	67	76	70	108	54	89	41	47
13	46	50	53	65	63	74	67	94	59	85	45	63
14	49	50	57	62	65	74	66	89	66	84	46	47
15	49	49	64	54	64	70	66	85	66	81	46	44
16	49	49	61	56	66	72	68	85	64	77	49	43
17	49	51	57	56	65	72	70	82	60	74	48	40
18	64	56	62	53	66	70	72	81	50	72	46	68
19	53	56	57	57	66	67	70	79	45	76	47	66
20	50	55	57	60	65	69	71	77	53	85	45	46
21	51	56	59	62	65	63	88	75	44	149	46	43
22	51	55	51	63	65	64	77	74	38	85	66	44
23	52	56	53	64	67	74	75	70	51	69	47	45
24	53	56	46	63	65	70	72	69	49	66	52	44
25	52	56	50	62	55	67	71	60	45	63	48	44
26	51	58	59	66	54	70	71	53	44	61	46	46
27	52	51	63	65	59	87	172	51	29	59	50	46
28	53	49	58	61	66	87	107	70	26	56	50	45
29	51	50	52	57	---	85	87	49	20	56	46	43
30	48	59	48	54	---	77	80	46	19	50	45	41
31	45	---	50	57	---	61	---	40	---	49	45	---
TOTAL	1449	1531	1770	1878	1790	2166	2316	2456	1407	2522	1517	1433
MEAN	46.7	51.0	57.1	60.6	63.9	69.9	77.2	79.2	46.9	81.4	48.9	47.8
MAX	64	59	66	69	67	87	172	186	66	149	66	119
MIN	34	46	46	46	54	57	66	40	19	18	41	35
AC-FT	2870	3040	3510	3730	3550	4300	4590	4870	2790	5000	3010	2840

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2002, BY WATER YEAR (WY)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	61.1	64.1	64.1	62.5	64.4	77.4	108	155	176	112	89.4	63.4
MAX	216	230	196	141	158	172	285	552	523	313	339	192
(WY)	1999	1999	1999	1997	1997	1996	1999	1997	1999	1999	1997	1997
MIN	18.7	23.7	31.5	28.8	32.7	32.3	31.1	30.5	32.7	32.3	33.4	22.2
(WY)	1991	1982	1991	1991	1991	1991	1988	1989	1985	1991	1986	1990

06418900 RAPID CREEK BELOW SEWAGE TREATMENT PLANT, NEAR RAPID CITY, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1982 - 2002	
ANNUAL TOTAL	29936		22235		91.5	
ANNUAL MEAN	82.0		60.9		239	
HIGHEST ANNUAL MEAN					35.5	
LOWEST ANNUAL MEAN					1270	
HIGHEST DAILY MEAN	279	Jul 15	186	May 11	Jun 3	1997
LOWEST DAILY MEAN	34	Oct 3	18	Jul 1	Sep 26	1992
ANNUAL SEVEN-DAY MINIMUM	36	Sep 30	29	Jun 25	Oct 4	1990
MAXIMUM PEAK FLOW			437	May 11	Jun 3	1997
MAXIMUM PEAK STAGE			4.70	May 11	Jun 3	1997
ANNUAL RUNOFF (AC-FT)	59380		44100		66290	
10 PERCENT EXCEEDS	126		80		190	
50 PERCENT EXCEEDS	81		58		57	
90 PERCENT EXCEEDS	49		44		28	



06421500 RAPID CREEK NEAR FARMINGDALE, SD

LOCATION.--Lat 43°56'31", long 102°51'12", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.19, T.1 S., R.11 E., Pennington County, Hydrologic Unit 10120110, on right bank at downstream side of bridge, 2 mi southeast of Farmingdale, and 4.8 mi downstream from Antelope Creek.

DRAINAGE AREA.--602 mi².

PERIOD OF RECORD.--July 1946 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,700 ft above NGVD of 1929, from topographic map. Prior to Sept. 19, 1947, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Pactola Dam 67 mi upstream since Aug. 22, 1956 (reservoir filled from August 1956 to June 1963). Maximum discharge prior to regulation, 2,640 ft³/s, June 21, 1947, gage height, 8.40 ft; no flow at times in 1949, 1952-56, 1958-63. Diversions of irrigation of about 10,000 acres upstream from station. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	50	e61	e50	e60	e68	64	99	21	3.6	10	10
2	26	51	e67	e55	e64	e64	68	137	15	2.9	13	11
3	27	55	e69	e62	e64	e67	69	95	18	4.6	16	11
4	27	52	e67	e68	e64	e76	67	80	19	8.8	11	12
5	28	53	e63	e71	e64	e81	70	75	21	6.7	17	13
6	30	52	e62	e73	e64	e78	69	74	17	11	27	11
7	27	52	e62	e70	e65	e71	72	74	20	18	40	12
8	29	51	e60	e71	e67	e64	96	76	19	24	24	13
9	36	51	e62	e72	e67	e65	83	71	21	37	20	36
10	58	53	e62	e68	e67	e70	71	70	22	46	23	125
11	45	52	e62	e65	e68	e79	72	90	20	26	15	62
12	44	55	e60	e66	e68	e80	79	212	12	21	13	50
13	45	55	e56	e66	e65	e80	69	113	9.4	26	16	62
14	42	55	e61	e64	e67	e79	66	97	13	19	15	74
15	49	55	e66	e54	e66	e73	65	92	17	20	16	54
16	50	55	e65	e57	e68	e75	65	89	19	15	13	49
17	47	54	e62	e57	e67	e75	65	91	14	13	14	46
18	52	57	e66	e53	e68	e76	69	90	12	5.4	16	46
19	68	58	e62	e58	e68	e77	67	88	10	10	13	87
20	55	60	e61	e62	e67	e78	67	81	7.9	12	15	72
21	53	57	e60	e64	e67	e71	74	77	6.0	76	10	54
22	53	60	e52	e67	e67	e74	89	78	14	116	11	45
23	53	58	e54	e67	e69	e77	75	75	11	44	22	46
24	52	59	e48	e66	e68	e75	71	72	11	30	18	48
25	52	59	e55	e67	e61	e74	68	74	13	19	20	47
26	52	e63	e63	e70	e59	e80	67	62	11	20	21	48
27	51	e46	e65	e69	e62	e88	100	55	10	22	21	50
28	54	e50	e62	e64	e69	94	179	55	12	22	14	50
29	56	e53	e54	e60	---	95	112	65	8.4	24	17	48
30	55	e62	e52	e57	---	93	89	39	5.9	22	13	46
31	53	---	e47	e58	---	77	---	33	---	18	12	---
TOTAL	1397	1643	1868	1971	1840	2374	2337	2579	429.6	743.0	526	1338
MEAN	45.1	54.8	60.3	63.6	65.7	76.6	77.9	83.2	14.3	24.0	17.0	44.6
MAX	68	63	69	73	69	95	179	212	22	116	40	125
MIN	26	46	47	50	59	64	64	33	5.9	2.9	10	10
AC-FT	2770	3260	3710	3910	3650	4710	4640	5120	852	1470	1040	2650

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2002, BY WATER YEAR (WY) *

	MEAN	55.7	59.3	54.8	51.6	57.3	80.8	108	151	175	80.9	55.4	47.6
MAX	246	257	215	147	180	176	343	754	607	305	340	155	
(WY)	1999	1999	1999	1997	1997	1996	1999	1997	1997	1999	1997	1997	1997
MIN	17.3	29.1	27.2	17.7	15.0	30.9	11.5	17.2	13.1	14.1	13.1	11.2	
(WY)	1993	1991	1989	1988	1988	1981	1981	1979	1966	1970	1975	1969	

06421500 RAPID CREEK NEAR FARMINGDALE, SD--Continued

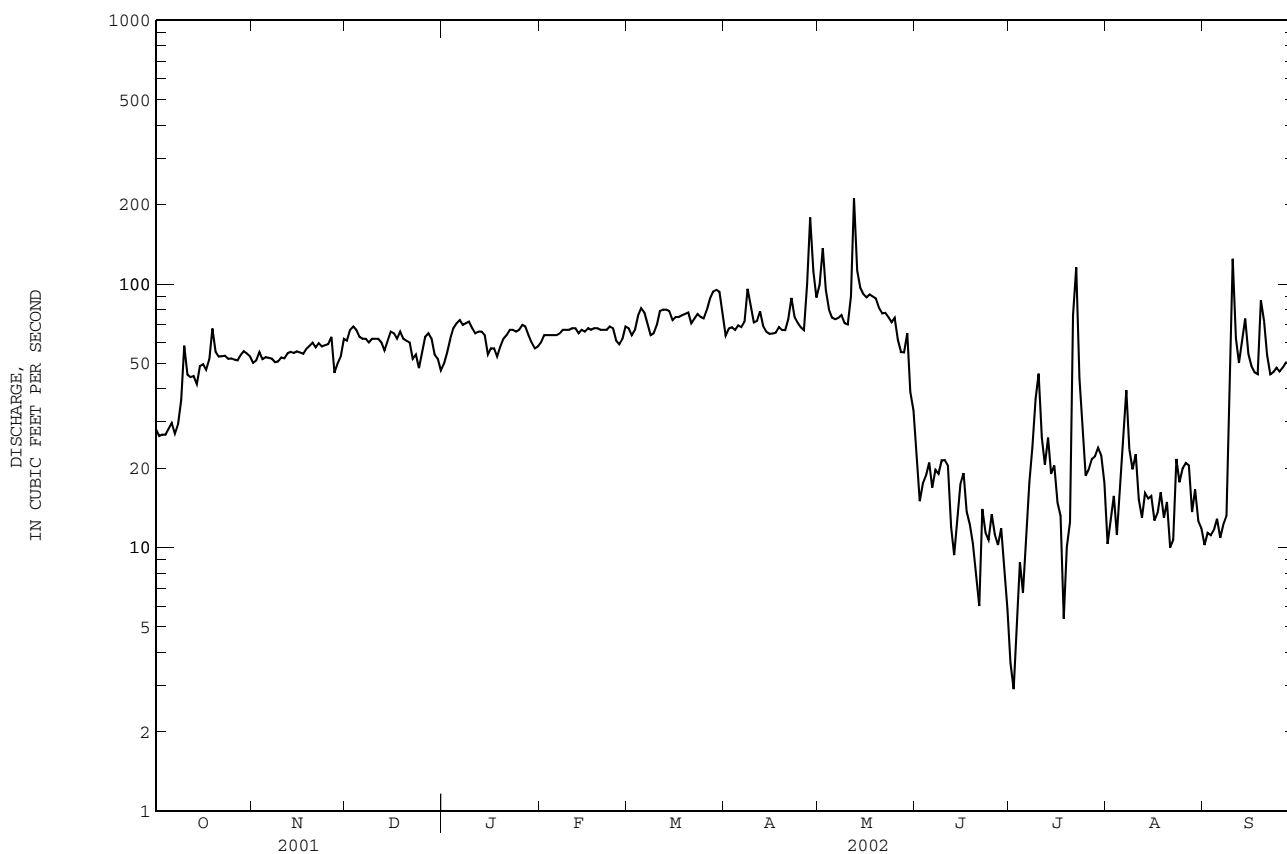
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1964 - 2002*	
ANNUAL TOTAL	26924		19045.6		81.5	
ANNUAL MEAN	73.8		52.2		269	
HIGHEST ANNUAL MEAN					24.8	
LOWEST ANNUAL MEAN					2860	
HIGHEST DAILY MEAN	247	Jun 10	212	May 12	0.00	May 30 1969a
LOWEST DAILY MEAN	13	Jul 6	2.9	Jul 2	0.00	Jun 1 1969
ANNUAL SEVEN-DAY MINIMUM	19	Jul 4	5.8	Jun 29	7320	Jun 10 1972b
MAXIMUM PEAK FLOW			370	May 12	11.85	Jun 10 1972b
MAXIMUM PEAK STAGE			7.48	May 12	59050	
ANNUAL RUNOFF (AC-FT)	53400		37780			
10 PERCENT EXCEEDS	140		78			
50 PERCENT EXCEEDS	62		57			
90 PERCENT EXCEEDS	31		13			

* Regulated period only (1964-2002). See REMARKS.

a No flow at times in 1969-71.

b From floodmarks, from rating curve extended above 400 ft³/s on basis of contracted-opening and flow-over-road measurement of peak flow.

e Estimated.



06422500 BOXELDER CREEK NEAR NEMO, SD

LOCATION.--Lat 44°08'38", long 103°27'16", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.12, T.2 N., R.5 E., Lawrence County, Hydrologic Unit 10120111, on right bank at ranch 0.2 mi upstream from county line, 0.9 mi downstream from Jim Creek, and 4.5 mi southeast of Nemo.

DRAINAGE AREA.--96 mi², approximately.

PERIOD OF RECORD.--July 1945 to July 1947, May 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,320.27 ft above NGVD of 1929. July 1945 to July 1947 nonrecording gage at site 100 ft upstream at different datum. May 17, 1966, to June 9, 1972, water-stage recorder (destroyed by flood) and June 10, 1972, to Aug. 8, 1972, nonrecording gage, both at site 100 ft upstream at datum 2.00 ft higher.

REMARKS.--Records good except those for winter period, Nov. 8 to Apr. 8, which are poor. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. Satellite data-collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1911 reached a stage of about 16 ft, present datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	6.1	e5.2	e3.6	e2.8	e2.4	e6.5	13	7.1	2.9	2.8	2.3
2	5.6	6.0	6.4	e3.6	e3.2	e2.2	e6.0	12	7.1	2.9	2.9	2.1
3	5.5	5.9	6.1	e3.7	e3.2	e2.0	e5.5	17	8.2	3.1	2.6	1.9
4	6.1	5.9	6.0	e3.7	e3.2	e2.3	e7.0	13	8.3	3.0	2.9	1.9
5	6.6	5.9	6.1	e3.8	e3.4	e2.7	e9.0	11	7.4	3.1	3.4	2.0
6	6.3	5.8	6.4	3.8	e3.4	e3.1	20	9.9	6.8	3.2	4.1	1.9
7	6.2	5.8	5.3	3.6	e3.5	e2.9	33	9.9	6.4	3.3	4.0	1.9
8	6.2	5.5	e5.2	3.6	e3.5	e2.7	37	9.3	6.2	3.3	5.1	1.9
9	7.8	5.3	5.2	4.3	e3.4	e2.8	22	8.5	5.8	3.4	4.4	4.7
10	11	5.5	e4.8	4.3	e3.2	e3.4	28	8.4	5.4	3.1	4.1	6.7
11	8.2	5.0	5.1	4.1	e3.2	e4.0	25	13	5.1	3.1	3.6	4.3
12	7.1	5.8	e4.8	4.4	e3.2	e4.4	20	15	5.2	3.0	3.3	3.6
13	7.1	5.5	e4.8	4.3	e3.3	e4.2	17	20	5.3	2.8	3.1	4.6
14	7.1	5.7	5.1	e3.8	e3.3	e3.9	16	15	5.4	2.5	3.0	4.7
15	6.8	5.7	5.0	e3.5	e3.3	e4.2	15	12	5.4	2.4	2.7	3.9
16	6.2	5.6	5.1	e3.4	e3.5	e4.2	14	13	5.3	2.1	2.6	3.5
17	6.5	5.3	5.3	e3.4	e3.5	e4.2	12	13	5.1	2.1	2.3	3.2
18	7.1	e4.7	5.4	e3.0	e3.5	e4.2	12	12	5.4	2.0	2.3	3.8
19	7.2	e4.8	e4.8	e3.0	e3.5	e4.2	10	10	5.4	2.1	2.4	12
20	7.1	4.9	e4.8	e3.0	e3.8	e4.5	9.6	9.4	5.3	3.2	2.4	7.7
21	7.0	6.2	5.0	e3.0	e3.7	e4.2	9.8	9.1	5.1	7.0	2.9	5.6
22	6.7	6.1	e4.8	e2.8	e3.9	e4.5	10	9.0	5.3	4.9	2.9	4.8
23	6.4	5.4	e4.7	e2.6	e3.6	e4.8	10	8.8	5.1	4.4	3.2	4.3
24	6.3	6.2	e4.4	e2.6	e3.4	e5.2	10	8.5	5.1	4.0	3.3	4.1
25	5.9	5.9	e4.3	e2.8	e2.8	e5.2	9.5	8.3	5.0	3.4	3.0	4.1
26	6.1	6.1	e4.0	e2.8	e2.6	e5.4	9.3	8.0	4.6	3.4	2.7	4.5
27	6.2	5.8	e3.8	e2.8	e2.6	e5.6	13	8.7	4.1	3.9	2.5	4.5
28	6.3	e4.8	e3.5	e2.8	e2.5	e5.6	15	9.6	3.6	3.4	2.4	4.4
29	6.1	e4.3	e3.5	e2.8	---	e5.6	12	9.1	3.4	3.1	2.4	4.2
30	6.0	e4.5	e3.5	e2.4	---	e6.0	12	8.0	3.0	3.3	2.5	4.1
31	6.1	---	e3.5	e2.4	---	e6.5	---	7.3	---	3.2	2.4	---
TOTAL	206.6	166.0	151.9	103.7	92.0	127.1	435.2	338.8	165.9	100.6	94.2	123.2
MEAN	6.665	5.533	4.900	3.345	3.286	4.100	14.51	10.93	5.530	3.245	3.039	4.107
MAX	11	6.2	6.4	4.4	3.9	6.5	37	20	8.3	7.0	5.1	12
MIN	5.5	4.3	3.5	2.4	2.5	2.0	5.5	7.3	3.0	2.0	2.3	1.9
AC-FT	410	329	301	206	182	252	863	672	329	200	187	244

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2002, BY WATER YEAR (WY)

MEAN	10.62	9.805	7.026	5.956	6.254	12.53	30.72	51.47	60.87	22.03	13.61	9.245
MAX	71.1	64.1	37.7	26.4	18.2	44.5	149	275	489	64.6	57.0	40.0
(WY)	1999	1999	1999	1999	1997	1997	1997	1995	1972	1999	1998	1997
MIN	1.85	1.66	1.65	1.42	1.36	2.66	3.03	6.20	3.92	1.70	0.76	1.17
(WY)	1989	1989	1989	1982	1989	1981	1981	1974	1988	1988	1989	1988

06422500 BOXELDER CREEK NEAR NEMO, SD--Continued

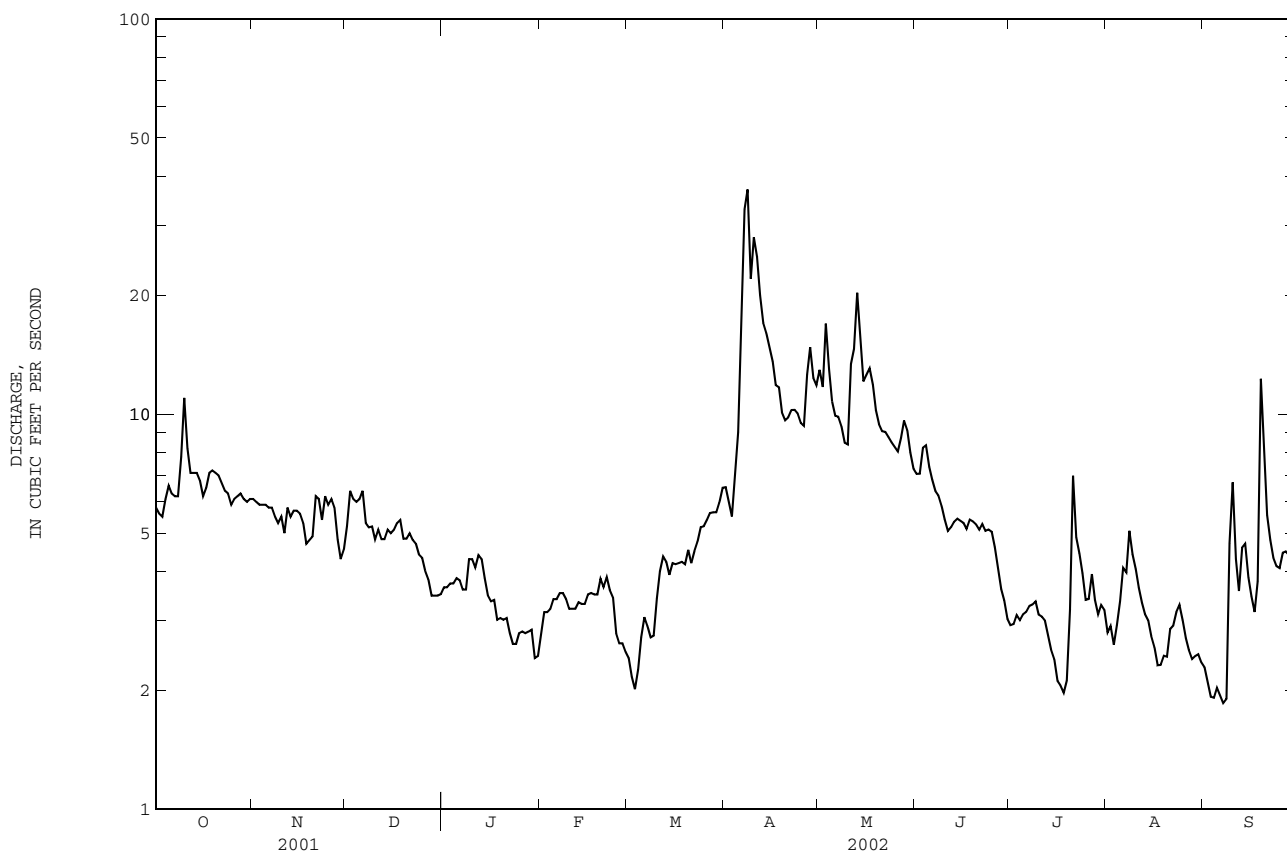
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1946, 1967 - 2002	
ANNUAL TOTAL	4201.5		2105.2		20.03	
ANNUAL MEAN	11.51		5.768		63.1	
HIGHEST ANNUAL MEAN					3.81	
LOWEST ANNUAL MEAN					6700	
HIGHEST DAILY MEAN	43	Apr 7	37	Apr 8	Jun 10	1972
LOWEST DAILY MEAN	3.5	Dec 28	1.9	Sep 3	Aug 8	1989
ANNUAL SEVEN-DAY MINIMUM	3.7	Dec 25	1.9	Sep 2	Aug 4	1989a
MAXIMUM PEAK FLOW			47	Apr 8	30100	Jun 9 1972b
MAXIMUM PEAK STAGE			2.26	Apr 8	20.40	Jun 9 1972c
ANNUAL RUNOFF (AC-FT)	8330		4180		14510	
10 PERCENT EXCEEDS	22		10		45a	
50 PERCENT EXCEEDS	9.0		4.8		8.5a	
90 PERCENT EXCEEDS	5.5		2.7		2.6a	

a Reflects water years 1967-2002.

b From rating curve extended above 600 ft³/s on basis of slope-area measurement of peak flow.

c Site and datum then in use (22.0 ft, present site and datum, from floodmarks).

e Estimated.



CHEYENNE RIVER BASIN

06423010 BOXELDER CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°07'54", long 103°17'54", in NW¹/₄ SE¹/₄ sec.17, T.2 N., R.7 E., Pennington County, Hydrologic Unit 10120111, near center span on downstream side of bridge on State Highway 79, and 4.0 mi northwest of Rapid City.

DRAINAGE AREA.--128 mi².

PERIOD OF RECORD.--May 1978 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 3,450 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Considerable loss to sinkholes in reach above gage. Satellite data-collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	---	0.00	0.00	---	0.00	---	0.00	---	0.00	0.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MAX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2002, BY WATER YEAR (WY)

MEAN	2.16	2.00	1.05	0.59	0.38	1.46	8.01	25.9	27.2	5.86	3.48	1.54
MAX	38.7	37.8	17.9	8.96	5.24	21.7	98.7	200	143	46.3	31.6	13.8
(WY)	1999	1999	1999	1999	1999	1997	1997	1995	1997	1999	1997	1997
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1979	1979	1979	1979	1979	1979	1979	1979	1979	1979	1979	1979

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1979 - 2002

ANNUAL TOTAL	12.18	0.00	
ANNUAL MEAN	0.033	0.000	
HIGHEST ANNUAL MEAN		6.65	
LOWEST ANNUAL MEAN		42.3	1997
HIGHEST DAILY MEAN	0.65 May 17	0.00 Oct 1b	879 May 9 1995
LOWEST DAILY MEAN	0.00 Jan 20	0.00 Oct 1	0.00 Oct 1 1978b
ANNUAL SEVEN-DAY MINIMUM	0.00 Jan 20	0.00 Oct 1	0.00 Oct 1 1978
MAXIMUM PEAK FLOW			1080 May 10 1995c
MAXIMUM PEAK STAGE			33.46 May 31 1996
ANNUAL RUNOFF (AC-FT)	24	0.00	4820
10 PERCENT EXCEEDS	0.15	0.00	10
50 PERCENT EXCEEDS	0.00	0.00	0.00
90 PERCENT EXCEEDS	0.00	0.00	0.00

a Also 1980, 1981, 1985-90, 1992.

b For most months in most years.

c Gage height, 33.09 ft.

THIS PAGE IS INTENTIONALLY BLANK

CHEYENNE RIVER BASIN

06423500 CHEYENNE RIVER NEAR WASTA, SD

LOCATION.--Lat 44°04'52", long 102°24'03", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.2, T.1 N., R.14 E., Pennington County, Hydrologic Unit 10120111, on left bank at downstream side of highway bridge, 200 ft downstream from railroad bridge, 3.0 mi east of Wasta, and 8.6 mi downstream from Boxelder Creek.

DRAINAGE AREA.--12,800 mi², approximately.

PERIOD OF RECORD.--July 1914 to June 1915, August 1928 to June 1932, March 1934 to current year. Monthly discharge only for some periods, published in WSP 1309. Records for Feb. 19-28, 1930, published in WSP 701, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 786: Drainage area. WSP 1279: 1930(M), 1931, 1937. See also Period of Record.

GAGE.--Water-stage recorder. Datum of gage is 2,260.78 ft above NGVD of 1929. Prior to Aug. 1, 1940, nonrecording gage at site 50 ft upstream; Aug. 1, 1940, to Dec. 3, 1940, nonrecording gage and Dec. 4, 1940, to Sept. 30, 1968, water-stage recorder at present site all at datum 2.00 ft higher. Oct. 1, 1968, to Sept. 30, 1972, at datum 1.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Angostura Dam 108 mi upstream since October 1949 and by upstream reservoirs in the Rapid Creek Basin. The most downstream of the reservoirs in the Rapid Creek Basin, Pactola Reservoir, was the last to fill, and reached maximum pool elevation in June 1963 (began filling in August 1956). Prior to Oct. 1, 1963, maximum discharge observed, 46,300 ft³/s, May 6, 1932, gage height, 13.28 ft, present datum, from rating curve extended above 11,000 ft³/s on basis of an incomplete discharge measurement, at gage height, 10.65 ft, present datum; maximum gage height observed, 14.5 ft, present datum, June 13, 1915; minimum daily discharge, 1.0 ft³/s, July 27, 1961. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1920 reached a stage of 18 ft, present datum, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	158	e165	e90	e145	e130	341	348	104	19	37	62
2	102	155	e170	e80	e150	e125	258	1270	96	13	34	60
3	99	154	e190	e85	e155	e125	221	407	93	11	27	54
4	103	156	e200	e90	e160	e120	239	269	86	12	27	56
5	118	153	e230	e95	e160	e120	272	216	94	12	40	60
6	163	153	e210	e100	e160	e117	288	190	100	12	379	61
7	139	158	e200	e110	e160	e115	243	177	101	19	346	61
8	124	152	e190	e130	e165	e110	236	173	98	17	170	74
9	126	152	e180	e140	e168	e105	244	170	93	35	113	1100
10	139	154	e175	e150	e170	e100	228	163	87	37	85	1510
11	162	158	e170	e160	e170	e100	205	254	88	54	74	287
12	164	159	e165	e180	e175	e105	207	749	82	41	64	172
13	148	161	e160	e200	e180	e130	232	365	70	30	66	956
14	147	160	e160	e225	e180	e175	196	250	53	39	59	636
15	144	160	e165	e220	e185	e170	182	211	48	37	61	234
16	145	162	e165	e205	e185	e160	177	195	63	27	62	160
17	148	163	e160	e190	e190	e160	169	188	66	28	57	131
18	152	163	e160	e180	e190	e155	163	188	60	24	52	130
19	157	158	e155	e150	e185	e155	166	188	48	26	45	422
20	168	156	e155	e140	e180	e150	167	180	41	22	49	316
21	160	163	e150	e140	e175	e140	178	169	41	33	50	179
22	158	166	e150	e145	e170	e120	181	168	94	64	49	145
23	152	163	e145	e150	e170	e100	196	196	66	146	53	139
24	152	163	e145	e150	e165	e100	175	186	55	96	63	134
25	150	163	e140	e155	e160	e100	166	175	44	77	83	129
26	149	e155	e135	e170	e150	e100	164	166	38	60	68	126
27	149	e150	e130	e190	e140	e105	191	155	32	51	71	128
28	151	e145	e120	e200	e130	e150	455	144	28	54	93	133
29	152	e150	e110	e180	---	e300	384	130	21	48	72	133
30	156	e160	e105	e160	---	e500	267	139	20	47	62	132
31	157	---	e100	e140	---	398	---	115	---	38	66	---
TOTAL	4440	4723	4955	4700	4673	4740	6791	7894	2010	1229	2577	7920
MEAN	143.2	157.4	159.8	151.6	166.9	152.9	226.4	254.6	67.00	39.65	83.13	264.0
MAX	168	166	230	225	190	500	455	1270	104	146	379	1510
MIN	99	145	100	80	130	100	163	115	20	11	27	54
AC-FT	8810	9370	9830	9320	9270	9400	13470	15660	3990	2440	5110	15710

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2002, BY WATER YEAR (WY) *

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
MEAN	196.0	192.4	136.1	126.5	233.7	430.1	543.5	819.4	974.8	355.3	204.3	158.7
MAX	1023	1602	551	683	2024	1247	3398	2555	5270	1528	1280	390
(WY)	1999	1999	1999	1997	1997	1994	2000	1997	1967	1969	1997	1997
MIN	58.6	81.4	38.4	5.04	25.1	90.8	68.4	65.8	36.9	34.9	25.4	49.0
(WY)	1991	1989	1991	1991	1991	1981	1981	1989	1989	1989	1989	1975

06423500 CHEYENNE RIVER NEAR WASTA, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1964 - 2002*	
ANNUAL TOTAL	100771		56652		364.1a	
ANNUAL MEAN	276.1		155.2		1143	
HIGHEST ANNUAL MEAN					81.0	
LOWEST ANNUAL MEAN					19200	
HIGHEST DAILY MEAN	6300	Mar 15	1510	Sep 10	Jun 16	1997
LOWEST DAILY MEAN	72	Aug 9	11	Jul 3	Dec 23	1989
ANNUAL SEVEN-DAY MINIMUM	88	Aug 5	14	Jul 2	Jan 21	1990
MAXIMUM PEAK FLOW			6770	Sep 9	May 25	1957b
MAXIMUM PEAK STAGE			6.54	Sep 9	Mar 5	1982c
ANNUAL RUNOFF (AC-FT')	199900		112400		263800	
10 PERCENT EXCEEDS	417		223		728	
50 PERCENT EXCEEDS	165		150		137	
90 PERCENT EXCEEDS	109		48		56	

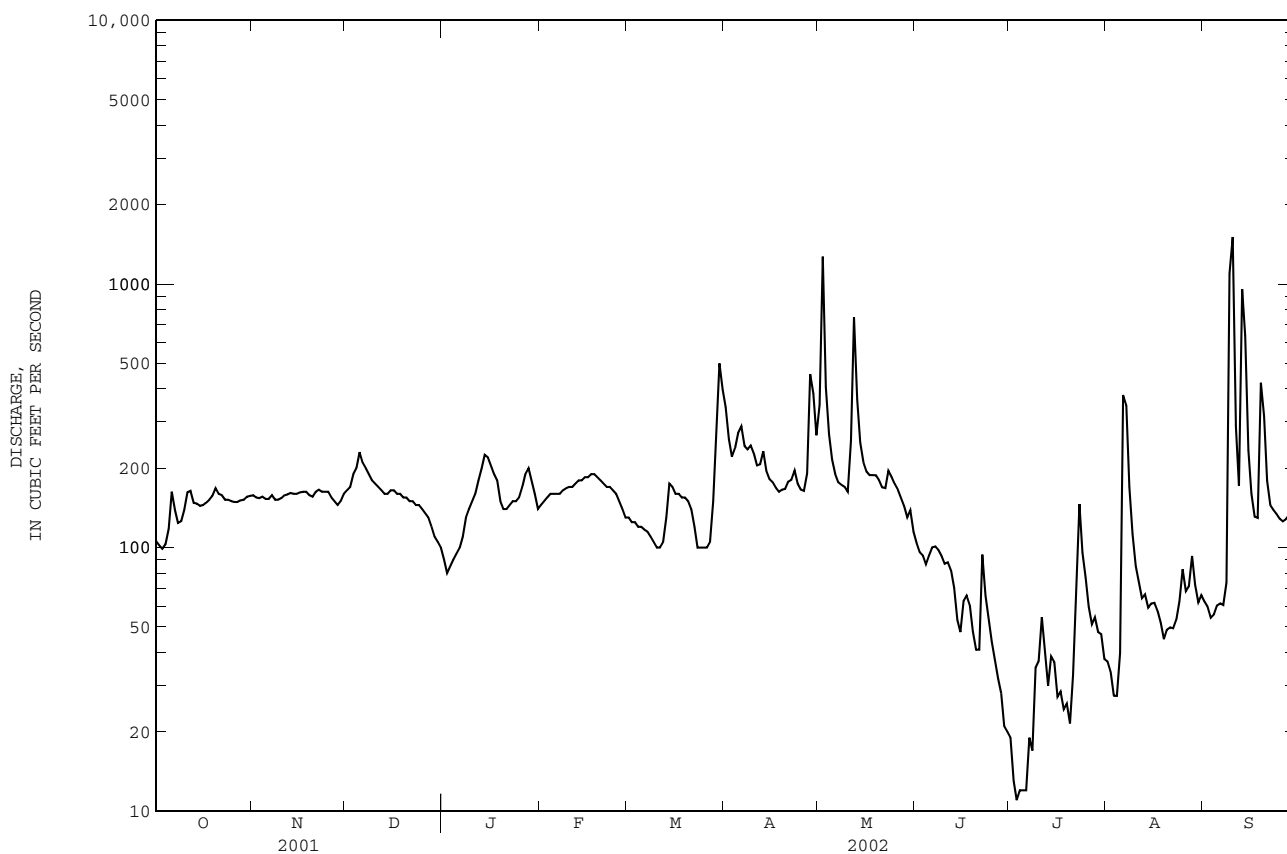
* Regulated period only (1964-2002). See REMARKS.

a Median of annual mean discharges, 300 ft³/s.

b Gage height, 12.82 ft.

c Backwater from ice.

e Estimated.



CHEYENNE RIVER BASIN

06424000 ELK CREEK NEAR ROUBAIX, SD

LOCATION.--Lat 44°17'41", long 103°35'47", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.23, T.4 N., R.4 E., Lawrence County, Hydrologic Unit 10120111, on right bank approximately 2.5 mi upstream from mouth of Meadow Creek, 3.0 mi east of Roubaix, and 9.0 mi southwest of Sturgis.

DRAINAGE AREA.--21.5 mi².

PERIOD OF RECORD.--July 1945 to July 1947, October 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,881 ft above NGVD of 1929, from topographic map. Prior to July 1947, nonrecording gage at site 0.5 mi upstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	2.4	e1.8	e1.2	1.8	e1.2	e3.0	7.2	3.6	1.0	0.94	1.2
2	1.7	2.2	e1.7	e1.2	1.9	e1.0	e2.7	9.7	3.9	1.1	1.1	1.3
3	1.8	2.2	e1.7	e1.3	1.9	e1.2	e2.5	12	5.2	1.0	1.1	1.0
4	2.3	2.0	e1.7	e1.3	1.8	e1.4	e4.0	8.7	3.7	1.1	1.6	1.1
5	2.4	2.0	e1.6	e1.2	1.8	e1.6	e20	7.0	2.8	1.4	2.0	1.3
6	2.3	1.9	e1.6	e1.2	2.0	e1.6	e50	6.5	2.4	1.4	1.9	1.2
7	2.3	2.0	e1.7	e1.3	2.2	e1.6	87	6.1	2.2	1.3	1.5	1.1
8	2.2	e1.9	e1.7	e1.3	2.4	e1.4	63	5.9	2.1	1.1	2.3	1.3
9	4.2	e2.1	e1.7	e1.3	2.4	e1.4	29	5.2	2.1	1.4	1.9	8.9
10	4.2	e2.2	e1.6	e1.5	e2.6	e1.5	34	4.6	2.1	1.0	1.5	3.3
11	2.6	e2.2	e1.6	e1.5	2.8	e1.7	28	7.5	1.8	1.0	1.3	1.6
12	2.9	e2.0	e1.6	e1.5	2.7	e1.9	23	10	2.2	1.0	1.4	1.7
13	3.1	e2.2	e1.7	e1.5	2.7	e1.9	23	14	2.4	0.91	1.4	5.3
14	3.0	e2.2	e1.7	e1.5	2.9	e1.9	21	10	2.3	0.85	1.2	2.4
15	2.5	2.4	e1.7	e1.4	2.8	e1.9	17	7.9	1.6	0.74	0.93	1.8
16	2.6	2.2	e1.7	e1.3	2.9	e1.9	13	8.7	2.0	0.76	0.96	1.5
17	2.6	e2.0	e1.7	e1.4	3.1	e2.0	10	8.9	2.0	0.78	0.85	1.4
18	3.2	2.0	e1.7	e1.4	3.2	e1.9	9.4	8.0	1.9	0.90	0.91	22
19	2.9	e2.1	e1.6	e1.5	3.1	e1.7	6.9	7.0	1.9	1.2	0.84	17
20	3.1	e2.2	e1.6	e1.7	3.0	e1.8	6.3	6.6	1.9	1.7	0.88	4.1
21	3.0	e2.2	e1.6	e1.7	2.9	e1.8	6.6	6.3	2.0	3.5	1.3	2.8
22	2.5	e2.2	1.7	e1.7	e2.6	e1.9	6.5	6.3	2.0	3.5	3.2	2.5
23	2.4	e2.0	e1.7	e1.5	e2.4	e1.9	6.1	5.9	1.9	1.8	1.5	2.3
24	2.5	2.0	e1.6	e1.6	e2.0	e1.8	5.8	5.8	1.7	1.7	2.0	2.2
25	e2.6	1.9	e1.5	e1.7	e2.0	e1.8	5.2	5.6	1.9	1.7	1.6	2.3
26	e2.7	2.1	1.5	e1.7	e2.0	e1.9	5.0	5.5	1.6	2.0	1.2	2.3
27	2.8	e1.8	1.4	e1.7	e1.8	e2.0	9.4	7.4	1.5	1.8	1.1	2.0
28	2.5	e1.5	1.2	e1.7	e1.5	e2.5	8.0	5.9	1.5	1.6	1.1	2.5
29	2.3	e1.7	1.4	e1.8	---	e3.0	6.9	4.9	1.2	1.2	1.1	2.1
30	2.3	e1.8	e1.3	e1.8	---	e3.0	6.4	4.4	1.0	1.1	1.1	1.9
31	2.3	---	e1.2	e1.8	---	e3.0	---	3.9	---	1.0	1.0	---
TOTAL	81.5	61.6	49.5	46.2	67.2	57.1	518.7	223.4	66.4	42.54	42.71	103.4
MEAN	2.63	2.05	1.60	1.49	2.40	1.84	17.3	7.21	2.21	1.37	1.38	3.45
MAX	4.2	2.4	1.8	1.8	3.2	3.0	87	14	5.2	3.5	3.2	22
MIN	1.7	1.5	1.2	1.2	1.5	1.0	2.5	3.9	1.0	0.74	0.84	1.0
AC-FT	162	122	98	92	133	113	1030	443	132	84	85	205

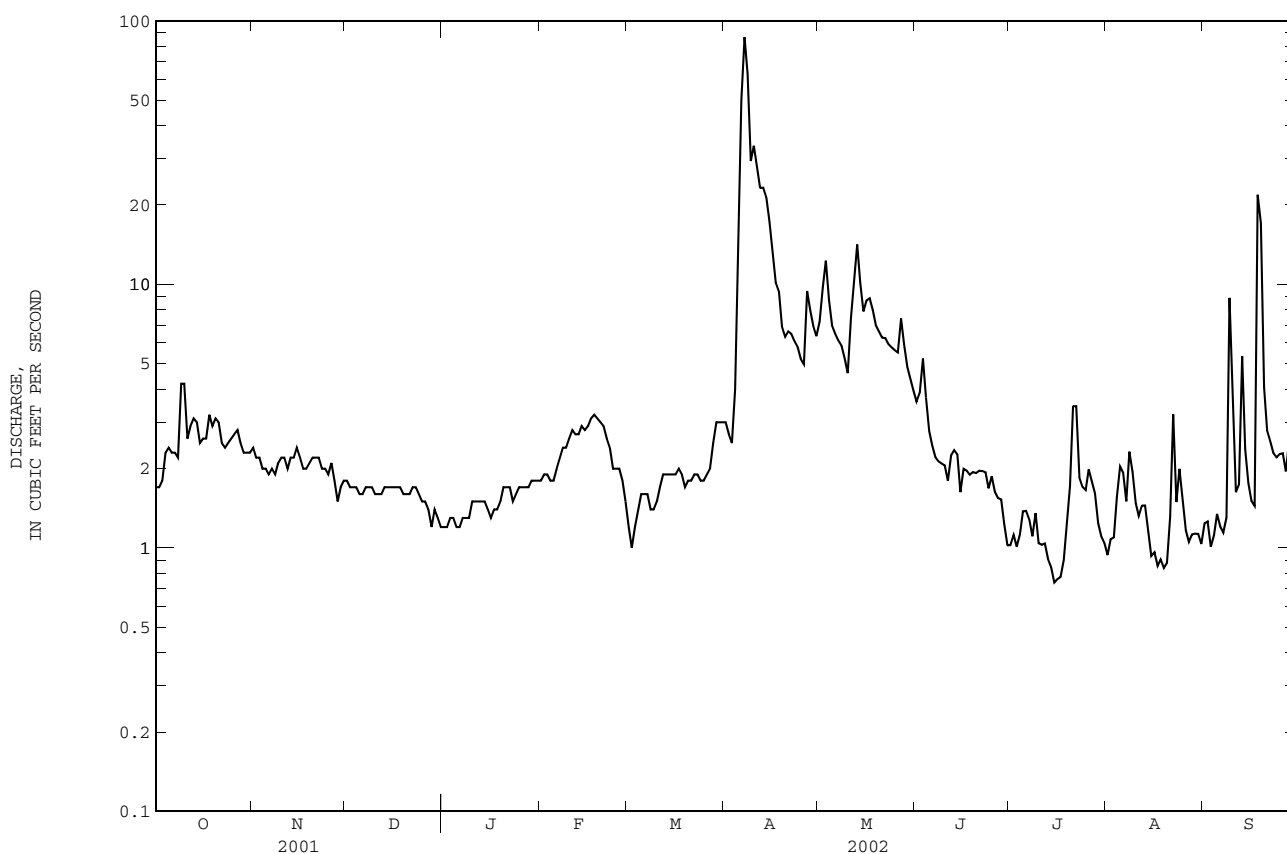
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2002, BY WATER YEAR (WY)

MEAN	7.41	5.50	4.04	3.71	4.12	11.2	28.9	34.3	24.3	9.26	7.14	4.53
MAX	37.3	21.3	11.0	7.46	7.47	28.2	78.1	113	53.9	18.7	22.5	9.86
(WY)	1999	1999	1999	1999	1999	1994	1997	1995	1995	1997	1998	1998
MIN	1.05	1.74	1.08	0.96	0.90	1.84	4.79	4.78	2.21	1.37	1.38	1.40
(WY)	1993	1993	1993	1993	1993	2002	1992	1992	2002	2002	2002	1992

06424000 ELK CREEK NEAR ROUBAIX, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1992 - 2002	
ANNUAL TOTAL	2007.1		1360.25		12.1	
ANNUAL MEAN	5.50		3.73		22.5	
HIGHEST ANNUAL MEAN					2.99	
LOWEST ANNUAL MEAN					500	
HIGHEST DAILY MEAN	29	Apr 7	87	Apr 7	May 8	1995
LOWEST DAILY MEAN	1.2	Dec 28	0.74	Jul 15	0.43	Feb 25 1993
ANNUAL SEVEN-DAY MINIMUM	1.4	Dec 25	0.85	Jul 12	0.69	Feb 21 1993
MAXIMUM PEAK FLOW			155	Apr 8	515	May 8 1995
MAXIMUM PEAK STAGE			8.00	Apr 8	12.32	May 8 1995
ANNUAL RUNOFF (AC-FT)	3980		2700		8730	
10 PERCENT EXCEEDS	14		6.7		30	
50 PERCENT EXCEEDS	3.3		1.9		5.2	
90 PERCENT EXCEEDS	1.8		1.2		1.8	

e Estimated.



06425100 ELK CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°14'25", long 103°09'03", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.9, T.3 N., R.8 E., Meade County, Hydrologic Unit 10120111, on section line near right upstream corner of county road bridge, 1.7 mi downstream from Morris Creek tributary, and 10 mi north of Exit 61 and I-90 northeast of Rapid City.

DRAINAGE AREA.--190 mi².

PERIOD OF RECORD.--November 1978 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,950 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some flow is pumped from stream for irrigation. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	4.7	e3.3	e2.7	e1.7	e4.3	e7.8	5.5	6.7	0.00	0.00	0.00
2	1.3	4.5	e3.5	e2.7	e1.8	e4.4	e7.3	5.5	7.0	0.00	0.00	0.00
3	0.93	4.4	e3.7	e2.8	e1.8	e4.7	e6.0	5.4	6.9	0.00	0.00	0.00
4	0.97	4.6	e3.8	e2.7	e1.9	e4.9	e6.0	5.0	6.7	0.00	0.00	0.00
5	1.4	4.7	e3.8	e2.7	e2.1	e5.0	e6.3	4.7	6.2	0.00	0.00	0.00
6	1.6	4.8	e3.7	e2.7	e2.3	e4.9	8.2	4.4	6.3	0.00	0.00	0.00
7	1.7	4.8	e3.6	e2.7	e2.8	e4.6	8.4	4.3	5.8	0.00	0.00	0.00
8	1.8	4.8	e3.6	e2.7	e3.2	e4.1	8.2	5.0	6.0	0.00	0.00	0.00
9	3.1	5.0	e3.7	e2.7	e3.8	e4.0	7.8	4.7	5.6	0.00	0.00	0.00
10	3.9	5.1	e3.7	e2.7	e4.8	e4.1	7.6	5.8	5.0	0.00	0.00	0.00
11	3.5	5.2	e3.7	e2.8	e5.3	e4.3	6.9	7.7	3.8	0.00	0.00	0.00
12	2.9	5.4	e3.6	e2.8	e5.7	e4.7	5.2	9.0	3.3	0.00	0.00	0.00
13	3.7	6.0	e3.6	e2.7	e5.4	e4.8	5.1	9.9	3.2	0.00	0.00	0.00
14	4.0	6.6	e3.6	e2.5	e5.5	e4.9	5.5	9.4	3.2	0.00	0.00	0.00
15	4.0	6.0	e3.5	e2.3	e5.6	e5.0	4.6	7.9	3.3	0.00	0.00	0.00
16	3.7	e6.0	e3.4	e2.1	e5.7	e5.0	6.0	6.7	2.0	0.00	0.00	0.00
17	3.4	e6.0	e3.4	e2.0	e6.0	e5.0	5.1	7.6	2.1	0.00	0.00	0.00
18	4.1	e5.6	e3.3	e2.0	e6.1	e5.0	4.5	7.8	1.3	0.00	0.00	0.00
19	3.9	e5.0	e3.3	e2.0	e6.1	e5.0	4.2	7.8	1.1	0.00	0.00	0.00
20	4.0	e4.9	e3.3	e2.1	e6.2	e4.9	4.4	8.0	1.0	0.00	0.00	0.00
21	3.9	e4.8	e3.2	e2.1	e6.2	e4.8	4.7	7.4	0.59	0.00	0.00	0.00
22	4.1	e4.9	e3.1	e2.2	e6.6	e5.1	4.9	8.0	0.21	0.00	0.00	0.00
23	4.1	e4.9	e3.1	e2.2	e6.2	e5.2	4.8	7.4	0.21	0.00	0.00	0.00
24	4.2	e4.6	e3.1	e2.2	e5.0	e5.2	5.0	7.2	0.20	0.00	0.00	0.00
25	3.9	e4.1	e3.1	e2.2	e4.5	e5.1	5.0	7.2	0.14	0.00	0.00	0.00
26	3.9	e3.6	e3.1	e2.2	e4.3	e5.6	5.3	8.1	0.10	0.00	0.00	0.00
27	4.0	e3.1	e3.2	e2.0	e4.3	e5.9	6.0	8.7	0.06	0.00	0.00	0.00
28	4.3	e3.1	e2.8	e1.8	e4.3	e6.3	6.2	9.0	0.06	0.00	0.00	0.00
29	4.3	e3.1	e2.7	e1.7	---	e6.2	5.6	8.6	0.03	0.00	0.00	0.00
30	4.3	e3.1	e2.7	e1.7	---	e8.0	5.0	7.8	0.00	0.00	0.00	0.00
31	4.5	---	e2.6	e1.7	---	e7.5	---	7.3	---	0.00	0.00	---
TOTAL	100.60	143.4	103.8	72.4	125.2	158.5	177.6	218.8	88.10	0.00	0.00	0.00
MEAN	3.25	4.78	3.35	2.34	4.47	5.11	5.92	7.06	2.94	0.000	0.000	0.000
MAX	4.5	6.6	3.8	2.8	6.6	8.0	8.4	9.9	7.0	0.00	0.00	0.00
MIN	0.93	3.1	2.6	1.7	1.7	4.0	4.2	4.3	0.00	0.00	0.00	0.00
AC-FT	200	284	206	144	248	314	352	434	175	0.00	0.00	0.00

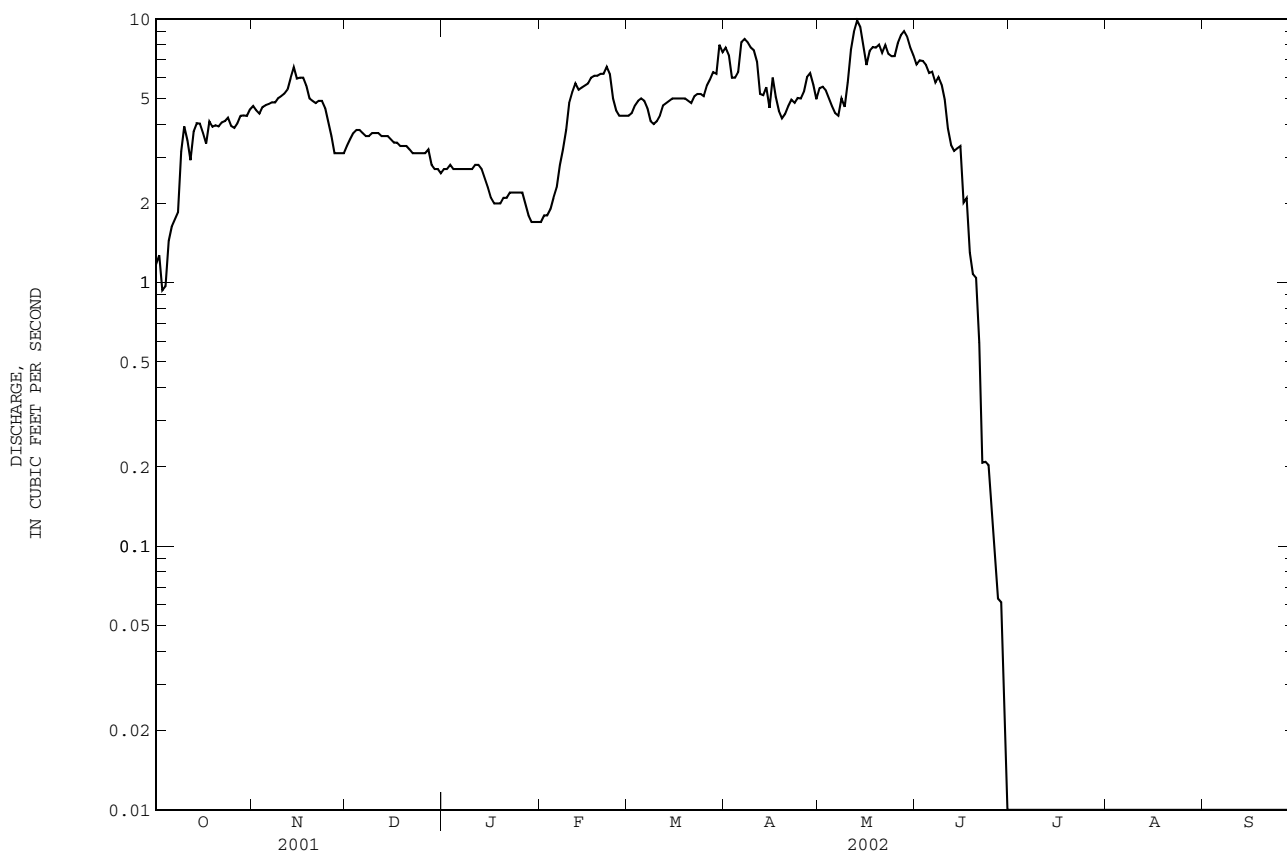
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2002, BY WATER YEAR (WY)

	1980	1981	1981	1981	1981	1981	1981	1981	1981	1988	1980	1980
MEAN	9.58	7.17	4.63	9.71	14.0	11.2	19.4	53.4	33.6	10.3	6.67	4.30
MAX	79.6	58.7	28.0	121	149	43.2	125	299	175	43.4	40.5	20.2
(WY)	1999	1999	1999	1997	1997	1996	1997	1995	1996	1997	1997	1999
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1980	1981	1981	1981	1981	1981	1981	1981	1981	1988	1980	1980

06425100 ELK CREEK NEAR RAPID CITY, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR			FOR 2002 WATER YEAR			WATER YEARS 1980 - 2002		
ANNUAL TOTAL	2630.24			1188.40			15.3		
ANNUAL MEAN	7.21			3.26			77.1		
HIGHEST ANNUAL MEAN							1997		
LOWEST ANNUAL MEAN							0.000		
HIGHEST DAILY MEAN	46	Mar	5	9.9	May	13	2360	May	9 1995
LOWEST DAILY MEAN	0.34	Sep	8	0.00	Jun	30	0.00	Oct	1 1979a
ANNUAL SEVEN-DAY MINIMUM	0.59	Sep	3	0.00	Jun	30	0.00	Oct	1 1979
MAXIMUM PEAK FLOW				16	Apr	2	3120	May	27 1996
MAXIMUM PEAK STAGE				6.99	Apr	2b	12.77	May	27 1996
ANNUAL RUNOFF (AC-FT')	5220			2360			11110		
10 PERCENT EXCEEDS	13			6.6			28		
50 PERCENT EXCEEDS	5.6			3.5			1.9		
90 PERCENT EXCEEDS	1.8			0.00			0.00		

a No flow for many days in most years.
b Backwater from ice and beaver dam.
e Estimated.



06425500 ELK CREEK NEAR ELM SPRINGS, SD

LOCATION.--Lat 44°14'54", long 102°30'10", in SW¹/₄ NW¹/₄ sec.1, T.3 N., R.13 E., Meade County, Hydrologic Unit 10120111, on left bank near downstream end of county highway bridge, 1.4 mi downstream from Hay Draw, 5.0 mi southeast of Elm Springs, and 7.0 mi upstream from mouth.

DRAINAGE AREA.--540 mi², approximately.

PERIOD OF RECORD.--July 1949 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,304.49 ft above NGVD of 1929. Prior to Nov. 2, 1976, nonrecording gage, and prior to Feb. 1, 1967, at site 350 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 17 ft, at former site, in May 1920, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.11	e0.08	e0.00	e0.61	e1.9	e9.0	14	4.2	0.00	0.00	0.00
2	0.00	0.11	e0.08	e0.00	e0.90	e2.1	e9.0	14	4.1	0.00	0.00	0.00
3	0.00	0.11	e0.08	e0.00	e1.5	e2.7	e9.0	14	4.6	0.00	0.00	0.00
4	0.00	0.11	e0.08	e0.00	e1.6	e3.0	e8.7	12	5.2	0.00	0.00	0.00
5	0.00	0.11	e0.08	e0.00	e1.8	e3.1	e9.8	11	5.2	0.00	0.00	0.00
6	0.00	0.10	e0.08	e0.00	e1.9	e3.3	9.3	9.9	5.6	0.00	0.00	0.00
7	0.00	0.10	e0.07	e0.00	e2.1	e3.3	9.7	9.4	5.8	0.00	0.00	0.00
8	0.00	0.09	e0.07	e0.00	e2.2	e3.1	11	9.6	5.8	0.00	0.00	0.00
9	0.00	0.10	e0.07	e0.00	e2.2	e3.2	11	8.9	6.9	0.00	0.00	0.00
10	0.00	0.10	e0.07	e0.00	e2.3	e3.5	10	9.7	6.1	0.00	0.00	0.00
11	0.00	0.11	e0.06	e0.00	e2.4	e3.8	9.5	11	6.1	0.00	0.00	0.00
12	0.00	0.11	e0.06	e0.00	e2.4	e4.2	8.4	11	5.6	0.00	0.00	0.00
13	0.00	0.11	e0.05	e0.00	e2.3	e4.7	7.8	15	4.7	0.00	0.00	0.00
14	0.00	0.11	e0.05	e0.00	e2.2	e4.6	7.3	12	3.5	0.00	0.00	0.00
15	0.00	0.12	e0.05	e0.00	e2.1	e4.2	7.0	10	2.2	0.00	0.00	0.00
16	0.00	0.12	e0.05	e0.00	e2.0	e3.8	7.0	9.8	0.84	0.00	0.00	0.00
17	0.00	0.12	e0.05	e0.00	e1.8	e3.3	6.3	10	0.30	0.00	0.00	0.00
18	0.11	0.13	e0.04	e0.00	e1.7	e3.3	6.1	9.5	0.06	0.00	0.00	0.00
19	0.14	0.12	e0.04	e0.00	e1.5	e3.2	5.7	8.4	0.00	0.00	0.00	0.00
20	0.12	0.12	e0.03	e0.00	e1.4	e3.2	5.8	7.4	0.00	0.00	0.00	0.00
21	0.12	0.11	e0.02	e0.10	e1.3	e3.2	6.3	6.6	0.00	0.00	0.00	0.00
22	0.11	0.10	e0.02	e0.12	e1.2	e3.2	6.3	6.2	0.00	0.00	0.00	0.00
23	0.11	e0.10	e0.00	e0.18	e1.2	e3.1	5.8	5.8	0.00	0.00	0.00	0.00
24	0.11	e0.08	e0.00	e0.21	e1.3	e3.1	6.0	5.1	0.00	0.00	0.00	0.00
25	0.08	e0.07	e0.00	e0.30	e1.5	e3.0	5.5	5.6	0.00	0.00	0.00	0.00
26	0.07	e0.06	e0.00	e0.47	e1.5	e2.9	5.5	5.5	0.00	0.00	0.00	0.00
27	0.10	e0.06	e0.00	e0.50	e1.5	e3.9	10	5.8	0.00	0.00	0.00	0.00
28	0.11	e0.06	e0.00	e0.50	e1.6	e5.4	16	5.9	0.00	0.00	0.00	0.00
29	0.11	e0.07	e0.00	e0.50	---	e7.0	16	5.2	0.00	0.00	0.00	0.00
30	0.11	e0.08	e0.00	e0.50	---	e8.0	14	4.5	0.00	0.00	0.00	0.00
31	0.11	---	e0.00	e0.50	---	e9.0	---	4.3	---	0.00	0.00	---
TOTAL	1.51	3.00	1.28	3.88	48.01	119.3	258.8	277.1	76.80	0.00	0.00	0.00
MEAN	0.049	0.10	0.041	0.13	1.71	3.85	8.63	8.94	2.56	0.000	0.000	0.000
MAX	0.14	0.13	0.08	0.50	2.4	9.0	16	15	6.9	0.00	0.00	0.00
MIN	0.00	0.06	0.00	0.00	0.61	1.9	5.5	4.3	0.00	0.00	0.00	0.00
AC-FT	3.0	6.0	2.5	7.7	95	237	513	550	152	0.00	0.00	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2002, BY WATER YEAR (WY)

	MEAN	10.1	4.81	2.65	4.36	17.0	42.5	61.2	101	69.1	12.8	4.36	2.09
MAX	295	87.2	23.7	103	334	327	493	519	708	88.8	40.4	26.8	
(WY)	1999	1999	1999	1997	1997	1978	2000	1995	1967	1996	1997	1951	
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1950	1950	1950	1950	1950	1957	1959	1955	1955	1950	1952	1950	

06425500 ELK CREEK NEAR ELM SPRINGS, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR			FOR 2002 WATER YEAR			WATER YEARS 1950 - 2002		
ANNUAL TOTAL	6271.13			789.68			27.7		
ANNUAL MEAN	17.2			2.16			135		
HIGHEST ANNUAL MEAN							1997		
LOWEST ANNUAL MEAN							0.000		
HIGHEST DAILY MEAN	900	Mar	7	16	Apr	28	5010	May	28 1996
LOWEST DAILY MEAN	0.00	Aug	9	0.00	Oct	1	0.00	Oct	1 1949a
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug	19	0.00	Oct	1	0.00	Oct	1 1949
MAXIMUM PEAK FLOW				19	Apr	29b	8540	Mar	29 1952c
MAXIMUM PEAK STAGE				7.21	Feb	7d	16.22	Feb	18 1997f
ANNUAL RUNOFF (AC-FT)	12440			1570			20080		
10 PERCENT EXCEEDS	27			8.2			39		
50 PERCENT EXCEEDS	0.81			0.09			0.05		
90 PERCENT EXCEEDS	0.00			0.00			0.00		

a No flow for long periods in most years.

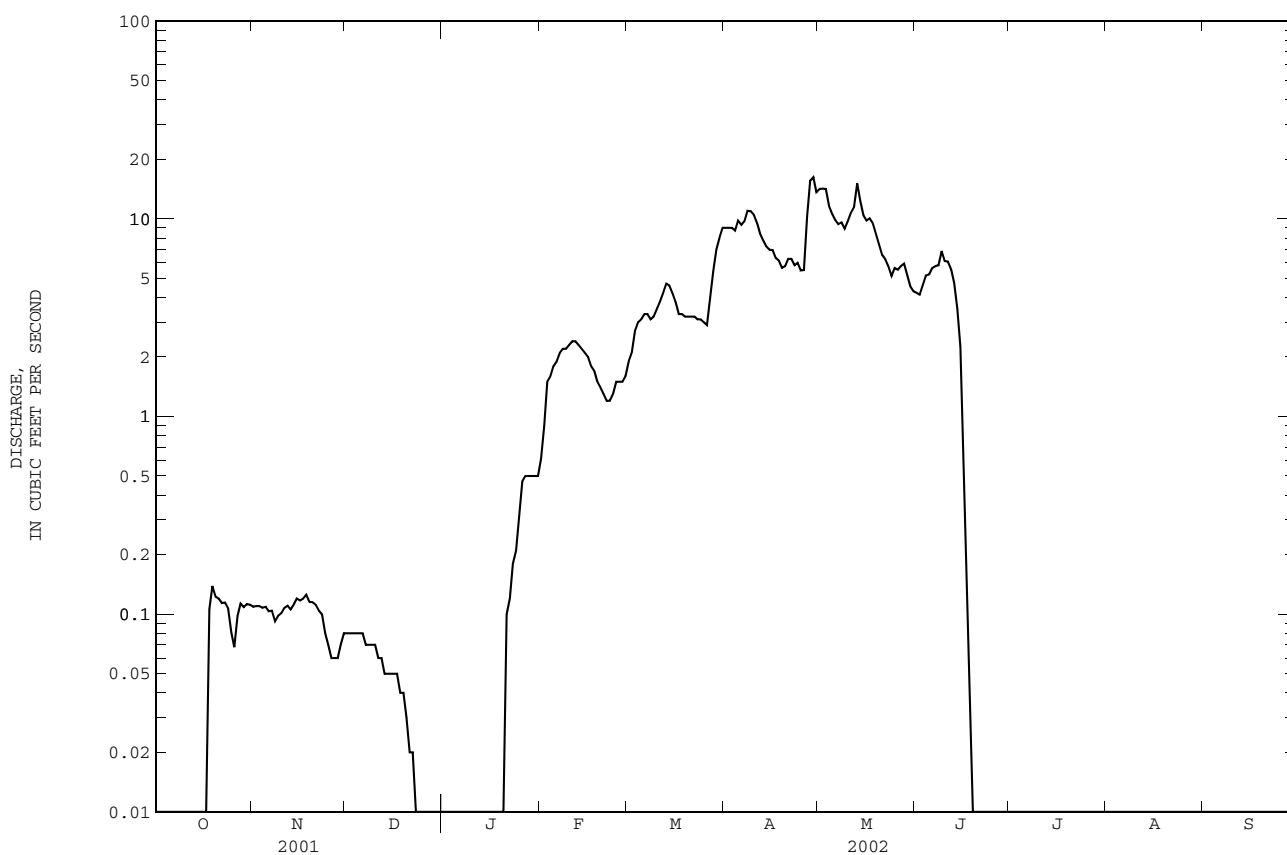
b Gage height, 5.54 ft.

c Gage height, 10.61 ft, from floodmarks, site and datum then in use, from rating curve extended above 5,100 ft³/s.

d Backwater from ice.

e Estimated.

f Backwater from ice; from floodmark.



BELLE FOURCHE RIVER BASIN

06427000 KEYHOLE RESERVOIR NEAR MOORCROFT, WY

LOCATION.--Lat 44°22'55", long 104°46'45", in NW¹/₄ NW¹/₄ sec.27, T.51 N., R.66 W., Crook County, Hydrologic Unit 10120201, at reservoir dam on Belle Fourche River, 12 mi northeast of Moorcroft.

DRAINAGE AREA.--2,000 mi², approximately.

PERIOD OF RECORD.--March 1952 to current year (monthend contents only).

GAGE.--Water-stage recorder. Elevations listed to NGVD of 1929 (Bureau of Reclamation datum). Prior to May 15, 1958, and Oct. 1, 1968, to Mar. 13, 1970, nonrecording gages, and May 15, 1958, to Sept. 30, 1968, water-stage recorder, all at present site and datum.

REMARKS.--Reservoir is formed by a zoned earth-fill dam completed by the Bureau of Reclamation Oct. 25, 1952. Storage began Feb. 12, 1952. Inactive storage, between elevations 4,036.0 ft and 4,051.0 ft, 7,230 acre-ft. Total active conservation pool below elevation 4,099.3 ft (crest of spillway), 185,800 acre-ft. Dead storage below elevation 4,036.0 ft, 726 acre-ft. Figures given herein represent inactive and active contents above elevation 4,036.0 ft. The reservoir provides flood control and water for irrigation in Wyoming and near Belle Fourche, SD.

COOPERATION.--Records of elevation and contents provided by the Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 200,744 acre-ft, May 21, 1978, elevation, 4,100.38 ft; minimum daily contents (since appreciable storage was attained), 6,030 acre-ft, Mar. 8, 9, 1955, elevation, 4,046.35 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 157,100 acre-ft, May 5, elevation, 4,095.18 ft; minimum, 116,300 acre-ft, Sept. 30, elevation, 4,089.39 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	4,095.12	156,600	--
Oct. 31	4,094.92	155,000	-1,600
Nov. 30	4,094.83	154,300	-700
Dec. 31	4,094.77	153,800	-500
CAL YR 2001.	--	--	+4,200
Jan. 31	4,094.75	153,700	-100
Feb. 28	4,094.79	154,000	+300
Mar. 31	4,094.94	155,200	+1,200
Apr. 30	4,095.15	156,900	+1,700
May 31	4,095.05	156,000	-900
June 30	4,093.74	145,900	-10,100
July 31	4,091.32	128,600	-17,300
Aug. 31	4,090.19	121,200	-7,400
Sept. 30	4,089.39	116,300	-4,900
WTR YR 2002.	--	--	-40,300

THIS PAGE IS INTENTIONALLY BLANK

BELLE FOURCHE RIVER BASIN

06428500 BELLE FOURCHE RIVER AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°44'59", long 104°02'49", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.18, T.9 N., R.1 E., Butte County, Hydrologic Unit 10120202, on left bank 0.3 mi downstream from State line, 3.7 mi downstream from Oak Creek, and 11 mi northwest of Belle Fourche, SD.

DRAINAGE AREA.--3,280 mi², approximately.

PERIOD OF RECORD.--December 1946 to current year. Records for water year 1947 incomplete, yearly estimate published in WSP 1729.

GAGE.--Water-stage recorder. Datum of gage is 3,095.7 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diversions upstream from station for irrigation of about 5,400 acres. Flow regulated by Keyhole Dam, usable capacity, 191,600 acre-ft, 143 mi upstream since Oct. 25, 1952. Maximum discharge prior to regulation, 3,620 ft³/s, June 23, 1947, gage height, 12.51 ft; maximum gage height, 14.33 ft, Mar. 22, 1949, backwater from ice; no flow at times some years. Bureau of Reclamation satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	18	e13	e5.0	e9.0	e10	55	40	20	125	176	98
2	10	18	e14	e5.0	e10	e10	41	37	19	125	148	98
3	10	18	e15	e6.0	e11	e11	42	38	20	130	132	97
4	9.8	18	e15	e11	e11	e11	41	39	19	138	141	97
5	10	18	e15	e11	e11	e10	50	37	14	142	145	99
6	11	18	e15	e12	e12	e10	54	36	56	140	149	99
7	12	17	e14	e12	e12	e10	61	36	103	144	150	97
8	12	17	e14	e13	e12	e10	57	34	105	149	212	100
9	14	18	e14	e12	e12	e10	60	33	110	144	362	139
10	15	17	e14	e12	e13	e11	64	32	115	145	203	137
11	14	18	e13	e12	e13	e11	64	33	122	154	176	126
12	14	18	e13	e11	e13	e12	67	32	123	153	168	118
13	14	18	e13	e11	e13	e12	67	30	117	164	162	117
14	14	18	e13	e10	e13	e12	63	29	120	175	154	121
15	14	18	e13	e9.5	e14	e12	58	28	128	178	138	108
16	16	18	e13	e9.0	e14	e11	54	26	126	179	119	99
17	17	19	e13	e8.0	e15	e11	51	25	126	177	110	100
18	18	19	e13	e7.5	e15	e11	48	25	123	178	108	100
19	17	14	e13	e9.0	e16	e11	45	23	120	179	108	152
20	17	17	e13	e11	e16	e11	43	21	115	192	105	e97
21	17	22	e12	e11	e16	e13	42	20	122	191	102	e84
22	17	25	e12	e11	e18	e16	40	19	130	194	124	e58
23	17	20	e12	e11	e17	e18	38	19	135	196	103	e45
24	17	20	e12	e12	e12	e20	35	19	133	198	123	40
25	17	20	e12	e12	e9.5	e24	34	20	120	186	116	40
26	18	16	e12	e12	e9.5	e28	32	21	123	184	110	38
27	18	e11	e11	e11	e10	e32	32	23	122	193	109	36
28	18	e9.0	e10	e8.0	e10	e38	32	25	109	197	107	33
29	18	e10	e9.0	e6.0	---	e44	31	21	116	187	111	30
30	18	e11	e7.0	e7.0	---	e50	31	20	123	184	104	28
31	18	---	e6.0	e8.5	---	59	---	21	---	173	99	---
TOTAL	461.8	518.0	388.0	306.5	357.0	559	1432	862	3034	5194	4374	2631
MEAN	14.90	17.27	12.52	9.887	12.75	18.03	47.73	27.81	101.1	167.5	141.1	87.70
MAX	18	25	15	13	18	59	67	40	135	198	362	152
MIN	9.8	9.0	6.0	5.0	9.0	10	31	19	14	125	99	28
AC-FT	916	1030	770	608	708	1110	2840	1710	6020	10300	8680	5220

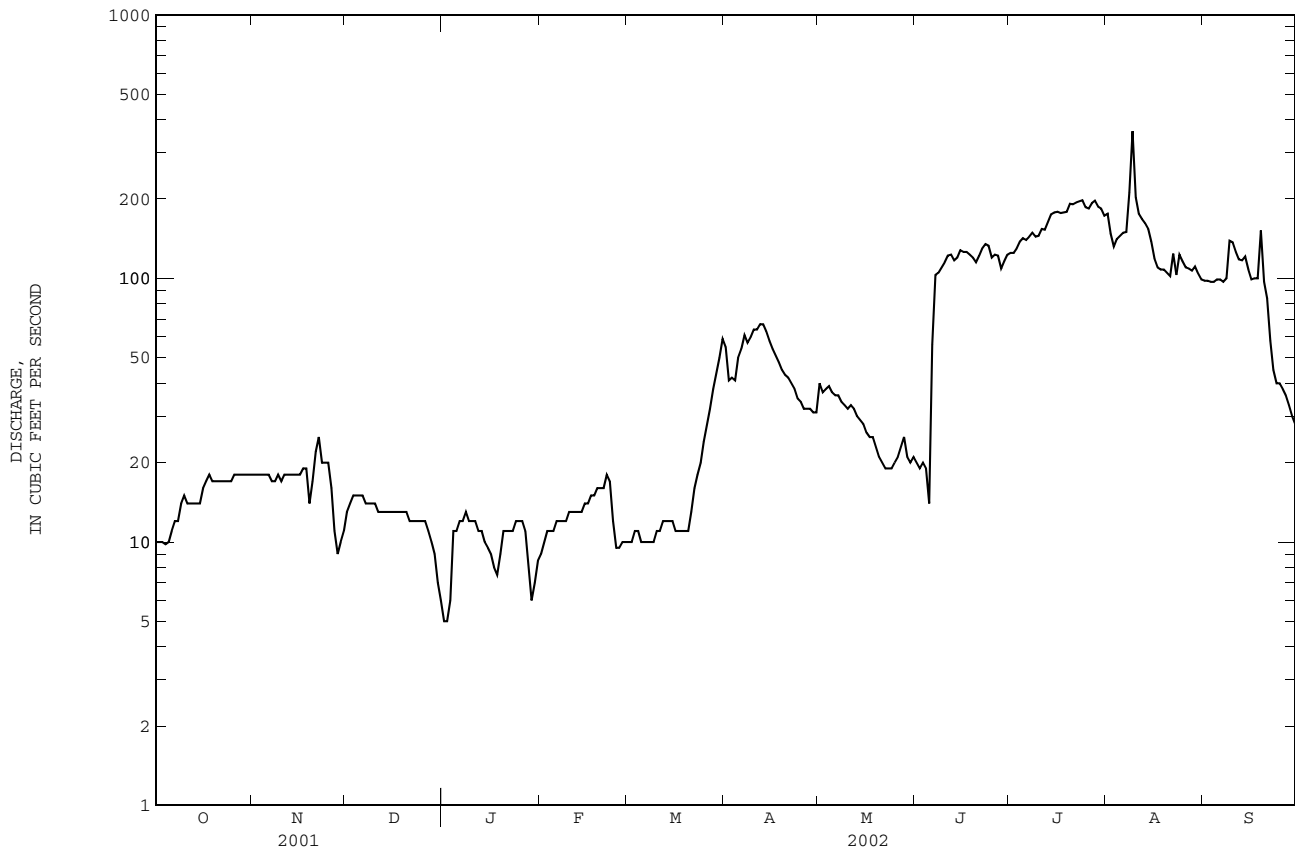
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2002, BY WATER YEAR (WY) *

	MEAN	28.72	27.97	17.78	21.10	44.18	155.2	164.0	218.5	184.1	96.29	72.62	34.03
MAX	134	277	51.5	247	459	931	823	1104	812	303	271	109	
(WY)	1999	1999	1999	1997	1996	1972	1971	1978	1984	1981	1980	1955	
MIN	0.000	0.000	0.000	0.000	0.20	15.7	15.1	3.10	11.9	2.94	0.10	0.000	
(WY)	1955	1961	1961	1961	1959	1981	1992	1961	1961	1960	1961	1954	

06428500 BELLE FOURCHE RIVER AT WYOMING-SOUTH DAKOTA STATE LINE--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1954 - 2002*	
ANNUAL TOTAL	26202.5		20117.3		88.89	
ANNUAL MEAN	71.79		55.12		229	
HIGHEST ANNUAL MEAN					7.69	
LOWEST ANNUAL MEAN					4760	
HIGHEST DAILY MEAN	646	Apr 7	362	Aug 9	May 9	1995
LOWEST DAILY MEAN	6.0	Dec 31	5.0	Jan 1, 2	0.00	Jul 30 1954a
ANNUAL SEVEN-DAY MINIMUM	9.6	Dec 25	6.9	Dec 28	0.00	Jul 30 1954
MAXIMUM PEAK FLOW			708	Aug 9	6320	May 10 1995b
MAXIMUM PEAK STAGE			7.72	Aug 9	16.33	May 10 1995
ANNUAL RUNOFF (AC-FT)	51970		39900		64390	
10 PERCENT EXCEEDS	172		144		196	
50 PERCENT EXCEEDS	21		20		37	
90 PERCENT EXCEEDS	12		10		5.0	

* Regulated period only (1954-2002). See REMARKS.
a No flow at times in some years.
b Based on slope-area measurement of peak flow.
e Estimated.



LOCATION.--Lat 44°09'15", long 104°04'37", in NW¹/₄ NW¹/₄ SW¹/₄ sec.9, T.48 N., R.60 W., Weston County, Hydrologic Unit 10120303, on right bank at downstream end of culvert at U.S. Highway 85 and 0.5 mi northeast of Buckhorn.

DRAINAGE AREA.--19.0 mi².

PERIOD OF RECORD.--October 1974 to September 1982, April 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 6,050 ft above NGVD of 1929, from topographic map. October 1974 to September 1982, 200 ft upstream at different datum. U.S. Geological Survey data collection platform with satellite telemetry at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. No diversion upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	5.3	e5.0	e4.6	e4.8	4.4	4.3	5.1	4.5	4.3	4.3	3.4
2	5.6	5.3	e5.0	e4.9	e4.8	4.5	3.9	4.9	4.5	4.3	4.4	3.4
3	5.5	5.3	e5.0	e4.9	e4.8	4.7	3.9	4.8	4.6	4.3	4.4	3.4
4	5.6	5.3	e5.2	e5.2	e4.8	4.7	4.3	4.8	4.4	4.3	4.5	3.4
5	5.5	5.3	e5.0	e5.0	e4.8	4.7	4.5	4.7	4.4	4.3	4.5	3.4
6	5.5	5.3	e5.0	e4.9	e4.9	4.6	e5.0	4.7	4.3	4.3	4.5	3.4
7	5.4	5.4	e5.0	e4.9	e4.9	4.6	e5.5	4.7	4.5	4.3	4.3	3.5
8	5.3	5.4	e5.0	e4.9	e5.1	4.5	e5.5	4.7	4.6	4.3	4.4	3.6
9	5.4	5.3	e5.2	e5.0	e4.9	4.0	e6.0	4.7	4.6	4.3	4.4	e4.2
10	5.4	5.4	e5.0	e4.9	e4.8	4.7	e6.3	4.7	4.6	4.2	4.3	e3.7
11	5.4	5.3	e5.0	e4.9	e4.9	4.7	e6.5	5.0	4.7	4.3	4.4	e3.4
12	5.5	5.2	e4.8	e4.9	e4.9	4.7	e6.3	4.9	4.7	4.2	4.5	e3.4
13	5.5	5.2	e5.0	e4.9	e4.9	4.7	e6.1	4.9	4.7	4.2	4.4	e3.9
14	5.5	5.2	e5.0	e4.8	4.8	4.6	e6.0	4.8	4.5	4.4	4.4	e3.4
15	5.5	5.1	e5.0	e4.8	4.8	4.5	e6.0	4.9	4.5	4.4	4.4	e3.2
16	5.4	5.1	e5.0	e4.6	4.8	4.5	5.8	5.0	4.5	4.4	4.4	e3.3
17	5.5	5.1	e5.0	e4.7	4.7	4.7	5.6	5.0	4.5	4.4	4.3	e3.1
18	5.5	e5.0	e5.0	e4.7	4.7	4.6	5.5	4.9	4.4	4.4	4.3	e4.8
19	5.5	e4.7	e5.0	e4.8	4.7	4.6	5.4	4.9	4.4	4.5	4.3	e4.0
20	5.5	e4.8	e5.0	e4.8	4.7	4.6	5.4	4.9	4.5	4.5	4.3	e3.9
21	5.5	e5.2	e4.9	e4.9	4.7	4.5	5.3	4.8	4.5	4.9	4.5	3.8
22	5.5	e5.2	e4.9	e4.9	4.7	4.6	5.2	5.0	4.4	4.5	4.0	3.7
23	5.5	e5.1	e4.9	e4.9	4.7	4.6	5.1	4.8	4.3	4.5	3.9	3.7
24	5.5	e5.1	e4.9	e4.6	4.7	4.6	5.1	4.8	4.3	4.5	3.7	3.8
25	5.3	e5.0	e4.9	e4.8	3.6	4.6	5.1	4.7	4.3	4.4	3.6	4.0
26	5.3	e5.0	e4.9	e4.9	e6.0	4.5	5.1	4.7	4.2	4.4	3.6	3.9
27	5.3	e5.0	e5.0	e5.2	5.2	4.4	5.2	4.7	4.4	4.4	3.6	4.0
28	5.3	e4.5	e4.9	e4.9	4.8	4.3	5.1	4.6	4.3	4.4	3.5	4.0
29	5.3	e5.0	e4.9	e4.7	---	4.3	4.9	4.6	4.3	4.4	3.5	4.0
30	5.3	e5.0	e4.8	e4.7	---	4.3	5.0	4.5	4.3	4.2	3.4	3.9
31	5.4	---	e4.6	e4.8	---	4.3	---	4.5	---	4.2	3.4	---
TOTAL	168.8	154.1	153.8	150.4	134.9	140.6	158.9	148.7	133.7	135.4	128.4	110.6
MEAN	5.445	5.137	4.961	4.852	4.818	4.535	5.297	4.797	4.457	4.368	4.142	3.687
MAX	5.6	5.4	5.2	5.2	6.0	4.7	6.5	5.1	4.7	4.9	4.5	4.8
MIN	5.3	4.5	4.6	4.6	3.6	4.0	3.9	4.5	4.2	4.2	3.4	3.1
AC-FT	335	306	305	298	268	279	315	295	265	269	255	219

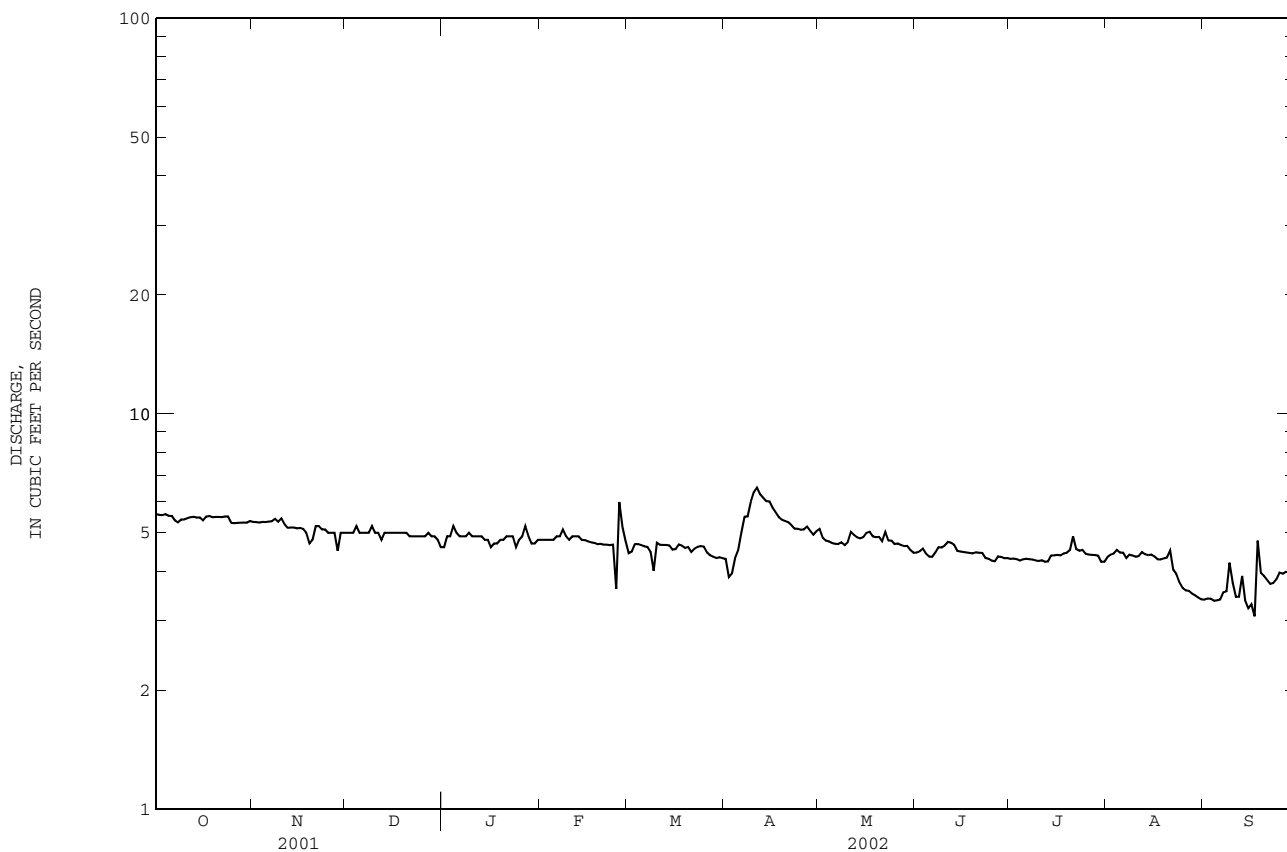
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2002, BY WATER YEAR (WY)

MEAN	4.607	4.399	4.274	4.231	4.412	4.762	5.093	4.878	4.927	4.764	4.819	4.752
MAX	7.00	7.15	7.04	7.01	6.75	8.03	7.43	7.29	7.77	7.58	7.28	7.14
(WY)	2000	2000	2000	2000	2000	1999	1999	1999	1999	1999	1999	1999
MIN	2.53	2.09	2.06	2.50	2.61	2.91	3.07	3.10	3.19	2.62	2.71	2.92
(WY)	1975	1993	1993	1994	1993	1993	1993	1993	1994	1995	1995	1994

06429500 COLD SPRINGS CREEK AT BUCKHORN, WY--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1975 - 2002
ANNUAL TOTAL	2006.9	1718.3	--
ANNUAL MEAN	5.498	4.708	4.686
HIGHEST ANNUAL MEAN	--	--	7.06 1999
LOWEST ANNUAL MEAN	--	--	2.92 1993
HIGHEST DAILY MEAN	6.8 Apr 6	6.5 Apr 11	22 Mar 26 1999
LOWEST DAILY MEAN	3.7 Jan 1	3.1 Sep 17	0.30 Dec 20 1996
ANNUAL SEVEN-DAY MINIMUM	3.9 Jan 6	3.4 Sep 11	0.75 Dec 18 1996
MAXIMUM PEAK FLOW	--	7.4 Mar 3a	42 Mar 26 1999b
MAXIMUM PEAK STAGE	--	3.87 Apr 10c	8.61 Jan 12 1978d
ANNUAL RUNOFF (AC-FT)	3980	3410	3390
10 PERCENT EXCEEDS	6.0	5.4	6.6
50 PERCENT EXCEEDS	5.7	4.7	4.6
90 PERCENT EXCEEDS	4.8	4.0	3.0

- a Gage height, 2.37 ft, may have been higher during periods of estimated daily discharges.
b Gage height, 3.33 ft.
c Backwater from ice.
d Backwater from ice, site and datum then in use.
e Estimated.



06429905 SAND CREEK NEAR RANCH A, NEAR BEULAH, WY

LOCATION.--Lat 44°31'07", long 104°04'57", in SE¹/₄ SE¹/₄ SW¹/₄ sec.5, T.52 N., R.60 W., Crook County, Hydrologic Unit 10120303, on right bank 1.0 mi upstream from Bear Gulch and 1.8 mi south of Beulah.

DRAINAGE AREA.--267 mi².

PERIOD OF RECORD.--October 1976 to September 1983, April 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,580 ft above NGVD of 1929, from topographic map. October 1976 to September 1983, at site 500 ft downstream at different datum. U.S. Geological Survey data collection platform with satellite telemetry at station.

REMARKS.--Records good.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	23	23	21	20	21	23	22	19	20	19	20
2	23	23	23	21	21	21	24	21	20	20	20	20
3	23	23	23	21	21	21	24	20	20	20	20	20
4	23	23	23	21	20	21	23	20	20	20	20	20
5	23	23	23	21	20	22	23	20	20	20	20	21
6	23	23	23	21	20	22	23	20	20	20	20	21
7	23	23	22	21	20	22	24	20	19	20	20	21
8	23	23	22	21	20	22	23	20	20	19	21	21
9	25	23	22	20	21	22	21	20	20	19	20	24
10	24	23	22	20	20	22	21	20	20	20	20	23
11	24	23	23	20	20	22	21	21	20	20	20	22
12	24	23	22	20	20	23	20	20	20	21	20	22
13	24	24	22	21	20	22	20	20	20	20	20	23
14	24	23	23	20	20	23	20	20	20	18	20	23
15	23	23	22	21	20	22	20	20	20	18	20	22
16	23	23	22	20	20	22	21	19	20	18	20	22
17	23	23	22	21	20	22	21	19	20	18	20	22
18	23	23	22	21	20	22	21	20	20	19	20	25
19	23	23	22	21	20	22	21	20	20	19	20	23
20	23	23	22	21	20	22	21	20	20	19	20	23
21	23	24	22	20	20	22	21	20	20	20	20	23
22	24	24	22	21	20	22	21	20	20	20	20	23
23	24	24	22	20	20	22	21	20	20	20	20	23
24	24	23	21	20	20	23	20	20	20	19	20	23
25	23	23	21	20	20	23	20	20	20	19	20	23
26	23	23	21	20	20	23	21	19	20	19	20	23
27	23	23	21	20	20	23	21	19	20	19	20	23
28	23	23	21	20	20	23	20	19	19	19	21	23
29	23	23	21	20	---	23	20	19	19	19	21	23
30	23	23	21	20	---	23	21	19	19	19	21	23
31	23	---	21	20	---	23	---	19	---	19	20	---
TOTAL	722	694	682	635	563	688	641	616	595	600	623	668
MEAN	23.29	23.13	22.00	20.48	20.11	22.19	21.37	19.87	19.83	19.35	20.10	22.27
MAX	25	24	23	21	21	23	24	22	20	21	21	25
MIN	22	23	21	20		21	20	19	19	18	19	20
AC-F'T	1430	1380	1350	1260	1120	1360	1270	1220	1180	1190	1240	1320

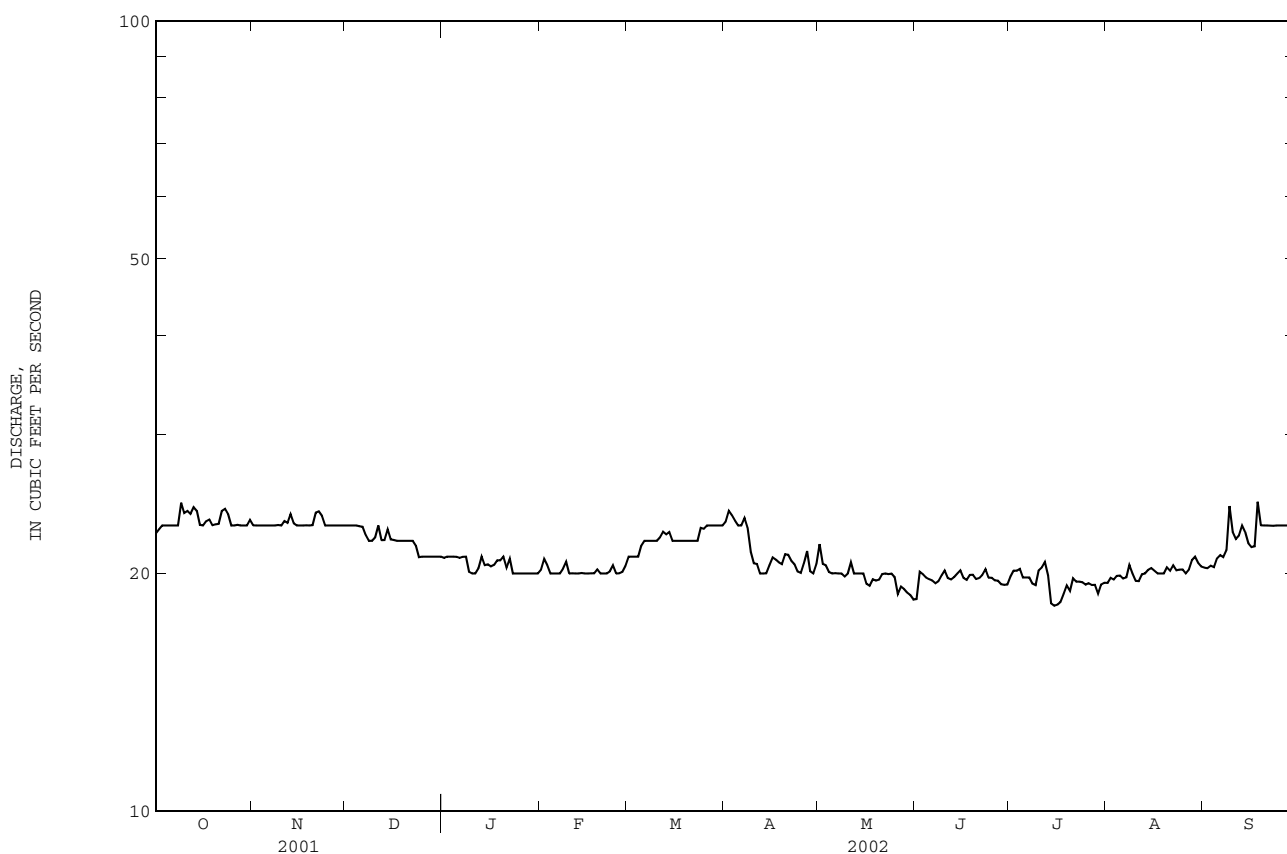
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 2002, BY WATER YEAR (WY)

[illegible]

06429905 SAND CREEK NEAR RANCH A, NEAR BEULAH, WY--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1977 - 2002	
ANNUAL TOTAL	9113		7727		--	
ANNUAL MEAN	24.97		21.17		23.35	
HIGHEST ANNUAL MEAN	--		--		30.5	
LOWEST ANNUAL MEAN	--		--		15.7	
HIGHEST DAILY MEAN	32	Jun 4	25	Oct 9, Sep 18	455	May 9 1995
LOWEST DAILY MEAN	21	Dec 24	18	Jul 14-17	12	Mar 10 1992
ANNUAL SEVEN-DAY MINIMUM	21	Dec 24	18	Jul 14	13	Mar 8 1992
MAXIMUM PEAK FLOW	--	--	29	Sep 18	1230	May 8 1995
MAXIMUM PEAK STAGE	--	--	1.64	Jun 2	3.80	May 8 1995a
ANNUAL RUNOFF (AC-FT)	18080		15330		16920	
10 PERCENT EXCEEDS	29		23		30	
50 PERCENT EXCEEDS	24		21		22	
90 PERCENT EXCEEDS	23		20		16	

a From floodmarks, present site and datum.



BELLE FOURCHE RIVER BASIN

06429997 MURRAY DITCH ABOVE HEADGATE AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'35", long 104°03'20", in SW¹/₄ SW¹/₄ sec.7, T.7 N., R.1 E., Butte County, Hydrologic Unit 10120203, on right bank at State line and 12 mi southwest of Belle Fourche, SD.

PERIOD OF RECORD.--April 1987 to current year.

REVISED RECORDS.--WDR SD-96-1: September 1995 daily discharges, monthly, and water year statistics.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 3,440 ft above NGVD of 1929, from topographic map. Prior to Apr. 23, 1987, published as 06430000 (below diversion at site 15 ft downstream).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Ditch diverts water from left bank of Redwater Creek, 2.0 mi upstream, for irrigation of about 700 acres. Flow maintained during irrigation season and in some years for livestock watering. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e19	4.3	12	11
2	7.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e25	0.23	19	11
3	7.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e23	0.00	20	5.9
4	7.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e25	0.00	19	7.1
5	7.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e17	0.00	17	7.7
6	8.5	0.00	0.00	0.00	0.00	0.00	0.00	5.7	18	0.00	8.0	15
7	8.3	0.00	0.00	0.00	0.00	0.00	0.00	6.6	20	2.4	7.0	16
8	7.3	0.00	0.00	0.00	0.00	0.00	0.00	4.8	19	7.4	12	16
9	8.4	0.00	0.00	0.00	0.00	0.00	0.00	3.9	21	9.1	13	15
10	8.9	0.00	0.00	0.00	0.00	0.00	0.00	2.0	18	9.3	13	15
11	9.9	0.00	0.00	0.00	0.00	0.00	0.00	2.7	14	11	12	14
12	12	0.00	0.00	0.00	0.00	0.00	0.00	3.4	8.0	12	8.7	10
13	13	0.00	0.00	0.00	0.00	0.00	0.00	3.4	9.4	13	7.8	1.4
14	14	0.00	0.00	0.00	0.00	0.00	0.00	7.2	9.4	14	6.9	0.71
15	8.2	0.00	0.00	0.00	0.00	0.00	0.00	10	3.7	13	8.2	0.68
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.8	3.3	11	13	3.5
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.9	e12	12	9.2	1.3
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.7	e11	11	8.8	1.1
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.7	11	9.6	9.2	9.0
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.0	11	10	8.7	19
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.1	12	16	7.8	9.2
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.8	14	9.2	6.7	9.2
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.5	14	4.7	11	7.6
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.5	14	6.6	8.3	3.8
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.5	15	6.5	5.9	2.3
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.7	16	6.5	5.9	1.2
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e7.0	12	7.6	5.7	3.9
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	e9.0	6.7	9.2	5.5	7.3
29	0.00	0.00	0.00	0.00	---	0.00	0.00	17	6.1	9.9	5.2	5.9
30	0.00	0.00	0.00	0.00	---	0.00	0.00	e17	5.6	7.8	5.9	3.2
31	0.00	---	0.00	0.00	---	0.00	---	e17	---	8.6	7.3	---
TOTAL	129.9	0.00	0.00	0.00	0.00	0.00	0.00	184.9	413.2	241.93	307.7	233.99
MEAN	4.190	0.000	0.000	0.000	0.000	0.000	0.000	5.965	13.77	7.804	9.926	7.800
MAX	14	0.00	0.00	0.00	0.00	0.00	0.00	17	25	16	20	19
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.3	0.00	5.2	0.68
AC-FT	258	0.00	0.00	0.00	0.00	0.00	0.00	367	820	480	610	464

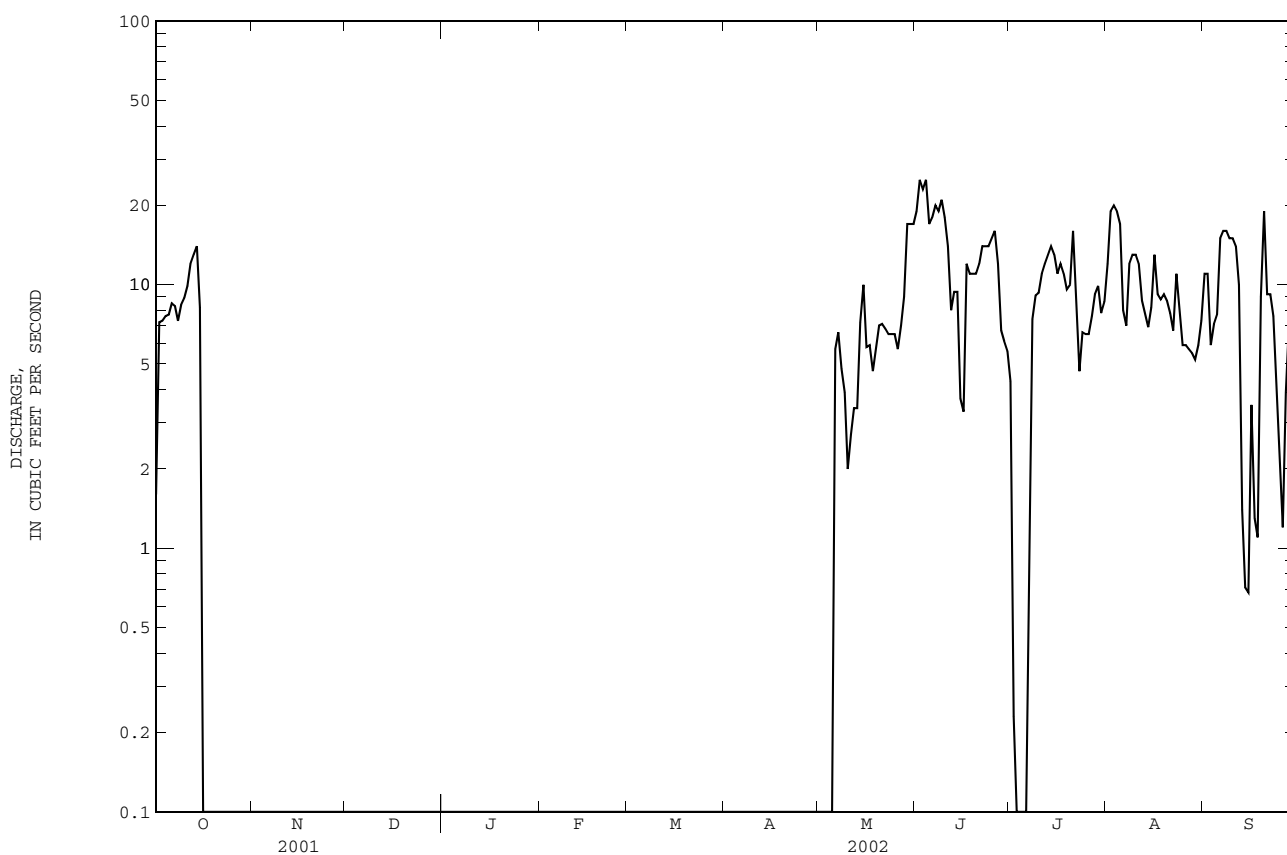
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2002, BY WATER YEAR (WY)

	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988
MEAN	5.387	0.268	0.000	0.000	0.000	0.000	0.009	1.781	5.152	9.719	8.484	8.260
MAX	20.6	2.01	0.000	0.000	0.000	0.000	0.085	6.30	13.9	16.4	18.2	18.8
(WY)	1991	2000	1988	1988	1988	1988	1997	1992	1988	1991	1991	1994
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.84	2.24	0.80
(WY)	1988	1988	1988	1988	1988	1988	1988	1990	1991	1993	1998	1993

06429997 MURRAY DITCH ABOVE HEADGATE AT WYOMING-SOUTH DAKOTA STATE LINE--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1988 - 2002	
ANNUAL TOTAL	1111.95		1511.62		3.278	
ANNUAL MEAN	3.046		4.141		5.32	
HIGHEST ANNUAL MEAN					0.92	
LOWEST ANNUAL MEAN					46	
HIGHEST DAILY MEAN	34	Aug 15	25	Jun 2	46	Oct 8 1990
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 16	0.00	Oct 1 1987a
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 16	0.00	Oct 1 1987
ANNUAL RUNOFF (AC-FT)	2210		3000		2370	
10 PERCENT EXCEEDS	11		13		12	
50 PERCENT EXCEEDS	0.00		0.00		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a No flow for many days in each year.
e Estimated.



BELLE FOURCHE RIVER BASIN

06430500 REDWATER CREEK AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'26", long 104°02'54", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.18 T.7 N., R.1 E., Butte County, Hydrologic Unit 10120203, on left bank 800 ft downstream from State line, 5.7 mi upstream from Crow Creek, and 12 mi southwest of Belle Fourche, SD.

DRAINAGE AREA.--471 mi².

PERIOD OF RECORD.--April 1929 to September 1931 and February 1936 to July 1937 (published as "near Beulah, WY"), June 1954 to current year.

REVISED RECORDS.--WSP 1309: 1931(M), 1936-37(M).

GAGE.--Water-stage recorder. Elevation of gage is 3,410 ft above NGVD of 1929, from topographic map. Apr. 25, 1929, to Sept. 30, 1931, and Feb. 28, 1936, to July 31, 1937, nonrecording gage at site 2 mi upstream at different datum.

REMARKS.--Records good. Large diversions for irrigation upstream from station. Total flow passing State line may be obtained by adding flow of Murray ditch (see station 06429997). Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	41	42	e34	39	38	40	38	21	15	6.8	20
2	28	42	42	e37	39	e37	39	33	14	32	7.1	23
3	28	42	42	e40	38	e37	38	35	16	31	7.0	27
4	29	42	42	40	38	39	38	35	14	32	7.9	27
5	28	43	42	40	38	39	37	35	21	33	12	26
6	29	43	42	40	38	39	37	30	18	33	25	18
7	29	43	42	40	38	39	38	32	17	28	25	17
8	28	42	42	40	38	39	39	32	17	12	19	18
9	29	43	42	40	39	39	38	32	15	5.9	15	27
10	28	43	42	40	38	38	38	32	13	6.0	14	24
11	28	43	43	40	38	39	38	35	e17	6.6	15	25
12	30	43	42	40	38	39	38	37	e23	6.3	20	27
13	29	43	42	40	38	40	38	36	e21	6.8	21	34
14	29	43	43	39	38	40	37	35	21	7.3	23	35
15	34	43	42	39	38	39	38	32	27	6.2	20	34
16	38	43	42	39	37	39	37	35	28	6.4	14	33
17	38	42	42	39	38	39	37	35	19	6.4	19	41
18	39	43	42	40	39	39	38	34	20	7.7	14	45
19	38	42	42	39	39	39	37	30	20	8.8	17	30
20	39	43	41	39	38	38	37	31	21	7.8	19	18
21	39	43	41	39	38	38	37	34	19	7.8	18	28
22	40	43	41	39	38	38	38	34	17	19	24	28
23	39	43	40	39	38	39	37	33	16	32	9.6	28
24	39	43	40	40	38	40	36	33	16	21	18	34
25	39	43	40	39	38	39	37	33	14	20	26	36
26	39	43	41	40	33	40	37	34	9.1	20	26	38
27	39	42	41	40	39	40	38	33	9.5	22	27	31
28	40	42	41	39	39	41	37	32	11	22	27	26
29	40	43	40	e38	---	40	36	24	13	21	26	29
30	40	43	40	e34	---	40	36	24	14	14	22	33
31	40	---	e38	e38	---	39	---	23	---	13	23	---
TOTAL	1068	1280	1284	1210	1065	1209	1126	1011	521.6	510.0	567.4	860
MEAN	34.45	42.67	41.42	39.03	38.04	39.00	37.53	32.61	17.39	16.45	18.30	28.67
MAX	40	43	43	40	39	41	40	38	28	33	27	45
MIN	28	41	38	34	33	37	36	23	9.1	5.9	6.8	17
AC-FT	2120	2540	2550	2400	2110	2400	2230	2010	1030	1010	1130	1710

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 2002, BY WATER YEAR (WY)*

MEAN	28.96	33.12	32.84	32.17	33.33	34.91	38.05	53.47	46.09	23.67	23.49	25.67
MAX	45.0	47.9	48.0	48.5	57.8	66.0	65.4	168	128	54.9	58.9	50.4
(WY)	1973	1974	1999	1999	1971	1996	1999	1995	1976	1976	1973	1973
MIN	14.2	20.8	21.5	20.7	21.2	22.1	18.8	7.44	6.29	7.62	6.78	11.8
(WY)	1991	1961	1993	1993	1993	1962	1981	1985	1961	1990	1985	1985

06430500 REDWATER CREEK AT WYOMING-SOUTH DAKOTA STATE LINE--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1955 - 2002*	
ANNUAL TOTAL	14383		11712.0		33.80	
ANNUAL MEAN	39.41		32.09		56.0	
HIGHEST ANNUAL MEAN					17.9	
LOWEST ANNUAL MEAN					1330	
HIGHEST DAILY MEAN	78	Apr 8	45	Sep 18	May 9	1995
LOWEST DAILY MEAN	22	Sep 12	5.9	Jul 9	May 22	1985a
ANNUAL SEVEN-DAY MINIMUM	23	Sep 11	6.4	Jul 9	May 21	1985
MAXIMUM PEAK FLOW			52	Sep 18b	Aug 22	1973c
MAXIMUM PEAK STAGE			4.41	Jan 2d	Aug 22	1973
ANNUAL RUNOFF (AC-FT)	28530		23230		24480	
10 PERCENT EXCEEDS	47		42		48	
50 PERCENT EXCEEDS	40		37		31	
90 PERCENT EXCEEDS	29		15		16	

* Period using present site and datum only. See GAGE.

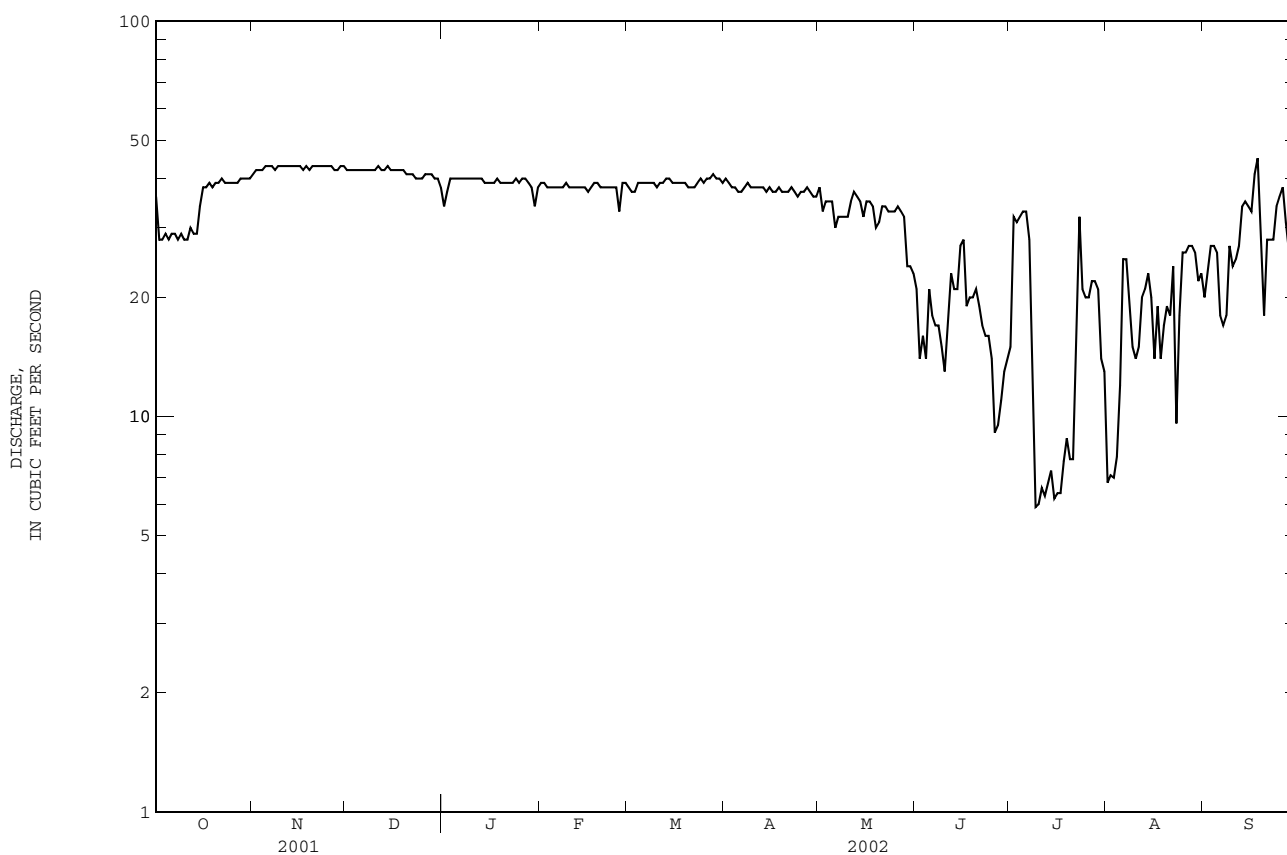
a No flow Aug. 13-15, 1929, during partial year.

b Gage height, 3.57 ft.

c From rating curve extended above 1,000 ft³/s on basis of slope-area measurement.

d Backwater from ice.

e Estimated.



BELLE FOURCHE RIVER BASIN

06430532 CROW CREEK NEAR BEULAH, WY

LOCATION.--Lat 44°34'14", long 104°00'19", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.16, T.7 N., R.1 E., Lawrence County, Hydrologic Unit 10120203, on left bank 1,500 ft upstream from confluence with Redwater River, 0.8 mi north of McNenny Fish Hatchery, and approximately 4.4 mi east of Beulah.

DRAINAGE AREA.--40.8 mi².

PERIOD OF RECORD.--April 1992 to current year.

REVISED RECORDS.--WDR SD-97-1: 1996.

GAGE.--Water-stage recorder. Elevation of gage is 3,360 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperatures Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	33	31	34	35	35	35	38	29	31	32	35
2	34	33	31	34	35	35	34	37	31	31	33	35
3	33	33	31	35	35	34	34	36	33	31	33	35
4	33	33	32	35	35	34	34	35	31	29	33	35
5	33	33	31	35	35	34	34	35	30	30	33	35
6	33	33	31	35	35	34	35	35	30	31	33	34
7	33	33	32	35	35	34	35	34	30	31	32	34
8	33	33	32	35	35	34	35	35	30	31	33	34
9	34	33	32	35	36	34	35	34	31	31	33	37
10	33	33	32	35	35	34	35	34	30	32	34	35
11	33	33	32	35	36	34	35	35	30	32	34	34
12	33	33	32	35	36	34	35	35	30	31	34	34
13	33	33	33	35	36	35	34	35	30	31	34	33
14	33	33	33	35	36	35	34	35	30	31	34	33
15	33	33	33	35	35	34	35	34	30	31	34	33
16	33	33	33	35	35	34	35	34	31	31	35	33
17	33	33	33	35	35	34	34	34	31	33	34	33
18	33	33	33	34	35	34	34	34	31	34	34	36
19	33	33	33	35	36	34	34	33	31	34	34	35
20	33	33	33	34	36	35	34	33	31	34	35	33
21	33	33	33	34	36	34	34	33	31	34	34	33
22	33	33	33	34	35	34	33	33	31	34	35	32
23	33	33	33	35	35	34	33	33	31	34	35	32
24	33	33	33	35	36	34	33	33	33	33	36	32
25	33	34	33	36	35	34	33	31	32	32	36	32
26	33	34	34	36	35	34	33	30	31	32	35	32
27	32	34	34	36	35	34	35	30	31	33	35	32
28	33	33	34	36	35	34	36	29	31	33	34	32
29	33	33	35	36	---	34	35	31	31	33	34	32
30	33	32	34	36	---	34	36	31	31	32	34	32
31	33	---	34	35	---	34	---	30	---	31	34	---
TOTAL	1025	992	1013	1085	989	1059	1031	1039	923	991	1053	1007
MEAN	33.1	33.1	32.7	35.0	35.3	34.2	34.4	33.5	30.8	32.0	34.0	33.6
MAX	34	34	35	36	36	35	36	38	33	34	36	37
MIN	32	32	31	34	35	34	33	29	29	29	32	32
AC-FT	2030	1970	2010	2150	1960	2100	2040	2060	1830	1970	2090	2000

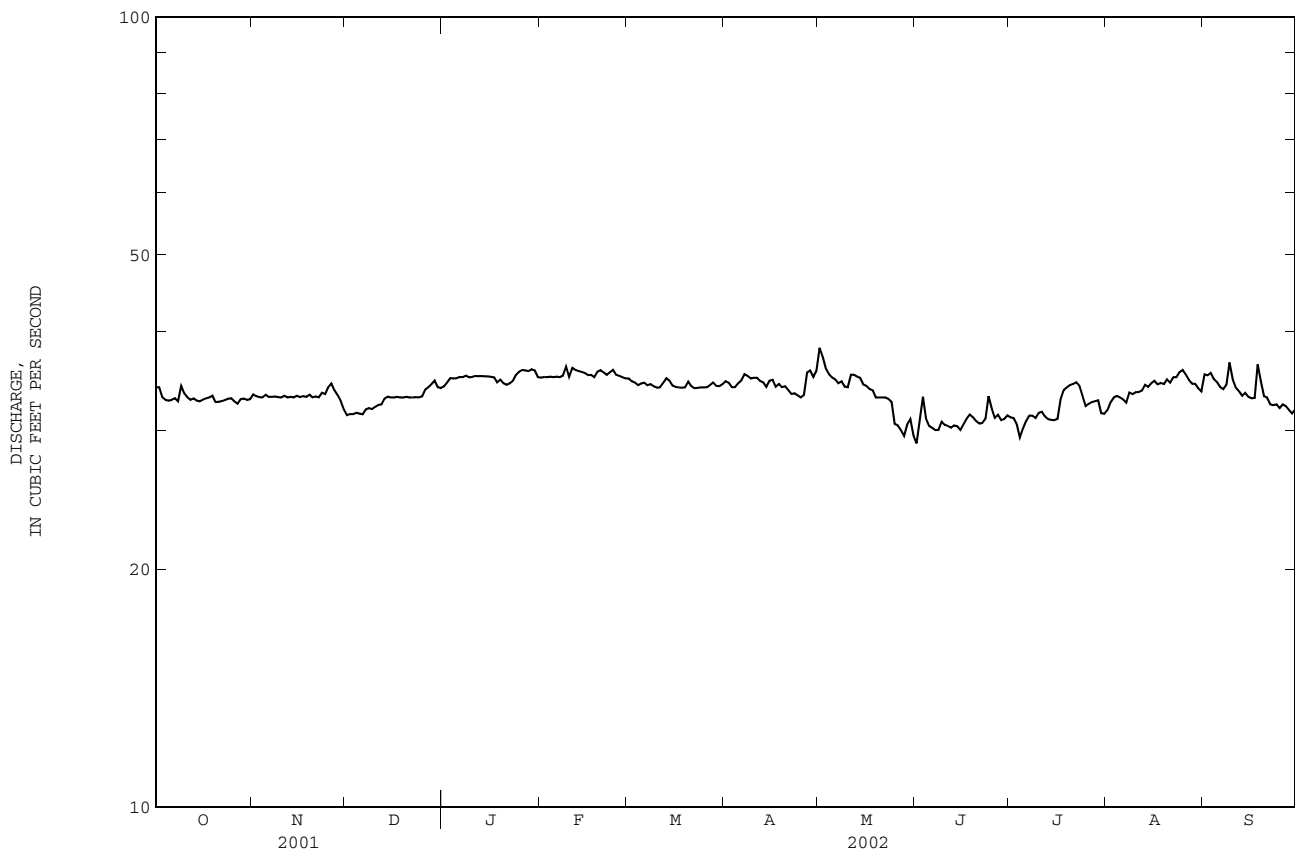
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2002, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	38.1	37.7	36.5	36.6	36.1	37.9	46.4	53.9	42.6	35.8
MAX	50.0	46.7	48.3	44.8	41.7	42.7	60.3	118	54.9	43.3
(WY)	1999	1999	1996	1996	1996	1996	1994	1995	1993	1999
MIN	31.8	30.7	31.9	31.2	33.0	33.7	33.9	33.5	30.8	31.9
(WY)	2000	2000	1995	1995	2000	1995	1995	2002	2002	1998

06430532 CROW CREEK NEAR BEULAH, WY--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1993 - 2002	
ANNUAL TOTAL	13545		12207		39.7	
ANNUAL MEAN	37.1		33.4		44.7	
HIGHEST ANNUAL MEAN					33.4	
LOWEST ANNUAL MEAN					502	
HIGHEST DAILY MEAN	61	Apr 21	38	May 1	21	May 9 1995
LOWEST DAILY MEAN	31	Jul 17	29	May 28	21	Jul 1 1998
ANNUAL SEVEN-DAY MINIMUM	31	Jul 16	30	May 26	22	Jun 28 1998
MAXIMUM PEAK FLOW			38	May 1a	530	May 9 1995
MAXIMUM PEAK STAGE					10.17	May 9 1995
ANNUAL RUNOFF (AC-FT)	26870		24210		28740	
10 PERCENT EXCEEDS	42		35		47	
50 PERCENT EXCEEDS	36		34		37	
90 PERCENT EXCEEDS	33		31		32	

a Maximum daily mean, no defined peak.



LOCATION.--Lat 44°17'56", long 103°52'02", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.22, T.4 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on right bank 0.5 mi below confluence of East Spearfish Creek, in the vicinity of Cheyenne Crossing, approximately 5 mi southwest of Lead.

DRAINAGE AREA.--63.5 mi².

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 5,310 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Upstream diversions out of drainage basin to Whitewood Creek basin by Homestake Mining Co. average about 12 ft³/s. Daily discharges do not include diversion by Homestake Mining Co. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 673 ft³/s, May 14, 1965, from contracted-opening measurement of peak flow 2.0 mi downstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	29	28	23	e23	e21	e28	34	e32	e31	30	32
2	30	29	27	23	e24	e21	e28	33	e34	e32	31	32
3	29	29	28	28	e24	e23	e29	33	e37	e32	31	32
4	30	29	28	24	e25	e26	e31	33	e38	e32	30	31
5	30	29	27	27	e25	e26	e31	33	e38	e32	30	31
6	29	29	27	26	e26	e24	e31	32	e37	e32	29	31
7	29	30	27	26	e26	e23	e32	32	e36	e32	29	31
8	28	30	27	26	e25	e22	e33	32	e34	e32	30	32
9	31	30	27	24	e24	e21	e32	33	e34	e31	28	35
10	31	30	27	e25	e23	e20	e32	33	e33	e31	e30	29
11	29	31	27	e24	e23	e22	e33	34	e33	e27	e31	29
12	30	31	27	e24	e23	e26	e33	34	e32	28	e32	31
13	30	30	25	e24	e23	e26	e33	33	e32	27	e33	32
14	30	29	26	e24	e24	e28	e32	33	e32	27	e34	31
15	29	28	26	e24	e23	e28	e33	33	e32	27	e34	31
16	29	28	25	e25	e24	e27	e35	34	e32	27	e34	32
17	28	28	25	e23	e25	e27	e36	34	e31	28	e34	32
18	29	28	26	e23	e25	e27	e35	34	e28	29	e34	45
19	29	27	25	e25	e25	e27	e34	33	e27	29	e34	40
20	29	28	24	e23	e25	e27	e34	33	e27	29	e34	35
21	29	28	25	e24	e26	e27	e33	34	e28	31	e34	35
22	29	27	26	e24	e26	e27	e34	e34	e28	32	e34	34
23	29	28	25	e24	e25	e27	e32	e33	e31	32	e34	32
24	29	28	26	e25	e24	e27	e31	e33	e32	33	e39	27
25	29	28	25	e26	e23	e26	31	e33	e32	32	e42	28
26	29	28	25	e26	e23	e26	30	e33	e31	32	e38	28
27	29	27	23	e24	e22	e26	33	e32	e32	32	e33	31
28	29	27	23	e24	e22	e26	32	e32	e32	32	32	33
29	29	28	22	e23	---	e27	31	e28	e32	30	33	32
30	28	28	25	e22	---	e28	30	e30	e31	29	32	32
31	29	---	22	e22	---	e28	---	e28	---	29	32	---
TOTAL	906	859	796	755	676	787	962	1013	968	939	1015	966
MEAN	29.2	28.6	25.7	24.4	24.1	25.4	32.1	32.7	32.3	30.3	32.7	32.2
MAX	31	31	28	28	26	28	36	34	38	33	42	45
MIN	28	27	22	22	22	20	28	28	27	27	28	27
AC-FT	1800	1700	1580	1500	1340	1560	1910	2010	1920	1860	2010	1920

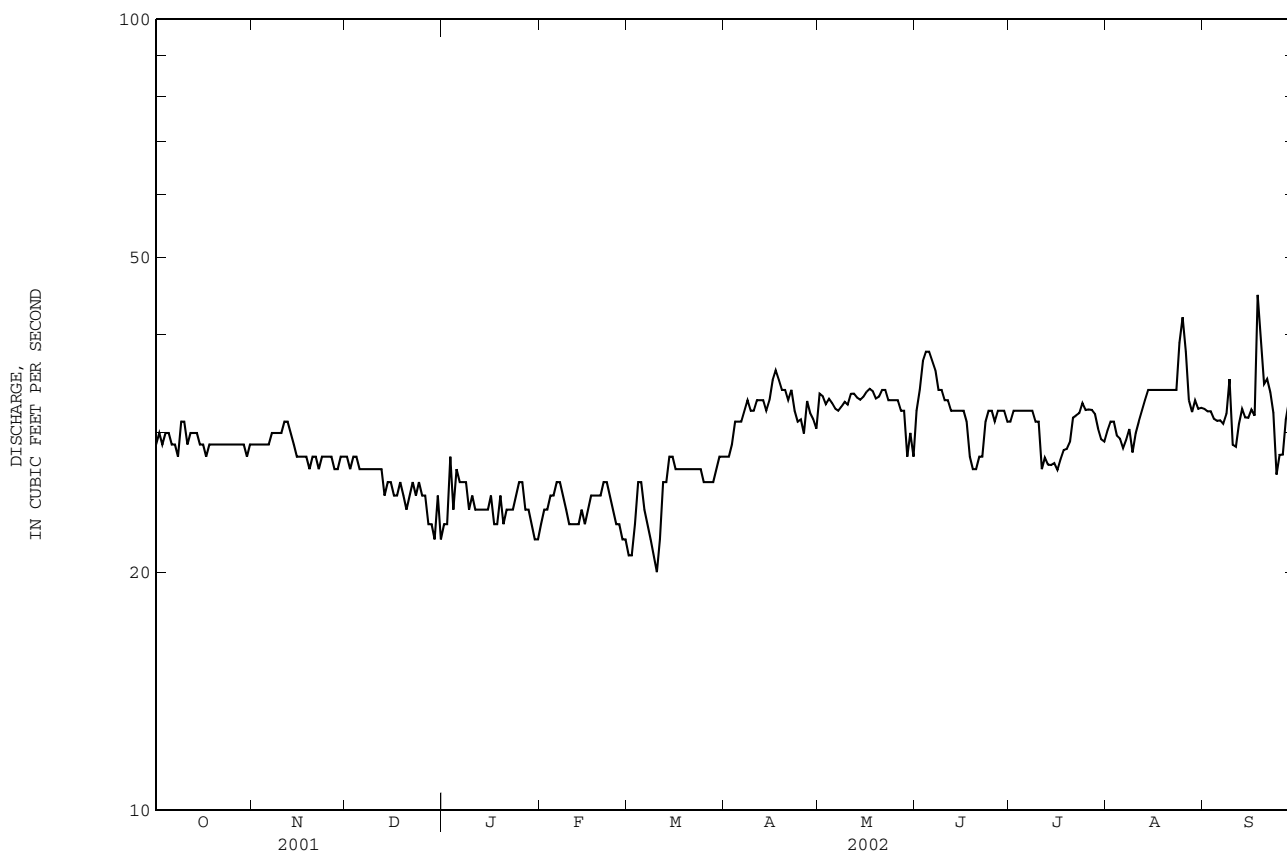
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2002, BY WATER YEAR (WY)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	27.0	26.7	25.3	24.9	25.0	26.4	31.8	39.6	35.9	31.5	30.0	28.5		
MAX	49.4	45.5	46.0	43.3	44.1	45.0	50.4	67.4	60.8	52.2	59.3	51.5		
(WY)	1999	2000	2000	2000	1999	1999	1999	1997	1999	1998	1998	1998		
MIN	13.0	13.3	11.9	12.2	11.4	12.1	15.0	16.5	16.1	12.5	10.3	11.1		
(WY)	1991	1991	1991	1990	1990	1990	1989	1992	1990	1990	1990	1990		

06430770 SPEARFISH CREEK NEAR LEAD, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1989 - 2002	
ANNUAL TOTAL	12621		10642		29.4a	
ANNUAL MEAN	34.6		29.2		48.1	
HIGHEST ANNUAL MEAN					14.2	
LOWEST ANNUAL MEAN					108	
HIGHEST DAILY MEAN	46	Apr 7	45	Sep 18	7.5	May 10 1995
LOWEST DAILY MEAN	22	Dec 29	20	Mar 10	9.5	Dec 22 1990
ANNUAL SEVEN-DAY MINIMUM	24	Dec 25	22	Feb 25	181	Aug 24 1990
MAXIMUM PEAK FLOW			62	Sep 18	8.39	Aug 20 1998
MAXIMUM PEAK STAGE			7.75	Sep 18		
ANNUAL RUNOFF (AC-FT')	25030		21110		21300	
10 PERCENT EXCEEDS	40		34		48	
50 PERCENT EXCEEDS	36		29		28	
90 PERCENT EXCEEDS	28		24		13	

a Median of annual mean discharges, 30 ft³/s.
e Estimated.



BELLE FOURCHE RIVER BASIN

06430800 ANNIE CREEK NEAR LEAD, SD

LOCATION.--Lat 44°19'37", long 103°53'38", in NW¹/₄ NW¹/₄ NW¹/₄ sec.9, T.4 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on left bank 200 ft upstream from mouth and about 6 mi southwest of Lead.

DRAINAGE AREA.--3.55 mi².

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder and V-notch weir. Elevation of gage is 5,125 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.35	0.38	e0.22	e0.10	e0.12	0.14	0.21	0.74	0.67	0.25	0.09	0.06
2	0.42	0.34	e0.22	e0.10	e0.13	0.13	0.22	0.84	0.81	0.24	0.08	0.06
3	0.49	0.34	e0.24	e0.12	e0.12	0.14	0.22	1.0	0.86	0.24	0.08	0.06
4	0.61	0.32	e0.32	e0.14	e0.12	0.16	0.28	1.1	0.75	0.24	0.10	0.06
5	0.59	0.34	0.29	e0.14	e0.12	0.24	0.96	1.1	0.69	0.23	0.11	0.06
6	0.48	0.33	0.28	e0.20	e0.13	0.25	1.5	1.1	0.63	0.21	0.10	0.06
7	0.48	0.30	0.32	e0.22	e0.13	0.18	1.1	1.1	0.62	0.21	0.09	0.05
8	0.49	0.35	0.35	e0.17	e0.13	0.15	1.0	1.1	0.59	0.19	0.17	0.06
9	0.69	0.35	0.30	e0.17	e0.13	0.20	1.1	1.1	0.61	0.19	0.07	0.26
10	0.61	0.36	0.30	e0.17	e0.11	0.21	1.2	1.0	0.58	0.21	0.11	0.12
11	0.59	0.34	0.30	e0.18	e0.11	0.32	1.3	1.2	0.55	0.24	0.11	0.10
12	0.65	0.34	e0.25	e0.18	e0.11	0.35	1.0	1.2	0.54	0.24	0.12	0.10
13	0.71	0.33	e0.22	e0.18	e0.11	0.29	1.1	1.2	0.53	0.25	0.12	0.13
14	0.62	0.33	e0.22	e0.18	e0.13	0.21	1.3	1.1	0.49	0.22	0.11	0.09
15	0.61	0.34	e0.20	e0.15	e0.15	0.19	1.3	1.0	0.48	0.21	0.08	0.08
16	0.52	0.33	e0.17	e0.13	e0.17	0.18	1.2	1.1	0.46	0.20	0.08	0.14
17	0.54	0.32	e0.17	e0.12	e0.20	0.19	1.1	1.2	0.44	0.21	0.07	0.10
18	0.57	0.36	e0.17	e0.10	e0.24	0.18	1.2	1.2	0.42	0.22	0.07	1.2
19	0.60	0.44	e0.15	e0.10	0.21	0.19	0.98	1.1	0.41	0.19	0.07	0.62
20	0.55	0.51	e0.15	e0.10	0.16	0.29	0.93	1.0	0.39	0.21	0.07	0.32
21	0.62	0.54	e0.12	e0.10	0.13	0.27	0.89	1.00	0.36	0.22	0.08	0.24
22	0.62	0.29	e0.12	e0.11	0.17	0.44	0.81	1.0	0.36	0.21	0.09	0.24
23	0.57	0.28	e0.12	0.13	0.20	0.34	0.81	0.94	0.33	0.18	0.13	0.18
24	0.62	0.29	e0.12	0.14	0.14	0.30	0.72	0.92	0.33	0.21	0.16	0.17
25	0.64	0.29	e0.13	0.15	0.12	0.29	0.62	0.88	0.33	0.17	0.11	0.20
26	0.59	0.29	e0.13	0.14	0.12	0.28	0.60	0.88	0.29	0.15	0.08	0.22
27	0.61	e0.17	e0.14	0.12	0.14	0.36	0.83	0.84	0.23	0.19	0.09	0.22
28	0.60	e0.20	e0.15	0.11	0.14	0.31	0.72	0.78	0.28	0.17	0.08	0.22
29	0.55	e0.22	e0.12	0.12	---	0.27	0.73	0.75	0.26	0.18	0.08	0.17
30	0.36	e0.22	e0.12	e0.12	---	0.26	0.74	0.72	0.22	0.21	0.07	0.19
31	0.35	---	e0.12	e0.12	---	0.24	---	0.68	---	0.16	0.07	---
TOTAL	17.30	9.84	6.23	4.31	3.99	7.55	26.67	30.87	14.51	6.45	2.94	5.78
MEAN	0.558	0.328	0.201	0.139	0.142	0.244	0.889	0.996	0.484	0.208	0.095	0.193
MAX	0.71	0.54	0.35	0.22	0.24	0.44	1.5	1.2	0.86	0.25	0.17	1.2
MIN	0.35	0.17	0.12	0.10	0.11	0.13	0.21	0.68	0.22	0.15	0.07	0.05
AC-FT	34	20	12	8.5	7.9	15	53	61	29	13	5.8	11

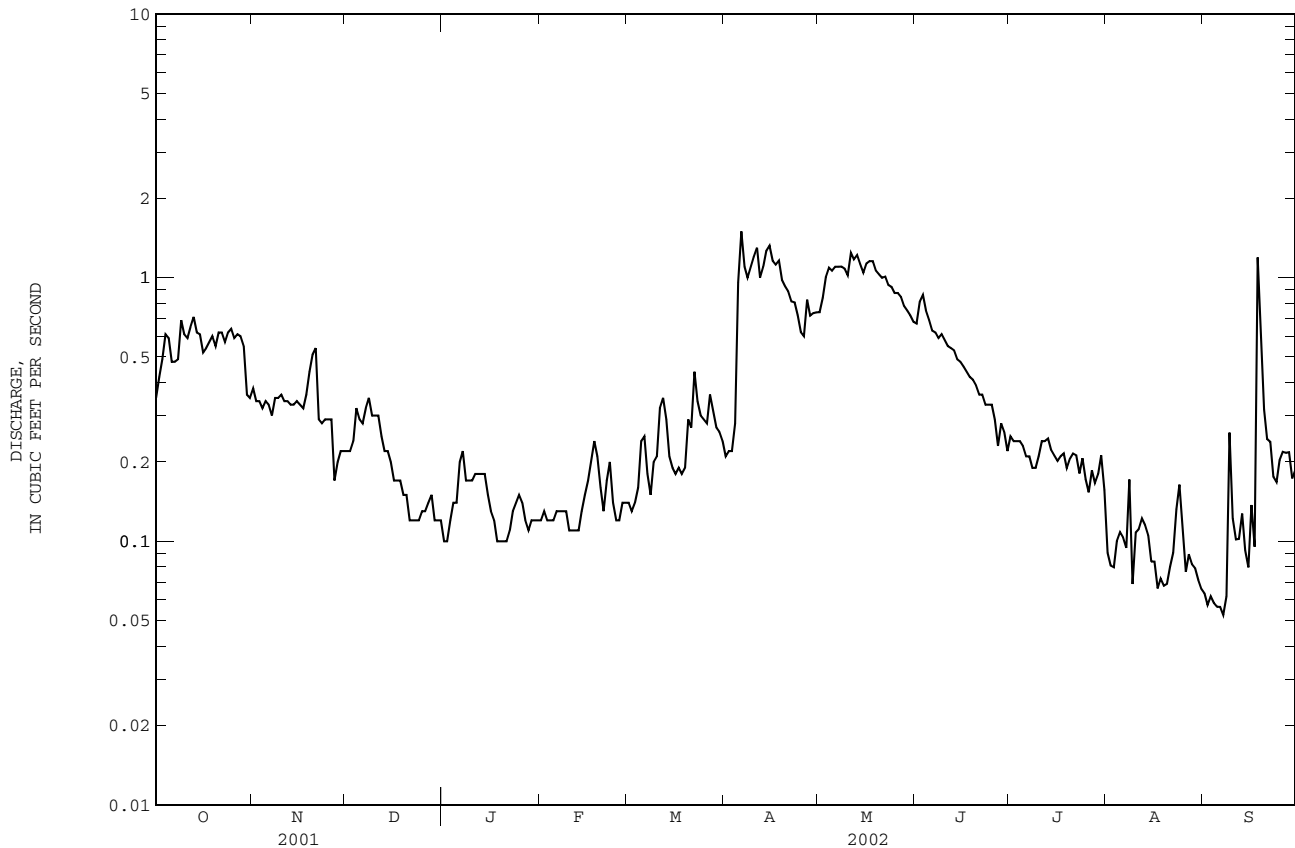
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2002, BY WATER YEAR (WY)

	MEAN	0.768	0.503	0.381	0.364	0.374	1.100	4.258	6.480	2.700	1.039	0.693	0.427
MAX	4.27	2.05	1.20	0.91	1.02	3.03	9.79	28.5	8.54	2.31	2.43	1.51	
(WY)	1999	1999	1999	1997	1999	1999	1997	1995	1998	1995	1998	1998	
MIN	0.052	0.10	0.045	0.010	0.000	0.082	0.75	1.00	0.48	0.21	0.095	0.061	
(WY)	1993	1993	1989	1993	1993	1991	1991	2002	2002	2002	2002	1992	

06430800 ANNIE CREEK NEAR LEAD, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1989 - 2002
ANNUAL TOTAL	488.05	136.44	
ANNUAL MEAN	1.34	0.37	1.60a
HIGHEST ANNUAL MEAN			4.04
LOWEST ANNUAL MEAN			0.37
HIGHEST DAILY MEAN	18 Apr 8	1.5 Apr 6	188 May 8 1995
LOWEST DAILY MEAN	0.08 Jan 23	0.05 Sep 7	0.00 Mar 2 1989b
ANNUAL SEVEN-DAY MINIMUM	0.12 Jan 17	0.06 Sep 1	0.00 Jan 6 1993
MAXIMUM PEAK FLOW		5.4 Apr 6c	270 May 8 1995d
MAXIMUM PEAK STAGE		6.28 Mar 4f	6.28 Mar 4 2002f
ANNUAL RUNOFF (AC-FT)	968	271	1160
10 PERCENT EXCEEDS	3.6	0.95	3.9
50 PERCENT EXCEEDS	0.38	0.24	0.56
90 PERCENT EXCEEDS	0.17	0.10	0.10

- a Median of annual mean discharges, 1.3 ft³/s.
b Also Mar. 3-7, 1989, and Jan. 6 to Mar. 16, 1993.
c Gage height, 4.54 ft.
d Gage height, 6.12 ft.
e Estimated.
f Backwater from ice, observed.



BELLE FOURCHE RIVER BASIN

06430850 LITTLE SPEARFISH CREEK NEAR LEAD, SD

LOCATION.--Lat 44°20'58", long 103°56'08", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.36, T.5 N., R.1 E., Lawrence County, Hydrologic Unit 10120203, on left bank 0.3 mi upstream from Savoy, 0.4 mi upstream from mouth, 0.6 mi downstream from Roughlock Falls, and 13.6 mi northwest of Lead.

DRAINAGE AREA.--25.8 mi².

PERIOD OF RECORD.--October 1988 to September 1998, October 1999 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 5,020 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	16	17	14	14	e16	14	17	16	15	15	16
2	18	17	16	14	14	e17	e15	16	15	15	15	16
3	18	17	16	14	14	e17	e17	17	16	15	15	16
4	18	17	16	14	14	e17	18	17	16	15	15	16
5	18	16	16	13	14	17	18	17	16	14	14	16
6	18	16	16	13	14	17	19	17	16	14	14	17
7	17	17	16	14	15	16	19	17	15	14	15	e16
8	17	17	15	14	15	e16	19	17	15	14	15	e16
9	18	16	15	14	15	e17	19	16	15	14	15	e16
10	17	16	16	14	15	17	19	16	15	14	15	e16
11	18	16	17	14	16	17	19	16	15	15	15	e15
12	18	16	16	14	16	17	19	16	15	14	15	e15
13	17	16	16	14	16	17	19	16	15	14	15	e15
14	17	16	16	14	16	16	18	16	15	14	15	e15
15	17	16	16	14	17	16	18	16	15	14	15	e15
16	17	16	15	14	17	16	18	16	15	14	15	e15
17	17	16	15	14	17	17	18	16	15	15	15	e16
18	17	16	15	14	18	15	17	16	15	15	15	e16
19	17	15	15	14	18	15	18	16	15	14	15	e16
20	17	16	15	13	18	14	17	16	15	14	15	e16
21	17	16	15	13	17	e15	17	16	15	14	15	e16
22	17	16	15	14	15	e16	17	16	15	14	15	e16
23	17	16	14	13	e15	16	17	16	15	14	15	e16
24	17	16	14	13	e15	16	17	15	15	14	15	e15
25	17	16	15	13	e15	17	15	16	15	14	15	e15
26	17	15	15	13	e15	15	16	16	15	15	15	e15
27	16	15	14	13	e16	14	16	16	15	15	15	e15
28	16	13	14	14	e16	14	16	16	15	15	15	e15
29	17	16	14	14	---	14	17	16	15	15	15	e15
30	17	16	14	14	---	14	17	16	15	15	15	e15
31	17	---	14	13	---	14	---	16	---	14	16	---
TOTAL	534	479	473	424	437	492	523	502	455	446	464	468
MEAN	17.2	16.0	15.3	13.7	15.6	15.9	17.4	16.2	15.2	14.4	15.0	15.6
MAX	18	17	17	14	18	17	19	17	16	15	16	17
MIN	16	13	14	13	14	14	14	15	15	14	14	15
AC-FT	1060	950	938	841	867	976	1040	996	902	885	920	928

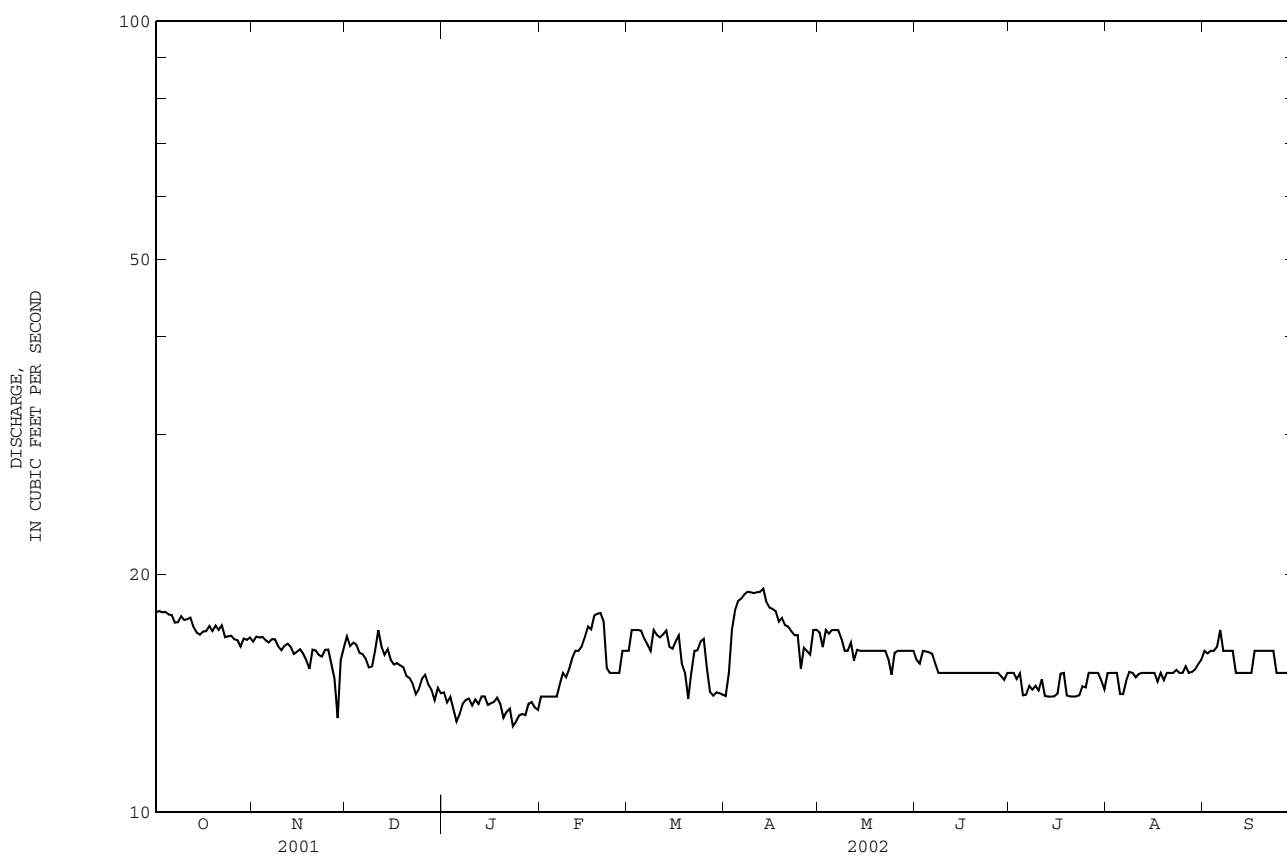
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1998, 2000 - 2002, BY WATER YEAR (WY)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	2000	2001	2002
MEAN	17.0	16.7	16.3	15.5	15.6	16.0	17.2	20.0	19.9	18.0	17.5	17.0	
MAX	23.2	25.1	25.7	23.1	22.4	21.6	25.1	34.6	28.7	26.1	24.4	23.8	
(WY)	2000	2000	2000	2000	2000	1998	1997	1995	1997	1997	1996	1996	
MIN	12.2	11.1	10.3	9.96	11.0	12.2	12.0	13.1	13.7	12.6	12.9	12.0	
(WY)	1992	1993	1993	1993	1993	1991	1993	1992	1990	1992	1992	1991	

06430850 LITTLE SPEARFISH CREEK NEAR LEAD, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1989-1998, 2000-2002	
ANNUAL TOTAL	6626		5697		17.2	
ANNUAL MEAN	18.2		15.6		23.1	
HIGHEST ANNUAL MEAN					12.5	
LOWEST ANNUAL MEAN					61	
HIGHEST DAILY MEAN	21	Jan 2	19	Apr 6	9.7	May 10 1995
LOWEST DAILY MEAN	13	Feb 9	13	Nov 28	9.8	Jan 2 1993
ANNUAL SEVEN-DAY MINIMUM	14	Dec 23	13	Jan 20	9.8	Dec 30 1992
ANNUAL RUNOFF (AC-FT)	13140		11300		12480	
10 PERCENT EXCEEDS	20		17		23	
50 PERCENT EXCEEDS	18		16		16	
90 PERCENT EXCEEDS	16		14		12	

e Estimated.



LOCATION.--Lat 44°24'06", long 103°53'40", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.17, T.5 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on left bank immediately below confluence of Squaw Creek and 8.0 mi south of Spearfish.

DRAINAGE AREA.--139 mi².

PERIOD OF RECORD.--October 1988 to current year. Operated as partial-record crest-stage gage station from October 1998 to September 2001.

GAGE.--Water-stage recorder. Elevation of gage is 4,440 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Upstream diversions out of drainage basin to Whitewood Creek Basin by Homestake Mining Co. average about 12 ft³/s. Figures of daily discharge do not include diversion by Homestake Mining Co. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	67	66	50	62	58	61	67	58	50	53	54
2	66	67	66	53	60	55	61	66	61	48	54	54
3	67	66	66	67	59	54	58	68	64	47	54	53
4	68	66	66	67	58	61	61	67	62	48	55	53
5	70	66	64	62	58	60	63	66	59	52	55	54
6	70	66	63	63	58	59	66	66	59	53	55	53
7	69	66	64	62	57	59	72	65	58	53	55	53
8	69	65	63	62	58	57	75	65	59	53	57	54
9	74	65	63	62	58	51	72	63	59	54	57	64
10	73	65	63	61	55	61	79	62	59	53	56	57
11	71	65	63	60	58	59	81	66	57	54	55	55
12	68	65	62	62	57	60	78	65	55	54	55	56
13	70	65	60	62	56	60	78	65	56	54	56	58
14	67	65	62	61	57	61	79	65	56	54	55	57
15	68	64	62	60	57	60	78	65	56	54	55	57
16	70	64	61	66	57	60	76	65	55	54	54	56
17	72	63	61	56	58	59	72	65	55	54	53	57
18	74	64	62	60	58	59	70	64	55	54	54	88
19	72	63	62	65	58	58	67	63	55	54	55	82
20	71	65	59	66	58	58	66	62	55	55	55	68
21	71	65	60	65	57	55	65	62	56	58	54	66
22	70	64	60	63	57	58	64	64	55	58	55	63
23	69	65	52	62	58	60	64	63	55	56	57	61
24	68	64	50	57	57	59	64	62	55	57	60	56
25	68	64	60	57	51	59	63	62	55	56	58	55
26	67	64	63	57	46	60	62	61	54	58	56	56
27	67	62	58	58	55	61	65	62	53	57	54	58
28	67	58	56	59	59	61	64	60	53	57	57	61
29	67	64	48	56	---	60	62	60	53	56	56	60
30	66	66	57	49	---	60	62	60	50	54	55	59
31	67	---	48	54	---	60	---	59	---	53	54	---
TOTAL	2141	1938	1870	1864	1597	1822	2048	1975	1692	1672	1714	1778
MEAN	69.1	64.6	60.3	60.1	57.0	58.8	68.3	63.7	56.4	53.9	55.3	59.3
MAX	74	67	66	67	62	61	81	68	64	58	60	88
MIN	65	58	48	49	46	51	58	59	50	47	53	53
AC-FT	4250	3840	3710	3700	3170	3610	4060	3920	3360	3320	3400	3530

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1997, 2002, BY WATER YEAR (WY)

	MEAN	52.2	50.7	48.5	47.3	47.3	55.8	79.1	114	79.1	61.5	57.1	54.8
MAX	80.2	79.8	77.7	75.2	75.3	87.3	149	307	129	101	99.8	87.5	
(WY)	1997	1997	1997	1997	1997	1997	1997	1995	1996	1997	1997	1997	1997
MIN	35.5	37.2	29.8	31.8	37.0	39.5	44.8	45.3	41.4	37.7	35.9	34.9	
(WY)	1993	1991	1992	1992	1993	1993	1992	1992	1992	1990	1992	1991	

06430900 SPEARFISH CREEK ABOVE SPEARFISH, SD--Continued

SUMMARY STATISTICS

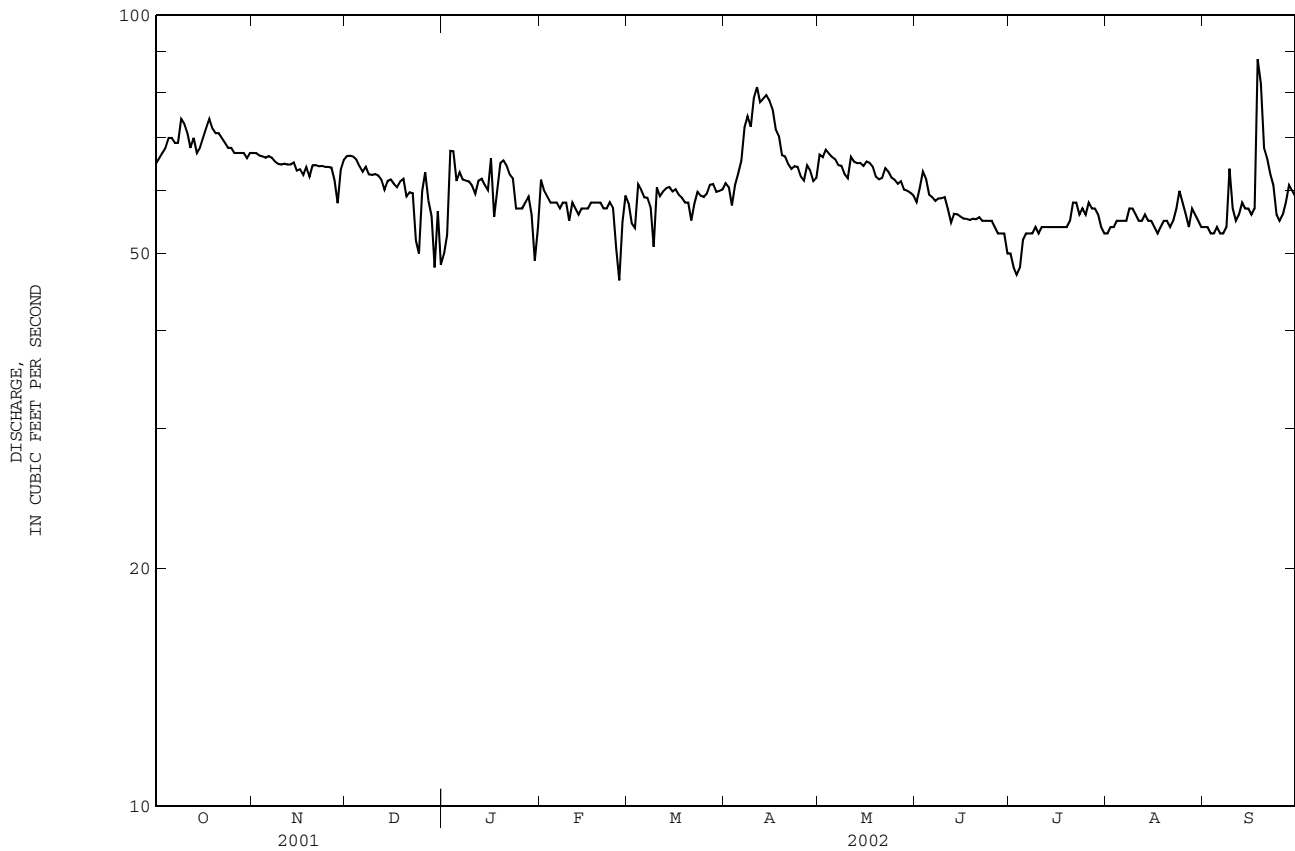
FOR 2002 WATER YEAR

WATER YEARS 1989-1997, 2002

ANNUAL TOTAL	22111				
ANNUAL MEAN	60.6			62.2a	
HIGHEST ANNUAL MEAN				103	1997
LOWEST ANNUAL MEAN				38.1	1992
HIGHEST DAILY MEAN	88	Sep 18		1470	May 8 1995
LOWEST DAILY MEAN	46	Feb 26		18	Jan 15 1992
ANNUAL SEVEN-DAY MINIMUM	50	Jun 29		26	Jan 11 1992
MAXIMUM PEAK FLOW	122	Sep 18		2890	May 8 1995b
MAXIMUM PEAK STAGE	3.53	Sep 18		7.42	May 8 1995b
ANNUAL RUNOFF (AC-FT)	43860			45090	
10 PERCENT EXCEEDS	68			97	
50 PERCENT EXCEEDS	60			50	
90 PERCENT EXCEEDS	54			36	

a Median of annual mean discharges, 55 ft³/s.

b Reflects water years 1989-2002.



BELLE FOURCHE RIVER BASIN

06431500 SPEARFISH CREEK AT SPEARFISH, SD

LOCATION.--Lat 44°28'57", long 103°51'40", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.15, T.6 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on right bank in city park in Spearfish, 500 ft downstream from fish hatchery and nearest tributary, and 9.8 mi upstream from mouth.

DRAINAGE AREA.--168 mi².

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1116: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,640 ft above NGVD of 1929, from topographic map. Prior to Dec. 5, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good. Regulation by fish hatchery and by hydroelectric plant 0.5 mi upstream causes diurnal fluctuation, but since storage capacity is small, daily flows are not appreciably affected. Upstream diversions out of drainage basin to Whitewood Creek basin by the Homestake Mining Co. average about 12 ft³/s. Figures of daily discharge do not include diversion by Homestake Mining Co. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 5, 1904, reached a stage of 7.00 ft, site and datum of former gage near Spearfish, 1.0 mi upstream, drainage area, 157 mi²; discharge about 5,000 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	62	62	38	65	58	54	62	53	47	45	49
2	60	62	61	45	59	58	53	58	56	43	45	48
3	61	61	60	60	57	55	48	61	62	42	45	48
4	63	61	60	63	56	61	52	61	59	42	44	45
5	62	61	59	54	56	60	55	61	56	47	45	46
6	61	61	58	56	56	58	58	59	55	53	45	46
7	60	60	58	54	56	57	68	59	56	54	45	45
8	60	62	57	54	57	57	74	58	55	49	48	46
9	68	60	58	54	58	48	69	56	55	49	47	59
10	69	61	57	54	56	60	80	56	55	50	45	49
11	67	61	57	52	59	57	83	62	53	49	45	47
12	63	62	58	53	57	56	78	61	49	49	47	47
13	64	61	57	55	54	55	77	59	52	50	48	50
14	60	62	58	54	57	55	79	59	52	51	47	48
15	62	60	59	53	57	54	74	58	52	50	47	48
16	65	60	59	60	57	54	70	60	50	51	47	46
17	66	60	58	46	58	54	65	60	49	55	45	46
18	70	60	58	54	59	55	63	61	49	57	45	103
19	67	59	57	59	61	53	59	59	50	56	45	123
20	65	60	54	60	61	53	58	58	49	52	44	88
21	66	60	54	59	60	50	56	57	49	54	43	80
22	64	61	55	56	58	52	55	59	49	58	45	74
23	64	62	46	56	58	52	55	59	50	55	47	68
24	65	61	42	54	58	51	55	57	50	58	52	60
25	64	62	53	55	52	52	53	58	50	55	50	53
26	63	61	57	55	e41	53	53	57	51	57	47	56
27	62	59	52	57	53	54	57	59	50	53	44	58
28	62	54	50	58	59	55	57	56	49	52	47	64
29	62	60	42	55	---	53	54	56	49	51	46	62
30	61	62	49	43	---	53	55	55	45	48	49	61
31	64	---	41	54	---	53	---	54	---	45	50	---
TOTAL	1969	1818	1706	1680	1595	1696	1867	1815	1559	1582	1434	1763
MEAN	63.5	60.6	55.0	54.2	57.0	54.7	62.2	58.5	52.0	51.0	46.3	58.8
MAX	70	62	62	63	65	61	83	62	62	58	52	123
MIN	59	54	41	38	41	48	48	54	45	42	43	45
AC-FT	3910	3610	3380	3330	3160	3360	3700	3600	3090	3140	2840	3500

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2002, BY WATER YEAR (WY)

	MEAN	MAX	MIN	(WY)
MEAN	48.1	47.8	44.8	43.6
MAX	98.5	111	99.0	93.4
MIN	25.1	24.4	24.1	22.7
(WY)	1999	1999	1999	1999
MEAN	48.1	47.8	44.8	43.6
MAX	98.5	111	99.0	93.4
MIN	25.1	24.4	24.1	22.7
(WY)	1962	1962	1982	1962

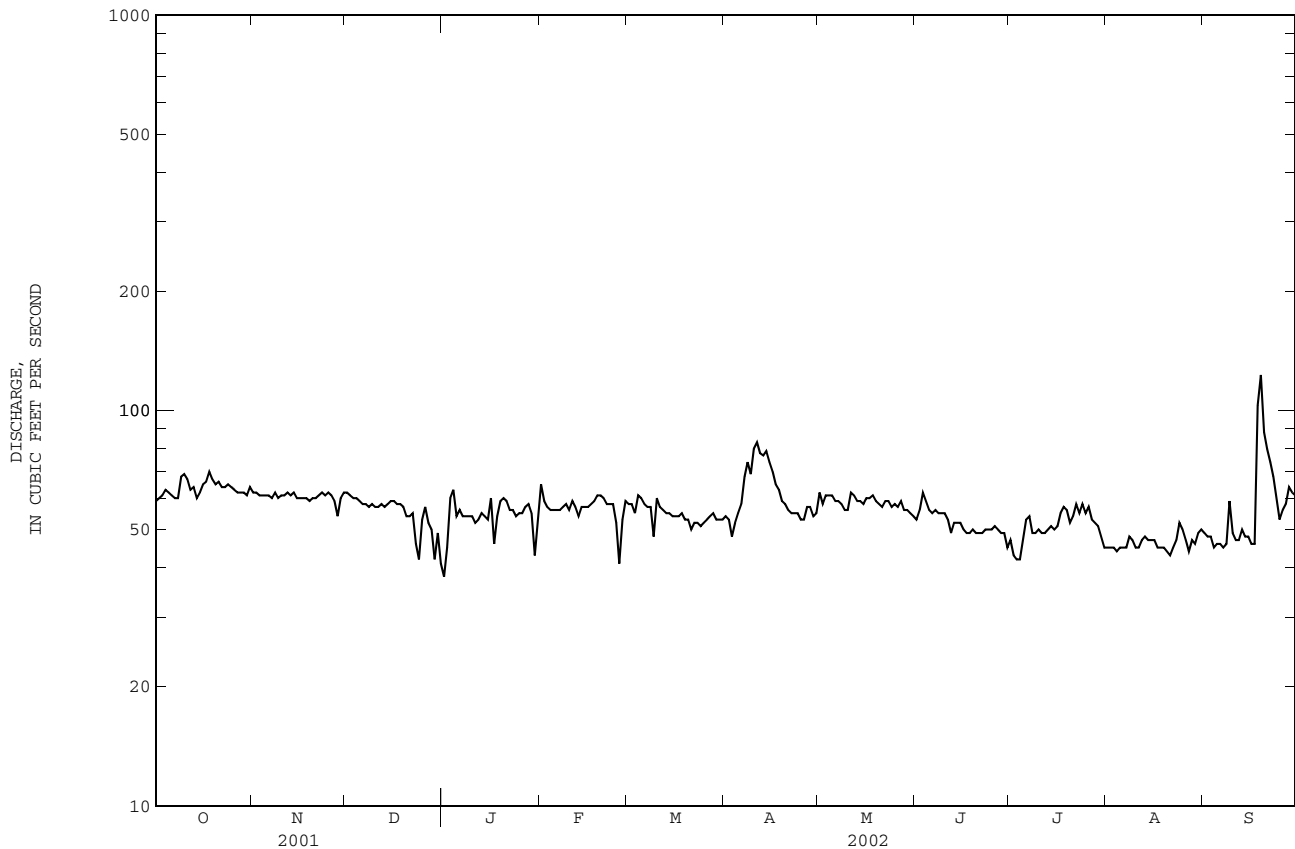
06431500 SPEARFISH CREEK AT SPEARFISH, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1947 - 2002	
ANNUAL TOTAL	24602		20484		55.8	
ANNUAL MEAN	67.4		56.1		106	
HIGHEST ANNUAL MEAN					27.1	
LOWEST ANNUAL MEAN					1880	
HIGHEST DAILY MEAN	113	Apr 21	123	Sep 19	1880	May 15 1965
LOWEST DAILY MEAN	41	Dec 31	38	Jan 1	9.0	Dec 2 1959a
ANNUAL SEVEN-DAY MINIMUM	49	Dec 23	45	Jul 31	18	Dec 18 1981
MAXIMUM PEAK FLOW			171	Sep 18	4240	May 15 1965b
MAXIMUM PEAK STAGE			7.05	Sep 18	10.54	Jun 15 1976
ANNUAL RUNOFF (AC-FT)	48800		40630		40390	
10 PERCENT EXCEEDS	82		63		87	
50 PERCENT EXCEEDS	65		56		47	
90 PERCENT EXCEEDS	58		46		32	

a No flow for part of Oct. 18, 1970.

b From rating curve extended above 520 ft³/s on basis of slope-area measurement of peak flow, gage height, 10.53 ft.

e Estimated.



BELLE FOURCHE RIVER BASIN

06433000 REDWATER RIVER ABOVE BELLE FOURCHE, SD

LOCATION.--Lat 44°40'02", long 103°50'20", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.11, T.8 N., R.2 E., Butte County, Hydrologic Unit 10120203, on right bank near downstream end of bridge on old U.S. Highway 212 in Belle Fourche, 0.5 mi upstream from Hay Creek, and 0.9 mi upstream from mouth.

DRAINAGE AREA.--920 mi².

PERIOD OF RECORD.--November 1945 to current year. Daily discharges for October 1946 estimated; yearly discharge published in WSP 1309 does not include October. Prior to October 1960, published as Redwater Creek above Belle Fourche.

REVISED RECORDS.--WSP 1389: 1954 (maximum gage height only).

GAGE.--Water-stage recorder. Elevation of gage is 3,000 ft above NGVD of 1929, from topographic map. Prior to Dec. 13, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except thse for estimated daily discharges, which are poor. Diversions for irrigation of about 13,000 acres upstream from station. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	171	e171	e148	e165	162	170	204	e19	7.2	28	46
2	127	172	173	e150	e175	163	167	189	e16	7.5	15	43
3	120	173	176	e160	156	e150	158	174	e14	7.7	16	53
4	121	179	172	e180	157	e160	164	175	e13	8.5	15	54
5	130	178	171	e160	156	169	166	164	e12	8.5	14	50
6	135	177	169	148	156	171	171	162	12	7.6	12	51
7	135	176	169	149	155	167	184	147	12	7.4	14	52
8	136	173	167	152	158	164	200	148	12	7.4	30	52
9	154	170	167	151	168	135	190	145	12	6.9	43	80
10	155	169	166	150	154	192	192	143	12	6.5	41	98
11	156	170	167	147	163	181	197	160	11	6.5	37	98
12	155	170	164	149	158	170	192	164	11	6.4	34	106
13	154	171	161	154	156	170	190	152	10	6.4	32	139
14	152	170	162	154	159	174	194	147	12	6.2	32	140
15	149	e171	164	153	157	170	195	139	13	6.0	35	118
16	161	e171	162	e151	160	169	190	138	16	5.9	34	118
17	168	e172	162	e150	162	167	187	132	14	5.9	32	131
18	174	e172	160	e148	163	168	185	128	15	6.0	31	176
19	167	173	158	e150	167	165	180	125	14	6.4	36	202
20	158	175	158	e153	166	164	175	120	11	7.1	34	154
21	155	176	155	e156	162	156	175	116	11	9.1	32	136
22	156	176	152	153	162	160	171	103	10	13	31	137
23	163	177	e151	152	163	166	168	108	12	15	34	136
24	168	176	e150	149	167	165	167	114	9.5	21	33	137
25	173	177	e149	149	155	162	165	103	8.6	16	40	135
26	170	e174	e150	152	126	163	164	83	8.2	17	44	138
27	170	e168	e151	155	153	171	179	71	7.9	22	44	138
28	167	e165	e152	153	165	173	184	66	7.8	25	44	137
29	168	e168	e150	e145	---	172	168	51	7.5	25	47	133
30	167	e171	e148	e138	---	170	161	37	7.3	38	49	124
31	168	---	e146	e147	---	169	---	e26	---	33	44	---
TOTAL	4765	5181	4973	4706	4464	5158	5349	3934	350.8	372.1	1007	3312
MEAN	154	173	160	152	159	166	178	127	11.7	12.0	32.5	110
MAX	174	179	176	180	175	192	200	204	19	38	49	202
MIN	120	165	146	138	126	135	158	26	7.3	5.9	12	43
AC-FT	9450	10280	9860	9330	8850	10230	10610	7800	696	738	2000	6570

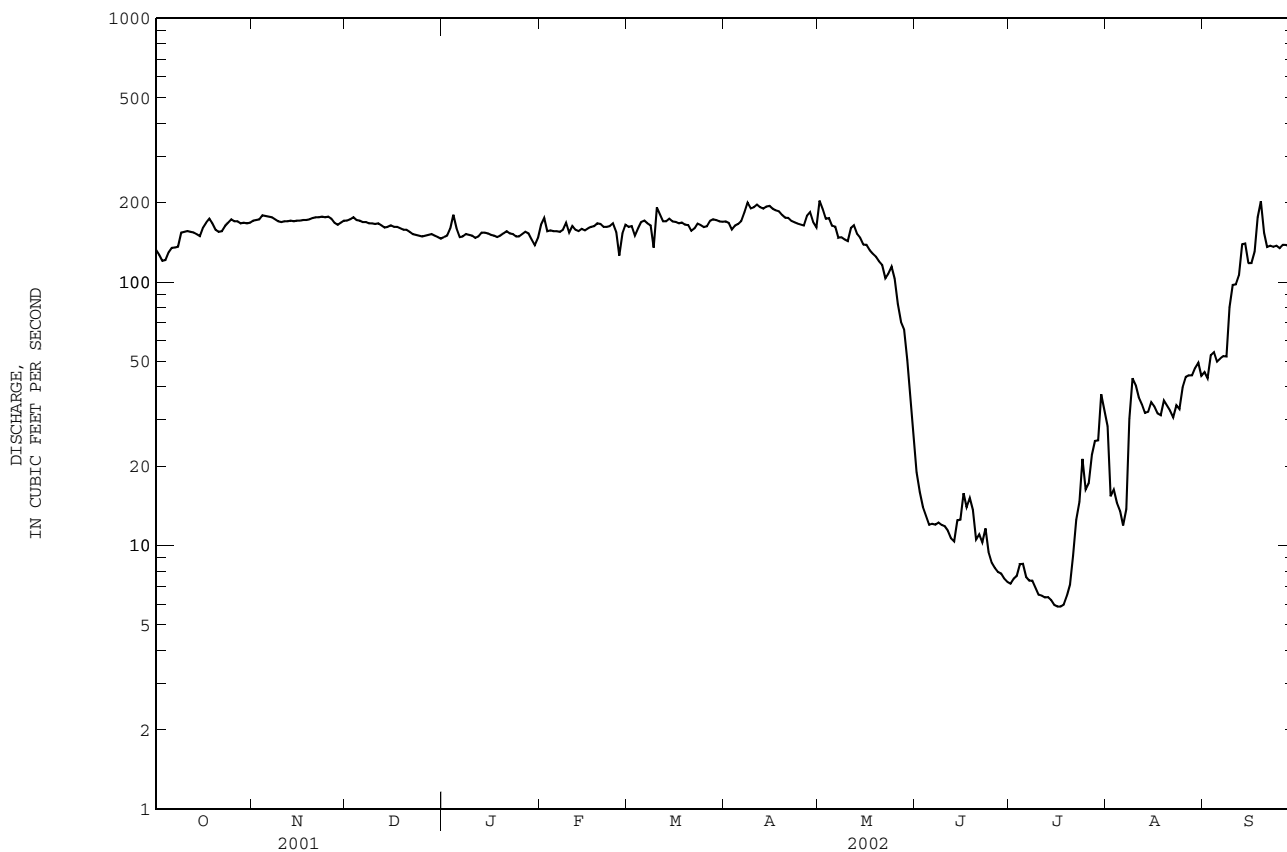
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2002, BY WATER YEAR (WY)

MEAN	137	148	144	138	148	161	182	242	191	62.4	48.5	90.4
MAX	313	268	229	246	278	276	359	988	834	263	178	192
(WY)	1999	1999	1999	1997	1996	1996	1997	1995	1946	1946	1998	1946
MIN	50.6	82.7	69.9	83.5	91.7	105	62.9	20.0	4.07	2.13	2.72	19.3
(WY)	1961	1961	1962	1957	1993	1961	1981	1992	1988	1960	1959	1959

06433000 REDWATER RIVER ABOVE BELLE FOURCHE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1946 - 2002	
ANNUAL TOTAL	57325		43571.9		141	
ANNUAL MEAN	157		119		251	
HIGHEST ANNUAL MEAN					57.1	
LOWEST ANNUAL MEAN					1999	
HIGHEST DAILY MEAN	363	Mar 7	204	May 1	5790	May 20 1982
LOWEST DAILY MEAN	34	Jul 14	5.9	Jul 16	0.00	May 1 1981a
ANNUAL SEVEN-DAY MINIMUM	38	Jul 8	6.1	Jul 12	0.56	Jul 30 1960
MAXIMUM PEAK FLOW			255	Sep 18b	16400	Jun 16 1962c
MAXIMUM PEAK STAGE			3.66	Jan 4d	11.69	Jun 16 1962
ANNUAL RUNOFF (AC-FT')	113700		86420		102000	
10 PERCENT EXCEEDS	218		175		220	
50 PERCENT EXCEEDS	168		152		130	
90 PERCENT EXCEEDS	64		12		22	

- a No flow at times in 1960, 1968-69, 1981-82, and 1988.
b Gage height, 3.39 ft.
c From rating curve extended above 6,000 ft³/s on basis of slope-area measurement of peak flow.
d Backwater from ice.
e Estimated.



BELLE FOURCHE RIVER BASIN

06434505 INLET CANAL ABOVE BELLE FOURCHE RESERVOIR, SD

LOCATION.--Lat 44°42'05", long 103°44'00", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.34, T.9 N., R.3 E., Butte County, Hydrologic Unit 10120202, on left bank 6.5 mi downstream from diversion dam on Belle Fourche River, and 2.5 mi northwest of Fruitdale.

PERIOD OF RECORD.--October 1994 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,980 ft above NGVD of 1929 from topographic map. Prior to October 1994, another station located on Inlet Canal near Belle Fourche (station 06434500) at site 5.6 mi upstream (discharge records are not equivalent because of diversions for irrigation).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Records show actual diversions to Belle Fourche Reservoir (see station 06435000), from Belle Fourche River and Crow Creek. Bureau of Reclamation satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

COOPERATION.--Records of diversion from the canal provided by the Belle Fourche Irrigation District.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	181	e188	e168	190	161	211	211	e6.6	47	151	124
2	120	181	e189	e170	185	157	200	210	e7.1	54	146	130
3	112	184	189	e173	185	151	196	203	e11	66	111	141
4	116	191	190	e185	183	176	201	203	e8.0	72	105	129
5	120	189	189	e173	182	180	208	200	e5.8	84	109	123
6	127	189	189	e174	178	184	211	198	e3.6	84	115	127
7	129	191	189	e175	174	180	215	194	e45	76	127	135
8	129	187	188	190	174	e167	223	192	e100	81	139	144
9	142	187	188	188	175	e170	216	190	e104	73	294	182
10	159	183	188	181	171	e190	218	190	e102	63	270	239
11	158	186	188	182	176	186	221	195	e102	66	203	227
12	154	186	189	177	173	191	221	193	105	71	186	212
13	155	187	192	182	166	188	221	194	e93	65	168	244
14	154	189	189	179	162	188	221	191	e94	84	160	275
15	153	189	188	e177	158	190	218	186	e93	95	147	262
16	159	189	187	e175	163	191	215	182	e98	101	129	238
17	167	189	187	e170	164	194	212	177	e90	104	104	232
18	173	189	187	e167	166	192	211	173	e91	113	104	292
19	170	188	186	e163	169	190	202	169	e83	124	116	358
20	166	186	187	e160	170	194	207	160	e79	115	112	322
21	164	188	186	e160	169	191	205	160	e74	129	111	253
22	165	191	e175	e164	170	188	202	152	e78	134	126	224
23	172	192	e170	e164	172	192	200	122	e76	139	129	210
24	174	193	e170	e167	172	191	198	e142	e86	157	118	244
25	174	192	e170	180	166	193	196	e132	e71	155	159	214
26	174	189	e175	180	159	197	194	e124	70	146	147	219
27	174	e185	e170	180	160	196	198	e118	79	156	142	e216
28	179	e180	e170	177	168	201	202	e109	52	163	133	e212
29	181	e185	e170	e160	---	206	197	e86	36	159	148	e207
30	181	e187	e175	e150	---	207	195	e67	47	165	146	e199
31	181	---	e168	166	---	205	---	e26	---	161	130	---
TOTAL	4806	5623	5666	5357	4800	5787	6235	5049	1990.1	3302	4485	6334
MEAN	155	187	183	173	171	187	208	163	66.3	107	145	211
MAX	181	193	192	190	190	207	223	211	105	165	294	358
MIN	112	180	168	150	158	151	194	26	3.6	47	104	123
AC-FT	9530	11150	11240	10630	9520	11480	12370	10010	3950	6550	8900	12560

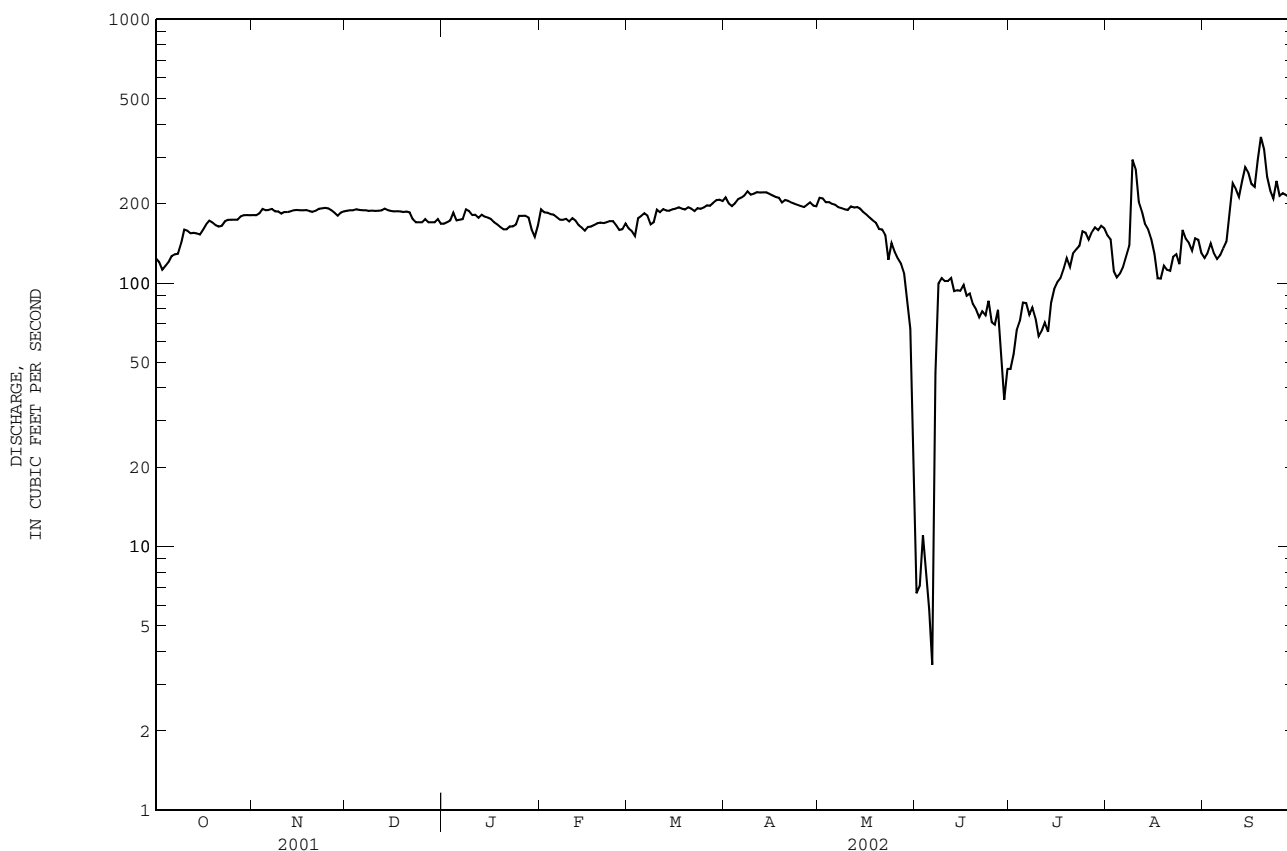
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2002, BY WATER YEAR (WY)

	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	225	175	129	162	108	133	93.1	161
MAX	462	296	220	372	193	302	208	254
(WY)	1999	2001	1998	1997	1997	1995	2002	2001
MIN	54.5	0.040	1.70	1.64	2.06	0.95	4.88	79.5
(WY)	2000	1997	1999	2000	2000	1996	1997	1999

06434505 INLET CANAL ABOVE BELLE FOURCHE RESERVOIR, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1995 - 2002	
ANNUAL TOTAL	62744.07		59434.1		152	
ANNUAL MEAN	172		163		183	
HIGHEST ANNUAL MEAN					113	
LOWEST ANNUAL MEAN					1300	
HIGHEST DAILY MEAN	718	Jun 8	358	Sep 19		2001
LOWEST DAILY MEAN	0.40	Apr 17	3.6	Jun 6		2000
ANNUAL SEVEN-DAY MINIMUM	0.50	Apr 14	9.7	May 31		Dec 31 1995a
MAXIMUM PEAK FLOW			946	Sep 24	1630	Oct 17 1998
MAXIMUM PEAK STAGE			7.51	Sep 24	9.00	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	124500		117900		110300	
10 PERCENT EXCEEDS	298		210		280	
50 PERCENT EXCEEDS	177		174		164	
90 PERCENT EXCEEDS	26		88		1.1	

a No flow at times in most years.
e Estimated.



BELLE FOURCHE RIVER BASIN

06435000 BELLE FOURCHE RESERVOIR NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°44'12", long 103°40'27", in SW¹/₄ SE¹/₄ sec.18, T.9 N., R.4 E., Butte County, Hydrologic Unit 10120202, at dam on Owl Creek, 9.8 mi northeast of Belle Fourche.

PERIOD OF RECORD.--January 1912 to current year (monthend contents only).

GAGE.--Water-stage recorder. Elevations listed to NGVD of adjustment of 1912. Prior to June 6, 1967, nonrecording gage at present site and datum.

REMARKS.--Offstream reservoir formed by earthfill dam. Storage began in May 1910; dam completed in April 1911. Conservation capacity, 185,277 acre-ft (1949 survey), between elevations 2,927.0 ft (lowest outlet) and 2,975.0 ft. Dead storage below elevation 2,927.0 ft, 6,800 acre-ft. Figures given herein represent contents above elevation 2,927.0 ft. Water diverted from Belle Fourche River through Inlet Canal (see station 06434505) is stored in Belle Fourche Reservoir for irrigation.

COOPERATION.--Records of elevation and contents provided by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 197,400 acre-ft, Apr. 30, 1919, May 20, 1920, elevation, 2,974.9 ft; minimum observed, -3,000 acre-ft, Sept. 30, 1936, water was lowered below dead storage level of 2,927.0 ft by opening holes in crib walls.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 167,572 acre-ft, May 14, elevation, 2,972.75 ft; minimum, 44,619 acre-ft, Sept. 20, elevation, 2,951.03 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	2,961.10	90,400	--
Oct. 31	2,962.25	96,800	+6,400
Nov. 30	2,964.02	107,200	+10,400
Dec. 31	2,965.73	117,800	+10,600
CAL YR 2001.	--	--	-7,800
Jan. 31	2,967.28	128,000	+10,200
Feb. 28	2,968.69	137,700	+9,700
Mar. 31	2,970.35	149,600	+11,900
Apr. 30	2,972.11	162,700	+13,100
May 31	2,971.96	161,500	-1,200
June 30	2,966.47	122,600	-38,900
July 31	2,959.79	83,400	-39,200
Aug. 31	2,953.73	54,900	-28,500
Sept.30	2,952.28	49,200	-5,700
WTR YR 2002.	--	--	-41,200

THIS PAGE IS INTENTIONALLY BLANK

BELLE FOURCHE RIVER BASIN

06436000 BELLE FOURCHE RIVER NEAR FRUITDALE, SD

LOCATION.--Lat 44°41'27", long 103°44'14", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.3, T.8 N., R.3 E., Butte County, Hydrologic Unit 10120202, on left bank near downstream end of bridge on U.S. Highway 212, 2.5 mi northwest of Fruitdale, and 8.8 mi downstream from point of diversion to Belle Fourche Reservoir.

DRAINAGE AREA.--4,540 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for October 1945, published in WSP 1309.

GAGE.--Water-stage recorder. Elevation of gage is 2,925 ft above NGVD of 1929, from topographic map. Prior to Apr. 9, 1947, nonrecording gage and Apr. 10, 1947, to Oct. 14, 1948, water-stage recorder, at site 100 ft upstream at same datum. Oct. 15, 1948, to Dec. 30, 1958, water-stage recorder and Dec. 31, 1958, to Sept. 23, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good except those for May 1 to Sept. 30, which are fair, and those for estimated daily discharges, which are poor. Flow regulated by Keyhole Dam since Oct. 25, 1952, usable capacity, 191,600 acre-ft, 180 mi upstream. Maximum discharge prior to Sept. 30, 1953, 7,460 ft³/s, June 23, 1947, gage height, 11.03 ft; no flow at times in 1945 and 1948. At a point 8.8 mi above station, water is diverted to Belle Fourche Reservoir (see station 06435000) through Inlet Canal (see station 06434505), with other smaller diversions from the main stem and tributaries for irrigation. Total diversions for irrigation of about 60,000 acres upstream from station. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. Additional water-quality samples collected as part of a Total Maximum Daily Load (TMDL) sampling program to be published in a separate report.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	11	e9.0	e8.8	e11	8.1	5.8	8.4	4.1	9.7	16	16
2	10	11	e9.0	e9.0	e11	8.3	7.6	7.0	1.3	11	16	17
3	10	11	e11	e10	e11	9.4	5.1	5.1	2.3	12	17	15
4	11	11	11	e12	e10	9.4	5.0	5.4	4.2	8.4	16	14
5	10	10	11	e11	e10	8.7	5.0	5.5	9.3	10	18	16
6	10	9.9	11	e13	e10	8.3	5.5	5.5	6.8	12	21	16
7	11	10	11	e15	10	7.5	6.8	5.5	7.5	9.4	21	14
8	11	9.6	10	e14	10	7.8	7.5	5.5	8.3	11	25	16
9	12	9.8	10	13	e9.6	8.5	6.4	5.4	9.6	11	26	26
10	13	9.7	10	11	10	9.1	6.0	4.1	8.9	11	26	21
11	11	9.8	10	10	10	9.1	5.9	5.2	8.8	9.2	20	18
12	11	9.8	9.8	9.9	9.4	9.2	5.7	16	9.8	15	16	17
13	11	9.8	9.8	11	9.1	8.7	5.5	22	9.6	15	15	16
14	11	9.7	9.7	9.9	9.1	8.8	5.3	4.5	8.6	17	14	16
15	10	9.7	9.8	10	8.8	7.7	4.8	3.9	6.3	14	13	17
16	10	9.6	9.7	10	8.9	6.3	4.5	4.2	6.6	17	14	17
17	11	9.5	9.7	e9.7	8.7	5.3	4.7	3.6	5.9	17	12	17
18	11	9.7	9.8	e9.4	8.6	5.0	5.0	3.2	7.6	18	13	26
19	11	9.7	9.4	e9.2	8.8	5.0	29	3.3	7.4	19	12	23
20	11	9.6	9.6	e9.0	8.5	4.8	11	9.3	9.6	17	13	19
21	12	9.6	9.6	e11	8.4	4.7	5.2	8.6	13	18	13	16
22	13	9.7	8.8	e11	8.6	4.7	4.6	3.9	11	21	12	14
23	12	9.7	8.2	e11	8.5	4.7	4.3	3.2	13	17	12	16
24	11	9.6	9.5	e11	8.3	5.3	3.9	3.2	8.8	19	14	16
25	11	e9.4	10	12	7.7	5.0	4.0	4.3	11	20	15	14
26	11	e8.6	11	11	7.4	4.9	4.0	3.6	11	18	16	15
27	11	e9.0	11	9.9	7.7	5.1	4.6	3.7	12	18	24	13
28	11	9.3	11	9.6	7.9	6.4	5.4	4.2	11	19	28	14
29	11	9.2	10	e9.2	---	6.8	4.5	3.7	9.4	17	25	17
30	11	e9.1	e9.0	e8.3	---	6.4	4.9	4.0	11	19	27	15
31	11	---	e8.7	e8.8	---	6.3	---	1.00	---	15	18	---
TOTAL	342	293.1	307.1	327.7	257.0	215.3	187.5	176.00	253.7	464.7	548	507
MEAN	11.0	9.77	9.91	10.6	9.18	6.95	6.25	5.68	8.46	15.0	17.7	16.9
MAX	13	11	11	15	11	9.4	29	22	13	21	28	26
MIN	10	8.6	8.2	8.3	7.4	4.7	3.9	1.0	1.3	8.4	12	13
AC-FT	678	581	609	650	510	427	372	349	503	922	1090	1010

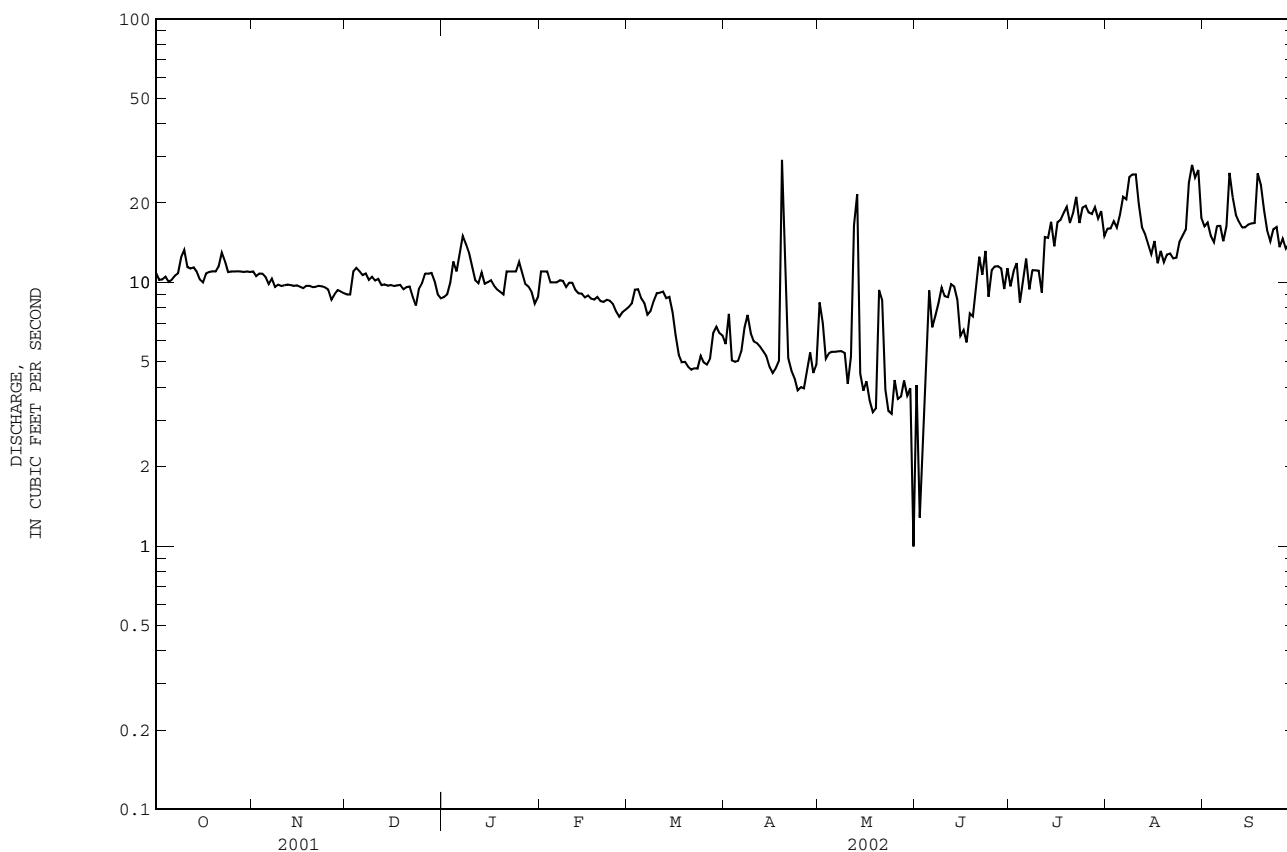
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2002, BY WATER YEAR (WY) *

	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
MEAN	19.4	28.9	20.9	22.5	52.9	117	164	322	217	41.8	14.5	11.3
MAX	228	594	298	280	535	1125	984	2256	1149	525	88.0	54.4
(WY)	2000	1999	1999	1999	1996	1996	1997	1995	1976	1993	1993	1993
MIN	3.82	3.33	3.23	1.97	1.32	2.46	2.30	3.12	0.33	0.22	0.30	2.24
(WY)	1961	1979	1968	1957	1955	1977	1981	1985	1961	1960	1960	1959

06436000 BELLE FOURCHE RIVER NEAR FRUITDALE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1954 - 2002*	
ANNUAL TOTAL	25774.1		3879.10		86.0a	
ANNUAL MEAN	70.6		10.6		351	
HIGHEST ANNUAL MEAN					3.00	
LOWEST ANNUAL MEAN					11100	
HIGHEST DAILY MEAN	1620	Apr 7	29	Apr 19	May 10	1999
LOWEST DAILY MEAN	5.4	Jun 1	1.0	May 31	Sep 10	1961
ANNUAL SEVEN-DAY MINIMUM	7.5	May 19	2.9	May 28	Jun 4	1959b
MAXIMUM PEAK FLOW			144	Apr 19	May 20	1982
MAXIMUM PEAK STAGE			2.96	Apr 19	May 20	1982
ANNUAL RUNOFF (AC-FT)	51120		7690		62320	
10 PERCENT EXCEEDS	231		17		256	
50 PERCENT EXCEEDS	12		9.9		6.7	
90 PERCENT EXCEEDS	9.0		4.9		3.0	

* Regulated period only (1954-2002). See REMARKS.
a Median of annual mean discharges, 63 ft³/s.
b No flow at times in 1959-62 and 1977.
e Estimated.



06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD

LOCATION.--Lat 44°26'32", long 103°37'44", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.33, T.6 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on left bank 90 ft downstream from Crook Mountain Road and 1.1 mi south of Whitewood.

DRAINAGE AREA.--56.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,680 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow affected by transbasin diversions for industrial and municipal water supplies. Satellite data-collection platform at station. Additional water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 15, 1962, discharge, 8,460 ft³/s, by contracted-opening measurement, 1.8 mi downstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	11	e4.9	e3.0	e3.0	e2.7	e4.1	23	12	2.5	4.8	7.3
2	9.8	11	e5.2	e2.9	e3.2	e2.9	e3.3	19	13	6.7	5.2	7.0
3	9.9	10	e5.4	e3.1	e3.5	e3.2	e3.3	24	17	9.5	4.9	6.9
4	11	10	e5.7	e3.3	e3.8	e4.0	e3.7	22	13	9.0	7.0	6.4
5	11	10	e5.6	e3.3	e4.0	e4.8	e8.0	20	12	6.9	7.1	5.7
6	11	10	e5.5	e3.3	e4.4	e3.8	e15	20	11	5.8	7.6	5.7
7	11	9.3	e5.4	e3.3	e4.6	e2.8	e34	19	11	5.5	7.5	6.6
8	10	9.5	e5.3	e3.5	e4.4	e2.3	45	18	11	4.5	26	8.1
9	19	9.5	e5.2	e3.8	e4.0	e2.3	34	17	10	4.1	15	31
10	16	9.0	e5.0	e3.8	e3.8	e2.7	38	16	10	4.2	9.8	15
11	12	9.6	e4.6	e3.5	e3.8	e3.5	34	29	10	3.9	8.7	11
12	17	9.1	e4.2	e3.6	e4.0	e4.8	30	22	10	4.2	9.2	10
13	15	9.0	e3.8	e3.8	e4.0	e4.0	30	24	9.6	4.0	7.8	15
14	14	9.0	e3.8	e3.4	e4.2	e3.2	32	23	9.5	4.0	7.0	11
15	12	9.2	e4.0	e3.2	e4.4	e2.9	30	20	9.1	4.1	6.9	10
16	12	9.1	e4.2	e2.8	e4.6	e2.7	28	20	8.9	4.0	6.8	9.0
17	12	9.7	e4.4	e2.6	e4.7	e2.5	24	20	8.5	4.1	6.8	8.3
18	15	11	e4.4	e2.4	e4.8	e2.3	23	19	8.5	4.3	7.1	80
19	13	e8.0	e4.3	e2.5	e5.0	e2.3	20	17	8.1	4.2	7.0	47
20	13	e9.0	e4.2	e2.7	e5.5	e2.3	18	17	8.3	5.0	6.6	23
21	13	e12	e3.8	e3.0	e6.0	e2.4	18	17	8.0	7.1	8.9	20
22	11	11	e3.6	e3.5	e6.6	e2.4	16	17	8.0	5.9	11	16
23	11	11	e3.5	e4.0	e5.6	e2.6	15	17	7.8	5.0	8.3	16
24	12	11	e3.3	e4.3	e4.0	e2.7	16	18	7.1	5.3	16	17
25	12	11	e3.4	e4.0	e2.5	e2.8	14	17	7.2	4.5	12	17
26	11	e9.4	e3.5	e3.7	e2.5	e2.9	14	16	6.9	4.7	9.4	16
27	12	e5.5	e3.5	e3.0	e2.7	e3.0	24	16	6.5	6.5	8.7	14
28	11	e3.0	e3.5	e2.6	e2.7	e3.2	18	14	6.3	5.5	8.6	17
29	10	e3.4	e3.3	e2.6	---	e3.4	17	13	5.6	5.4	7.9	13
30	11	e4.7	e3.2	e2.6	---	e3.8	17	13	5.9	5.0	7.5	12
31	11	---	e3.1	e2.8	---	e4.1	---	12	---	5.0	7.5	---
TOTAL	378.4	274.0	132.8	99.9	116.3	95.3	626.4	579	279.8	160.4	274.6	482.0
MEAN	12.2	9.13	4.28	3.22	4.15	3.07	20.9	18.7	9.33	5.17	8.86	16.1
MAX	19	12	5.7	4.3	6.6	4.8	45	29	17	9.5	26	80
MIN	9.7	3.0	3.1	2.4	2.5	2.3	3.3	12	5.6	2.5	4.8	5.7
AC-FT	751	543	263	198	231	189	1240	1150	555	318	545	956

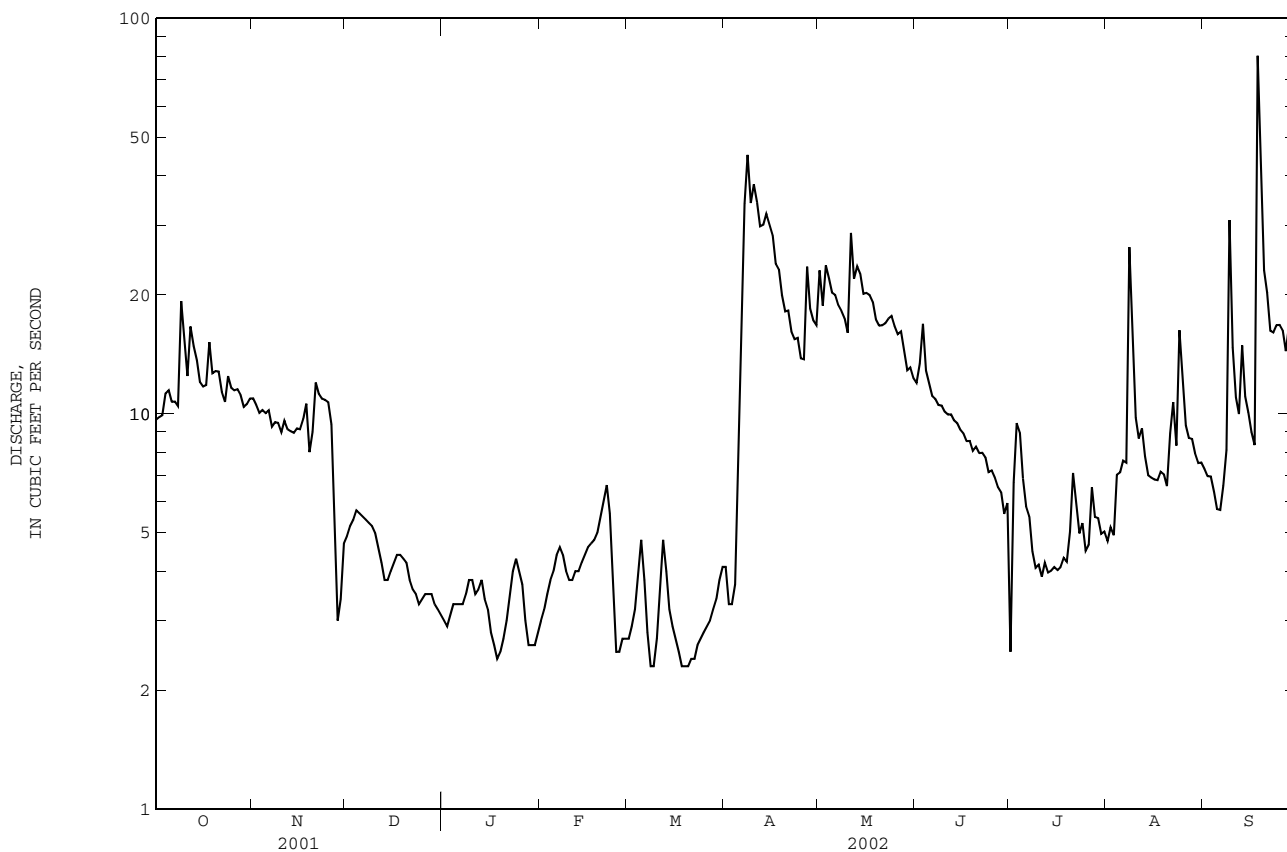
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2002, BY WATER YEAR (WY)

	MEAN	20.7	18.2	12.8	12.1	14.2	24.4	58.0	84.3	47.1	22.9	17.5	14.6
MAX	89.8	52.2	23.1	18.4	28.7	49.5	140	384	101	48.7	45.3	22.7	
(WY)	1999	1999	1999	1996	1996	1994	1997	1995	1984	1997	1998	1998	
MIN	11.3	9.13	4.28	3.22	4.15	3.07	20.9	15.0	9.33	5.19	8.86	9.64	
(WY)	1993	2002	2002	2002	2002	2002	2002	1985	2002	2002	2002	2001	

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1983 - 2002	
ANNUAL TOTAL	6454.1		3499.5		28.2	
ANNUAL MEAN	17.7		9.59		59.5	
HIGHEST ANNUAL MEAN					9.59	
LOWEST ANNUAL MEAN					2370	
HIGHEST DAILY MEAN	87	Apr 28	80	Sep 18	2.3	May 9 1995
LOWEST DAILY MEAN	3.0	Nov 28	2.3	Mar 8	2.4	Mar 8 2002a
ANNUAL SEVEN-DAY MINIMUM	3.4	Dec 25	2.4	Mar 17	2.4	Mar 17 2002
MAXIMUM PEAK FLOW			322	Aug 8b	3800	May 8 1995c
MAXIMUM PEAK STAGE			3.98	Feb 14d	9.06	May 8 1995
ANNUAL RUNOFF (AC-FT)	12800		6940		20410	
10 PERCENT EXCEEDS	37		18		56	
50 PERCENT EXCEEDS	12		7.2		16	
90 PERCENT EXCEEDS	5.6		3.0		9.5	

- a Also Mar. 9, 18-20, 2002.
b Gage height, 3.16 ft.
c On basis of slope-area measurement of peak flow.
d Backwater from ice.
e Estimated.



WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1983 to current year.

REMARKS.--On Sept. 4, 2002, a field duplicate sample was collected at this site for quality-control purposes. The analytical results for the field duplicate sample are noted in the water-quality results.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

		DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CAC03) (00900)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CAC03) (90410)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	
DEC 2001 13...	1050	2.8	1300	8.3	5.0	0	660	8.9	71	560	195	116	65.6	
MAY 2002 06...	1050	20	774	8.2	7.0	8.5	665	10.5	89	330	132	67.7	38.0	
JUN 03...	1200	14	833	8.1	16.5	16.0	664	9.2	93	340	149	73.9	37.9	
04...	0920	--	944	--	15.0	13.0	--	--	--	--	--	--	--	
SEP 04...	1105	6.2	1720	8.5	33.5	19.5	666	8.9	112	640	156	149	65.4	
a04...	1106	6.2	1720	8.5	33.5	19.5	666	8.9	112	650	156	152	65.7	
Date		SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ANTI-MONY, DIS-SOLVED (UG/L AS SB) (01095)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
DEC 2001 13...	78.4	1	474	7.52	1	.95	35	35.3	49	<.06	.11	.10	<.8	
MAY 2002 06...	34.7	.8	213	1.43	14	.60	13	11.9	51	<.06	E.03	.11	<.8	
JUN 03...	41.0	1	228	4.07	21	.69	33	23.5	54	<.06	.06	E.04	1.7	
04...	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	142	2	691	1.20	71	.99	38	39.7	87	<.06	.14	.10	<.8	
a04...	143	2	687	1.21	72	.83	36	39.8	87	<.06	.13	.10	<.8	
Date		CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
DEC 2001 13...	<.8	5.31	3.9	3.7	--	40	10	<1	.10	24.6	5	4.5	<.01	
MAY 2002 06...	<.8	1.45	3.1	2.7	<.01	120	24	<1	E.06	13.9	8	5.6	<.01	
JUN 03...	1.9	1.98	5.0	3.5	<.01	760	51	1	.11	17.8	46	9.2	.02	
04...	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	<.8	7.25	7.7	4.5	<.01	140	13	<1	.12	27.6	14	5.2	<.01	
a04...	<.8	7.27	7.6	4.5	<.01	130	15	<1	.14	28.1	14	5.3	<.01	

a Field duplicate sample collected for quality-control purposes.

E Estimated value.

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL SOLVED (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)
DEC 2001 13...	<.01	25.6	5	5.25	2.0	2.4	<.05	<1	467	1.1	7	5	3.08
MAY 2002 06...	<.01	3.1	3	2.79	1.2	1.2	<.05	<1	343	1.3	5	4	2.45
JUN 03...	.03	5.8	5	4.88	1.2	1.1	<.05	<1	341	1.2	18	8	2.19
JUN 04...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	<.01	13.0	13	2.17	1.8	1.6	<.05	<1	588	1.5	8	5	2.62
a04...	<.01	12.9	13	1.80	1.6	1.6	<.05	<1	591	1.5	8	5	2.62

Date	SEDI- MENT, SUS- PENDEED (MG/L) (80154)
DEC 2001 13...	3.0
MAY 2002 06...	3.4
JUN 03...	--
JUN 04...	30
SEP 04...	6.4
a04...	--

a Field duplicate sample collected for quality-control purposes.
E Estimated value.

BELLE FOURCHE RIVER BASIN

06436190 WHITEWOOD CREEK NEAR WHITEWOOD, SD

LOCATION.--Lat 44°32'30", long 103°34'16", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.25, T.7 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on right bank 30 ft downstream from county highway bridge and 6.9 mi northeast of Whitewood.

DRAINAGE AREA.--77.4 mi², approximately.

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 3,175 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. Small diversions upstream for irrigation of 256 acres. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	11	8.4	4.3	5.9	e4.5	12	25	7.0	3.2	0.51	4.8
2	6.4	11	9.5	3.8	6.3	e4.2	9.6	18	8.2	2.3	0.45	4.5
3	6.8	11	11	4.5	6.4	e5.4	8.3	20	11	3.5	0.42	4.5
4	7.0	11	12	5.0	6.2	7.3	9.9	20	9.3	4.1	0.40	4.0
5	8.0	11	11	4.8	6.1	8.1	13	17	8.5	4.5	0.40	3.5
6	7.9	11	9.8	4.8	6.2	8.0	28	18	8.0	3.4	0.39	2.9
7	7.6	11	11	5.3	6.2	7.0	58	17	7.4	3.3	0.39	3.1
8	7.5	11	10	5.3	6.4	8.0	62	16	9.1	2.6	4.6	3.6
9	12	11	11	5.5	6.2	7.2	32	16	11	2.1	21	17
10	15	11	10	5.6	5.5	7.3	42	15	11	2.0	9.2	12
11	11	11	9.9	5.5	6.2	8.5	43	31	9.8	2.1	6.9	7.9
12	13	11	8.4	5.6	6.7	8.8	33	25	7.0	1.8	6.7	7.0
13	13	11	6.8	5.9	6.4	11	30	23	6.6	1.5	6.9	10
14	13	11	7.8	5.3	6.4	9.8	33	21	6.1	1.3	5.1	8.2
15	11	11	9.2	4.9	6.6	7.6	30	19	6.0	1.2	5.1	7.0
16	11	11	9.1	4.6	7.0	8.0	27	18	5.7	1.2	5.3	6.2
17	11	12	8.1	4.9	7.0	9.3	23	18	5.5	1.1	5.4	5.3
18	12	13	9.0	4.3	7.2	8.7	21	17	5.3	1.1	5.4	80
19	12	11	7.0	5.1	7.6	7.6	19	15	5.2	1.1	5.0	96
20	11	12	6.9	5.4	7.5	8.6	17	14	5.2	1.2	4.9	31
21	11	14	7.2	5.9	7.1	7.1	16	13	5.2	1.5	4.8	25
22	11	13	5.0	6.0	7.2	6.8	15	14	4.7	1.4	7.2	20
23	9.5	13	4.3	5.6	8.1	8.7	14	14	4.8	1.2	5.6	17
24	11	13	4.9	5.7	7.8	8.9	15	15	4.2	0.93	5.4	17
25	12	12	5.5	5.8	e4.5	7.4	14	14	4.0	0.76	13	17
26	11	9.3	5.8	6.5	e4.7	7.8	13	15	4.2	0.69	7.2	17
27	11	4.9	5.9	6.2	e5.0	10	22	12	4.1	0.63	6.2	15
28	11	4.3	5.4	5.3	e5.0	14	18	9.2	3.9	0.62	6.1	16
29	11	4.6	4.6	4.7	---	12	15	8.0	3.5	0.55	5.8	12
30	11	7.2	4.9	4.7	---	11	15	7.6	3.0	0.53	5.3	10
31	11	---	4.2	5.1	---	10	---	7.4	---	0.51	5.0	---
TOTAL	323.5	319.3	243.6	161.9	179.4	258.6	707.8	512.2	194.5	53.92	166.06	484.5
MEAN	10.44	10.64	7.858	5.223	6.407	8.342	23.59	16.52	6.483	1.739	5.357	16.15
MAX	15	14	12	6.5	8.1	14	62	31	11	4.5	21	96
MIN	6.4	4.3	4.2	3.8	4.5	4.2	8.3	7.4	3.0	0.51	0.39	2.9
AC-FT	642	633	483	321	356	513	1400	1020	386	107	329	961

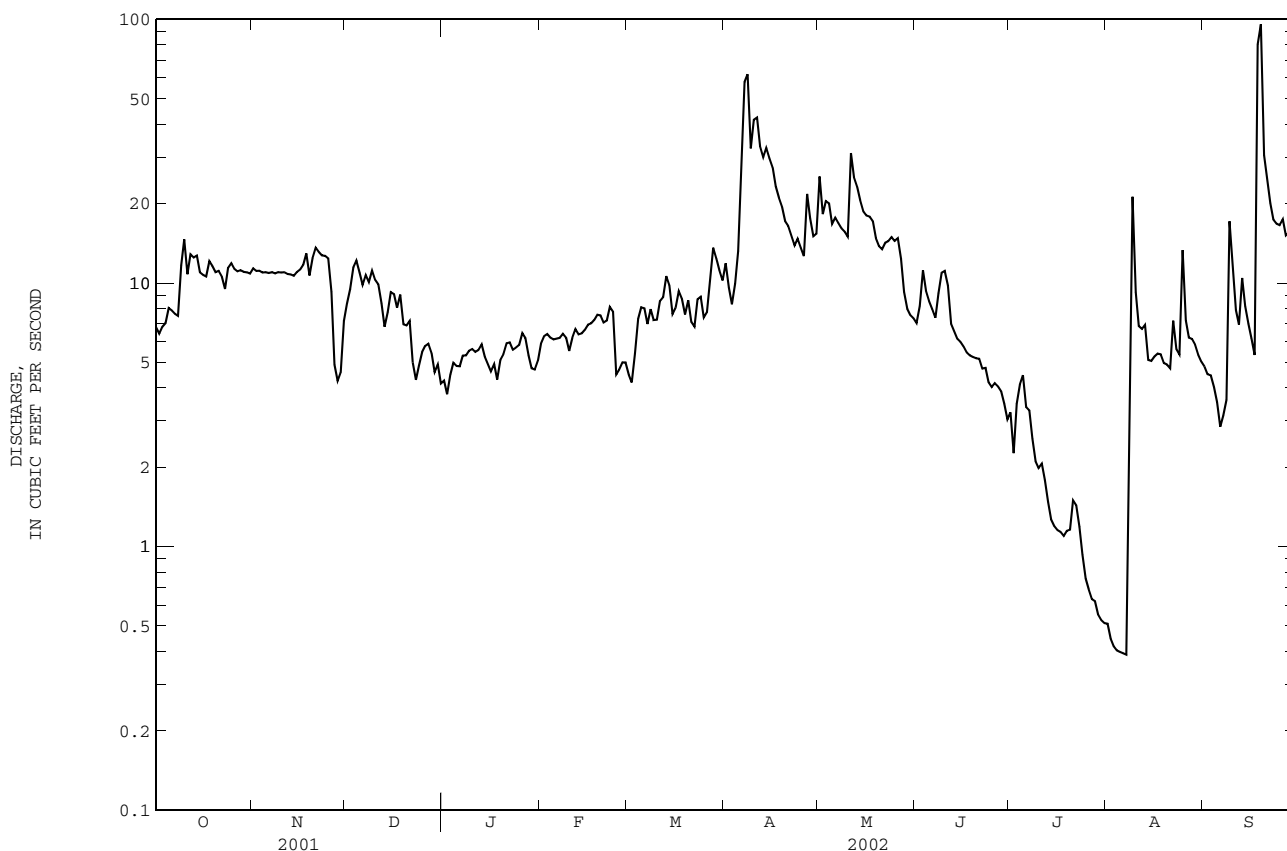
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2002, BY WATER YEAR (WY)

	MEAN	23.12	19.42	13.90	13.76	16.19	26.28	62.72	98.21	50.63	21.86	15.66	13.92
MAX	104	56.2	27.2	23.9	26.5	53.2	165	404	122	40.5	42.0	24.5	
(WY)	1999	1999	1999	1983	1996	1997	1997	1995	1999	1997	1998	1986	
MIN	9.03	10.6	6.57	5.22	6.41	8.34	21.9	16.5	6.48	1.74	4.74	6.70	
(WY)	1993	1993	1991	2002	2002	2002	1985	2002	2002	2002	1985	1990	

06436190 WHITEWOOD CREEK NEAR WHITEWOOD, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1982 - 2002	
ANNUAL TOTAL	7408.2		3605.28		31.36a	
ANNUAL MEAN	20.30		9.877		62.8	
HIGHEST ANNUAL MEAN					9.88	
LOWEST ANNUAL MEAN					2060	
HIGHEST DAILY MEAN	121	Apr 28	96	Sep 19	May 9	1995
LOWEST DAILY MEAN	4.2	Dec 31	0.39	Aug 6, 7	Aug 6	2002
ANNUAL SEVEN-DAY MINIMUM	5.2	Dec 25	0.42	Aug 1	Aug 1	2002
MAXIMUM PEAK FLOW			280	Sep 18	3930	May 8 1995
MAXIMUM PEAK STAGE			2.30	Sep 18	6.01	May 8 1995
ANNUAL RUNOFF (AC-FT)	14690		7150		22720	
10 PERCENT EXCEEDS	41		17		63	
50 PERCENT EXCEEDS	13		7.6		18	
90 PERCENT EXCEEDS	7.2		3.3		8.4	

a Median of annual mean discharges, 31 ft³/s.
e Estimated.



BELLE FOURCHE RIVER BASIN

06436198 WHITEWOOD CREEK ABOVE VALE, SD

LOCATION.--Lat 44°37'04", long 103°28'52", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.35, T.8 N., R.5 E., Butte County, Hydrologic Unit 10120202, on right bank at point where South Canal crosses creek, 3.2 mi above mouth, and 3.7 mi west of Vale.

DRAINAGE AREA.--102 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1982 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,840 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diversions upstream from station for irrigation of about 800 acres. Additional water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurement and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	e9.0	e6.1	e2.0	e4.2	e4.2	e6.0	21	8.3	0.84	0.00	1.5
2	4.9	e9.0	e7.1	e2.0	e4.8	e4.4	e4.3	19	9.4	0.71	0.00	1.3
3	5.2	e9.0	e7.2	e3.0	e5.0	e5.2	e4.5	19	13	0.43	0.00	1.2
4	5.7	e9.0	e7.0	e3.4	e5.0	e8.0	9.1	20	12	0.59	0.00	1.1
5	e6.8	e8.6	e7.1	e3.6	e5.2	e10	10	18	10	1.1	0.00	0.94
6	e6.8	e8.6	e6.5	e4.5	e6.0	e11	14	17	8.8	0.59	0.00	0.38
7	e6.8	e8.6	e6.4	e5.4	e6.2	e10	37	17	7.5	0.18	0.00	0.39
8	e6.6	e8.6	e6.1	e7.2	e6.0	e7.0	54	17	7.6	0.65	0.00	1.0
9	e10	e8.6	e7.4	e6.7	e4.0	e5.5	34	16	7.7	0.25	4.2	7.4
10	e13	e8.6	e6.5	e6.4	e3.2	e7.0	36	15	7.2	0.10	5.4	12
11	e9.3	e8.6	e5.3	e6.2	e4.5	e9.5	32	23	6.5	0.00	3.3	5.7
12	e11	e8.6	e4.5	e6.1	e6.0	e11	26	26	7.0	0.00	2.8	4.2
13	e11	e8.6	e4.1	e5.4	e7.2	e9.0	24	21	6.7	0.00	3.6	7.0
14	e11	e8.0	e3.8	e5.5	e8.0	e6.5	26	20	6.3	0.00	2.6	6.0
15	e9.0	e9.0	e4.1	e5.2	e8.2	e5.5	25	19	5.5	0.00	1.9	4.2
16	e9.0	e9.0	e4.4	e5.0	e10	e5.0	24	17	4.8	0.00	1.9	3.3
17	e8.0	e10	e5.0	e5.2	e11	e4.5	23	17	4.3	0.00	1.7	2.5
18	e9.0	e10	e4.5	e5.2	e10	e4.2	19	17	3.7	0.00	2.2	24
19	e9.0	e10	e4.6	e5.0	e11	e3.8	19	16	3.8	0.00	2.1	78
20	e9.0	e9.0	e5.1	e5.8	e11	e3.2	18	15	3.3	0.00	1.9	24
21	e9.0	9.5	e4.6	e6.0	e10	e3.1	18	14	3.3	0.00	2.1	15
22	e8.2	9.0	e3.4	e6.0	e5.8	e3.4	16	15	2.8	0.00	3.6	12
23	e7.6	8.5	e4.1	e5.8	e4.2	e4.0	14	14	2.5	0.00	3.3	10
24	e8.4	8.4	e4.2	e5.6	e4.6	e5.0	14	15	2.1	0.00	2.7	9.9
25	e9.0	8.5	e5.0	e6.0	e3.9	e6.0	14	16	1.6	0.00	7.6	12
26	e9.0	e7.5	e5.1	e8.0	e3.2	e7.5	13	14	1.4	0.00	5.8	13
27	e9.0	e4.1	e4.5	e5.0	e3.3	e7.1	19	14	1.2	0.00	3.7	12
28	e9.0	e2.9	e4.0	e1.8	e4.2	e7.3	21	13	0.93	0.00	3.6	12
29	e9.0	e3.5	e3.5	e2.2	---	e10	17	11	0.67	0.00	3.2	13
30	e9.0	e4.8	e3.0	e3.0	---	e6.0	14	10	0.50	0.00	2.3	11
31	e9.0	---	e2.5	e3.8	---	e5.0	---	9.2	---	0.00	1.9	---
TOTAL	262.3	245.1	156.7	152.0	175.7	198.9	604.9	515.2	160.40	5.44	73.40	306.01
MEAN	8.46	8.17	5.05	4.90	6.28	6.42	20.2	16.6	5.35	0.18	2.37	10.2
MAX	13	10	7.4	8.0	11	11	54	26	13	1.1	7.6	78
MIN	4.9	2.9	2.5	1.8	3.2	3.1	4.3	9.2	0.50	0.00	0.00	0.38
AC-FT	520	486	311	301	349	395	1200	1020	318	11	146	607

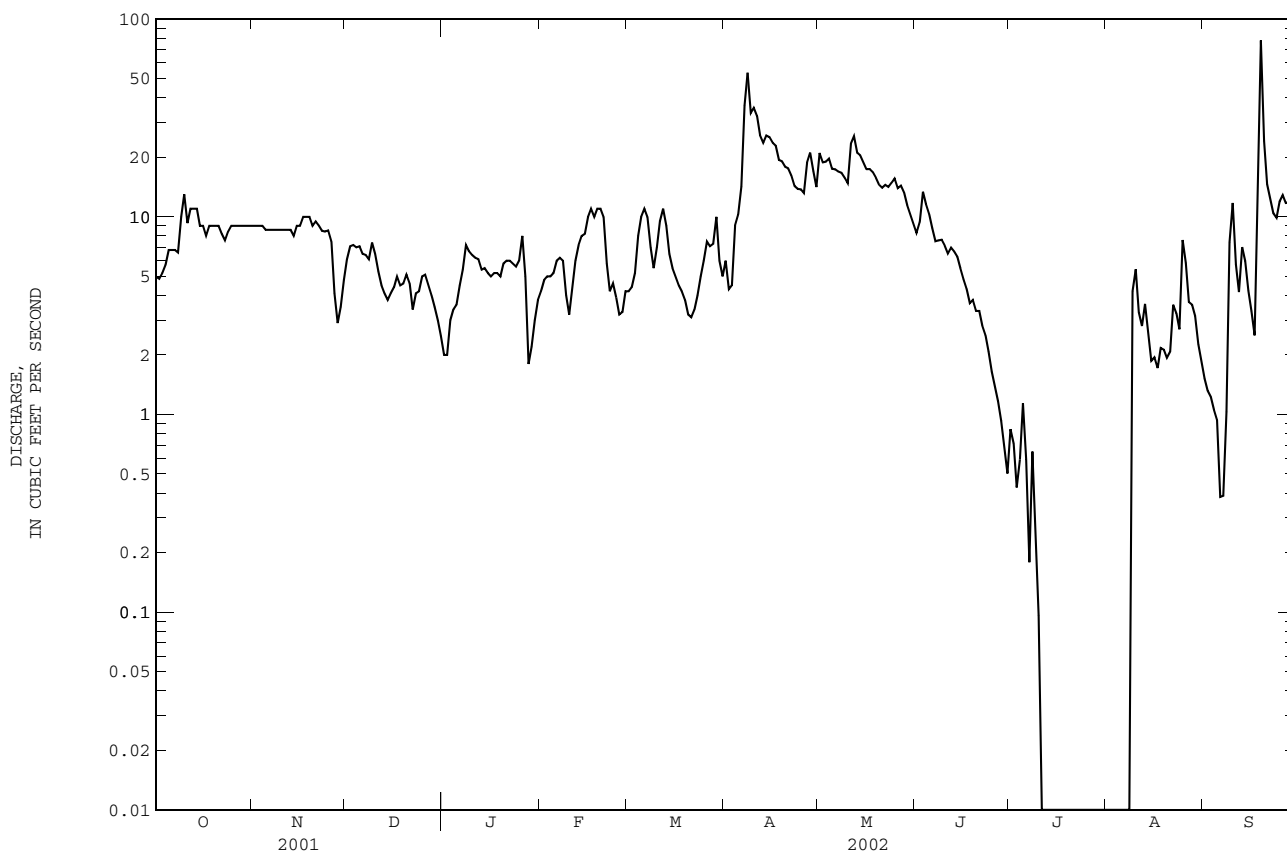
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	MEAN	MAX	MIN	(WY)
1984	22.4	126	8.46	1999
1985	18.1	55.7	8.17	1999
1986	13.6	27.1	5.05	1999
1987	13.8	44.3	4.90	1997
1988	19.5	60.1	6.27	1997
1989	29.5	59.7	6.42	1997
1990	63.8	173	20.2	1995
1991	92.6	435	15.9	1999
1992	58.6	163	5.35	1997
1993	21.5	47.5	0.18	1997
1994	14.1	52.1	1.77	1998
1995	12.2	38.9	4.09	1992
1996				
1997				
1998				
1999				
2000				
2001				
2002				

06436198 WHITEWOOD CREEK ABOVE VALE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1984 - 2002	
ANNUAL TOTAL	7153.4		2856.05		31.7a	
ANNUAL MEAN	19.6		7.82		64.1	
HIGHEST ANNUAL MEAN					7.82	
LOWEST ANNUAL MEAN					2920	
HIGHEST DAILY MEAN	103	Apr 8	78	Sep 19	May 9	1995
LOWEST DAILY MEAN	2.5	Dec 31	0.00	Jul 11	0.00	Jul 21 1985b
ANNUAL SEVEN-DAY MINIMUM	3.0	Aug 31	0.00	Jul 11	0.00	Jul 11 2002
MAXIMUM PEAK FLOW			145	Sep 19	4250	May 8 1995
MAXIMUM PEAK STAGE			2.30	Sep 19	5.72	May 8 1995
ANNUAL RUNOFF (AC-FT')	14190		5660		22940	
10 PERCENT EXCEEDS	46		17		67	
50 PERCENT EXCEEDS	13		6.0		17	
90 PERCENT EXCEEDS	4.6		0.55		6.3	

a Median of annual mean discharges, 29 ft³/s.
b Also July 22 and Aug. 19, 1985, July 11 to Aug. 8, 2002.
e Estimated.



WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1983 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CAC03) (00900)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CAC03) (90410)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	
DEC 2001 14...	0930	3.8	1570	8.0	-1.0	0	674	8.8	68	760	213	175	78.6	
MAY 2002 07...	1005	17	1130	8.1	4.0	6.5	688	12.0	97	520	171	120	52.9	
JUN 03...	1335	16	1240	8.1	16.5	19.5	685	8.4	92	580	182	137	58.4	
04...	1250	--	1260	--	19.5	20.5	--	--	--	--	--	--	--	
SEP 05...	1020	.87	1710	7.4	24.0	20.0	685	6.3	78	780	182	174	82.3	
Date		SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ANTI-MONY, DIS-SOLVED (UG/L AS SB) (01095)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
	DEC 2001 14...	73.3	1	657	6.84	2	1.10	49	28.8	26	<.06	.04	.04	<.8
	MAY 2002 07...	46.6	.9	403	1.17	2	1.02	42	30.9	29	<.06	E.02	.42	<.8
	JUN 03...	51.0	.9	456	6.38	9	.63	127	57.6	32	<.06	.06	E.03	2.2
	04...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	91.9	1	730	7.97	2	.55	86	64.7	46	<.06	.04	E.02	<.8	
Date		CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
	DEC 2001 14...	<.8	3.62	3.7	3.6	--	400	32	<1	E.04	29.4	147	146	<.01
	MAY 2002 07...	<.8	1.79	3.5	2.9	<.01	350	111	<1	<.08	18.1	100	96.1	E.01
	JUN 03...	2.4	1.91	5.6	3.3	<.01	1970	71	1	E.05	24.7	225	77.1	.04
	04...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<.8	2.19	6.1	3.2	<.01	590	38	<1	.47	35.1	324	293	.01	
E Estimated value.														

E Estimated value.

06436198 WHITEWOOD CREEK ABOVE VALE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL SOLVED (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)
DEC 2001 14...	<.01	5.6	5	3.22	2.9	3.1	<.05	<1	1010	1.2	6	3	3.47
MAY 2002 07...	<.01	2.7	3	3.19	2.2	2.5	<.05	<1	760	1.4	3	2	2.71
JUN 03...	E.01	4.0	6	5.78	2.2	2.1	E.04	<1	824	1.2	15	5	2.85
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<.01	5.6	15	2.19	1.6	1.3	<.05	<1	1110	.9	6	3	3.91

Date	SEDI- MENT, SUS- PENDE (MG/L) (80154)
DEC 2001 14...	85
MAY 2002 07...	15
JUN 03...	--
04...	38
SEP 05...	38

E Estimated value.

BELLE FOURCHE RIVER BASIN

06436760 HORSE CREEK ABOVE VALE, SD

LOCATION.--Lat 44°39'08", long 103°21'59", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.14, T.8 N., R.6 E., Butte County, Hydrologic Unit 10120202, on left bank 2.6 mi upstream from Dry Creek, 5.5 mi upstream from mouth, 3.0 mi northeast of Vale, and 4.5 mi southeast of Newell.

DRAINAGE AREA.--464 mi².

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,710 ft above NGVD of 1929, from topographic map. April 1962 to September 1980, water-stage recorder, at site 2.7 mi downstream, at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Natural flow of stream affected by diversions for irrigation upstream from station and by return flow from Belle Fourche Irrigation Project. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. Additional water-quality samples collected as part of a Total Maximum Daily Load (TMDL) sampling program to be published in a separate report.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	7.9	2.8	e1.4	e1.2	e1.5	8.2	5.3	32	27	37	44
2	33	5.4	2.5	e1.2	e1.6	e1.5	10	4.7	36	26	35	45
3	28	4.1	2.8	0.91	e1.8	e1.5	3.3	5.0	59	20	37	43
4	29	3.8	3.0	1.8	2.0	1.9	2.7	4.5	62	21	39	35
5	32	4.1	3.0	1.5	2.0	1.9	2.7	3.9	56	32	45	37
6	37	3.8	2.8	1.7	1.9	1.7	3.3	3.5	62	35	44	41
7	35	3.7	2.7	1.9	1.8	1.6	4.4	3.4	69	34	37	45
8	27	3.5	2.6	2.0	1.8	1.4	5.7	3.3	67	36	39	39
9	16	3.3	2.5	2.4	1.8	1.9	4.3	3.0	69	40	40	55
10	11	3.1	2.6	2.1	1.8	1.8	3.5	2.9	64	38	37	65
11	9.2	3.1	2.6	1.9	2.0	1.9	3.2	3.2	53	42	30	54
12	7.9	3.3	2.3	1.8	1.9	2.6	2.5	3.2	46	40	25	49
13	8.2	3.1	2.0	2.1	1.8	3.0	2.4	2.5	39	43	29	49
14	7.0	2.9	2.0	1.8	1.8	2.0	2.4	2.9	42	39	29	47
15	6.0	2.9	2.0	1.6	1.8	e1.9	2.3	3.5	48	34	29	38
16	5.4	3.0	2.2	1.5	1.9	e1.8	2.2	4.1	52	27	36	31
17	5.6	3.0	2.0	e1.3	1.9	e1.9	1.9	4.8	53	36	36	20
18	5.8	3.0	2.1	e1.2	1.9	e1.9	2.2	5.9	56	39	36	43
19	6.3	2.8	2.0	e1.0	2.0	e1.9	2.1	7.7	52	39	33	94
20	7.0	2.7	2.0	e1.2	2.0	e1.8	2.4	7.0	43	46	34	38
21	8.0	2.7	2.0	e1.6	2.0	e1.8	2.7	6.8	39	50	35	26
22	8.8	2.8	2.0	1.8	2.3	e1.8	3.1	7.5	38	43	34	25
23	10	2.9	1.8	1.8	2.7	e1.8	3.5	15	38	44	36	21
24	9.9	3.0	1.8	1.6	1.9	e1.8	3.6	17	37	47	35	20
25	9.1	e2.8	1.8	1.7	1.7	e1.8	3.7	25	27	50	33	17
26	11	e2.6	1.9	1.8	e1.6	e1.8	3.7	22	23	51	32	15
27	13	e2.5	2.0	1.7	e1.6	e1.9	4.1	22	25	53	34	11
28	14	e2.3	2.1	1.6	e1.6	e3.5	4.5	19	28	47	33	11
29	14	e2.3	1.8	e1.4	---	e6.0	4.2	12	35	40	36	13
30	13	2.8	e1.7	e1.2	---	7.2	4.0	19	29	36	38	11
31	11	---	e1.6	e1.1	---	7.9	---	20	---	35	40	---
TOTAL	473.2	99.2	69.0	49.61	52.1	74.7	108.8	269.6	1379	1190	1093	1082
MEAN	15.3	3.31	2.23	1.60	1.86	2.41	3.63	8.70	46.0	38.4	35.3	36.1
MAX	37	7.9	3.0	2.4	2.7	7.9	10	25	69	53	45	94
MIN	5.4	2.3	1.6	0.91	1.2	1.4	1.9	2.5	23	20	25	11
AC-FT	939	197	137	98	103	148	216	535	2740	2360	2170	2150

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 2002, BY WATER YEAR (WY)

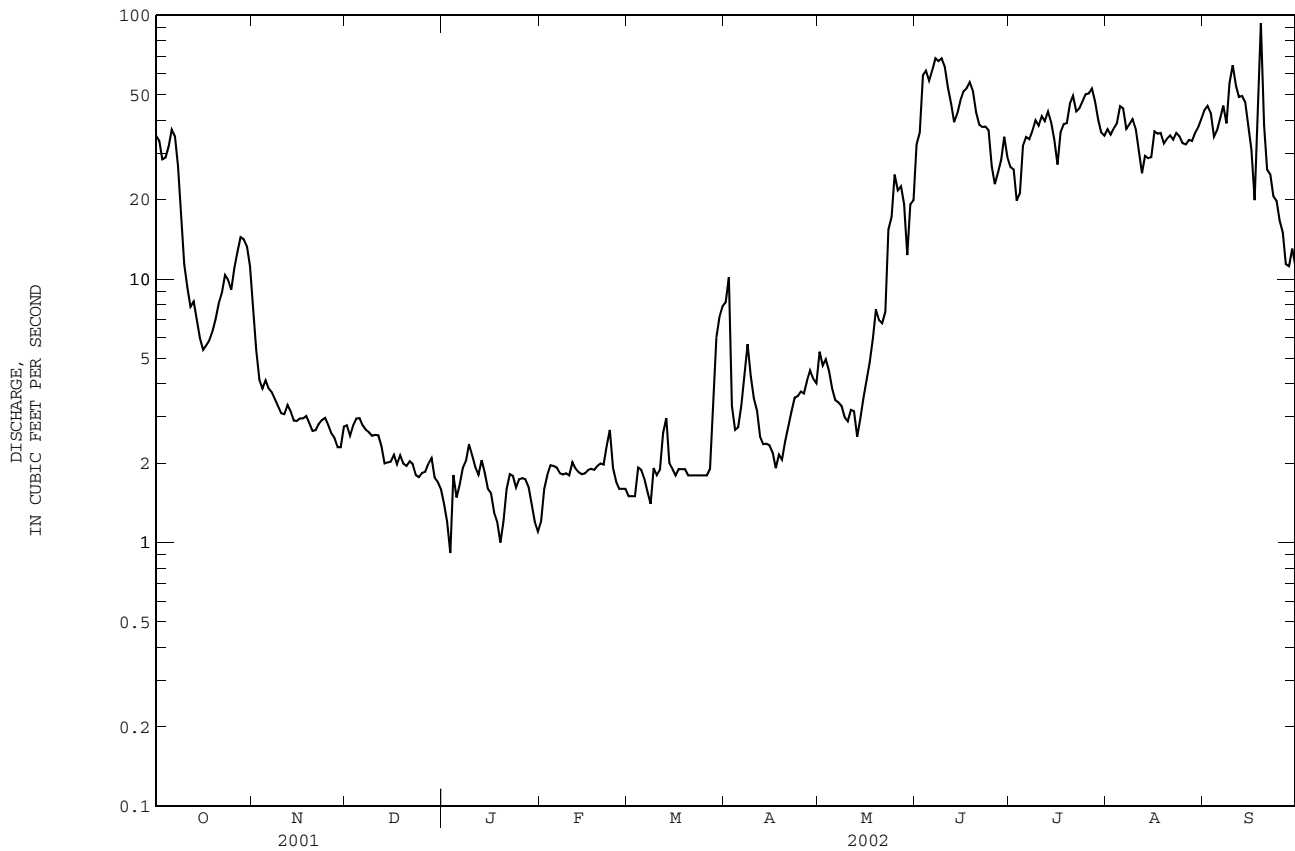
	MEAN	18.9	5.20	3.09	4.15	41.9	71.6	48.5	158	77.2	72.5	48.9	51.2
MAX	169	26.9	8.50	31.7	424	251	229	901	272	464	82.6	311	
(WY)	1983	1999	1983	1983	1997	1986	1987	1982	1998	1993	1987	1986	
MIN	1.46	1.82	1.15	0.96	1.24	1.30	0.75	6.48	11.3	35.8	25.7	11.3	
(WY)	1992	1991	1993	1992	1992	1992	1992	1981	1991	1991	1992	1992	

06436760 HORSE CREEK ABOVE VALE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1981 - 2002	
ANNUAL TOTAL	11905.5		5940.21		50.2a	
ANNUAL MEAN	32.6		16.3		131	
HIGHEST ANNUAL MEAN					10.4	
LOWEST ANNUAL MEAN					14000	
HIGHEST DAILY MEAN	900	Mar 10	94	Sep 19	May 21	1982
LOWEST DAILY MEAN	1.6	Dec 31	0.91	Jan 3	Nov 7	1985
ANNUAL SEVEN-DAY MINIMUM	1.8	Dec 25	1.3	Jan 15	Dec 25	1990
MAXIMUM PEAK FLOW			125	Sep 19	May 21	1982
MAXIMUM PEAK STAGE			3.23	Sep 19	May 21	1982
ANNUAL RUNOFF (AC-FT)	23610		11780		36360	
10 PERCENT EXCEEDS	57		43		72	
50 PERCENT EXCEEDS	14		4.3		9.8	
90 PERCENT EXCEEDS	2.2		1.8		1.8	

a Median of annual mean discharges, 39 ft³/s.

e Estimated.



LOCATION.--Lat 44°30'47", long 103°08'11", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.3, T.6 N., R.8 E., Meade County, Hydrologic Unit 10120202, on right bank near upstream end of bridge on State Highway 34, 0.5 mi upstream from Bear Butte Creek, and 20 mi northeast of Sturgis.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Keyhole Dam, usable capacity, 191,600 acre-ft, 246 mi upstream since Oct. 25, 1952. At a point 75 mi upstream, water is diverted to Belle Fourche Reservoir (see station 06435000), through Inlet Canal (see station 06434505), with other small diversions from the main stem and tributaries for irrigation. Total diversion for irrigation of about 60,000 acres upstream from station. Maximum discharge prior to Sept. 30, 1953, 17,900 ft³/s, May 24, 1946, gage height, 13.86 ft; no flow for many days in 1945 and 1950. Satellite data-collection platform at station. Water-quality samples were collected July-September and will be compiled in a separate report. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

MEAN	114.8	81.96	54.14	45.69	136.9	333.1	347.7	709.9	610.0	336.0	280.7	229.3
MAX	607	835	379	319	1311	1731	1787	3805	2499	1473	625	723
(WY)	1999	1999	1999	1999	1996	1996	1997	1995	1976	1993	1976	1986
MIN	16.2	20.1	11.5	4.71	6.62	23.3	21.2	15.8	80.7	52.4	2.39	10.2
(WY)	1962	1960	1962	1979	1979	2002	1981	1961	1961	1960	1961	1961

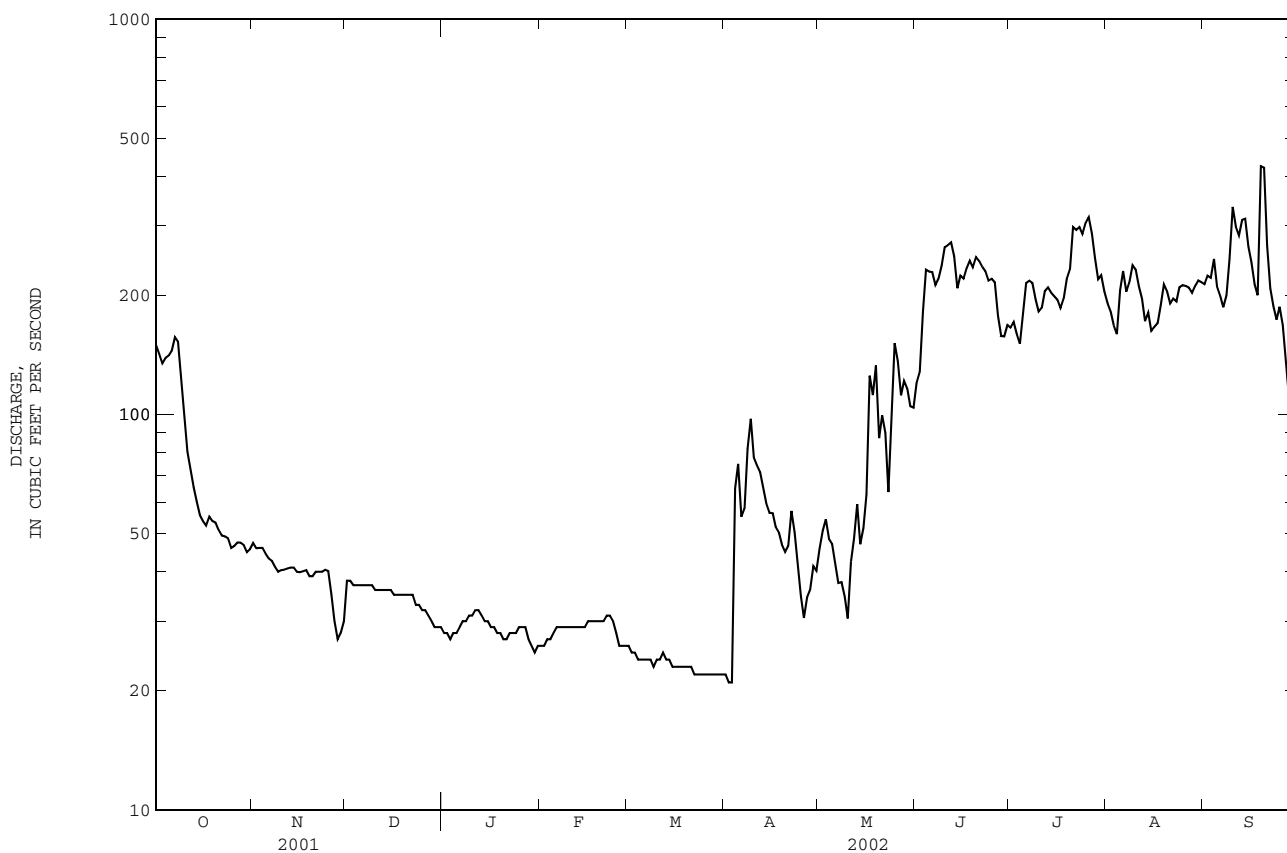
06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1954 - 2002*	
ANNUAL TOTAL	73803		37540		273.9a	
ANNUAL MEAN	202.2		102.8		773	
HIGHEST ANNUAL MEAN					27.4	
LOWEST ANNUAL MEAN					29700	
HIGHEST DAILY MEAN	2500	Apr 8	424	Sep 19	May 21	1996
LOWEST DAILY MEAN	27	Nov 28	21	Apr 2	Aug 9	1961
ANNUAL SEVEN-DAY MINIMUM	30	Dec 25	22	Mar 28	0.56	Aug 8 1961
MAXIMUM PEAK FLOW			619	Sep 19	36400	May 21 1982
MAXIMUM PEAK STAGE			4.52	Sep 19	19.10	May 21 1982
ANNUAL RUNOFF (AC-FT)	146400		74460		198400	
10 PERCENT EXCEEDS	425		230		523	
50 PERCENT EXCEEDS	143		49		105	
90 PERCENT EXCEEDS	34		26		25	

* Regulated period only (1954-2002). See REMARKS.

 a Median of annual mean discharges, 240 ft³/s.

e Estimated.



06437020 BEAR BUTTE CREEK NEAR DEADWOOD, SD

LOCATION.--Lat 44°20'08", long 103°38'06", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.4, T.4 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on right bank 0.4 mi northeast of Galena, 0.5 mi downstream from Butcher Gulch, and 5.3 mi southeast of Deadwood.

DRAINAGE AREA.--16.6 mi².

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,750 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.5	1.7	e0.95	e0.85	e0.75	2.5	4.4	1.8	1.0	0.78	0.66
2	1.4	1.5	1.7	e0.95	e0.85	e0.65	2.5	5.2	1.9	1.0	0.78	0.64
3	1.3	1.4	1.8	e0.95	e0.85	e0.90	2.0	5.8	2.7	0.95	0.78	0.61
4	1.4	1.4	1.6	e1.1	e0.85	e0.90	2.3	5.2	2.4	0.93	0.91	0.54
5	1.4	1.4	1.5	e1.1	e0.85	e1.0	3.5	4.5	1.9	0.91	1.0	0.54
6	1.3	1.4	e1.2	e1.1	e0.90	e0.90	37	4.3	1.7	0.95	1.0	0.48
7	1.3	1.4	e1.2	e1.2	e0.95	e0.95	82	4.2	1.7	0.98	0.91	0.47
8	1.3	e1.2	e1.2	e1.1	e0.95	e1.0	66	4.2	1.6	1.0	1.2	0.49
9	2.6	e1.2	e1.1	e1.2	e0.95	e1.0	40	3.8	1.4	1.2	1.0	3.1
10	2.1	e1.3	e1.1	e1.2	e0.95	e1.5	17	3.7	1.7	1.2	0.88	1.0
11	1.5	e1.3	e1.1	e1.3	e0.95	1.7	11	5.6	1.5	1.2	0.88	0.72
12	1.7	e1.2	e1.1	e1.2	e0.95	2.0	8.9	6.3	1.4	1.1	1.0	0.70
13	1.8	e1.3	e1.1	e1.4	e1.0	2.7	9.3	6.9	1.6	1.0	0.87	1.4
14	1.6	e1.4	e1.1	e1.3	e1.0	2.2	9.3	5.7	1.6	1.0	0.77	0.84
15	1.5	1.6	e1.2	e1.2	e0.90	1.8	8.7	5.0	1.6	1.0	0.73	0.71
16	1.7	1.6	e1.1	e1.0	e0.90	1.7	7.3	5.1	1.5	0.94	0.71	0.67
17	1.4	e1.3	e1.1	e1.0	e0.95	1.7	6.1	4.9	1.6	1.1	0.68	0.70
18	1.5	e1.3	e1.1	e1.0	e0.90	1.7	5.5	4.6	1.5	1.2	0.69	8.0
19	1.5	e1.4	e1.1	e1.2	e0.90	1.7	4.6	4.1	1.5	1.1	0.70	4.2
20	1.7	e1.1	e1.1	1.4	e1.1	1.7	4.3	3.8	1.5	1.2	0.69	1.4
21	1.6	e1.1	e1.1	1.4	e1.2	1.7	4.2	3.4	1.5	1.7	1.8	0.99
22	1.5	e1.1	e1.1	1.4	e1.0	1.8	4.2	3.3	1.5	1.3	1.8	0.86
23	1.4	1.5	e1.1	1.3	e0.95	1.9	4.0	3.1	1.6	1.2	0.92	0.79
24	1.5	1.4	e1.2	e0.85	e0.95	1.7	3.7	3.0	1.4	1.1	2.1	0.74
25	1.8	1.7	e1.2	e0.85	e0.85	1.7	3.5	3.0	1.3	1.1	0.91	0.73
26	1.7	e1.2	e1.2	e0.87	e0.90	1.9	3.3	2.9	1.4	1.1	0.72	0.75
27	1.6	e1.2	e1.0	e0.80	e0.90	2.6	5.3	3.2	1.3	1.1	0.67	0.73
28	1.6	1.9	e1.0	e0.80	e0.85	3.6	4.6	2.6	1.3	1.0	0.71	1.2
29	1.5	1.9	e1.0	e0.85	---	2.2	4.0	2.2	1.3	1.0	0.72	0.79
30	1.5	1.8	e0.90	e0.85	---	1.9	3.9	2.0	1.1	0.97	0.70	0.73
31	1.5	---	e0.95	e0.85	---	2.3	---	1.8	---	0.79	0.65	---
TOTAL	48.5	42.0	36.95	33.67	26.10	51.75	370.5	127.8	47.8	33.32	28.66	36.18
MEAN	1.56	1.40	1.19	1.09	0.93	1.67	12.3	4.12	1.59	1.07	0.92	1.21
MAX	2.6	1.9	1.8	1.4	1.2	3.6	82	6.9	2.7	1.7	2.1	8.0
MIN	1.3	1.1	0.90	0.80	0.85	0.65	2.0	1.8	1.1	0.79	0.65	0.47
AC-FT	96	83	73	67	52	103	735	253	95	66	57	72

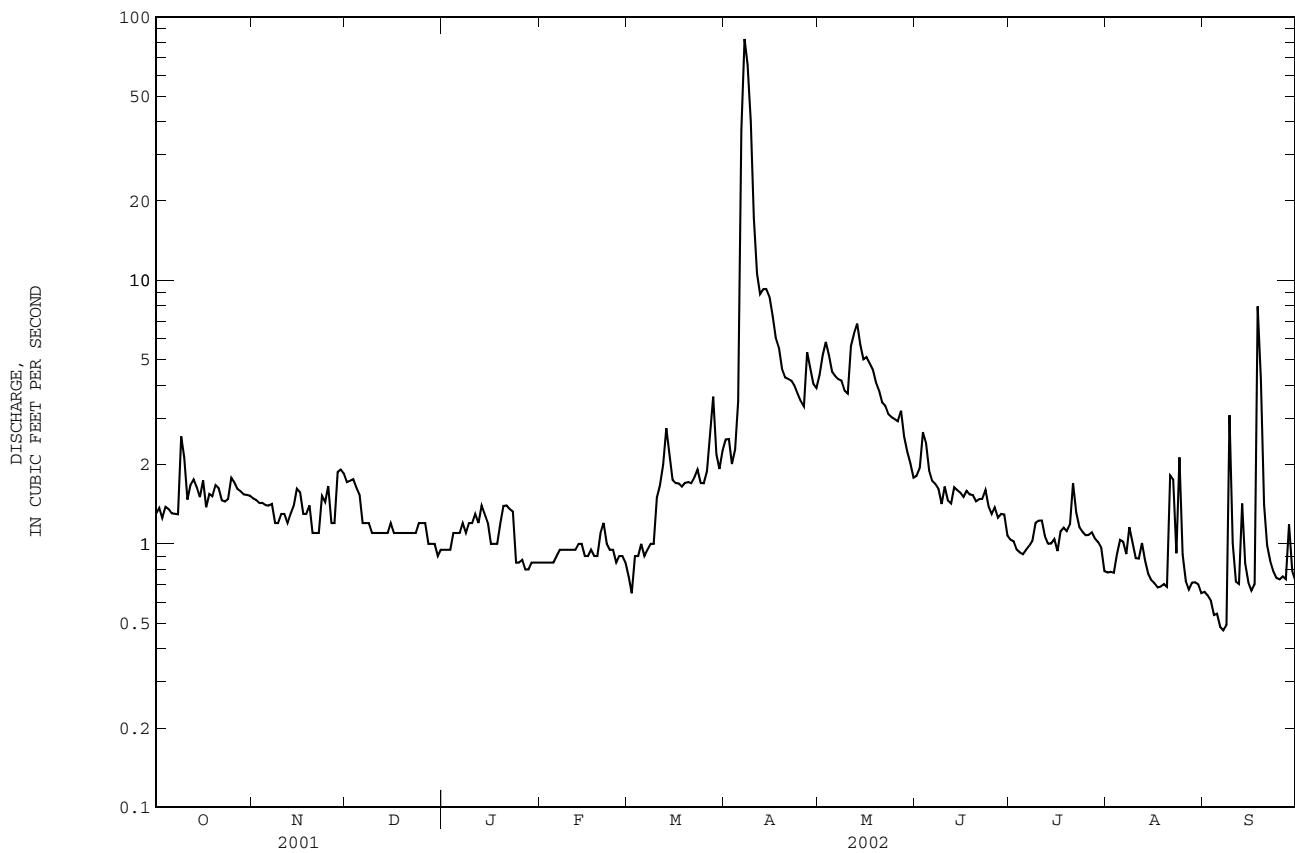
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2002, BY WATER YEAR (WY)

	MEAN	5.21	3.25	2.19	1.85	2.06	6.75	21.3	25.5	17.7	4.81	3.25	2.17
MAX	37.5	15.8	6.53	4.42	4.66	21.2	73.7	94.8	44.7	9.68	10.3	6.26	
(WY)	1999	1999	1999	1997	1997	1997	1997	1995	1991	1997	1998	1998	
MIN	0.69	0.82	0.28	0.30	0.45	1.67	4.38	4.12	1.59	1.07	0.66	0.31	
(WY)	1993	1993	1991	1991	1991	2002	1989	2002	2002	2002	1992	1990	

06437020 BEAR BUTTE CREEK NEAR DEADWOOD, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1989 - 2002	
ANNUAL TOTAL	1759.45		883.23		8.01	
ANNUAL MEAN	4.82		2.42		17.1	
HIGHEST ANNUAL MEAN					2.29	
LOWEST ANNUAL MEAN					543	
HIGHEST DAILY MEAN	34	Apr 21	82	Apr 7	May 8	1995
LOWEST DAILY MEAN	0.90	Dec 30	0.47	Sep 7	0.00	Sep 1 1990
ANNUAL SEVEN-DAY MINIMUM	1.0	Dec 25	0.54	Sep 2	0.05	Aug 29 1990
MAXIMUM PEAK FLOW			98	Apr 7	1590	May 8 1995
MAXIMUM PEAK STAGE			5.23	Apr 7	8.34	May 8 1995
ANNUAL RUNOFF (AC-FT)	3490		1750		5810	
10 PERCENT EXCEEDS	13		4.2		20	
50 PERCENT EXCEEDS	2.1		1.3		2.7	
90 PERCENT EXCEEDS	1.2		0.79		0.85	

e Estimated.



BELLE FOURCHE RIVER BASIN

06437400 BEAR BUTTE CREEK AT STURGIS, SD

LOCATION.--Lat 44°24'44", long 103°29'10", in NW¹/₄SW¹/₄NW¹/₄ sec. 11, T.5 N., R.5 E., Meade County, Hydrologic Unit 10120202, on left upstream side of walkway bridge rail, 0.2 mi west of Ft. Meade, 0.5 mi east of Sturgis along SD Highway 34.

DRAINAGE AREA.--73.6 mi².

PERIOD OF RECORD.--June 1998 to September 2002 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 3,320 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for Oct. 1 to Nov. 9 and those for estimated daily discharges, which are poor. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	1.8	e1.5	e1.2	e1.5	1.3	0.93	5.2	1.7	0.79	0.56	0.76
2	1.8	1.9	1.6	e1.3	e1.6	e1.3	1.4	2.2	2.7	0.79	0.57	0.77
3	2.2	2.2	1.7	e1.5	1.7	e0.92	0.98	2.1	2.5	0.77	0.58	0.76
4	2.1	2.2	1.7	1.6	1.7	e1.5	0.72	2.0	2.1	0.85	0.66	0.76
5	2.2	2.1	1.7	1.6	1.6	1.5	0.63	1.8	1.6	0.84	0.71	0.67
6	2.2	2.3	1.8	1.8	1.6	1.2	0.63	1.7	1.3	0.80	0.83	0.61
7	2.0	2.2	1.8	1.9	1.7	1.1	2.3	2.1	1.2	0.72	1.6	0.61
8	1.9	1.7	2.2	1.9	1.6	e0.87	0.69	1.8	1.1	0.69	6.6	0.72
9	5.8	1.6	1.8	2.1	1.8	e0.74	0.60	2.2	1.5	0.69	1.1	6.6
10	2.4	1.4	1.8	2.0	1.5	0.77	0.64	2.1	1.1	0.69	1.1	1.3
11	1.9	1.5	1.5	1.8	1.8	1.1	0.68	9.3	1.1	0.69	0.98	1.2
12	2.6	1.5	1.3	2.0	1.7	0.98	0.74	2.9	1.1	0.67	0.98	1.1
13	1.8	1.4	1.3	2.1	1.6	0.92	0.73	2.6	1.2	0.66	0.89	2.1
14	1.6	1.6	1.4	1.7	1.4	0.79	0.73	2.8	0.93	0.69	0.87	1.2
15	1.6	1.5	1.6	1.7	1.4	e0.79	0.74	2.5	1.3	0.66	0.84	1.1
16	1.7	1.4	1.6	e1.5	1.5	e0.79	0.73	1.9	1.1	0.62	0.83	1.0
17	1.9	1.6	1.4	e1.3	1.6	e0.78	0.73	1.3	1.3	0.67	0.79	0.99
18	3.2	1.8	1.5	e1.3	1.4	0.77	0.75	1.3	1.2	0.69	0.77	6.5
19	2.3	1.7	1.5	e1.3	1.8	0.74	0.74	1.3	1.2	0.64	0.75	1.7
20	2.4	1.7	1.4	e1.3	1.4	e0.62	0.77	1.3	1.1	0.61	0.78	1.3
21	2.2	1.9	1.6	e1.4	1.6	e0.61	0.89	1.3	0.87	0.79	0.77	1.1
22	2.1	1.8	1.6	e1.4	1.4	e0.60	0.73	1.5	0.87	0.65	0.92	1.1
23	2.5	1.6	1.8	e1.5	1.6	e0.60	0.69	2.4	1.0	0.66	0.79	0.99
24	2.7	1.7	1.7	e1.4	1.5	e0.58	0.71	3.1	1.1	0.79	0.74	0.99
25	2.5	1.5	1.5	1.4	e0.95	0.56	0.81	2.5	0.92	0.63	0.71	1.0
26	1.8	e1.4	1.6	1.6	e1.0	0.95	0.90	3.0	0.84	0.69	0.76	1.1
27	2.3	e1.3	1.6	1.6	1.5	1.4	4.5	2.4	0.81	0.68	0.79	1.1
28	1.9	e1.2	e1.6	1.6	1.4	1.1	1.2	2.4	0.80	0.64	0.80	1.8
29	1.8	e1.3	e1.5	e1.5	---	1.2	1.1	2.1	0.81	0.60	0.75	1.3
30	1.9	e1.4	e1.3	e1.3	---	1.6	2.2	1.9	0.80	0.59	0.68	1.3
31	2.0	---	e1.2	e1.3	---	1.1	---	1.8	---	0.55	0.72	---
TOTAL	69.6	50.2	49.1	48.9	42.85	29.78	30.59	74.8	37.15	21.50	31.22	43.53
MEAN	2.25	1.67	1.58	1.58	1.53	0.96	1.02	2.41	1.24	0.69	1.01	1.45
MAX	5.8	2.3	2.2	2.1	1.8	1.6	4.5	9.3	2.7	0.85	6.6	6.6
MIN	1.6	1.2	1.2	1.2	0.95	0.56	0.60	1.3	0.80	0.55	0.56	0.61
AC-FT	138	100	97	97	85	59	61	148	74	43	62	86

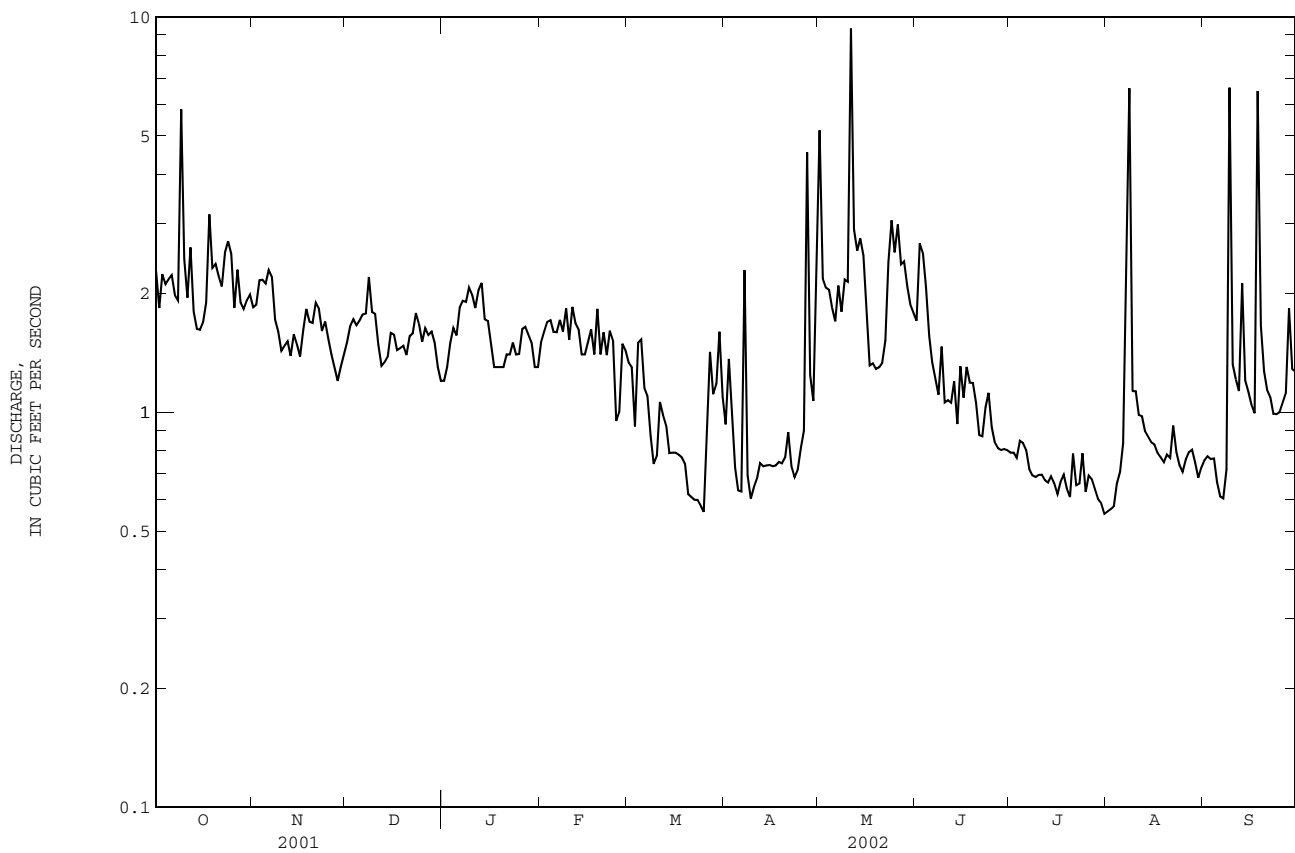
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2002, BY WATER YEAR (WY)

	1999	2000	2001	2002
MEAN	8.97	6.09	3.70	3.17
MAX	25.5	13.8	6.84	4.99
(WY)	1999	1999	1999	1999
MIN	2.25	1.67	1.58	1.58
(WY)	2002	2002	2002	2002

06437400 BEAR BUTTE CREEK AT STURGIS, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1999 - 2002	
ANNUAL TOTAL	860.6		529.22		4.91	
ANNUAL MEAN	2.36		1.45		10.4	
HIGHEST ANNUAL MEAN					1.45	
LOWEST ANNUAL MEAN					110	
HIGHEST DAILY MEAN	26	Jul 11	9.3	May 11	110	Jun 13 1999
LOWEST DAILY MEAN	1.2	Feb 28	0.55	Jul 31	0.55	Jul 31 2002
ANNUAL SEVEN-DAY MINIMUM	1.4	Nov 25	0.58	Jul 28	0.58	Jul 28 2002
MAXIMUM PEAK FLOW			167	Aug 8	654	Jun 12 1999
MAXIMUM PEAK STAGE			15.12	Aug 8	16.40	Jul 11 2001
ANNUAL RUNOFF (AC-FT)	1710		1050		3560	
10 PERCENT EXCEEDS	3.2		2.2		8.6	
50 PERCENT EXCEEDS	2.1		1.3		3.2	
90 PERCENT EXCEEDS	1.5		0.69		1.1	

e Estimated.



BELLE FOURCHE RIVER BASIN

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD

LOCATION.--Lat 44°22'11", long 102°33'56", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.29, T.5 N., R.13 E., Meade County, Hydrologic Unit 10120202, on right bank 50 ft downstream from highway bridge, 4.3 mi northwest of Elm Springs, and 4.7 mi downstream from Hay Creek.

DRAINAGE AREA.--7,210 mi², approximately.

PERIOD OF RECORD.--August 1928 to June 1932, March 1934 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 926: 1929, 1931(M), 1935, 1937.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,171.60 ft above NGVD of 1929. Prior to July 27, 1939, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Keyhole Dam, usable capacity, 191,600 acre-ft, 304 mi upstream since Oct. 25, 1952. At a point 133 mi above station, water is diverted to Belle Fourche Reservoir (see station 06435000), through Inlet Canal near Belle Fourche (see station 06434500), with other smaller diversions from the main stem and tributaries for irrigation. Total diversion for irrigation of about 60,000 acres upstream from station. Maximum discharge prior to Sept. 30, 1953, 35,700 ft³/s, June 10, 1941, gage height, 14.30 ft; no flow for many days in 1936-37, 1939-40. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1927 reached a stage of 21.8 ft. Flood in spring of 1933 reached a stage of about 20 ft, from floodmarks.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	48	e32	e11	e36	e11	e52	56	94	130	204	217
2	137	47	e37	e10	e34	e10	e64	63	89	135	179	207
3	123	47	e40	e9.8	e33	e10	e75	56	116	138	170	206
4	131	47	e40	e11	e33	e9.5	e79	51	139	133	160	206
5	133	47	e40	e14	e32	e9.0	e73	51	213	224	161	235
6	138	47	e42	e15	e32	e9.0	73	47	216	197	186	209
7	138	47	e44	e16	e32	e8.8	73	49	215	205	230	195
8	152	43	e45	e16	e32	e9.0	70	49	197	213	211	200
9	163	43	e44	e17	e32	e9.5	75	42	196	207	229	218
10	146	43	e43	e17	e31	e12	91	38	212	189	240	265
11	112	43	e41	e19	e34	e19	88	48	246	168	252	353
12	92	43	e39	e18	e35	e26	72	71	254	169	226	338
13	80	43	e38	e16	e35	e31	70	73	259	187	218	321
14	72	44	e38	e15	e35	e34	67	59	250	187	186	342
15	65	44	e37	e13	e35	e40	63	61	197	184	185	350
16	59	45	e36	e13	e35	e43	59	49	203	173	174	304
17	56	47	e34	e14	e35	e47	52	52	206	173	160	267
18	58	47	e32	e15	e36	e48	52	74	222	157	170	240
19	56	40	e31	e17	e37	e46	50	116	232	166	175	237
20	54	e41	e29	e19	e38	e43	47	105	219	198	208	423
21	53	e43	e26	e22	e40	e41	48	115	236	240	217	460
22	53	e51	e24	e27	e41	e38	47	71	237	294	196	318
23	52	e54	e23	e32	e42	e37	45	100	246	286	200	235
24	51	e50	e24	e38	e42	e34	53	73	213	294	199	201
25	49	e42	e25	e42	e36	e33	46	60	194	284	216	191
26	47	e27	e26	e44	e28	e32	40	112	195	305	222	192
27	47	e20	e26	e43	e21	e32	51	141	190	328	215	191
28	48	e18	e22	e41	e15	e31	53	112	161	297	209	162
29	48	e21	e14	e40	---	e32	45	109	128	253	202	130
30	48	e24	e13	e38	---	e37	40	106	123	224	206	104
31	48	---	e11	e37	---	e42	---	93	---	219	208	---
TOTAL	2643	1246	996	699.8	947	863.8	1813	2302	5898	6557	6214	7517
MEAN	85.3	41.5	32.1	22.6	33.8	27.9	60.4	74.3	197	212	200	251
MAX	163	54	45	44	42	48	91	141	259	328	252	460
MIN	47	18	11	9.8	15	8.8	40	38	89	130	160	104
AC-FT	5240	2470	1980	1390	1880	1710	3600	4570	11700	13010	12330	14910

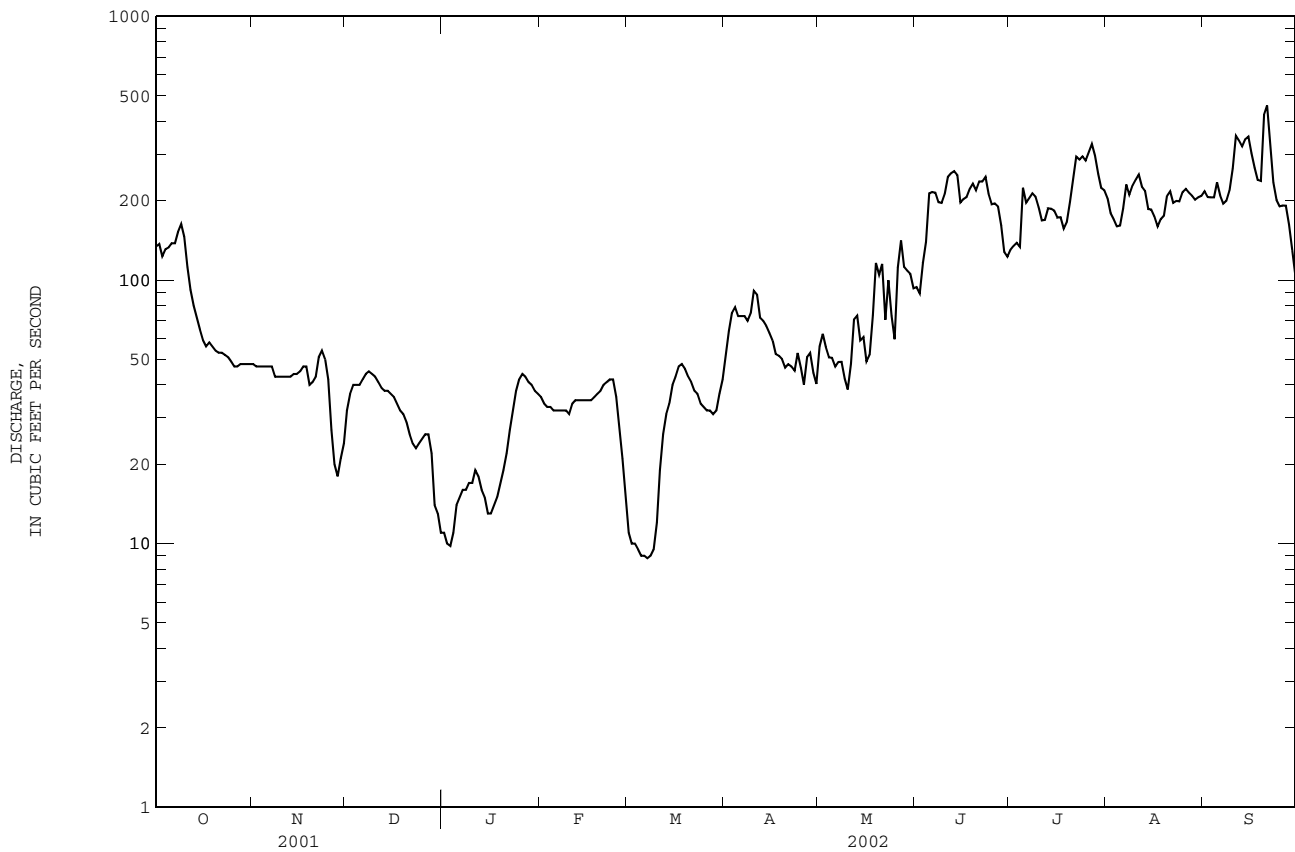
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2002, BY WATER YEAR (WY) *

	MEAN	142	87.0	56.9	49.7	189	480	503	1027	832	361	276	230
MAX	1361	1081	479	440	2283	2457	2671	6264	2985	1791	634	768	
(WY)	1999	1999	1999	1999	1997	1978	1997	1995	1976	1993	1976	1986	
MIN	13.9	14.8	2.45	0.016	0.45	27.9	13.4	13.6	76.1	34.0	0.77	2.65	
(WY)	1962	1960	1962	1991	1991	2002	1981	1961	1961	1960	1961	1961	

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1954 - 2002*	
ANNUAL TOTAL	81570		37696.6		353a	
ANNUAL MEAN	223		103		1036	
HIGHEST ANNUAL MEAN					28.4	
LOWEST ANNUAL MEAN					35700	
HIGHEST DAILY MEAN	2190	Apr 8	460	Sep 21	May 28	1996
LOWEST DAILY MEAN	11	Dec 31	8.8	Mar 7	Jun 5	1961b
ANNUAL SEVEN-DAY MINIMUM	18	Jan 1	9.3	Mar 3	Aug 9	1961
MAXIMUM PEAK FLOW			625	Sep 20	45100	Jun 8 1964c
MAXIMUM PEAK STAGE			1.77	Sep 20	18.22	May 21 1982
ANNUAL RUNOFF (AC-FT')	161800		74770		256000	
10 PERCENT EXCEEDS	530		227		676	
50 PERCENT EXCEEDS	135		53		112	
90 PERCENT EXCEEDS	30		20		20	

* Regulated period only (1954-2002). See REMARKS.
a Median of annual mean discharges, 330 ft³/s.
b No flow for many days in 1961-62, 1981, and 1991.
c Gage height, 15.90 ft.
e Estimated.



LOCATION.--Lat 44°31'51", long 101°55'43", in NW¹/₄ NW¹/₄ NE¹/₄ sec.34, T.7 N., R.18 E., Ziebach County, Hydrologic Unit 10120112, on SD Highway 34 and 73 bridge, 10.5 mi south of Howes.

PERIOD OF RECORD.--October 1950 to September 1981, October 1994 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,868 ft above NGVD of 1929, from topographic map. Prior to October 1994 at site 3 mi upstream at different datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood late in May 1920 reached a stage of about 17.5 ft, previous datum, and flood in May 1927 reached a stage of about 14 ft, previous datum, from information by local residents.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	263	205	e180	e110	e170	e150	e547	390	222	122	e210	218
2	261	203	e190	e105	e170	e145	466	690	199	115	e200	216
3	262	204	e210	e100	e170	e140	398	994	201	120	e190	218
4	251	202	e220	e105	e175	e140	374	513	204	122	e180	216
5	247	203	e230	e110	e180	e150	378	371	202	120	e170	215
6	256	203	e240	e130	e180	e145	400	313	273	146	e155	224
7	298	198	e230	e140	e180	e140	416	281	285	168	327	214
8	295	196	e220	e152	e185	e135	392	262	288	151	538	209
9	298	198	e210	e160	e190	e130	359	243	282	163	349	232
10	315	196	e205	e180	e190	e120	354	238	261	160	314	1750
11	298	196	e195	e200	e190	e125	363	241	262	150	264	1110
12	276	196	e190	e210	e190	e130	346	327	284	143	249	584
13	281	195	e180	e220	e195	e150	320	733	288	153	226	466
14	247	190	e180	e230	e196	e195	332	475	288	162	222	1280
15	235	190	e180	e230	e197	e220	306	348	280	160	184	826
16	232	191	e180	e220	e200	e215	273	301	238	164	179	526
17	229	192	e175	e210	e200	e205	257	273	224	155	168	408
18	223	188	e175	e200	e200	e200	246	257	239	155	155	346
19	224	182	e170	e180	e200	e190	235	253	248	148	159	326
20	218	189	e170	e170	e200	e180	233	302	254	144	156	557
21	224	189	e165	e170	e200	e170	239	288	241	184	182	646
22	224	192	e165	e175	e195	e150	243	285	246	213	201	523
23	216	202	e160	e180	e190	e120	235	241	247	247	195	383
24	208	207	e160	e185	e185	e115	229	269	296	300	202	325
25	209	207	e155	e190	e180	e115	224	265	261	320	207	300
26	209	e205	e155	e195	e175	e130	224	244	241	296	218	289
27	212	e180	e150	e205	e160	e190	248	260	219	287	226	283
28	211	e170	e140	e210	e155	e340	271	307	201	292	224	282
29	209	e165	e130	e200	---	e1200	439	274	177	271	236	275
30	212	e170	e120	e190	---	e700	465	248	140	243	232	259
31	210	---	e115	e180	---	e560	---	244	---	213	223	---
TOTAL	7553	5804	5545	5442	5198	6995	9812	10730	7291	5787	6941	13706
MEAN	244	193	179	176	186	226	327	346	243	187	224	457
MAX	315	207	240	230	200	1200	547	994	296	320	538	1750
MIN	208	165	115	100	155	115	224	238	140	115	155	209
AC-FT	14980	11510	11000	10790	10310	13870	19460	21280	14460	11480	13770	27190

MEAN	338	275	182	163	473	1032	1148	1880	2047	754	503	384
MAX	2927	3016	907	954	4980	4359	5182	8471	8981	2585	1949	1110
(WY)	1999	1999	1999	1997	1997	1978	2000	1995	1967	1962	1997	1955
MIN	39.2	93.8	28.6	10.0	42.1	124	71.3	83.3	172	61.8	48.0	16.2
(WY)	1962	1960	1962	1962	1979	1981	1961	1961	1961	1960	1961	1961

06438500 CHEYENNE RIVER NEAR PLAINVIEW, SD--Continued

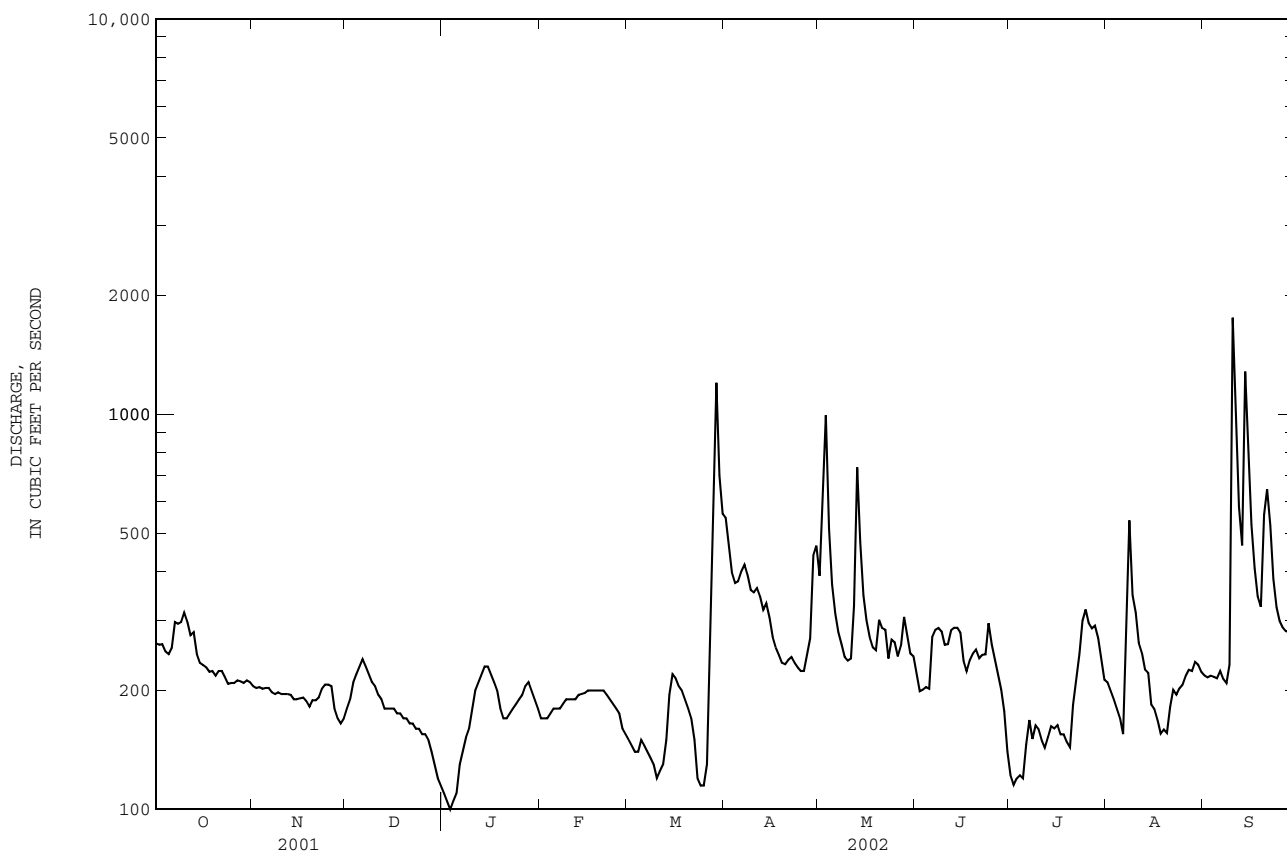
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1951-1981, 1995-2002	
ANNUAL TOTAL	224137		90804		765a	
ANNUAL MEAN	614		249		2417	
HIGHEST ANNUAL MEAN					1997	
LOWEST ANNUAL MEAN					97.2	
HIGHEST DAILY MEAN	12000	Mar 7	1750	Sep 10	61200	May 28 1996
LOWEST DAILY MEAN	115	Dec 31	100	Jan 3	0.00	Dec 14 1961b
ANNUAL SEVEN-DAY MINIMUM	138	Dec 25	109	Dec 30	1.0	Jan 17 1962
MAXIMUM PEAK FLOW			10000	Mar 29	69700	May 28 1996
MAXIMUM PEAK STAGE			15.55	Mar 29c	22.10	May 28 1996
ANNUAL RUNOFF (AC-FT')	444600		180100		554100	
10 PERCENT EXCEEDS	1090		351		1530	
50 PERCENT EXCEEDS	315		210		290	
90 PERCENT EXCEEDS	190		150		80	

a Median of annual mean discharges, 650 ft³/s.

b Also Dec. 19-21, 1961.

c Backwater from ice.

e Estimated.



06439000 CHERRY CREEK NEAR PLAINVIEW, SD

LOCATION.--Lat 44°44'35", long 102°03'11", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.16, T.9 N., R.17 E., Meade County, Hydrologic Unit 10120113, on right upstream wingwall of bridge on State Highway 73, 0.2 mi downstream from small right-bank tributary, 6.2 mi downstream from Red Owl Creek, and 11 mi northeast of Plainview.

DRAINAGE AREA.--1,190 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for October and November 1945, published in WSP 1309.

REVISED RECORDS.--WDR SD-85-1: Location and datum.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,157.91 ft above NGVD of 1929. Prior to June 8, 1948, nonrecording gage at same site and datum. Prior to Sept. 27, 1985, recording gage at site 100 ft downstream at same datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	e0.00	e0.00	e0.00	e0.00	e1.0	1.1	0.00	0.00	0.00	0.00
2	0.00	0.00	e0.00	e0.00	e0.00	e0.00	e0.70	1.0	0.00	0.00	0.00	0.00
3	0.00	0.00	e0.00	e0.00	e0.00	e0.00	e0.62	0.76	0.00	0.00	0.00	0.00
4	0.00	0.00	e0.00	e0.00	e0.00	e0.00	e0.58	0.62	0.00	0.00	0.00	0.00
5	0.00	0.00	e0.00	e0.00	e0.00	e0.00	e0.56	0.45	0.00	0.00	0.00	0.00
6	0.00	0.00	e0.00	e0.00	e0.00	e0.00	e0.54	0.39	0.00	0.00	0.00	0.00
7	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.32	0.37	0.00	0.00	0.00	0.00
8	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.09	0.26	0.00	0.00	0.00	0.00
9	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.03	0.20	0.00	0.00	0.00	0.00
10	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.12	0.25	0.00	0.00	0.00	0.00
11	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.02	0.65	0.00	0.00	0.00	0.00
12	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.02	1.0	0.00	0.00	0.00	0.00
13	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.00	0.93	0.00	0.00	0.00	0.00
14	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.00	0.88	0.00	0.00	0.00	0.00
15	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.00	0.68	0.74	0.00	0.00	0.00
16	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.00	0.56	0.00	0.00	0.00	0.00
17	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.00	0.45	0.00	0.00	0.00	0.00
18	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.00	0.35	0.00	0.00	0.00	0.00
19	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.00	0.22	0.00	0.00	0.00	0.00
20	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.00	0.11	0.00	0.00	0.00	0.00
21	0.00	0.00	e0.00	e0.00	e0.00	e0.00	1.4	0.04	0.00	0.00	0.00	0.00
22	0.00	0.00	e0.00	e0.00	e0.00	e0.00	3.6	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	e0.00	e0.00	e0.00	e0.00	2.7	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	e0.00	e0.00	e0.00	e0.00	0.85	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	e0.00	e0.00	e0.00	0.85	0.00	0.00	0.00	0.00	0.00
26	0.00	e0.15	e0.00	e0.00	e0.00	e0.00	0.87	0.00	0.00	0.00	0.00	0.00
27	0.00	e0.10	0.00	e0.00	e0.00	e0.01	0.95	0.00	0.00	0.00	0.00	0.00
28	0.00	0.01	e0.00	e0.00	e0.00	e0.02	0.99	0.00	0.00	0.00	0.00	0.00
29	0.00	e0.00	e0.00	e0.00	---	e0.10	0.81	0.00	0.00	0.00	0.00	0.00
30	0.00	e0.00	e0.00	e0.00	---	e0.50	0.74	0.00	0.00	0.00	0.00	0.00
31	0.00	---	e0.00	e0.00	---	e1.6	---	0.00	---	0.00	0.00	---
TOTAL	0.00	0.26	0.00	0.00	0.00	2.23	18.36	11.27	0.74	0.00	0.00	0.00
MEAN	0.000	0.009	0.000	0.000	0.000	0.072	0.612	0.364	0.025	0.000	0.000	0.000
MAX	0.00	0.15	0.00	0.00	0.00	1.6	3.6	1.1	0.74	0.00	0.00	0.00
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	0.00	0.5	0.00	0.00	0.00	4.4	36	22	1.5	0.00	0.00	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2002, BY WATER YEAR (WY)

	MEAN	4.895	1.911	0.941	1.166	29.97	169.8	144.7	134.1	111.9	28.30	8.242	0.800
MAX	109	50.7	10.6	16.5	721	1475	2221	1215	794	685	175	16.6	
(WY)	1983	1999	1999	1947	1996	1997	1952	1982	1953	1993	1953	1986	
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1946	1946	1946	1946	1946	1957	1957	1955	1955	1949	1946	1946	

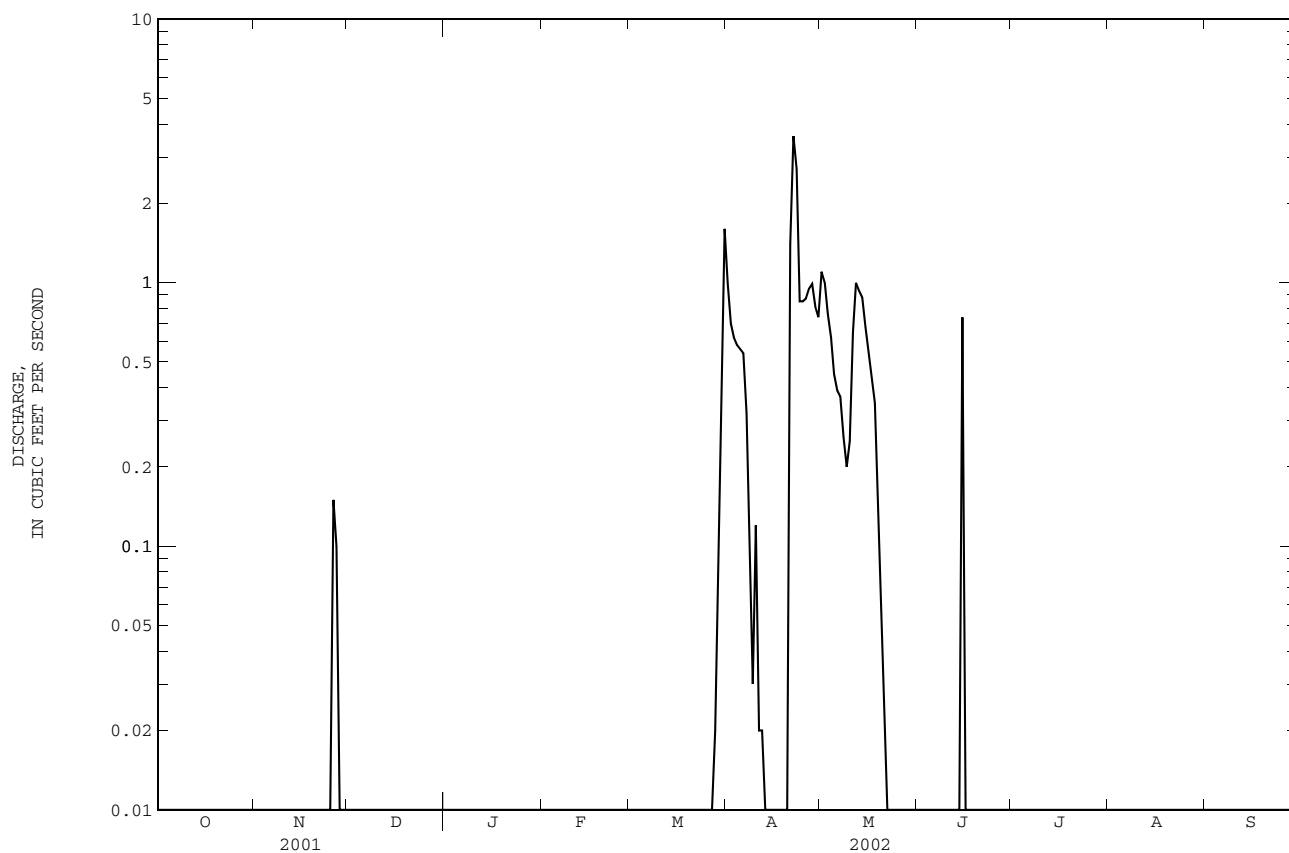
06439000 CHERRY CREEK NEAR PLAINVIEW, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1946 - 2002	
ANNUAL TOTAL	13086.72		32.86		53.11a	
ANNUAL MEAN	35.85		0.090		269	
HIGHEST ANNUAL MEAN					0.000	
LOWEST ANNUAL MEAN					13800	
HIGHEST DAILY MEAN	2000	Mar 10	3.6	Apr 22	17500	Apr 2 1952
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1b	0.00	Oct 1 1945b
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 1	0.00	Oct 1 1945
MAXIMUM PEAK FLOW			16	Jun 15	22.63	Apr 1 1952
MAXIMUM PEAK STAGE			3.98	Jun 15	38470	Apr 1 1952
ANNUAL RUNOFF (AC-FT)	25960		65		60	
10 PERCENT EXCEEDS	35		0.25		0.00	
50 PERCENT EXCEEDS	0.00		0.00		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a Median of annual mean discharges, 28 ft³/s.

b No flow for long periods in most years.

e Estimated.



LOCATION.--Lat 44°27'30", long 100°23'29", in NE $\frac{1}{4}$ sec.1, T.111 N., R.80 W., 5th principal meridian, Hughes County, Hydrologic Unit 10130105, in Pier A of Control Tower No. 1 of powerhouse intake structure of dam on Missouri River, 6.0 mi northwest of Pierre, 7.1 mi upstream from Bad River, and at mile 1,072.3.

DRAINAGE AREA.--243,500 mi², approximately.

PERIOD OF RECORD.--August 1958 to current year (monthend contents only). Prior to October 1967, published as Oahe Reservoir near Pierre.

GAGE.--Water-stage recorder. Elevations listed to NGVD of 1929. Prior to Jan. 14, 1958, nonrecording gages at various locations upstream from outlet works, Jan. 14, 1959, to Sept. 30, 1962, recorder in Tower No. 1 of outlet works, all at same datum.

REVISED RECORDS.--WDR SD-88-1: September monthend elevation.

REMARKS.--Reservoir is formed by an earthfill dam; storage began in August 1958. Maximum capacity, 23,338,000 acre-ft below elevation 1,620.0 ft (top of spillway gates). Normal maximum, 22,240,000 acre-ft below 1,617.0 ft, of which about 2,390,000 acre-ft is designated for flood control. Inactive storage, 5,451,000 acre-ft below elevation 1,540.0 ft. Dead storage, 1,970 acre-ft below elevation 1,425.0 ft (invert of lowest outlet tunnel). Figures given herein represent elevations at powerhouse intake structure and total contents adjusted for wind effect.

The spillway consists of a gated chute with flat crest at elevation 1,596.5 ft, 8 gates, 50 by 23.5 ft each; design capacity, 300,000 ft³/s. The outlet works consist of 7 turbines with a generating capacity of 85,000 kilowatts each. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 22,764,000 acre-ft, May 14, 1986, affected by wind; maximum elevation, 1,618.71 ft, June 25, 1995; minimum since initial filling, 12,071,000 acre-ft, Oct. 30, 1989, Nov. 1, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 17,441,000 acre-ft, Oct. 1; minimum contents, 13,112,000 acre-ft, Sept. 30.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,602.95	17,465,000	--
Oct. 31	1,601.20	16,978,000	-487,000
Nov. 30	1,599.39	16,453,000	-525,000
Dec. 31	1,598.51	16,215,000	-238,000
CAL YR 2001.	--	--	+414,000
Jan. 31	1,598.60	16,242,000	+27,000
Feb. 28	1,598.89	16,312,000	+70,000
Mar. 31	1,598.19	16,113,000	-199,000
Apr. 30	1,596.18	15,576,000	-537,000
May 31	1,595.31	15,368,000	-208,000
June 30	1,592.70	14,665,000	-703,000
July 31	1,590.75	14,191,000	-474,000
Aug. 31	1,588.09	13,597,000	-594,000
Sept. 30	1,586.39	13,112,000	-485,000
WTR YR 2002.	--	--	-4,353,000

NOTE.--Lake frozen over Mar. 11 to Apr. 16.

THIS PAGE IS INTENTIONALLY BLANK

MISSOURI-FORT RANDALL RIVER BASIN
06440000 MISSOURI RIVER AT PIERRE, SD

LOCATION.--Lat 44°22'23", long 100°22'03" in NW¹/₄ SW¹/₄ sec.32, T.111 N., R.79 W., Hughes County, Hydrologic Unit 10140101, on left bank downstream from Dakota Minnesota and Eastern Railroad bridge, 1.3 mi upstream from Bad River, 5.8 mi downstream from Oahe Dam, and at mile 1,066.5.

PERIOD OF RECORD.--October 1929 to September 1965, October 1988 to current year (daily gage height). Daily discharges, October 1929 to September 1965 and October 1996 to September 2000.

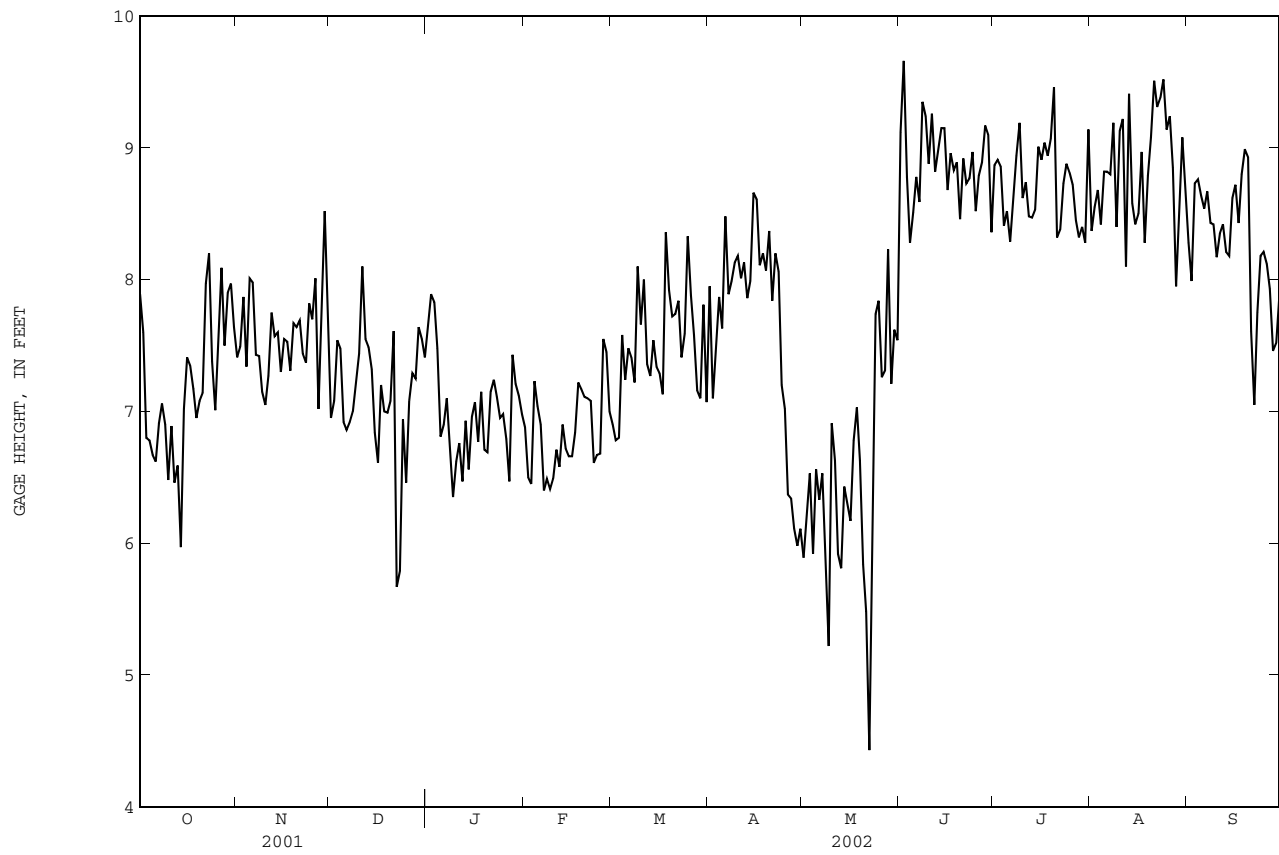
GAGE.--Water-stage recorder. Datum of gage is 1,414.26 ft above NGVD of 1929. Prior to Mar. 11, 1932, chain gage at same site at datum 2.00 ft higher.

REMARKS.--Records good. Stage regulated by Big Bend Dam approximately 82 mi downstream. Flow regulated by Oahe Dam 5.5 mi upstream. Gage heights for period of October 1965 to September 1988 in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.89	7.41	6.95	7.67	6.88	6.90	7.95	5.89	9.12	8.87	8.37	8.28
2	7.60	7.49	7.08	7.89	6.50	6.78	7.10	6.20	9.66	8.91	8.55	7.99
3	6.80	7.87	7.54	7.83	6.45	6.80	7.49	6.53	8.78	8.86	8.68	8.73
4	6.78	7.34	7.48	7.48	7.23	7.58	7.87	5.92	8.28	8.41	8.42	8.76
5	6.67	8.01	6.92	6.81	7.04	7.24	7.63	6.56	8.51	8.52	8.82	8.64
6	6.62	7.98	6.86	6.90	6.90	7.48	8.48	6.33	8.78	8.29	8.82	8.54
7	6.91	7.43	6.92	7.10	6.40	7.41	7.89	6.53	8.59	8.61	8.80	8.67
8	7.06	7.42	7.00	6.69	6.49	7.22	7.99	5.84	9.35	8.94	9.19	8.43
9	6.90	7.15	7.24	6.35	6.41	8.10	8.13	5.22	9.24	9.19	8.40	8.42
10	6.48	7.05	7.44	6.62	6.49	7.66	8.18	6.91	8.88	8.62	9.13	8.17
11	6.89	7.27	8.10	6.76	6.71	8.00	8.01	6.63	9.26	8.74	9.22	8.35
12	6.46	7.75	7.55	6.47	6.58	7.36	8.13	5.92	8.82	8.48	8.10	8.42
13	6.59	7.57	7.49	6.93	6.90	7.27	7.86	5.81	8.99	8.47	9.41	8.21
14	5.97	7.60	7.32	6.56	6.72	7.54	7.99	6.43	9.15	8.53	8.58	8.18
15	7.02	7.30	6.84	6.96	6.66	7.34	8.66	6.29	9.15	9.01	8.42	8.62
16	7.41	7.55	6.61	7.07	6.66	7.29	8.61	6.17	8.68	8.91	8.50	8.72
17	7.35	7.53	7.20	6.77	6.84	7.13	8.11	6.78	8.96	9.04	8.97	8.43
18	7.17	7.31	7.00	7.15	7.22	8.36	8.20	7.03	8.83	8.94	8.28	8.80
19	6.95	7.67	6.99	6.71	7.17	7.92	8.07	6.63	8.89	9.07	8.79	8.99
20	7.08	7.64	7.08	6.69	7.11	7.72	8.37	5.84	8.46	9.46	9.08	8.93
21	7.14	7.69	7.61	7.15	7.10	7.74	7.84	5.48	8.92	8.32	9.51	7.61
22	7.97	7.44	5.67	7.24	7.08	7.84	8.20	4.43	8.73	8.38	9.31	7.05
23	8.20	7.37	5.79	7.11	6.61	7.41	8.06	6.08	8.77	8.73	9.38	7.75
24	7.38	7.82	6.94	6.95	6.67	7.59	7.20	7.74	8.97	8.88	9.52	8.18
25	7.01	7.70	6.46	6.98	6.68	8.33	7.02	7.84	8.52	8.81	9.14	8.21
26	7.51	8.01	7.08	6.79	7.55	7.88	6.37	7.26	8.79	8.72	9.24	8.12
27	8.09	7.02	7.29	6.47	7.45	7.58	6.34	7.31	8.89	8.45	8.85	7.93
28	7.50	7.63	7.25	7.43	7.00	7.16	6.11	8.23	9.17	8.32	7.95	7.46
29	7.90	8.52	7.64	7.21	---	7.10	5.98	7.21	9.10	8.40	8.49	7.52
30	7.97	7.66	7.55	7.12	---	7.81	6.11	7.62	8.36	8.28	9.08	7.87
31	7.64	---	7.41	6.98	---	7.07	---	7.54	---	9.14	8.73	---
MEAN	7.19	7.57	7.11	6.99	6.84	7.50	7.67	6.52	8.89	8.72	8.83	8.27
MAX	8.20	8.52	8.10	7.89	7.55	8.36	8.66	8.23	9.66	9.46	9.52	8.99
MIN	5.97	7.02	5.67	6.35	6.40	6.78	5.98	4.43	8.28	8.28	7.95	7.05

06440000 MISSOURI RIVER AT PIERRE, SD--Continued



MISSOURI-FORT RANDALL RIVER BASIN

06440200 SOUTH FORK BAD RIVER NEAR COTTONWOOD, SD
(Formerly published as Buffalo Creek near Cottonwood)

LOCATION.--Lat 43°58'08", long 101°46'00", in NE¹/₄ SW¹/₄ SE¹/₄ sec.7, T.1 S., R.20 E., Jackson County, Hydrologic Unit 10140102, on right bank at upstream side of bridge on old U.S. Highway 16, 1.0 mi above confluence with Cottonwood Creek, and 7.0 mi east of Cottonwood.

DRAINAGE AREA.--250 mi².

PERIOD OF RECORD.--October 1954 to September 1960 (discharge measurements only), October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,242.96 ft above NGVD of 1929. October 1954 to September 1960, nonrecording gage at same site at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	e0.00	e0.10	e0.00	4.8	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	e0.00	e0.08	e0.00	1.5	2.4	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	e0.00	e0.07	e0.00	0.66	45	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	e0.00	e0.06	e0.00	0.25	13	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	e0.00	e0.05	e0.00	0.08	5.5	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	e0.00	e0.04	e0.00	0.01	2.8	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	e1.0	e0.03	e0.00	0.25	1.3	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	e4.0	e0.02	e0.00	0.54	1.1	0.00	0.00	8.2	0.00
9	0.00	0.00	0.00	3.3	e0.00	e0.00	0.29	0.53	0.00	0.00	7.3	0.00
10	0.00	0.00	0.00	2.8	e0.00	e0.00	0.02	0.30	0.00	0.00	3.0	16
11	0.00	0.00	0.00	3.2	e0.00	e0.00	0.00	1.0	0.00	0.00	1.6	197
12	0.00	0.00	0.00	1.9	e0.00	e0.00	0.00	21	0.00	0.00	0.75	18
13	0.00	0.00	0.00	1.5	e0.00	e0.00	0.00	73	0.00	0.00	0.32	6.5
14	0.00	0.00	e0.00	1.1	e0.00	e0.00	0.00	13	0.00	0.00	0.10	3.1
15	0.00	0.00	e0.00	e0.50	e0.00	e0.00	0.00	5.2	0.00	0.00	0.04	1.4
16	0.00	0.00	e0.00	e0.30	e0.00	e0.00	0.00	2.3	0.00	0.00	0.00	0.44
17	0.00	0.00	e0.00	e0.20	e0.00	e0.00	0.00	0.98	0.00	0.00	0.00	1.8
18	0.00	0.00	e0.00	e0.15	e0.00	e0.00	0.00	0.56	0.00	0.00	0.00	0.62
19	0.00	0.00	e0.00	e0.10	e0.00	e0.00	0.00	0.21	0.00	0.00	0.00	0.30
20	0.00	0.00	e0.00	e0.10	e0.00	e0.00	0.00	0.07	0.00	0.00	0.00	1.2
21	0.00	0.00	e0.00	e0.15	e0.00	e0.00	0.00	0.05	0.00	0.00	0.00	0.65
22	0.00	0.00	e0.00	e0.20	e0.00	e0.00	0.00	0.05	0.00	0.00	0.00	0.14
23	0.00	0.00	e0.00	e0.30	e0.00	e0.00	0.00	0.03	0.00	0.00	0.00	0.07
24	0.00	0.00	e0.00	e0.60	e0.00	e0.00	0.00	0.02	0.00	0.00	0.00	0.42
25	0.00	0.00	e0.00	e1.2	e0.00	e0.00	0.00	0.02	0.00	0.00	0.00	0.12
26	0.00	0.01	e0.00	e1.1	e0.00	e0.00	0.00	0.01	0.00	0.00	0.00	0.04
27	0.00	0.00	e0.00	e0.79	e0.00	e0.02	0.00	0.01	0.00	0.00	0.00	0.00
28	0.00	0.00	e0.00	e0.45	e0.00	0.35	0.00	0.01	0.00	0.00	0.00	0.00
29	0.00	0.00	e0.00	e0.30	---	30	0.00	0.01	0.00	0.00	0.00	0.00
30	0.00	0.00	e0.00	e0.20	---	29	0.00	0.01	0.00	0.00	0.00	0.00
31	0.00	---	e0.00	e0.15	---	7.4	---	0.00	---	0.00	0.00	---
TOTAL	0.00	0.01	0.00	25.59	0.45	66.77	8.40	189.47	0.00	0.00	21.31	247.80
MEAN	0.000	0.000	0.000	0.83	0.016	2.15	0.28	6.11	0.000	0.000	0.69	8.26
MAX	0.00	0.01	0.00	4.0	0.10	30	4.8	73	0.00	0.00	8.2	197
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AC-FT	0.00	0.02	0.00	51	0.9	132	17	376	0.00	0.00	42	492

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2002, BY WATER YEAR (WY)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	5.97	3.38	0.47	0.95	43.4	35.1	26.3	79.3	64.8	14.4	10.7	3.99		
MAX	39.9	29.3	3.50	4.46	555	122	150	324	347	99.5	72.6	12.3		
(WY)	1999	1999	1994	1994	1997	2001	2000	1995	1991	1997	1997	1999		
MIN	0.000	0.000	0.000	0.000	0.000	0.64	0.017	1.11	0.000	0.000	0.000	0.000		
(WY)	1991	1990	1991	1989	1989	1991	1990	2001	2002	2002	1989	2000		

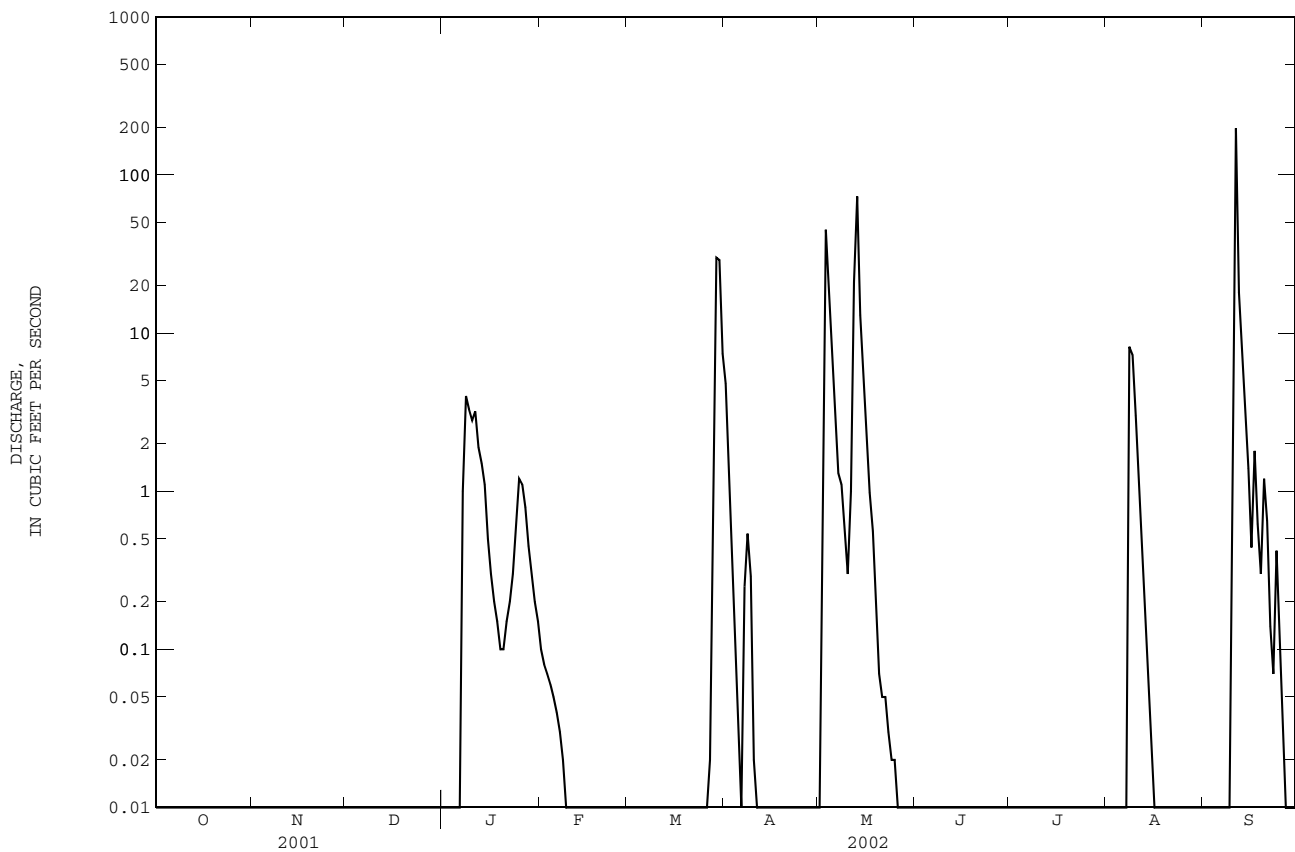
06440200 SOUTH FORK BAD RIVER NEAR COTTONWOOD, SD--Continued
(Formerly published as Buffalo Creek near Cottonwood)

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1989 - 2002
ANNUAL TOTAL	4973.84	559.80	
ANNUAL MEAN	13.6	1.53	23.9a
HIGHEST ANNUAL MEAN			94.5
LOWEST ANNUAL MEAN			1.53
HIGHEST DAILY MEAN	800 Mar 10	197 Sep 11	3990 May 31 1991
LOWEST DAILY MEAN	0.00 Jan 1	0.00 Oct 1b	0.00 Oct 2 1988b
ANNUAL SEVEN-DAY MINIMUM	0.00 Feb 11	0.00 Oct 1	0.00 Oct 2 1988
MAXIMUM PEAK FLOW		383 Sep 11	15200 May 31 1991
MAXIMUM PEAK STAGE		7.97 Sep 11	17.89 May 31 1991
ANNUAL RUNOFF (AC-FT)	9870	1110	17320
10 PERCENT EXCEEDS	10	1.1	25
50 PERCENT EXCEEDS	0.02	0.00	0.14
90 PERCENT EXCEEDS	0.00	0.00	0.00

a Median of annual mean discharges, 18 ft³/s.

b No flow for many days in most years.

e Estimated.



LOCATION.--Lat 44°04'01", long 101°09'36", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.7, T.1 N., R.25 E., Haakon County, Hydrologic Unit 10140102, on right bank at downstream side of bridge on State Highway 63, 0.4 mi southwest of Midland, 2.0 mi upstream from Mitchell Creek, and 3.7 mi upstream from Ash Creek.

DRAINAGE AREA.--1,460 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year. Prior to February 1946 monthly discharge only, published in WSP 1309.

REVISED RECORDS.--WSP 2117: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,849.14 ft above NGVD of 1929. Prior to Feb. 21, 1961, nonrecording gage, and Feb. 21, 1961, to June 14, 1967, water-stage recorder at site 4.2 mi downstream at datum 15.72 ft lower. June 15 to July 26, 1967, nonrecording gage at site 30 ft upstream and July 27, 1967, to June 14, 1971, water-stage recorder at site 60 ft upstream, both at present datum.

REMARKS.--Records good. Only daily discharges above 100 ft³/s are being published. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft³/s, June 15, 1967, gage height, 24.44 ft, from floodmarks, 20.10 ft, from floodmarks, at former site and datum, from rating curve extended above 16,000 ft³/s; no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 68 ft³/s, May 14, gage height, 4.39 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

No daily discharge above 100 ft³/s this water year.

THIS PAGE IS INTENTIONALLY BLANK

LOCATION.--Lat 44°19'36", long 100°23'02", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.10, T.4 N., R.31 E., Stanley County, Hydrologic Unit 10140102, on right bank at downstream side of highway bridge, 2.1 mi south of Fort Pierre, 4.3 mi downstream from Willow Creek, and 6.0 mi upstream from mouth.

DRAINAGE AREA.--3,107 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year. Monthly discharge only for July 1932 to February 1934, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 856: 1929(M), 1937.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,427.83 ft above NGVD of 1929. Prior to July 10, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1927 reached a stage of 30.89 ft, from floodmarks, discharge, about 55,000 ft³/s. Flood in July 1905 reached a stage about 2 ft higher than that in April 1927.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.34	0.33	e0.80	e0.50	e0.50	e22	153	5.1	1.5	e0.04	0.00	0.00
2	0.17	0.38	e0.90	e0.50	e0.60	e21	105	5.6	1.8	e0.01	0.00	0.00
3	0.09	0.09	e1.0	e0.55	e0.50	e20	70	4.9	1.5	e0.0	0.00	0.00
4	0.18	e0.05	e1.1	e0.60	e0.50	e22	75	5.2	1.3	e0.0	0.00	0.00
5	0.13	e0.04	e1.2	e0.70	e0.60	e23	74	4.3	1.2	e0.0	0.00	0.00
6	0.12	e0.04	e1.1	e0.65	e1.0	e22	60	5.6	1.1	e0.0	0.00	0.00
7	0.14	e0.04	e1.2	e0.70	e3.0	e21	51	5.0	0.83	e0.26	0.00	0.00
8	0.18	e0.04	e1.3	e0.90	e5.0	e20	45	6.0	0.79	e0.13	0.00	0.00
9	0.43	e0.04	e1.4	e1.0	e4.8	e19	41	5.4	0.76	e0.05	0.00	0.00
10	2.3	e0.05	e1.3	e1.0	e5.0	e18	35	3.6	0.49	e0.01	0.00	0.00
11	1.7	e0.05	e1.2	e1.1	e8.0	e18	31	5.5	0.39	e0.00	0.00	0.00
12	1.1	0.06	e1.1	e1.1	e10	e20	26	9.0	0.30	e0.00	0.00	0.00
13	0.86	0.06	e1.0	e1.0	e13	e22	22	7.0	0.21	0.00	0.00	0.00
14	0.92	0.06	e1.1	e0.90	e15	e24	17	5.0	0.11	0.00	0.00	0.00
15	0.24	0.44	e1.2	e0.80	e18	e23	14	4.5	0.05	0.00	0.00	0.00
16	0.41	0.45	e1.2	e0.70	e20	e22	12	3.6	0.00	0.00	0.00	0.00
17	0.25	0.23	e1.2	e0.60	e22	e21	10	2.7	0.00	0.00	0.00	0.00
18	0.14	0.06	e1.1	e0.50	e25	e20	8.6	2.4	0.05	0.00	0.00	0.00
19	0.31	e0.04	e1.0	e0.50	e28	e19	6.8	11	0.30	0.00	0.00	0.00
20	0.47	e0.04	e1.0	e0.55	e30	e19	5.8	14	0.17	0.00	0.00	0.00
21	0.67	0.06	e1.1	e0.60	e32	e18	6.5	9.0	56	0.00	0.00	0.00
22	0.50	0.06	e1.0	e0.55	e35	e18	7.2	6.7	5.2	0.00	0.00	0.00
23	0.26	0.06	e0.90	e0.50	e34	e17	7.0	5.0	15	0.00	0.00	0.00
24	0.33	0.26	e0.90	e0.60	e33	e16	5.5	4.0	31	0.00	0.00	0.00
25	0.33	0.40	e0.80	e0.70	e30	e15	4.5	3.2	2.3	0.00	0.00	0.00
26	0.20	0.54	e0.90	e0.80	e27	e16	3.5	2.7	1.0	0.00	0.00	0.00
27	0.19	0.67	e0.90	e0.70	e25	e170	3.7	2.5	0.58	0.00	0.00	0.00
28	0.39	1.2	e0.80	e0.60	e23	808	4.8	2.9	0.21	0.00	0.00	0.00
29	0.19	e1.1	e0.75	e0.50	---	660	5.3	2.5	e0.15	0.00	0.00	0.00
30	0.12	e0.90	e0.70	e0.50	---	375	4.5	2.0	e0.10	0.00	0.00	0.00
31	0.38	---	e0.60	e0.50	---	223	---	1.6	---	0.00	0.00	---
TOTAL	14.04	7.84	31.75	21.40	449.50	2752	914.7	157.5	124.39	0.50	0.00	0.00
MEAN	0.45	0.26	1.02	0.69	16.1	88.8	30.5	5.08	4.15	0.016	0.000	0.000
MAX	2.3	1.2	1.4	1.1	35	808	153	14	56	0.26	0.00	0.00
MIN	0.09	0.04	0.60	0.50	0.50	15	3.5	1.6	0.00	0.00	0.00	0.00
AC-FT	28	16	63	42	892	5460	1810	312	247	1.0	0.00	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY)

	1929	1929	1929	1929	1936	1934	1934	1980	1930	1930	1929	1929
MEAN	19.1	5.73	2.42	11.9	136	526	428	411	364	81.6	49.0	36.9
MAX	295	199	51.1	434	3436	4480	7306	6663	2567	561	706	1027
(WY)	1983	1999	1999	1997	1997	1997	1952	1942	1967	1937	1930	1999
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1929	1929	1929	1929	1936	1934	1934	1980	1930	1930	1929	1929

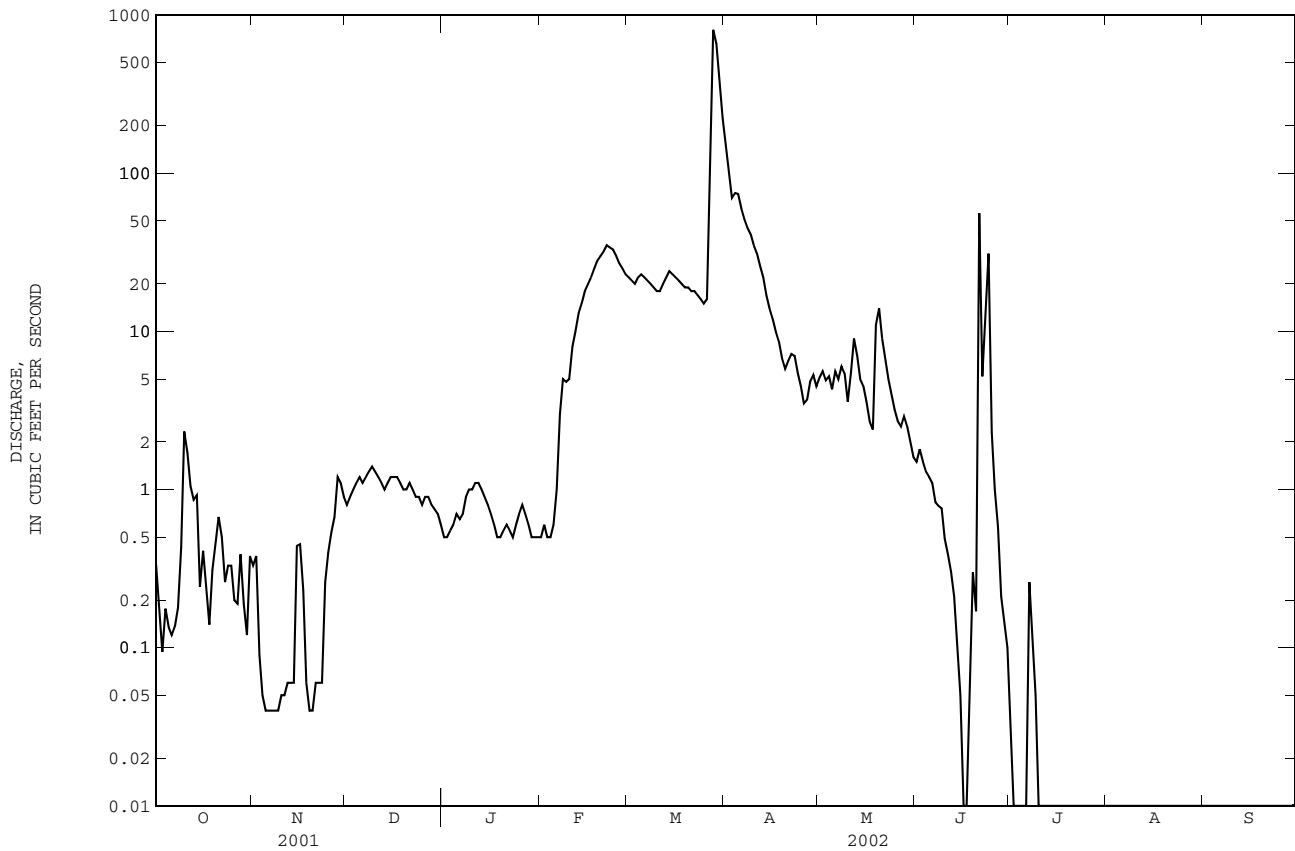
06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1929 - 2002	
ANNUAL TOTAL	73328.27		4473.62		173a	
ANNUAL MEAN	201		12.3		1203	
HIGHEST ANNUAL MEAN					6.07	
LOWEST ANNUAL MEAN					27200	
HIGHEST DAILY MEAN	7000	Mar 14	808	Mar 28	May 1	1942
LOWEST DAILY MEAN	0.02	Jan 1	0.00	Jun 16	0.00	Oct 1 1928b
ANNUAL SEVEN-DAY MINIMUM	0.04	Nov 4	0.00	Jul 11	0.00	Oct 1 1928
MAXIMUM PEAK FLOW			1220	Mar 28	43800	Jun 18 1967
MAXIMUM PEAK STAGE			6.41	Mar 28	29.55	Jun 18 1967
ANNUAL RUNOFF (AC-FT')	145400		8870		125000	
10 PERCENT EXCEEDS	318		22		233	
50 PERCENT EXCEEDS	8.8		0.67		0.90	
90 PERCENT EXCEEDS	0.07		0.00		0.00	

a Median of annual mean discharges, 110 ft³/s.

b No flow for long periods in most years.

e Estimated.



WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1945 to September 1953, October 1971 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1971 to current year.

WATER TEMPERATURE: October 1972 to June 1983.

REVISED RECORDS.--WDR SD-81-1: 1979-80.

REMARKS.--Sediment discharge records fair except those for estimated daily concentrations and/or discharges, which are poor.

Observer collects samples on a daily basis during most periods of open-water flow and less often during winter ice period.

Flow affected by ice Nov. 4-11, 19, 20 and Nov. 29 to Mar. 27. Size analyses for suspended-sediment samples collected for low flows may be affected by dissolved solids. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, U.S. Army Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 124,000 mg/L, July 17, 1981; minimum daily mean, 0 mg/L, estimated, on many days some years.

SEDIMENT LOAD: Maximum daily, 949,000 tons, May 14, 1982; minimum daily, 0 ton on many days each year.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 16,100 mg/L, Mar. 28; minimum daily mean, 0 mg/L, on many days.

SEDIMENT LOAD: Maximum daily, 33,500 tons, Mar. 28; minimum daily, 0.00 ton, on many days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	0.34	e20	0.02	0.33	e17	0.01	e0.80	e100	0.22
2	0.17	e20	0.00	0.38	e16	0.02	e0.90	e99	0.24
3	0.09	e20	0.00	0.09	e16	0.00	e1.0	e99	0.27
4	0.18	e20	0.00	e0.05	e16	0.00	e1.1	e99	0.29
5	0.13	20	0.00	e0.04	e16	0.00	e1.2	e99	0.32
6	0.12	e20	0.00	e0.04	e16	0.00	e1.1	e99	0.29
7	0.14	e20	0.00	e0.04	e16	0.00	e1.2	e99	0.32
8	0.18	e20	0.00	e0.04	e16	0.00	e1.3	e99	0.35
9	0.43	e19	0.02	e0.04	e16	0.00	e1.4	e98	0.37
10	2.3	e19	0.12	e0.05	e15	0.00	e1.3	e98	0.35
11	1.7	e19	0.09	e0.05	e15	0.00	e1.2	e98	0.32
12	1.1	e19	0.05	0.06	e15	0.00	e1.1	e98	0.29
13	0.86	e19	0.04	0.06	e15	0.00	e1.0	e98	0.26
14	0.92	e19	0.05	0.06	16	0.00	e1.1	e98	0.29
15	0.24	e19	0.01	0.44	e26	0.05	e1.2	e98	0.32
16	0.41	e19	0.02	0.45	e45	0.06	e1.2	e97	0.32
17	0.25	e18	0.01	0.23	e38	0.02	e1.2	e97	0.32
18	0.14	e18	0.00	0.06	e30	0.00	e1.1	e97	0.29
19	0.31	e18	0.01	e0.04	e23	0.00	e1.0	e97	0.26
20	0.47	e18	0.02	e0.04	e16	0.00	e1.0	e97	0.26
21	0.67	e18	0.03	0.06	e17	0.00	e1.1	e97	0.29
22	0.50	e18	0.02	0.06	e18	0.00	e1.0	e96	0.26
23	0.26	e18	0.01	0.06	e20	0.00	e0.90	e96	0.23
24	0.33	e18	0.02	0.26	e32	0.03	e0.90	e96	0.23
25	0.33	e17	0.02	0.40	e49	0.05	e0.80	e96	0.21
26	0.20	e17	0.00	0.54	e65	0.10	e0.90	e96	0.23
27	0.19	e17	0.00	0.67	e81	0.15	e0.90	e96	0.23
28	0.39	e17	0.02	1.2	e97	0.32	e0.80	e96	0.21
29	0.19	e17	0.00	e1.1	e100	0.30	e0.75	e95	0.19
30	0.12	e17	0.00	e0.90	e100	0.24	e0.70	e95	0.18
31	0.38	e17	0.02	---	---	---	e0.60	e95	0.15
TOTAL	14.04	---	0.60	7.84	---	1.35	31.75	---	8.36

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	e0.50	e95	0.13	e0.50	e76	0.10	e22	e55	3.3
2	e0.50	e95	0.13	e0.60	e75	0.12	e21	e54	3.1
3	e0.55	e95	0.14	e0.50	e74	0.10	e20	e53	2.9
4	e0.60	e95	0.15	e0.50	e74	0.10	e22	e53	3.1
5	e0.70	e94	0.18	e0.60	e73	0.12	e23	e52	3.2
6	e0.65	e94	0.17	e1.0	e72	0.19	e22	e51	3.0
7	e0.70	e94	0.18	e3.0	e71	0.57	e21	e50	2.9
8	e0.90	94	0.23	e5.0	e71	0.95	e20	e50	2.7
9	e1.0	e93	0.25	e4.8	e70	0.91	e19	e49	2.5
10	e1.0	e93	0.25	e5.0	e69	0.93	e18	e48	2.3
11	e1.1	e92	0.27	e8.0	e68	1.5	e18	e47	2.3
12	e1.1	e91	0.27	e10	e68	1.8	e20	e47	2.5
13	e1.0	e90	0.24	e13	e67	2.3	e22	e46	2.7
14	e0.90	e89	0.22	e15	e66	2.7	e24	e45	2.9
15	e0.80	e89	0.19	e18	e65	3.2	e23	e44	2.8
16	e0.70	e88	0.17	e20	e65	3.5	e22	e44	2.6
17	e0.60	e87	0.14	e22	e64	3.8	e21	e43	2.4
18	e0.50	e86	0.12	e25	e63	4.3	e20	e42	2.3
19	e0.50	e86	0.12	e28	e62	4.7	e19	e41	2.1
20	e0.55	e85	0.13	e30	e62	5.0	e19	e41	2.1
21	e0.60	e84	0.14	e32	e61	5.3	e18	e40	1.9
22	e0.55	e83	0.12	e35	e60	5.7	e18	42	2.0
23	e0.50	e83	0.11	e34	e59	5.4	e17	e46	2.1
24	e0.60	e82	0.13	e33	e59	5.2	e16	e47	2.0
25	e0.70	e81	0.15	e30	e58	4.7	e15	e49	2.0
26	e0.80	e80	0.17	e27	e57	4.2	e16	e1030	44.0
27	e0.70	e80	0.15	e25	e56	3.8	e170	e7880	3600
28	e0.60	e79	0.13	e23	e56	3.5	808	16100	33500
29	e0.50	e78	0.11	---	---	---	660	13800	25200
30	e0.50	e77	0.10	---	---	---	375	8640	9000
31	e0.50	e77	0.10	---	---	---	223	4160	2570
TOTAL	21.40	---	5.09	449.50	---	74.69	2752	---	73977.7
APRIL			MAY			JUNE			
1	153	1450	615	5.1	48	0.66	1.5	e61	0.24
2	105	822	238	5.6	e45	0.68	1.8	e58	0.28
3	70	299	58.0	4.9	e41	0.54	1.5	e55	0.22
4	75	187	39.0	5.2	36	0.51	1.3	e52	0.18
5	74	187	37.0	4.3	e35	0.41	1.2	e49	0.16
6	60	e145	24.0	5.6	e35	0.53	1.1	e46	0.13
7	51	e116	16.0	5.0	e35	0.47	0.83	e43	0.10
8	45	e87	11.0	6.0	e35	0.58	0.79	e41	0.09
9	41	61	6.7	5.4	e36	0.52	0.76	e38	0.08
10	35	52	5.0	3.6	e36	0.35	0.49	e35	0.05
11	31	43	3.6	5.5	e38	0.57	0.39	e32	0.03
12	26	e31	2.2	9.0	e44	1.1	0.30	e29	0.02
13	22	21	1.2	7.0	e50	0.95	0.21	e26	0.01
14	17	37	1.7	5.0	e57	0.77	0.11	e23	0.00
15	14	26	0.95	4.5	e63	0.77	0.05	e15	0.00
16	12	e26	0.83	3.6	e70	0.68	0.0	e0.0	0.00
17	10	e26	0.70	2.7	76	0.56	0.0	e0.0	0.00
18	8.6	e25	0.59	2.4	e79	0.52	0.05	e16	0.00
19	6.8	e25	0.46	11	e81	2.4	0.30	e32	0.03
20	5.8	e25	0.39	14	e83	3.1	0.17	e44	0.02
21	6.5	e25	0.43	9.0	e85	2.1	56	14300	1820
22	7.2	e24	0.47	6.7	e87	1.6	5.2	e9750	149
23	7.0	e24	0.46	5.0	e89	1.2	15	e3100	106
24	5.5	e24	0.35	4.0	e91	0.98	31	e5670	459
25	4.5	e24	0.29	3.2	93	0.80	2.3	e5090	32.0
26	3.5	e23	0.22	2.7	e90	0.66	1.0	e4360	12.0
27	3.7	e23	0.23	2.5	e83	0.57	0.58	e3640	5.8
28	4.8	25	0.32	2.9	e77	0.60	0.21	e2910	1.7
29	5.3	e42	0.60	2.5	71	0.47	e0.15	e2180	0.88
30	4.5	e47	0.57	2.0	e67	0.37	e0.10	e1450	0.40
31	---	---	---	1.6	e64	0.27	---	---	---
TOTAL	914.7	---	1066.26	157.5	---	26.29	124.39	---	2588.42

MISSOURI-FORT RANDALL RIVER BASIN

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	e0.04	e726	0.08	0.0	---	---	0.0	---	---
2	e0.01	e95	0.00	0.0	---	---	0.0	---	---
3	e0.0	e0.0	0.00	0.0	---	---	0.0	---	---
4	e0.0	e0.0	0.00	0.0	---	---	0.0	---	---
5	e0.0	e0.0	0.00	0.0	---	---	0.0	---	---
6	e0.0	e0.0	0.00	0.0	---	---	0.0	---	---
7	e0.26	e18	0.01	0.0	---	---	0.0	---	---
8	e0.13	e20	0.00	0.0	---	---	0.0	---	---
9	e0.05	e14	0.00	0.0	---	---	0.0	---	---
10	e0.01	e7.0	0.00	0.0	---	---	0.0	---	---
11	e0.0	e0.0	0.00	0.0	---	---	0.0	---	---
12	e0.0	---	---	0.0	---	---	0.0	---	---
13	0.0	---	---	0.0	---	---	0.0	---	---
14	0.0	---	---	0.0	---	---	0.0	---	---
15	0.0	---	---	0.0	---	---	0.0	---	---
16	0.0	---	---	0.0	---	---	0.0	---	---
17	0.0	---	---	0.0	---	---	0.0	---	---
18	0.0	---	---	0.0	---	---	0.0	---	---
19	0.0	---	---	0.0	---	---	0.0	---	---
20	0.0	---	---	0.0	---	---	0.0	---	---
21	0.0	---	---	0.0	---	---	0.0	---	---
22	0.0	---	---	0.0	---	---	0.0	---	---
23	0.0	---	---	0.0	---	---	0.0	---	---
24	0.0	---	---	0.0	---	---	0.0	---	---
25	0.0	---	---	0.0	---	---	0.0	---	---
26	0.0	---	---	0.0	---	---	0.0	---	---
27	0.0	---	---	0.0	---	---	0.0	---	---
28	0.0	---	---	0.0	---	---	0.0	---	---
29	0.0	---	---	0.0	---	---	0.0	---	---
30	0.0	---	---	0.0	---	---	0.0	---	---
31	0.0	---	---	0.0	---	---	---	---	---
TOTAL	0.50	---	---	0.0	---	---	0.0	---	---

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 2001								
05...	0900	.11	4260	6.0	9.0	24	.01	99
NOV								
14...	1045	.06	4000	8.0	4.5	22	0.0	53
JAN 2002								
08...	1230	.83	5820	10.5	0.0	129	.29	68
MAR								
22...	1050	18	3800	-5.5	0.0	44	2.1	100
APR								
15...	1015	14	3740	19.0	14.5	21	.78	94

THIS PAGE IS INTENTIONALLY BLANK

06441590 MISSOURI RIVER AT LA FRAMBOISE ISLAND, AT PIERRE, SD

LOCATION.--Lat 44°21'07", long 100°21'31", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.34, T.110 N., R.79 W., Hughes County, Hydrologic Unit 10140101, on left bank of La Framboise Island Recreation Area, 0.2 mi downstream from Bad River, 1.5 mi downstream from U.S. Highways 14 and 83, 7.8 mi downstream from Oahe Dam, and at mile 1,064.5.

PERIOD OF RECORD.--October 1988 to current year.

REVISED RECORDS.--WDR SD-90-1: Datum.

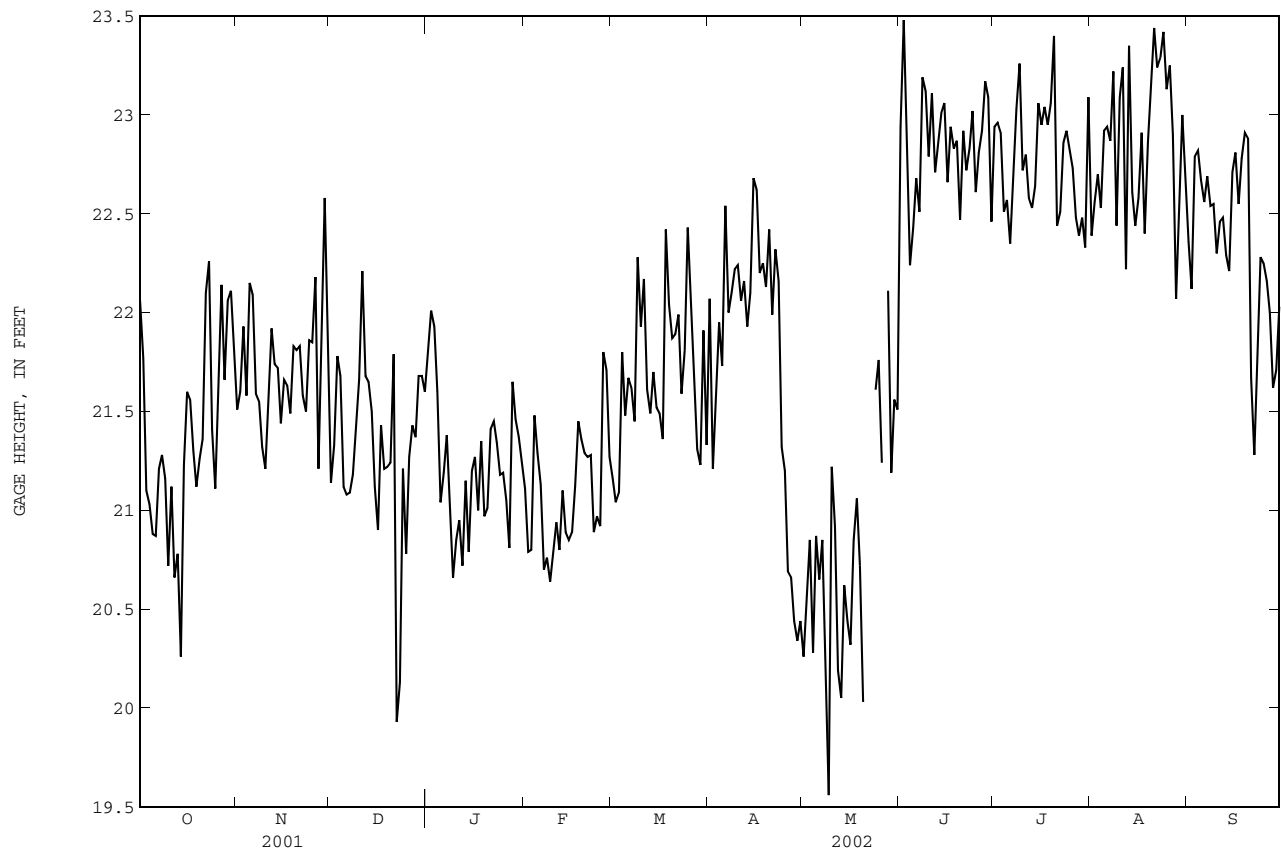
GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above NGVD of 1929.

REMARKS.--Records good. Stage regulated by Big Bend Dam approximately 80 mi downstream. Flows regulated by Oahe Dam 7.8 mi upstream. Gage heights prior to October 1988 in files of U.S. Army Corps of Engineers. U.S. Army Corps of Engineers satellite data-collection platform at station.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.06	21.51	21.14	21.80	21.11	21.16	22.07	20.26	22.94	22.94	22.39	22.36
2	21.77	21.60	21.33	22.01	20.79	21.04	21.21	20.53	23.48	22.96	22.56	22.12
3	21.10	21.93	21.78	21.93	20.80	21.09	21.63	20.85	22.72	22.91	22.70	22.79
4	21.03	21.58	21.68	21.60	21.48	21.80	21.95	20.28	22.24	22.51	22.53	22.82
5	20.88	22.15	21.12	21.04	21.29	21.48	21.73	20.87	22.43	22.57	22.92	22.67
6	20.87	22.09	21.08	21.19	21.13	21.67	22.54	20.65	22.68	22.35	22.94	22.56
7	21.21	21.59	21.09	21.38	20.70	21.62	22.00	20.85	22.51	22.72	22.87	22.69
8	21.28	21.55	21.18	21.00	20.76	21.45	22.10	20.14	23.19	23.03	23.22	22.54
9	21.16	21.32	21.45	20.66	20.64	22.28	22.22	19.56	23.12	23.26	22.44	22.55
10	20.72	21.21	21.66	20.85	20.79	21.93	22.24	21.22	22.79	22.72	23.09	22.30
11	21.12	21.50	22.21	20.95	20.94	22.17	22.06	20.92	23.11	22.80	23.24	22.46
12	20.66	21.92	21.68	20.72	20.80	21.61	22.16	20.19	22.71	22.58	22.22	22.48
13	20.78	21.74	21.65	21.15	21.10	21.49	21.93	20.05	22.85	22.53	23.35	22.29
14	20.26	21.72	21.50	20.79	20.89	21.70	22.10	20.62	23.01	22.64	22.61	22.21
15	21.23	21.44	21.12	21.20	20.85	21.52	22.68	20.44	23.06	23.06	22.44	22.71
16	21.60	21.66	20.90	21.27	20.89	21.49	22.62	20.32	22.66	22.95	22.58	22.81
17	21.56	21.63	21.43	21.00	21.12	21.36	22.20	20.85	22.94	23.04	22.91	22.55
18	21.30	21.49	21.21	21.35	21.45	22.42	22.25	21.06	22.83	22.95	22.40	22.78
19	21.12	21.83	21.22	20.97	21.36	22.04	22.13	20.72	22.87	23.06	22.86	22.91
20	21.26	21.81	21.24	21.01	21.29	21.87	22.42	20.03	22.47	23.40	23.12	22.88
21	21.36	21.83	21.79	21.41	21.27	21.89	21.99	---	22.92	22.44	23.44	21.67
22	22.10	21.58	19.93	21.45	21.28	21.99	22.32	---	22.72	22.51	23.24	21.28
23	22.26	21.50	20.13	21.34	20.89	21.59	22.16	---	22.83	22.86	23.29	21.87
24	21.41	21.86	21.21	21.18	20.97	21.81	21.32	21.61	23.02	22.92	23.42	22.28
25	21.11	21.85	20.78	21.19	20.92	22.43	21.20	21.76	22.61	22.82	23.13	22.25
26	21.57	22.18	21.27	21.05	21.80	22.01	20.69	21.24	22.81	22.73	23.25	22.16
27	22.14	21.21	21.43	20.81	21.71	21.73	20.66	---	22.92	22.48	22.90	22.00
28	21.66	21.75	21.37	21.65	21.27	21.31	20.44	22.11	23.17	22.39	22.07	21.62
29	22.06	22.58	21.68	21.46	---	21.23	20.34	21.19	23.09	22.48	22.46	21.71
30	22.11	21.74	21.68	21.37	---	21.91	20.44	21.56	22.46	22.33	23.00	22.03
31	21.78	---	21.60	21.23	---	21.33	---	21.51	---	23.09	22.72	---
MEAN	21.37	21.71	21.31	21.23	21.08	21.69	21.79	---	22.84	22.78	22.85	22.34
MAX	22.26	22.58	22.21	22.01	21.80	22.43	22.68	---	23.48	23.40	23.44	22.91
MIN	20.26	21.21	19.93	20.66	20.64	21.04	20.34	---	22.24	22.33	22.07	21.28

06441590 MISSOURI RIVER AT LA FRAMBOISE ISLAND, AT PIERRE, SD--Continued



MISSOURI-FORT RANDALL RIVER BASIN

06441592 MISSOURI RIVER BELOW LA FRAMBOISE ISLAND, AT PIERRE, SD

LOCATION.--Lat 44°20'46", long 100°19'12", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.10, T.110 N., R.79 W., Hughes County, Hydrologic Unit 10140101, on left bank at downstream end of La Framboise Island Recreation Area, 2.4 mi downstream from Bad River, 3.0 mi downstream from U.S. Highways 14 and 83, 9.3 mi downstream from Oahe Dam, and at mile 1,062.4.

PERIOD OF RECORD.--October 1998 to current year.

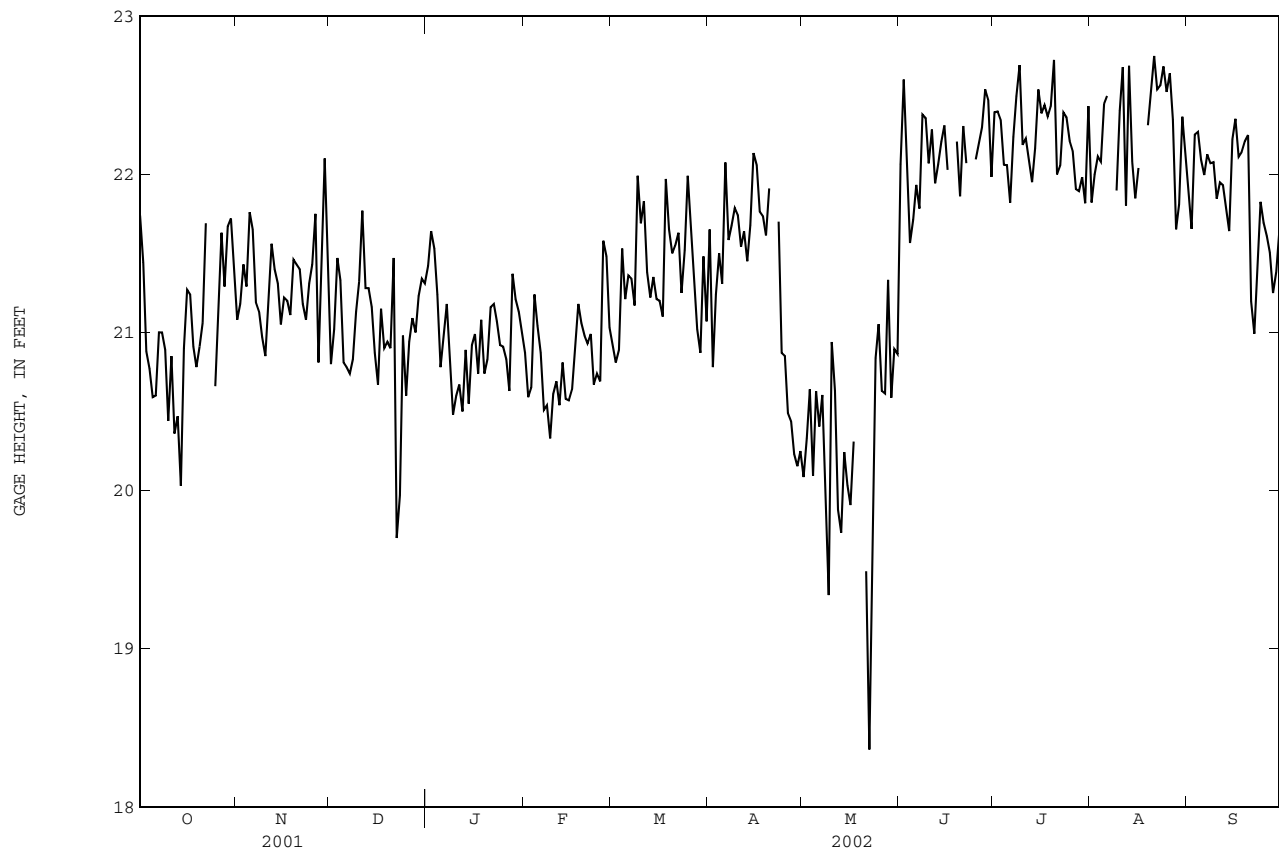
GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above NGVD of 1929.

REMARKS.--Records good. Stage regulated by Big Bend Dam approximately 78 mi downstream. Flows regulated by Oahe Dam 9.9 mi upstream. Gage heights prior to October 1998 in files of U.S. Army Corps of Engineers. U.S. Army Corps of Engineers satellite data-collection platform at station.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.74	21.08	20.80	21.42	20.87	20.92	21.65	20.09	22.06	22.39	21.82	21.87
2	21.44	21.18	21.02	21.64	20.59	20.81	20.78	20.33	22.60	22.40	22.00	21.65
3	20.88	21.43	21.47	21.53	20.65	20.89	21.24	20.64	22.05	22.34	22.11	22.25
4	20.77	21.29	21.33	21.24	21.24	21.53	21.50	20.09	21.57	22.06	22.08	22.27
5	20.59	21.76	20.81	20.78	21.04	21.21	21.31	20.63	21.71	22.06	22.45	22.09
6	20.60	21.65	20.78	21.00	20.87	21.36	22.07	20.41	21.93	21.82	22.50	22.00
7	21.00	21.19	20.74	21.18	20.51	21.34	21.58	20.60	21.78	22.24	---	22.13
8	21.00	21.13	20.83	20.83	20.54	21.17	21.68	19.90	22.38	22.49	---	22.07
9	20.89	20.97	21.13	20.48	20.33	21.99	21.79	19.34	22.36	22.69	21.90	22.08
10	20.44	20.85	21.32	20.60	20.61	21.69	21.74	20.94	22.07	22.19	22.40	21.85
11	20.85	21.21	21.77	20.67	20.69	21.83	21.54	20.63	22.28	22.23	22.68	21.95
12	20.36	21.56	21.28	20.50	20.54	21.38	21.64	19.88	21.94	22.09	21.80	21.93
13	20.47	21.40	21.28	20.89	20.81	21.22	21.45	19.73	22.06	21.95	22.69	21.79
14	20.03	21.31	21.16	20.55	20.58	21.35	21.68	20.24	22.21	22.16	22.08	21.64
15	20.90	21.05	20.87	20.92	20.57	21.21	22.13	20.03	22.31	22.54	21.85	22.22
16	21.27	21.22	20.67	20.99	20.64	21.20	22.06	19.91	22.03	22.39	22.04	22.35
17	21.24	21.20	21.15	20.74	20.91	21.10	21.76	20.31	---	22.44	---	22.11
18	20.91	21.11	20.90	21.08	21.18	21.97	21.73	---	---	22.36	---	22.14
19	20.78	21.46	20.94	20.74	21.06	21.65	21.61	---	22.21	22.43	22.31	22.21
20	20.91	21.43	20.90	20.83	20.98	21.50	21.91	---	21.86	22.72	22.53	22.25
21	21.06	21.40	21.47	21.16	20.93	21.55	---	19.49	22.31	22.00	22.75	21.20
22	21.69	21.18	19.70	21.18	20.99	21.63	---	18.36	22.07	22.05	22.54	20.99
23	---	21.08	19.97	21.07	20.67	21.25	21.70	19.26	---	22.39	22.56	21.43
24	---	21.31	20.98	20.92	20.74	21.52	20.87	20.84	---	22.36	22.68	21.83
25	20.66	21.43	20.60	20.91	20.69	21.99	20.85	21.05	22.09	22.21	22.52	21.69
26	21.08	21.75	20.94	20.83	21.58	21.65	20.49	20.63	22.19	22.15	22.64	21.61
27	21.63	20.81	21.09	20.63	21.48	21.38	20.44	20.61	22.30	21.91	22.35	21.50
28	21.29	21.34	21.00	21.37	21.03	21.02	20.23	21.33	22.54	21.89	21.65	21.25
29	21.67	22.10	21.23	21.21	---	20.87	20.15	20.59	22.47	21.98	21.81	21.38
30	21.72	21.29	21.34	21.13	---	21.48	20.25	20.89	21.98	21.82	22.36	21.64
31	21.38	---	21.31	20.99	---	21.07	---	20.86	---	22.43	22.12	---
MEAN	---	21.31	20.99	20.97	20.83	21.38	---	---	---	22.23	---	21.85
MAX	---	22.10	21.77	21.64	21.58	21.99	---	---	---	22.72	---	22.35
MIN	---	20.81	19.70	20.48	20.33	20.81	---	---	---	21.82	---	20.99

06441592 MISSOURI RIVER BELOW LA FRAMBOISE ISLAND, AT PIERRE, SD--Continued



06441595 MISSOURI RIVER AT FARM ISLAND, NEAR PIERRE, SD

LOCATION.--Lat 44°20'03", long 100°15'54", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.18, T.110 N., R.78 W., Hughes County, Hydrologic Unit 10140101, on left bank of Farm Island Recreation Area, 4.8 mi downstream from La Framboise gage, 4.9 mi southeast of Pierre, 5.2 mi downstream from Bad River, 12.6 mi downstream from Oahe Dam, and at mile 1,059.2.

PERIOD OF RECORD.--October 1988 to current year.

REVISED RECORDS.--WDR SD-90-1: Datum.

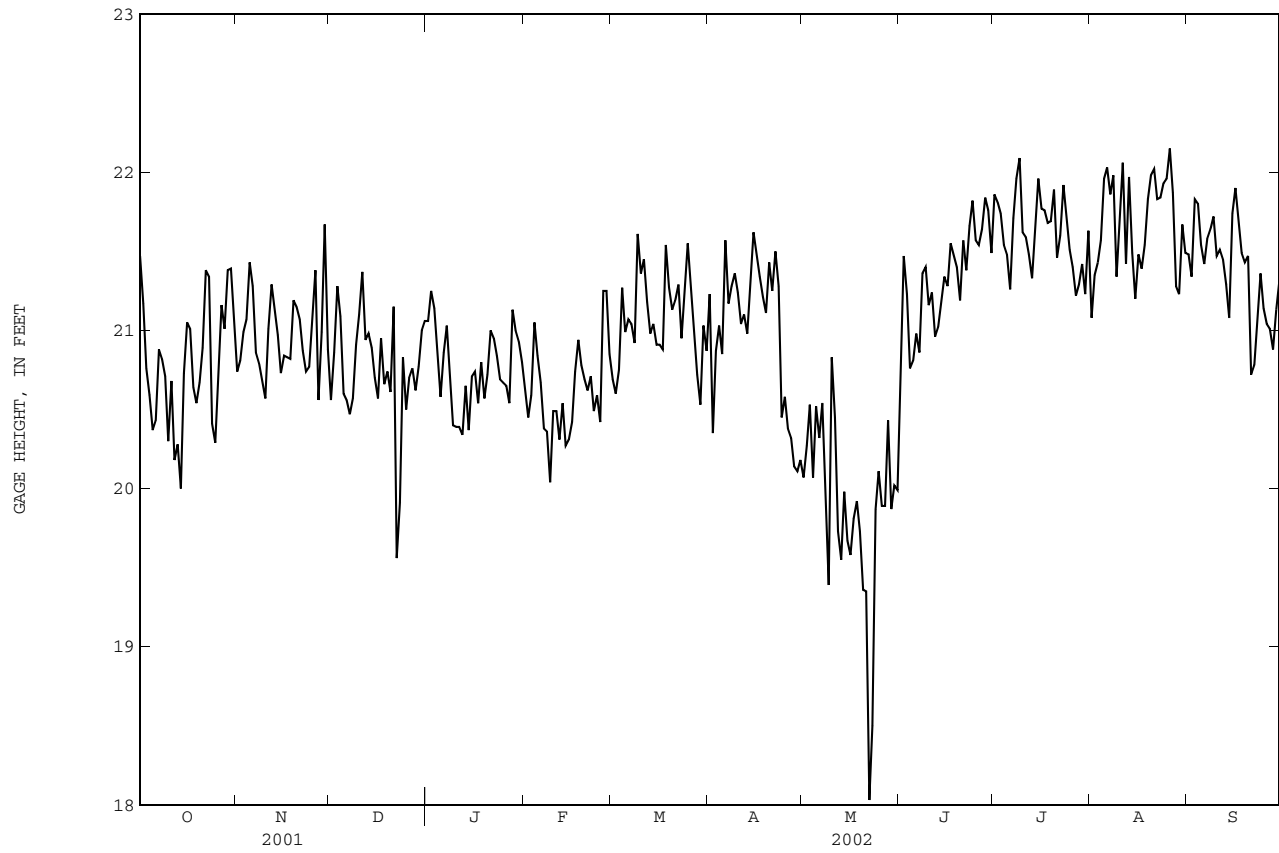
GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above NGVD of 1929.

REMARKS.--Records good. Stage regulated by Big Bend Dam approximately 75 mi downstream. Flows regulated by Oahe Dam 12.6 mi upstream. Gage heights prior to October 1988 in files of U.S. Army Corps of Engineers. U.S. Army Corps of Engineers satellite data-collection platform at station.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.47	20.74	20.56	21.06	20.64	20.69	21.23	20.07	20.92	21.86	21.08	21.48
2	21.17	20.81	20.86	21.25	20.45	20.60	20.35	20.27	21.47	21.81	21.35	21.34
3	20.76	20.99	21.28	21.14	20.59	20.75	20.87	20.53	21.23	21.74	21.43	21.83
4	20.59	21.07	21.09	20.89	21.05	21.27	21.03	20.07	20.76	21.54	21.57	21.80
5	20.37	21.43	20.60	20.58	20.84	20.99	20.85	20.52	20.81	21.48	21.96	21.54
6	20.43	21.28	20.56	20.86	20.67	21.07	21.57	20.32	20.98	21.26	22.03	21.42
7	20.88	20.86	20.47	21.03	20.38	21.04	21.17	20.54	20.86	21.71	21.86	21.58
8	20.82	20.79	20.57	20.73	20.36	20.92	21.28	19.85	21.36	21.96	21.98	21.64
9	20.71	20.68	20.91	20.40	20.04	21.61	21.36	19.39	21.40	22.09	21.34	21.72
10	20.30	20.57	21.10	20.39	20.49	21.36	21.24	20.83	21.16	21.62	21.67	21.47
11	20.68	21.01	21.37	20.39	20.49	21.45	21.04	20.45	21.24	21.59	22.06	21.51
12	20.18	21.29	20.94	20.34	20.31	21.18	21.10	19.73	20.96	21.48	21.42	21.45
13	20.28	21.14	20.98	20.65	20.54	20.98	20.98	19.55	21.02	21.33	21.97	21.29
14	20.00	20.97	20.89	20.37	20.27	21.04	21.27	19.98	21.18	21.63	21.49	21.08
15	20.73	20.73	20.70	20.71	20.31	20.91	21.62	19.67	21.34	21.96	21.20	21.74
16	21.05	20.84	20.57	20.74	20.42	20.91	21.48	19.58	21.28	21.77	21.48	21.90
17	21.01	20.83	20.95	20.54	20.74	20.88	21.34	19.81	21.55	21.76	21.39	21.69
18	20.64	20.82	20.66	20.80	20.94	21.54	21.21	19.92	21.47	21.68	21.54	21.49
19	20.54	21.19	20.74	20.57	20.78	21.27	21.11	19.73	21.40	21.69	21.83	21.43
20	20.67	21.15	20.61	20.72	20.69	21.13	21.43	19.36	21.19	21.89	21.98	21.47
21	20.89	21.07	21.15	21.00	20.62	21.19	21.25	19.35	21.57	21.46	22.02	20.72
22	21.38	20.87	19.56	20.95	20.71	21.29	21.50	18.03	21.38	21.60	21.83	20.78
23	21.34	20.74	19.91	20.84	20.49	20.95	21.28	18.50	21.66	21.92	21.84	21.05
24	20.41	20.77	20.83	20.69	20.59	21.26	20.45	19.87	21.82	21.71	21.93	21.36
25	20.29	21.10	20.50	20.67	20.42	21.55	20.58	20.11	21.57	21.51	21.96	21.14
26	20.67	21.38	20.70	20.65	21.25	21.27	20.38	19.89	21.54	21.40	22.15	21.04
27	21.16	20.56	20.76	20.54	21.25	21.02	20.32	19.89	21.64	21.22	21.87	21.01
28	21.01	20.99	20.62	21.13	20.85	20.72	20.14	20.43	21.84	21.29	21.28	20.88
29	21.38	21.67	20.77	21.00	---	20.53	20.11	19.87	21.76	21.42	21.23	21.13
30	21.39	20.88	21.00	20.93	---	21.03	20.18	20.02	21.49	21.23	21.67	21.31
31	21.06	---	21.06	20.80	---	20.87	---	19.99	---	21.63	21.49	---
MEAN	20.78	20.97	20.75	20.75	20.61	21.07	20.99	19.87	21.33	21.62	21.67	21.38
MAX	21.47	21.67	21.37	21.25	21.25	21.61	21.62	20.83	21.84	22.09	22.15	21.90
MIN	20.00	20.56	19.56	20.34	20.04	20.53	20.11	18.03	20.76	21.22	21.08	20.72

06441595 MISSOURI RIVER AT FARM ISLAND, NEAR PIERRE, SD--Continued



LOCATION.--Lat 44°02'18", long 99°26'45", in SE $\frac{1}{4}$ sec.27, T.107 N., R.72 W., Lyman County, Hydrologic Unit 10140101, at left approach wall of powerhouse at Big Bend Dam on Missouri River, 2.5 mi south of Fort Thompson, and at mile 987.4.

DRAINAGE AREA.--249,300 mi², approximately.

PERIOD OF RECORD.--July 1963 to current year (monthend contents only).

GAGE.--Water-stage recorder. Elevations listed to NGVD of 1929.

REMARKS.--Reservoir is formed by earthfill dam; closure made July 1963; intentional storage began November 1963. Maximum capacity, 1,874,000 acre-ft below elevation, 1,423.0 ft (top of spillway gates). Normal maximum, 1,697,000 acre-ft below elevation 1,422.0 ft. Inactive storage, 1,424,000 acre-ft below elevation 1,415.0 ft. Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of a concrete chute with flat crest at elevation 1,385.0 ft surmounted by 8 taintor gates, each 40 by 38 ft; design capacity, 390,000 ft³/s. Normal releases are through 8 power units (completed in July 1966), with a generating capacity of 58,500 kilowatts each. Maximum release through powerplant about 100,000 ft³/s. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,829,000 acre-ft, Apr. 22, 1971, affected by wind; maximum elevation, 1,422.1 ft, June 4, 1991; minimum since initial filling, 1,417,000 acre-ft, Oct. 24, 1996.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,744,000 acre-ft, Sept. 8; minimum contents, 1,540,000 acre-ft, May 23.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,421.12	1,751,000	--
Oct. 31	1,420.38	1,702,000	-49,000
Nov. 30	1,420.07	1,682,000	-20,000
Dec. 31	1,420.55	1,718,000	+36,000
CAL YR 2001.	--	--	-5,000
Jan. 31	1,420.48	1,714,000	-4,000
Feb. 28	1,420.44	1,708,000	-6,000
Mar. 31	1,420.84	1,736,000	+28,000
Apr. 30	1,420.10	1,694,000	-42,000
May 31	1,418.23	1,586,000	-108,000
June 30	1,420.95	1,737,000	+151,000
July 31	1,419.64	1,668,000	-69,000
Aug. 31	1,420.30	1,698,000	+30,000
Sept. 30	1,420.84	1,727,000	+29,000
WTR YR 2002.	--	--	-24,000

NOTE.--Lake frozen over Dec. 25 to Apr. 7.

THIS PAGE IS INTENTIONALLY BLANK

06442718 CAMPBELL CREEK NEAR LEE'S CORNER, SD

LOCATION.--Lat 44°04'39", long 99°22'51", in NW¹/₄ NE¹/₄ NW¹/₄ sec.17, T.107 N., R.71 W., Buffalo County, Hydrologic Unit 10140101, on left bank at downstream side of bridge on State Highway 34, 2.8 mi east of Fort Thompson, and 5.4 mi upstream from high-water line of Lake Francis Case.

DRAINAGE AREA.--54.1 mi².

PERIOD OF RECORD.--October 1987 to current year.

REVISED RECORDS.--WDR SD-91-1: 1988-90(P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,440.32 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.01	e0.04	e0.01	e0.04	e0.70	0.90	0.29	0.04	0.00	0.00	0.00
2	0.00	0.00	e0.04	e0.01	e0.04	e0.50	e0.75	0.18	0.10	0.00	0.00	0.00
3	0.00	0.00	e0.04	e0.01	e0.03	e0.40	e0.55	0.16	0.17	0.00	0.00	0.00
4	0.00	0.00	e0.05	e0.02	e0.03	e0.40	e0.40	0.31	0.19	0.00	0.00	0.00
5	0.00	0.02	e0.05	e0.02	e0.04	e0.50	e0.20	0.27	0.28	0.00	0.00	0.00
6	0.00	0.03	e0.05	e0.02	e0.05	e0.50	0.26	0.18	0.25	0.00	0.00	0.00
7	0.00	0.02	e0.04	e0.03	e0.07	e0.40	0.37	0.36	0.11	0.00	0.00	0.00
8	0.00	0.02	e0.04	e0.05	e0.10	e0.35	0.39	0.36	0.08	0.00	0.00	0.00
9	0.00	0.01	e0.04	e0.08	e0.09	e0.30	0.20	0.22	0.10	0.00	0.00	0.00
10	0.00	0.03	e0.04	e0.10	e0.08	e0.25	0.22	0.21	0.11	0.00	0.00	0.00
11	0.00	0.04	e0.03	e0.09	e0.09	e0.30	0.32	0.31	0.08	0.00	0.00	0.00
12	0.00	0.06	e0.03	e0.08	e0.10	e0.50	0.20	0.28	0.05	0.00	0.00	0.00
13	0.00	0.08	e0.02	e0.07	e0.15	e0.70	0.14	0.20	0.05	0.00	0.00	0.00
14	0.00	0.09	e0.03	e0.06	e0.20	e0.70	0.16	0.12	0.03	0.00	0.00	0.00
15	0.00	0.09	e0.04	e0.05	e0.40	e0.60	0.16	0.05	0.02	0.00	0.00	0.00
16	0.00	0.08	e0.03	e0.04	e0.80	e0.60	0.20	0.04	0.01	0.00	0.00	0.00
17	0.00	0.09	e0.02	e0.03	e2.0	e0.70	0.16	0.14	0.00	0.00	0.00	0.00
18	0.00	0.10	e0.02	e0.02	e3.0	e0.80	0.13	0.03	0.02	0.00	0.00	0.00
19	0.00	0.06	e0.02	e0.02	e4.0	e0.80	0.05	0.05	0.04	0.00	0.00	0.00
20	0.00	0.08	e0.03	e0.02	e5.0	e0.70	0.07	0.08	0.00	0.00	0.00	0.00
21	0.00	0.11	e0.03	e0.03	e6.0	e0.60	0.29	0.07	0.03	0.00	0.00	0.00
22	0.00	0.14	e0.02	e0.04	e6.0	e0.50	0.27	0.17	0.03	0.00	0.00	0.00
23	0.00	0.08	e0.02	e0.04	e5.0	e0.60	0.20	0.12	0.06	0.00	0.00	0.00
24	0.00	0.11	e0.02	e0.04	e4.0	e0.70	0.14	0.07	0.00	0.00	0.00	0.00
25	0.03	0.03	e0.02	e0.05	e3.0	e0.65	0.19	0.09	0.00	0.00	0.00	0.00
26	0.00	0.05	e0.02	e0.07	e2.0	e1.0	0.29	0.12	0.00	0.00	0.00	0.00
27	0.00	e0.09	e0.02	e0.06	e1.5	e6.0	0.83	0.23	0.00	0.00	0.00	0.00
28	0.00	e0.08	e0.02	e0.05	e1.0	e15	0.71	0.06	0.00	0.00	0.00	0.00
29	0.00	e0.06	e0.01	e0.04	---	e8.0	0.24	0.05	0.00	0.00	0.00	0.00
30	0.01	e0.05	e0.01	e0.03	---	e3.0	0.14	0.04	0.00	0.00	0.00	0.00
31	0.00	---	e0.01	e0.03	---	e1.5	---	0.03	---	0.00	0.00	---
TOTAL	0.04	1.71	0.90	1.31	44.81	48.25	9.13	4.89	1.85	0.00	0.00	0.00
MEAN	0.001	0.057	0.029	0.042	1.60	1.56	0.30	0.16	0.062	0.000	0.000	0.000
MAX	0.03	0.14	0.05	0.10	6.0	15	0.90	0.36	0.28	0.00	0.00	0.00
MIN	0.00	0.00	0.01	0.01	0.03	0.25	0.05	0.03	0.00	0.00	0.00	0.00
AC-FT	0.08	3.4	1.8	2.6	89	96	18	9.7	3.7	0.00	0.00	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2002, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	2.60	1.41	0.18	0.15	3.93	21.5	16.9	25.1	11.9	5.34	1.06	1.34
MAX	18.7	17.1	1.46	0.78	15.3	117	95.9	143	79.7	57.4	12.3	11.7
(WY)	1999	1999	1999	1992	1992	1997	1995	1999	1997	1993	1999	1999
MIN	0.000	0.000	0.000	0.000	0.000	0.18	0.21	0.11	0.018	0.000	0.000	0.000
(WY)	1988	1989	1988	1988	1989	1991	1992	1992	1989	2000	1988	1988

06442718 CAMPBELL CREEK NEAR LEE'S CORNER, SD--Continued

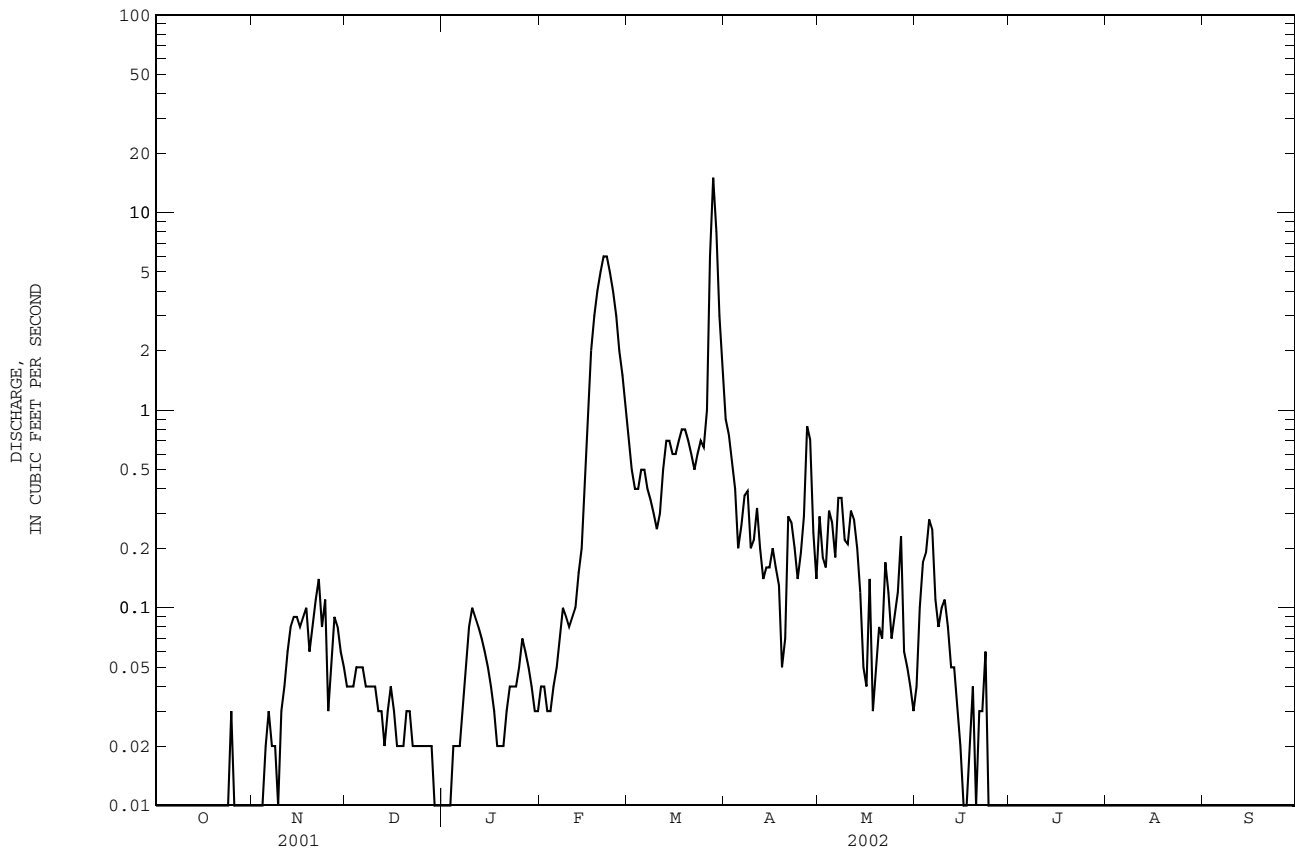
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1988 - 2002
ANNUAL TOTAL	5039.93	112.89	
ANNUAL MEAN	13.8	0.31	7.64a
HIGHEST ANNUAL MEAN			24.3 1997
LOWEST ANNUAL MEAN			0.24 2000
HIGHEST DAILY MEAN	554 Apr 25	15 Mar 28	1570 May 10 1999
LOWEST DAILY MEAN	0.00 Jan 1	0.00 Oct 1	0.00 Oct 1 1987b
ANNUAL SEVEN-DAY MINIMUM	0.00 Jul 21	0.00 Oct 1	0.00 Oct 1 1987
MAXIMUM PEAK FLOW		60 Mar 27	3280 May 10 1999
MAXIMUM PEAK STAGE		5.28 Mar 27c	15.03 May 10 1999
ANNUAL RUNOFF (AC-FT)	10000	224	5540
10 PERCENT EXCEEDS	32	0.57	5.5
50 PERCENT EXCEEDS	0.06	0.03	0.09
90 PERCENT EXCEEDS	0.00	0.00	0.00

a Median of annual mean discharges, 5.5 ft³/s.

b No flow for long periods in most years.

c Backwater from ice.

e Estimated.



MISSOURI-FORT RANDALL RIVER BASIN

06442996 LAKE FRANCIS CASE (AMERICAN CREEK BAY) AT CHAMBERLAIN, SD

LOCATION.--Lat 43°48'58", long 099°19'37" (revised), in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.15, T.104 N., R.71 W., Brule County, Hydrologic Unit 10140101, on right bank of American Creek Bay and left bank of Lake Francis Case 10 ft downstream of Highway 50 bridge over American Creek Bay, 0.5 mi upstream from intersection of I-90 and State Highway 50 Business Loop, 1.6 mi upstream from Lewis and Clark Memorial Bridge, and at mile 967.5.

PERIOD OF RECORD.--October 1988 to current year.

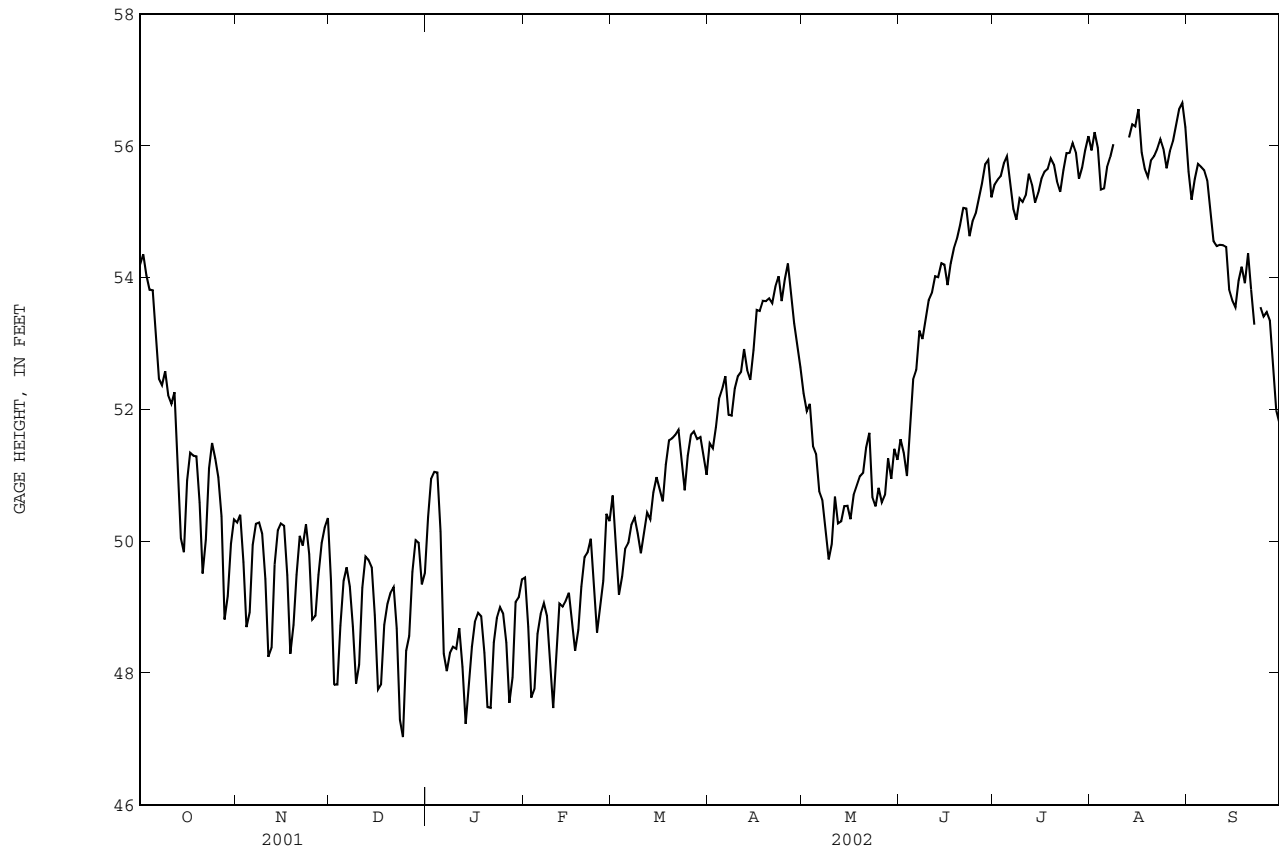
GAGE.--Water-stage recorder. Datum of gage is 1,300.00 ft above NGVD of 1929. Prior to Oct. 1, 1993, at datum 0.24 ft higher.

REMARKS.--Records good. Stage regulated by Ft. Randall Reservoir. Gage heights prior to October 1988 in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54.19	50.28	49.41	50.37	49.45	50.69	51.49	52.24	51.55	55.41	55.93	55.61
2	54.35	50.40	47.82	50.95	48.70	50.04	51.41	51.97	51.34	55.49	56.21	55.18
3	54.04	49.68	47.83	51.05	47.63	49.19	51.73	52.09	50.99	55.54	55.97	55.50
4	53.82	48.70	48.72	51.04	47.76	49.47	52.16	51.44	51.74	55.74	55.34	55.73
5	53.81	48.92	49.40	50.14	48.59	49.89	52.31	51.33	52.46	55.84	55.35	55.68
6	53.14	49.94	49.60	48.29	48.90	49.98	52.51	50.76	52.60	55.44	55.68	55.63
7	52.47	50.26	49.31	48.03	49.06	50.25	51.92	50.63	53.20	55.04	55.84	55.48
8	52.37	50.28	48.71	48.30	48.87	50.36	51.90	50.20	53.07	54.88	56.03	54.97
9	52.58	50.12	47.84	48.40	48.15	50.12	52.32	49.72	53.37	55.21	---	54.55
10	52.22	49.43	48.12	48.37	47.47	49.82	52.50	49.96	53.66	55.15	---	54.48
11	52.09	48.25	49.30	48.68	48.22	50.10	52.57	50.68	53.77	55.25	---	54.50
12	52.26	48.38	49.77	48.09	49.05	50.44	52.92	50.27	54.02	55.58	---	54.49
13	51.23	49.65	49.72	47.23	49.01	50.33	52.59	50.30	54.01	55.41	56.13	54.47
14	50.05	50.16	49.61	47.80	49.09	50.74	52.45	50.53	54.22	55.14	56.33	53.82
15	49.83	50.27	48.88	48.40	49.22	50.97	52.90	50.54	54.20	55.29	56.30	53.65
16	50.92	50.24	47.75	48.78	48.80	50.80	53.51	50.33	53.89	55.50	56.56	53.55
17	51.34	49.49	47.83	48.91	48.34	50.61	53.49	50.70	54.21	55.61	55.90	53.96
18	51.30	48.29	48.73	48.86	48.65	51.16	53.65	50.85	54.44	55.65	55.66	54.17
19	51.29	48.73	49.05	48.31	49.31	51.53	53.65	50.99	54.59	55.81	55.53	53.92
20	50.59	49.49	49.22	47.48	49.76	51.56	53.68	51.04	54.80	55.71	55.78	54.37
21	49.51	50.08	49.30	47.47	49.83	51.61	53.61	51.43	55.06	55.46	55.84	53.82
22	50.02	49.93	48.68	48.46	50.04	51.69	53.86	51.65	55.05	55.30	55.95	53.29
23	51.11	50.26	47.29	48.83	49.40	51.26	54.02	50.67	54.63	55.63	56.10	---
24	51.49	49.80	47.03	49.00	48.62	50.77	53.64	50.53	54.86	55.89	55.96	53.55
25	51.25	48.81	48.34	48.91	49.02	51.30	53.98	50.81	54.98	55.89	55.66	53.41
26	50.97	48.87	48.56	48.46	49.40	51.62	54.21	50.59	55.20	56.04	55.91	53.48
27	50.38	49.49	49.53	47.55	50.42	51.67	53.71	50.71	55.43	55.90	56.06	53.36
28	48.81	49.97	50.02	47.93	50.31	51.55	53.31	51.26	55.72	55.50	56.31	52.74
29	49.17	50.21	49.98	49.08	---	51.58	52.97	50.95	55.79	55.67	56.56	51.99
30	49.96	50.35	49.35	49.15	---	51.31	52.64	51.40	55.22	55.94	56.65	51.80
31	50.33	---	49.52	49.42	---	51.01	---	51.24	---	56.15	56.28	---
MEAN	51.51	49.62	48.85	48.77	48.97	50.76	52.92	50.90	53.94	55.55	---	---
MAX	54.35	50.40	50.02	51.05	50.42	51.69	54.21	52.24	55.79	56.15	---	---
MIN	48.81	48.25	47.03	47.23	47.47	49.19	51.41	49.72	50.99	54.88	---	---

06442996 LAKE FRANCIS CASE (AMERICAN CREEK BAY) AT CHAMBERLAIN, SD--Continued



06445685 WHITE RIVER NEAR NEBRASKA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 43°00'47", long 102°50'07", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.15, T.35 N., R.47 W., Shannon County, Hydrologic Unit 10140201, on left bank 1.0 mi north of Nebraska-South Dakota State line, and 4.3 mi south of Slim Butte.

DRAINAGE AREA.--1,440 mi², approximately.

PERIOD OF RECORD.--October 1987 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,030 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	7.5	e10	e8.0	e17	e40	e240	46	20	0.55	0.00	0.00
2	4.4	8.9	12	e8.50	e16	e20	e260	48	19	0.38	0.00	0.00
3	3.9	8.2	13	e9.0	e15	e10	e240	49	18	0.40	0.00	0.00
4	4.5	8.0	13	e9.5	e13	e10	e160	49	18	0.50	0.00	0.00
5	4.8	8.2	14	e10	e9.0	e30	75	52	20	0.44	0.00	0.00
6	4.6	8.2	14	e10	e12	e30	67	48	19	0.63	0.00	0.00
7	5.1	9.1	15	e10	e20	e20	63	42	21	1.1	0.00	0.01
8	9.1	9.1	14	e11	e20	e10	57	39	19	1.2	0.00	0.01
9	11	11	14	e12	e19	e10	51	36	18	1.1	0.00	0.03
10	12	12	14	e12	e15	e10	51	35	16	1.8	0.00	0.00
11	12	23	13	e14	e18	e18	57	40	15	1.7	0.00	0.00
12	12	15	13	e16	e17	e50	54	40	16	1.2	0.00	6.2
13	12	12	11	e15	e18	e60	49	40	14	1.0	0.00	7.3
14	12	12	10	e14	e22	e80	46	40	12	1.00	0.36	2.7
15	12	12	9.9	e13	e32	e80	45	41	12	0.98	0.33	8.5
16	11	12	11	e12	e50	e70	44	40	11	0.93	0.27	8.0
17	11	12	14	e11	e40	e60	43	40	10	0.77	0.19	19
18	9.7	12	16	e10	e40	e60	43	39	10	0.59	0.20	12
19	7.7	12	16	e10	e80	e40	42	33	11	0.48	0.16	6.2
20	7.6	11	15	e11	e130	e26	42	27	8.4	0.27	0.14	3.6
21	7.7	11	12	e15	e120	e24	42	26	6.6	0.14	0.20	2.6
22	8.5	13	e11	e15	e120	e16	42	24	8.0	0.08	0.25	2.2
23	8.6	11	e10	e15	e110	e13	43	22	11	0.04	0.17	2.0
24	7.1	13	e9.0	e16	e100	e9.0	43	24	8.3	0.00	0.13	1.8
25	5.7	14	9.3	e23	e70	e11	42	24	6.8	0.00	0.07	1.7
26	5.0	11	10	e23	e60	e12	40	25	3.6	0.00	0.03	1.7
27	5.5	e10	e11	e22	e60	e20	40	25	2.6	0.00	0.05	2.3
28	6.2	e8.0	e10	e21	e50	e40	40	26	1.8	0.00	0.00	2.3
29	6.6	e8.0	e9.0	e20	---	e70	41	24	0.99	0.00	0.00	2.4
30	6.7	e8.0	e8.0	e17	---	e100	42	22	0.69	0.00	0.00	2.3
31	6.8	---	e8.0	e15	---	e170	---	22	---	0.00	0.00	---
TOTAL	245.9	330.2	369.2	428.00	1293.0	1219.0	2144	1088	357.78	17.28	2.55	94.85
MEAN	7.932	11.01	11.91	13.81	46.18	39.32	71.47	35.10	11.93	0.557	0.082	3.162
MAX	12	23	16	23	130	170	260	52	21	1.8	0.36	19
MIN	3.9	7.5	8.0	8.0	9.0	9.0	40	22	0.69	0.00	0.00	0.00
AC-FT	488	655	732	849	2560	2420	4250	2160	710	34	5.1	188

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2002, BY WATER YEAR (WY)

	MEAN	11.37	15.11	17.85	27.55	63.85	86.03	80.24	112.3	98.74	30.95	13.51	11.44
MAX	29.4	45.1	54.9	96.1	186	297	303	514	360	78.3	42.9	33.8	
(WY)	1994	1994	1994	1998	1997	1993	2000	1991	1997	2001	1997	1999	
MIN	2.07	3.31	3.35	1.53	1.82	5.02	23.1	19.5	11.6	0.56	0.082	2.08	
(WY)	1991	1991	1991	1991	1991	1991	1992	1992	1989	2002	2002	1994	

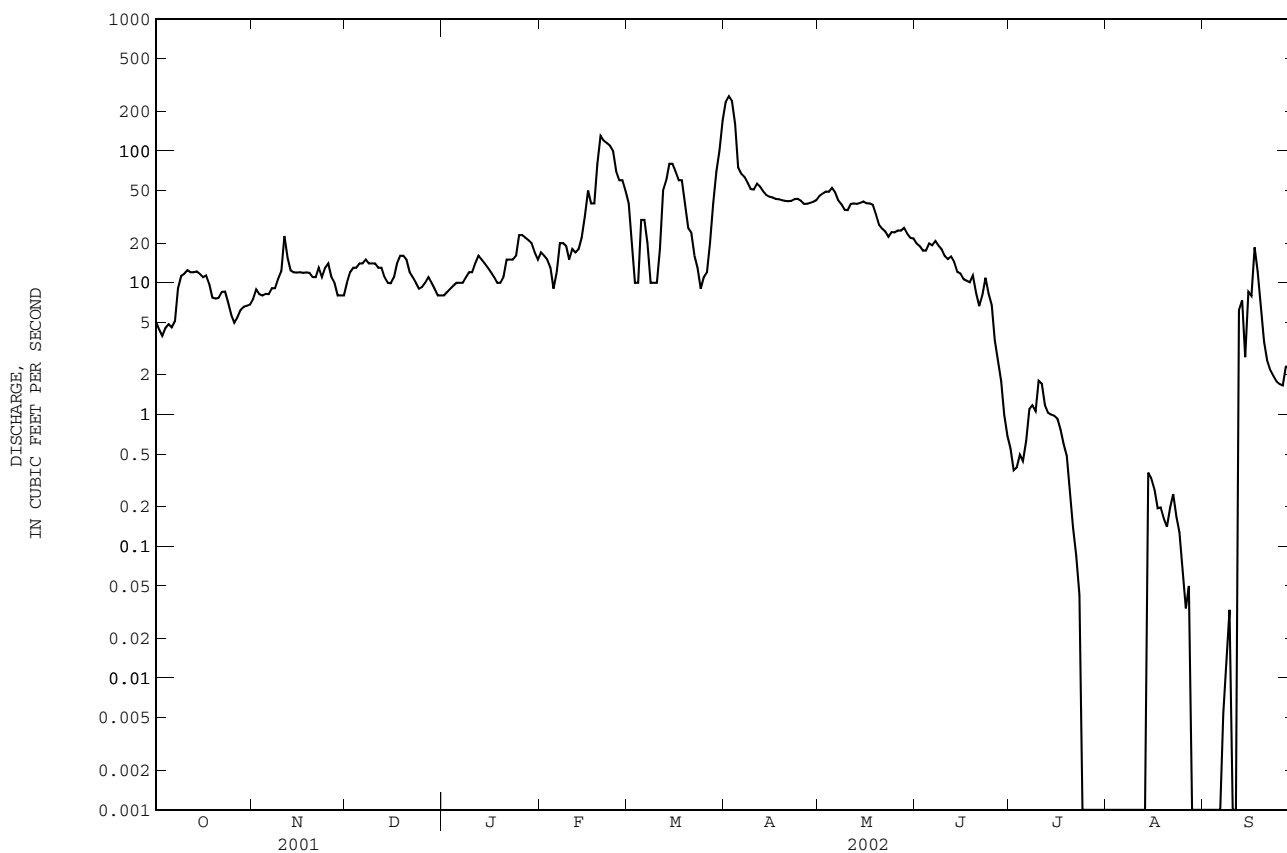
06445685 WHITE RIVER NEAR NEBRASKA-SOUTH DAKOTA STATE LINE--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1988 - 2002	
ANNUAL TOTAL	19995.4		7589.76		47.25a	
ANNUAL MEAN	54.78		20.79		92.9	
HIGHEST ANNUAL MEAN					14.2	
LOWEST ANNUAL MEAN					1910	
HIGHEST DAILY MEAN	560	Mar 4	260	Apr 2	May 12	1991
LOWEST DAILY MEAN	3.9	Oct 3	0.00	Jul 24b	0.00	Jul 13 1989b
ANNUAL SEVEN-DAY MINIMUM	4.6	Sep 30	0.00	Jul 24	0.00	Aug 3 1989
MAXIMUM PEAK FLOW			470	Apr 2	3820	May 12 1991
MAXIMUM PEAK STAGE			8.09	Apr 2	19.07	May 12 1991
ANNUAL RUNOFF (AC-FT)	39660		15050		34230	
10 PERCENT EXCEEDS	183		49		95	
50 PERCENT EXCEEDS	18		12		18	
90 PERCENT EXCEEDS	7.0		0.03		4.0	

a Median of annual mean discharges, 45 ft³/s.

b No flow at times in most years.

e Estimated.



WHITE RIVER BASIN

06446000 WHITE RIVER NEAR OGLALA, SD

LOCATION.--Lat 43°15'17", long 102°49'29", in SW¹/₄ NE¹/₄ sec.24, T.38 N., R.47 W., Shannon County, Hydrologic Unit 10140201, on right bank at downstream side of bridge, 3.0 mi downstream from Blacktail Creek, and 7.0 mi northwest of Oglala.

DRAINAGE AREA.--2,200 mi², approximately.

PERIOD OF RECORD.--May 1943 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,853.54 ft above NGVD of 1929. Prior to May 6, 1947, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Some diversions for irrigation upstream from station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	3.6	e21	e3.8	e27	e58	e120	58	32	e1.5	e0.00	0.02
2	4.2	3.1	e25	e4.0	e26	e45	e140	64	31	e1.5	e0.00	0.01
3	4.2	3.1	28	e4.0	e24	e30	e230	66	31	e1.0	e0.00	0.01
4	4.9	3.3	31	e4.0	e23	e30	e180	64	30	e1.0	e0.00	0.00
5	4.7	4.3	32	e4.0	e22	e60	e147	65	28	e1.0	e0.00	0.00
6	4.7	3.9	32	e6.0	e24	e60	118	64	26	e1.5	e0.00	0.00
7	4.8	3.4	33	e6.1	e34	e45	104	66	27	e2.0	e0.00	0.00
8	6.2	3.1	33	6.9	e34	e35	91	59	26	e2.5	e0.00	0.00
9	6.4	3.1	e32	9.1	e34	e20	80	53	27	e3.0	e0.00	0.05
10	8.6	3.4	e31	12	e35	e20	71	49	25	e3.0	e0.00	0.40
11	18	4.5	e31	14	e35	e45	68	49	23	e2.5	e0.00	0.19
12	24	8.8	e30	14	e35	e80	68	50	20	e2.5	e0.00	0.01
13	14	14	e30	e14	e36	e98	73	52	18	e2.0	e0.00	1.4
14	9.4	7.4	e29	e14	e39	e118	66	51	18	e2.0	e0.10	2.4
15	6.8	3.6	e28	e14	e40	e115	63	51	17	e2.0	e0.05	0.00
16	6.5	3.2	22	e13	e43	e100	60	51	14	e1.5	e0.03	0.00
17	7.0	3.3	16	e11	e48	e94	58	51	13	e1.5	e0.06	0.00
18	5.5	3.3	15	e10	e50	e100	56	50	e13	e1.0	e0.10	0.00
19	5.6	3.3	15	e10	e52	e82	55	49	e13	e1.0	e0.13	0.00
20	6.2	3.5	17	e12	e56	e62	54	48	e13	e0.50	e0.16	0.00
21	6.6	4.9	15	e20	e65	e60	53	44	e13	e0.40	e0.15	0.00
22	5.4	6.8	12	e21	e65	e50	53	40	e12	e0.30	e0.14	0.00
23	4.2	13	9.3	e20	e65	e45	53	39	e12	e0.20	e0.12	0.00
24	4.3	18	8.5	e22	e100	e39	52	37	e12	e0.10	e0.11	0.00
25	5.1	18	6.8	e30	e98	e39	52	34	e10	e0.10	e0.10	0.00
26	5.5	18	4.7	e30	e92	e38	52	35	e11	e0.05	e0.07	0.00
27	5.8	e17	e4.0	e34	e87	e37	52	34	e5.0	e0.00	0.03	0.00
28	5.2	e16	e4.0	e29	e73	e45	53	34	e3.5	e0.00	0.03	0.00
29	3.9	e15	e4.0	e28	---	e80	52	34	e2.0	e0.00	0.03	0.00
30	3.3	e18	e4.0	e26	---	e98	53	35	e2.0	e0.00	0.03	0.00
31	4.8	---	e4.0	e25	---	e110	---	33	---	e0.00	0.02	---
TOTAL	209.1	233.9	607.3	470.9	1362	1938	2427	1509	527.5	35.65	1.46	4.49
MEAN	6.75	7.80	19.6	15.2	48.6	62.5	80.9	48.7	17.6	1.15	0.047	0.15
MAX	24	18	33	34	100	118	230	66	32	3.0	0.16	2.4
MIN	3.3	3.1	4.0	3.8	22	20	52	33	2.0	0.00	0.00	0.00
AC-FT	415	464	1200	934	2700	3840	4810	2990	1050	71	2.9	8.9

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2002, BY WATER YEAR (WY)

	MEAN	15.7	18.4	16.4	17.3	44.3	113	84.1	112	153	55.1	26.0	20.5
MAX	63.1	55.8	55.7	97.0	281	807	465	583	1037	314	130	181	
(WY)	1968	1987	1947	1997	1997	1949	2000	1957	1967	1969	1979	1955	
MIN	0.000	0.76	1.83	0.64	1.21	13.5	12.3	13.4	4.88	0.002	0.047	0.000	
(WY)	1965	1977	1965	1991	1991	1991	1962	1985	1981	1985	2002	1964	

06446000 WHITE RIVER NEAR OGLALA, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1944 - 2002	
ANNUAL TOTAL	25538.5		9325.90		56.3a	
ANNUAL MEAN	70.0		25.6		152	
HIGHEST ANNUAL MEAN					13.0	
LOWEST ANNUAL MEAN					3870	
HIGHEST DAILY MEAN	800	Mar 5	230	Apr 3	Jun 23	1947
LOWEST DAILY MEAN	2.6	Sep 29	0.00	Jul 27	0.00	Sep 25 1952b
ANNUAL SEVEN-DAY MINIMUM	3.5	Nov 2	0.00	Jul 27	0.00	Sep 25 1952
MAXIMUM PEAK FLOW			266	Apr 3	5200	Jun 21 1947c
MAXIMUM PEAK STAGE			9.02	Apr 3d	23.61	Jun 16 1967
ANNUAL RUNOFF (AC-FT)	50660		18500		40760	
10 PERCENT EXCEEDS	176		64		103	
50 PERCENT EXCEEDS	31		14		22	
90 PERCENT EXCEEDS	4.3		0.00		4.0	

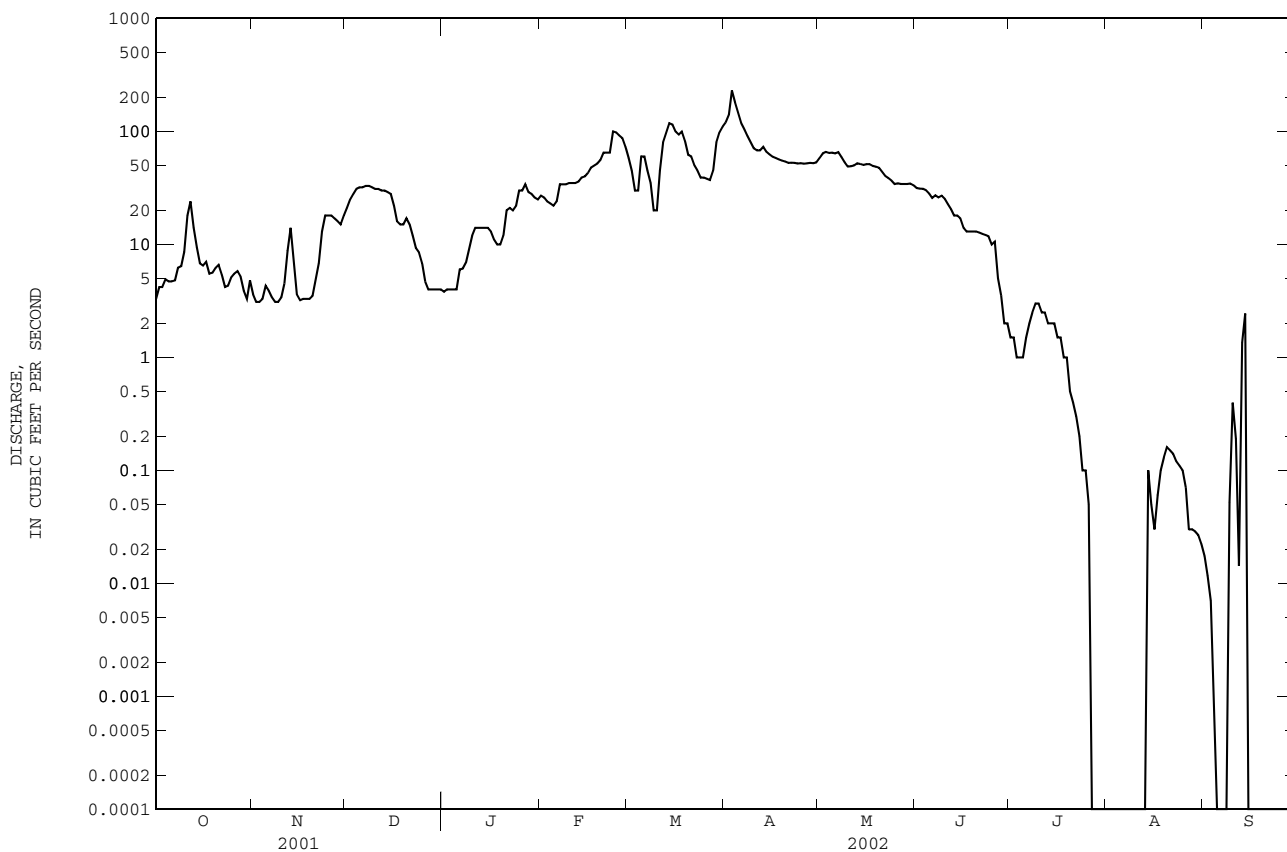
a Median of annual mean discharges, 50 ft³/s.

b No flow at times in some years.

c Rating curve extended above 2,800 ft³/s on basis of velocity-area studies, gage height, 23.50 ft.

d Backwater from ice.

e Estimated.



06446700 BEAR IN THE LODGE CREEK NEAR WANBLEE, SD

Location.--Lat 43°32'05", long 101°47'30", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.12, T.41 N., R.38 W., Jackson County, Hydrologic Unit 10140202, on right bank at downstream side of bridge on State Highway 44, 0.9 mi south of Garner School, 8.2 mi southwest of Wanblee, and 25.3 mi upstream from mouth.

DRAINAGE AREA.--365 mi², approximately.

PERIOD OF RECORD.--June 1992 to May 1993 and May 1994 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,500 ft above NGVD of 1929, from topographic map. In 1951 and 1954-57, operated as nonrecording gage at same site and datum.

REMARKS.--Records good except those for Oct. 4-16 and May 2-30, which are fair, and those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	10	e12	e6.8	e9.0	e11	141	49	13	5.4	1.6	2.5
2	6.5	11	e16	e6.5	e9.5	e10	84	29	13	5.0	1.3	2.2
3	5.4	11	e18	e7.0	e9.5	e9.5	44	32	12	4.7	1.3	2.1
4	8.2	10	e22	e7.5	e9.5	e9.0	36	32	13	4.6	1.8	2.2
5	10	10	e22	e8.0	e10	e9.5	32	31	13	4.3	2.7	2.5
6	9.4	10	e20	e9.0	e10	e10	29	28	12	4.0	12	2.4
7	10	11	e20	e10	e11	e10	35	24	12	4.1	3.5	2.2
8	11	10	e15	e12	e12	e9.7	28	23	11	4.4	3.2	2.3
9	9.8	10	e17	e15	e11	e9.4	27	21	11	4.5	3.9	18
10	13	10	e15	e11	e11	e9.0	26	20	11	5.0	2.8	3.7
11	9.2	11	e13	e10	e11	e9.0	25	27	10	4.5	2.5	2.5
12	9.1	11	e12	e10	e11	e9.2	23	21	9.6	4.4	2.1	3.5
13	8.2	11	e11	e10	e12	e9.2	23	20	9.4	4.3	2.0	4.9
14	7.6	11	e10	e9.5	e12	e9.0	22	20	9.0	4.0	2.0	4.9
15	7.1	11	e10	e9.0	e13	e8.8	20	21	9.2	3.7	1.9	5.5
16	7.4	12	e11	e9.0	e14	e8.6	20	20	9.0	3.4	1.7	6.0
17	7.5	12	e11	e8.5	e16	e8.5	18	17	8.8	3.1	1.5	5.6
18	7.7	12	e10	e8.0	e18	e8.4	18	18	8.7	2.8	1.5	6.8
19	8.1	12	e10	e8.0	e20	e8.2	17	17	8.6	2.7	1.4	8.0
20	8.7	12	e10	e8.5	e21	e8.0	16	20	8.2	2.7	1.4	4.3
21	8.7	12	e10	e9.0	e23	e8.0	17	20	8.2	2.9	1.4	4.8
22	8.9	12	e9.5	e10	e26	e8.0	17	20	9.5	4.1	3.4	4.9
23	9.2	12	e9.0	e10	e25	e8.0	18	17	9.3	3.0	1.9	5.1
24	9.1	15	e8.5	e9.5	e23	e8.0	17	15	8.3	2.4	4.3	5.3
25	8.8	13	e8.0	e10	e20	e8.0	16	16	7.6	2.4	9.2	5.4
26	9.1	e9.0	e8.0	e12	e16	e8.0	16	15	7.2	2.6	8.7	5.6
27	9.0	e5.7	e8.0	e14	e13	e8.5	22	15	6.9	2.5	6.7	5.2
28	9.3	e7.0	e7.7	e12	e12	e10	21	15	6.5	2.6	4.3	5.1
29	9.4	e8.5	e7.4	e10	---	e30	21	14	6.1	2.4	3.5	5.1
30	9.8	e10	e7.0	e9.0	---	e100	22	14	5.7	2.1	3.0	5.1
31	10	---	e7.0	e9.0	---	126	---	14	---	1.7	3.0	---
TOTAL	271.6	322.2	375.1	297.8	408.5	506.5	871	665	286.8	110.3	101.5	143.7
MEAN	8.76	10.7	12.1	9.61	14.6	16.3	29.0	21.5	9.56	3.56	3.27	4.79
MAX	13	15	22	15	26	126	141	49	13	5.4	12	18
MIN	5.4	5.7	7.0	6.5	9.0	8.0	16	14	5.7	1.7	1.3	2.1
AC-FT	539	639	744	591	810	1000	1730	1320	569	219	201	285

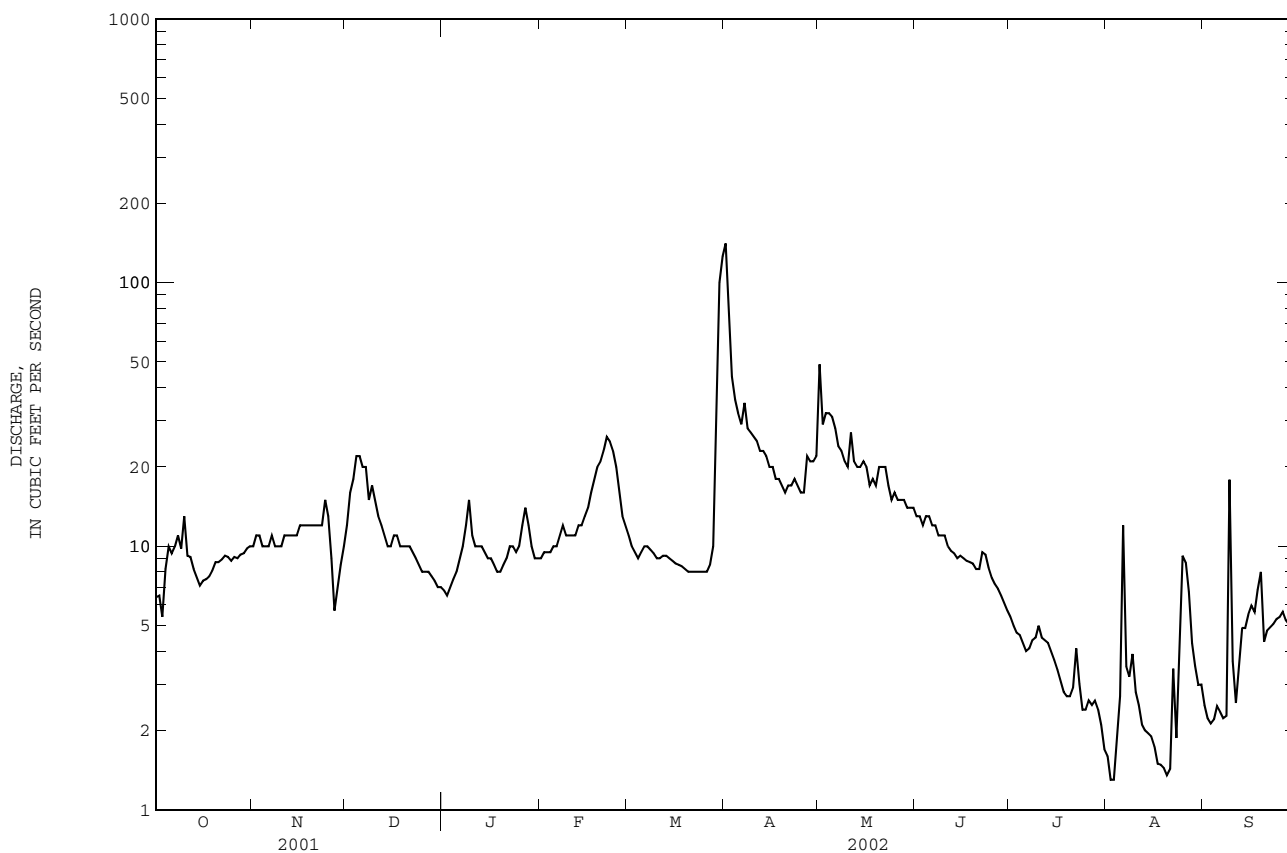
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2002, BY WATER YEAR (WY)

	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	13.2	15.6	13.4	15.4	41.5	41.6	36.4	39.0
MAX	21.1	30.4	20.5	29.8	156	98.9	59.2	74.6
(WY)	1999	1999	1999	1997	1997	2001	1997	1997
MIN	8.76	9.26	8.00	6.98	11.1	14.1	29.0	21.5
(WY)	2002	1995	2001	1996	2001	1995	2002	2002

06446700 BEAR IN THE LODGE CREEK NEAR WANBLEE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR			FOR 2002 WATER YEAR			WATER YEARS 1995 - 2002		
ANNUAL TOTAL	8690.6			4360.0			28.1		
ANNUAL MEAN	23.8			11.9			75.2		
HIGHEST ANNUAL MEAN							11.9		
LOWEST ANNUAL MEAN							900		
HIGHEST DAILY MEAN	280	Mar	8	141	Apr	1	Jun	3	1997
LOWEST DAILY MEAN	3.3	Sep	7	1.3	Aug	2, 3	1.3	Aug	2 2002
ANNUAL SEVEN-DAY MINIMUM	4.2	Sep	3	1.5	Aug	15	1.5	Aug	15 2002
MAXIMUM PEAK FLOW				200	Mar	30	1100	Jun	3 1997
MAXIMUM PEAK STAGE				5.00	Mar	30a	9.11	Jun	3 1997b
ANNUAL RUNOFF (AC-FT)	17240			8650			20340		
10 PERCENT EXCEEDS	42			21			49		
50 PERCENT EXCEEDS	12			9.5			16		
90 PERCENT EXCEEDS	6.6			2.8			6.9		

a Backwater from ice.
b From floodmark.
e Estimated.



WHITE RIVER BASIN

06447000 WHITE RIVER NEAR KADOKA, SD

LOCATION.--Lat 43°45'09", long 101°31'28", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.30, T.3 S., R.22 E., Black Hills meridian, Jackson County, Hydrologic Unit 10140202, on left bank 1,000 ft downstream from bridge on State Highway 73, 5.0 mi upstream from Pass Creek, 5.5 mi downstream from Cottonwood Creek, and 5.8 mi south of Kadoka.

DRAINAGE AREA.--5,000 mi², approximately.

PERIOD OF RECORD.--July 1942 to current year.

REVISED RECORDS.--WSP 1279: 1944(M), 1948.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,122.18 ft above NGVD of 1929. Prior to June 14, 1949, nonrecording gage, and June 14, 1949, to Mar. 8, 1955, water-stage recorder at site 0.3 mi downstream at same datum. Mar. 9, 1955, to May 17, 1957, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. National Weather Service telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 4, 1942, reached a stage of 16.24 ft, from floodmarks (discharge, about 32,000 ft³/s, from rating curve extended above 16,000 ft³/s). Floods of Mar. 8, 1905, and in spring of 1927 were 1 or 2 ft higher than flood of June 4, 1942, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	24	e45	e25	e16	e40	485	661	49	3.1	0.00	26
2	7.7	25	e50	e20	e15	e38	416	1800	43	0.43	0.00	17
3	6.8	28	e75	e20	e15	e35	330	1290	44	0.14	0.00	12
4	7.8	29	e150	e22	e15	e40	268	557	57	0.00	0.00	8.6
5	11	29	e250	e24	e15	e45	274	274	57	0.00	0.00	6.2
6	16	28	e275	e24	e16	e50	343	200	46	0.00	36	4.2
7	13	27	e300	e26	e17	e60	460	154	50	0.00	121	2.7
8	36	27	e275	e28	e17	e55	368	130	47	0.00	296	1.4
9	48	27	e250	e30	e18	e50	303	123	40	55	159	340
10	140	27	e210	e30	e15	e45	245	119	30	43	67	3860
11	79	28	e175	e30	e17	e40	209	265	36	17	27	1680
12	103	32	e130	e35	e18	e40	187	604	24	10	13	645
13	58	34	e88	e40	e20	e50	171	811	21	7.8	7.4	339
14	51	37	e80	e37	e25	e70	156	360	22	5.2	4.1	782
15	34	37	e85	e34	e30	e80	143	187	28	3.8	2.8	901
16	25	39	e92	e30	e40	e75	135	142	28	2.3	2.6	421
17	24	39	e100	e27	e53	e70	126	129	29	0.69	1.9	199
18	32	41	e85	e24	e70	e72	110	114	29	0.04	0.98	134
19	31	46	e76	e22	e110	e80	106	108	26	0.00	0.64	279
20	26	42	e75	e20	e170	e90	89	119	22	0.00	0.26	148
21	24	40	e75	e20	211	e80	90	118	16	0.00	0.14	247
22	22	45	e65	e21	208	e70	94	105	9.0	2.7	6.5	177
23	21	48	e60	e22	176	e60	110	98	9.2	1.1	11	111
24	21	54	e55	e24	141	e60	96	92	8.6	0.44	1.9	72
25	20	57	e50	e26	e100	e63	82	91	42	0.22	19	56
26	20	52	e50	e28	e70	e67	72	87	23	0.07	341	52
27	23	e47	e50	e30	e60	e80	82	82	20	0.00	285	47
28	24	e40	e45	e27	e50	e100	273	80	16	0.00	100	41
29	24	e45	e40	e24	---	e500	403	75	13	0.00	57	34
30	23	e50	e35	e20	---	850	385	80	7.2	0.00	50	28
31	23	---	e30	e18	---	692	---	67	---	0.00	55	---
TOTAL	1002.4	1124	3421	808	1728	3747	6611	9122	892.0	153.03	1666.22	10671.1
MEAN	32.3	37.5	110	26.1	61.7	121	220	294	29.7	4.94	53.7	356
MAX	140	57	300	40	211	850	485	1800	57	55	341	3860
MIN	6.8	24	30	18	15	35	72	67	7.2	0.00	0.00	1.4
AC-FT	1990	2230	6790	1600	3430	7430	13110	18090	1770	304	3300	21170

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2002, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1943	107	820	1999	0.000	1965
1944	66.8	425	1999	1.74	1977
1945	40.4	283	1994	0.000	1977
1946	38.7	380	1997	0.000	1977
1947	165	945	1997	0.000	1979
1948	551	2479	1944	33.8	1981
1949	414	1555	1970	22.8	1981
1950	602	2802	1982	23.2	1985
1951	725	3984	1967	7.29	1989
1952	290	986	1969	4.94	2002
1953	175	873	1997	2.60	1989
1954	120	1060	1955	0.17	1975

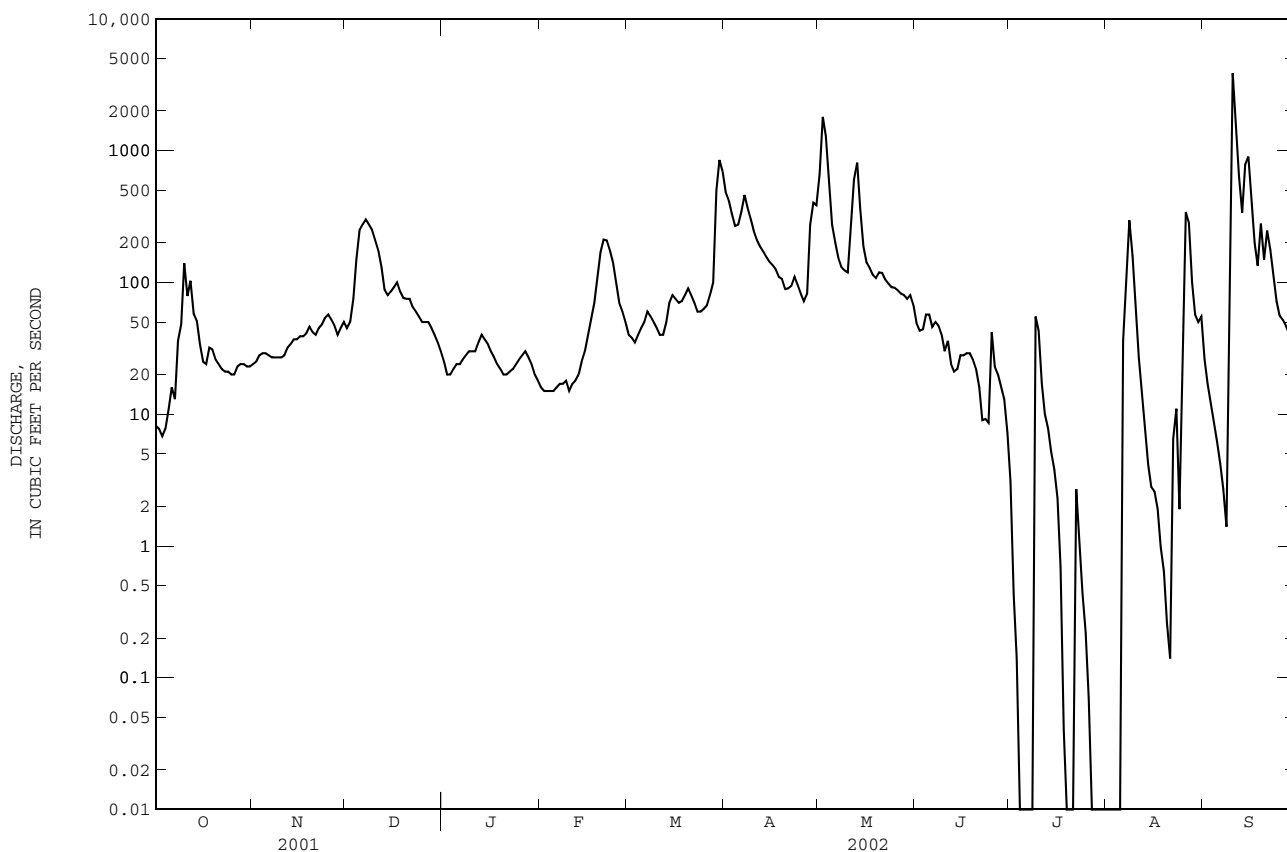
06447000 WHITE RIVER NEAR KADOKA, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1943 - 2002	
ANNUAL TOTAL	83429.40		40945.75		275	
ANNUAL MEAN	229		112		612	
HIGHEST ANNUAL MEAN					90.0	
LOWEST ANNUAL MEAN					16500	
HIGHEST DAILY MEAN	4520	Jun 5	3860	Sep 10	16500	Jun 18 1962
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Jul 4a	0.00	Oct 11 1943a
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 19	0.00	Jul 27	0.00	Aug 3 1946
MAXIMUM PEAK FLOW			5210	Sep 10	21700	Jun 7 1951b
MAXIMUM PEAK STAGE			8.48	Sep 10	16.18	May 20 1982c
ANNUAL RUNOFF (AC-FT)	165500		81220		199100	
10 PERCENT EXCEEDS	508		273		612	
50 PERCENT EXCEEDS	55		41		63	
90 PERCENT EXCEEDS	7.2		2.7		4.0	

a No flow for many days in most years.

b Gage height, 13.83 ft, site then in use, from rating curve extended above 16,000 ft³/s.c Discharge, 21,300 ft³/s.

e Estimated.



WHITE RIVER BASIN

06447230 BLACK PIPE CREEK NEAR BELVIDERE, SD

LOCATION.--Lat 43°45'28", long 101°13'40", in NW¹/₄ NW¹/₄ sec.27, T.44 N., R.33 W., Black Hills meridian, Jackson County, Hydrologic Unit 10140202, on left bank at downstream side of State Highway 63 bridge, 0.9 mi upstream from Porcupine Creek, 3.7 mi upstream from mouth, and 5.6 mi southeast of Belvidere.

DRAINAGE AREA.--250 mi², approximately.

PERIOD OF RECORD.-- April 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,060 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	1.2	e1.0	e0.00	e0.00	e5.0	94	172	12	0.00	0.00	0.00
2	0.00	1.7	e5.0	e0.00	e0.00	e4.0	75	103	10	0.00	0.00	0.00
3	0.00	1.8	e15	e0.00	e0.00	e4.5	47	55	9.2	0.00	0.00	0.00
4	0.00	1.6	e30	e0.00	e0.00	e5.0	48	30	8.1	0.00	0.00	0.00
5	0.00	2.6	e20	e0.00	e0.00	e6.0	37	30	8.4	0.00	0.00	0.00
6	0.00	2.4	e10	e0.00	e0.00	e5.0	39	e15	9.7	0.00	51	0.00
7	0.00	2.2	e5.0	e1.0	e0.00	e4.0	41	e14	6.6	0.00	3.3	0.00
8	0.00	2.5	e4.8	e3.0	e0.00	e2.8	20	e10	8.3	0.00	0.68	0.00
9	0.00	2.8	e4.6	e5.0	e0.00	e2.0	15	6.7	8.5	0.00	21	148
10	1.8	3.0	e4.6	e4.0	e0.00	e1.0	14	6.5	4.5	0.00	3.2	43
11	1.5	2.9	e4.6	e3.5	e0.00	e0.50	14	43	3.5	0.00	0.67	7.8
12	0.38	2.4	e4.5	e3.0	e0.00	e1.0	10	21	3.0	0.00	0.21	3.1
13	0.25	2.8	e4.5	e2.0	e0.00	e2.0	8.7	10	2.0	0.00	0.11	24
14	0.19	4.2	e4.5	e1.0	e0.10	e1.5	8.2	9.7	2.2	0.00	0.00	8.0
15	0.16	3.3	e4.5	e0.50	e0.20	e1.0	7.6	9.7	2.2	0.00	0.00	3.0
16	0.07	3.2	e4.2	e0.30	e1.0	e0.70	6.8	9.6	3.5	0.00	0.00	2.2
17	0.04	2.8	e4.0	e0.10	e4.0	e0.60	7.0	9.4	4.4	0.00	0.00	0.27
18	0.00	3.0	e3.5	e0.00	e10	e0.80	6.1	7.7	4.8	0.00	0.00	0.25
19	0.00	2.4	e3.0	e0.00	e20	e1.0	5.8	6.8	2.8	0.00	0.00	14
20	0.00	2.2	e2.5	e0.00	e25	e0.50	6.3	6.9	1.5	0.00	0.00	2.4
21	0.00	2.5	e2.0	e0.00	e30	e0.30	7.1	6.1	2.3	0.02	0.00	0.49
22	0.00	2.1	e1.0	e0.00	e40	e0.20	10	5.5	1.7	0.00	0.00	0.25
23	0.00	2.0	e0.50	e0.00	e29	e0.10	7.1	5.3	2.9	0.00	0.00	0.01
24	0.00	3.2	e0.30	e0.00	e20	e0.10	6.1	5.9	1.2	0.00	0.00	0.00
25	0.00	6.1	e0.20	e1.0	e15	e0.10	6.6	5.4	0.49	0.00	0.00	0.01
26	0.00	e4.0	e0.10	e2.0	e10	e0.20	5.9	5.1	0.34	0.00	0.52	0.00
27	0.01	e3.0	e0.06	e5.0	e8.0	e50	7.4	5.1	0.22	0.00	0.00	0.00
28	0.01	e2.0	e0.04	e2.0	e6.0	e140	31	5.0	0.09	0.00	0.00	0.00
29	0.45	e1.0	e0.02	e1.0	---	e160	9.6	4.9	0.00	0.00	0.00	0.00
30	0.61	e1.0	e0.00	e0.50	---	191	8.5	4.7	0.00	0.00	0.00	0.00
31	0.76	---	e0.00	e0.20	---	135	---	11	---	0.00	0.00	---
TOTAL	6.23	77.9	144.02	35.10	218.30	725.90	609.8	640.0	124.44	0.02	80.69	256.78
MEAN	0.20	2.60	4.65	1.13	7.80	23.4	20.3	20.6	4.15	0.001	2.60	8.56
MAX	1.8	6.1	30	5.0	40	191	94	172	12	0.02	51	148
MIN	0.00	1.0	0.00	0.00	0.00	0.10	5.8	4.7	0.00	0.00	0.00	0.00
AC-FT	12	155	286	70	433	1440	1210	1270	247	0.04	160	509

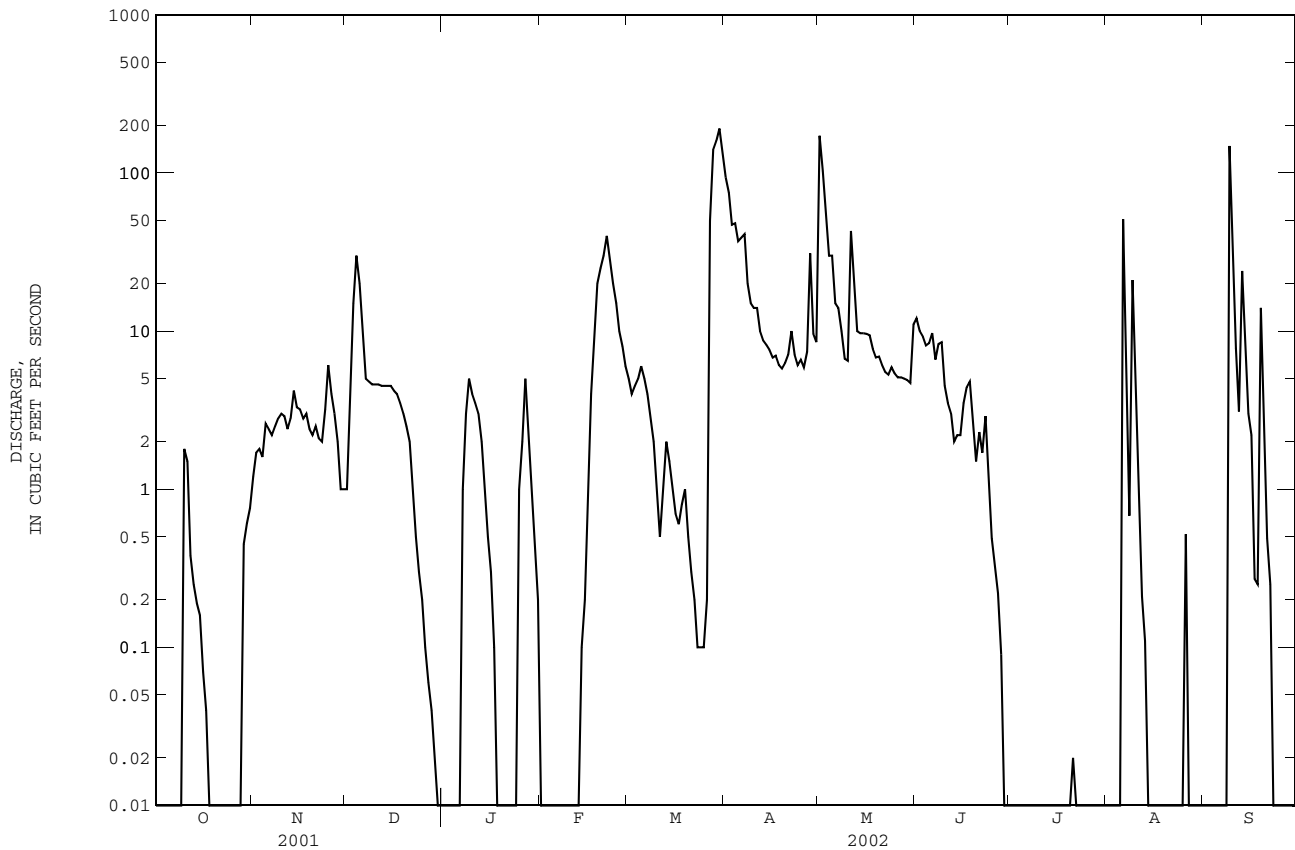
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2002, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	13.9	7.93	6.90	19.7	44.9	52.2	61.7	75.1	87.2	32.1
MAX	54.1	27.9	27.2	154	218	116	166	197	346	121
(WY)	1999	1999	1998	1997	1997	1998	1995	1997	1998	1997
MIN	0.000	1.14	0.000	0.085	0.72	14.5	10.2	17.8	4.15	0.001
(WY)	1993	1994	1993	1994	2001	1993	1994	2000	2002	2002

06447230 BLACK PIPE CREEK NEAR BELVIDERE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1993 - 2002	
ANNUAL TOTAL	8884.06		2919.18		35.1	
ANNUAL MEAN	24.3		8.00		97.2	
HIGHEST ANNUAL MEAN					8.00	
LOWEST ANNUAL MEAN					3490	
HIGHEST DAILY MEAN	548	Apr 24	191	Mar 30	Jun 3	1997
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	Oct 1	1992a
ANNUAL SEVEN-DAY MINIMUM	0.00	Feb 14	0.00	Oct 1	Oct 1	1992
MAXIMUM PEAK FLOW			666	Sep 9	3580	Jun 3 1997b
MAXIMUM PEAK STAGE			5.61	Sep 9	15.70	Feb 17 1997c
ANNUAL RUNOFF (AC-FT)	17620		5790		25410	
10 PERCENT EXCEEDS	56		15		78	
50 PERCENT EXCEEDS	3.3		1.5		7.2	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a No flow at times in most years.
b Gage height, 10.93 ft.
c Backwater from ice.
e Estimated.



WHITE RIVER BASIN

06447450 WHITE RIVER NEAR WHITE RIVER, SD

LOCATION.--Lat 43°42'50", long 100°41'05", in NW 1/4 SE 1/4 SW 1/4 sec.8, T.4 N., R.28 W., Jones County, Hydrologic Unit 10140202, on left bank retaining wall 50 ft downstream from U.S. Hwy. 83 bridge, 11 mi north of White River.

DRAINAGE AREA.--6,280 mi², approximately, of which about 5,000 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--June 2001 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,770 ft above NGVD of 1929, from topographic map. Nonrecording gage June 1 to July 26, 2001.

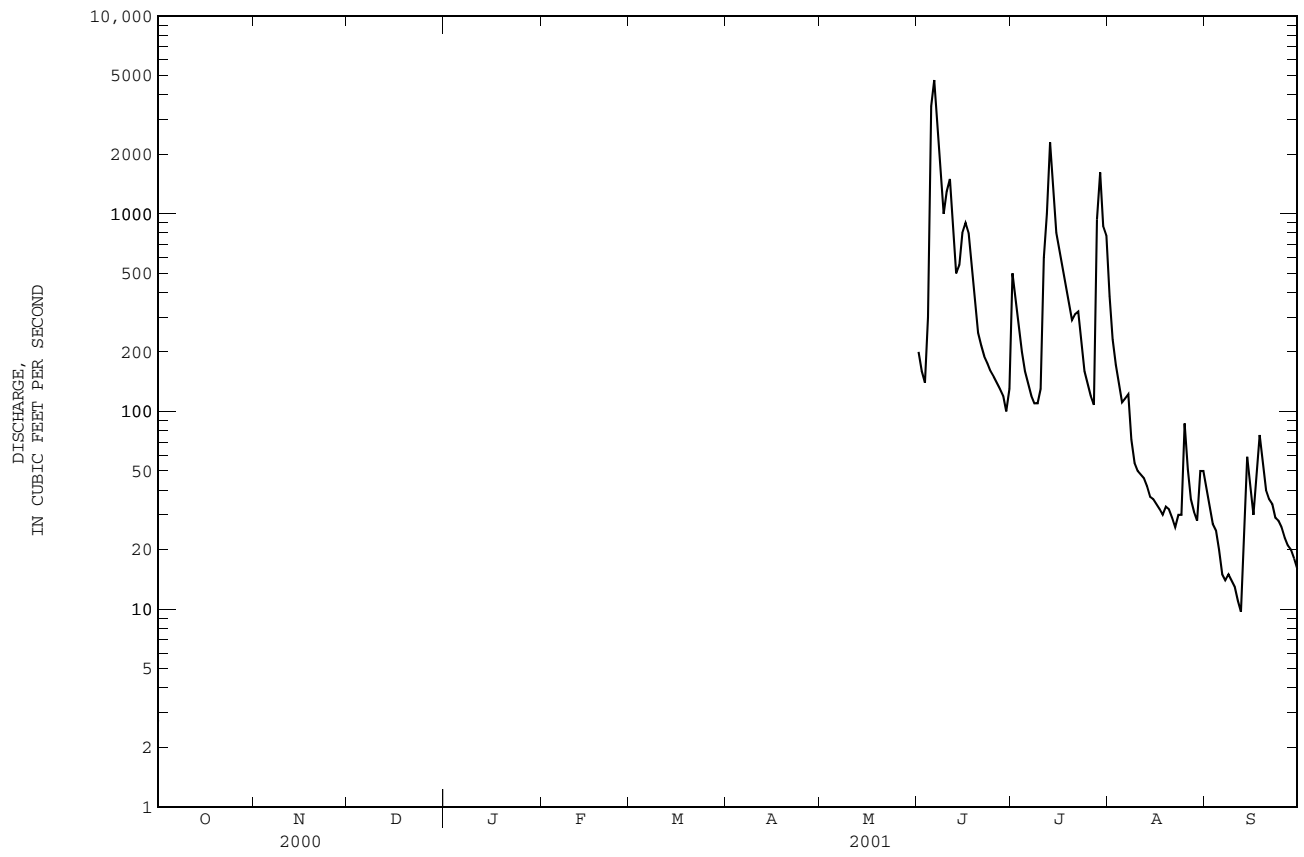
REMARKS.--Daily discharge records for June to September 2001 are also published. Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	e200	e500	383	e40
2	---	---	---	---	---	---	---	---	e160	e370	232	e33
3	---	---	---	---	---	---	---	---	e140	e275	172	e27
4	---	---	---	---	---	---	---	---	e300	e200	140	e25
5	---	---	---	---	---	---	---	---	e3500	e160	111	e20
6	---	---	---	---	---	---	---	---	e4750	e138	116	e15
7	---	---	---	---	---	---	---	---	e3000	e120	122	e14
8	---	---	---	---	---	---	---	---	e1800	e110	72	e15
9	---	---	---	---	---	---	---	---	e1000	e110	55	e14
10	---	---	---	---	---	---	---	---	e1300	e130	50	e13
11	---	---	---	---	---	---	---	---	e1500	e600	48	e11
12	---	---	---	---	---	---	---	---	e900	e1000	46	e9.7
13	---	---	---	---	---	---	---	---	e500	e2300	42	e25
14	---	---	---	---	---	---	---	---	e550	e1300	37	e59
15	---	---	---	---	---	---	---	---	e800	e800	36	e41
16	---	---	---	---	---	---	---	---	e900	e650	34	e30
17	---	---	---	---	---	---	---	---	e800	e530	32	e46
18	---	---	---	---	---	---	---	---	e520	e435	30	e76
19	---	---	---	---	---	---	---	---	e360	e357	33	e54
20	---	---	---	---	---	---	---	---	e250	e290	32	e40
21	---	---	---	---	---	---	---	---	e215	e310	29	e36
22	---	---	---	---	---	---	---	---	e190	e320	26	e34
23	---	---	---	---	---	---	---	---	e175	e225	30	e29
24	---	---	---	---	---	---	---	---	e160	e160	30	e28
25	---	---	---	---	---	---	---	---	e150	e138	87	e26
26	---	---	---	---	---	---	---	---	e140	e120	51	e23
27	---	---	---	---	---	---	---	---	e130	108	36	e21
28	---	---	---	---	---	---	---	---	e120	937	31	e20
29	---	---	---	---	---	---	---	---	e100	1620	28	e18
30	---	---	---	---	---	---	---	---	e130	867	e50	e16
31	---	---	---	---	---	---	---	---	---	777	e50	---
TOTAL	---	---	---	---	---	---	---	---	24740	15957	2271	858.7
MEAN	---	---	---	---	---	---	---	---	825	515	73.3	28.6
MAX	---	---	---	---	---	---	---	---	4750	2300	383	76
MIN	---	---	---	---	---	---	---	---	100	108	26	9.7
MED	---	---	---	---	---	---	---	---	330	320	46	26
AC-FT	---	---	---	---	---	---	---	---	49070	31650	4500	1700

e Estimated

06447450 WHITE RIVER NEAR WHITE RIVER, SD--Continued



DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	47	e40	e30	e27	e50	e880	442	88	e6.0	0.59	22
2	13	43	e50	e25	e26	e50	e720	646	91	e5.0	0.36	10
3	14	41	e65	e25	e25	e55	e560	2000	81	e4.5	0.19	15
4	13	41	e80	e25	e26	e60	e480	1940	73	4.0	0.90	10
5	12	42	89	e26	e26	e65	e430	902	71	2.8	1.2	8.5
6	10	43	146	e26	e27	e70	e380	546	68	2.4	6.2	8.0
7	10	46	298	e26	e27	e77	e370	364	73	6.2	3.3	6.3
8	11	47	347	e27	e28	e74	e410	275	85	5.7	1.6	5.0
9	16	48	325	e27	e28	e72	e571	215	e80	5.6	37	7.3
10	23	48	293	e27	e29	e70	e474	186	e74	2.9	175	9.0
11	32	46	e250	e28	e29	e80	e440	164	61	2.6	172	2490
12	89	46	e200	e30	e30	e90	e400	154	43	1.9	90	1870
13	146	47	e170	e35	e32	e100	e360	335	32	1.6	39	753
14	130	44	e150	e40	e35	e90	e330	883	24	9.9	20	378
15	126	47	e140	e50	e37	e85	e250	742	22	9.6	11	228
16	87	54	e135	e45	e40	e80	230	368	19	4.0	7.3	575
17	77	60	e130	e40	e45	e85	210	240	17	1.2	4.5	578
18	60	59	e115	e35	e50	e90	195	191	15	0.55	3.0	283
19	47	56	e100	e30	e70	e95	178	166	26	0.50	2.4	155
20	41	52	e100	e28	e100	e100	166	157	23	0.50	3.3	103
21	41	55	e105	e26	e150	e90	168	144	22	0.47	3.4	124
22	47	63	e100	e27	e200	e80	158	130	17	2.3	7.6	142
23	42	67	e90	e28	e250	e75	142	128	13	2.1	4.8	97
24	36	70	e85	e28	e180	e72	130	120	14	3.2	6.5	138
25	33	e71	e80	e30	e140	e70	129	132	14	1.8	5.5	92
26	31	e37	e75	e33	e90	e75	136	128	10	8.6	5.8	73
27	30	e29	e70	e37	e60	e90	129	131	8.2	7.6	5.1	55
28	28	e34	e60	e40	e55	e200	125	127	4.0	3.7	78	44
29	25	e32	e53	e37	---	e500	119	117	4.8	2.8	177	44
30	24	e34	e46	e33	---	1680	261	101	7.2	0.99	61	40
31	28	---	e40	e30	---	1240	---	93	---	1.00	39	---
TOTAL	1337	1449	4027	974	1862	5710	9531	12267	1180.2	112.01	972.54	8363.1
MEAN	43.1	48.3	130	31.4	66.5	184	318	396	39.3	3.61	31.4	279
MAX	146	71	347	50	250	1680	880	2000	91	9.9	177	2490
MIN	10	29	40	25	25	50	119	93	4.0	0.47	0.19	5.0
MED	31	47	100	30	36	80	255	186	24	2.8	5.8	82
AC-FT	2650	2870	7990	1930	3690	11330	18900	24330	2340	222	1930	16590
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2002, BY WATER YEAR (WY)												
MEAN	43.1	48.3	130	31.4	66.5	184	318	396	39.3	3.61	31.4	279
MAX	43.1	48.3	130	31.4	66.5	184	318	396	39.3	3.61	31.4	279
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002
MIN	43.1	48.3	130	31.4	66.5	184	318	396	39.3	3.61	31.4	279
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002

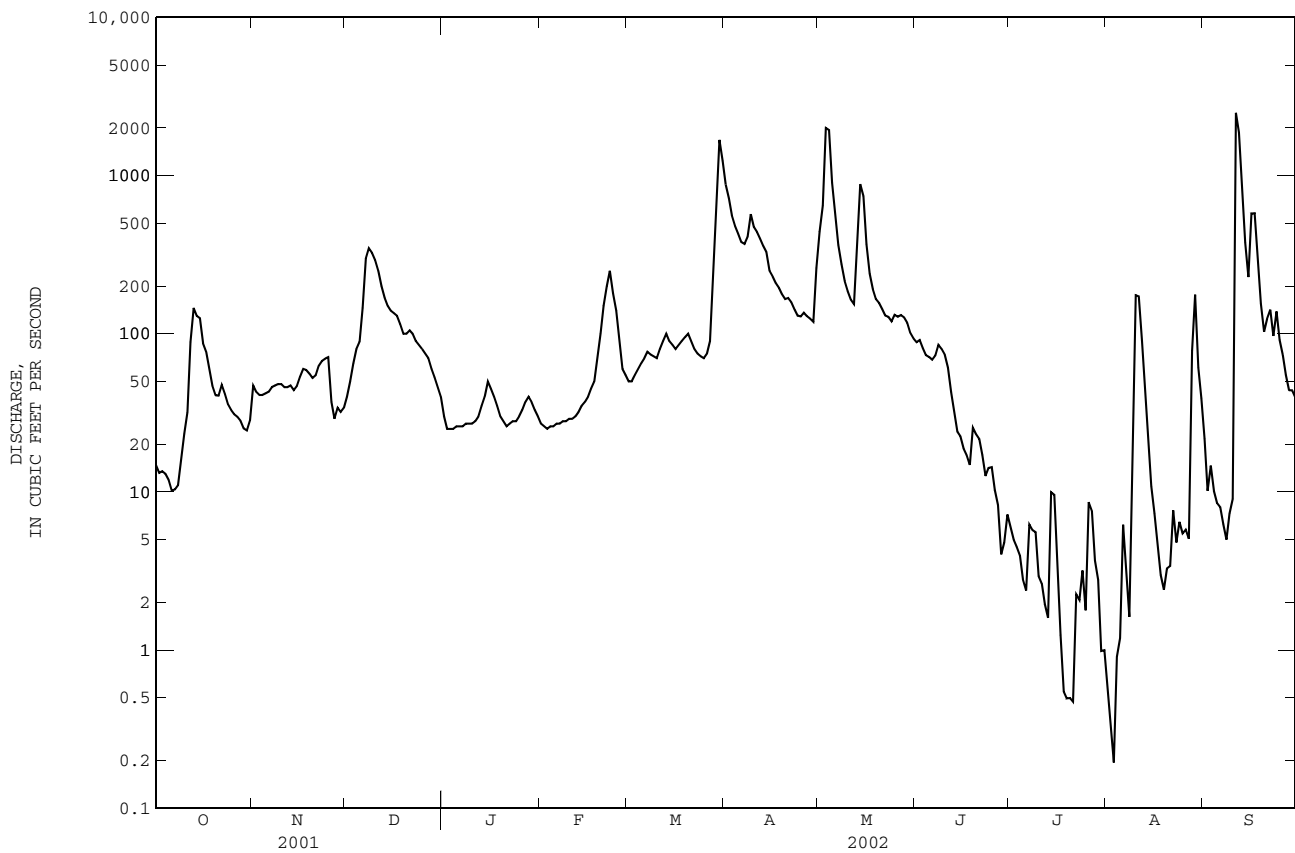
06447450 WHITE RIVER NEAR WHITE RIVER, SD--Continued

SUMMARY STATISTICS

FOR 2002 WATER YEAR

ANNUAL TOTAL	47784.85	
ANNUAL MEAN	131	
HIGHEST DAILY MEAN	2490	Sep 11
LOWEST DAILY MEAN	0.19	Aug 3
ANNUAL SEVEN-DAY MINIMUM	0.75	Jul 30
MAXIMUM PEAK FLOW	3910	Sep 11
MAXIMUM PEAK STAGE	8.34	Sep 11
ANNUAL RUNOFF (AC-FT)	94780	
10 PERCENT EXCEEDS	309	
50 PERCENT EXCEEDS	50	
90 PERCENT EXCEEDS	4.8	

e Estimated.



WHITE RIVER BASIN

06447500 LITTLE WHITE RIVER NEAR MARTIN, SD

LOCATION.--Lat 43°10'00", long 101°37'47", in NW¹/₄ SW¹/₄ NW¹/₄ sec.19, T.37 N., R.36 W., Bennett County, Hydrologic Unit 10140203, on right bank 110 ft downstream from highway culvert and 5.4 mi east of Martin.

DRAINAGE AREA.--310 mi², approximately, of which about 230 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year. Prior to October 1965, published as South Fork White River near Martin.

GAGE.--Water-stage recorder. Elevation of gage is 3,045 ft above NGVD of 1929, by barometer. Prior to Aug. 14, 1938, nonrecording gage at same site and datum. Prior to June 17, 1997, gage 40 ft upstream at same datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 5, 1932, reached a stage of 13.3 ft, from floodmarks.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	16	e20	e8.0	e9.8	e8.5	93	36	20	8.2	5.4	11
2	11	16	e22	e8.0	e9.6	e8.0	78	44	20	8.0	5.2	11
3	11	16	e25	e8.2	e9.4	e8.3	61	61	20	8.0	5.2	10
4	12	16	e30	e8.4	e9.2	e8.6	46	73	20	8.0	5.4	9.8
5	13	16	34	e8.6	e9.0	e9.0	45	70	19	7.9	6.2	9.7
6	15	16	31	e8.8	e8.8	e10	47	61	19	7.9	8.1	9.7
7	14	16	29	e9.0	e8.7	e10	51	44	18	8.8	8.2	9.6
8	14	16	25	e10	e8.5	e9.7	55	38	16	8.7	7.3	9.5
9	14	16	23	e12	e9.0	e9.3	56	36	15	8.7	6.7	11
10	15	16	e22	e11	e9.0	e9.0	51	34	14	8.1	6.4	12
11	17	16	e20	e18	e8.5	e9.5	48	32	14	7.6	6.7	14
12	15	16	e18	e30	e8.0	e10	47	31	13	7.4	6.5	14
13	14	16	e16	e28	e9.0	e13	46	32	13	7.4	6.8	14
14	14	17	e14	e28	e10	e14	45	33	12	7.2	6.9	15
15	14	16	e15	e26	e12	e15	43	30	12	6.7	6.8	15
16	13	17	e16	e16	e14	e13	39	27	13	6.4	6.6	15
17	14	17	e16	e16	e13	e10	37	26	14	6.2	6.4	14
18	14	17	e15	e20	e16	e10	35	27	12	5.8	6.6	13
19	14	17	e15	e24	e13	e10	32	31	12	5.7	6.4	12
20	14	17	14	e30	e23	e9.5	29	27	11	5.8	6.6	12
21	14	17	16	e25	e16	e9.0	28	28	11	5.9	6.8	12
22	15	17	e14	e17	e26	e9.0	28	23	11	6.0	7.6	12
23	15	18	e12	e12	e24	e9.2	31	21	10	6.3	8.8	12
24	14	19	e10	e13	e20	e9.4	29	21	9.9	6.4	8.7	12
25	14	21	e9.0	e14	e16	e9.6	25	20	10	6.3	13	13
26	14	e20	e9.5	e15	e14	e9.8	23	20	9.9	6.1	13	13
27	15	e19	e10	e14	e10	e10	24	20	9.6	5.9	9.7	13
28	16	e18	e9.5	e13	e9.0	e11	27	21	9.4	5.8	11	14
29	16	e18	e9.0	e12	---	e15	33	20	8.9	5.7	13	13
30	16	e19	e8.5	e10	---	e60	34	20	8.4	6.0	13	13
31	16	---	e8.0	e10	---	126	---	21	---	5.6	12	---
TOTAL	438	512	535.5	483.0	352.5	482.4	1266	1028	405.1	214.5	247.0	368.3
MEAN	14.13	17.07	17.27	15.58	12.59	15.56	42.20	33.16	13.50	6.919	7.968	12.28
MAX	17	21	34	30	26	126	93	73	20	8.8	13	15
MIN	11	16	8.0	8.0	8.0	8.0	23	20	8.4	5.6	5.2	9.5
AC-FT	869	1020	1060	958	699	957	2510	2040	804	425	490	735

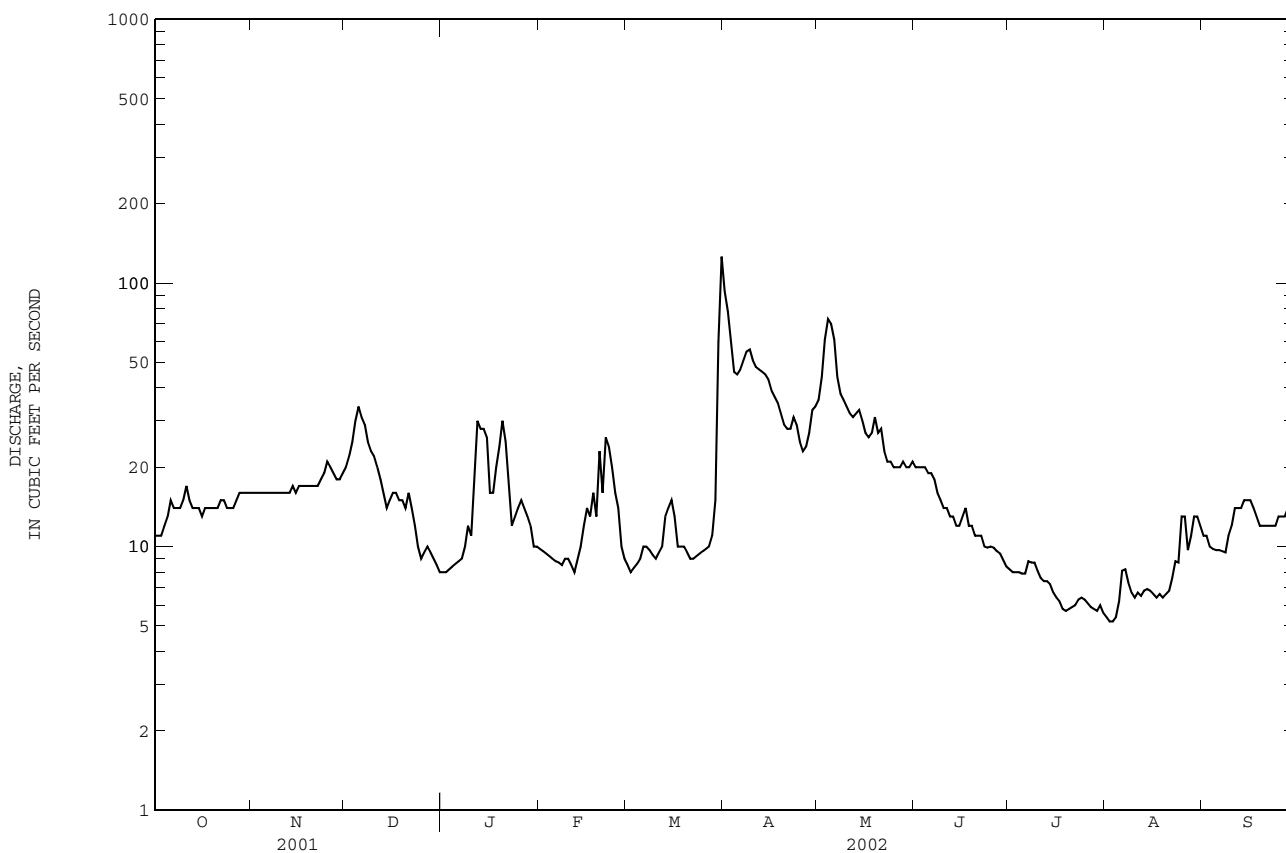
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1940, 1963 - 2002, BY WATER YEAR (WY)

MEAN	13.91	16.93	13.18	11.97	23.66	44.91	38.17	31.61	31.13	16.02	12.23	9.877
MAX	34.8	46.9	28.8	34.9	199	157	104	66.4	162	44.5	102	19.9
(WY)	1999	1999	1994	1997	1997	1966	1977	2000	1997	1969	1983	1998
MIN	7.86	9.73	5.59	4.51	6.26	11.4	13.0	12.2	5.65	2.01	1.80	4.87
(WY)	1980	1965	1986	1982	1989	1977	1981	1940	1940	1940	1940	1939

06447500 LITTLE WHITE RIVER NEAR MARTIN, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1939-1940, 1963-2002	
ANNUAL TOTAL	10483.7		6332.3		21.94	
ANNUAL MEAN	28.72		17.35		53.7	
HIGHEST ANNUAL MEAN					10.9	
LOWEST ANNUAL MEAN					1110	
HIGHEST DAILY MEAN	300	Mar 10	126	Mar 31	Jun 4	1997
LOWEST DAILY MEAN	6.3	Sep 6	5.2	Aug 2, 3	0.60	Aug 14 1940a
ANNUAL SEVEN-DAY MINIMUM	7.0	Sep 3	5.5	Jul 29	0.67	Aug 12 1940
MAXIMUM PEAK FLOW			153	Mar 30	1300	Jun 4 1997
MAXIMUM PEAK STAGE			3.97	Mar 30	13.48	Jun 4 1997
ANNUAL RUNOFF (AC-FT)	20790		12560		15890	
10 PERCENT EXCEEDS	58		32		41	
50 PERCENT EXCEEDS	18		14		14	
90 PERCENT EXCEEDS	9.7		7.3		6.5	

a Also Aug. 16, 18, 1940, and no flow part of each day Oct. 19, 20, 22, 1962 (regulation due to construction).
e Estimated.



06448000 LAKE CREEK ABOVE REFUGE, NEAR TUTHILL, SD

LOCATION.--Lat 43°05'07", long 101°36'04", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.19, T.36 N., R.36 W., Bennett County, Hydrologic Unit 10140203, on right wingwall at upstream side of culvert, 80 ft downstream from west boundary of LaCreek game refuge and 7.5 mi southwest of Tuthill.

DRAINAGE AREA.--58 mi², approximately, of which about 23 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to February 1979, Apr. 11, 1996, to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 3,090 ft above NGVD of 1929, by barometer. Prior to Aug. 9, 1938, nonrecording gage and Aug. 9, 1938, to Sept. 30, 1940, water-stage recorder at site 110 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. A few small diversions for irrigation of hay meadows above station. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	25	e26	e25	e26	e20	42	45	23	16	e18	e27
2	22	24	e30	e26	e27	e20	43	52	23	16	e17	e24
3	22	24	46	e28	e27	e21	37	43	23	17	e17	e26
4	28	25	42	33	27	e27	37	33	24	16	e17	e27
5	28	24	37	32	27	e34	37	30	23	15	e17	e28
6	29	25	34	30	28	e29	37	30	21	17	e17	e28
7	26	27	32	32	28	e28	39	33	21	21	e18	e27
8	26	25	31	37	29	e27	37	34	21	23	e18	e26
9	27	25	32	33	e50	e27	35	31	19	19	e19	e36
10	30	25	31	30	e60	e29	34	30	19	18	e19	31
11	28	25	29	29	47	e34	34	32	19	18	e18	27
12	27	24	27	29	37	e38	34	32	19	18	e18	29
13	26	24	e26	30	35	e37	33	29	19	17	e19	33
14	27	24	e26	e29	35	e80	32	27	19	17	e20	28
15	26	23	27	e28	33	e60	31	26	22	17	e18	25
16	26	23	27	e27	33	e38	31	29	20	e17	e17	23
17	26	23	27	e26	34	e36	31	29	19	e18	e17	23
18	26	24	27	e25	34	e35	30	28	18	e18	e17	22
19	e26	24	27	e26	33	e33	30	28	18	e19	e18	22
20	e26	24	26	e27	31	e32	31	27	18	e18	e18	21
21	e26	24	26	e29	30	e31	34	27	22	e18	e18	22
22	e26	24	e25	30	29	e30	34	25	19	e18	e21	22
23	e26	24	e24	29	30	e30	30	25	18	e18	22	22
24	e27	30	e23	30	28	e31	28	25	17	e17	30	20
25	25	28	e22	30	e26	e32	28	25	18	e17	24	21
26	25	e25	e26	31	e24	35	29	24	18	e18	25	21
27	25	e22	e30	30	e22	42	34	28	17	e17	25	21
28	24	e20	e29	e28	e20	52	36	32	17	e16	22	21
29	24	e21	e27	e25	---	61	30	26	16	e16	e24	21
30	25	e24	e26	e25	---	51	29	24	16	e17	e30	20
31	25	---	e25	e26	---	44	---	23	---	e18	e28	---
TOTAL	800	729	893	895	890	1124	1007	932	586	545	626	744
MEAN	25.8	24.3	28.8	28.9	31.8	36.3	33.6	30.1	19.5	17.6	20.2	24.8
MAX	30	30	46	37	60	80	43	52	24	23	30	36
MIN	20	20	22	25	20	20	28	23	16	15	17	20
AC-FT	1590	1450	1770	1780	1770	2230	2000	1850	1160	1080	1240	1480

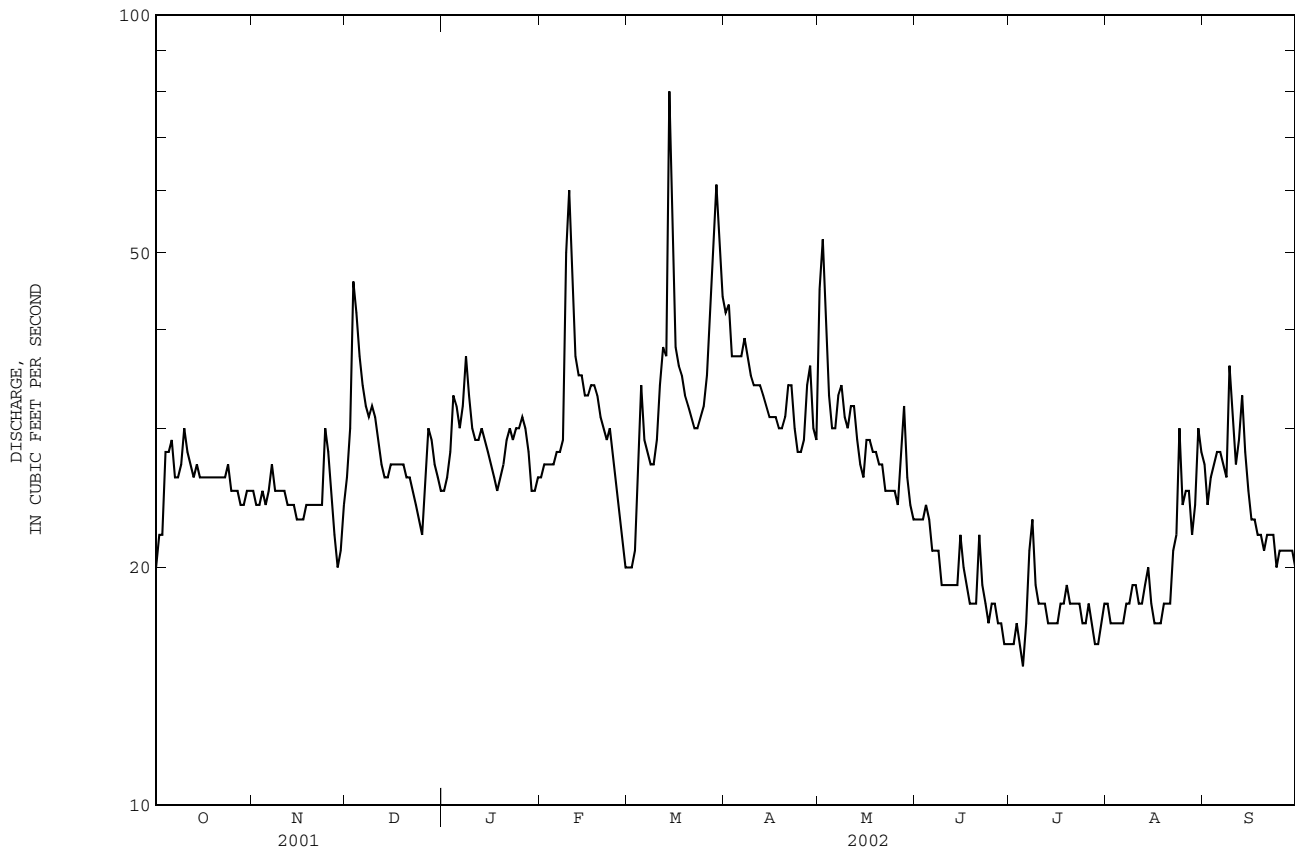
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1940, 1963 - 1979, 1997 - 2002, BY WATER YEAR (WY)

	1939	1940	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
MEAN	19.8	21.3	20.6	20.7	24.1	29.0	28.0	24.5	21.3	17.0	16.0	17.1
MAX	28.0	28.1	28.8	32.2	34.6	38.7	44.7	50.9	44.6	28.6	23.5	24.8
(WY)	1999	1999	2002	2001	1999	2001	2001	2000	1999	1999	1997	2002
MIN	15.0	14.5	7.39	12.2	11.1	17.5	18.6	9.99	8.83	10.3	8.40	11.5
(WY)	1976	1939	1939	1979	1939	1976	1976	1939	1939	1974	1970	1970

06448000 LAKE CREEK ABOVE REFUGE, NEAR TUTHILL, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1939-1940, 1963-1979, 1997-2002	
ANNUAL TOTAL	10531		9771		21.6	
ANNUAL MEAN	28.9		26.8		28.7	
HIGHEST ANNUAL MEAN					13.8	
LOWEST ANNUAL MEAN					13.8	
HIGHEST DAILY MEAN	106	Apr 23	80	Mar 14	115	May 27 1996
LOWEST DAILY MEAN	14	Sep 6	15	Jul 5	0.10	Jun 5 1939
ANNUAL SEVEN-DAY MINIMUM	16	Sep 1	16	Jun 29	1.0	Jun 3 1939
MAXIMUM PEAK FLOW			100	Mar 15	154	Mar 9 1966a
MAXIMUM PEAK STAGE			3.00	Mar 15b	3.75	Feb 12 1971b
ANNUAL RUNOFF (AC-FT)	20890		19380		15620	
10 PERCENT EXCEEDS	40		35		30	
50 PERCENT EXCEEDS	27		26		20	
90 PERCENT EXCEEDS	20		18		13	

a Gage height, 2.83 ft.
b Backwater from ice.
e Estimated.



WHITE RIVER BASIN

06449000 LAKE CREEK BELOW REFUGE, NEAR TUTHILL, SD

LOCATION.--Lat 43°08'49", long 101°30'51", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.25, T.37 N., R.36 W., Bennett County, Hydrologic Unit 10140203, on left bank 40 ft upstream from east boundary of LaCreek game refuge, 1.2 mi southwest of Tuthill, and 5.5 mi upstream from mouth.

DRAINAGE AREA.--120 mi², approximately, of which about 60 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 3,055 ft above NGVD of 1929, by barometer. Prior to Oct. 1, 1999, at site 400 ft downstream at same datum. Prior to Aug. 4, 1938, nonrecording gage at site 400 ft downstream at same datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	21	23	21	22	53	57	35	16	2.0	9.4
2	14	15	21	23	21	e23	e53	58	34	15	1.8	9.5
3	12	15	21	23	21	e23	e53	58	33	13	1.8	8.0
4	12	16	21	23	21	23	55	57	33	12	1.9	7.9
5	12	16	21	23	21	24	55	58	32	11	1.7	7.4
6	11	16	21	23	21	24	56	57	32	9.4	1.9	7.1
7	10	16	21	23	21	24	57	57	31	11	1.9	6.7
8	9.3	16	21	23	21	24	57	58	31	8.0	2.0	6.4
9	10	16	21	23	21	22	58	58	31	4.3	2.1	6.3
10	9.8	16	21	23	21	25	58	57	31	7.4	2.2	7.2
11	8.7	16	22	23	21	25	58	58	31	12	2.2	7.0
12	8.6	16	22	23	21	25	58	57	29	15	2.4	7.3
13	9.4	17	22	23	21	25	59	57	30	17	1.6	8.8
14	9.7	17	22	23	21	26	59	57	28	19	0.90	8.5
15	11	17	22	22	21	26	59	57	27	27	0.90	7.7
16	10	17	22	22	21	26	58	56	27	34	1.2	4.8
17	12	17	22	22	22	27	56	56	26	36	2.2	2.6
18	11	17	22	22	22	29	57	55	25	32	0.57	4.3
19	12	15	22	22	22	33	55	54	21	29	0.59	3.1
20	12	17	22	22	22	34	55	53	13	24	0.57	3.8
21	13	21	22	22	22	41	55	53	13	21	0.72	5.6
22	13	21	22	22	22	39	55	51	13	16	4.8	5.7
23	14	22	22	22	22	45	56	49	13	12	6.4	5.5
24	14	22	22	22	22	47	56	47	13	9.8	7.4	4.3
25	12	22	23	21	27	47	55	46	13	8.9	7.4	2.3
26	13	41	23	21	22	48	54	44	13	3.6	7.0	0.82
27	14	57	23	21	22	49	55	42	13	2.2	8.4	2.7
28	14	30	23	21	22	50	55	40	16	2.9	9.5	0.42
29	14	22	23	21	---	51	56	39	20	e2.4	9.5	1.1
30	15	22	23	21	---	52	55	38	17	e2.3	10	2.1
31	15	---	23	22	---	52	---	36	---	2.2	9.7	---
TOTAL	370.5	603	679	690	605	1031	1681	1620	724	435.4	113.25	164.34
MEAN	12.0	20.1	21.9	22.3	21.6	33.3	56.0	52.3	24.1	14.0	3.65	5.48
MAX	15	57	23	23	27	52	59	58	35	36	10	9.5
MIN	8.6	15	21	21	21	22	53	36	13	2.2	0.57	0.42
AC-FT	735	1200	1350	1370	1200	2040	3330	3210	1440	864	225	326

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939, 1963 - 2002, BY WATER YEAR (WY)

	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
MEAN	6.49	10.7	16.0	18.3	22.2	33.2	37.2	32.5	29.5	16.2	11.4	8.76
MAX	23.8	43.4	48.3	49.9	49.9	109	96.1	79.3	139	63.4	42.8	35.8
(WY)	1939	1999	1999	1997	1997	1987	1977	1991	1991	1967	1994	1993
MIN	0.000	0.000	0.000	0.000	0.000	0.058	0.090	0.029	0.033	0.24	0.084	0.11
(WY)	1940	1940	1940	1940	1940	1940	1965	1939	1939	1939	1939	1939

06449000 LAKE CREEK BELOW REFUGE, NEAR TUTHILL, SD--Continued

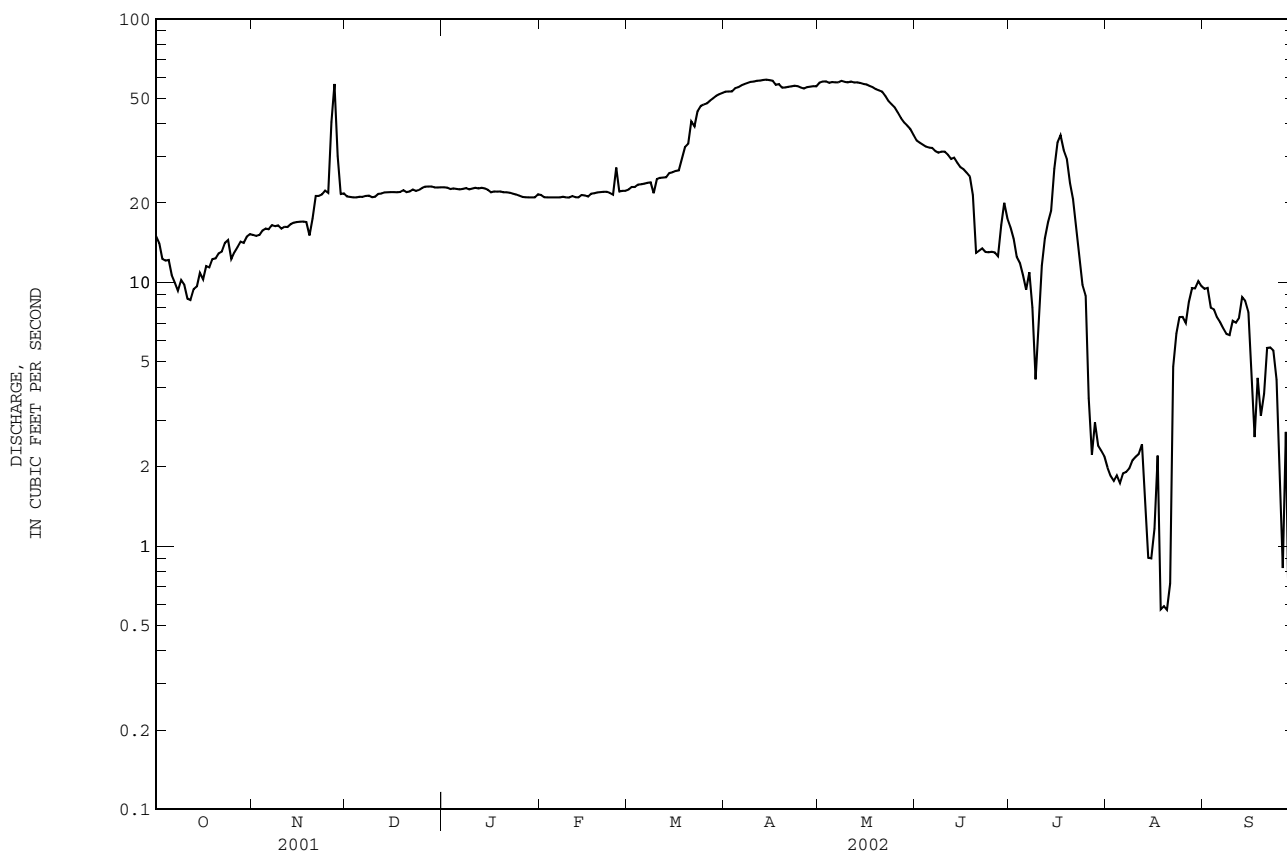
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1939, 1963 - 2002	
ANNUAL TOTAL	11571.5		8716.49		20.2	
ANNUAL MEAN	31.7		23.9		41.9	
HIGHEST ANNUAL MEAN					3.09	
LOWEST ANNUAL MEAN					424	
HIGHEST DAILY MEAN	80	Apr 14	59	Apr 13	0.00	Mar 25 1987
LOWEST DAILY MEAN	2.4	Sep 8	0.42	Sep 28	0.00	Mar 25 1939a
ANNUAL SEVEN-DAY MINIMUM	3.4	Sep 4	0.96	Aug 15	0.00	Mar 25 1939
MAXIMUM PEAK FLOW			75	Mar 21	594	Mar 25 1987b
MAXIMUM PEAK STAGE			4.02	Mar 21	6.46	Mar 12 1988c
ANNUAL RUNOFF (AC-FT)	22950		17290		14630	
10 PERCENT EXCEEDS	66		55		48	
50 PERCENT EXCEEDS	25		21		15	
90 PERCENT EXCEEDS	5.3		4.1		0.60	

a No flow at times in some years.

b Gage height, 5.57 ft, from rating curve extended above 150 ft³/s, at site 400 ft downstream.

c Backwater from ice, at site 400 ft downstream.

e Estimated.



06449100 LITTLE WHITE RIVER NEAR VETAL, SD

LOCATION.--Lat 43°06'03", long 101°13'49", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.17, T.36 N., R.33 W., Bennett County, Hydrologic Unit 10140203, on left bank downstream side of highway culvert, 0.3 mi downstream from small right-bank tributary, 10.8 mi southeast of Vetal, and 15.3 mi upstream from Spring Creek.

DRAINAGE AREA.--590 mi², approximately, of which about 415 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--August 1959 to current year. Prior to October 1965, published as South Fork White River near Vetal.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,780.69 ft above NGVD of 1929. Prior to Nov. 14, 1959, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some small diversion for irrigation and some storage in several small lakes above station. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e42	49	99	e30	e36	e37	190	e120	64	39	23	41
2	e40	50	80	e30	e36	e34	187	122	65	40	26	41
3	e40	50	73	e30	e37	e30	154	125	62	39	27	39
4	e44	48	71	e31	e37	e30	133	119	61	36	27	38
5	e45	49	71	e32	e38	e34	136	117	57	32	30	38
6	e43	52	71	e32	e39	e35	137	116	49	33	40	37
7	e41	51	72	e34	e40	e33	163	120	48	39	34	38
8	e38	51	73	e37	e43	e32	155	123	47	42	31	36
9	e38	52	74	e40	e47	e32	148	120	47	40	31	47
10	e40	51	71	e45	e48	e32	148	125	46	33	31	48
11	e39	51	65	e50	e50	e32	146	124	45	27	28	44
12	e38	51	62	e48	e53	e33	141	120	45	28	29	46
13	e36	51	62	e45	e57	e35	138	116	45	27	29	52
14	e36	51	e58	e42	60	e40	135	114	45	26	27	47
15	e36	52	e56	e40	61	e39	133	109	46	25	27	46
16	40	64	e53	e38	64	e38	138	106	44	24	25	49
17	39	68	e49	e37	67	e37	126	104	45	24	26	52
18	39	65	e47	e36	69	e36	122	100	46	24	26	45
19	41	65	e45	e37	68	e35	e100	95	45	23	25	41
20	42	65	e47	e38	69	e34	e86	93	45	23	25	109
21	42	64	e45	e40	70	e33	e90	92	46	25	23	113
22	42	62	e43	e44	72	e33	e94	90	47	25	27	e102
23	42	65	e42	e48	76	e35	e94	82	44	25	e28	e94
24	43	72	e40	e45	73	e36	e90	73	43	24	e33	e78
25	45	70	e38	e48	63	e37	e92	71	45	23	e33	e48
26	46	e65	e38	e57	e55	e38	e95	70	46	23	37	e35
27	46	e60	e37	e54	e47	e39	e103	68	41	22	38	33
28	47	e80	e36	e46	e40	e40	e110	69	37	23	41	27
29	48	e120	e34	e40	---	e70	e107	67	35	22	42	25
30	49	e130	e32	e37	---	124	e103	64	36	22	41	24
31	49	---	e30	e37	---	152	---	67	---	22	40	---
TOTAL	1296	1874	1714	1248	1515	1325	3794	3101	1417	880	950	1513
MEAN	41.81	62.47	55.29	40.26	54.11	42.74	126.5	100.0	47.23	28.39	30.65	50.43
MAX	49	130	99	57	76	152	190	125	65	42	42	113
MIN	36	48	30	30	36	30	86	64	35	22	23	24
AC-FT	2570	3720	3400	2480	3010	2630	7530	6150	2810	1750	1880	3000

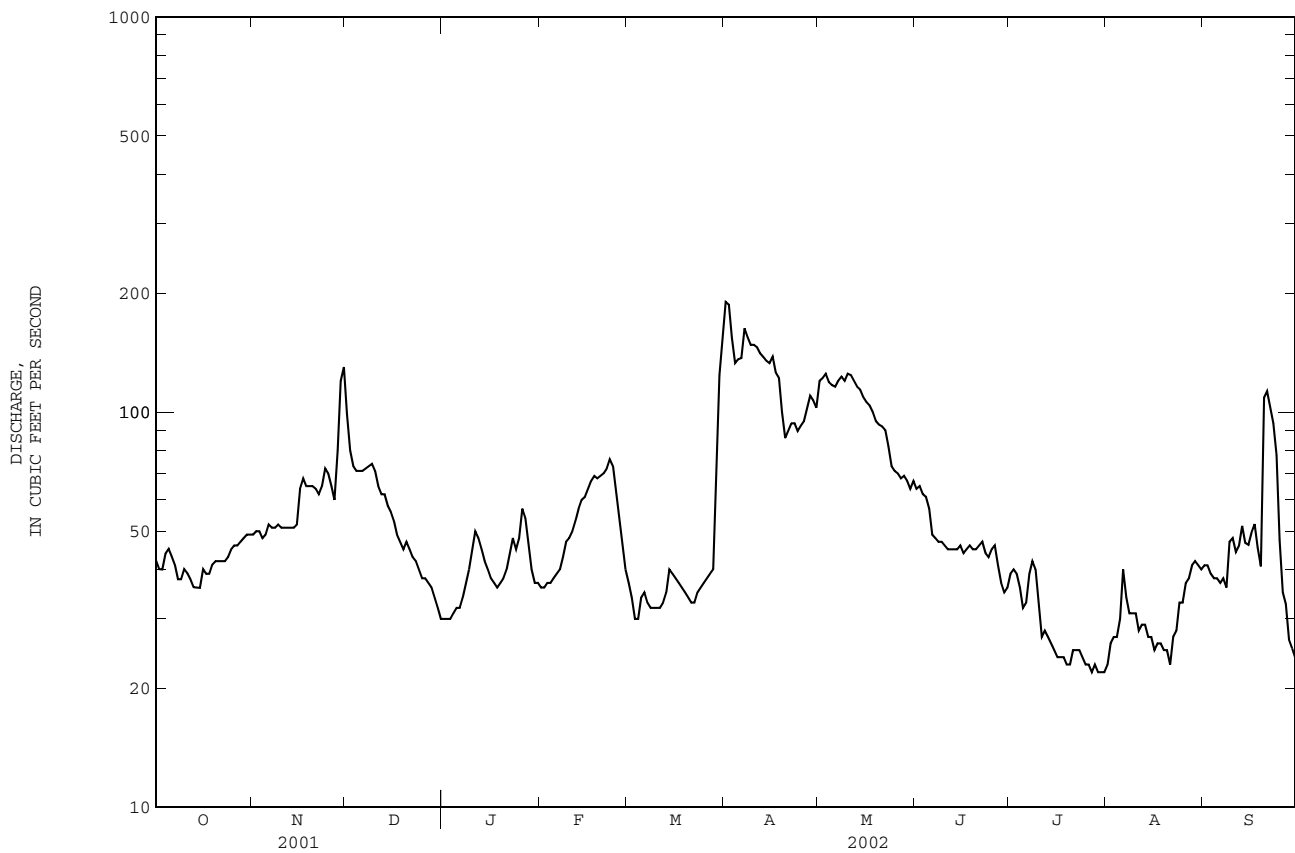
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2002, BY WATER YEAR (WY)

	MEAN	35.30	43.54	42.66	39.85	57.69	98.63	102.8	92.73	87.40	52.04	40.99	33.87
MAX	80.4	146	115	96.7	188	205	273	185	272	156	137	89.0	
(WY)	1999	1999	1999	1999	1997	1978	1977	1991	1997	1967	1983	1997	
MIN	18.0	21.3	12.5	18.5	19.2	33.5	27.3	28.5	20.3	16.2	15.1	16.5	
(WY)	1977	1977	1975	1981	1977	1981	1981	1992	1985	1974	1961	1975	

06449100 LITTLE WHITE RIVER NEAR VETAL, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1960 - 2002	
ANNUAL TOTAL	29484		20627		60.58	
ANNUAL MEAN	80.78		56.51		117	
HIGHEST ANNUAL MEAN					28.2	
LOWEST ANNUAL MEAN					1200	
HIGHEST DAILY MEAN	327	Mar 13	190	Apr 1	9.0	May 16 1991
LOWEST DAILY MEAN	27	Sep 4	22	Jul 27	9.6	Dec 24 1974
ANNUAL SEVEN-DAY MINIMUM	28	Sep 3	22	Jul 25	3540	May 16 1991
MAXIMUM PEAK FLOW			216	Apr 2	12.53	May 16 1991
MAXIMUM PEAK STAGE			5.01	Apr 2	43890	
ANNUAL RUNOFF (AC-FT)	58480		40910		118	
10 PERCENT EXCEEDS	155		113		45	
50 PERCENT EXCEEDS	62		45		21	
90 PERCENT EXCEEDS	38		28			

e Estimated.



WHITE RIVER BASIN

06449500 LITTLE WHITE RIVER NEAR ROSEBUD, SD

LOCATION.--Lat 43°19'32", long 100°53'00", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.28, T.39 N., R.30 W., Todd County, Hydrologic Unit 10140203, on right bank at downstream side of bridge on U.S. Highway 18, 0.3 mi downstream from Scabby Creek, 0.7 mi downstream from Soldier Creek, and 6.4 mi north of Rosebud.

DRAINAGE AREA.--1,020 mi², approximately, of which about 760 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--May 1943 to current year. Prior to October 1965, published as South Fork White River near Rosebud.

REVISED RECORDS.--WSP 1056: Drainage area. WSP 1309: 1946(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,294.99 ft above NGVD of 1929. Prior to May 11, 1948, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Some small diversions for irrigation and some storage in several small lakes above station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	110	e160	e80	e80	e100	e370	234	139	73	58	75
2	101	109	e200	e75	e80	e90	e400	254	134	78	57	74
3	101	109	e350	e70	e80	e95	e390	229	134	78	58	73
4	108	109	e300	e70	e80	e100	e360	219	136	76	63	70
5	114	109	e240	e75	e80	e120	e330	208	131	72	73	69
6	108	110	e190	e80	e82	e130	e315	208	125	72	84	68
7	108	112	145	e90	e84	e110	e305	208	117	94	79	65
8	107	108	138	e100	e90	e95	e300	209	121	88	68	62
9	114	106	135	e110	e100	e80	e290	206	116	89	73	82
10	126	108	136	e130	e120	e80	e280	202	114	85	72	97
11	116	108	132	e140	e130	e85	e270	215	113	78	67	84
12	112	109	e130	e150	e140	e100	e260	211	114	76	64	83
13	110	110	e128	e150	e145	e100	e250	202	115	74	64	99
14	108	111	127	e142	147	e170	e240	198	110	70	64	92
15	107	111	138	e132	154	e150	e230	192	110	64	62	84
16	e110	111	136	e125	e156	e130	e223	205	111	61	62	79
17	e97	118	141	e120	e154	e110	e217	201	110	59	59	77
18	96	122	142	e120	e152	e100	206	195	109	59	60	77
19	97	118	137	e117	e150	e95	205	183	109	61	61	78
20	99	117	124	e114	e149	e90	181	182	107	59	63	72
21	101	117	e120	e110	e147	e85	170	174	105	62	65	119
22	102	117	e115	e110	e150	e80	165	173	99	68	80	133
23	102	e117	e110	e113	e170	e80	164	168	92	66	73	126
24	101	e120	e105	e117	e160	e85	162	166	92	62	79	123
25	98	e130	e100	e120	e140	e90	156	153	95	62	78	118
26	100	e120	e100	e130	e130	e95	158	149	96	63	77	88
27	101	e110	e98	e140	e120	e100	186	146	87	61	82	75
28	103	e115	e96	e130	e110	e120	196	168	81	60	81	72
29	103	e130	e93	e115	---	e150	182	156	76	62	81	70
30	104	e150	e90	e100	---	e230	182	151	72	59	80	69
31	108	---	e85	e90	---	e300	---	144	---	59	78	---
TOTAL	3264	3451	4441	3465	3480	3585	7343	5909	3270	2150	2165	2553
MEAN	105	115	143	112	124	116	245	191	109	69.4	69.8	85.1
MAX	126	150	350	150	170	300	400	254	139	94	84	133
MIN	96	106	85	70	80	80	156	144	72	59	57	62
AC-FT	6470	6850	8810	6870	6900	7110	14560	11720	6490	4260	4290	5060

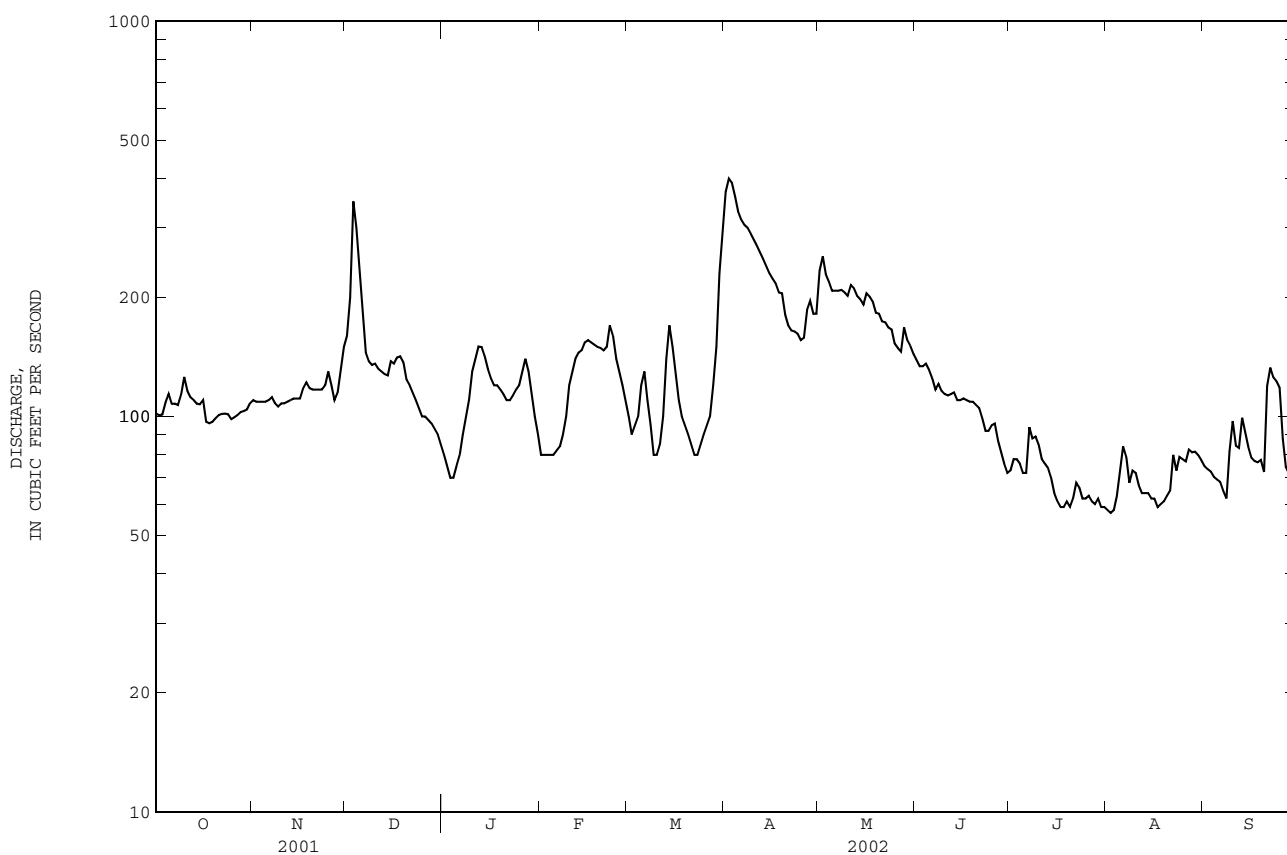
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2002, BY WATER YEAR (WY)

	MEAN	83.0	92.5	87.8	84.2	117	195	189	166	155	101	80.3	74.4
MAX	146	227	190	152	348	396	401	302	511	228	164	120	
(WY)	1999	1999	1999	1999	1997	1949	1977	1995	1997	1944	1983	1997	
MIN	61.1	60.0	51.4	23.1	60.2	91.6	85.9	87.5	62.5	44.1	45.3	50.2	
(WY)	1979	1979	1993	1962	1949	1981	1981	1992	1985	1974	1973	1975	

06449500 LITTLE WHITE RIVER NEAR ROSEBUD, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1944 - 2002	
ANNUAL TOTAL	56236		45076		119a	
ANNUAL MEAN	154		123		207	
HIGHEST ANNUAL MEAN					78.0	
LOWEST ANNUAL MEAN					1810	
HIGHEST DAILY MEAN	460	Mar 13	400	Apr 2	1810	May 17 1944
LOWEST DAILY MEAN	62	Sep 6	57	Aug 2	10	Jan 4 1949b
ANNUAL SEVEN-DAY MINIMUM	65	Sep 1	59	Jul 28	16	Jan 18 1962
MAXIMUM PEAK FLOW			500	Apr 2	4640	Jun 11 1967c
MAXIMUM PEAK STAGE			6.07	Apr 2d	14.09	Jun 11 1967
INSTANTANEOUS LOW FLOW			56	Aug 1	10	Jan 4 1949
ANNUAL RUNOFF (AC-FT)	111500		89410		85970	
10 PERCENT EXCEEDS	270		203		205	
50 PERCENT EXCEEDS	125		110		95	
90 PERCENT EXCEEDS	87		69		59	

- a Median of annual mean discharges, 120 ft³/s.
b Also Feb. 20, 1955.
c From rating curve extended above 1,300 ft³/s.
d From floodmark.
e Estimated.



WHITE RIVER BASIN

06450500 LITTLE WHITE RIVER BELOW WHITE RIVER, SD

LOCATION.--Lat 43°36'05", long 100°44'58", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.23, T.42 N., R.29 W., Mellette County, Hydrologic Unit 10140203, on left bank at downstream side of bridge on U.S. Highway 83, 1.3 mi downstream from Pine Creek, and 2.0 mi north of town of White River.

DRAINAGE AREA.--1,570 mi², approximately, of which about 1,310 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--October 1949 to current year. Prior to October 1965, published as South Fork White River below White River.

REVISED RECORDS.--WDR SD-85-1: Location.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,912.78 ft above NGVD of 1929. Prior to June 8, 1968, gage located at site 0.8 mi downstream at datum 4.50 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Diurnal fluctuations caused by small powerplant 2.2 mi upstream. Several small diversions for irrigation and some storage in several small lakes above station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	137	e800	e90	e60	e120	325	256	131	58	41	68
2	108	77	438	e100	e65	e100	336	340	143	51	47	69
3	103	95	298	e120	e70	e125	327	294	139	55	47	72
4	102	103	196	e140	e70	e170	255	258	142	60	42	60
5	109	102	141	e130	e70	e200	255	238	134	52	40	40
6	100	104	116	e160	e80	e180	273	228	126	52	74	75
7	96	108	116	e200	e90	e160	208	219	113	58	62	75
8	100	107	110	e180	e100	e150	277	228	112	79	57	66
9	112	94	108	e170	e90	e140	273	214	109	67	60	92
10	106	86	110	e160	e100	e150	249	203	103	66	60	102
11	127	89	112	e160	e120	e170	257	218	99	66	60	177
12	74	95	109	e150	e160	e200	260	229	99	59	51	182
13	88	103	86	e140	e200	e500	246	210	101	64	45	139
14	96	104	106	e130	e190	363	238	203	112	52	49	141
15	87	103	e114	e120	e185	317	247	198	81	53	42	144
16	86	102	126	e100	e180	321	221	204	89	50	59	133
17	73	134	110	e80	e175	288	228	211	96	45	47	145
18	82	118	122	e70	e170	258	217	202	98	41	42	139
19	90	83	112	e70	e165	216	216	191	98	42	42	108
20	118	84	121	e80	e160	192	208	183	96	43	42	105
21	88	85	112	e90	e180	173	188	198	94	44	43	67
22	87	79	123	e100	e300	164	179	157	81	50	54	131
23	89	92	109	e120	e260	169	194	171	79	49	59	148
24	90	109	77	e100	e200	216	147	169	71	58	52	200
25	86	e109	e60	e90	e150	207	170	156	67	39	58	185
26	75	e83	e70	e90	e120	184	166	149	73	40	57	136
27	68	e9.0	e90	e85	e130	218	188	147	71	45	55	115
28	76	e200	e100	e80	e140	362	219	166	64	44	75	148
29	80	e600	e92	e70	---	539	198	153	59	45	69	120
30	92	e450	e86	e60	---	483	192	148	49	44	53	106
31	108	---	e80	e60	---	358	---	161	---	43	66	---
TOTAL	2906	3844.0	4550	3495	3980	7393	6957	6302	2929	1614	1650	3488
MEAN	93.7	128	147	113	142	238	232	203	97.6	52.1	53.2	116
MAX	127	600	800	200	300	539	336	340	143	79	75	200
MIN	68	9.0	60	60	60	100	147	147	49	39	40	40
AC-FT	5760	7620	9020	6930	7890	14660	13800	12500	5810	3200	3270	6920

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2002, BY WATER YEAR (WY)

	MEAN	83.8	92.6	93.6	89.1	134	261	238	219	217	116	80.1	74.3
MAX	160	271	225	175	590	815	613	614	988	574	182	140	
(WY)	1999	1999	1999	1999	1997	1978	1977	1983	1997	1962	1998	1997	
MIN	53.3	60.5	39.1	28.5	57.5	85.9	76.9	82.5	54.7	31.3	37.1	33.0	
(WY)	1977	1976	1952	1962	1962	1981	1981	1985	1985	1974	1974	1952	

06450500 LITTLE WHITE RIVER BELOW WHITE RIVER, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1950 - 2002	
ANNUAL TOTAL	81307.0		49108.0		141a	
ANNUAL MEAN	223		135		305	
HIGHEST ANNUAL MEAN					79.0	
LOWEST ANNUAL MEAN					1997	
HIGHEST DAILY MEAN	3000	Mar 13	800	Dec 1	7880	Jun 3 1997
LOWEST DAILY MEAN	9.0	Nov 27	9.0	Nov 27	7.0	Jul 31 1952b
ANNUAL SEVEN-DAY MINIMUM	60	Sep 1	43	Jul 25	11	Aug 31 1952
MAXIMUM PEAK FLOW			900	Mar 13c	13700	Jun 12 1967d
MAXIMUM PEAK STAGE			6.04	Nov 29f	15.46	Jun 7 1968g
ANNUAL RUNOFF (AC-FT)	161300		97410		102500	
10 PERCENT EXCEEDS	424		233		244	
50 PERCENT EXCEEDS	125		108		97	
90 PERCENT EXCEEDS	80		52		54	

a Median of annual mean discharges, 130 ft³/s.

b Also Aug. 31 and Sept. 1, 1952.

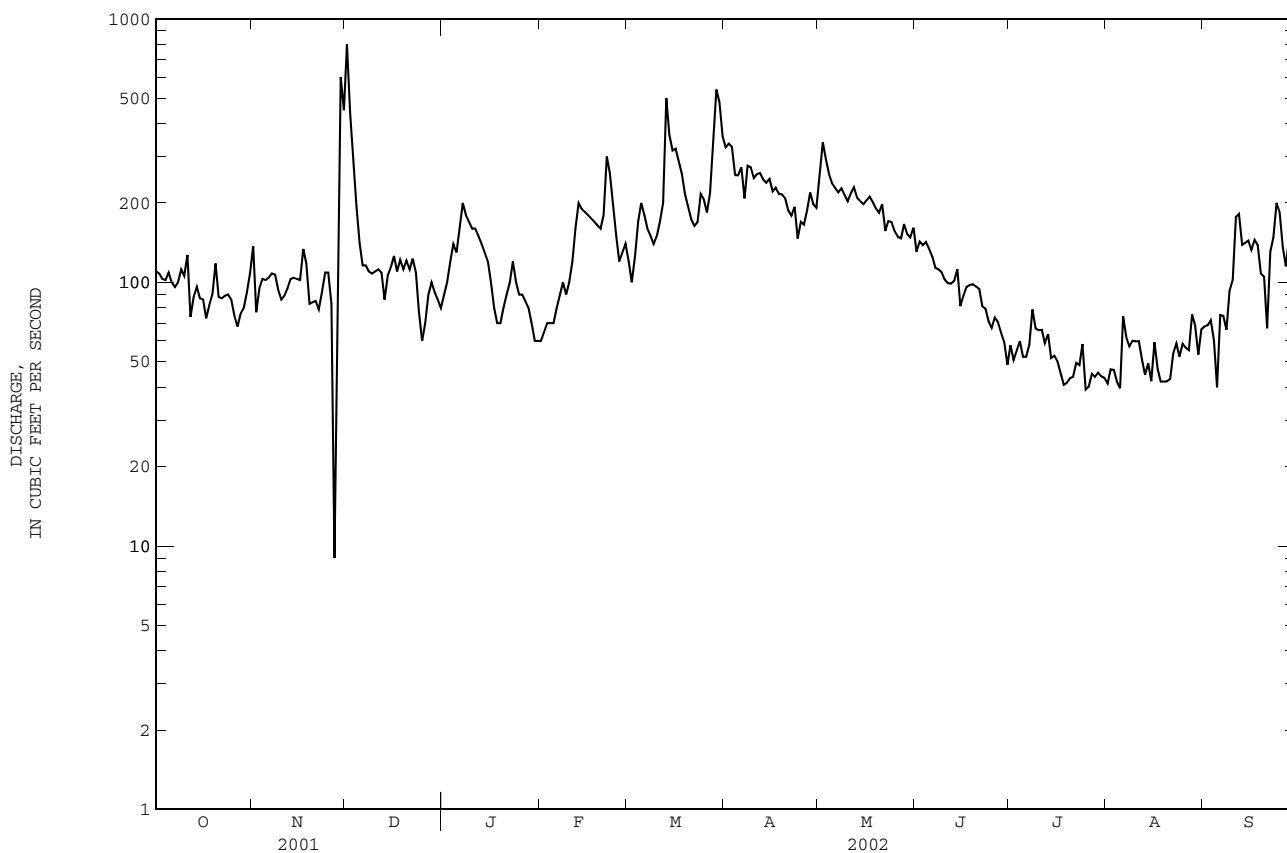
c Gage height, 5.15 ft.

d Gage height, 10.02 ft, site and datum then in use.

e Estimated.

f Backwater from ice.

g From floodmarks, present site and datum.



06452000 WHITE RIVER NEAR OACOMA, SD

LOCATION.--Lat 43°44'54", long 99°33'22", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.3, T.103 N., R.73 W., Lyman County, Hydrologic Unit 10140204, on left bank at downstream side of bridge on State Highway 47, 1.5 mi downstream from Wagner Draw, 1.8 mi upstream from high-water line of Lake Francis Case, and 8.8 mi southwest of Oacoma.

DRAINAGE AREA.--10,200 mi², approximately, of which about 9,940 mi² contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year.

REVISED RECORDS.--WSP 786: Drainage area. WSP 1309: 1929-30(M).

GAGE.--Water-stage recorders and crest-stage gage. Datum of gage is 1,377.29 ft above NGVD of 1929. See WSP 1709, 1729, or 1917 for history of changes prior to Feb. 27, 1960.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite data-collection platform at station. Additional water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	111	e145	e114	e160	e330	3420	469	307	48	9.6	281
2	86	120	e150	e109	e160	e320	2450	560	294	39	7.5	204
3	83	123	e155	e107	e174	e320	2090	847	289	41	6.7	139
4	82	126	e160	e107	e197	e316	1530	1590	289	41	6.3	108
5	82	143	e175	e108	e217	e326	1240	3570	271	35	6.4	80
6	82	104	e192	e108	e268	e360	1080	1810	248	34	25	72
7	84	120	e204	e108	e311	e344	926	1300	241	39	24	65
8	89	123	e215	e110	e338	e368	813	1040	238	37	22	51
9	105	125	e220	e120	e368	e400	772	856	220	33	86	52
10	115	127	e229	e130	e396	e383	720	705	212	36	96	59
11	108	134	e245	e140	e409	e351	858	628	206	44	92	88
12	120	136	e252	e150	e438	e334	838	586	199	49	93	169
13	131	133	e257	e155	e478	e336	744	544	184	47	199	2060
14	120	135	e249	e160	e498	e336	687	528	186	37	330	1320
15	160	131	e252	e165	e507	e347	619	501	174	36	252	972
16	203	132	e230	e165	e532	e455	577	1060	166	33	173	666
17	192	131	e214	e160	e558	e494	537	1200	178	22	126	444
18	204	131	e208	e160	e675	e559	518	748	176	18	93	449
19	214	133	e200	e155	e706	e572	461	606	138	20	70	895
20	177	138	e183	e155	632	e650	449	544	130	18	72	546
21	161	156	e169	e160	581	e672	457	505	147	18	89	388
22	155	156	e164	e160	508	e666	449	482	135	19	70	279
23	144	141	e160	e160	467	e682	429	432	150	14	52	212
24	153	209	e155	e163	e425	e689	375	428	141	14	59	255
25	143	e190	e150	e167	e400	e682	340	390	171	16	63	268
26	139	e180	e154	e172	e380	e686	331	388	112	21	57	274
27	141	e170	e158	e176	e360	e660	350	369	93	24	61	257
28	135	e150	e154	e180	e340	e1200	423	345	87	23	52	221
29	135	e140	e148	e175	---	1940	411	334	70	23	48	193
30	129	e150	e130	e170	---	2930	401	321	56	16	48	157
31	123	---	e122	e165	---	2960	---	320	---	10	40	---
TOTAL	4081	4198	5799	4534	11483	21668	25295	24006	5508	905	2428.5	11224
MEAN	132	140	187	146	410	699	843	774	184	29.2	78.3	374
MAX	214	209	257	180	706	2960	3420	3570	307	49	330	2060
MIN	82	104	122	107	160	316	331	320	56	10	6.3	51
AC-FT	8090	8330	11500	8990	22780	42980	50170	47620	10930	1800	4820	22260

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY)

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
MEAN	195	167	92.5	81.7	334	1339	1059	1357	1313	505	312	200
MAX	1217	1445	449	592	3146	5856	4726	13630	5985	3553	1702	1074
(WY)	1999	1999	1999	1997	1997	1978	1952	1942	1967	1962	1997	1999
MIN	28.0	16.7	6.63	3.34	11.3	177	111	93.8	39.5	1.05	0.75	15.1
(WY)	1938	1977	1976	1991	1950	1934	1981	1934	1989	1936	1936	1937

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1929 - 2002	
ANNUAL TOTAL	307893		121129.5		580a	
ANNUAL MEAN	844		332		1729	
HIGHEST ANNUAL MEAN					151	
LOWEST ANNUAL MEAN					44000	
HIGHEST DAILY MEAN	12500	Apr 26	3570	May 5	Mar 30	1952
LOWEST DAILY MEAN	43	Sep 11	6.3	Aug 4	Aug 14	1971b
ANNUAL SEVEN-DAY MINIMUM	48	Sep 6	8.9	Jul 30	Aug 14	1971
MAXIMUM PEAK FLOW			4600	May 5	51900	Mar 30 1952c
MAXIMUM PEAK STAGE			10.58	May 5	24.70	Mar 4 1994d
ANNUAL RUNOFF (AC-FT')	610700		240300		420400	
10 PERCENT EXCEEDS	2190		684		1240	
50 PERCENT EXCEEDS	220		174		170	
90 PERCENT EXCEEDS	103		43		32	

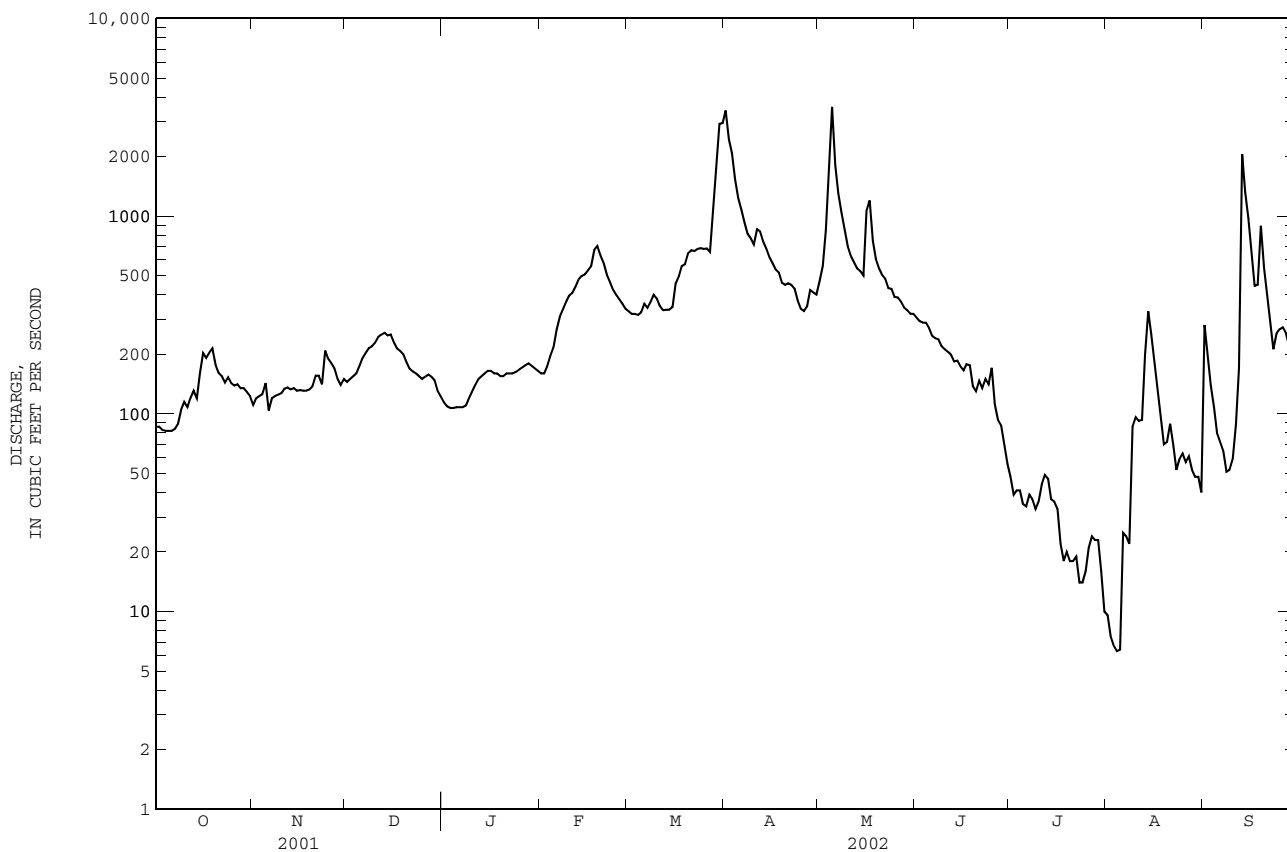
a Median of annual mean discharges, 500 ft³/s.

b No flow for some days in 1971, 1974, 1976, 1980, and 1989.

c Gage height, 15.40 ft, site and datum then in use.

d Ice jam.

e Estimated.



WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1945 to September 1953, October 1968 to September 1969, October 1971 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to September 1976, October 1977 to Sept. 30, 1981.

WATER TEMPERATURE: October 1974 to September 1976, October 1978 to September 1988.

SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976, October 1981 to current year.

REMARKS.--Sediment discharge records fair except those for estimated daily concentrations and/or discharges, which are poor.

Observer collects samples on a daily basis during open water periods. Flow affected by ice Nov. 25 to Feb. 19 and Feb. 24 to Mar. 28. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, U.S. Army Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,950 microsiemens, Aug. 8, 1980; minimum daily, 370 microsiemens, Mar. 17, 1975.

WATER TEMPERATURE: Maximum daily, 33.5°C, July 18, 1986; minimum daily, -1.0°C on many days during winter periods.

SEDIMENT CONCENTRATION: Maximum daily mean, 72,300 mg/L, Apr. 15, 1974; minimum daily mean, 11 mg/L, Aug. 5, 2002.

SEDIMENT LOAD: Maximum daily, 1,640,000 tons, May 17, 1982; 0 ton, July 17-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976, Aug. 11-23, Aug. 26 to Sept. 5, 1989.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 50,600 mg/L, Sept. 13; minimum daily mean, 11 mg/L, Aug. 5.

SEDIMENT LOAD: Maximum daily, 354,000 tons, May 5; minimum daily, 19 tons, Aug. 5.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	86	e623	145	111	e694	208	e145	e396	155
2	86	e628	146	120	e670	217	e150	e381	154
3	83	e633	141	123	e646	215	e155	e365	153
4	82	e619	138	126	e623	212	e160	e350	151
5	82	e591	132	143	e599	232	e175	e335	158
6	82	e585	129	104	e576	162	e192	320	166
7	84	e579	131	120	e552	179	e204	e313	173
8	89	e573	138	123	e528	176	e215	e308	179
9	105	e589	167	125	e505	170	e220	e302	179
10	115	e630	196	127	e481	165	e229	e296	183
11	108	e671	196	134	e457	166	e245	e290	192
12	120	e712	230	136	e434	159	e252	e285	194
13	131	e753	266	133	e410	147	e257	e279	193
14	120	e794	258	135	e386	141	e249	e273	184
15	160	e834	361	131	368	130	e252	e267	182
16	203	e875	479	132	e367	130	e230	e261	163
17	192	e916	475	131	e364	129	e214	e256	148
18	204	e957	528	131	e362	128	e208	e250	140
19	214	e992	574	133	e360	129	e200	e244	132
20	177	e977	468	138	e359	134	e183	e238	118
21	161	e954	413	156	e384	161	e169	e233	106
22	155	e930	389	156	e420	177	e164	e227	100
23	144	e906	353	141	e456	174	e160	e221	96.0
24	153	e883	365	209	e490	276	e155	e215	90.0
25	143	e859	333	e190	e488	250	e150	e210	85.0
26	139	e836	314	e180	e473	230	e154	e204	85.0
27	141	e812	310	e170	e457	210	e158	e198	84.0
28	135	e788	288	e150	e442	179	e154	e192	80.0
29	135	e765	279	e140	e427	161	e148	e186	75.0
30	129	e741	259	e150	e411	166	e130	e181	63.0
31	123	e717	239	---	---	---	e122	e175	58.0
TOTAL	4081	---	8840	4198	---	5313	5799	---	4219.0

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	e114	e169	52.0	e160	e98	43.0	e330	e251	224
2	e109	e163	48.0	e160	e99	43.0	e320	e242	209
3	e107	e158	46.0	e174	e99	47.0	e320	e233	201
4	e107	e152	44.0	e197	e100	53.0	e316	e224	191
5	e108	e146	43.0	e217	e109	64.0	e326	e215	189
6	e108	e140	41.0	e268	e127	92.0	e360	e206	200
7	e108	e134	39.0	e311	e146	122	e344	e197	183
8	e110	e129	38.0	e338	e164	150	e368	e188	187
9	e120	e123	40.0	e368	e183	182	e400	e179	193
10	e130	e117	41.0	e396	e201	215	e383	e170	176
11	e140	e111	42.0	e409	e220	243	e351	e161	153
12	e150	e106	43.0	e438	e239	282	e334	e152	137
13	e155	e100	42.0	e478	e257	332	e336	e143	130
14	e160	e94	41.0	e498	e276	371	e336	e134	122
15	e165	e88	39.0	e507	e294	403	e347	e143	134
16	e165	e82	37.0	e532	e313	449	e455	e257	315
17	e160	e77	33.0	e558	e331	499	e494	e389	518
18	e160	80	34.0	e675	e347	630	e559	e521	785
19	e155	e93	39.0	e706	e341	650	e572	e653	1010
20	e155	e93	39.0	632	e332	567	e650	e785	1380
21	e160	e93	40.0	581	e323	507	e672	e917	1660
22	e160	e94	41.0	508	e314	431	e666	e1050	1890
23	e160	e94	41.0	467	e305	384	e682	e1180	2170
24	e163	e95	42.0	e425	e296	340	e689	e1310	2440
25	e167	e95	43.0	e400	e287	310	e682	e1440	2660
26	e172	e96	44.0	e380	e278	285	e686	e1580	2920
27	e176	e96	46.0	e360	e269	262	e660	2490	4440
28	e180	e97	47.0	e340	e260	239	e1200	e5110	16500
29	e175	e97	46.0	---	---	---	1940	7090	36700
30	e170	e98	45.0	---	---	---	2930	9040	72600
31	e165	e98	44.0	---	---	---	2960	e11800	94800
TOTAL	4534	---	1300.0	11483	---	8195.0	21668	---	245417
APRIL			MAY			JUNE			
1	3420	13600	127000	469	e751	951	307	855	709
2	2450	11500	76200	560	985	1520	294	e822	652
3	2090	10700	60300	847	6380	15000	289	803	626
4	1530	8850	36700	1590	27200	123000	289	787	614
5	1240	5650	19000	3570	e36300	354000	271	684	501
6	1080	5070	14800	1810	25700	127000	248	633	424
7	926	e3570	8970	1300	17900	63400	241	562	365
8	813	2230	4920	1040	15200	42900	238	439	281
9	772	e2050	4280	856	13000	30200	220	e452	268
10	720	2070	4030	705	10800	20600	212	470	269
11	858	2340	5420	628	9150	15500	206	428	238
12	838	2320	5250	586	e7590	12000	199	382	205
13	744	2180	4390	544	5800	8520	184	347	172
14	687	e2050	3810	528	3570	5090	186	334	168
15	619	1820	3040	501	3780	5130	174	374	176
16	577	1380	2150	1060	8000	25000	166	218	98.0
17	537	1640	2380	1200	17700	56500	178	303	145
18	518	1310	1840	748	e17000	34500	176	301	144
19	461	1300	1620	606	e15200	25000	138	200	75.0
20	449	954	1160	544	13300	19600	130	192	68.0
21	457	e895	1100	505	10900	14900	147	215	85.0
22	449	846	1030	482	8420	11000	135	261	95.0
23	429	740	858	432	6010	7010	150	e230	93.0
24	375	773	783	428	1850	2140	141	192	73.0
25	340	618	568	390	1380	1450	171	168	78.0
26	331	655	586	388	e1350	1410	112	e160	48.0
27	350	1040	1040	369	e1320	1320	93	152	38.0
28	423	e1730	1980	345	1290	1200	87	135	32.0
29	411	1210	1350	334	1150	1030	70	123	23.0
30	401	797	861	321	817	708	56	e113	17.0
31	---	---	---	320	925	799	---	---	---
TOTAL	25295	---	397416	24006	---	1028378	5508	---	6780.0

WHITE RIVER BASIN

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	48	103	13.0	9.6	13	0.35	281	e31100	23800
2	39	98	10.0	7.5	e13	0.26	204	e29500	16300
3	41	73	8.1	6.7	e12	0.22	139	25900	9700
4	41	e67	7.4	6.3	e12	0.20	108	25100	7350
5	35	66	6.4	6.4	e11	0.19	80	21800	4700
6	34	e68	6.3	25	27	2.1	72	12900	2490
7	39	e70	7.3	24	e125	7.5	65	11700	2070
8	37	69	6.9	22	415	39.0	51	e11700	1620
9	33	59	5.2	86	e13500	3150	52	11100	1540
10	36	60	5.8	96	e13400	3470	59	7670	1200
11	44	73	8.7	92	e12200	3030	88	e7310	1730
12	49	75	9.8	93	e11000	2760	169	e8150	6800
13	47	56	7.2	199	e25200	17300	2060	50600	274000
14	37	e56	5.6	330	37600	33400	1320	48500	174000
15	36	61	6.0	252	e35500	24100	972	e39400	104000
16	33	65	5.9	173	e34900	16200	666	30900	56000
17	22	47	2.9	126	33800	11500	444	28100	33700
18	18	53	2.6	93	e30500	7630	449	25800	31200
19	20	56	3.1	70	25800	4880	895	25500	61700
20	18	70	3.4	72	16800	3220	546	24000	35400
21	18	e63	3.0	89	12500	3030	388	21500	22600
22	19	e53	2.7	70	5420	1050	279	e16100	12200
23	14	e43	1.6	52	4050	569	212	11200	6430
24	14	e33	1.2	59	2760	437	255	10600	7300
25	16	25	1.1	63	e2410	409	268	10500	8620
26	21	e21	1.2	57	2110	327	274	9820	7260
27	24	17	1.1	61	1420	230	257	9560	6630
28	23	e16	0.99	52	1330	186	221	9260	5520
29	23	e15	0.97	48	844	109	193	e7810	4080
30	16	e15	0.63	48	603	78.0	157	6180	2630
31	10	e14	0.38	40	996	156	---	---	---
TOTAL	905	---	146.47	2428.5	---	137270.82	11224	---	932570
YEAR	121129.5		2775845.29						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 2001								
04...	1300	82	805	13.0	14.0	615	115	100
NOV								
15...	1105	132	762	12.0	6.5	364	92.0	98
JAN 2002								
18...	1350	161	945	-1.0	0.0	83	36.0	98
MAR								
27...	1245	668	630	13.0	2.0	1840	3320	81
APR								
25...	1255	340	723	8.5	9.0	546	416	98
JUL								
02...	1245	42	920	27.0	28.0	102	14.0	97
25...	1140	17	1250	30.0	28.0	24	1.1	95
SEP								
13...	1200	1850	809	17.0	17.5	54900	274000	98

THIS PAGE IS INTENTIONALLY BLANK

LOCATION.--Lat 43°19'38", long 98°58'13", in NW¹/₄ NW¹/₄ NE¹/₄ sec.11, T.98 N., R.69 W., Charles Mix County, Hydrologic Unit 10140101, on right bank at upstream side of bridge on State Highway 1804, 0.5 mi above high-water line of Fort Randall Reservoir, and 8.0 mi southwest of Platte.

DRAINAGE AREA.--741 mi².

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,370 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Some storage in Lake Platte, capacity, 100 acre-ft, 13.6 mi upstream. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.22	e0.60	e2.0	e2.7	e2.1	e4.0	30	11	0.52	e0.09	0.00	0.00
2	0.25	e0.61	e2.1	e2.6	e2.4	e3.7	27	20	0.51	e0.08	0.00	0.00
3	0.25	0.62	e2.2	e2.5	e2.2	e3.5	16	15	0.54	e0.07	0.02	0.00
4	0.29	0.65	e2.3	e2.4	e2.3	e3.7	10	10	0.51	e0.06	0.02	0.00
5	0.27	0.72	e2.4	e2.3	e2.4	e4.0	8.8	9.5	0.50	e0.05	0.03	0.00
6	0.27	0.72	e2.5	e2.2	e2.6	e3.8	7.7	7.5	0.37	e0.04	0.01	0.00
7	0.28	0.74	e2.6	e2.1	e2.8	e3.6	6.4	7.5	0.34	e0.03	0.01	0.00
8	0.26	0.72	e2.7	2.0	e3.4	e3.4	6.4	7.4	16	e0.02	0.01	0.00
9	0.33	0.74	2.8	2.4	e3.2	e3.3	5.6	7.6	18	e0.01	0.02	0.00
10	0.38	0.80	2.9	2.8	e3.0	e3.2	4.6	6.6	9.0	e0.01	0.01	0.00
11	0.43	0.78	3.2	2.9	e3.2	e3.3	4.6	4.9	9.3	0.02	0.00	0.00
12	0.44	0.83	3.4	2.9	e3.0	e3.5	5.2	4.5	7.8	0.02	0.00	0.00
13	0.53	0.83	e3.5	3.0	e3.1	e4.0	4.6	4.8	5.9	0.01	0.00	0.00
14	0.50	0.85	e3.6	e3.1	e3.3	e3.5	4.3	4.2	4.6	0.01	0.00	0.00
15	0.45	0.85	3.8	e2.9	e3.5	e3.4	3.8	3.4	3.5	0.01	0.00	0.00
16	0.43	0.90	4.1	2.8	e3.7	e3.4	3.3	2.8	2.6	0.00	0.00	0.00
17	0.39	0.91	e3.8	2.4	e4.0	e3.7	3.2	3.4	1.8	0.00	0.00	0.00
18	0.44	0.89	3.6	2.2	e4.3	e3.8	4.1	2.9	1.5	0.00	0.00	0.00
19	0.48	0.82	e3.5	e2.1	e4.6	e4.0	3.4	2.4	1.2	0.00	0.00	0.00
20	0.43	0.77	e3.6	e2.1	e4.4	e4.5	3.4	1.8	0.97	0.00	0.02	0.00
21	0.53	0.83	e3.7	e2.0	e4.2	e4.3	3.7	1.5	0.79	0.01	0.03	0.00
22	0.59	0.90	3.7	e2.0	e5.0	e4.0	4.3	1.3	0.68	0.01	0.03	0.00
23	0.51	1.1	e3.6	2.0	e5.5	e4.0	4.1	1.1	0.62	0.00	0.00	0.00
24	0.55	1.6	e3.5	e2.0	e7.0	e3.9	3.7	0.87	0.56	0.00	0.00	0.00
25	0.54	1.7	e3.4	e2.0	e6.5	e3.7	3.9	0.96	0.41	0.00	0.00	0.00
26	0.51	1.7	e3.3	2.0	e5.5	e4.0	2.9	0.89	0.32	0.00	0.00	0.00
27	0.52	1.7	3.3	e1.8	e5.0	e6.0	3.7	0.93	e0.20	0.00	0.00	0.00
28	0.53	1.7	3.2	e1.7	e4.5	e13	14	0.83	e0.15	0.01	0.00	0.00
29	0.55	1.9	3.0	e1.8	---	23	12	0.74	e0.12	0.02	0.00	0.00
30	0.57	1.9	2.9	e2.0	---	37	10	0.64	e0.10	0.01	0.00	0.00
31	0.59	---	e2.8	e1.9	---	38	---	0.57	---	0.00	0.00	---
TOTAL	13.31	30.38	97.0	71.6	106.7	214.2	224.7	147.53	89.41	0.59	0.21	0.00
MEAN	0.43	1.01	3.13	2.31	3.81	6.91	7.49	4.76	2.98	0.019	0.007	0.000
MAX	0.59	1.9	4.1	3.1	7.0	38	30	20	18	0.09	0.03	0.00
MIN	0.22	0.60	2.0	1.7	2.1	3.2	2.9	0.57	0.10	0.00	0.00	0.00
AC-FT	26	60	192	142	212	425	446	293	177	1.2	0.4	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2002, BY WATER YEAR (WY)

	MEAN	10.0	11.8	5.23	2.36	25.8	44.1	82.8	161	65.5	63.7	14.1	7.50
MAX	82.1	89.2	30.4	6.99	223	290	386	796	268	449	103	34.1	
(WY)	1996	1999	1999	1997	1997	1997	2001	1995	1995	1999	1998	1995	
MIN	0.000	0.002	0.003	0.009	0.021	0.39	0.26	0.014	0.011	0.019	0.000	0.000	
(WY)	1990	1991	1990	1992	1993	1992	1990	1992	1992	2002	1991	1989	

06452320 PLATTE CREEK NEAR PLATTE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1989 - 2002	
ANNUAL TOTAL	27332.14		995.63		41.3a	
ANNUAL MEAN	74.9		2.73		159	
HIGHEST ANNUAL MEAN					0.35	
LOWEST ANNUAL MEAN					2370	
HIGHEST DAILY MEAN	1260	Apr 24	38	Mar 31	May 11	1995
LOWEST DAILY MEAN	0.07	Sep 6	0.00	Jul 16	0.00	Jul 9 1989b
ANNUAL SEVEN-DAY MINIMUM	0.09	Sep 6	0.00	Aug 11	0.00	Aug 21 1989
MAXIMUM PEAK FLOW			44	Mar 30	2600	May 11 1995c
MAXIMUM PEAK STAGE			2.72	Mar 30	12.67	May 8 1997d
ANNUAL RUNOFF (AC-FT')	54210		1970		29930	
10 PERCENT EXCEEDS	246		5.5		90	
50 PERCENT EXCEEDS	1.7		1.7		2.7	
90 PERCENT EXCEEDS	0.47		0.00		0.00	

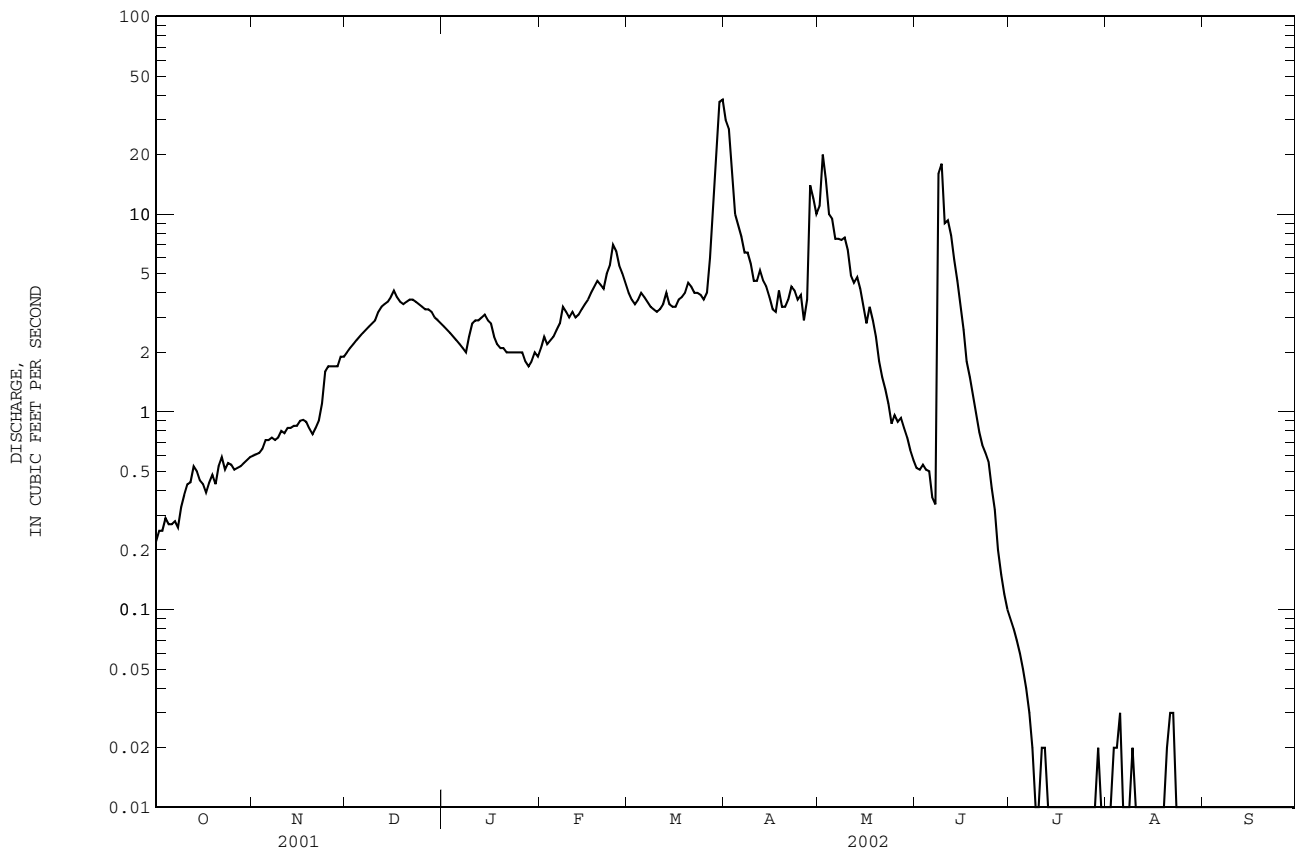
a Median of annual mean discharges, 17 ft³/s.

b No flow at times in most years.

c From rating curve extended above 975 ft³/s, gage height, 11.29 ft.

d Backwater from Lake Francis Case.

e Estimated.



MISSOURI-FORT RANDALL RIVER BASIN
06452380 ANDES CREEK NEAR ARMOUR, SD

LOCATION.--Lat 43°15'23", long 98°24'08", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.3, T.97 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, at bridge 2.8 mi west of U.S. Highway 281 and 4.0 mi south of Armour.

PERIOD OF RECORD.--April 1983 to current year.

REMARKS.--Generally, samples are collected when discharge exceeds about 2 ft³/s at time of site visit.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	
APR 2002 08...	1345	2.7	1770	8.0	10.0	8.5	725	11.8	107	750	550	209	201	
Date		CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00932)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SiO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	
APR 2002 08...	178	75.1	95.1	21	2	24.2	252	0	753	26.1	.2	17.7	1300	
Date		SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED PER (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SEDI-MENT, SUS-PENDEED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR 2002 08...	1440	10.6	1.42	3.7	.132	1.42	1.29	.38	.21	3	4	8.0	90	

06452383 LAKE ANDES TRIBUTARY NO. 3 NEAR ARMOUR, SD

LOCATION.--Lat 43°15'23", long 98°25'58", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.5, T.97 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, at bridge 4.3 mi west of U.S. Highway 281 and 4.0 mi south of Armour.

PERIOD OF RECORD.--February 1986 to current year.

REMARKS.--Generally, samples are collected when discharge exceeds about 2 ft³/s at time of site visit.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE AIR (DEG C) (00020)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00301)	HARDNESS TOTAL (MG/L AS CACO3) (00900)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	ALKALINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	
APR 2002 08...	1450	.06	4170	8.3	13.0	15.6	724	14.2	152	2400	2100	326	338	
Date		CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORPTION RATIO (00932)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	CARBONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SiO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) (70301)	
APR 2002 08...	430	318	234	17	2	22.1	368	13	2360	80.2	.3	8.6	3690	
Date		SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED PER (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	ORTHO-PHOSPHATE, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	SELENIUM, DIS-SOLVED (UG/L AS SE) (01145)	SEDIMENT, SUSPENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR 2002 08...	4190	.68	.18	1.7	.137	9.08	8.95	.20	.09	5	224	81	27	

06452386 LAKE ANDES TRIBUTARY NO. 2 NEAR LAKE ANDES, SD

LOCATION.--Lat 43°12'43", long 98°26'45", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.18, T.97 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, at culvert 3.0 mi north and 4.6 mi east of town of Lake Andes.

PERIOD OF RECORD.--October 1984 to current year.

REMARKS.--Generally, samples are collected when discharge exceeds about 2 ft³/s at time of site visit.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT) (00301)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	
APR 2002 08...	1600	.10	3460	8.3	17.0	15.4	726	16.7	178	1500	1100	337	336	
Date		CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00932)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SiO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	
APR 2002 08...	306	174	244	26	3	21.8	366	20	1480	217	.4	12.7	2660	
Date		SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED PER (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SEDI-MENT, SUS-PENDEED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR 2002 08...	2950	.80	.35	2.8	.138	1.24	1.10	.76	.31	8	22	31	78	

06452389 LAKE ANDES TRIBUTARY NO. 1 NEAR LAKE ANDES, SD

LOCATION.--Lat 43°11'25", long 98°27'57", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.25, T.97 N., R.65 W., Charles Mix County, Hydrologic Unit 10140101, at culvert 1.0 mi north and 3.0 mi east of town of Lake Andes.

PERIOD OF RECORD.--October 1984 to current year.

REMARKS.--Generally, samples are collected when discharge exceeds about 2 ft³/s at time of site visit. No water-quality samples were collected this year; discharge at times of site visit was much less than 2 ft³/s.

MISSOURI-FORT RANDALL RIVER BASIN
 06452390 LAKE ANDES ABOVE RAVINIA, SD

LOCATION.--Lat 43°13'15", long 98°24'55", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.16, T.97 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, about 1.5 mi south of mouth of Andes Creek and about 5.5 mi north of Ravinia.

PERIOD OF RECORD.--February 1990 to current year.

REMARKS.--On Apr. 9 and June 11, 2002, inorganic blank water was processed at the field site through the sampling equipment used for this study and then processed and analyzed for quality-control purposes. The analytical results for these two field blanks are presented in a table following the water-quality and bottom-sediment quality results. On Aug. 27, 2002, a field duplicate sample was collected at this site for quality-control purposes. The analytical results for the field duplicate sample are noted in the water-quality results. Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DEPTH TO BOT. FROM SURFACE AT SAMP LOC. METERS (82903)	GAGE HEIGHT (FEET) (00065)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TRANS- PAR- ENCY (SECCHI DISK) (IN) (00077)	BARO- METRIC SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)
APR 2002													
09...	0915	2.13	-4.10	1820	8.5	4.0	8.7	13.8	731	7.0	63	810	640
JUN													
11...	1330	1.83	-4.45	2110	8.4	26.5	23.4	17.4	723	7.4	92	870	680
JUL													
08...	1430	1.80	-5.08	2240	8.4	27.5	27.1	9.60	730	10.1	134	940	760
AUG													
27...	1330	1.74	-5.60	2290	9.0	28.0	23.4	10.8	729	10.7	133	970	780
a27...	1332	1.74	-5.60	2290	9.0	28.0	--	10.8	729	10.7	--	980	--
Date		ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00932)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
APR 2002													
09...	172	178	170	93.2	108	22	2	33.2	191	8	842	47.6	.2
JUN													
11...	193	198	187	98.4	118	22	2	40.6	227	4	949	55.5	.3
JUL													
08...	178	175	190	112	143	24	2	50.0	207	5	1030	62.6	.4
AUG													
27...	190	189	199	115	156	25	2	45.9	174	28	1060	65.7	.4
a27...	--	189	200	116	161	25	2	46.5	--	--	1050	65.2	.4
Date		SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	
APR 2002													
09...	10.6	1410	1550	<.04	2.7	<.008	<.05	.21	<.02	2	<2		
JUN													
11...	10.1	1570	1760	<.04	2.8	<.008	<.05	.25	E.02	4	<4		
JUL													
08...	25.8	1720	1890	<.04	4.0	<.008	<.05	.59	.22	11	<2		
AUG													
27...	29.3	1780	1980	<.04	3.7	<.008	<.05	.70	.42	18	E1		
a27...	29.3	1780	1980	<.04	3.8	<.008	<.05	.72	.42	16	<2		

a Field duplicate duplicate sample collected for quality-control purposes.
 E Estimated value.

06452390 LAKE ANDES ABOVE RAVINIA, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DEPTH TO BOT. FROM SURFACE AT SAMP LOC.	GAGE HEIGHT (FEET) (82903)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TRANS- PAR- ENCY (SECCHI DISK) (IN) (00077)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)
APR 2002 09...	0915	2.13	-4.10	1820	8.5	4.0	8.7	13.8	731	7.0	63	810	640
JUN 11...	1330	1.83	-4.45	2110	8.4	26.5	23.4	17.4	723	7.4	92	870	680
Date	ALKA- LINIT WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ACIFL- UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALA- CHLOR, WATER, DISS, REC (UG/L) (46342)	ALDI- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALDI- CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA- RB SUL- FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	2,6-DI- ETHYL ANILINE WAT,FLT 0.7 U GF, REC (UG/L) (82660)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)
APR 2002 09...	172	178	<.006	<.05	<.004	<.21	<.20	<.27	<.006	.028	E.005	<.050	<.010
JUN 11...	193	198	<.006	<.05	<.004	<.21	<.20	<.27	<.006	.071	E.012	<.050	<.010
Date	BENTA- ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	BRO- MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	3HYDRXY CARBO- FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	CHLORO- THALO- NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLOR- PYRIFOS DIS- SOLVED REC (UG/L) (38933)	CLOPYR- ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)
APR 2002 09...	<.05	<.005	<.09	<.07	<.002	<.080	<.041	<.15	<.020	<.11	<.25	<.005	<.42
JUN 11...	<.05	<.005	<.09	<.07	<.002	<.080	<.041	<.22	<.020	<.11	<.25	<.005	<.42
Date	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	2,4-D, DIS- SOLVED (UG/L) (39732)	DACTHAL MONO- ACID, WAT,FLT GF 0.7U REC (UG/L) (49304)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P,P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLO- BENIL, WATER, FLTRD, GF 0.7U REC (UG/L) (49303)	DICHLOR PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)
APR 2002 09...	<.018	<.17	<.07	<.25	<.003	<.003	<.005	<.11	<.09	<.12	<.005	<.09	<.02
JUN 11...	<.018	<.16	<.07	<.25	<.003	<.003	<.005	<.37	<.09	<.12	<.005	<.09	<.02
Date	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	DNOC WAT,FLT GF 0.7U REC (UG/L) (49299)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FEN- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUO- METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LINURON WATER, FLTRD, GF 0.7U REC (UG/L) (38478)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)
APR 2002 09...	<.12	<.25	<.002	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035	<.027	<.20
JUN 11...	<.12	<.25	.013	<.009	<.005	<.32	<.06	<.003	<.004	<.06	<.035	<.027	<.20

E Estimated value.

06452390 LAKE ANDES ABOVE RAVINIA, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	METHIO- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH- OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U REC (UG/L) (82671)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U REC (UG/L) (82667)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEB- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ORY- ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)
APR 2002 09...	<.26	<.07	<.47	E.010	<.006	<.002	<.010	<.006	<.007	<.07	<.04	<.28	<.16
JUN 11...	<.26	<.07	<.22	E.010	<.006	<.002	<.010	<.006	<.007	<.07	<.04	<.28	<.16
Date	PEB- ULATE WATER FLTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PIC- LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PRO- PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PRO- POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SILVEX, DIS- SOLVED (UG/L) (39762)
APR 2002 09...	<.004	<.022	<.006	<.011	<.09	<.01	<.004	<.010	<.011	<.02	<.22	<3.03	<.03
JUN 11...	<.004	<.022	<.006	<.011	<.09	<.01	<.004	<.010	<.011	<.02	<.27	<.34	<.03
Date	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (39742)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- CLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)				
APR 2002 09...	<.005	<.07	<.02	<.034	<.02	<.005	<.002	<.07	<.009				
JUN 11...	<.005	<.07	<.02	<.034	<.02	<.005	<.002	<.07	<.009				
Date	Time	CALCIUM SED. BEDMAT PERCENT (30239)	MAGNES- IUM SEDI- MENT BEDMAT PERCENT (30276)	SODIUM SEDI- MENT BEDMAT PERCENT (30303)	POTAS- SIUM SEDI- MENT BEDMAT PERCENT (30293)	PHOS- PHORUS SEDI- MENT BEDMAT PERCENT (30291)	ALUM- INUM SED. BEDMAT PERCENT (30220)	ARSENIC SED BED WET NAT <2 MM TOTAL (UG/G) (04044)	BARIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04045)	BERYL- LIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04046)	BISMUTH SED BED WET NAT <2 MM TOTAL (UG/G) (04047)	CADIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD) (01028)	CERIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04051)
AUG 2002 27...	1330	47	11	5.6	19	1.3	61000	12	620	2	<10	<2.0	67
Date	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G) (01029)	COBALT SED BED WET NAT <2 MM TOTAL (UG/G) (04053)	COPPER SED BED WET NAT <2 MM TOTAL (UG/G) (04054)	EURO- PIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04055)	GAL- LIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04056)	GOLD SED BED WET NAT <2 MM TOTAL (UG/G) (04058)	HOLMIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04059)	LANTHA- NUM BOT MAT <180UWS FIELD (UG/G) (34886)	IRON SEDI- MENT BEDMAT PERCENT (30268)	LEAD SEDI- MENT BEDMAT (UG/G) (30272)	LITHIUM SEDI- MENT BEDMAT (UG/G) (30274)	MAN- GANESE SEDI- MENT BEDMAT (UG/G) (30278)	MOLYB- DENUM SEDI- MENT BEDMAT (UG/G) (30283)
AUG 2002 27...	55	13	29	<2	12	<8	<4	40	32000	23	30	1700	3

E Estimated value.

06452390 LAKE ANDES ABOVE RAVINIA, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	NEO-DYMIUM SEDI-MENT BEDMAT (UG/G) (30285)	NICKEL SEDI-MENT BEDMAT (UG/G) (30287)	NIOBIUM SEDI-MENT BEDMAT (UG/G) (30289)	SCAN-DIUM SEDI-MENT BEDMAT (UG/G) (30297)	SELEN-IUM SEDI-MENT BEDMAT (UG/G) (30299)	SILVER SEDI-MENT BEDMAT (UG/G) (30301)	STRON-TIUM SEDI-MENT BEDMAT (UG/G) (30305)	TAN-TALUM SEDI-MENT BEDMAT (UG/G) (30309)	THORIUM SEDI-MENT BEDMAT (UG/G) (30312)	TIN SEDI-MENT BEDMAT (UG/G) (30314)	TITA-NIUM SEDI-MENT BEDMAT PERCENT (30316)	URANIUM SEDI-MENT BEDMAT (UG/G) (30320)	VANA-DIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01088)
AUG 2002 27...	30	44	10	10	5.3	<2	300	<40	11	<5	2400	<100	140
Date	YTTER-BIUM SEDI-MENT BEDMAT (UG/G) (30325)	YTTRIUM SEDI-MENT BEDMAT (UG/G) (30327)	ZINC SEDI-MENT BEDMAT (UG/G) (30329)										
AUG 2002 27...	3	26	130										
Date	Time	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) (90095)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
APR 2002 b09...	0916	3	2	E.01	<.008	<.09	E.06	<.1	<.30	E.1	<.2	<10	<.04
JUN b11...	1331	6	2	E.01	<.008	<.09	<.10	<.1	<.30	<.1	<.2	<10	<.04
Date	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)						
APR 2002 b09...	<.10	<.008	<.05	<.06	<.02	<2	<2						
JUN b11...	E.05	<.008	<.05	<.06	<.02	<2	<2						

b Field blank sample collected for quality-control purposes.

E Estimated value.

MISSOURI-FORT RANDALL RIVER BASIN
06452391 LAKE ANDES NEAR RAVINIA, SD

LOCATION.--Lat 43°11'05", long 98°26'10", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.29, T.97 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, about 1.25 mi northeast of the Lake Andes National Wildlife Refuge office and about 3 mi north of Ravinia.

PERIOD OF RECORD.--February 1990 to current year.

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DEPTH TO BOT. FROM SURFACE AT SAMP LOC. METERS (82903)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TRANS- PAR- ENCY (SECCHI DISK) (IN) (00077)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT OF SATUR- ATION) (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT OF SATUR- ATION) (MG/L) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (MG/L) (39086)
APR 2002													
09...	1345	2.96	1930	8.4	17.0	8.3	18.0	731	7.3	65	810	630	187
JUN													
11...	1635	2.81	2140	8.4	26.5	24.3	21.8	722	8.7	111	860	690	176
JUL													
08...	1700	2.59	2290	8.5	31.0	27.7	10.8	730	11.1	149	950	770	188
AUG													
27...	1700	2.81	2390	8.0	29.0	24.4	10.3	729	8.5	107	990	900	95
Date		ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (MG/L AS K) (00932)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)
APR 2002													
09...	184	168	95.5	115	22	2	42.8	217	5	880	60.8	.3	15.2
JUN													
11...	180	183	98.5	121	22	2	47.9	205	4	954	69.2	.4	9.5
JUL													
08...	188	199	111	143	23	2	54.8	216	6	1030	69.5	.5	24.2
AUG													
27...	193	201	118	153	24	2	53.9	109	3	1080	79.6	.5	33.0
Date		SOLIDS, SUM OF CONSTIT- UENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	
APR 2002													
09...	1490	1650	.28	2.5	.008	.21	.20	.10	<.02	2	<2		
JUN													
11...	1590	1770	<.04	2.5	<.008	<.05	--	.15	<.02	3	E1		
JUL													
08...	1740	1940	<.04	4.0	<.008	<.05	--	.32	.08	8	<2		
AUG													
27...	1770	2050	<.04	4.2	<.008	<.05	--	.60	.32	13	<2		
Date	Time	DEPTH TO BOT. FROM SURFACE AT SAMP LOC. METERS (82903)	GAGE HEIGHT (FEET) (00065)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TRANS- PAR- ENCY (SECCHI DISK) (IN) (00077)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT OF SATUR- ATION) (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT OF SATUR- ATION) (MG/L) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)
APR 2002													
09...	1345	2.96	-4.10	1930	8.4	17.0	8.3	18.0	731	7.3	65	810	630
JUN													
11...	1635	2.81	-4.45	2140	8.4	26.5	24.3	21.8	722	8.7	111	860	690

E Estimated value.

06452391 LAKE ANDES NEAR RAVINIA, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	ALKA- LINIT WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L) AS CACO3 (90410)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ACIFL- UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALA- CHLOR, WATER, FLTRD, DISS, REC, (UG/L) (46342)	ALDI- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALDI- CARB SULFONE WAT,FLT REC (UG/L) (49313)	ALDICA- RB SUL- FOXIDE, WAT,FLT REC (UG/L) (49314)	2,6-DI- ETHYL ANILINE WAT FLT GF, REC (UG/L) (82660)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (04040)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)
APR 2002													
09...	187	184	<.006	<.05	<.004	<.21	<.20	<.27	<.006	.024	E.004	<.050	<.010
JUN													
11...	176	180	<.006	<.05	<.004	<.21	<.20	<.27	<.006	.083	E.015	<.050	<.010
Date	BENTA- ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	BRO- MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	3HYDRXY CARBO- FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	CHLORO- THALO- NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CLOPYR- ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)
APR 2002													
09...	<.05	<.005	<.09	<.07	<.002	<.080	<.041	<.15	<.020	<.12	<.25	<.005	<.42
JUN													
11...	<.05	<.005	<.09	<.07	<.002	<.080	<.041	<.58	<.020	<.11	<.25	<.005	<.42
Date	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	2,4-D, DIS- SOLVED (UG/L) (39732)	DACTHAL MONO- ACID, WAT,FLT GF 0.7U REC (UG/L) (49304)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P, P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLO- BENIL, WATER, FLTRD, GF 0.7U REC (UG/L) (49303)	DICHLOR PROP- WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)
APR 2002													
09...	<.018	<.16	<.07	<.25	<.003	<.003	<.005	<.11	<.09	<.12	<.005	<.19	<.02
JUN													
11...	<.018	<.16	<.07	<.25	<.003	<.003	<.005	<.37	<.09	<.12	<.005	<.09	<.02
Date	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	DNOC WAT,FLT GF 0.7U REC (UG/L) (49299)	EPTC WATER FLTRD, GF 0.7U REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FEN- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUO- METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LINURON WATER, FLTRD, GF 0.7U REC (UG/L) (38478)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)
APR 2002													
09...	<.12	<.25	<.002	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035	<.027	<.20
JUN													
11...	E.04	<.25	<.002	<.009	<.005	<.18	<.06	<.003	<.004	<.06	<.035	<.027	<.20
Date	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	METHIO- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH- OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEB- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ORY- ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)
APR 2002													
09...	<.26	<.07	<.47	<.013	<.006	<.002	<.010	<.006	<.007	<.07	<.04	<.28	<.16
JUN													
11...	<.26	<.07	<.22	E.012	<.006	<.002	<.010	<.006	<.007	<.18	<.04	<.28	<.16

E Estimated value.

MISSOURI-FORT RANDALL RIVER BASIN

06452391 LAKE ANDES NEAR RAVINIA, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	PEB- ULATE WATER FLTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PIC- LORAM, WATER, FLTRD GF 0.7U REC (UG/L) (49291)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PRO- PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PRO- POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SILVEX, DIS- SOLVED (UG/L) (39762)	
APR 2002 09...	<.004	<.022	<.006	<.011	<.09	E.01	<.004	<.010	<.011	<.02	<.22	<2.60	<.03	
JUN 11...	<.004	<.022	<.006	<.011	<.09	<.01	<.004	<.010	<.011	<.02	<.29	<.12	<.03	
Date	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	2, 4, 5-T DIS- SOLVED (UG/L) (39742)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- CLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)					
APR 2002 09...	<.005	<.07	<.02	<.034	<.02	<.005	<.002	<.07	<.009					
JUN 11...	<.005	<.07	<.02	<.034	<.02	<.005	<.002	<.07	<.009					
Date	Time	CALCIUM SED. BEDMAT PERCENT (30239)	MAGNES- IUM SEDI- MENT BEDMAT PERCENT (30276)	SODIUM SEDI- MENT BEDMAT PERCENT (30303)	POTAS- SIUM SEDI- MENT BEDMAT PERCENT (30293)	PHOS- PHORUS SEDI- MENT BEDMAT PERCENT (30291)	ALUM- INUM SED. BEDMAT PERCENT (30220)	ARSENIC SED BED WET NAT <2 MM TOTAL (UG/G) (04044)	BARIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04045)	BERYL- LIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04046)	BISMUTH SED BED WET NAT <2 MM TOTAL (UG/G) (04047)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G) AS CD (01028)	CERIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04051)	
AUG 2002 27...	1700	66	11	5.5	18	1.5	54000	10	610	1	<10	2.0	61	
Date		CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G) (01029)	COBALT SED BED WET NAT <2 MM TOTAL (UG/G) (04053)	COPPER SED BED WET NAT <2 MM TOTAL (UG/G) (04054)	EURO- PIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04055)	GAL- LIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04056)	GOLD SED BED WET NAT <2 MM TOTAL (UG/G) (04058)	HOLMIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04059)	LANTHA- NUM BOT MAT <180UWS FIELD (UG/G) (34886)	IRON SEDI- MENT BEDMAT PERCENT (30268)	LEAD SEDI- MENT BEDMAT (UG/G) (30272)	LITHIUM SEDI- MENT BEDMAT (UG/G) (30274)	MAN- GANESE SEDI- MENT BEDMAT (UG/G) (30278)	MOLYB- DENUM SEDI- MENT BEDMAT (UG/G) (30283)
AUG 2002 27...	49	13	28	<2	11	<8	<4	36	28000	23	29	2700	5	
Date		NEO- DYMIUM SEDI- MENT BEDMAT (UG/G) (30285)	NICKEL SEDI- MENT BEDMAT (UG/G) (30287)	NIOBIUM SEDI- MENT BEDMAT (UG/G) (30289)	SCAN- DIUM SEDI- MENT BEDMAT (UG/G) (30297)	SELEN- IUM SEDI- MENT BEDMAT (UG/G) (30299)	SILVER SEDI- MENT BEDMAT (UG/G) (30301)	STRON- TIUM SEDI- MENT BEDMAT (UG/G) (30305)	TAN- TALUM SEDI- MENT BEDMAT (UG/G) (30309)	THORIUM SEDI- MENT BEDMAT (UG/G) (30312)	TIN SEDI- MENT BEDMAT (UG/G) (30314)	TITA- NIUM SEDI- MENT BEDMAT PERCENT (30316)	URANIUM SEDI- MENT BEDMAT (UG/G) (30320)	VANA- DIUM, TOTAL IN BOT- TOM MA- TERIAL (UG/G) (01088)
AUG 2002 27...	25	47	4	8	3.3	<2	490	<40	11	<5	2100	<100	130	
Date		YTTER- BIUM SEDI- MENT BEDMAT (UG/G) (30325)	YTTRIUM SEDI- MENT BEDMAT (UG/G) (30327)	ZINC SEDI- MENT BEDMAT (UG/G) (30329)										
AUG 2002 27...	2	23	130											

E Estimated value.

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

[illegible]

MISSOURI-FORT RANDALL RIVER BASIN

06452403 OWENS BAY NEAR RAVINIA, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	ALKA- LINIT WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L) AS CACO3 (90410)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ACIFL- UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALA- CHLOR, WATER, FLTRD, DISS, REC, (UG/L) (46342)	ALDI- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALDI- CARB SULFONE WAT,FLT REC (UG/L) (49313)	ALDICA- RB SUL- FOXIDE, WAT,FLT REC (UG/L) (49314)	2,6-DI- ETHYL ANILINE WAT FLT GF, REC (UG/L) (82660)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (04040)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)
APR 2002													
09...	154	158	<.006	<.05	<.004	<.21	<.20	<.27	<.006	.011	E.002	<.050	<.010
JUN													
11...	64	69	.024	<.05	<.004	<.21	<.20	<.27	<.006	.100	E.019	<.050	<.010
Date	BENTA- ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	BRO- MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	3HYDRXY CARBO- FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	CHLORO- THALO- NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CLOPYR- ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)
APR 2002													
09...	<.05	<.005	<.09	<.07	<.002	<.080	<.041	<.15	<.020	<.11	<.25	<.005	<.42
JUN													
11...	<.05	<.005	<.09	<.07	<.002	<.080	<.041	<.15	<.020	<.11	<.25	<.005	<.42
Date	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	2,4-D, DIS- SOLVED (UG/L) (39732)	DACTHAL MONO- ACID, WAT,FLT GF 0.7U REC (UG/L) (49304)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P, P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLO- BENIL, WATER, FLTRD, GF 0.7U REC (UG/L) (49303)	DICHLOR PROP- WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)
APR 2002													
09...	<.018	<.21	<.07	<.25	<.003	<.003	<.005	<.11	<.09	<.12	<.005	<.14	<.02
JUN													
11...	<.018	<.16	<.07	<.25	<.003	<.003	<.005	<.39	<.09	<.12	<.005	<.09	<.02
Date	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	DNOC WAT,FLT GF 0.7U REC (UG/L) (49299)	EPTC WATER FLTRD, GF 0.7U REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT,FLT GF 0.7U REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FEN- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUO- METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LINURON WATER, FLTRD, GF 0.7U REC (UG/L) (38478)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)
APR 2002													
09...	<.12	<.25	<.002	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035	<.027	<.20
JUN													
11...	<.12	<.25	<.002	<.009	<.005	<.07	<.18	<.003	<.004	<.06	<.035	<.027	<.20
Date	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	METHIO- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH- OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEB- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ORY- ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)
APR 2002													
09...	<.26	<.07	<.47	E.005	<.006	<.002	<.010	<.006	<.007	<.07	<.04	<.28	<.16
JUN													
11...	<.26	<.07	<.22	E.011	<.006	<.002	<.010	<.006	<.007	<.07	<.04	<.28	<.16

E Estimated value.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[illegible]

LOCATION.--Lat 43°09'40", long 98°29'10", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.1, T.96 N., R.65 W., Charles Mix County, Hydrologic Unit 10140101, about 1.9 mi west southwest of the Lake Andes National Wildlife Refuge office and about 2.5 mi east of Lake Andes.

PERIOD OF RECORD.--February 1990 to current year.

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DEPTH TO BOT. FROM SURFACE AT SAMP LOC. METERS (82903)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TRANS- PAR- ENCY (SECCHI DISK) (IN) (00077)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT OF SATUR- ATION) (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT OF SATUR- ATION) (MG/L) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (MG/L) (39086)
APR 2002													
09...	1515	2.90	1940	9.2	19.0	9.4	18.0	729	7.2	66	770	680	92
JUN													
11...	1800	2.75	2160	8.5	27.0	24.3	12.6	720	9.7	124	850	740	106
JUL													
08...	1815	2.62	2340	8.6	31.0	27.5	9.60	729	10.8	144	910	780	122
AUG													
27...	1745	2.56	2500	8.4	28.0	25.3	7.68	729	7.4	95	980	890	95
Date		ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (MG/L AS K) (00932)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00931)	BICAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)
APR 2002													
09...	95	140	103	133	26	2	37.6	75	18	939	79.2	.3	<.2
JUN													
11...	111	159	110	144	26	2	48.5	123	3	981	84.9	.4	4.5
JUL													
08...	134	172	116	151	25	2	55.7	138	5	1070	92.8	.5	15.5
AUG													
27...	89	180	129	172	26	2	61.2	109	3	1180	97.5	.5	21.9
Date		SOLIDS, SUM OF CONSTIT- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)		
APR 2002													
09...	1490	1630	E.04	3.6	<.008	E.03	.25	<.02	6	<2			
JUN													
11...	1600	1780	<.04	3.5	<.008	<.05	.29	.05	6	<4			
JUL													
08...	1750	1960	<.04	4.9	<.008	<.05	.48	.16	11	<2			
AUG													
27...	1900	2130	<.04	6.7	<.008	<.05	.48	<.02	12	<2			
Date	Time	DEPTH TO BOT. FROM SURFACE AT SAMP LOC. METERS (82903)	GAGE HEIGHT (FEET) (00065)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TRANS- PAR- ENCY (SECCHI DISK) (IN) (00077)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT OF SATUR- ATION) (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT OF SATUR- ATION) (MG/L) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)
APR 2002													
09...	1515	2.90	-4.10	1940	9.2	19.0	9.4	18.0	729	7.2	66	770	680
JUN													
11...	1800	2.75	-4.45	2160	8.5	27.0	24.3	12.6	720	9.7	124	850	740

E Estimated value.

06452406 LAKE ANDES ABOVE LAKE ANDES, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	ALKA- LINIT WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L) AS CACO3 (90410)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ACIFL- UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALA- CHLOR, WATER, FLTRD, DISS, REC, (UG/L) (46342)	ALDI- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALDI- CARB SULFONE WAT,FLT REC (UG/L) (49313)	ALDICA- RB SUL- FOXIDE, WAT,FLT REC (UG/L) (49314)	2,6-DI- ETHYL ANILINE WAT FLT GF, REC (UG/L) (82660)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (04040)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)
APR 2002													
09...	92	95	.007	<.05	<.004	<.25	<.78	<.27	<.006	.068	E.008	<.050	<.010
JUN													
11...	106	111	.021	<.05	<.004	<.21	<.96	<.43	<.006	.100	E.020	<.050	<.010
Date	BENTA- ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	BRO- MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	3HYDRXY CARBO- FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	CHLORO- THALO- NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CLOPYR- ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)
APR 2002													
09...	<.24	<.005	<.14	<.07	<.002	<.080	<.041	<.15	<.020	<.33	<.25	<.005	<.42
JUN													
11...	<.05	<.005	<.09	<.07	<.002	<.080	<.041	<.15	<.020	<.17	<.25	<.005	<.42
Date	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	2,4-D, DIS- SOLVED (UG/L) (39732)	DACTHAL MONO- ACID, WAT,FLT GF 0.7U REC (UG/L) (49304)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P, P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLO- BENIL, WATER, FLTRD, GF 0.7U REC (UG/L) (49303)	DICHLOR PROP- WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)
APR 2002													
09...	<.018	<.23	<.07	<.25	<.003	<.003	<.005	<.11	<.09	<.12	<.005	<.25	<.02
JUN													
11...	<.018	<.16	<.07	<.25	<.003	<.003	<.005	<.35	<.09	<.12	<.005	<.09	<.02
Date	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	DNOC WAT,FLT GF 0.7U REC (UG/L) (49299)	EPTC WATER FLTRD, GF 0.7U REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FEN- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUO- METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LINURON WATER, FLTRD, GF 0.7U REC (UG/L) (38478)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)
APR 2002													
09...	<.18	<.25	<.002	<.009	<.005	<.07	<.06	<.003	<.004	<.06	<.035	<.027	<.20
JUN													
11...	<.13	<.25	.005	<.009	<.005	<.23	<.06	<.003	<.004	<.06	<.035	<.027	<.20
Date	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	METHIO- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH- OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEB- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	ORY- ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)
APR 2002													
09...	<.26	<.07	<.47	E.011	<.006	<.002	<.010	<.006	<.007	<.07	<.04	<.28	<.27
JUN													
11...	<.26	<.07	<.22	.023	<.006	<.002	<.010	<.006	<.007	<.07	<.04	<.28	<.24

E Estimated value.

06452406 LAKE ANDES ABOVE LAKE ANDES, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PIC- LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF 0.7U REC (UG/L) (82685)	PRO- PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PRO- POKUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SILVEX, DIS- SOLVED (UG/L) (39762)	
	APR 2002 09...	<.004	<.022	<.006	<.011	<.09	E.01	<.004	<.010	<.011	<.02	<.22	<.14	<.03
	JUN 11...	<.004	<.022	<.006	<.011	<.09	E.01	<.004	<.010	<.011	<.02	<.29	<1.20	<.03
Date	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	2, 4, 5-T DIS- SOLVED (UG/L) (39742)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- CLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)					
	APR 2002 09...	.005	<.07	<.02	<.034	<.02	<.005	<.002	<.07	<.009				
	JUN 11...	<.008	<.07	<.02	<.034	<.02	<.005	<.002	<.07	<.009				
Date	Time	CALCIUM SED. BEDMAT PERCENT (30239)	MAGNES- IUM SEDI- MENT BEDMAT PERCENT (30276)	SODIUM SEDI- MENT BEDMAT PERCENT (30303)	POTAS- SIUM SEDI- MENT BEDMAT PERCENT (30293)	PHOS- PHORUS SEDI- MENT BEDMAT PERCENT (30291)	ALUM- INUM SED. BEDMAT PERCENT (30220)	ARSENIC SED BED WET NAT <2 MM TOTAL (UG/G) (04044)	BARIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04045)	BERYL- LIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04046)	BISMUTH SED BED WET NAT <2 MM TOTAL (UG/G) (04047)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD) (01028)	CERIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04051)	
	AUG 2002 27...	1745	86	11	4.9	17	1.6	55000	10	540	1	<10	<2.0	57
	Date	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G) (01029)	COBALT SED BED WET NAT <2 MM TOTAL (UG/G) (04053)	COPPER SED BED WET NAT <2 MM TOTAL (UG/G) (04054)	EURO- PIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04055)	GAL- LIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04056)	GOLD SED BED WET NAT <2 MM TOTAL (UG/G) (04058)	HOLMIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04059)	LANTHA- NUM BOT MAT <180UWS FIELD (UG/G) (34886)	IRON SEDI- MENT BEDMAT PERCENT (30268)	LEAD SEDI- MENT BEDMAT (UG/G) (30272)	LITHIUM SEDI- MENT BEDMAT (UG/G) (30274)	MAN- GANESE SEDI- MENT BEDMAT (UG/G) (30278)	MOLYB- DENUM SEDI- MENT BEDMAT (UG/G) (30283)
AUG 2002 27...		49	12	26	<2	11	<8	<4	34	28000	20	30	3200	4
Date		NEO- DYMIUM SEDI- MENT BEDMAT (UG/G) (30285)	NICKEL SEDI- MENT BEDMAT (UG/G) (30287)	NIOBIUM SEDI- MENT BEDMAT (UG/G) (30289)	SCAN- DIUM SEDI- MENT BEDMAT (UG/G) (30297)	SELEN- IUM SEDI- MENT BEDMAT (UG/G) (30299)	SILVER SEDI- MENT BEDMAT (UG/G) (30301)	STRON- TIUM SEDI- MENT BEDMAT (UG/G) (30305)	TAN- TALUM SEDI- MENT BEDMAT (UG/G) (30309)	THORIUM SEDI- MENT BEDMAT (UG/G) (30312)	TIN SEDI- MENT BEDMAT (UG/G) (30314)	TITA- NIUM SEDI- MENT BEDMAT PERCENT (30316)	URANIUM SEDI- MENT BEDMAT (UG/G) (30320)	VANA- DIUM, TOTAL IN BOT- TOM MA- TERIAL (UG/G) (01088)
	AUG 2002 27...	23	43	<4	8	3.9	<2	640	<40	9	<5	2000	<100	120
	Date	YTTER- BIUM SEDI- MENT BEDMAT (UG/G) (30325)	YTTRIUM SEDI- MENT BEDMAT (UG/G) (30327)	ZINC SEDI- MENT BEDMAT (UG/G) (30329)										
AUG 2002 27...		2	22	120										
E Estimated value.														

E Estimated value.

06452500 LAKE FRANCIS CASE AT PICKSTOWN, SD

LOCATION.--Lat 43°04'05", long 98°33'15", in SE $\frac{1}{4}$ sec.5, T.95 N., R.65 W., Charles Mix County, Hydrologic Unit 10140101, in tower 6 of outlet works at Fort Randall Dam, on Missouri River at Pickstown, 1.0 mi upstream from Randall Creek, and at mile 880.0.

DRAINAGE AREA.--263,500 mi², approximately.

PERIOD OF RECORD.--December 1952 to current year (monthend contents only). Prior to October 1964, published as Fort Randall Reservoir at Pickstown.

GAGE.--Water-stage recorder. Elevations listed to NGVD of 1929. Prior to Mar. 25, 1953, elevations determined from temporary nonrecording gages.

REMARKS.--Reservoir is formed by earthfill dam; storage began in December 1952; initial closure made July 1952. Maximum capacity, 5,574,000 acre-ft below elevation 1,375.0 ft (top of spillway gates). Normal maximum, 4,589,000 acre-ft below elevation 1,365.0 ft. Inactive storage, 1,184,000 acre-ft below elevation 1,310.0 ft. No dead storage; elevation of invert of lowest outlet is 1,227.0 ft. Figures given herein represent elevations at outlet works and total contents adjusted for wind effect. The spillway consists of 21 taintor gates, each 40 ft wide by 29 ft high; spillway capacity, 490,000 ft³/s at pool elevation 1,375 ft. Crest of spillway is at elevation 1,346 ft. Normal releases are through 12 tunnels 22 ft in diameter. Installation of power units in 8 of these tunnels was completed in January 1956; maximum release through power tunnels is 46,000 ft³/s; maximum release through 4 other tunnels is 130,000 ft³/s at pool elevation 1,375 ft. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,102,000 acre-ft, May 6, 1997; maximum elevation, 1,372.17 ft, May 7, 1997; minimum since initial filling, 1,450,000 acre-ft, Oct. 23, 1956, affected by wind.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,591,000 acre-ft, Aug. 15; minimum contents, 2,316,000 acre-ft, Nov. 22.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,353.62	3,412,000	--
Oct. 31	1,344.71	2,738,000	-674,000
Nov. 30	1,339.53	2,412,000	-326,000
Dec. 31	1,343.90	2,685,000	+273,000
CAL YR 2001	--	--	+286,000
Jan. 31	1,346.93	2,894,000	+209,000
Feb. 28	1,348.68	3,027,000	+133,000
Mar. 31	1,350.26	3,144,000	+117,000
Apr. 30	1,352.08	3,287,000	+143,000
May 31	1,349.78	3,106,000	-181,000
June 30	1,354.45	3,484,000	+378,000
July 31	1,355.43	3,572,000	+88,000
Aug. 31	1,355.15	3,556,000	-16,000
Sept. 30	1,350.74	3,181,000	-375,000
WTR YR 2002	--	--	-231,000

NOTE.--Lake frozen over Feb. 28 to Apr. 7.

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD

LOCATION.--Lat 43°03'54", long 98°33'11", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.8, T.95 N., R.65 W., Charles Mix County, Hydrologic Unit 10170101, in powerhouse of Fort Randall Dam on Missouri River at Pickstown, 0.8 mi upstream from Randall Creek, and at mile 879.8.

DRAINAGE AREA.--263,500 mi², approximately.

REMARKS.--On July 16, 2002, a field duplicate sample was collected at this site for quality-control purposes. The analytical results for the field duplicate sample are noted in the water-quality results.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	
FEB 2002														
13...	1500	9500	774	8.3	10.5	1.2	730	13.9	103	240	79	158	173	
APR 23...	1040	28900	770	8.3	12.5	5.2	722	13.0	108	240	77	159	172	
MAY 21...	1050	20200	774	8.2	18.0	9.6	731	10.8	99	240	75	163	169	
JUL 16...	1230	33300	777	8.3	33.0	21.3	729	6.8	81	240	110	134	169	
a16...	1240	33300	777	8.3	33.0	21.3	729	6.8	81	250	100	143	168	
AUG 06...	1100	33000	794	8.3	30.0	24.4	731	6.8	86	240	71	165	168	
SEP 17...	1300	38500	778	8.3	27.0	22.3	724	8.3	101	230	75	157	162	
Date		CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00932)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SiO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	
FEB 2002														
13...	57.1	23.1	73.3	40	2	4.84	193	0	221	10.3	.5	6.1	491	
APR 23...	56.8	23.0	70.3	39	2	4.30	185	4	219	10.1	.4	5.6	485	
MAY 21...	57.1	23.0	73.5	40	2	4.56	198	0	221	10.6	.6	5.1	493	
JUL 16...	58.0	23.3	73.9	39	2	5.25	159	3	222	10.9	.5	4.1	479	
a16...	59.5	23.5	74.6	39	2	5.15	174	0	220	10.6	.5	4.1	484	
AUG 06...	56.2	23.1	73.6	40	2	5.43	201	0	221	11.0	.5	4.3	494	
SEP 17...	54.1	23.6	76.4	41	2	5.70	192	0	214	10.2	.5	5.0	484	
Date		SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ANTI-MONY, DIS-SOLVED (UG/L AS SB) (01095)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)
FEB 2002														
13...	514	13200	<.04	.24	.20	<.008	<.05	<.06	<.06	<.02	1	.37	M	
APR 23...	516	40200	<.04	.22	.21	<.008	E.04	<.06	<.06	<.02	<1	.45	E1	
MAY 21...	529	28800	<.04	.32	.20	<.008	.05	<.06	<.06	<.02	<1	.35	<5	
JUL 16...	517	46400	<.04	.26	.21	<.008	.06	<.06	<.06	<.02	1	.43	E1	
a16...	523	47000	<.04	.27	.20	<.008	.06	<.06	<.06	<.02	<1	.43	E1	
AUG 06...	535	47700	<.04	.22	.22	<.008	E.03	<.06	<.06	<.02	1	.45	E2	
SEP 17...	507	52700	<.04	.28	.21	<.008	<.05	<.06	<.06	<.02	--	--	--	

a Field duplicate sample collected for quality-control purposes.

E Estimated value.

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)
FEB 2002													
13...	32	<.06	E.02	<.8	.17	2.2	<.08	2.9	3.1	2.63	<2	<1	4.11
APR 23...	32	<.06	.04	<.8	.16	2.4	E.05	.7	2.9	3.25	E1	<1	3.89
MAY 21...	30	<.06	E.03	<.8	.17	2.6	<.08	1.0	2.5	2.57	<6	<1	3.80
JUL 16...	31	<.06	E.02	<.8	.18	2.8	<.08	6.4	3.3	2.92	E1	<1	4.19
a16...	32	<.06	E.02	<.8	.20	2.7	.13	6.4	3.3	2.89	<2	<1	4.25
AUG 06...	34	<.06	<.04	<.8	.13	2.0	<.08	3.4	3.4	2.79	E2	<1	4.35
SEP 17...	--	--	--	--	--	--	--	--	--	--	--	--	--
Date	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)
FEB 2002													
13...	1	3.0	3.3	--	--	--	--	--	--	--	--	--	--
APR 23...	2	3.1	3.1	<.006	<.004	<.006	.021	E.005	<.050	<.010	<.005	<.002	<.041
MAY 21...	3	3.1	3.3	.009	<.004	<.006	.027	E.005	<.050	<.010	<.005	<.002	<.041
JUL 16...	3	3.2	3.2	--	--	--	--	--	--	--	--	--	--
a16...	2	3.0	3.1	--	--	--	--	--	--	--	--	--	--
AUG 06...	3	3.5	3.6	--	--	--	--	--	--	--	--	--	--
SEP 17...	--	3.4	3.2	--	--	--	--	--	--	--	--	--	--
Date	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P,P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)
FEB 2002													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR 23...	<.020	<.018	<.003	<.003	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004	<.035
MAY 21...	<.020	<.018	<.003	<.003	<.005	<.005	<.02	.003	<.009	<.005	<.003	<.004	<.035
JUL 16...	--	--	--	--	--	--	--	--	--	--	--	--	--
a16...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG 06...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP 17...	--	--	--	--	--	--	--	--	--	--	--	--	--

E Estimated value.

MISSOURI RIVER MAIN STEM

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	MALA- THION, DIS- SOLVED (UG/L) (39532)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)
FEB 2002													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
23...	<.027	E.009	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006	<.011	<.01	<.004
MAY													
21...	<.027	E.006	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006	<.011	<.01	<.004
JUL													
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
a16...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
Date	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	
FEB 2002													
13...	--	--	--	--	--	--	--	--	--	--	1.0	80	
APR													
23...	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009	2.0	88	
MAY													
21...	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009	2.0	96	
JUL													
16...	--	--	--	--	--	--	--	--	--	--	5.0	96	
a16...	--	--	--	--	--	--	--	--	--	--	--	--	
AUG													
06...	--	--	--	--	--	--	--	--	--	--	3.0	83	
SEP													
17...	--	--	--	--	--	--	--	--	--	--	3.0	97	

E Estimated value.

M Presence verified, not quantified.

THIS PAGE IS INTENTIONALLY BLANK

MISSOURI-LEWIS AND CLARK RIVER BASIN

06453020 MISSOURI RIVER BELOW GREENWOOD, SD

LOCATION.--Lat 42°54'19", long 98°20'58", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.1, T.93 N., R.64 W., Charles Mix County, Hydrologic Unit 10170101, on left bank 2.0 mi downstream from Greenwood and 1.3 mi downstream from the mouth of Slaughter Creek.

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above NGVD of 1929.

REMARKS.--Records fair. U.S. Army Corps of Engineers satellite data-collection platform at station. Stage regulated by Fort Randall Dam about 17 mi upstream.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.67	25.92	22.37	23.15	24.34	25.30	24.99	24.80	25.32	25.71	25.71	26.22
2	25.97	26.06	22.37	23.74	24.31	25.74	24.69	24.77	25.46	26.06	25.77	26.36
3	25.86	26.10	22.08	23.85	24.00	25.45	24.55	24.58	25.24	26.18	25.95	26.43
4	25.81	26.16	22.06	23.71	23.68	25.78	24.86	24.20	25.37	26.24	25.83	26.63
5	25.96	26.14	21.95	23.10	23.32	24.79	24.63	24.49	25.13	26.26	25.85	26.90
6	25.87	26.04	21.63	22.98	22.71	23.61	24.93	24.31	25.13	26.17	26.08	26.59
7	25.76	25.97	21.76	23.02	22.18	---	25.20	24.42	25.21	26.20	26.00	26.76
8	25.99	25.96	21.67	21.23	22.01	23.33	25.67	24.72	25.07	26.09	25.91	26.76
9	25.81	25.95	21.75	21.30	22.31	---	25.91	24.41	25.30	25.85	25.85	26.96
10	25.96	26.02	21.71	21.55	22.18	25.34	24.98	24.99	25.49	25.81	25.77	27.03
11	26.15	25.91	21.68	21.54	22.05	25.05	24.69	24.38	25.43	25.74	25.79	26.97
12	26.26	26.01	21.82	22.02	22.01	23.96	24.29	24.27	25.43	25.82	25.74	27.42
13	26.12	26.07	21.96	21.96	22.00	23.11	24.24	23.81	25.33	25.77	25.87	27.46
14	25.20	25.96	21.95	21.98	21.94	22.78	24.26	23.76	25.43	25.83	26.05	26.82
15	25.67	25.93	21.86	21.98	21.77	22.47	24.35	23.53	25.49	25.86	26.31	26.66
16	25.84	25.93	21.81	22.20	21.77	22.20	24.41	23.81	25.42	25.82	26.86	26.80
17	25.90	25.75	21.93	22.13	21.67	22.65	24.03	24.23	25.49	25.82	26.71	26.31
18	26.17	25.51	21.91	22.15	21.64	23.48	24.64	24.91	25.45	25.79	26.83	26.21
19	25.85	25.93	21.92	22.19	21.67	24.18	24.88	25.06	25.45	25.80	26.97	25.95
20	25.88	25.72	22.02	22.09	21.60	24.53	24.46	25.01	25.43	25.77	26.96	25.73
21	25.93	25.97	22.29	22.49	21.65	24.46	24.81	25.48	25.47	25.70	27.05	25.76
22	26.00	25.67	22.47	22.51	22.01	---	24.95	24.59	25.46	25.82	27.02	25.99
23	25.96	25.15	22.00	21.95	22.51	25.16	24.77	25.39	25.47	25.76	26.97	26.16
24	25.81	24.86	22.91	21.89	22.22	24.90	24.67	25.43	25.53	25.89	26.09	26.30
25	25.42	24.64	22.54	21.94	22.72	24.96	24.90	25.54	25.61	25.87	26.44	26.33
26	25.02	24.45	22.79	22.07	---	24.84	24.64	25.25	25.55	25.85	26.47	26.40
27	25.75	23.77	22.99	22.35	---	24.71	24.96	25.35	25.67	25.86	26.76	26.45
28	25.07	23.38	23.05	22.52	25.64	24.79	24.67	25.56	25.86	25.89	26.37	26.73
29	25.84	23.67	22.97	---	---	24.95	24.70	25.29	25.73	25.80	26.47	26.74
30	26.07	22.88	23.39	23.90	---	24.94	24.87	25.50	25.65	25.79	26.19	26.66
31	26.11	---	23.17	24.40	---	24.96	---	25.30	---	25.82	26.17	---
MEAN	25.83	25.45	22.22	---	---	---	24.75	24.75	25.44	25.89	26.28	26.55
MAX	26.26	26.16	23.39	---	---	---	25.91	25.56	25.86	26.26	27.05	27.46
MIN	25.02	22.88	21.63	---	---	---	24.03	23.53	25.07	25.70	25.71	25.73

The graph displays the gage height in feet over a period of approximately 11 months. The y-axis is labeled 'GAGE HEIGHT, IN FEET' and ranges from 21 to 28 in increments of 1. The x-axis shows months from October 2001 to September 2002. The data shows a sharp decline from late 2001 to early 2002, reaching a minimum of about 21.5 feet in January 2002. Following this, the gage height rises steadily, with some fluctuations, reaching a peak of about 27.5 feet in late 2002 before ending at approximately 26.8 feet in September 2002.

Month	Gage Height (Feet)
Oct 2001	25.8
Nov 2001	26.0
Dec 2001	25.5
Jan 2002	21.5
Feb 2002	22.5
Mar 2002	24.5
Apr 2002	25.5
May 2002	25.0
Jun 2002	25.5
Jul 2002	26.0
Aug 2002	27.0
Sep 2002	26.8

MISSOURI-FORT RANDALL RIVER BASIN

06453120 MISSOURI RIVER ABOVE CHOTEAU CREEK, NEAR VERDEL, NE

LOCATION.--Lat 42°50'40", long 98°11'50", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.12, T.33 N., R.8 W., Charles Mix County, Hydrologic Unit 10170101, 2.3 mi upstream from mouth of Choteau Creek and 2.3 mi north of Verdel, NE.

PERIOD OF RECORD.--February 1990 to current year.

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	SPE- CIFIC CON- DUCT- ANCE	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (IN)	BARO- METRIC PRES- SURE (MM HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	
		(US/CM) (00095)	(00400)	(00020)	(00010)	(00077)	(00025)	(00300)	(00301)	(00900)	(00904)	(39086)	(90410)	
APR 2002														
10...	1000	770	8.4	19.0	5.2	55.8	730	8.6	71	240	73	171	175	
JUN														
12...	1015	800	8.4	23.0	14.6	60.0	730	10.0	103	230	73	160	170	
JUL														
09...	1045	789	8.4	29.0	21.4	45.6	734	8.3	98	240	75	164	168	
AUG														
28...	1130	784	7.9	--	23.3	79.2	736	8.2	100	240	74	165	161	
Date		CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3 (00452)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)
APR 2002														
10...	58.0	23.5	72.6	39	2	4.56	204	1	222	10.8	.5	5.3	499	
JUN														
12...	56.8	22.3	73.3	40	2	4.67	190	3	221	10.9	.5	5.0	491	
JUL														
09...	58.2	22.7	75.0	40	2	4.78	194	3	222	10.9	.5	3.9	497	
AUG														
28...	56.2	23.9	76.7	41	2	4.99	196	2	220	10.6	.6	4.5	496	
Date		SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)			
APR 2002														
10...	524	<.04	.25	<.008	E.04	--	<.06	<.02	2	E2				
JUN														
12...	519	<.04	.26	<.008	.06	--	<.06	<.02	<4	<4				
JUL														
09...	512	<.04	.28	.010	.05	.04	<.06	<.02	E2	E2				
AUG														
28...	513	<.04	.24	<.008	<.05	--	<.06	<.02	2	<2				
E Estimated value.														

E Estimated value.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[illegible]

LOCATION.--Lat 43°05'52", long 98°17'15", on section line between sec.27 and 28, T.96 N., R.63 W., Charles Mix County, Hydrologic Unit 10170101, at bridge on section line road 1.1 mi north of State Route 46.

PERIOD OF RECORD.--June 1983 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	
APR 2002 08...	1900	41	1550	8.0	10.5	10.5	726	11.8	112	610	420	189	191	
Date		CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3 (00453)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3 (00452)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS STO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	
APR 2002 08...	132	67.6	99.4	25	2	20.0	228	0	595	40.1	.2	15.3	1080	
Date		SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SEDI-MENT, SUS-PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR 2002 08...	1190	133	<.04	2.7	.013	.40	.39	.52	.31	6	3	9.0	74	

06453252 CHOTEAU CREEK NEAR DANTE, SD

LOCATION.--Lat 43°01'32", long 98°10'03", on section line between sec.21 and 22, T.95 N., R.62 W., Charles Mix County, Hydrologic Unit 10170101, at bridge on section line road 0.9 mi southeast of Dante.

PERIOD OF RECORD.--June 1983 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD) (UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	
APR 2002														
10...	1735	41	1590	8.3	23.0	14.3	725	9.4	97	640	440	199	210	
JUN														
12...	1630	.04	2840	8.4	--	24.6	726	10.8	138	1400	1200	233	241	
Date		CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)		SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3 (00453)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3 (00452)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS STO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
					SODIUM PERCENT (00932)									
APR 2002														
10...	140	69.3	104	25	2	22.2	228	5	645	41.8	.3	13.3	1150	
JUN														
12...	322	145	138	17	2	27.6	273	5	1530	48.8	.4	15.7	2360	
Date		SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SEDI-MENT, SUS-PENDEED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR 2002														
10...	1300	144	<.04	2.3	<.008	E.02	--	.47	.18	6	3	97	99	
JUN														
12...	2670	.29	1.01	3.5	.029	.08	.05	.22	.02	11	6	87	99	

E Estimated value.

LOCATION.--Lat 42°55'24", long 98°06'21", in NW¹/₄ NW¹/₄ NW¹/₄ sec.31, T.94 N., R.61 W., Bon Homme County, Hydrologic Unit 10170101, on left bank at downstream side of highway bridge, 6.3 mi southwest of Avon, 0.7 mi downstream from Dry Choteau Creek, and 12.7 mi upstream from mouth.

DRAINAGE AREA.--602 mi².

PERIOD OF RECORD.--October 1982 to current year.

REVISED RECORDS.--WDR SD-86-1: 1984 (M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,290 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	3.5	5.8	2.9	4.9	8.5	9.5	17	1.4	1.0	0.38	0.67
2	3.0	3.9	5.7	3.2	5.3	7.9	8.7	17	1.5	1.1	0.32	0.58
3	2.9	3.8	5.6	3.1	5.6	7.0	9.8	16	1.5	1.1	3.5	0.52
4	3.2	3.5	5.7	3.3	5.4	7.5	11	18	1.6	1.1	1.8	0.52
5	3.1	4.0	6.1	3.7	5.3	9.3	14	17	1.6	1.0	0.76	0.53
6	3.1	4.4	7.0	3.9	5.3	11	32	16	1.5	1.1	0.54	0.55
7	3.3	4.6	7.4	3.6	5.7	9.0	57	16	1.6	1.1	0.55	0.58
8	3.2	4.4	7.3	4.0	7.8	8.5	59	17	2.1	1.2	0.61	0.61
9	3.0	4.4	8.1	5.4	e6.8	e8.4	54	21	2.1	1.2	0.57	0.56
10	4.6	e4.4	7.8	5.6	e6.2	8.9	48	24	1.8	1.1	1.1	0.63
11	3.8	e4.4	7.5	5.2	5.9	9.0	43	26	1.7	1.1	0.63	0.65
12	3.5	e4.4	7.4	5.2	6.5	10	38	21	1.8	1.0	0.40	0.68
13	6.9	e4.4	6.6	6.1	5.8	14	34	19	1.8	0.96	0.36	1.3
14	7.0	e4.4	6.9	6.9	6.2	15	28	19	1.5	0.96	0.24	1.0
15	5.1	e4.4	7.1	e5.5	6.7	e15	25	19	1.2	0.87	0.23	0.99
16	3.7	e4.3	7.3	5.8	6.7	16	22	14	1.3	0.78	0.24	0.99
17	3.2	e4.3	6.9	5.3	6.5	16	19	13	1.1	0.77	0.25	0.94
18	2.2	e4.3	6.8	4.8	7.0	16	16	11	1.1	0.79	0.17	0.95
19	2.2	e4.3	5.6	4.8	7.2	17	17	12	1.1	0.80	0.39	0.95
20	2.0	e4.2	6.7	5.2	7.1	16	14	9.6	1.1	0.61	0.95	0.93
21	2.2	e4.3	6.4	5.1	7.5	e14	15	7.3	1.1	0.57	10	0.91
22	3.1	e4.2	e6.2	e5.2	7.6	15	12	8.3	1.1	0.60	0.82	1.0
23	2.7	e4.3	e6.0	e5.1	8.3	16	12	7.3	1.1	0.55	0.61	0.96
24	2.4	5.6	e6.0	5.1	8.5	16	13	7.1	1.1	0.51	0.52	1.1
25	2.3	6.2	5.9	5.1	e7.4	14	11	7.6	1.1	0.59	0.55	1.2
26	2.3	11	5.0	5.4	7.8	16	10	6.2	1.0	0.55	0.54	1.2
27	2.1	9.6	5.6	5.6	8.7	26	15	5.6	1.1	0.53	0.60	1.1
28	2.2	8.8	4.7	e5.0	9.5	24	15	4.2	1.1	0.43	0.61	1.2
29	2.2	7.3	4.1	4.6	---	19	13	3.6	1.2	0.39	3.7	1.3
30	2.4	6.0	3.6	4.5	---	11	16	2.5	1.1	0.43	0.80	1.2
31	2.2	---	3.3	5.1	---	9.5	---	1.7	---	0.45	0.63	---
TOTAL	98.2	151.6	192.1	149.3	189.2	410.5	691.0	404.0	41.4	25.24	33.37	26.30
MEAN	3.17	5.05	6.20	4.82	6.76	13.2	23.0	13.0	1.38	0.81	1.08	0.88
MAX	7.0	11	8.1	6.9	9.5	26	59	26	2.1	1.2	10	1.3
MIN	2.0	3.5	3.3	2.9	4.9	7.0	8.7	1.7	1.0	0.39	0.17	0.52
AC-FT	195	301	381	296	375	814	1370	801	82	50	66	52

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2002, BY WATER YEAR (WY)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
MEAN	6.57	7.88	5.02	2.96	22.1	153	185	132	119	72.1	11.2	11.0
MAX	42.0	81.6	34.2	8.71	125	914	832	865	910	502	89.4	98.2
(WY)	1987	1999	1999	1999	1997	1987	2001	1995	1984	1993	1993	1986
MIN	0.23	0.071	0.22	0.028	0.70	0.62	0.42	1.17	1.38	0.24	0.067	0.027
(WY)	1993	1993	1993	1993	1992	1991	1992	1989	2002	1991	1991	1991

06453255 CHOTEAU CREEK NEAR AVON, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1983 - 2002	
ANNUAL TOTAL	40392.5		2412.21		60.7a	
ANNUAL MEAN	111		6.61		168	
HIGHEST ANNUAL MEAN					1.13	
LOWEST ANNUAL MEAN					5020	
HIGHEST DAILY MEAN	2490	Apr 25	59	Apr 8	Mar 27	1987
LOWEST DAILY MEAN	1.0	Jan 1	0.17	Aug 18	Aug 23	1991b
ANNUAL SEVEN-DAY MINIMUM	1.1	Jan 11	0.27	Aug 13	Aug 23	1991
MAXIMUM PEAK FLOW			70	Aug 21c	Jun 12	1984
MAXIMUM PEAK STAGE			4.04	Mar 9d	Jun 12	1984
ANNUAL RUNOFF (AC-FT)	80120		4780		43990	
10 PERCENT EXCEEDS	326		16		130	
50 PERCENT EXCEEDS	5.9		4.4		4.5	
90 PERCENT EXCEEDS	1.3		0.61		0.60	

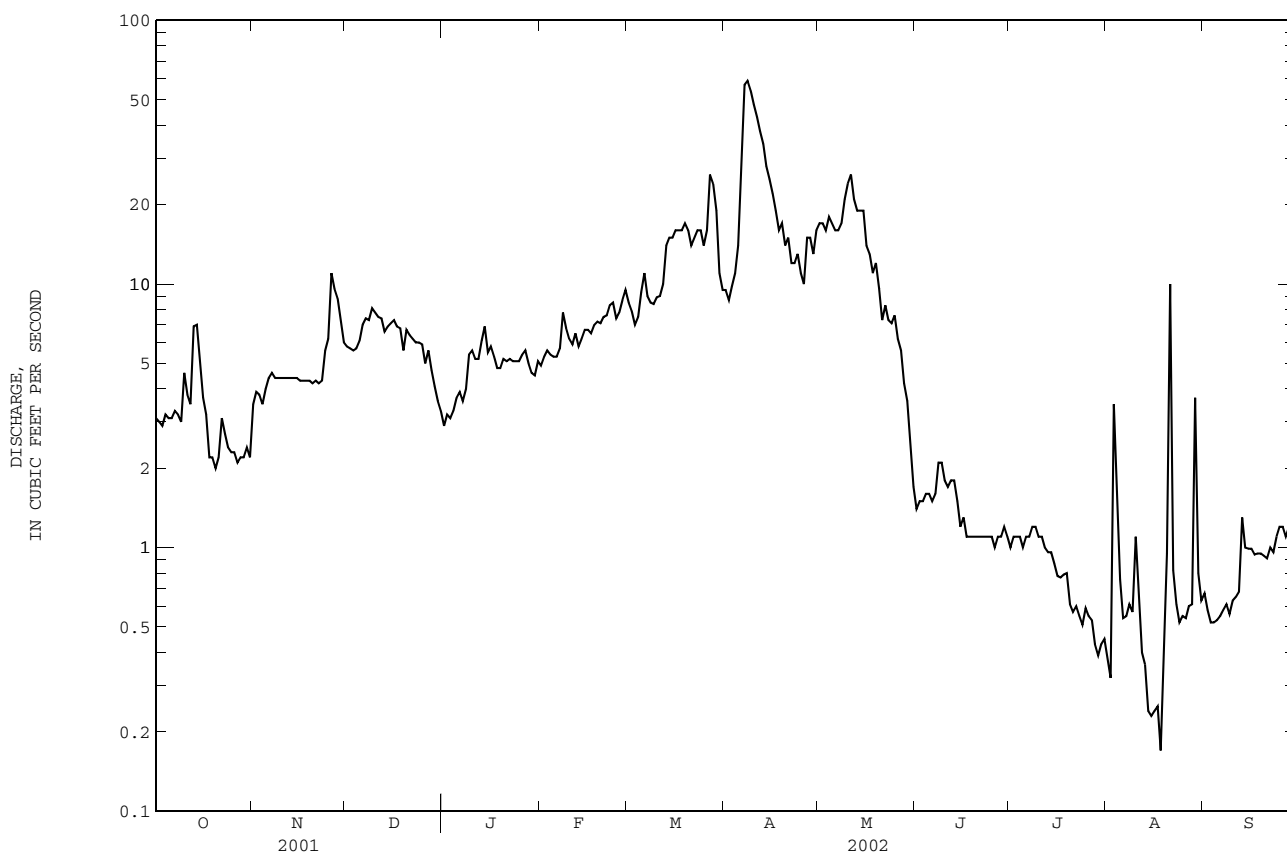
a Median of annual mean discharges, 37 ft³/s.

b Also Aug. 24 to Sept. 10, Sept. 15-18, 1991, and Sept. 26-30, 1992.

c Gage height, 3.82 ft.

d Backwater from ice.

e Estimated.



LOCATION.--Lat 42°51'40", long 98°08'25", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.23, T.93 N., R.62 W., Charles Mix County, Hydrologic Unit 10170101, at bridge over Choteau Creek, 1.4 mi upstream from mouth, and 11.0 mi south-southwest of Avon.

PERIOD OF RECORD.--February 1990 to current year.

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CAC03) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CAC03 (MG/L) (00904)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CAC03 (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CAC03) (90410)	
APR 2002														
10...	1500	50	1760	8.5	24.0	14.2	730	8.9	91	740	530	213	212	
JUN 12...	1440	3.3	1900	8.3	--	27.2	730	9.1	121	890	690	195	205	
JUL 09...	1450	1.9	1850	8.3	39.0	34.6	--	10.9	--	850	730	130	139	
AUG 28...	1430	2.2	1410	8.0	29.0	27.7	736	9.7	128	690	540	154	163	
Date		CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
APR 2002														
10...	168	78.4	120	25	2	20.7	226	15	747	47.0	.3	14.8	1320	
JUN 12...	223	80.4	92.2	18	1	17.9	230	4	873	32.6	.3	16.9	1450	
JUL 09...	209	80.8	95.5	19	1	20.2	151	3	907	29.5	.3	14.9	1430	
AUG 28...	178	59.9	71.2	18	1	15.7	184	2	642	20.3	.3	12.3	1090	
Date		SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SEDI-MENT, SUS-PENDEED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	
APR 2002														
10...	1450	195	<.04	2.6	<.008	E.02	.36	.05	5	4	56	97		
JUN 12...	1610	14.3	<.04	1.1	<.008	<.05	.13	<.02	5	E3	66	86		
JUL 09...	1560	8.19	<.04	1.6	<.008	<.05	.15	<.02	5	3	41	99		
AUG 28...	1180	6.99	<.04	.55	<.008	<.05	.06	<.02	2	E2	18	93		

E Estimated value.

06453305 MISSOURI RIVER BELOW CHOTEAU CREEK, NEAR VERDEL, NE

LOCATION.--Lat 42°50'05", long 98°08'20", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.35, T.93 N., R.62 W., Bon Homme County (revised), Hydrologic Unit 10170101, 1.7 mi upstream from mouth of Coffee Creek and 3.1 mi northeast of Verdel, NE.

PERIOD OF RECORD.--February 1990 to current year.

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT OF SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)
FEB 2002													
14...	1400	E9500	775	8.4	7.5	2.1	722	13.6	104	240	81	159	173
APR													
10...	1145	--	825	8.5	20.5	5.9	730	7.9	66	260	88	173	175
24...	1040	29000	782	8.1	4.4	6.8	732	12.2	104	240	78	163	175
MAY													
22...	1210	E22000	776	8.2	24.5	12.5	721	10.3	102	250	94	159	170
JUN													
12...	1145	--	789	8.5	27.0	15.4	731	9.7	101	240	81	162	169
JUL													
09...	1215	--	789	8.4	31.0	22.0	734	8.2	98	240	71	165	168
17...	1310	21400	790	8.4	30.5	23.1	729	7.9	96	240	69	166	168
AUG													
07...	1130	33700	795	8.3	30.0	24.9	734	7.7	97	230	69	165	169
28...	1245	--	785	8.1	--	23.7	735	8.4	103	240	69	173	167
SEP													
18...	1320	24000	779	8.3	30.0	22.0	719	8.4	103	230	70	158	E158

Date	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)
FEB 2002													
14...	57.9	23.2	73.5	39	2	4.88	194	0	224	10.3	.5	6.0	496
APR													
10...	62.2	25.2	74.0	38	2	5.07	194	7	243	12.0	.5	5.5	530
24...	58.4	23.9	74.5	39	2	4.49	196	3	223	10.8	.6	5.4	501
MAY													
22...	61.9	23.9	75.3	39	2	4.91	175	9	222	10.4	.4	5.1	499
JUN													
12...	58.7	23.4	75.4	40	2	4.86	192	3	224	11.1	.5	4.7	500
JUL													
09...	58.0	22.0	73.0	40	2	5.00	195	3	220	11.0	.5	3.9	492
17...	56.7	22.7	74.9	40	2	4.93	197	3	220	11.1	.4	4.0	495
AUG													
07...	55.5	23.4	75.1	40	2	5.35	197	2	220	11.1	.5	4.5	495
28...	57.0	24.2	75.4	40	2	5.05	206	2	219	10.5	.6	4.6	500
SEP													
18...	53.5	22.8	76.1	41	2	4.85	179	6	214	10.2	.5	5.1	481

E Estimated value.

06453305 MISSOURI RIVER BELOW CHOTEAU CREEK, NEAR VERDEL, NE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N) (00623)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ANTI- MONY, DIS- SOLVED (UG/L AS SB) (01095)
FEB 2002													
14...	522	--	<.04	.21	.20	<.008	<.05	--	<.06	<.06	<.02	<1	.36
APR													
10...	556	--	<.04	.30	--	<.008	E.03	--	<.06	--	<.02	--	--
24...	514	40300	<.04	.25	.22	<.008	E.03	--	<.06	<.06	<.02	<1	.43
MAY													
22...	518	--	<.04	.26	.21	<.008	.06	--	<.06	<.06	<.02	<1	.41
JUN													
12...	514	--	<.04	.28	--	<.008	.05	--	<.06	--	<.02	--	--
JUL													
09...	515	--	<.04	.26	--	.010	.05	.04	<.06	--	<.02	--	--
17...	516	29800	<.04	.22	.15	E.004	.05	--	<.06	<.06	<.02	3	.45
AUG													
07...	524	47700	<.04	.33	.17	<.008	.05	--	<.06	<.06	<.02	1	.49
28...	523	--	<.04	.23	--	<.008	<.05	--	<.06	--	<.02	--	--
SEP													
18...	507	32900	<.04	.24	.20	<.008	<.05	--	<.06	<.06	<.02	1	.56

Date	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)
FEB 2002													
14...	E1	32	<.06	E.02	<.8	.15	2.0	<.08	6.9	3.1	2.30	E2	<1
APR													
10...	2	--	--	--	--	--	--	--	--	--	--	E2	--
24...	2	33	<.06	.09	<.8	.17	2.1	E.06	4.7	2.8	2.55	E2	<1
MAY													
22...	<5	33	<.06	<.04	<.8	.18	2.3	<.08	10.6	2.8	2.01	<6	<1
JUN													
12...	E2	--	--	--	--	--	--	--	--	--	--	2	--
JUL													
09...	2	--	--	--	--	--	--	--	--	--	--	E2	--
17...	E1	31	<.06	E.03	<.8	.21	2.3	<.08	3.5	3.4	4.18	E2	<1
AUG													
07...	E2	32	<.06	<.04	<.8	.15	2.0	<.08	2.3	3.5	2.62	<2	<1
28...	E2	--	--	--	--	--	--	--	--	--	--	<2	--
SEP													
18...	<2	33	<.06	E.02	<.8	.12	2.1	<.08	1.0	3.4	3.84	E1	<1

Date	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)
FEB 2002													
14...	4.08	2	3.1	3.3	--	--	--	--	--	--	--	--	--
APR													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	4.05	2	3.0	3.2	<.006	<.004	<.006	.023	<.006	<.050	<.010	<.005	<.002
MAY													
22...	4.40	2	3.3	3.2	.014	<.004	<.006	.040	E.007	<.050	<.010	<.005	<.002
JUN													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	4.09	3	3.2	3.0	--	--	--	--	--	--	--	--	--
AUG													
07...	3.95	<1	3.7	3.3	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
18...	3.78	5	5.5	3.3	--	--	--	--	--	--	--	--	--

E Estimated value.

06453305 MISSOURI RIVER BELOW CHOTEAU CREEK, NEAR VERDEL, NE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CAR-BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P,P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)
FEB 2002													
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	<.041	<.020	<.018	<.003	<.003	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004
MAY													
22...	<.041	<.020	<.018	<.003	<.003	<.005	<.005	<.02	.003	<.009	<.005	<.003	<.004
JUN													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
Date	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)
FEB 2002													
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	<.035	<.027	E.004	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006	<.011	<.01
MAY													
22...	<.035	<.027	E.011	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006	<.011	<.01
JUN													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
Date	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
FEB 2002													
14...	--	--	--	--	--	--	--	--	--	--	--	3.0	94
APR													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009	12	96
MAY													
22...	<.004	<.010	<.011	<.02	.007	<.02	<.034	<.02	<.005	<.002	<.009	19	99
JUN													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	9.0	94
AUG													
07...	--	--	--	--	--	--	--	--	--	--	--	8.0	87
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
18...	--	--	--	--	--	--	--	--	--	--	--	11	82

E Estimated value.

06453305 MISSOURI RIVER BELOW CHOTEAU CREEK, NEAR VERDEL, NE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	CALCIUM SED. BEDMAT PERCENT (30239)	MAGNES- IUM SEDI- MENT BEDMAT PERCENT (30276)	SODIUM SEDI- MENT BEDMAT PERCENT (30303)	POTAS- SIUM SEDI- MENT BEDMAT PERCENT (30293)	PHOS- PHORUS SEDI- MENT BEDMAT PERCENT (30291)	ALUM- INUM SED. BEDMAT PERCENT (30220)	ARSENIC SED BED WET NAT <2 MM TOTAL (UG/G) (04044)	BARIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04045)	BERYL- LIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04046)	BISMUTH SED BED WET NAT <2 MM TOTAL (UG/G) (04047)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD) (01028)	CERIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04051)	
AUG 2002 28...	1245	32	10	9.7	18	.76	55000	12	840	1	<10	<2.0	65	
Date	Time	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G) (01029)	COBAL/T SED BED WET NAT <2 MM TOTAL (UG/G) (04053)	COPPER SED BED WET NAT <2 MM TOTAL (UG/G) (04054)	EURO- PIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04055)	GAL- LIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04056)	GOLD SED BED WET NAT <2 MM TOTAL (UG/G) (04058)	HOLMIUM SED BED WET NAT <2 MM TOTAL (UG/G) (04059)	LANTHA- NUM BOT MAT <180UWS FIELD (UG/G) (34886)	IRON SEDI- MENT BEDMAT PERCENT (30268)	LEAD SEDI- MENT BEDMAT (UG/G) (30272)	LITHIUM SEDI- MENT BEDMAT (UG/G) (30274)	MAN- GANESE SEDI- MENT BEDMAT (UG/G) (30278)	MOLYB- DENUM SEDI- MENT BEDMAT (UG/G) (30283)
AUG 2002 28...	41	10	17	<2	10	<8	<4	36	22000	16	21	940	<2	
Date	Time	NEO- DYMIUM SEDI- MENT BEDMAT (UG/G) (30285)	NICKEL SEDI- MENT BEDMAT (UG/G) (30287)	NIOBIUM SEDI- MENT BEDMAT (UG/G) (30289)	SCAN- DIUM SEDI- MENT BEDMAT (UG/G) (30297)	SELEN- IUM SEDI- MENT BEDMAT (UG/G) (30299)	SILVER SEDI- MENT BEDMAT (UG/G) (30301)	STRON- TIUM SEDI- MENT BEDMAT (UG/G) (30305)	TAN- TALUM SEDI- MENT BEDMAT (UG/G) (30309)	THORIUM SEDI- MENT BEDMAT (UG/G) (30312)	TIN SEDI- MENT BEDMAT (UG/G) (30314)	TITA- NIUM SEDI- MENT BEDMAT PERCENT (30316)	URANIUM SEDI- MENT BEDMAT (UG/G) (30320)	VANA- DIUM, TOTAL IN BOT- TOM MA- TERIAL (UG/G) (01088)
AUG 2002 28...	26	30	9	7	1.3	<2	260	<40	12	<5	2300	<100	82	
Date	Time	YTTER- BIUM SEDI- MENT BEDMAT (UG/G) (30325)	YTTRIUM SEDI- MENT BEDMAT (UG/G) (30327)	ZINC SEDI- MENT BEDMAT (UG/G) (30329)										
AUG 2002 28...	2	22	72											
Date	Time		CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ANTI- MONY, DIS- SOLVED (UG/L AS SB) (01095)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)
APR 2002 b24...	1048	E.01	<.008	<.09	<.13	<.015	<.002	<.013	<.007	<1	.09	<.2	<1	
Date	Time	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBAL/T, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)
APR 2002 b24...	<.06	<7	<.04	<.8	<.02	E.2	<10	E.05	E.2	<.1	.3	<.06	<.3	
Date	Time	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	THAL- LIUM, DIS- SOLVED (UG/L AS TL) (01057)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)							
APR 2002 b24...	<1	<.04	<.08	E.2	1	<.02								

b Field blank sample collected for quality-control purposes.

E Estimated value.

06464100 KEYA PAHA RIVER NEAR KEYAPAHA, SD

LOCATION.--Lat 43°07'45", long 100°06'24", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.17, T.96 N., R.78 W., Tripp County, Hydrologic Unit 10150006, on left bank at downstream side of highway bridge, 2.0 mi northeast of Keyapaha, and 2.0 mi upstream from Sand Creek.

DRAINAGE AREA.--466 mi², approximately.

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,230 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1952 reached a stage of about 14 ft, at present datum, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	29	e60	e30	e35	e32	311	119	28	13	10	11
2	21	30	e70	e30	e34	e30	233	184	26	13	10	10
3	20	30	e90	e31	e32	e30	165	222	25	13	11	9.7
4	22	30	e100	e32	e31	e32	127	181	24	12	12	9.9
5	23	30	e110	e34	e30	e33	107	143	24	12	14	10
6	24	30	e100	e35	e30	e35	95	114	23	12	13	10
7	24	30	e90	e33	e32	e33	88	95	23	13	12	10
8	24	30	e80	e35	e35	e31	82	87	26	13	12	10
9	24	30	e72	e40	e38	e30	76	80	25	13	13	11
10	26	30	e66	e45	e36	e30	74	73	25	13	13	13
11	27	31	e60	e50	e35	e31	73	70	24	12	12	13
12	28	31	e56	e52	e34	e32	74	70	24	13	11	14
13	28	32	e52	e55	e35	e34	73	69	23	13	11	14
14	28	32	e48	e53	e36	e40	71	65	22	12	11	15
15	28	32	e50	e50	e37	e50	67	59	22	11	10	14
16	29	32	e49	e48	e38	e48	64	56	22	10	10	13
17	28	33	e47	e46	e39	e46	58	56	21	10	10	12
18	27	33	e46	e44	e40	e44	54	55	21	9.8	10	12
19	27	34	e46	e42	e40	e42	49	52	21	10	9.9	13
20	27	33	e45	e40	e41	e40	46	48	20	9.9	10	13
21	27	33	e45	e40	e42	e38	47	44	20	11	11	13
22	27	32	e42	e42	e44	e38	51	41	20	11	11	13
23	29	34	e40	e44	e45	e40	53	40	18	10	12	13
24	28	46	e39	e44	e42	e40	50	37	18	11	13	13
25	28	62	e37	e40	e40	e40	46	35	19	11	12	13
26	28	e65	e35	e46	e38	e43	42	34	18	11	12	13
27	28	e60	e35	e50	e36	e50	51	34	16	11	12	13
28	27	e50	e34	e45	e34	e100	87	36	15	10	12	13
29	27	e50	e33	e40	---	e300	111	35	14	9.4	12	14
30	28	e55	e31	e38	---	597	110	33	13	9.6	12	13
31	28	---	e30	e36	---	463	---	31	---	11	11	---
TOTAL	811	1109	1738	1290	1029	2472	2635	2298	640	353.7	354.9	368.6
MEAN	26.2	37.0	56.1	41.6	36.8	79.7	87.8	74.1	21.3	11.4	11.4	12.3
MAX	29	65	110	55	45	597	311	222	28	13	14	15
MIN	20	29	30	30	30	30	42	31	13	9.4	9.9	9.7
AC-FT	1610	2200	3450	2560	2040	4900	5230	4560	1270	702	704	731

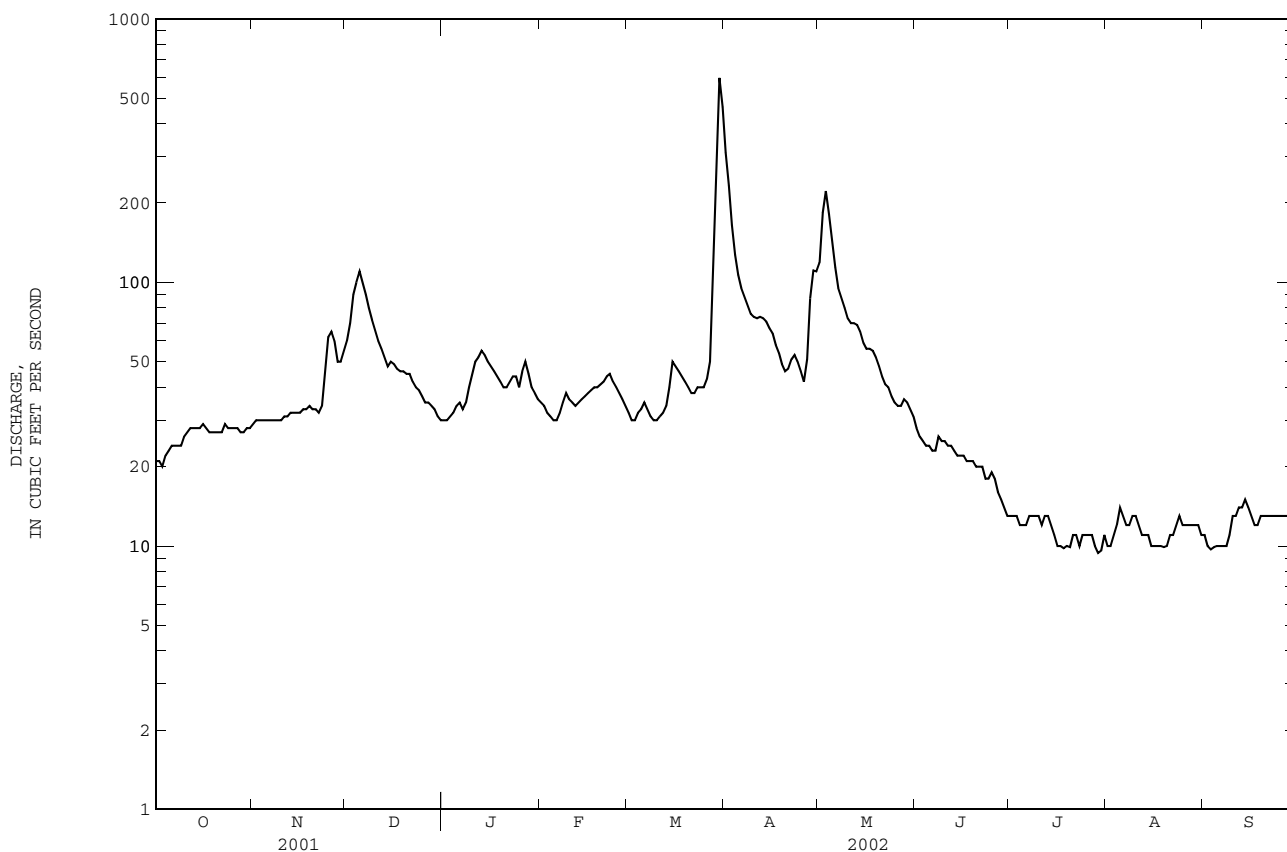
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2002, BY WATER YEAR (WY)

	MEAN	25.1	30.6	25.8	22.7	58.2	86.2	83.2	91.6	63.4	37.4	23.1	19.4
MAX	54.8	81.3	56.1	67.0	247	158	206	257	148	130	87.1	44.0	
(WY)	1996	1999	2002	1997	1997	2001	2001	1995	1995	2000	1998	1999	
MIN	10.6	11.9	5.54	3.51	10.7	29.5	24.3	17.5	11.3	11.4	10.1	9.78	
(WY)	1990	1986	1986	1991	1989	1995	1990	1992	1985	2002	1989	1990	

06464100 KEYA PAHA RIVER NEAR KEYAPAHA, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1982 - 2002	
ANNUAL TOTAL	25180		15099.2		47.1a	
ANNUAL MEAN	69.0		41.4		81.0	
HIGHEST ANNUAL MEAN					18.5	
LOWEST ANNUAL MEAN					928	
HIGHEST DAILY MEAN	670	Apr 26	597	Mar 30	2.4	Jan 6 1991
LOWEST DAILY MEAN	13	Sep 5	9.4	Jul 29	2.5	Jan 1 1991
ANNUAL SEVEN-DAY MINIMUM	15	Aug 31	9.9	Sep 2	1200	May 11 1999b
MAXIMUM PEAK FLOW			626	Mar 30	11.29	Feb 18 1997c
MAXIMUM PEAK STAGE			7.73	Mar 30	34130	
ANNUAL RUNOFF (AC-FT)	49940		29950			
10 PERCENT EXCEEDS	139		72			
50 PERCENT EXCEEDS	42		32			
90 PERCENT EXCEEDS	20		11			

a Median of annual mean discharges, 46 ft³/s.
b Gage height, 9.48 ft.
c Backwater from ice.
e Estimated.



LOCATION.--Lat 43°01'44", long 99°46'49", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.24, T.95 N., R.76 W., Tripp County, Hydrologic Unit 10150006, on right bank at downstream side of bridge on U.S. Highway 183, 1.0 mi north of Wewela, 4.5 mi upstream from Holt Creek, and 11.5 mi downstream from Lost Creek.

DRAINAGE AREA.--1,070 mi², approximately.

PERIOD OF RECORD.--November 1937 to September 1940, October 1947 to current year. Monthly discharge only for October 1947, published in WSP 1309.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,049.78 ft above NGVD of 1929. Prior to June 21, 1957, nonrecording gage at site 13 ft upstream at same datum. Prior to Aug. 23, 1984, recording gage on left bank 13 ft downstream from bridge at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	53	e80	e60	e78	e60	396	215	60	21	11	22
2	50	54	e100	e60	e76	e59	315	278	55	20	11	20
3	46	55	129	e64	e74	e58	260	334	53	21	13	18
4	47	55	149	e67	e72	e57	226	340	51	19	17	18
5	48	54	174	e70	e71	e58	196	280	49	19	19	16
6	46	54	207	e68	e70	e60	179	236	48	20	20	15
7	47	55	205	e65	e73	e59	169	198	48	23	16	13
8	47	54	203	e69	e77	e57	159	186	53	26	13	12
9	47	54	e190	e74	e80	e54	150	172	53	24	15	14
10	58	55	e180	e80	e78	e52	145	156	52	24	21	18
11	52	55	e170	e85	e75	e50	143	147	49	23	18	21
12	53	55	e160	e90	e72	e53	140	141	46	24	18	23
13	56	56	e150	e95	e70	e57	140	138	45	25	16	28
14	55	57	e145	e100	e70	e60	137	130	43	23	14	28
15	54	58	e140	e97	e70	e56	131	123	41	22	14	27
16	54	59	e120	e92	e72	e54	122	119	40	19	13	27
17	54	58	e110	e88	e73	e52	110	117	40	17	11	25
18	55	59	e108	e83	e75	e50	102	112	39	17	12	23
19	54	59	e105	e80	e80	e50	96	108	39	16	14	23
20	53	61	e100	e80	e75	e50	92	103	36	15	14	31
21	53	62	e92	e80	e75	e47	98	95	34	14	14	30
22	52	62	e88	e84	e70	e45	100	88	33	16	16	28
23	52	63	e80	e86	e68	e45	100	83	31	17	17	27
24	53	74	e75	e83	e65	e46	98	79	30	16	34	25
25	52	83	e70	e88	e62	e48	90	81	33	16	28	26
26	51	e99	e68	e90	e60	e49	86	88	32	16	e24	26
27	51	e82	e66	e95	e58	e50	100	72	30	14	25	26
28	52	e72	e64	e90	e60	e70	141	70	27	13	26	27
29	50	e70	e62	e87	---	e200	176	70	25	12	28	28
30	52	e75	e61	e84	---	455	194	68	22	12	28	26
31	53	---	e60	e80	---	500	---	63	---	11	25	---
TOTAL	1599	1862	3711	2514	1999	2661	4591	4490	1237	575	565	691
MEAN	51.6	62.1	120	81.1	71.4	85.8	153	145	41.2	18.5	18.2	23.0
MAX	58	99	207	100	80	500	396	340	60	26	34	31
MIN	46	53	60	60	58	45	86	63	22	11	11	12
AC-FT	3170	3690	7360	4990	3970	5280	9110	8910	2450	1140	1120	1370

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1940, 1948 - 2002, BY WATER YEAR (WY)

	MEAN	41.3	47.5	39.0	33.6	76.4	178	167	148	108	65.8	37.1	31.6
MAX	141	204	120	135	546	598	605	754	512	607	178	89.2	
(WY)	1996	1999	2002	1997	1997	1960	1952	1995	1962	1962	1998	1999	
MIN	8.49	12.0	8.74	1.61	5.08	33.5	31.3	27.4	12.2	3.55	0.80	3.71	
(WY)	1977	1977	1956	1949	1979	1975	1976	1981	1976	1940	1976	1976	

06464500 KEYA PAHA RIVER AT WEWELA, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1939-1940, 1948-2002	
ANNUAL TOTAL	50678		26495		81.1a	
ANNUAL MEAN	139		72.6		188	
HIGHEST ANNUAL MEAN					19.5	
LOWEST ANNUAL MEAN					4930	
HIGHEST DAILY MEAN	929	Apr 26	500	Mar 31	1997	1976
LOWEST DAILY MEAN	27	Sep 6	11	Jul 31	0.00	Jan 10 1949b
ANNUAL SEVEN-DAY MINIMUM	29	Jan 28	12	Jul 28	0.00	Jan 10 1949
MAXIMUM PEAK FLOW			532	Mar 31	5430	Mar 31 1952c
MAXIMUM PEAK STAGE			3.77	Mar 31	13.50	Mar 25 1950d
ANNUAL RUNOFF (AC-FT')	100500		52550		58750	
10 PERCENT EXCEEDS	307		145		167	
50 PERCENT EXCEEDS	75		57		43	
90 PERCENT EXCEEDS	38		17		16	

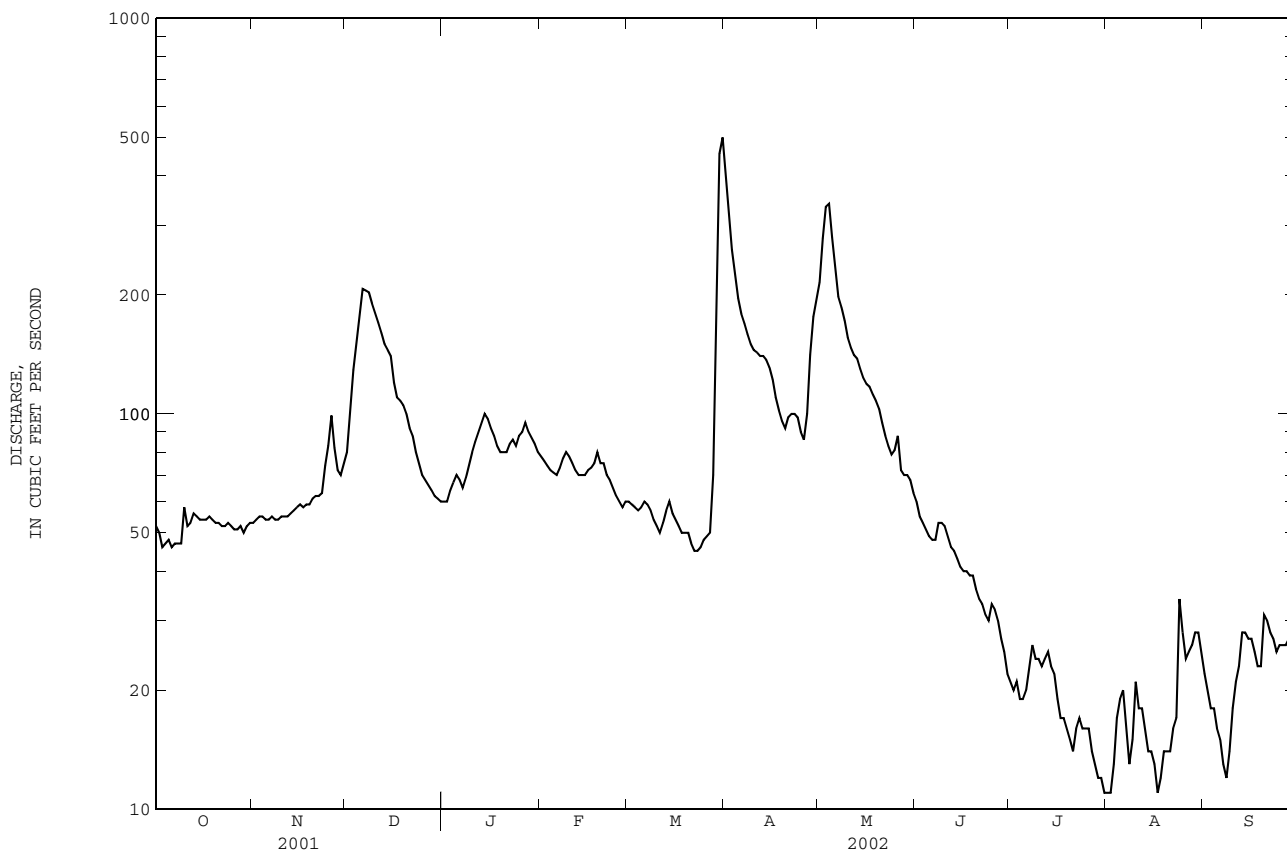
a Median of annual mean discharges, 72 ft³/s.

b Also Jan. 11 to Feb. 15, 1949, and Aug. 19 to Sept. 14, 1976.

c Gage height, 13.08 ft.

d Backwater from ice.

e Estimated.



MISSOURI-LEWIS AND CLARK RIVER BASIN

06466700 LEWIS AND CLARK LAKE AT SPRINGFIELD, SD

LOCATION.--Lat 42°51'21", long 97°53'06", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.24, T.93 N., R.60 W., Bon Homme County, Hydrologic Unit 10170101, on left bank at east edge of Springfield at mile 832.20.

PERIOD OF RECORD.--August 1967 to current year.

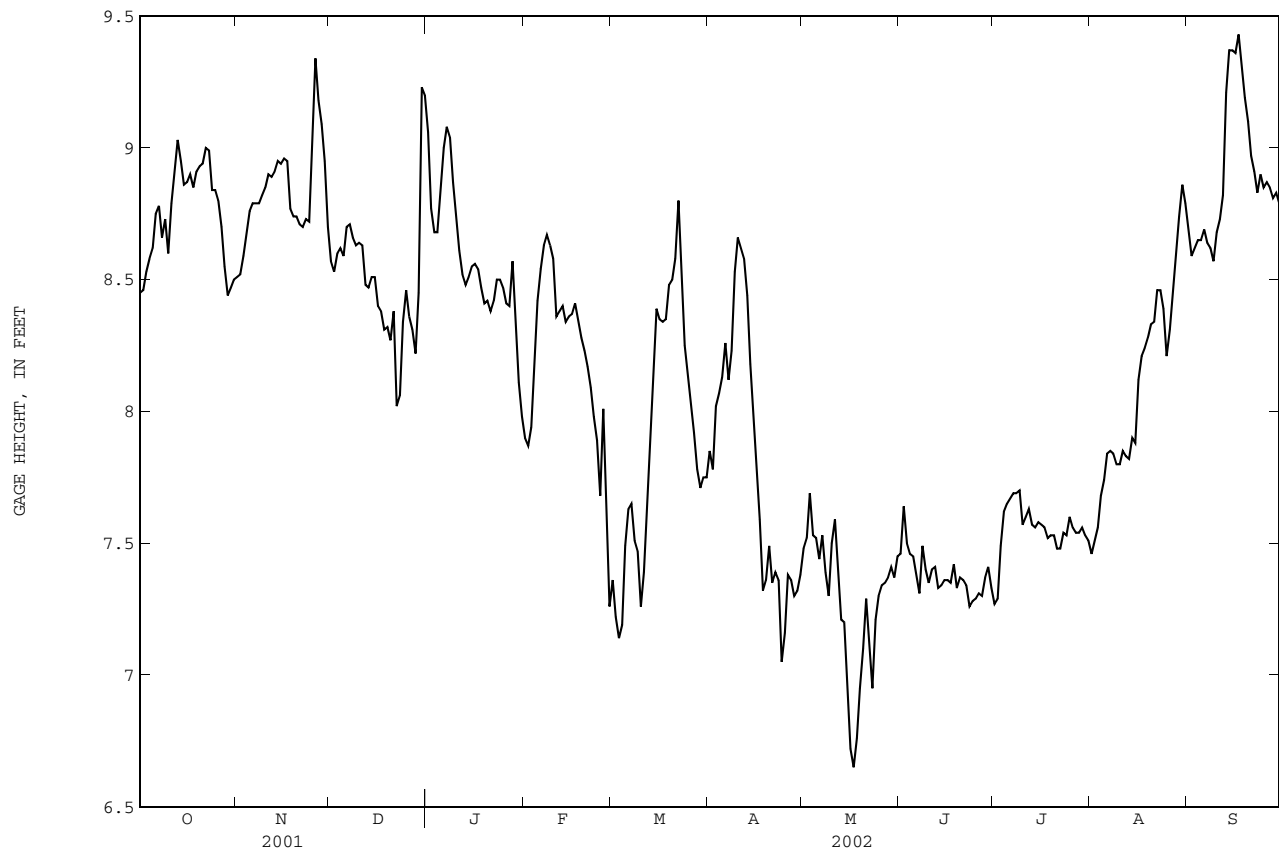
GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above NGVD of 1929.

REMARKS.--Records fair. Stage regulated by Gavins Point Dam 21.2 mi downstream. U.S. Army Corps of Engineers satellite data-collection platform at station. Prior to Oct. 1, 1980, gage heights in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.45	8.51	8.57	9.06	7.90	7.36	7.85	7.48	7.46	7.27	7.46	8.69
2	8.46	8.52	8.53	8.77	7.87	7.22	7.78	7.52	7.64	7.29	7.51	8.59
3	8.53	8.59	8.60	8.68	7.94	7.14	8.02	7.69	7.50	7.49	7.56	8.62
4	8.58	8.67	8.62	8.68	8.22	7.19	8.07	7.53	7.46	7.62	7.68	8.65
5	8.62	8.76	8.59	8.85	8.42	7.49	8.13	7.52	7.45	7.65	7.74	8.65
6	8.75	8.79	8.70	9.00	8.54	7.63	8.26	7.44	7.38	7.67	7.84	8.69
7	8.78	8.79	8.71	9.08	8.63	7.65	8.12	7.53	7.31	7.69	7.85	8.64
8	8.66	8.79	8.66	9.04	8.67	7.51	8.23	7.39	7.49	7.69	7.84	8.62
9	8.73	8.82	8.63	8.87	8.63	7.47	8.53	7.30	7.40	7.70	7.80	8.57
10	8.60	8.85	8.64	8.73	8.58	7.26	8.66	7.50	7.35	7.57	7.80	8.68
11	8.79	8.90	8.63	8.61	8.36	7.39	8.62	7.59	7.40	7.60	7.85	8.73
12	8.90	8.89	8.48	8.52	8.38	7.66	8.58	7.39	7.41	7.63	7.83	8.82
13	9.03	8.91	8.47	8.48	8.40	7.93	8.44	7.21	7.33	7.57	7.82	9.21
14	8.95	8.95	8.51	8.51	8.34	8.18	8.18	7.20	7.34	7.56	7.90	9.37
15	8.86	8.94	8.51	8.55	8.36	8.39	7.99	6.95	7.36	7.58	7.88	9.37
16	8.87	8.96	8.40	8.56	8.37	8.35	7.77	6.72	7.36	7.57	8.12	9.36
17	8.90	8.95	8.38	8.54	8.41	8.34	7.59	6.65	7.35	7.56	8.21	9.43
18	8.85	8.77	8.31	8.47	8.34	8.35	7.32	6.76	7.42	7.52	8.24	9.32
19	8.91	8.74	8.32	8.41	8.28	8.48	7.36	6.95	7.33	7.53	8.28	9.19
20	8.93	8.74	8.27	8.42	8.23	8.50	7.49	7.10	7.37	7.53	8.33	9.10
21	8.94	8.71	8.38	8.38	8.17	8.58	7.35	7.29	7.36	7.48	8.34	8.97
22	9.00	8.70	8.02	8.42	8.09	8.80	7.39	7.10	7.34	7.48	8.46	8.91
23	8.99	8.73	8.06	8.50	7.98	8.55	7.36	6.95	7.26	7.54	8.46	8.83
24	8.84	8.72	8.34	8.50	7.89	8.25	7.05	7.21	7.28	7.53	8.39	8.90
25	8.84	9.07	8.46	8.47	7.68	8.14	7.16	7.30	7.29	7.60	8.21	8.85
26	8.80	9.34	8.36	8.41	8.01	8.02	7.38	7.34	7.31	7.56	8.31	8.87
27	8.70	9.18	8.31	8.40	7.60	7.92	7.36	7.35	7.30	7.54	8.45	8.85
28	8.55	9.09	8.22	8.57	7.26	7.78	7.30	7.37	7.37	7.54	8.59	8.81
29	8.44	8.95	8.45	8.36	---	7.71	7.32	7.41	7.41	7.56	8.74	8.83
30	8.47	8.70	9.23	8.11	---	7.75	7.38	7.37	7.33	7.53	8.86	8.79
31	8.50	---	9.20	7.98	---	7.75	---	7.45	---	7.51	8.79	---
MEAN	8.75	8.83	8.50	8.58	8.20	7.89	7.80	7.28	7.38	7.55	8.10	8.90
MAX	9.03	9.34	9.23	9.08	8.67	8.80	8.66	7.69	7.64	7.70	8.86	9.43
MIN	8.44	8.51	8.02	7.98	7.26	7.14	7.05	6.65	7.26	7.27	7.46	8.57

06466700 LEWIS AND CLARK LAKE AT SPRINGFIELD, SD--Continued



LOCATION.--Lat 42°50'56", long 97°28'54", in SW $\frac{1}{4}$ sec.7, T.33 N., R.1 W., Cedar County, NE, Hydrologic Unit 10170101, in powerhouse of Gavins Point Dam on Missouri River, 3.75 mi southwest of Yankton, 13.6 mi upstream from James River, 32.5 mi downstream from Niobrara River, and at mile 811.0.

DRAINAGE AREA.--279,500 mi², approximately.

PERIOD OF RECORD.--July 1955 to current year (monthend contents only). Prior to October 1955, published as Gavins Point Reservoir near Yankton.

GAGE.--Water-stage recorder. Elevations listed to NGVD of 1929. Prior to Dec. 9, 1955, recorder at temporary location on wall of intake structure unit 3.

REMARKS.--Reservoir is formed by earthfill dam; storage began in July 1955. Maximum capacity, 504,000 acre-ft below elevation 1,210.0 ft (top of spillway gates). Normal maximum, 442,600 acre-ft below elevation 1,208.0 ft. Inactive storage, 157,000 acre-ft below elevation 1,195.0 ft. Dead storage, 23,000 acre-ft below elevation 1,180.0 ft (crest of spillway). From capacity table put into use Nov. 1, 1986; maximum capacity, 491,700 acre-ft. Normal maximum, 432,000 acre-ft. Inactive storage, 149,400 acre-ft. Dead storage, 17,700 acre-ft. Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of 14 taintor gates, each 40 ft wide by 30 ft high; spillway capacity, 280,000 ft³/s at pool elevation 1,210.0 ft. Crest of spillway is at elevation 1,180.0 ft. Normal releases are through 3 power units, installation completed in January 1957; maximum release through power units is 35,000 ft³/s at pool elevation, 1,210.0 ft. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 565,000 acre-ft, Apr. 1, 1960, affected by wind; maximum elevation, 1,210.6 ft, Mar. 29, 1960; minimum since initial filling, 61,950 acre-ft, Apr. 23, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 440,000 acre-ft, Nov. 26; minimum contents, 324,000 acre-ft, July 2.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,207.49	398,000	--
Oct. 31	1,207.41	394,000	-4,000
Nov. 30	1,208.28	418,000	+24,000
Dec. 31	1,207.39	394,000	-24,000
CAL YR 2001.	--	--	+4,000
Jan. 31	1,207.16	387,000	-7,000
Feb. 28	1,206.23	363,000	-24,000
Mar. 31	1,206.77	378,000	+15,000
Apr. 30	1,206.20	362,000	-16,000
May 31	1,205.80	353,000	-9,000
June 30	1,204.80	329,000	-24,000
July 31	1,205.24	340,000	+11,000
Aug. 31	1,207.16	389,000	+49,000
Sept. 30	1,207.08	386,000	-3,000
WTR YR 2002.	--	--	-12,000

NOTE.--Lake frozen over unknown to Apr. 2.

THIS PAGE IS INTENTIONALLY BLANK

MISSOURI-LEWIS AND CLARK RIVER BASIN

06467500 MISSOURI RIVER AT YANKTON, SD
(National stream-quality accounting network station)

LOCATION.--Lat 42°51'58", long 97°23'37", in SW¹/₄ SW¹/₄ sec.18, T.93 N., R.55 W., Yankton County, Hydrologic Unit 10170101, on left bank 10 ft upstream of Meridian Highway Bridge on U.S. Highway 81, 5.2 mi downstream from Gavins Point Dam, 6.0 mi upstream from James River, and at mile 805.8.

DRAINAGE AREA.--279,500 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1, 1995, to current year (daily gage-height records). October 1930 to September 1995 and October 2000 to September 2002 (daily discharge). Monthly discharge only for some periods, published in WSP 1309. Gage-height records collected at same site March 1873 to November 1886, March 1905 to May 1908 (fragmentary), August 1921 to September 1950 (except winter months prior to 1932), are contained in reports of the National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 1,139.68 ft above NGVD of 1929. Prior to Sept. 20, 1932, nonrecording gage, and Sept. 20, 1932, to Mar. 9, 1967, water-stage recorder at present site and at datum 20.0 ft higher.

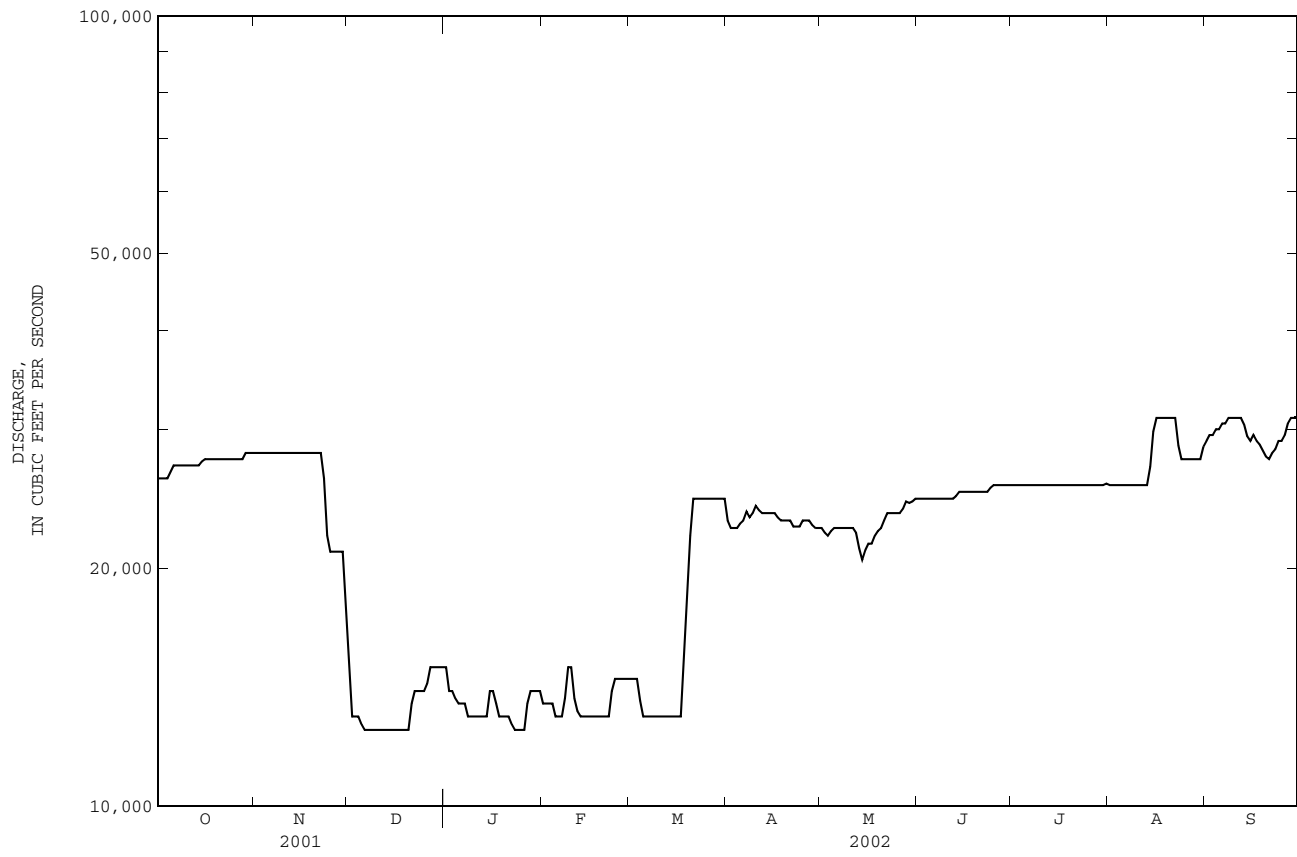
REMARKS.--Records good. Flow on Missouri River main stem completely regulated by a series of 6 dams with the most downstream being Gavins Point Dam (5.2 mi upstream from gage). Many diversions for irrigation and water supply above station. U.S. Army Corps of Engineers satellite data-collection platform at station.

COOPERATION.--Daily discharges were provided by U.S. Army Corps of Engineers from October 2000 to September 2002.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26000	28000	15000	15000	13500	14500	23000	22500	24500	25500	25500	29000
2	26000	28000	13000	14000	13500	14500	22500	22200	24500	25500	25500	29500
3	26000	28000	13000	14000	13500	14500	22500	22000	24500	25500	25500	29500
4	26000	28000	13000	13700	13500	13600	22500	22300	24500	25500	25500	30000
5	26500	28000	12700	13500	13000	13000	22800	22500	24500	25500	25500	30000
6	27000	28000	12500	13500	13000	13000	23000	22500	24500	25500	25500	30500
7	27000	28000	12500	13500	13000	13000	23600	22500	24500	25500	25500	30500
8	27000	28000	12500	13000	13700	13000	23200	22500	24500	25500	25500	31000
9	27000	28000	12500	13000	15000	13000	23500	22500	24500	25500	25500	31000
10	27000	28000	12500	13000	15000	13000	24000	22500	24500	25500	25500	31000
11	27000	28000	12500	13000	13700	13000	23700	22500	24500	25500	25500	31000
12	27000	28000	12500	13000	13200	13000	23500	22200	24500	25500	25500	31000
13	27000	28000	12500	13000	13000	13000	23500	21200	24700	25500	25500	30400
14	27000	28000	12500	13000	13000	13000	23500	20500	25000	25500	26900	29400
15	27300	28000	12500	14000	13000	13000	23500	21100	25000	25500	29800	29000
16	27500	28000	12500	14000	13000	13000	23500	21500	25000	25500	31000	29500
17	27500	28000	12500	13500	13000	13000	23200	21500	25000	25500	31000	29000
18	27500	28000	12500	13000	13000	16000	23000	22000	25000	25500	31000	28700
19	27500	28000	12500	13000	13000	19000	23000	22300	25000	25500	31000	28200
20	27500	28000	12500	13000	13000	22000	23000	22500	25000	25500	31000	27700
21	27500	28000	13500	13000	13000	24500	23000	23000	25000	25500	31000	27500
22	27500	28000	14000	12700	13000	24500	22600	23500	25000	25500	31000	28000
23	27500	26000	14000	12500	14000	24500	22600	23500	25000	25500	28600	28300
24	27500	22000	14000	12500	14500	24500	22600	23500	25300	25500	27500	29000
25	27500	21000	14000	12500	14500	24500	23000	23500	25500	25500	27500	29000
26	27500	21000	14300	12500	14500	24500	23000	23500	25500	25500	27500	29500
27	27500	21000	15000	13500	14500	24500	23000	23800	25500	25500	27500	30500
28	27500	21000	15000	14000	14500	24500	22700	24300	25500	25500	27500	31000
29	28000	21000	15000	14000	---	24500	22500	24200	25500	25500	27500	31000
30	28000	18000	15000	14000	---	24500	22500	24300	25500	25500	27500	31000
31	28000	---	15000	14000	---	24500	---	24500	---	25600	28500	---
TOTAL	842300	787000	413000	413900	380100	552600	691500	702900	747000	790600	854800	890700
MEAN	27170	26230	13320	13350	13580	17830	23050	22670	24900	25500	27570	29690
MAX	28000	28000	15000	15000	15000	24500	24000	24500	25500	25600	31000	31000
MIN	26000	18000	12500	12500	13000	13000	22500	20500	24500	25500	25500	27500
AC-FT	1671000	1561000	819200	821000	753900	1096000	1372000	1394000	1482000	1568000	1695000	1767000

06467500 MISSOURI RIVER AT YANKTON, SD--Continued
(National stream-quality accounting network station)



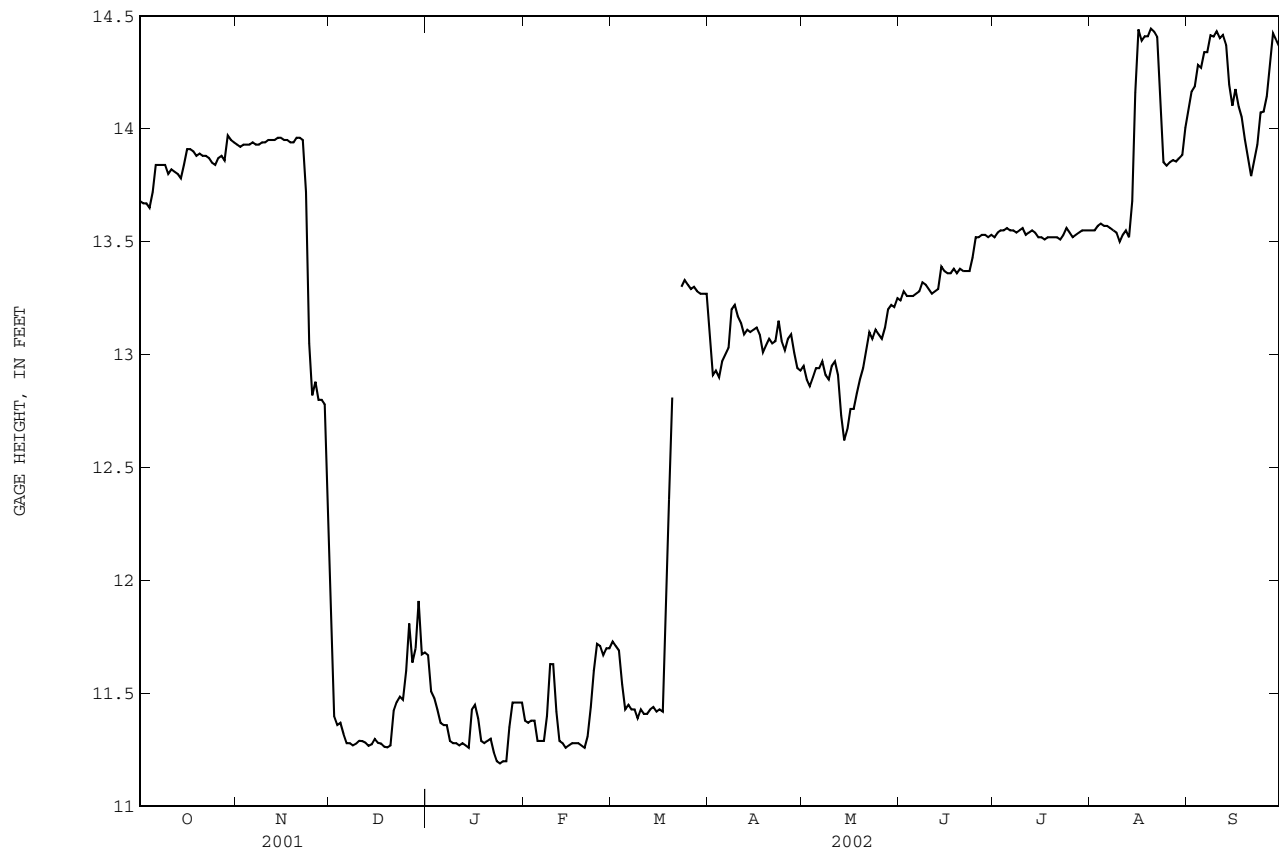
MISSOURI-LEWIS AND CLARK RIVER BASIN

06467500 MISSOURI RIVER AT YANKTON, SD--Continued
(National stream-quality accounting network station)

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.68	13.93	11.77	11.67	11.38	11.73	13.08	12.95	13.24	13.52	13.55	14.08
2	13.67	13.92	11.40	11.51	11.37	11.71	12.91	12.89	13.28	13.54	13.55	14.16
3	13.67	13.93	11.36	11.48	11.38	11.69	12.93	12.86	13.26	13.55	13.57	14.19
4	13.65	13.93	11.37	11.43	11.38	11.54	12.90	12.90	13.26	13.55	13.58	14.28
5	13.72	13.93	11.32	11.37	11.29	11.43	12.97	12.94	13.26	13.56	13.57	14.27
6	13.84	13.94	11.28	11.36	11.29	11.45	13.00	12.94	13.27	13.55	13.57	14.34
7	13.84	13.93	11.28	11.36	11.29	11.43	13.03	12.97	13.28	13.55	13.56	14.34
8	13.84	13.93	11.27	11.29	11.40	11.43	13.20	12.91	13.32	13.54	13.55	14.41
9	13.84	13.94	11.28	11.28	11.63	11.39	13.22	12.89	13.31	13.55	13.54	14.41
10	13.80	13.94	11.29	11.28	11.63	11.43	13.17	12.95	13.29	13.56	13.50	14.43
11	13.82	13.95	11.29	11.27	11.42	11.41	13.14	12.97	13.27	13.53	13.53	14.40
12	13.81	13.95	11.28	11.28	11.29	11.41	13.09	12.91	13.28	13.54	13.55	14.42
13	13.80	13.95	11.27	11.27	11.28	11.43	13.11	12.73	13.29	13.55	13.52	14.37
14	13.78	13.96	11.28	11.26	11.26	11.44	13.10	12.62	13.39	13.54	13.68	14.19
15	13.84	13.96	11.30	11.43	11.27	11.42	13.11	12.67	13.37	13.52	14.16	14.10
16	13.91	13.95	11.28	11.45	11.28	11.43	13.12	12.76	13.36	13.52	14.44	14.18
17	13.91	13.95	11.28	11.39	11.28	11.42	13.09	12.76	13.36	13.51	14.39	14.10
18	13.90	13.94	11.26	11.29	11.28	11.88	13.01	12.83	13.38	13.52	14.41	14.05
19	13.88	13.94	11.26	11.28	11.27	12.36	13.04	12.89	13.36	13.52	14.41	13.95
20	13.89	13.96	11.27	11.29	11.26	12.81	13.07	12.94	13.38	13.52	14.44	13.87
21	13.88	13.96	11.42	11.30	11.31	---	13.05	13.02	13.37	13.52	14.43	13.79
22	13.88	13.95	11.46	11.24	11.44	---	13.06	13.10	13.37	13.51	14.41	13.86
23	13.87	13.72	11.49	11.20	11.60	13.30	13.15	13.07	13.37	13.53	14.08	13.93
24	13.85	13.05	11.47	11.19	11.72	13.33	13.06	13.11	13.43	13.56	13.85	14.07
25	13.84	12.82	11.60	11.20	11.71	13.31	13.02	13.09	13.52	13.54	13.84	14.08
26	13.87	12.88	11.81	11.20	11.67	13.29	13.07	13.07	13.52	13.52	13.85	14.14
27	13.88	12.80	11.64	11.35	11.70	13.30	13.09	13.12	13.53	13.53	13.86	14.28
28	13.86	12.80	11.70	11.46	11.70	13.28	13.01	13.20	13.53	13.54	13.86	14.42
29	13.97	12.78	11.91	11.46	---	13.27	12.94	13.22	13.52	13.55	13.87	14.39
30	13.95	12.31	11.67	11.46	---	13.27	12.93	13.21	13.53	13.55	13.88	14.36
31	13.94	---	11.68	11.46	---	13.27	---	13.25	---	13.55	14.00	---
MEAN	13.83	13.66	11.43	11.35	11.42	---	13.06	12.96	13.36	13.54	13.87	14.20
MAX	13.97	13.96	11.91	11.67	11.72	---	13.22	13.25	13.53	13.56	14.44	14.43
MIN	13.65	12.31	11.26	11.19	11.26	---	12.90	12.62	13.24	13.51	13.50	13.79

06467500 MISSOURI RIVER AT YANKTON, SD--Continued
(National stream-quality accounting network station)



06467500 MISSOURI RIVER AT YANKTON, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 2000 to current year (NASQAN). December 1950 to September 1951, October 1956 to September 1960, and July 1969 to September 1974 chemical analyses performed.
WATER TEMPERATURE: October 1956 to September 1960.

REMARKS.--Water-quality samples are collected about 1.2 mi below Gavins Point Dam, or 3.9 mi upstream from the gage on the main channel. Inflow between the location where water-quality samples are collected and the stage-gaging station generally is negligible. For all samples collected during water year 2002, field duplicate samples were collected for suspended-sediment analyses for quality-control purposes. On May 23, 2002, in addition to the primary sample (time 1230), a field duplicate sample (time 1240) for analysis of inorganic and organic constituents was collected for quality-control purposes. The analytical results for all duplicate samples are noted in the water-quality results. On Apr. 25, 2002, a duplicate sample also was collected and spiked with various known concentrations of pesticides; results of the spiked samples are available from the South Dakota District office in Rapid City, S. Dak. On Feb. 20 and Aug. 8, 2002, blank water was processed at the field site through the sampling equipment used for this site and then processed and analyzed for quality-control purposes. The analytical results for the field blank samples are presented in a table following the water-quality results. Additional quality-control data for this site are available from the South Dakota District office in Rapid City, S. Dak.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CaCO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L) (00904)	ALKA-LINITY WAT DIS TOT IT FET LAB (MG/L CaCO3) (39086)	ALKA-LINITY WAT.DIS FET LAB (MG/L CaCO3) (29801)
DEC 2001													
05...	1230	12500	742	7.9	5.0	3.0	727	11.6	91	220	68	153	162
a05...	1240	--	--	--	--	--	--	--	--	--	--	--	--
JAN 2002													
15...	1300	14000	738	7.9	-4.5	1.2	739	15.0	110	240	74	161	172
a15...	1310	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
20...	1330	13000	712	7.8	7.0	2.0	729	13.5	102	220	74	149	160
a20...	1340	--	--	--	--	--	--	--	--	--	--	--	--
APR													
25...	1230	23000	749	8.4	9.0	9.6	740	11.9	108	230	68	162	171
a25...	1240	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
23...	1230	23500	741	8.4	16.0	14.7	731	10.5	108	230	76	154	168
b23...	1240	--	--	--	--	--	--	--	--	240	80	156	167
a23...	1240	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
18...	1200	25500	782	8.4	32.5	25.1	730	7.7	98	230	73	161	165
a18...	1210	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08...	1200	25500	778	8.4	29.0	25.3	735	7.4	94	230	68	163	164
a08...	1210	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
19...	1300	28500	766	8.2	17.5	19.9	727	8.4	97	230	73	152	E168
a19...	1310	--	--	--	--	--	--	--	--	--	--	--	--
Date		CALCIUM DIS-SOLVED (MG/L AS Ca) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) (00925)	SODIUM, DIS-SOLVED (MG/L AS Na) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3) (00452)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SiO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
DEC 2001													
05...	53.8	21.0	63.7	38	2	5.03	187	0	209	10.2	.5	7.90	464
a05...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN 2002													
15...	57.9	21.8	64.9	37	2	4.99	195	0	208	9.90	.7	9.65	476
a15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
20...	54.6	20.4	61.9	37	2	4.56	180	0	191	9.51	.5	10.7	443
a20...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
25...	56.3	21.7	65.9	38	2	4.96	188	5	209	10.6	.5	7.41	474
a25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
23...	57.5	21.0	63.1	37	2	4.83	174	7	202	8.93	.5	7.71	459
b23...	58.7	21.4	64.6	37	2	5.16	179	5	202	8.95	.5	7.92	463
a23...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
18...	56.7	22.4	74.6	40	2	5.33	179	9	218	10.7	.4	6.19	492
a18...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08...	54.8	22.6	72.0	40	2	5.63	187	6	216	10.4	.5	6.24	487
a08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
19...	53.1	22.4	72.4	41	2	5.07	179	3	207	9.92	.5	7.01	470
a19...	--	--	--	--	--	--	--	--	--	--	--	--	--

a Field duplicate suspended sediment sample collected for quality-control purposes.

b Field duplicate inorganic and organic constituents sampled for quality-control purposes.

E Estimated value.

06467500 MISSOURI RIVER AT YANKTON, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
DEC 2001													
05...	484	16300	<.015	.27	.27	<.002	.144	.018	.006	<.007	1.8	117	<10
a05...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN 2002													
15...	510	19300	<.015	.28	.22	<.002	.219	.014	.007	<.007	2.1	122	<10
a15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
20...	466	16400	E.009	.25	.20	E.002	.216	.020	.005	<.007	1.8	98	<10
a20...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
25...	510	31700	<.015	.33	.25	E.002	.045	.025	.005	<.007	2.1	111	<10
a25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
23...	492	31200	E.011	.35	.23	E.002	.057	.025	.005	<.007	2.5	115	<10
b23...	492	--	E.014	.37	.27	E.002	.063	.025	E.004	<.007	2.5	115	<10
a23...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
18...	512	35300	<.015	.28	.19	<.002	<.013	.029	E.003	<.007	2.4	132	<10
a18...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08...	505	34800	<.015	E.31	E.20	<.002	<.013	E.031	E.006	<.007	2.4	139	<10
a08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
19...	499	38400	E.009	.29	.22	<.002	<.013	.029	E.004	<.007	2.2	121	<10
a19...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)
DEC 2001													
05...	47.7	1.9	517	1.6	3.2	.9	<.004	<.002	<.002	.021	E.006	<.050	<.010
a05...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN 2002													
15...	54.4	2.0	537	3.0	3.2	.5	<.006	<.004	<.006	.022	E.006	<.050	<.010
a15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
20...	43.8	1.6	540	1.2	3.2	.6	<.006	<.004	<.006	.019	<.007	<.050	<.010
a20...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
25...	47.1	1.6	531	2.6	3.3	1.4	.011	<.004	<.006	.019	E.004	<.050	<.010
a25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
23...	49.1	2.2	514	4.3	3.2	1.2	.016	<.004	<.006	.030	E.008	<.050	<.010
b23...	49.0	2.2	526	4.2	3.1	1.2	.015	<.004	<.006	.026	E.006	<.050	<.010
a23...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
18...	52.0	2.5	524	2.7	3.3	.8	.009	<.004	<.006	.039	E.006	<.050	<.010
a18...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08...	52.5	1.7	554	4.0	E3.4	E.9	E.009	<.004	<.006	E.041	E.011	<.050	<.010
a08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
19...	45.8	1.6	555	2.2	3.8	1.0	<.006	<.004	<.006	.022	E.005	<.050	<.010
a19...	--	--	--	--	--	--	--	--	--	--	--	--	--

a Field duplicate suspended sediment sample collected for quality-control purposes.

b Field duplicate inorganic and organic constituents sampled for quality-control purposes.

E Estimated value.

MISSOURI-FORT RANDALL RIVER BASIN

06467500 MISSOURI RIVER AT YANKTON, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	ALPHA BHC DIS- SOLVED (UG/L) (34253)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P, P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)
DEC 2001													
05...	<.005	<.002	<.041	<.020	<.018	<.003	<.003	<.005	<.005	<.02	<.002	<.009	<.005
a05...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN 2002													
15...	<.005	<.002	<.041	<.020	<.018	<.003	<.003	<.005	<.005	<.02	<.002	<.009	<.005
a15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
20...	<.005	<.002	<.041	<.020	<.018	<.003	<.003	<.005	<.005	<.02	<.002	<.009	<.005
a20...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
25...	<.005	<.002	<.041	<.020	<.018	<.003	<.003	<.005	<.005	<.02	<.002	<.009	<.005
a25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
23...	<.005	<.002	<.041	<.020	<.018	<.003	<.003	<.005	<.005	<.02	.006	<.009	<.005
b23...	<.005	<.002	<.041	<.020	<.018	<.003	<.003	<.005	<.005	<.02	.007	<.009	<.005
a23...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
18...	<.005	<.002	<.041	<.020	<.018	<.003	<.003	<.005	<.005	<.02	<.005	<.009	<.005
a18...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08...	<.005	<.002	<.041	<.020	<.018	<.003	<.003	<.005	<.005	<.02	<.002	<.009	<.005
a08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
19...	<.005	<.002	<.041	<.020	<.018	<.003	<.003	<.005	<.005	<.02	<.002	<.009	<.005
a19...	--	--	--	--	--	--	--	--	--	--	--	--	--
Date	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)
DEC 2001													
05...	<.003	<.004	<.035	<.027	E.003	<.006	<.002	<.007	<.006	<.007	<.002	<.010	<.006
a05...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN 2002													
15...	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006
a15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
20...	<.003	<.004	<.035	<.027	E.002	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006
a20...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
25...	<.003	<.004	<.035	<.027	E.006	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006
a25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
23...	<.003	<.004	<.035	<.027	E.011	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006
b23...	<.003	<.004	<.035	<.027	E.010	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006
a23...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
18...	<.003	<.004	<.035	<.027	E.006	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006
a18...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08...	<.003	<.004	<.035	<.027	E.008	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006
a08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
19...	<.003	<.004	<.035	<.027	E.005	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006
a19...	--	--	--	--	--	--	--	--	--	--	--	--	--

a Field duplicate suspended sediment sample collected for quality-control purposes.

b Field duplicate inorganic and organic constituents sampled for quality-control purposes.

E Estimated value.

06467500 MISSOURI RIVER AT YANKTON, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
DEC 2001													
05...	<.011	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005	<.002	<.009
a05...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN 2002													
15...	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009
a15...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
20...	<.011	M	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009
a20...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
25...	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009
a25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
23...	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009
b23...	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009
a23...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
18...	<.011	M	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009
a18...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08...	<.011	E.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009
a08...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
19...	<.011	M	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009
a19...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	SEDIMENT, SUSPENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)

DEC 2001		
05...	11	100
a05...	11	99
JAN 2002		
15...	3.0	98
a15...	3.0	97
FEB		
20...	3.0	90
a20...	4.0	91
APR		
25...	12	98
a25...	11	97
MAY		
23...	9.0	98
b23...	--	--
a23...	8.0	97
JUL		
18...	12	99
a18...	12	99
AUG		
08...	12	98
a08...	22	99
SEP		
19...	15	99
a19...	18	100

a Field duplicate suspended sediment sample collected for quality-control purposes.

b Field duplicate inorganic and organic constituents sampled for quality-control purposes.

E Estimated value.

M Presence verified, not quantified.

MISSOURI-FORT RANDALL RIVER BASIN

06467500 MISSOURI RIVER AT YANKTON, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ANTI- MONY, DIS- SOLVED (UG/L AS SB) (01095)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	
FEB 2002 c20...	1338	<.01	<.008	<.09	<.13	<.015	<.002	<.013	<.007	<1	E.03	<.2	<1	
AUG c08...	1208	--	--	--	--	--	--	--	--	--	--	--	--	
Date		BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)
FEB 2002 c20...	<.06	<7	<.04	<.8	<.02	<.2	<10	<.08	<.3	<.1	<.2	<.06	<.3	
AUG c08...	--	--	--	--	--	--	--	--	--	--	--	--	--	
Date		SILVER, DIS- SOLVED (UG/L AS AG) (01075)	THAL- LIUM, DIS- SOLVED (UG/L AS TL) (01057)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC PARTIC- ULATE TOTAL (MG/L AS C) (00689)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ZINE, WATER, DISS, REC (UG/L) (04040)
FEB 2002 c20...	<1	<.04	.10	<.2	<1	<.02	--	--	--	--	--	--	--	
AUG c08...	--	--	--	--	--	--	E.2	<.1	<.006	<.004	<.006	<.007	<.006	
Date		METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIPOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P,P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)
FEB 2002 c20...	--	--	--	--	--	--	--	--	--	--	--	--	--	
AUG c08...	<.050	<.010	<.005	<.002	<.041	<.020	<.005	<.018	<.003	<.003	<.005	<.005	<.02	
Date		EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)
FEB 2002 c20...	--	--	--	--	--	--	--	--	--	--	--	--	--	
AUG c08...	<.002	<.009	<.005	<.003	<.004	<.035	<.027	<.013	<.006	<.002	<.010	<.006	<.007	

c Field blank sample collected for quality-control purposes.

E Estimated value.

06467500 MISSOURI RIVER AT YANKTON, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	PEB- ULATE WATER FLTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)
FEB 2002 c20...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG c08...	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02

Date	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
FEB 2002 c20...	--	--	--
AUG c08...	<.005	<.002	<.009

c Field blank sample collected for quality-control purposes.

JAMES RIVER BASIN

06470878 JAMES RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'10", long 98°10'26", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.34, T.129 N., R.60 W., Dickey County, Hydrologic Unit 10160003, at bridge on North Dakota-South Dakota State line road 6.5 mi south and 1 mi west from Ludden, ND.

DRAINAGE AREA.--5,480 mi², approximately, revised, of which about 3,300 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 2001 to September 2002. October 1981 to September 2001 equivalent discharge site formerly published as James River at Dakota Lake Dam near Ludden. October 1981 to September 1999 (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is 1,200 ft above NGVD of 1929.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e240	e54	e70	e41	e38	e88	e112	e303	e220	e110	e170	121
2	e220	e55	e73	e41	e37	e84	e108	e295	e205	e88	e160	124
3	e190	e56	e74	e43	e37	e79	e105	e288	e195	e80	e145	58
4	e160	e57	e76	e45	e37	e75	e103	e290	e185	e70	e135	27
5	e130	e56	e75	e46	e37	e72	e111	e300	e175	e60	e120	37
6	e110	e55	e73	e48	e38	e70	e120	e299	e165	e58	e112	55
7	e90	e56	e71	e50	e39	e68	e125	e293	e155	e75	e106	20
8	e80	e57	e72	e51	e40	e67	e133	e295	e148	e88	e100	29
9	e90	e58	e70	e53	e43	e66	e142	e303	e155	e105	96	100
10	e100	e60	e68	e51	e46	e68	e150	e310	e170	e125	78	58
11	e120	e61	e67	e49	e49	e71	e160	e312	e175	e110	77	45
12	e140	e63	e65	e48	e51	e77	e170	e315	e168	e85	91	37
13	e160	e64	e64	e46	e53	e84	e180	e318	e140	e70	72	31
14	e165	e65	e62	e45	e55	e91	e190	e315	e125	e55	44	69
15	e130	e67	e61	e44	e54	e100	e200	e312	e110	e46	73	16
16	e92	e68	e59	e43	e52	e105	e210	e305	e100	e40	52	18
17	e84	e70	e58	e41	e55	e113	e218	e297	e94	e70	72	2.2
18	e81	e71	e57	e40	e60	e112	e225	e290	e90	e111	51	21
19	e80	e73	e56	e41	e62	e110	e230	e282	e85	e180	26	120
20	e81	e75	e54	e42	e57	e108	e230	e278	e87	e290	20	60
21	e83	e77	e53	e43	e61	e106	e225	e273	e93	e400	50	59
22	e90	e79	e51	e45	e68	e102	e220	e275	e110	e425	50	50
23	e100	e82	e50	e46	e73	e100	e215	e278	e130	e400	47	81
24	e108	e84	e49	e46	e80	e98	e212	e280	e160	e350	40	15
25	e95	e87	e48	e45	e87	e102	e220	e278	e200	e320	36	53
26	e83	e88	e47	e44	e92	e108	e232	e272	e244	e285	38	28
27	e74	e85	e46	e42	e94	e115	e250	e260	e255	e260	31	37
28	e67	e80	e45	e41	e91	e123	e265	e250	e195	e240	27	72
29	e60	e75	e44	e40	---	e120	e280	e245	e130	e220	39	23
30	e57	e69	e43	e39	---	e116	e300	e238	e115	e205	18	39
31	e54	---	e42	e38	---	e114	---	e230	---	e185	4.5	---
TOTAL	3414	2047	1843	1377	1586	2912	5641	8879	4579	5206	2180.5	1505.2
MEAN	110.1	68.23	59.45	44.42	56.64	93.94	188.0	286.4	152.6	167.9	70.34	50.17
MAX	240	88	76	53	94	123	300	318	255	425	170	124
MIN	54	54	42	38	37	66	103	230	85	40	4.5	2.2
AC-FT	6770	4060	3660	2730	3150	5780	11190	17610	9080	10330	4330	2990

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2002, BY WATER YEAR (WY)

	MEAN	205.4	145.1	66.82	28.79	30.90	341.2	847.8	614.7	463.5	392.5	313.0	250.1
MAX	867	613	239	77.1	88.1	853	4617	2316	1447	1181	1143	1003	
(WY)	1994	2001	2001	1995	2000	1995	1997	1997	1997	1995	1993	1999	
MIN	1.86	0.20	0.28	0.056	0.62	26.0	33.4	9.92	2.12	0.015	0.000	0.011	
(WY)	1989	1991	1991	1991	1989	1990	1990	1990	1988	1988	1988	1990	

06470878 JAMES RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1982 - 2002a	
ANNUAL TOTAL	204598		41169.7		309.1	
ANNUAL MEAN	560.5		112.8		969	
HIGHEST ANNUAL MEAN					10.3	
LOWEST ANNUAL MEAN					7500	
HIGHEST DAILY MEAN	2740	Apr 11	425	Jul 22	0.00	Apr 6 1997
LOWEST DAILY MEAN	28	Feb 26	2.2	Sep 17	0.00	Oct 8 1981
ANNUAL SEVEN-DAY MINIMUM	28	Feb 26	28	Aug 25	0.00	Jul 10 1985
MAXIMUM PEAK FLOW			450	Jul 22b	7500	Apr 6 1997
MAXIMUM PEAK STAGE			(c)		98.04	Apr 6 1997d
INSTANTANEOUS LOW FLOW					0.00	Oct 2 1981
ANNUAL RUNOFF (AC-FT)	405800		81660		223900	
10 PERCENT EXCEEDS	1490		262		975	
50 PERCENT EXCEEDS	163		80		92	
90 PERCENT EXCEEDS	34		40		0.47	

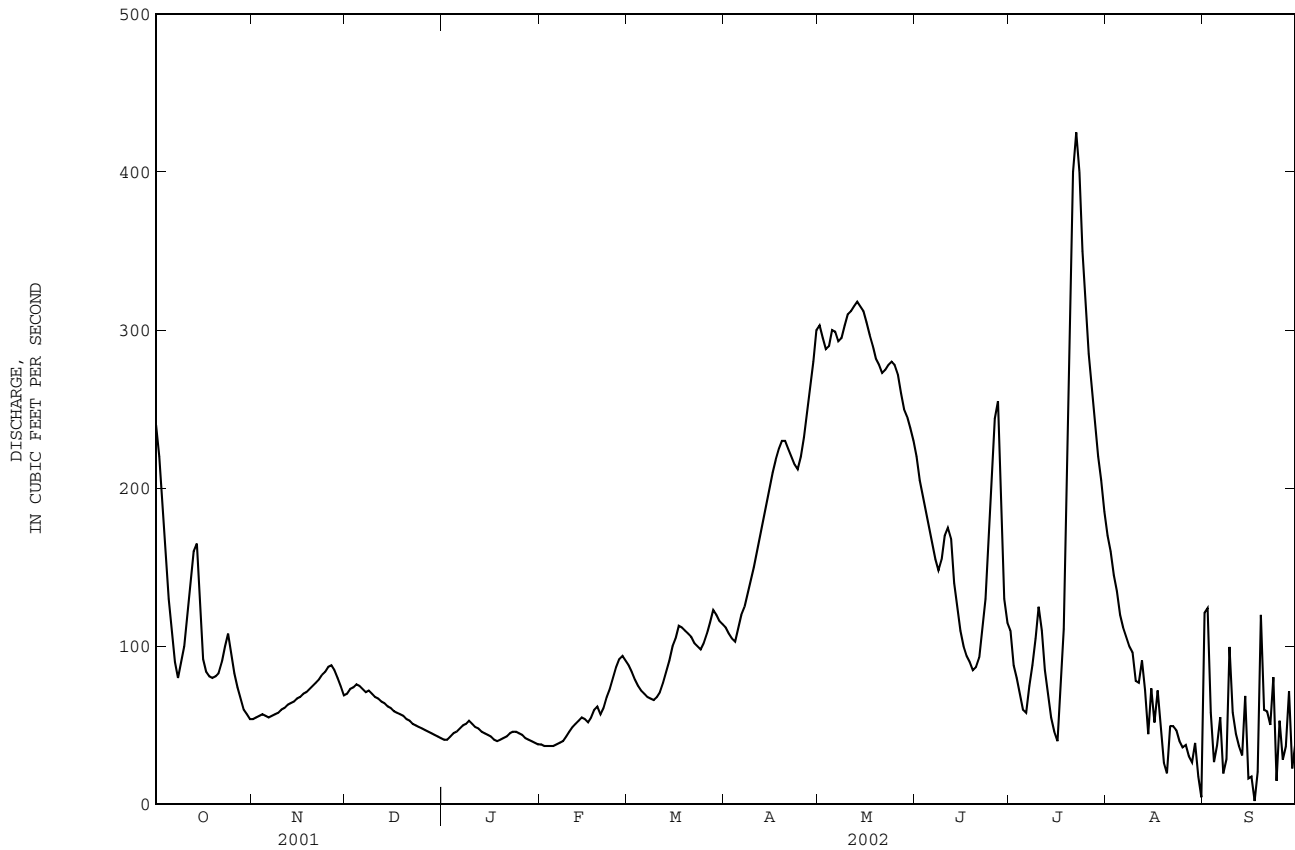
a Historic discharge data, water years 1982-2001, from equivalent station, James River at Dakota Lake Dam near Ludden, ND (06470875).

b About.

c Not determined.

d From high-water mark at current gage location.

e Estimated.



JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD

LOCATION.--Lat 45°36'13", long 98°18'36", in NW¹/₄ NW¹/₄ sec.33, T.125 N., R.62 W., Brown County, Hydrologic Unit 10160003, on left bank 20 ft downstream from highway bridge, 0.6 mi south of Columbia, 0.9 mi downstream from Chicago and North Western Railway Co. bridge, 0.3 mi upstream from Elm River, and 12.7 mi downstream from Columbia Road Dam.

DRAINAGE AREA.--5,857 mi², of which about 3,376 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,272.91 ft above NGVD of 1929. From Oct. 1, 1945, to Oct. 4, 1957, nonrecording gage. From Oct. 5, 1957, to Sept. 30, 1980, water-stage recorder. Both gages described above at site 3.3 mi upstream from present site and at different datum.

REMARKS.--Records good except those for estimated daily discharges which are poor. Flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, which reached maximum pool elevation in May 1974. Maximum discharge prior to Sept. 30, 1974, 5,420 ft³/s, May 24, 25, 1950, gage height, 16.89 ft, from graph based on gage readings; maximum daily reverse flow, 1,860 ft³/s, Apr. 8, 1952, backwater from Elm River. U.S. Army Corps of Engineers gage-height telemeter and satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	207	107	e46	e47	e53	e57	69	166	196	76	158	30
2	210	104	e45	e46	e53	e57	69	180	200	88	171	51
3	213	98	e45	e50	e51	e59	60	188	207	105	181	49
4	212	93	e45	e49	e49	e60	76	190	203	97	193	39
5	212	84	e44	e50	e47	e61	68	201	195	62	207	18
6	209	78	e44	e50	e48	e60	59	215	180	37	219	32
7	210	76	e45	e50	e52	e64	54	222	155	70	210	30
8	211	41	e45	e48	e55	e62	67	231	143	90	177	10
9	216	16	e45	e48	e59	e60	98	234	133	88	151	29
10	265	11	e45	e49	e61	e65	111	233	122	77	152	44
11	248	11	e45	e48	e64	e65	113	236	119	96	144	36
12	230	7.6	e45	e47	e64	e65	113	246	120	73	134	30
13	229	8.7	e45	e48	e62	e70	115	246	117	51	126	27
14	228	9.4	e45	e50	e63	e68	115	240	120	44	109	29
15	225	9.6	e45	e51	e67	e59	115	238	120	31	105	35
16	225	10	e45	e50	e69	e68	117	248	119	17	103	18
17	222	8.8	e46	e48	e74	e67	113	254	117	25	86	16
18	221	9.8	e46	e47	e76	e66	118	260	117	45	84	8.5
19	217	23	e40	e48	e80	e68	117	262	118	47	80	20
20	173	10	e46	e49	e79	e64	122	262	117	40	63	32
21	145	8.9	e45	e50	e77	e50	127	247	119	36	64	24
22	138	13	e45	e51	e74	e62	128	221	113	42	85	19
23	135	15	e40	e52	e73	e74	128	214	106	47	91	20
24	128	32	e43	e51	e70	e80	128	231	107	42	73	23
25	124	63	e43	e50	e60	e77	127	232	110	41	61	18
26	124	e20	e43	e52	e66	e79	129	224	109	50	53	24
27	126	e4.0	e43	e53	e60	e77	134	221	110	83	52	17
28	118	e30	e44	e53	e57	e80	136	215	110	105	42	24
29	119	e50	e44	e51	---	e79	132	210	77	120	43	28
30	117	e48	e44	e48	---	e76	144	207	48	126	40	16
31	111	---	e46	e50	---	e72	---	199	---	145	17	---
TOTAL	5768	1099.8	1377	1534	1763	2071	3202	6973	3927	2096	3474	796.5
MEAN	186	36.7	44.4	49.5	63.0	66.8	107	225	131	67.6	112	26.6
MAX	265	107	46	53	80	80	144	262	207	145	219	51
MIN	111	4.0	40	46	47	50	54	166	48	17	17	8.5
AC-FT	11440	2180	2730	3040	3500	4110	6350	13830	7790	4160	6890	1580

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2002, BY WATER YEAR (WY) *

MEAN	197	169	83.0	25.5	23.2	69.4	575	600	399	361	283	210
MAX	949	930	478	113	103	468	2856	2661	1610	1211	1085	1084
(WY)	1994	1994	1994	2001	1998	2000	1997	1997	1997	1997	1995	1993
MIN	0.000	0.000	0.000	0.000	0.000	-215	0.014	0.000	0.000	0.000	0.000	0.000
(WY)	1977	1977	1977	1977	1977	1997	1977	1977	1977	1977	1977	1976

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

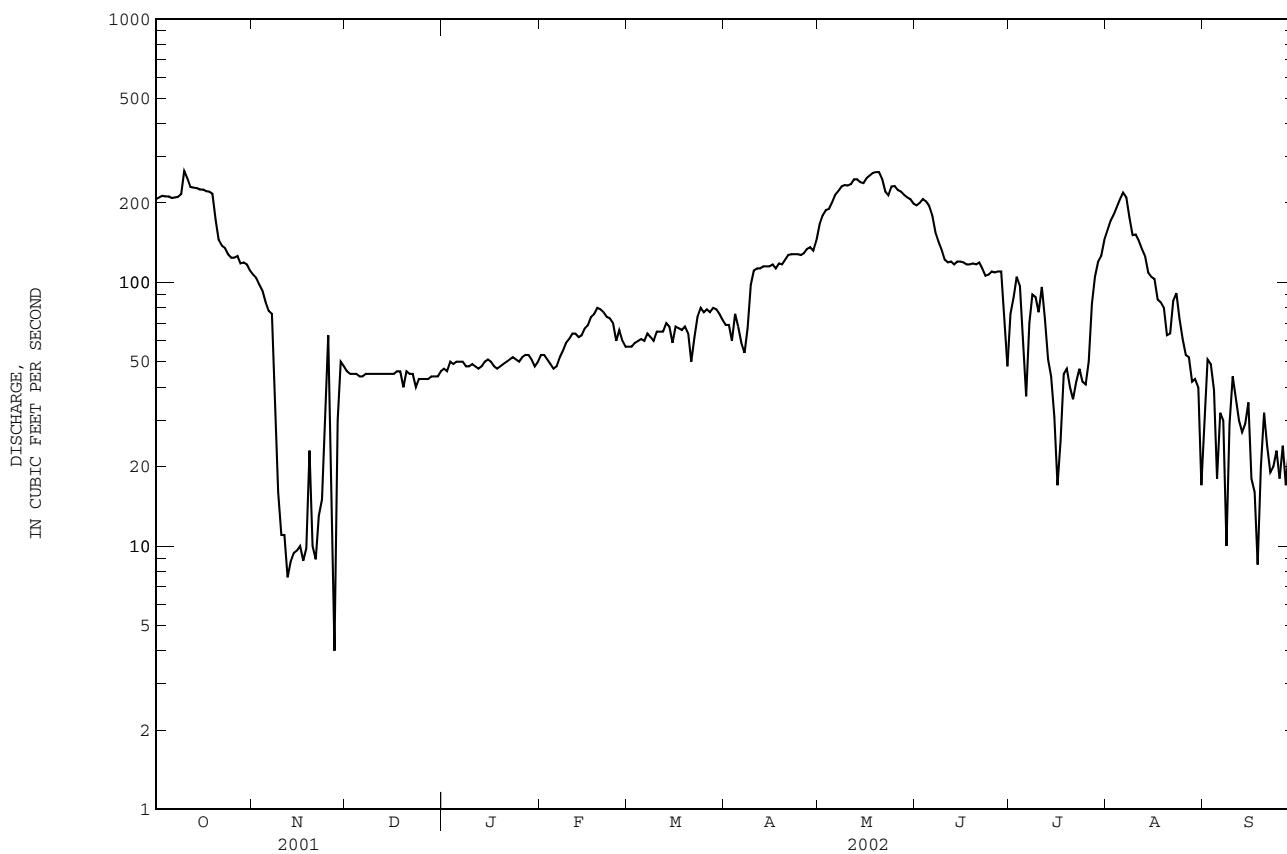
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1975 - 2002*	
ANNUAL TOTAL	213719.8		34081.3		250	
ANNUAL MEAN	586		93.4		856	
HIGHEST ANNUAL MEAN					0.063	
LOWEST ANNUAL MEAN					1997	
HIGHEST DAILY MEAN	2140	Apr 23	265	Oct 10	4100	Apr 30 1997
LOWEST DAILY MEAN	-300	Mar 28	4.0	Nov 27	-2400	Mar 30 1997a
ANNUAL SEVEN-DAY MINIMUM	-129	Mar 27	9.1	Nov 12	-1410	Mar 27 1997a
MAXIMUM PEAK FLOW			271	Oct 10	4130	Apr 30 1997b
MAXIMUM PEAK STAGE			7.80	Oct 10	19.08	Apr 19 1997a
ANNUAL RUNOFF (AC-FT)	423900		67600		181300	
10 PERCENT EXCEEDS	1550		212		878	
50 PERCENT EXCEEDS	221		68		51	
90 PERCENT EXCEEDS	40		28		0.00	

* Regulated period only (1975-2002). See REMARKS.

a Backwater from Elm River.

b Gage height, 18.63 ft, backwater.

e Estimated.



06471065 ELM RIVER NEAR FREDERICK, SD

LOCATION.--Lat 45°50'15", long 98°42'06", in NW¹/₄ NW¹/₄ NW¹/₄ sec.8, T.127 N., R.65 W., Brown County, Hydrologic Unit 10160004, on right bank at downstream side of bridge on Brown County Road 5, 1.7 mi downstream of Elm Lake Dam on Elm River and 8.8 mi west of Frederick.

DRAINAGE AREA.--To be determined.

PERIOD OF RECORD.--October 1999 to current year (seasonal mean daily gage height and yearly instantaneous peak gage height and discharge).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,455 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. Daily gage heights not published for no-flow periods: Apr. 1-17, 25, 26, and June 7 to Sept. 30. Satellite data-collection platform, telemeter, and seasonal National Weather Service rain gage at site. Flow regulated to some extent for Aberdeen municipal water supply by rolled earth dam forming Elm Lake 1.7 mi upstream with a storage capacity of 15,200 acre-ft. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

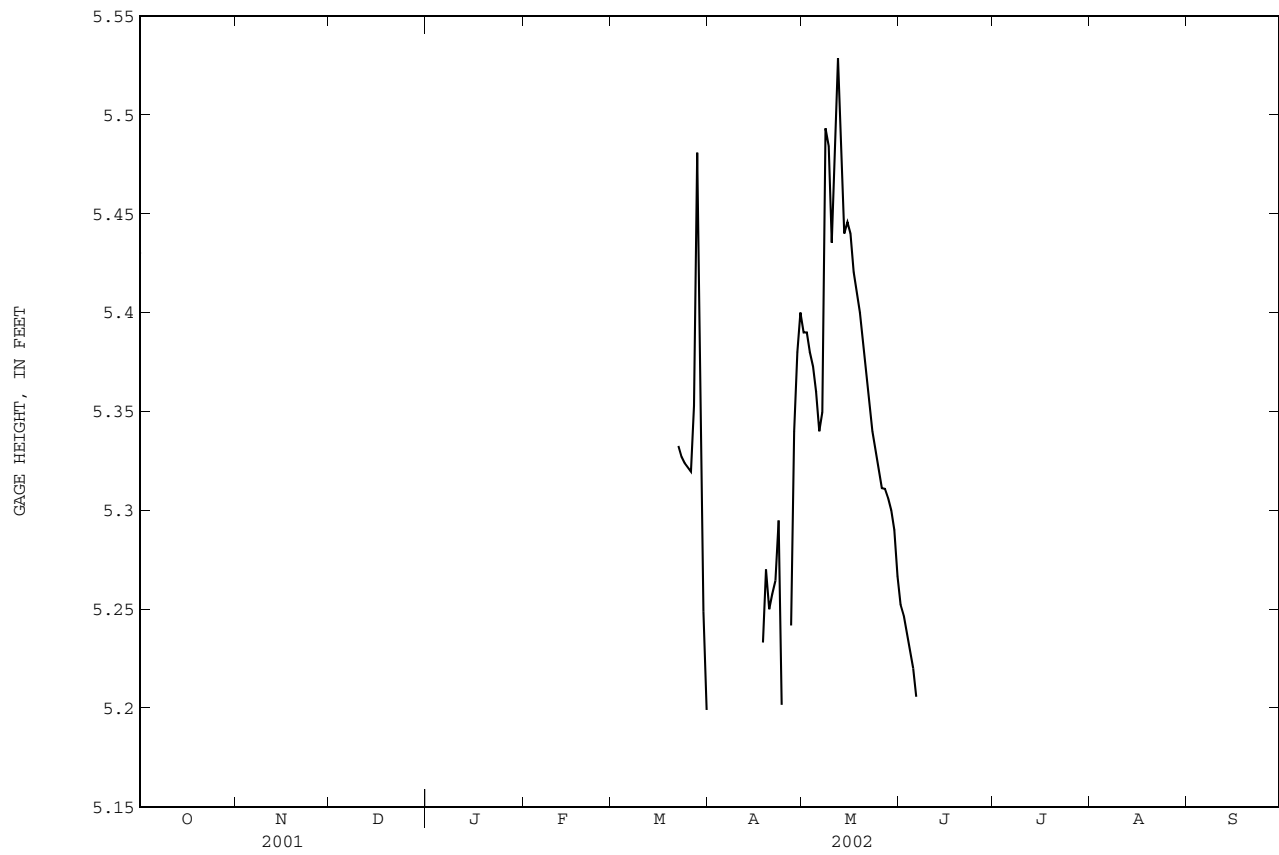
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,550 ft³/s, Mar. 24, 2001, gage height, 13.58 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3.3 ft³/s, Mar. 28, gage height, 5.58 ft.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	5.39	5.25	---	---	---
2	---	---	---	---	---	---	---	5.39	5.25	---	---	---
3	---	---	---	---	---	---	---	5.38	5.24	---	---	---
4	---	---	---	---	---	---	---	5.37	5.23	---	---	---
5	---	---	---	---	---	---	---	5.36	5.22	---	---	---
6	---	---	---	---	---	---	---	5.34	5.21	---	---	---
7	---	---	---	---	---	---	---	5.35	---	---	---	---
8	---	---	---	---	---	---	---	5.49	---	---	---	---
9	---	---	---	---	---	---	---	5.48	---	---	---	---
10	---	---	---	---	---	---	---	5.44	---	---	---	---
11	---	---	---	---	---	---	---	5.48	---	---	---	---
12	---	---	---	---	---	---	---	5.53	---	---	---	---
13	---	---	---	---	---	---	---	5.48	---	---	---	---
14	---	---	---	---	---	---	---	5.44	---	---	---	---
15	---	---	---	---	---	---	---	5.45	---	---	---	---
16	---	---	---	---	---	---	---	5.44	---	---	---	---
17	---	---	---	---	---	---	---	5.42	---	---	---	---
18	---	---	---	---	---	---	5.23	5.41	---	---	---	---
19	---	---	---	---	---	---	5.27	5.40	---	---	---	---
20	---	---	---	---	---	---	5.25	5.38	---	---	---	---
21	---	---	---	---	---	---	5.26	5.37	---	---	---	---
22	---	---	---	---	---	5.33	5.26	5.35	---	---	---	---
23	---	---	---	---	---	5.33	5.29	5.34	---	---	---	---
24	---	---	---	---	---	5.32	5.20	5.33	---	---	---	---
25	---	---	---	---	---	5.32	---	5.32	---	---	---	---
26	---	---	---	---	---	5.32	---	5.31	---	---	---	---
27	---	---	---	---	---	5.35	5.24	5.31	---	---	---	---
28	---	---	---	---	---	5.48	5.34	5.31	---	---	---	---
29	---	---	---	---	---	5.32	5.38	5.30	---	---	---	---
30	---	---	---	---	---	5.25	5.40	5.29	---	---	---	---
31	---	---	---	---	---	5.20	---	5.27	---	---	---	---
MEAN	---	---	---	---	---	---	---	5.38	---	---	---	---
MAX	---	---	---	---	---	---	---	5.53	---	---	---	---
MIN	---	---	---	---	---	---	---	5.27	---	---	---	---

06471065 ELM RIVER NEAR FREDERICK, SD--Continued



06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'20", long 98°27'08", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.33, T.129 N., R.62 W., Dickey County, ND, Hydrologic Unit 10160004, on left bank 0.4 mi upstream from State line, 7.8 mi northeast of Frederick, SD, and 15.7 mi upstream from mouth.

DRAINAGE AREA.--716 mi², of which about 332 mi² is probably noncontributing.

PERIOD OF RECORD.--June 1956 to current year.

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

GAGE.--Water-stage recorder. Elevation of gage is 1,365 ft above NGVD of 1929, from topographic map. Prior to June 14, 1962, nonrecording gage at site 0.4 mi downstream at datum 0.94 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.94	e0.90	e1.9	3.4	9.0	1.3	0.93	0.31	0.26
2	0.00	0.00	0.00	0.88	e0.90	e1.8	3.7	7.8	1.2	0.76	0.12	0.23
3	0.00	0.00	0.00	0.84	e0.90	e1.7	3.4	6.1	1.0	0.61	0.09	0.10
4	0.00	0.00	0.00	0.80	e0.90	e1.6	3.4	7.6	0.86	0.39	0.08	0.05
5	0.00	0.00	0.00	0.83	e0.90	e1.6	3.2	7.0	0.66	0.25	0.04	0.03
6	0.00	0.00	0.00	0.85	e0.90	e1.6	2.8	7.4	0.52	0.20	0.01	0.02
7	0.00	0.00	0.00	0.81	e0.95	e1.5	3.7	7.1	0.48	0.22	0.00	0.00
8	0.00	0.00	0.00	0.86	e1.0	e1.5	3.2	9.1	0.33	0.20	0.00	0.00
9	0.00	0.00	0.18	1.1	e1.2	e1.4	2.9	9.5	0.25	0.13	0.00	0.00
10	0.00	0.00	2.3	1.1	1.4	e1.4	3.5	9.1	0.27	0.19	0.00	0.00
11	0.00	0.00	2.5	1.2	1.8	e1.5	3.1	9.6	0.27	0.10	0.00	0.00
12	0.00	0.00	2.2	1.3	1.8	e1.7	3.3	9.7	0.21	0.07	0.00	0.00
13	0.00	0.00	2.0	1.5	1.9	e2.0	3.4	10	0.23	0.04	0.00	0.00
14	0.00	0.00	1.8	1.7	1.9	e2.0	4.4	9.3	0.19	0.00	0.00	0.00
15	0.00	0.00	1.6	1.7	1.9	2.1	6.4	10	0.15	0.00	0.00	0.00
16	0.00	0.00	1.6	e1.7	1.9	2.5	5.9	10	0.11	0.00	0.00	0.00
17	0.00	0.00	1.5	e1.7	2.1	2.7	5.7	9.8	0.09	0.00	0.00	0.00
18	0.00	0.00	1.6	e1.6	2.5	3.1	7.8	9.5	0.07	0.00	0.00	0.00
19	0.00	0.00	1.4	e1.6	2.8	3.5	6.6	8.6	0.31	0.00	0.00	0.00
20	0.00	0.00	1.3	e1.6	3.0	4.2	6.7	7.4	0.46	0.00	0.00	0.00
21	0.00	0.00	1.2	1.6	2.9	4.3	7.0	5.1	0.36	0.00	0.00	0.00
22	0.00	0.00	e1.2	1.6	2.7	4.2	6.5	5.2	0.31	0.00	0.00	0.00
23	0.00	0.00	e1.1	1.5	2.9	4.5	7.2	6.3	0.45	0.00	0.00	0.00
24	0.00	0.00	e1.1	1.5	2.7	4.5	8.0	5.3	7.5	0.00	0.00	0.00
25	0.00	0.00	e1.1	1.5	2.5	4.1	7.3	5.2	18	0.00	0.00	0.00
26	0.00	0.00	1.1	e1.5	2.3	3.9	7.1	4.5	12	0.00	0.00	0.00
27	0.00	0.00	1.1	e1.4	2.1	3.9	9.4	3.8	6.9	0.00	0.00	0.00
28	0.00	0.00	1.1	e1.3	e2.0	4.3	9.4	3.2	3.3	0.00	0.00	0.00
29	0.00	0.00	1.0	e1.1	---	4.3	9.7	2.8	2.0	0.00	0.00	0.00
30	0.00	0.00	1.0	e1.0	---	4.3	9.4	2.2	1.4	0.00	0.00	0.00
31	0.00	---	0.99	e0.95	---	3.8	---	1.5	---	0.38	0.00	---
TOTAL	0.00	0.00	31.97	39.56	51.65	87.4	167.5	218.7	61.18	4.47	0.65	0.69
MEAN	0.000	0.000	1.03	1.28	1.84	2.82	5.58	7.05	2.04	0.14	0.021	0.023
MAX	0.00	0.00	2.5	1.7	3.0	4.5	9.7	10	18	0.93	0.31	0.26
MIN	0.00	0.00	0.00	0.80	0.90	1.4	2.8	1.5	0.07	0.00	0.00	0.00
AC-FT	0.00	0.00	63	78	102	173	332	434	121	8.9	1.3	1.4

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 2002, BY WATER YEAR (WY)

	1957	1957	1957	1957	1957	1957	1957	1959	1959	1959	1959	1959
MEAN	3.09	2.12	2.08	0.39	1.01	87.5	115	40.2	17.7	30.1	6.34	3.64
MAX	68.8	50.1	68.1	6.61	12.0	419	840	418	131	446	142	91.1
(WY)	1999	1999	1999	1999	1998	1966	1997	1999	1964	1962	1966	1999
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1957	1957	1957	1957	1957	1957	1959	1959	1959	1959	1959	1958

06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1957 - 2002
ANNUAL TOTAL	16657.11	663.77	
ANNUAL MEAN	45.6	1.82	25.8a
HIGHEST ANNUAL MEAN			116 1997
LOWEST ANNUAL MEAN			0.000 1959b
HIGHEST DAILY MEAN	1370 Apr 10	18 Jun 25	5500 Apr 11 1969
LOWEST DAILY MEAN	0.00 Sep 6	0.00 Oct 1	0.00 Oct 1 1956c
ANNUAL SEVEN-DAY MINIMUM	0.00 Sep 6	0.00 Oct 1	0.00 Oct 1 1956
MAXIMUM PEAK FLOW		22 Jun 25	5930 Apr 11 1969d
MAXIMUM PEAK STAGE		3.94 Jun 25	16.19 Mar 29 1997f
ANNUAL RUNOFF (AC-FT)	33040	1320	18720
10 PERCENT EXCEEDS	138	6.4	35
50 PERCENT EXCEEDS	1.0	0.83	0.10
90 PERCENT EXCEEDS	0.00	0.00	0.00

a Median of annual mean discharges, 16 ft³/s.

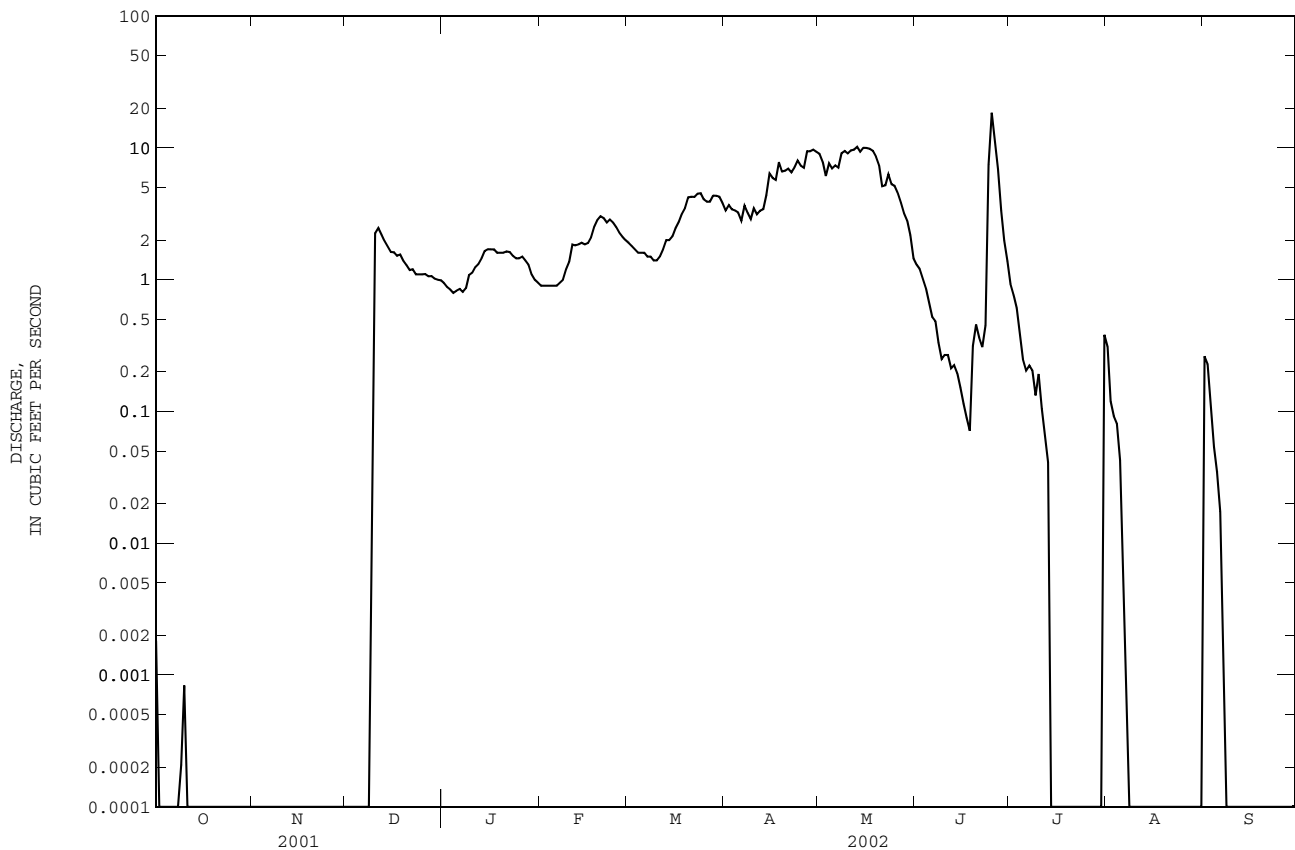
b Also 1988 and 1990.

c No flow for long periods in most years.

d Gage height, 16.05 ft, backwater from ice.

e Estimated.

f Backwater from ice.



06471500 ELM RIVER AT WESTPORT, SD

LOCATION.--Lat 45°39'22", long 98°29'48", in SW¹/₄ NW¹/₄ sec.12, T.125 N., R.64 W., Brown County, Hydrologic Unit 10160004, on upstream side of highway bridge, 0.5 mi north of Westport, 0.7 mi upstream from Chicago and North Western Railway Co. bridge, 9.3 mi downstream from Willow Creek, and 30.4 mi upstream from mouth.

DRAINAGE AREA.--1,493 mi², of which about 444 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1945 to current year.

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

GAGE.--Water-stage recorder. Datum of gage is 1,309.3 ft above NGVD of 1929. Prior to Aug. 6, 1951, and Apr. 8 to Sept. 9, 1952, nonrecording gage 12 ft upstream at same datum. Aug. 6, 1951, to Apr. 7, 1952, water-stage recorder at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Flow regulated for Aberdeen municipal water supply by dam forming Elm Lake and other small reservoirs upstream, combined capacity, about 16,000 acre-ft. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	1.3	2.1	2.3	e2.0	3.5	6.8	12	3.4	0.18	1.6	5.1
2	8.6	1.3	2.0	2.3	e2.0	3.3	7.0	11	3.4	4.2	1.1	4.3
3	7.5	1.2	1.9	2.1	e2.0	e3.0	6.8	11	3.7	5.7	1.2	3.5
4	6.3	1.2	1.8	2.0	e1.8	e2.9	6.9	10	3.3	5.7	1.3	3.0
5	5.4	1.3	1.8	2.2	e1.8	e2.9	6.7	8.7	3.1	5.4	1.2	2.9
6	4.9	1.3	1.7	2.2	e2.0	e2.8	6.6	9.0	2.9	5.9	1.2	2.9
7	4.7	1.3	1.7	2.1	e2.2	e2.8	6.9	8.8	2.9	6.8	1.1	2.9
8	5.0	1.4	1.7	2.4	e2.6	e2.8	7.5	13	2.5	6.7	0.95	2.7
9	6.2	1.2	1.7	2.7	e3.0	e2.7	7.4	14	2.3	5.5	1.0	2.7
10	9.4	1.1	1.6	2.8	3.8	e2.7	7.6	12	2.1	5.6	1.3	3.1
11	5.1	1.1	1.5	2.9	4.4	e2.7	8.1	14	1.7	4.9	1.1	2.9
12	3.5	1.2	1.7	3.1	4.1	e3.0	8.0	13	1.4	5.3	0.96	2.8
13	2.7	1.2	1.8	3.7	4.1	e3.8	8.0	14	1.3	5.0	0.81	2.5
14	2.3	1.3	1.8	4.0	4.2	e4.5	8.2	13	1.3	4.1	0.60	2.5
15	2.1	1.3	2.0	3.9	4.0	e5.0	7.7	12	1.1	3.8	1.5	2.3
16	1.8	1.3	2.2	3.8	4.0	e5.0	8.2	10	0.88	3.3	13	2.2
17	1.5	1.3	2.7	3.7	4.2	5.3	7.8	9.9	0.82	2.5	16	2.1
18	1.5	1.4	4.0	3.4	4.3	5.5	7.6	9.6	0.84	1.8	17	2.0
19	1.5	1.4	4.2	3.1	4.5	5.9	8.5	8.7	0.93	1.5	18	1.8
20	1.4	1.3	4.0	3.0	4.3	6.5	11	10	0.90	1.3	15	1.7
21	1.4	1.2	3.8	2.8	4.1	5.9	11	10	0.70	1.2	12	1.5
22	1.4	1.3	3.7	3.0	4.0	5.1	11	8.9	0.59	0.94	12	1.4
23	1.5	1.3	3.4	3.0	4.2	5.1	11	8.1	0.52	0.74	8.1	1.3
24	1.8	1.7	3.2	3.1	4.3	4.9	13	5.2	0.51	0.75	6.3	1.4
25	2.5	1.8	2.9	3.1	4.2	4.8	8.9	6.0	0.50	0.94	5.8	1.4
26	1.5	1.4	2.8	e3.0	4.2	4.8	8.7	7.0	0.30	0.82	5.7	1.5
27	0.88	1.7	2.9	e2.9	3.9	5.1	11	6.4	0.23	4.2	5.8	1.6
28	0.83	2.0	2.7	e2.8	3.7	5.8	12	5.6	0.08	2.6	6.0	1.9
29	0.92	2.1	2.5	e2.6	---	6.4	13	5.4	0.00	2.1	6.4	2.1
30	1.1	2.1	2.5	e2.4	---	6.9	12	5.4	0.00	1.6	6.0	2.3
31	1.3	---	2.4	e2.2	---	6.6	---	4.7	---	1.9	5.8	---
TOTAL	104.63	42.0	76.7	88.6	97.9	138.0	264.9	296.4	44.20	102.97	175.82	72.3
MEAN	3.38	1.40	2.47	2.86	3.50	4.45	8.83	9.56	1.47	3.32	5.67	2.41
MAX	9.4	2.1	4.2	4.0	4.5	6.9	13	14	3.7	6.8	18	5.1
MIN	0.83	1.1	1.5	2.0	1.8	2.7	6.6	4.7	0.00	0.18	0.60	1.3
AC-FT	208	83	152	176	194	274	525	588	88	204	349	143

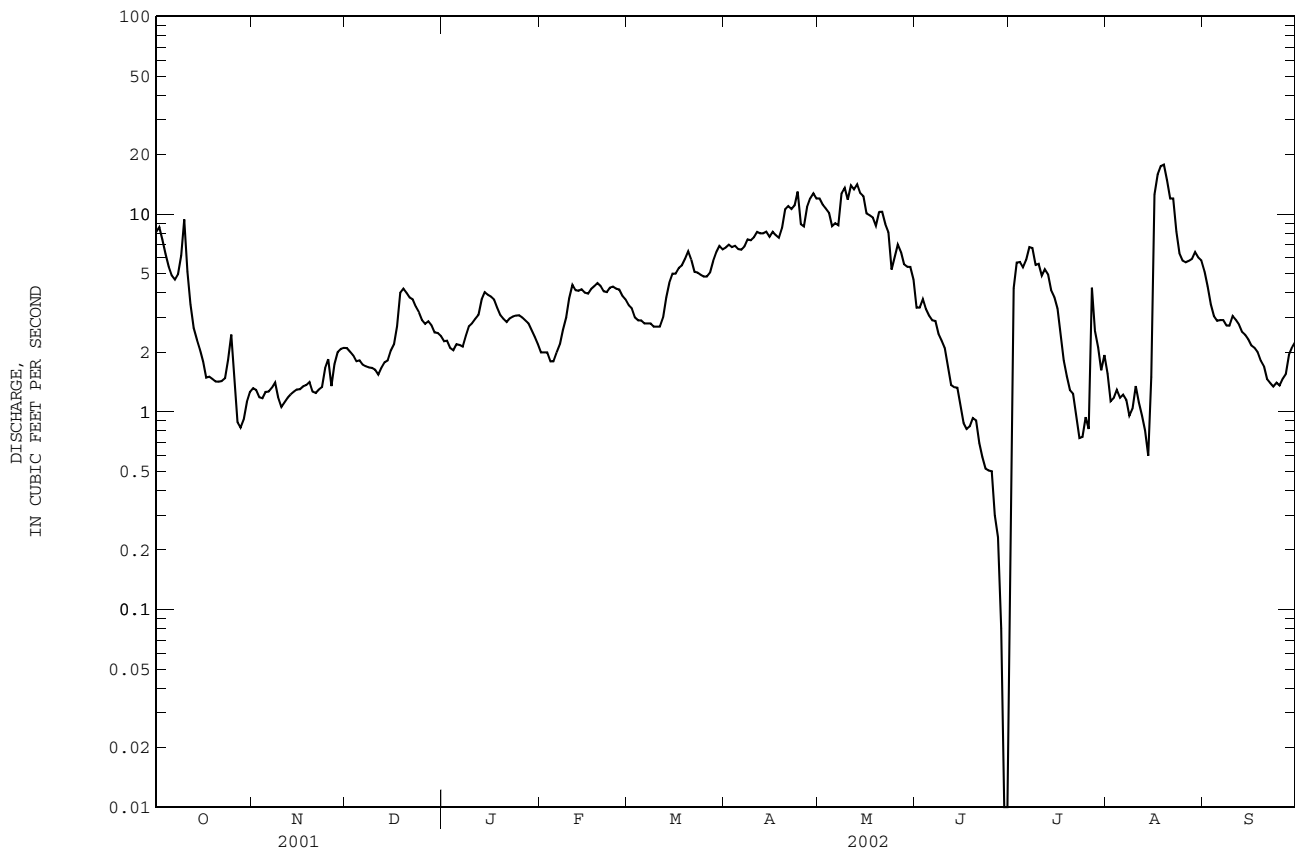
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2002, BY WATER YEAR (WY)

MEAN	9.20	7.66	6.22	3.48	7.28	176	263	86.8	50.7	53.0	14.7	9.46
MAX	138	142	137	19.9	113	1205	2399	777	584	606	197	173
(WY)	1999	1999	1999	1946	1996	1997	1969	1995	1964	1962	1993	1999
MIN	0.79	0.74	0.20	0.20	0.000	1.03	0.99	0.63	0.61	2.81	0.53	0.34
(WY)	1979	1946	1946	1950	1949	1952	1957	1959	1946	1949	1946	1946

06471500 ELM RIVER AT WESTPORT, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1946 - 2002	
ANNUAL TOTAL	40378.93		1504.42		57.4a	
ANNUAL MEAN	111		4.12		277	
HIGHEST ANNUAL MEAN					4.12	
LOWEST ANNUAL MEAN					11900	
HIGHEST DAILY MEAN	2440	Apr 11	18	Aug 19	11900	Apr 10 1969
LOWEST DAILY MEAN	0.66	Sep 13	0.00	Jun 29	0.00	Jan 27 1946b
ANNUAL SEVEN-DAY MINIMUM	0.71	Sep 7	0.18	Jun 25	0.00	Jan 27 1946
MAXIMUM PEAK FLOW			18	Aug 18c	12600	Apr 10 1969
MAXIMUM PEAK STAGE			4.78	May 11d	22.11	Apr 10 1969
ANNUAL RUNOFF (AC-FT')	80090		2980		41590	
10 PERCENT EXCEEDS	331		8.9		75	
50 PERCENT EXCEEDS	3.2		2.9		5.1	
90 PERCENT EXCEEDS	1.3		1.2		1.2	

- a Median of annual mean discharges, 36 ft³/s.
b No flow for many days in most years prior to 1960.
c Gage height, 4.74 ft.
d Backwater from debris.
e Estimated.



06471510 ELM RIVER NEAR ORDWAY, SD

LOCATION.--Lat 45°33'45", long 98°24'45", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.9, T.124 N., R.63 W., Brown County, Hydrologic Unit 10160004, on left bank at upstream side of bridge on Brown County Road 14, 1.1 mi south of Ordway and 1.9 mi upstream of Aberdeen Municipal water treatment plant dam.

DRAINAGE AREA.--1,511 mi², of which about 444 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1999 to current year (seasonal mean daily gage height and yearly instantaneous peak gage height and discharge). Prior to October 1999 (March to April 1997), at downstream side of bridge, discharge measurements only.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,300 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. Satellite data-collection platform and telemeter at station. Some regulation at low flow for Aberdeen municipal water supply by dam forming Elm Lake and other small reservoirs upstream, combined capacity, about 16,500 acre-ft. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

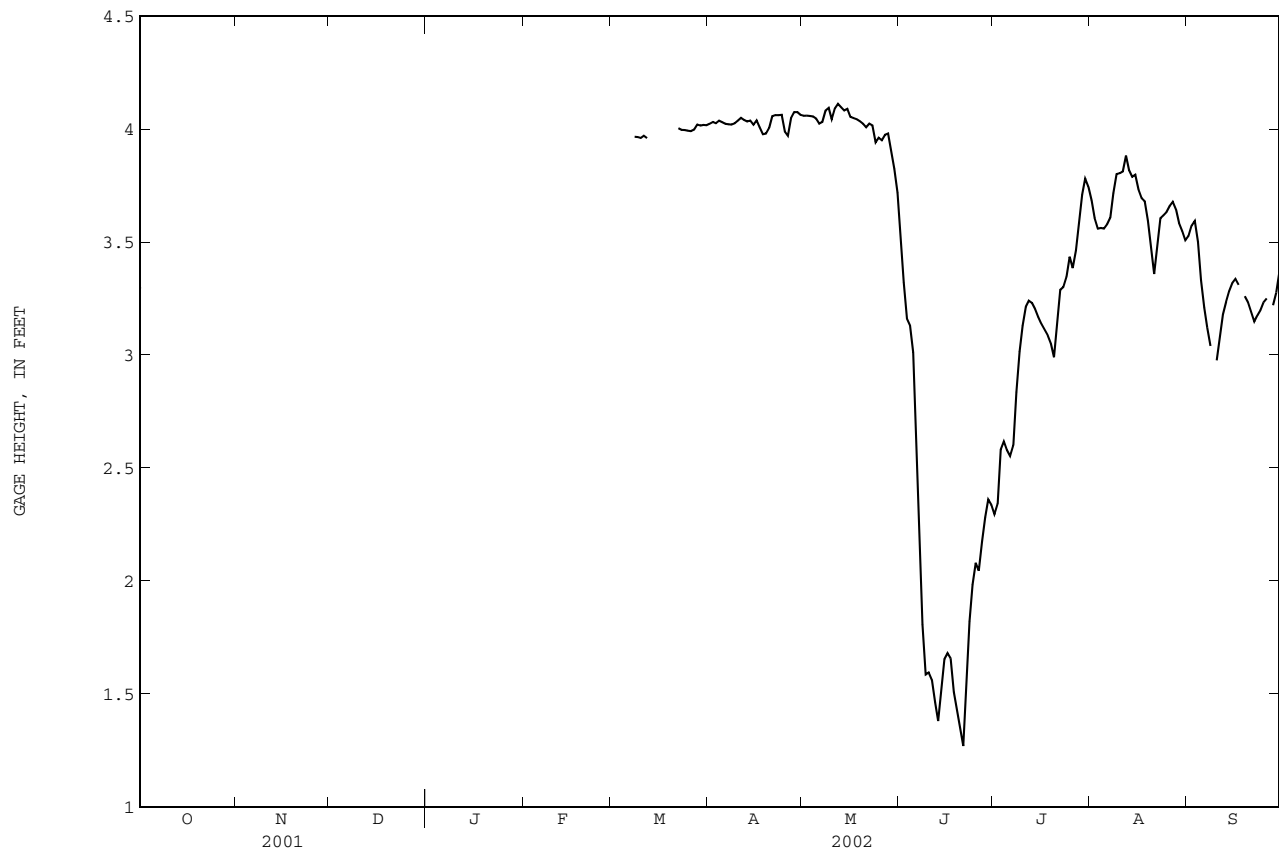
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, observed, 8,680 ft³/s, Mar. 31, 1997, gage height, 15.10 ft; maximum gage height, observed, 15.55 ft, Mar. 29, 1997, backwater from ice.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30 ft³/s, May 9, gage height, 4.14 ft.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	4.02	4.06	3.52	2.29	3.68	3.53
2	---	---	---	---	---	---	4.03	4.06	3.32	2.34	3.61	3.57
3	---	---	---	---	---	---	4.03	4.06	3.16	2.58	3.56	3.59
4	---	---	---	---	---	---	4.04	4.06	3.13	2.62	3.56	3.50
5	---	---	---	---	---	---	4.03	4.05	3.01	2.58	3.56	3.33
6	---	---	---	---	---	---	4.02	4.02	2.65	2.55	3.58	3.21
7	---	---	---	---	---	---	4.02	4.03	2.28	2.60	3.61	3.12
8	---	---	---	---	---	3.97	4.02	4.08	1.81	2.84	3.72	3.04
9	---	---	---	---	---	3.97	4.03	4.09	1.59	3.02	3.80	---
10	---	---	---	---	---	3.96	4.04	4.04	1.59	3.13	3.80	2.98
11	---	---	---	---	---	3.97	4.05	4.09	1.56	3.21	3.81	3.08
12	---	---	---	---	---	3.96	4.04	4.11	1.46	3.24	3.88	3.18
13	---	---	---	---	---	---	4.03	4.10	1.38	3.23	3.82	3.24
14	---	---	---	---	---	---	4.04	4.08	1.52	3.20	3.79	3.28
15	---	---	---	---	---	---	4.02	4.09	1.65	3.17	3.80	3.32
16	---	---	---	---	---	---	4.04	4.05	1.68	3.14	3.73	3.34
17	---	---	---	---	---	---	4.01	4.05	1.66	3.11	3.69	3.31
18	---	---	---	---	---	---	3.98	4.04	1.51	3.09	3.68	---
19	---	---	---	---	---	---	3.98	4.04	1.43	3.05	3.59	3.26
20	---	---	---	---	---	---	4.01	4.02	1.35	2.99	3.48	3.23
21	---	---	---	---	---	---	4.06	4.01	1.27	3.15	3.36	3.19
22	---	---	---	---	---	4.00	4.06	4.02	1.53	3.29	3.47	3.15
23	---	---	---	---	---	4.00	4.06	4.02	1.82	3.30	3.61	3.18
24	---	---	---	---	---	4.00	4.06	3.94	1.98	3.35	3.62	3.20
25	---	---	---	---	---	3.99	3.99	3.96	2.08	3.43	3.63	3.23
26	---	---	---	---	---	3.99	3.97	3.95	2.05	3.38	3.66	3.25
27	---	---	---	---	---	4.00	4.05	3.97	2.17	3.46	3.68	---
28	---	---	---	---	---	4.02	4.08	3.98	2.28	3.58	3.64	3.22
29	---	---	---	---	---	4.02	4.07	3.90	2.36	3.71	3.58	3.28
30	---	---	---	---	---	4.02	4.06	3.82	2.34	3.78	3.55	3.36
31	---	---	---	---	---	4.02	---	3.72	---	3.75	3.51	---
MEAN	---	---	---	---	---	---	4.03	4.02	2.04	3.10	3.65	---
MAX	---	---	---	---	---	---	4.08	4.11	3.52	3.78	3.88	---
MIN	---	---	---	---	---	---	3.97	3.72	1.27	2.29	3.36	---

06471510 ELM RIVER NEAR ORDWAY, SD--Continued



LOCATION.--Lat 45°28'13", long 98°27'13", in SW¹/₄ NW¹/₄ NW¹/₄ sec.17, T.123 N., R.63 W., Brown County, Hydrologic Unit 10160003, on left bank at upstream side of bridge on Roosevelt Street, 1.6 mi east of Brown County Courthouse, and 3.4 mi upstream from Foot Creek.

DRAINAGE AREA.--57.6 mi².

PERIOD OF RECORD.--October 1999 to current year (seasonal mean daily gage height and yearly instantaneous peak discharge). Prior to October 1999 (March and April 1997), miscellaneous discharge measurements 1.0 mi downstream at U.S. Highway 12 bridge.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,295 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. Record of peak discharge fair. Satellite data-collection platform and telemeter at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

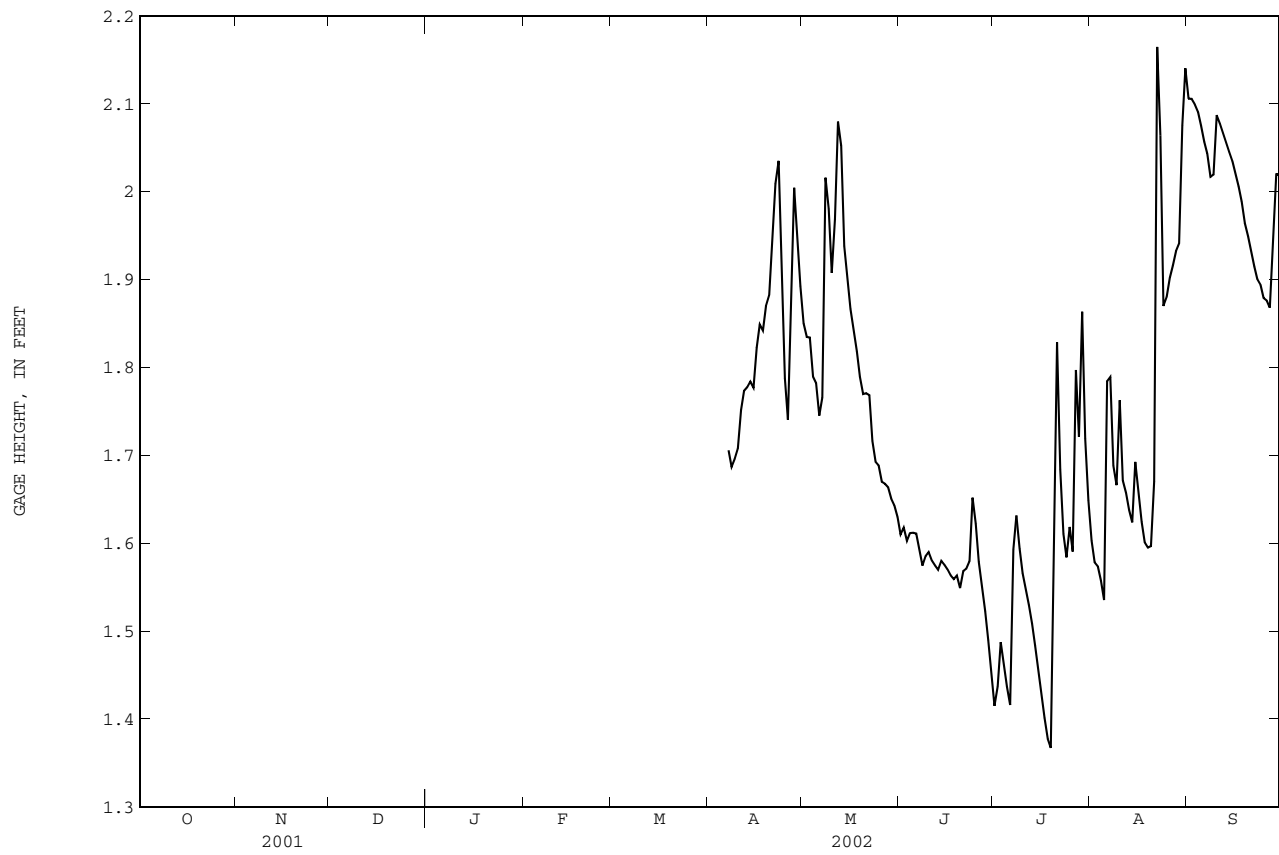
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 389 ft³/s, Apr. 5, 1997, gage height, 6.90 ft; maximum gage height, observed, 7.27 ft, backwater from ice, Apr. 1, 1997.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 43 ft³/s, Aug. 22, gage height, 3.06 ft.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	1.85	1.61	1.42	1.60	2.11
2	---	---	---	---	---	---	---	1.83	1.62	1.44	1.58	2.11
3	---	---	---	---	---	---	---	1.83	1.60	1.49	1.57	2.10
4	---	---	---	---	---	---	---	1.79	1.61	1.46	1.56	2.09
5	---	---	---	---	---	---	---	1.78	1.61	1.44	1.54	2.08
6	---	---	---	---	---	---	---	1.75	1.61	1.42	1.78	2.06
7	---	---	---	---	---	---	1.71	1.77	1.59	1.59	1.79	2.04
8	---	---	---	---	---	---	1.69	2.02	1.57	1.63	1.69	2.02
9	---	---	---	---	---	---	1.70	1.98	1.59	1.59	1.67	2.02
10	---	---	---	---	---	---	1.71	1.91	1.59	1.57	1.76	2.09
11	---	---	---	---	---	---	1.75	1.97	1.58	1.55	1.67	2.08
12	---	---	---	---	---	---	1.77	2.08	1.57	1.53	1.66	2.07
13	---	---	---	---	---	---	1.78	2.05	1.57	1.51	1.64	2.06
14	---	---	---	---	---	---	1.78	1.94	1.58	1.48	1.62	2.05
15	---	---	---	---	---	---	1.78	1.90	1.58	1.45	1.69	2.04
16	---	---	---	---	---	---	1.82	1.87	1.57	1.43	1.66	2.02
17	---	---	---	---	---	---	1.85	1.84	1.56	1.40	1.62	2.01
18	---	---	---	---	---	---	1.84	1.82	1.56	1.38	1.60	1.99
19	---	---	---	---	---	---	1.87	1.79	1.56	1.37	1.60	1.96
20	---	---	---	---	---	---	1.88	1.77	1.55	1.61	1.60	1.95
21	---	---	---	---	---	---	1.94	1.77	1.57	1.83	1.67	1.93
22	---	---	---	---	---	---	2.01	1.77	1.57	1.68	2.16	1.92
23	---	---	---	---	---	---	2.04	1.72	1.58	1.61	2.06	1.90
24	---	---	---	---	---	---	1.90	1.69	1.65	1.58	1.87	1.89
25	---	---	---	---	---	---	1.79	1.69	1.62	1.62	1.88	1.88
26	---	---	---	---	---	---	1.74	1.67	1.58	1.59	1.90	1.88
27	---	---	---	---	---	---	1.91	1.67	1.55	1.80	1.92	1.87
28	---	---	---	---	---	---	2.00	1.66	1.52	1.72	1.93	1.95
29	---	---	---	---	---	---	1.95	1.65	1.49	1.86	1.94	2.02
30	---	---	---	---	---	---	1.89	1.64	1.45	1.72	2.08	2.02
31	---	---	---	---	---	---	---	1.63	---	1.65	2.14	---
MEAN	---	---	---	---	---	---	---	1.81	1.58	1.56	1.76	2.01
MAX	---	---	---	---	---	---	---	2.08	1.65	1.86	2.16	2.11
MIN	---	---	---	---	---	---	---	1.63	1.45	1.37	1.54	1.87

06471770 MOCCASIN CREEK AT ABERDEEN, SD--Continued



06471800 FOOT CREEK NEAR ABERDEEN, SD

LOCATION.--Lat 45°31'08", long 98°34'37", in SW¹/₄ SW¹/₄ SW¹/₄ sec.29, T.124 N., R.64 W., Brown County, Hydrologic Unit 10160003, on left bank at downstream side of bridge on county road, 1.9 mi downstream of Richmond Lake Dam, 5.9 mi northwest of Aberdeen, and 16.3 mi upstream from mouth.

DRAINAGE AREA.--173 mi².

PERIOD OF RECORD.--October 1999 to current year. Prior to October 1999 (March and April 1997), miscellaneous discharge measurements only made 0.3 mi downstream.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,325 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Richmond Lake is formed by a rolled earth dam with a concrete spillway. The reservoir has no control structure and a total storage of 11,500 acre-ft. Satellite data-collection platform and telemeter at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge observed, 1,670 ft³/s, Mar. 29, 1997, different site and datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.20	0.26	e0.32	0.04	e0.12	e0.14	0.31	0.21	0.22	0.00	0.45	0.49
2	0.22	0.23	e0.30	0.06	e0.12	e0.14	0.33	0.21	0.24	0.39	0.40	0.39
3	0.24	0.24	0.30	0.09	e0.12	e0.14	0.23	0.21	0.23	1.1	0.51	0.26
4	0.24	0.25	0.30	0.12	e0.13	e0.14	0.25	0.25	0.23	0.45	0.65	0.21
5	0.23	0.27	0.28	0.20	e0.13	e0.14	0.27	0.23	0.24	0.22	0.57	0.20
6	0.24	0.28	0.23	0.23	e0.14	e0.14	0.28	0.25	0.23	0.16	0.63	0.19
7	0.26	0.28	0.20	0.17	e0.16	e0.14	0.41	0.28	0.22	0.40	0.65	0.18
8	0.26	0.24	0.19	0.21	e0.19	e0.14	0.35	0.46	0.16	0.54	0.55	0.18
9	0.46	0.23	0.19	0.26	e0.22	e0.14	0.26	0.43	0.16	0.37	0.57	0.20
10	1.3	0.24	0.19	0.24	e0.28	e0.14	0.31	0.26	0.19	0.29	0.73	0.29
11	0.56	0.24	0.18	0.20	e0.26	e0.15	0.33	0.38	0.19	0.23	0.67	0.30
12	0.40	0.26	0.19	0.19	e0.22	e0.17	0.31	0.62	0.17	0.20	0.63	0.28
13	0.31	0.25	0.19	0.20	e0.20	e0.20	0.31	0.66	0.14	0.17	0.56	0.28
14	0.30	0.25	0.18	0.18	e0.30	e0.23	0.32	0.44	0.17	0.16	0.47	0.33
15	0.28	0.25	0.19	0.17	e0.26	e0.28	0.33	0.41	0.18	0.13	0.59	0.30
16	0.24	0.24	0.21	0.14	e0.24	0.35	0.30	0.31	0.15	0.10	0.52	0.32
17	0.25	0.24	0.20	e0.13	e0.23	0.40	0.28	0.28	0.13	0.08	0.43	0.37
18	0.28	0.26	0.19	e0.13	e0.23	0.50	0.30	0.28	0.14	0.10	0.33	0.44
19	0.25	0.20	0.16	e0.12	0.23	0.40	0.28	0.29	0.18	0.12	0.32	0.43
20	0.25	0.23	0.15	e0.12	0.23	0.32	0.26	0.30	0.14	0.14	0.29	0.36
21	0.27	0.24	0.15	e0.12	0.24	0.28	0.36	0.24	0.13	0.42	0.35	0.33
22	0.26	0.24	0.16	e0.12	0.28	0.24	0.44	0.28	0.15	0.43	0.82	0.32
23	0.27	0.24	0.14	e0.12	0.35	e0.23	0.41	0.32	0.19	0.26	0.86	0.35
24	0.29	0.32	0.15	0.13	0.21	e0.22	0.34	0.26	0.18	0.23	0.57	0.35
25	0.24	0.25	0.14	0.17	0.17	e0.23	0.25	0.31	0.13	0.44	0.46	0.40
26	0.23	0.21	0.09	0.18	0.15	0.26	0.26	0.31	0.08	0.43	0.39	0.41
27	0.26	e0.24	0.15	0.15	e0.14	0.44	0.56	0.34	0.05	0.77	0.37	0.39
28	0.30	e0.30	0.19	e0.14	e0.14	0.57	0.64	0.33	0.04	0.69	0.33	0.44
29	0.27	e0.34	0.15	e0.13	---	0.44	0.38	0.30	0.02	1.1	0.31	0.46
30	0.25	e0.34	0.12	e0.13	---	0.36	0.22	0.30	0.00	0.70	0.39	0.46
31	0.25	---	0.07	e0.12	---	0.32	---	0.21	---	0.50	0.51	---
TOTAL	9.66	7.66	5.85	4.71	5.69	7.99	9.88	9.96	4.68	11.32	15.88	9.91
MEAN	0.31	0.26	0.19	0.15	0.20	0.26	0.33	0.32	0.16	0.37	0.51	0.33
MAX	1.3	0.34	0.32	0.26	0.35	0.57	0.64	0.66	0.24	1.1	0.86	0.49
MIN	0.20	0.20	0.07	0.04	0.12	0.14	0.22	0.21	0.00	0.00	0.29	0.18
AC-FT	19	15	12	9.3	11	16	20	20	9.3	22	31	20

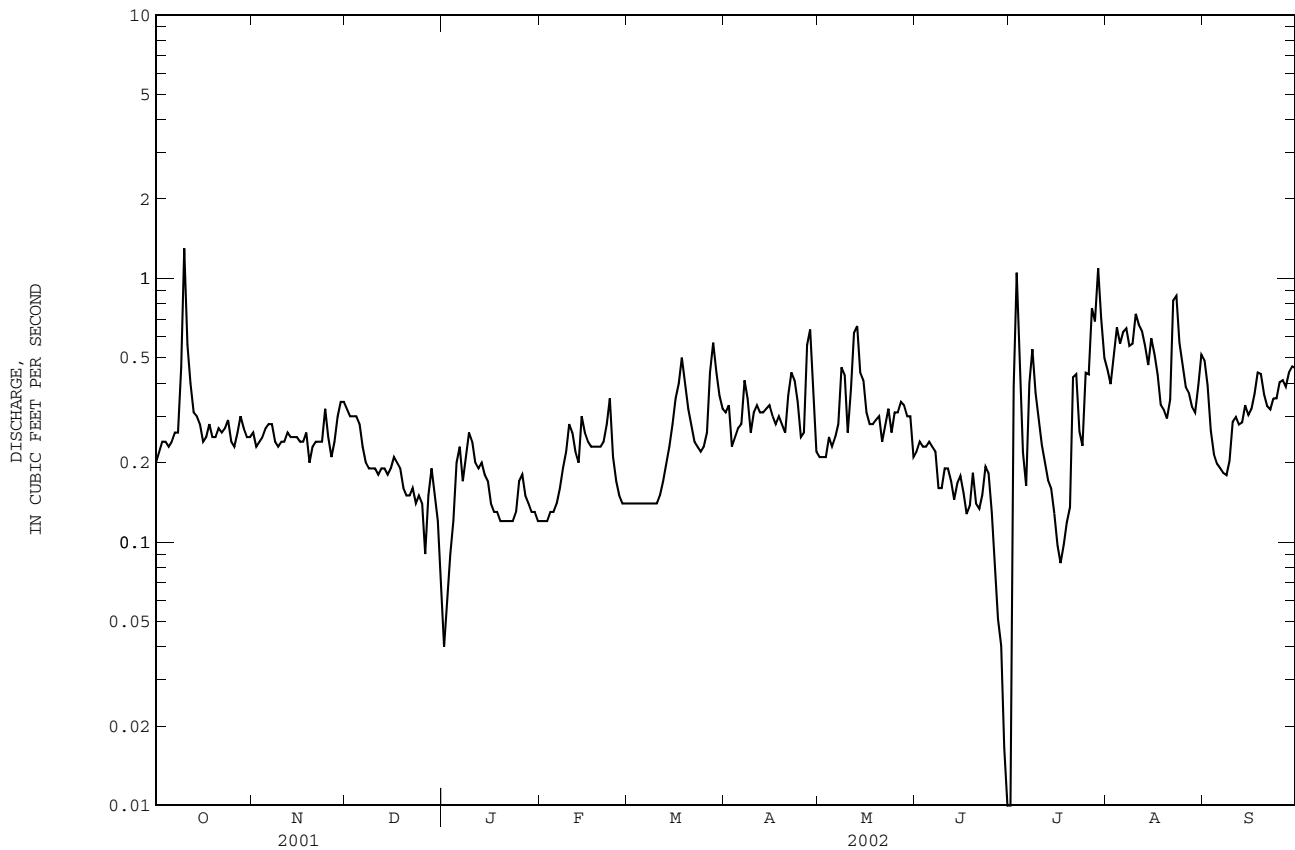
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2002, BY WATER YEAR (WY)

	2000	2001	2002
MEAN	4.82	0.49	0.44
MAX	13.7	0.68	0.63
(WY)	2000	2000	2001
MIN	0.31	0.26	0.19
(WY)	2002	2002	2002

06471800 FOOT CREEK NEAR ABERDEEN, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2000 - 2002	
ANNUAL TOTAL	4850.43		103.19		5.10	
ANNUAL MEAN	13.3		0.28		13.4	
HIGHEST ANNUAL MEAN					0.28	
LOWEST ANNUAL MEAN					452	
HIGHEST DAILY MEAN	452	Apr 8	1.3	Oct 10	452	Apr 8 2001
LOWEST DAILY MEAN	0.07	Dec 31	0.00	Jun 30	0.00	Jun 30 2002a
ANNUAL SEVEN-DAY MINIMUM	0.12	Sep 2	0.05	Jun 25	0.05	Jun 25 2002
MAXIMUM PEAK FLOW			1.9	Oct 10b	469	Apr 8 2001
MAXIMUM PEAK STAGE			5.28	Nov 30c	8.43	Apr 8 2001
ANNUAL RUNOFF (AC-FT)	9620		205		3690	
10 PERCENT EXCEEDS	25		0.46		1.7	
50 PERCENT EXCEEDS	0.46		0.25		0.47	
90 PERCENT EXCEEDS	0.17		0.13		0.18	

a Also July 1, 2002.
b Gage height, 4.77 ft.
c Backwater from ice.
e Estimated.



JAMES RIVER BASIN

06472000 JAMES RIVER NEAR STRATFORD, SD

LOCATION.--Lat 45°14'30", long 98°23'28", in NE¹/₄ NE¹/₄ NE¹/₄ sec.3, T.120 N., R.63 W., Spink County, Hydrologic Unit 10160003, on right bank 10 ft downstream from bridge, 6.7 mi southwest of Stratford and 9.0 mi upstream from Mud Creek.

DRAINAGE AREA.--8,865 mi², of which 4,005 mi² is probably noncontributing.

PERIOD OF RECORD.--March 1950 to September 1972, October 1976 to September 1977, October 1996 to September 1997 (crest-stage partial record), and October 1999 to current year.

REVISED RECORDS.--WDR SD-00-1: Drainage area.

GAGE.--Water-stage recorder and rest-stage gage. Datum of gage is 1,254.29 ft above NGVD of 1929. Prior to May 17, 1950, nonrecording gage at site 20.9 mi upstream at different datum. May 17, 1950, to Aug. 5, 1951, nonrecording gage at site 60 ft upstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity 147,000 acre-ft, since 1973. Occasional backwater from Mud Creek. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	592	173	e54	e59	e56	e89	114	199	218	104	96	66
2	567	167	e58	e57	e56	e85	109	199	215	96	107	63
3	539	164	e60	e56	e56	e81	99	200	210	88	119	58
4	510	160	e61	e56	e56	e77	97	200	207	86	131	52
5	481	157	e62	e56	e56	e75	102	213	204	91	141	51
6	452	152	e63	e56	e56	e73	102	220	203	94	154	54
7	424	146	e64	e57	e56	e74	100	228	200	95	167	54
8	400	142	e64	e58	e57	e75	104	242	197	89	177	50
9	380	140	e64	e58	e57	e77	105	254	187	80	182	43
10	386	132	e63	e58	e56	e76	102	265	172	77	189	42
11	403	116	e62	e58	e57	e74	105	275	162	80	186	40
12	405	101	e60	e58	e58	e75	117	287	154	84	176	37
13	405	86	e59	e59	e59	e77	129	295	143	84	164	38
14	398	75	e58	e59	e60	e79	137	299	136	83	150	41
15	389	69	e57	e59	e61	e82	144	293	132	80	139	41
16	382	64	e58	e61	e62	e82	147	294	130	72	130	39
17	374	61	e60	e63	e62	e83	147	294	128	63	119	36
18	363	58	e61	e64	e66	e83	146	289	126	54	110	35
19	354	56	e62	e64	e68	e84	149	285	125	47	104	34
20	342	60	e61	e63	e72	e86	152	283	123	41	100	32
21	330	62	e60	e61	e75	e86	153	276	126	42	106	29
22	312	60	e58	e59	e79	e87	154	260	126	47	100	27
23	283	58	e58	e59	e84	e88	154	257	123	51	96	26
24	250	60	e58	e60	e88	e90	154	270	128	50	94	27
25	225	64	e55	e61	e90	93	158	263	138	49	97	28
26	216	74	e53	e61	e92	96	165	248	133	49	99	28
27	207	51	e52	e60	e95	100	172	242	124	52	94	28
28	192	46	e53	e61	e94	113	184	239	117	53	85	29
29	182	48	e55	e61	---	126	194	233	110	60	78	30
30	183	52	e57	e59	---	131	198	228	106	70	73	30
31	180	---	e59	e58	---	122	---	223	---	83	69	---
TOTAL	11106	2854	1829	1839	1884	2719	4093	7853	4603	2194	3832	1188
MEAN	358	95.1	59.0	59.3	67.3	87.7	136	253	153	70.8	124	39.6
MAX	592	173	64	64	95	131	198	299	218	104	189	66
MIN	180	46	52	56	56	73	97	199	106	41	69	26
AC-FT	22030	5660	3630	3650	3740	5390	8120	15580	9130	4350	7600	2360

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1972, 1977, 2000 - 2002, BY WATER YEAR (WY)

MEAN	92.2	71.6	47.2	20.7	11.7	59.3	460	468	272	242	173	90.0
MAX	1135	792	421	198	83.2	453	2036	2283	1714	1408	1254	844
(WY)	2000	2000	2001	2001	2000	2000	1969	2001	2001	2001	2001	2001
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1955	1953	1952	1952	1951	1956	1959	1959	1959	1959	1959	1958

06472000 JAMES RIVER NEAR STRATFORD, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1951-1972, 1977 2000-2002	
ANNUAL TOTAL	310279		45994		168a	
ANNUAL MEAN	850		126		929	
HIGHEST ANNUAL MEAN					0.000	
LOWEST ANNUAL MEAN					2001	
HIGHEST DAILY MEAN	3050	Apr 27	592	Oct 1	4940	Apr 20 1952
LOWEST DAILY MEAN	46	Nov 28	26	Sep 23	0.00	Nov 28 1950b
ANNUAL SEVEN-DAY MINIMUM	50	Mar 7	28	Sep 21	0.00	Nov 28 1950
MAXIMUM PEAK FLOW			302	May 14c	8400	Apr 6 1997d
MAXIMUM PEAK STAGE			10.49	May 14c	19.48	Apr 6 1997f
ANNUAL RUNOFF (AC-FT)	615400		91230		121600	
10 PERCENT EXCEEDS	2060		264		517	
50 PERCENT EXCEEDS	515		88		20	
90 PERCENT EXCEEDS	58		52		0.00	

a Median of annual mean discharges, 100 ft³/s.

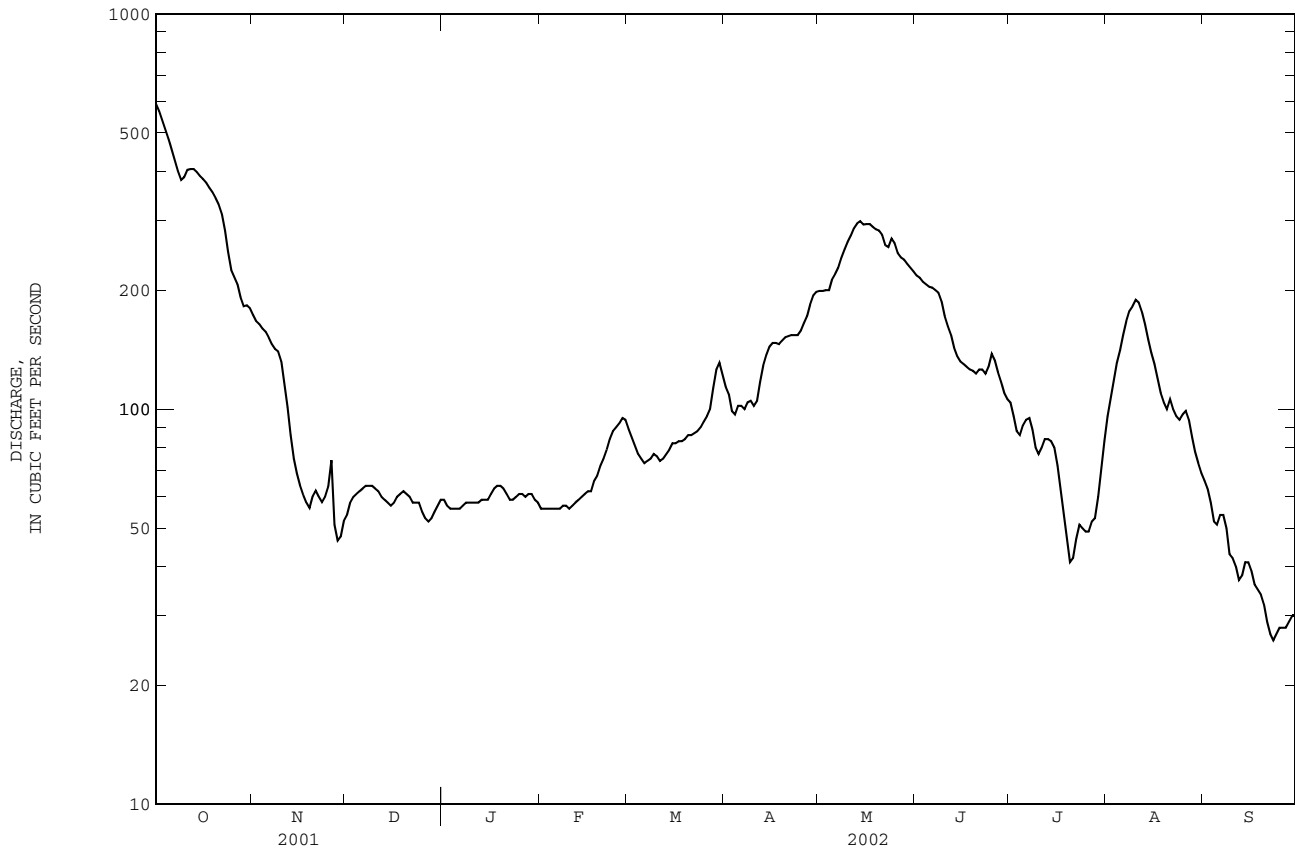
b No flow for many days in some years.

c Stage falling; maximum discharge, 603 ft³/s, Oct. 1; maximum gage height, 13.01 ft, Oct. 1.

d Also reflects 1997 partial record year.

e Estimated.

f From floodmark.



JAMES RIVER BASIN

06473000 JAMES RIVER AT ASHTON, SD

LOCATION.--Lat 44°59'54", long 98°28'50", in NW¹/₄ NW¹/₄ NE¹/₄ sec.36, T.118 N., R.64 W., Spink County, Hydrologic Unit 10160006, on right bank near downstream side of highway bridge, 0.9 mi east of Ashton, 6.1 mi upstream from Snake Creek, and 14.2 mi upstream from Turtle Creek.

DRAINAGE AREA.--9,742 mi², of which 4,069 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1209: 1947. WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,244.4 ft above NGVD of 1929. Prior to Nov. 26, 1957, nonrecording gage at present site and Nov. 26, 1957, to Oct. 7, 1974, water-stage recorder at site 900 ft upstream, all at present datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. Occasional backwater and reverse flow caused by Snake Creek during most years. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	661	212	e73	e67	e60	e100	121	224	232	96	67	67
2	635	200	e71	e66	e59	e96	121	225	227	117	76	62
3	609	187	e72	e65	e58	e91	118	227	220	107	88	58
4	581	179	e73	e63	e57	e87	112	225	213	91	97	56
5	553	174	e74	e63	e56	e84	106	228	206	83	103	52
6	525	168	e75	e62	e55	e80	110	231	201	82	115	48
7	494	160	e75	e61	e55	e77	110	241	195	88	123	46
8	465	157	e73	e60	e56	e78	111	251	191	91	130	46
9	441	152	e72	e60	e57	e79	110	257	189	90	142	46
10	434	147	e70	e61	e58	e77	113	266	179	84	156	45
11	426	140	e68	e60	e60	e76	112	277	163	78	168	41
12	423	128	e68	e60	e63	e77	112	290	148	76	173	38
13	424	113	e70	e61	e65	e78	117	300	137	78	165	36
14	422	103	e69	e62	e68	e79	127	315	129	79	152	34
15	416	96	e68	e62	e70	e80	138	321	121	79	139	33
16	407	91	e68	e62	e73	e81	148	320	116	79	128	34
17	398	86	e68	e63	e76	e81	157	316	113	75	117	34
18	389	82	e68	e64	e78	e82	160	315	111	69	108	33
19	382	78	e70	e66	e81	e83	161	312	108	62	100	32
20	375	76	e70	e66	e84	e84	161	305	106	57	95	30
21	365	75	e70	e66	e88	e85	167	302	106	51	102	29
22	356	78	e71	e65	92	e86	172	294	108	47	103	27
23	344	79	e70	e63	96	e87	172	278	107	45	97	25
24	322	81	e68	e63	100	e89	167	269	106	48	90	22
25	297	80	e68	e61	106	e91	166	271	107	51	85	20
26	271	81	e68	e60	113	e93	168	272	113	52	85	20
27	257	79	e66	e60	113	97	179	262	116	53	85	20
28	245	e80	e64	e61	106	104	194	252	114	53	84	22
29	235	e89	e63	e63	---	110	205	247	107	53	82	23
30	225	e80	e64	e61	---	116	217	242	100	55	78	24
31	218	---	e66	e61	---	115	---	237	---	59	72	---
TOTAL	12595	3531	2153	1938	2103	2723	4332	8372	4389	2228	3405	1103
MEAN	406	118	69.5	62.5	75.1	87.8	144	270	146	71.9	110	36.8
MAX	661	212	75	67	113	116	217	321	232	117	173	67
MIN	218	75	63	60	55	76	106	224	100	45	67	20
AC-FT	24980	7000	4270	3840	4170	5400	8590	16610	8710	4420	6750	2190

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2002, BY WATER YEAR (WY)

	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957
MEAN	135	127	78.7	29.9	19.0	112	649	738	489	356	281	177
MAX	1289	1026	735	303	190	879	7153	4133	2440	1746	1422	1331
(WY)	2000	2000	1994	1999	1999	1995	1997	1997	1950	1997	1997	1999
MIN	0.000	0.000	0.000	0.000	0.000	-338	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1950	1950	1946	1950	1948	1997	1959	1959	1959	1959	1959	1958

06473000 JAMES RIVER AT ASHTON, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1946 - 2002	
ANNUAL TOTAL	327535		48872		267a	
ANNUAL MEAN	897		134		1530	
HIGHEST ANNUAL MEAN					0.000	
LOWEST ANNUAL MEAN					1997	
HIGHEST DAILY MEAN	3720	Apr 30	661	Oct 1	9100	Apr 23 1997
LOWEST DAILY MEAN	56	Feb 16	20	Sep 25	-8400	Mar 31 1997b
ANNUAL SEVEN-DAY MINIMUM	57	Feb 15	22	Sep 24	-1960	Mar 26 1997b
MAXIMUM PEAK FLOW			324	May 15c	9150	Apr 23 1997d
MAXIMUM PEAK STAGE			6.35	May 15c	26.64	Apr 6 1997f
ANNUAL RUNOFF (AC-FT')	649700		96940		193300	
10 PERCENT EXCEEDS	2240		283		824	
50 PERCENT EXCEEDS	441		89		38	
90 PERCENT EXCEEDS	61		55		0.00	

a Median of annual mean discharges, 140 ft³/s.

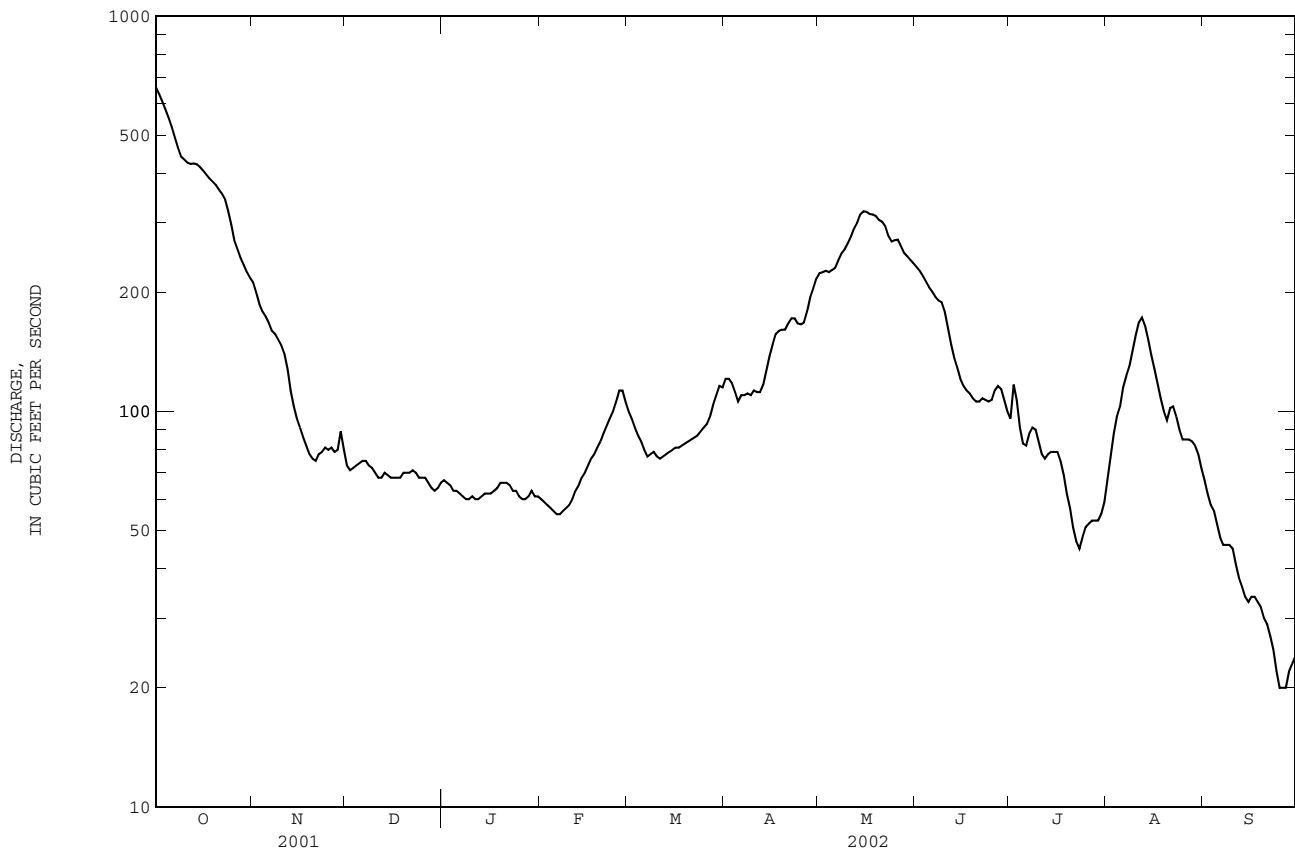
b Backwater from Snake Creek.

c Stage falling; maximum discharge, 673 ft³/s, Oct. 1; maximum gage height, 8.93 ft, Oct. 1.

d Gage height, 25.03 ft, backwater.

e Estimated.

f Backwater from Snake Creek, from floodmark.



JAMES RIVER BASIN

06475000 JAMES RIVER NEAR REDFIELD, SD

LOCATION.--Lat 44°54'38", long 98°28'18", in NW¹/₄ NW¹/₄ NW¹/₄ sec.31, T.117 N., R.63 W., Spink County, Hydrologic Unit 10160006, on left bank near downstream side of county highway bridge, 2.8 mi northeast of Redfield, and 0.7 mi downstream from Turtle Creek.

DRAINAGE AREA.--13,911 mi², of which about 4,118 mi² are probably noncontributing.

PERIOD OF RECORD.--March 1950 to current year. Crest-stage partial record, October 1990 to September 1997.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,239.50 ft above NGVD of 1929. From March 1950 to July 25, 1951, nonrecording gage. Daily discharge from July 26, 1951, to Sept. 30, 1981, water-stage recorder. Both gages described above at site 4.5 mi downstream from present site and at different datum. Daily discharge from Oct. 1, 1981, to Oct. 8, 1986, water-stage recorder at site 0.6 mi downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. Flow below 100 ft³/s for water years 1964-79 may be unreliable because of wind effect. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	787	224	90	e74	e66	e120	137	231	246	106	57	78
2	761	217	82	e73	e66	e110	138	233	245	124	69	71
3	730	206	81	e72	e65	e102	129	233	235	152	91	64
4	701	195	83	e70	e65	e96	122	235	225	127	107	60
5	668	189	e84	e70	e65	e92	117	232	219	101	119	58
6	638	185	e86	e69	e66	e87	114	235	215	92	134	51
7	609	178	e88	e68	e68	e85	116	246	215	95	143	45
8	578	167	e88	e68	e71	e85	116	264	210	102	153	44
9	549	163	e86	e69	e75	e86	113	266	209	105	166	47
10	535	159	e84	e69	e79	e88	116	284	202	99	174	47
11	521	152	e83	e69	e84	e86	115	306	187	87	185	43
12	518	142	e82	e69	e89	e86	116	315	172	79	197	38
13	519	124	e81	e72	e95	e87	117	327	160	79	193	36
14	517	108	e79	e77	e102	e88	123	341	153	82	184	35
15	514	96	e78	e76	e108	e89	136	358	145	82	173	31
16	514	87	e77	e73	e114	e90	145	356	135	81	162	31
17	510	81	e77	e74	117	e91	153	350	132	80	147	32
18	499	77	e77	e73	118	e92	170	348	129	75	138	33
19	485	69	e78	e72	116	e93	169	348	127	65	126	32
20	475	64	e80	e73	114	e94	165	344	123	56	119	30
21	463	62	e79	e73	112	e95	170	343	127	48	124	28
22	449	65	e79	e75	110	e96	174	342	124	43	128	26
23	436	68	e81	e72	108	e97	175	313	125	38	121	24
24	404	77	e78	e71	118	e98	164	299	122	36	112	22
25	362	74	e77	e71	139	e100	158	295	120	40	103	21
26	333	81	e76	e71	153	e103	162	300	124	43	98	18
27	307	e88	e75	e70	147	e107	184	294	131	47	99	18
28	289	e94	e72	e69	131	110	193	280	128	47	101	20
29	269	99	e71	e68	---	122	204	269	122	45	99	21
30	251	100	e72	e68	---	133	224	260	114	46	93	22
31	236	---	e73	e67	---	136	---	252	---	49	84	---
TOTAL	15427	3691	2477	2205	2761	3044	4435	9099	4921	2351	3999	1126
MEAN	498	123	79.9	71.1	98.6	98.2	148	294	164	75.8	129	37.5
MAX	787	224	90	77	153	136	224	358	246	152	197	78
MIN	236	62	71	67	65	85	113	231	114	36	57	18
AC-FT	30600	7320	4910	4370	5480	6040	8800	18050	9760	4660	7930	2230

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2002, BY WATER YEAR (WY)

MEAN	124	125	79.5	33.1	24.0	209	790	715	426	316	249	140
MAX	1368	1353	971	411	272	1151	4812	3408	2311	1736	1481	1606
(WY)	2000	1999	1999	1999	1999	1986	1969	2001	1999	1999	1999	1999
MIN	0.000	0.000	0.000	0.000	0.000	0.000	1.36	0.46	0.077	0.000	0.000	0.000
(WY)	1955	1956	1956	1956	1956	1975	1959	1959	1977	1959	1959	1958

06475000 JAMES RIVER NEAR REDFIELD, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1951 - 2002	
ANNUAL TOTAL	427961		55536		270a	
ANNUAL MEAN	1172		152		1294	
HIGHEST ANNUAL MEAN					0.45	
LOWEST ANNUAL MEAN					7280	
HIGHEST DAILY MEAN	5710	Apr 30	787	Oct 1	0.00	Apr 13 1969
LOWEST DAILY MEAN	56	Mar 1	18	Sep 26	0.00	Nov 8 1950b
ANNUAL SEVEN-DAY MINIMUM	56	Mar 1	20	Sep 24	0.00	Jan 25 1951
MAXIMUM PEAK FLOW			361	May 15c	17000	Apr 3 1997d
MAXIMUM PEAK STAGE			5.46	May 15c	31.10	Apr 6 1997f
ANNUAL RUNOFF (AC-FT)	848900		110200		195600	
10 PERCENT EXCEEDS	3540		320		840	
50 PERCENT EXCEEDS	701		105		40	
90 PERCENT EXCEEDS	64		54		0.00	

a Median of annual mean discharges, 150 ft³/s.

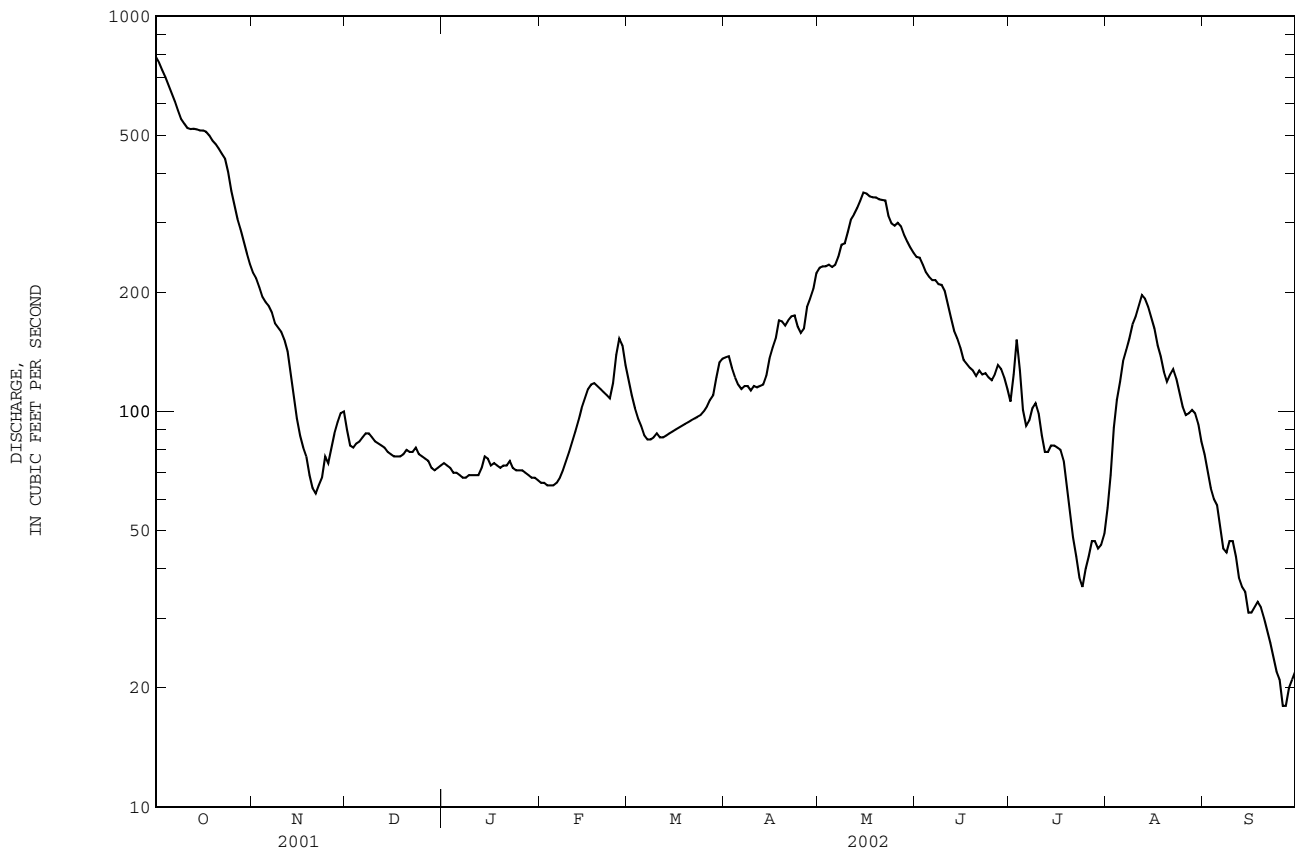
b No flow for many days in some years.

c Stage falling; maximum discharge, 799 ft³/s, Oct. 1; maximum gage height, 7.52 ft, Oct. 1.

d Gage height, 29.92 ft.

e Estimated.

f Backwater from ice, from floodmark.



JAMES RIVER BASIN

06476000 JAMES RIVER AT HURON, SD

LOCATION.--Lat 44°21'49", long 98°11'56", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.6, T.110 N., R.61 W., Beadle County, Hydrologic Unit 10160006, on right bank 15 ft upstream from city dam at Huron, 135 ft downstream from Dakota Minnesota and Eastern Railroad bridge, and 165 ft upstream from bridge on 3rd Street SE.

DRAINAGE AREA.--15,869 mi², of which 4,148 mi² is probably noncontributing.

PERIOD OF RECORD.--August 1928 to September 1932, August 1943 to current year. Monthly discharge only for some periods from August 1928 to September 1932, published in WSP 1309. Gage-height records collected at site about 100 ft downstream for period of open water each year July 1902 to June 1914 and for period March to June 1915-23 are in reports of the National Weather Service.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder, wire-weight gage, and concrete dam. Datum of gage is 1,223.44 ft above NGVD of 1929. Aug. 29, 1928, to Mar. 15, 1929, nonrecording gage at site 100 ft downstream at about same datum. Mar. 16, 1929, to June 30, 1932, nonrecording gage 165 ft downstream at present datum. Aug. 3, 1943, to Oct. 17, 1951, nonrecording gage at site 15 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since May 1974. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood between Apr. 11 and 13, 1881, reached a stage of 19.8 ft, from U.S. Weather Bureau publication. Flood of Mar. 22, 1922, reached a stage of 16.5 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	854	276	99	e90	83	128	282	249	263	88	37	106
2	825	262	99	90	82	125	320	241	240	93	23	110
3	786	243	99	87	80	122	243	164	243	91	27	97
4	746	221	101	86	79	118	225	226	247	81	42	85
5	716	197	103	86	79	115	237	220	233	77	36	82
6	672	221	104	85	77	112	160	256	194	83	30	76
7	634	234	103	84	76	109	217	250	219	83	32	70
8	628	226	105	84	79	105	237	263	191	87	40	62
9	613	170	109	84	85	103	185	299	140	81	65	79
10	647	170	113	86	86	99	177	239	176	83	76	67
11	537	154	116	86	89	96	202	227	232	78	90	65
12	576	154	118	86	95	96	185	306	206	73	116	63
13	553	164	119	95	95	97	164	341	192	69	140	65
14	524	168	119	95	97	108	175	279	155	62	145	65
15	232	160	120	95	104	108	176	306	134	53	169	50
16	218	138	123	e95	114	109	158	401	116	48	150	49
17	310	118	123	e95	124	109	178	360	111	48	160	44
18	464	139	123	e95	140	114	182	340	103	50	147	48
19	471	122	122	e97	150	114	211	333	106	49	134	58
20	458	110	120	98	155	115	173	302	106	47	126	49
21	445	111	e115	96	151	115	182	216	101	51	127	43
22	405	108	e115	95	145	117	179	207	86	49	143	44
23	412	115	e115	95	157	117	168	437	100	40	142	46
24	490	162	e110	94	152	116	277	372	111	30	137	33
25	477	147	e110	93	139	115	219	314	117	36	130	45
26	346	161	e110	91	132	116	150	297	108	35	121	37
27	261	e150	e105	89	e130	118	163	290	109	38	113	36
28	304	139	e100	e85	132	156	216	312	93	43	110	43
29	324	108	e100	e85	---	268	242	296	83	35	111	38
30	270	98	e95	86	---	340	248	295	89	38	100	36
31	256	---	e95	85	---	324	---	282	---	33	93	---
TOTAL	15454	4946	3408	2793	3107	4104	6131	8920	4604	1852	3112	1791
MEAN	499	165	110	90.1	111	132	204	288	153	59.7	100	59.7
MAX	854	276	123	98	157	340	320	437	263	93	169	110
MIN	218	98	95	84	76	96	150	164	83	30	23	33
AC-FT	30650	9810	6760	5540	6160	8140	12160	17690	9130	3670	6170	3550

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2002, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1944	156	1488	2000	0.000	1946
1945	145	1565	1999	0.000	1946
1946	97.0	1150	1999	0.000	1946
1947	46.9	447	1999	0.000	1946
1948	44.9	328	1996	0.000	1956
1949	469	3421	1994	3.29	1965
1950	1338	16590	1997	1.37	1959
1951	1069	7185	1997	0.000	1959
1952	683	3883	1995	0.000	1959
1953	447	2328	1997	0.000	1959
1954	351	2221	1997	0.000	1959
1955	210	1782	1999	0.000	1949

06476000 JAMES RIVER AT HURON, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1929-1932, 1944-2002	
ANNUAL TOTAL	597824		60222		404a	
ANNUAL MEAN	1638		165		2915	
HIGHEST ANNUAL MEAN					0.51	
LOWEST ANNUAL MEAN					22800	
HIGHEST DAILY MEAN	12000	Apr 10	854	Oct 1	0.00	Apr 6 1997
LOWEST DAILY MEAN	59	Feb 19	23	Aug 2	0.00	Oct 12 1944b
ANNUAL SEVEN-DAY MINIMUM	60	Feb 18	32	Aug 1	0.00	Sep 29 1945c
MAXIMUM PEAK FLOW			500	May 23d	23400	Apr 6 1997
MAXIMUM PEAK STAGE			9.60	May 23d	21.28	Apr 6 1997f
ANNUAL RUNOFF (AC-FT)	1186000		119500		306000	
10 PERCENT EXCEEDS	5160		311		1160c	
50 PERCENT EXCEEDS	786		116		62c	
90 PERCENT EXCEEDS	78		50		0.00c	

a Median of annual mean discharges, 200 ft³/s.

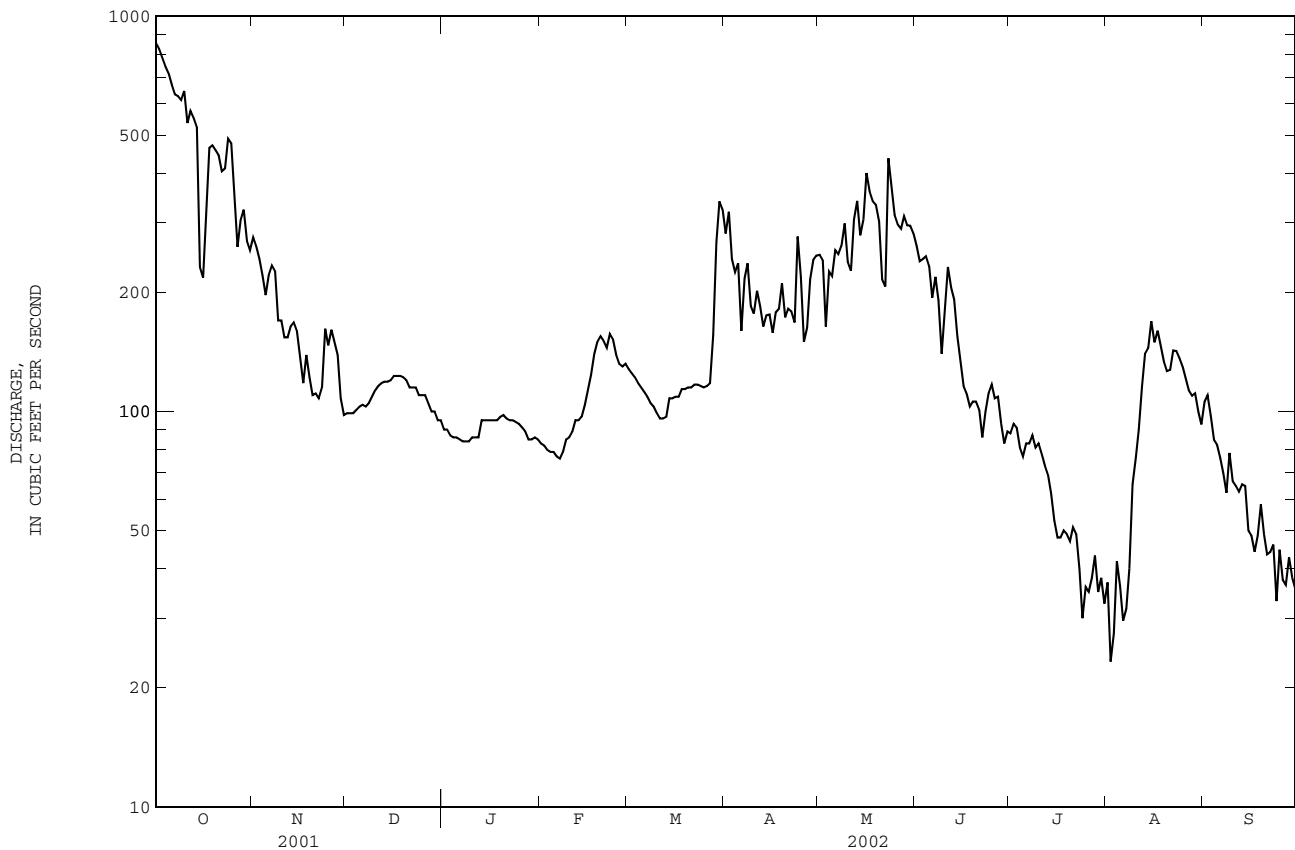
b No flow for long periods in most years.

c For period 1944-2002 water years only.

d Stage falling; maximum discharge, 875 ft³/s, Oct. 1; maximum gage height, 9.92 ft, Oct. 1.

e Estimated.

f Backwater; from floodmark.



JAMES RIVER BASIN

06477000 JAMES RIVER NEAR FORESTBURG, SD

LOCATION.--Lat 43°58'26", long 98°04'14", in SW¹/₄ SW¹/₄ NW¹/₄ sec.20, T.106 N., R.60 W., Sanborn County, Hydrologic Unit 10160011, on right bank 5.0 ft downstream from highway bridge, 3.8 mi southeast of Forestburg, 5.4 mi downstream from Chicago and North Western Railway Co. bridge, and 6.1 mi downstream from Sand Creek.

DRAINAGE AREA.--17,590 mi², of which about 4,148 mi² is probably noncontributing.

PERIOD OF RECORD.--March 1950 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,208.34 ft above NGVD of 1929 (Bureau of Reclamation bench mark). Prior to Sept. 5, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in March 1920 and March 1922 reached a stage of about 18 ft, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	837	307	e229	e124	e117	e217	422	319	320	92	33	109
2	828	299	e199	e122	e118	e196	422	321	310	84	33	108
3	813	301	e169	e122	e118	e188	406	311	284	90	29	110
4	787	289	e151	e121	e117	e185	378	292	273	89	34	108
5	751	271	e144	e121	e116	e178	353	277	270	81	36	103
6	723	257	e139	e120	e114	e169	322	293	264	77	41	99
7	690	251	e138	e122	e113	e166	308	317	247	76	37	89
8	657	259	e138	e123	e114	e159	306	369	240	75	34	79
9	644	260	e136	e124	e116	e156	306	380	226	81	38	77
10	651	243	e134	e125	e114	e154	301	390	211	80	49	81
11	636	220	e138	e126	e116	e154	287	382	199	81	60	81
12	586	212	e139	e128	e116	e146	280	355	219	76	75	78
13	578	206	e144	e135	e118	e144	280	362	240	75	98	76
14	572	207	e147	e150	e130	e173	270	391	230	69	121	74
15	544	210	e146	e150	e150	e176	260	391	213	61	142	72
16	424	208	e148	e142	e170	e166	255	375	189	54	160	66
17	311	198	e157	e131	e190	e198	254	406	168	50	169	60
18	309	188	e154	e127	197	e182	246	416	153	47	171	53
19	389	182	e163	e125	205	e166	251	402	144	44	166	53
20	450	174	e153	e124	220	e166	254	391	140	43	163	57
21	460	167	e153	e124	226	e184	260	371	142	47	159	54
22	452	154	e151	e124	227	e146	256	328	132	51	162	54
23	437	150	e150	e124	237	e158	251	302	123	51	150	51
24	427	164	e150	e124	226	e150	251	355	122	50	155	49
25	451	188	e155	e121	235	e152	267	412	175	45	154	45
26	472	192	e151	e122	206	e146	292	387	216	40	148	48
27	420	e200	e143	e122	e210	e146	277	358	173	34	139	48
28	357	e177	e136	e122	e225	e185	271	340	134	32	131	46
29	330	e188	e136	e119	---	e275	285	346	112	34	126	44
30	342	e235	e129	e116	---	369	302	341	100	36	130	45
31	331	---	e126	e116	---	412	---	329	---	38	119	---
TOTAL	16659	6557	4646	3896	4561	5762	8873	11009	5969	1883	3262	2117
MEAN	537	219	150	126	163	186	296	355	199	60.7	105	70.6
MAX	837	307	229	150	237	412	422	416	320	92	171	110
MIN	309	150	126	116	113	144	246	277	100	32	29	44
AC-FT	33040	13010	9220	7730	9050	11430	17600	21840	11840	3730	6470	4200

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2002, BY WATER YEAR (WY)

MEAN	188	178	123	61.8	64.5	585	1684	1275	836	510	398	247
MAX	1528	1759	1384	528	550	3735	17560	9047	5395	2196	2599	1792
(WY)	2000	1999	1999	1999	1996	1994	1997	1995	1995	1993	1993	1999
MIN	0.000	0.000	0.000	0.000	0.000	9.75	2.39	5.61	0.39	0.002	0.004	0.000
(WY)	1977	1977	1977	1977	1977	1990	1990	1959	1981	1981	1976	1976

06477000 JAMES RIVER NEAR FORESTBURG, SD--Continued

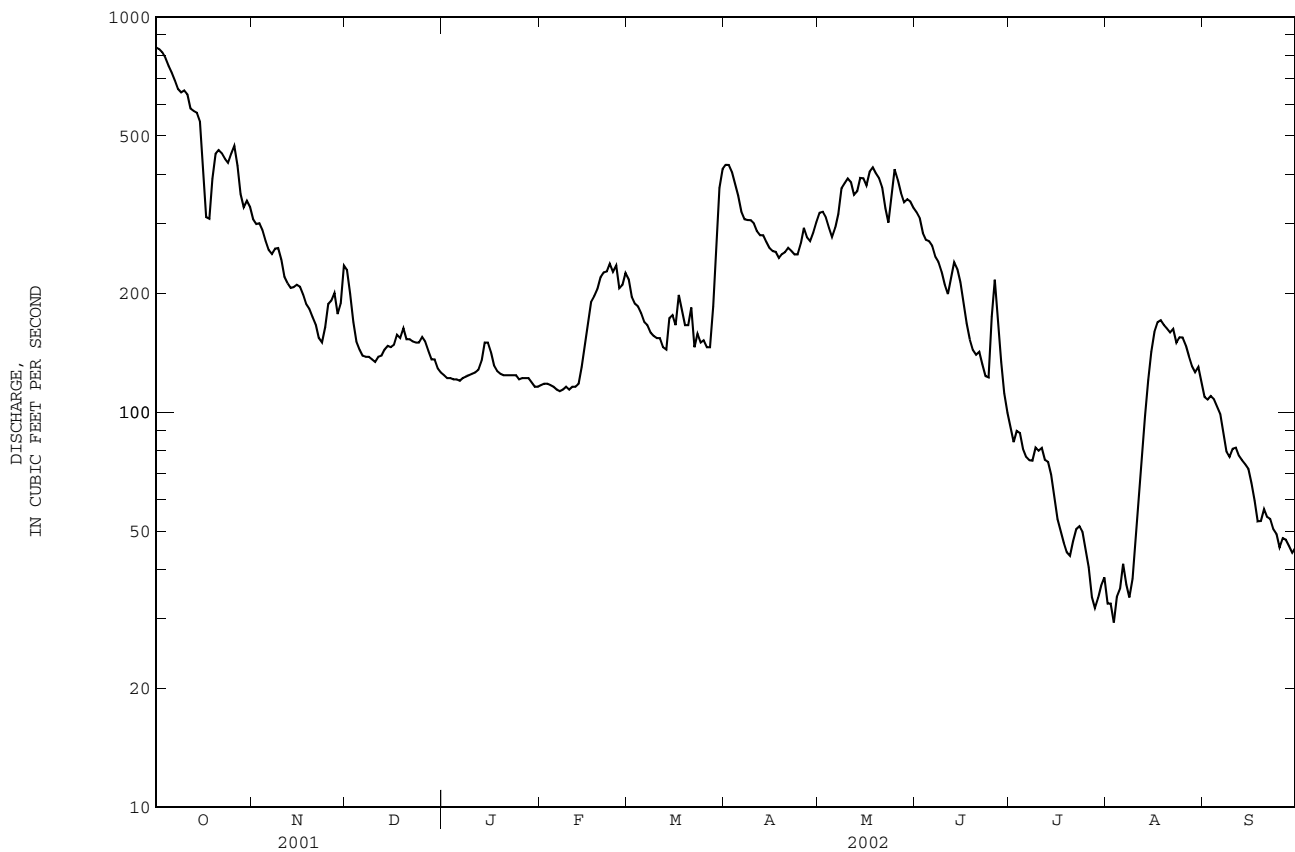
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1951 - 2002	
ANNUAL TOTAL	716149		75194		514a	
ANNUAL MEAN	1962		206		3054	
HIGHEST ANNUAL MEAN					4.75	
LOWEST ANNUAL MEAN					25100	
HIGHEST DAILY MEAN	17300	Apr 10	837	Oct 1	0.00	Apr 6 1997
LOWEST DAILY MEAN	96	Feb 22	29	Aug 3	0.00	Jul 10 1959b
ANNUAL SEVEN-DAY MINIMUM	97	Mar 7	34	Jul 28	0.00	Aug 9 1959
MAXIMUM PEAK FLOW			428	Mar 31c	25600	Apr 6 1997
MAXIMUM PEAK STAGE			5.64	Mar 31c	20.61	Apr 6 1997
ANNUAL RUNOFF (AC-FT)	1420000		149100		372000	
10 PERCENT EXCEEDS	6350		389		1380	
50 PERCENT EXCEEDS	828		159		85	
90 PERCENT EXCEEDS	110		54		2.5	

a Median of annual mean discharges, 240 ft³/s.

b No flow at times in some years.

c Stage falling; maximum discharge, 841 ft³/s, Oct. 1; maximum gage height, 7.23 ft, Oct. 1.

e Estimated.



LOCATION.--Lat 43°46'30", long 98°14'33", in SW¹/₄ SW¹/₄ sec.26, T.104 N., R.62 W., Davison County, Hydrologic Unit 10160011, on left bank 50 ft west of county road, 4.5 mi north of Mount Vernon, 5.2 mi downstream from West Firesteel Creek, and 12 mi northwest of Mitchell.

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

REMARKS.--Records good except these for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.25	0.36	0.82	e0.79	1.0	1.1	24	3.2	0.43	0.02	0.00	0.71
2	0.26	0.34	0.68	0.78	1.00	1.0	17	3.1	0.46	0.01	0.00	0.53
3	0.26	0.32	0.78	0.79	0.97	0.88	27	2.6	0.43	0.01	0.00	0.45
4	0.26	0.33	0.86	0.79	0.99	0.83	35	1.9	0.45	0.01	0.00	0.42
5	0.26	0.35	0.82	1.1	0.93	0.86	24	1.9	0.38	0.00	0.00	0.47
6	0.24	0.36	0.83	1.1	1.1	0.84	20	1.7	0.37	0.00	0.90	0.34
7	0.23	0.36	e0.85	0.92	1.1	0.80	18	1.7	0.32	0.00	0.14	0.28
8	0.24	0.34	e0.90	1.1	1.1	e0.78	15	3.9	0.47	0.00	0.09	0.26
9	0.26	0.34	0.91	1.3	0.94	e0.79	12	7.9	0.33	0.00	0.09	0.18
10	0.31	0.33	e0.92	1.2	e0.96	e0.80	10	8.9	0.28	0.00	0.08	0.20
11	0.33	0.36	0.93	1.1	e1.0	0.80	8.8	10	0.24	0.00	0.08	0.21
12	0.30	0.34	0.92	1.1	1.1	0.87	7.7	9.8	0.21	0.00	0.07	0.19
13	0.32	0.35	1.0	2.0	1.1	0.91	6.5	7.9	0.18	0.00	0.08	0.29
14	0.31	0.41	1.1	1.9	1.1	e0.90	5.3	6.6	0.16	0.00	0.08	0.26
15	0.35	0.35	1.1	e1.7	1.2	e0.94	4.3	5.1	0.15	0.00	0.06	0.18
16	0.29	0.35	1.1	1.5	1.2	e0.96	3.6	5.0	0.14	0.00	0.07	0.19
17	0.31	0.40	1.1	1.5	1.2	1.0	3.2	5.1	0.12	0.00	0.06	0.17
18	0.30	0.37	1.0	e1.5	1.3	1.2	2.4	4.4	0.11	0.00	0.08	0.13
19	0.31	0.30	0.94	1.4	1.8	1.3	2.1	3.4	0.11	0.00	0.11	0.12
20	0.32	0.30	0.87	1.2	2.1	1.2	1.7	2.8	0.11	0.00	0.56	0.12
21	0.35	0.30	0.82	1.1	2.1	e1.1	2.2	2.4	0.20	0.01	1.3	0.12
22	0.30	0.34	0.81	1.0	2.0	e1.0	2.1	1.9	0.17	0.04	3.8	0.11
23	0.31	0.46	e0.80	0.99	1.9	e1.0	1.7	1.8	0.12	0.03	8.2	0.08
24	0.31	0.88	e0.80	0.97	1.8	0.99	1.4	1.7	0.11	0.03	27	0.08
25	0.26	0.81	e0.79	0.93	e1.7	0.99	1.3	1.4	0.18	0.03	14	0.13
26	0.26	e0.90	e0.78	0.94	1.6	0.93	1.2	1.1	0.12	0.02	7.1	0.14
27	0.28	e1.0	0.78	0.95	1.2	1.1	1.8	0.99	0.09	0.01	4.2	0.12
28	0.30	e0.95	0.76	e0.95	1.2	2.9	3.2	0.82	0.08	0.00	2.4	0.13
29	0.28	e0.90	0.79	e0.96	---	26	2.7	0.67	0.06	0.00	1.7	0.13
30	0.31	0.82	0.81	e0.97	---	47	2.7	0.57	0.03	0.00	1.3	0.12
31	0.34	---	e0.80	e0.98	---	34	---	0.46	---	0.00	0.97	---
TOTAL	9.01	14.32	27.17	35.51	36.69	135.77	267.9	110.71	6.61	0.22	74.52	6.86
MEAN	0.29	0.48	0.88	1.15	1.31	4.38	8.93	3.57	0.22	0.007	2.40	0.23
MAX	0.35	1.0	1.1	2.0	2.1	47	35	10	0.47	0.04	27	0.71
MIN	0.23	0.30	0.68	0.78	0.93	0.78	1.2	0.46	0.03	0.00	0.00	0.08
AC-FT	18	28	54</									

MEAN	1.81	3.69	1.10	1.10	9.09	87.7	99.2	87.3	72.0	25.7	7.53	1.07
MAX	39.2	119	22.7	23.3	175	759	829	1135	1097	623	124	13.8
(WY)	1983	1999	1999	1973	1996	1997	2001	1995	1962	1993	1992	1992
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.049	0.004	0.001	0.000	0.000	0.000
(WY)	1959	1960	1956	1956	1956	1965	1980	1980	1968	1959	1958	1958

06477500 FIRESTEEL CREEK NEAR MOUNT VERNON, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1956 - 2002	
ANNUAL TOTAL	33346.60		725.29		33.2a	
ANNUAL MEAN	91.4		1.99		203	
HIGHEST ANNUAL MEAN					0.033	
LOWEST ANNUAL MEAN					5820	
HIGHEST DAILY MEAN	2410	Apr 25	47	Mar 30	0.00	Apr 4 1969
LOWEST DAILY MEAN	0.23	Oct 7	0.00	Jul 5	0.00	Oct 1 1955b
ANNUAL SEVEN-DAY MINIMUM	0.25	Oct 2	0.00	Jul 5	0.00	Oct 8 1955
MAXIMUM PEAK FLOW			74	Mar 30	6610	Apr 4 1969c
MAXIMUM PEAK STAGE			3.86	Mar 30	17.12	Apr 3 1969d
ANNUAL RUNOFF (AC-FT)	66140		1440		24030	
10 PERCENT EXCEEDS	238		3.5		30	
50 PERCENT EXCEEDS	0.81		0.80		0.26	
90 PERCENT EXCEEDS	0.31		0.04		0.00	

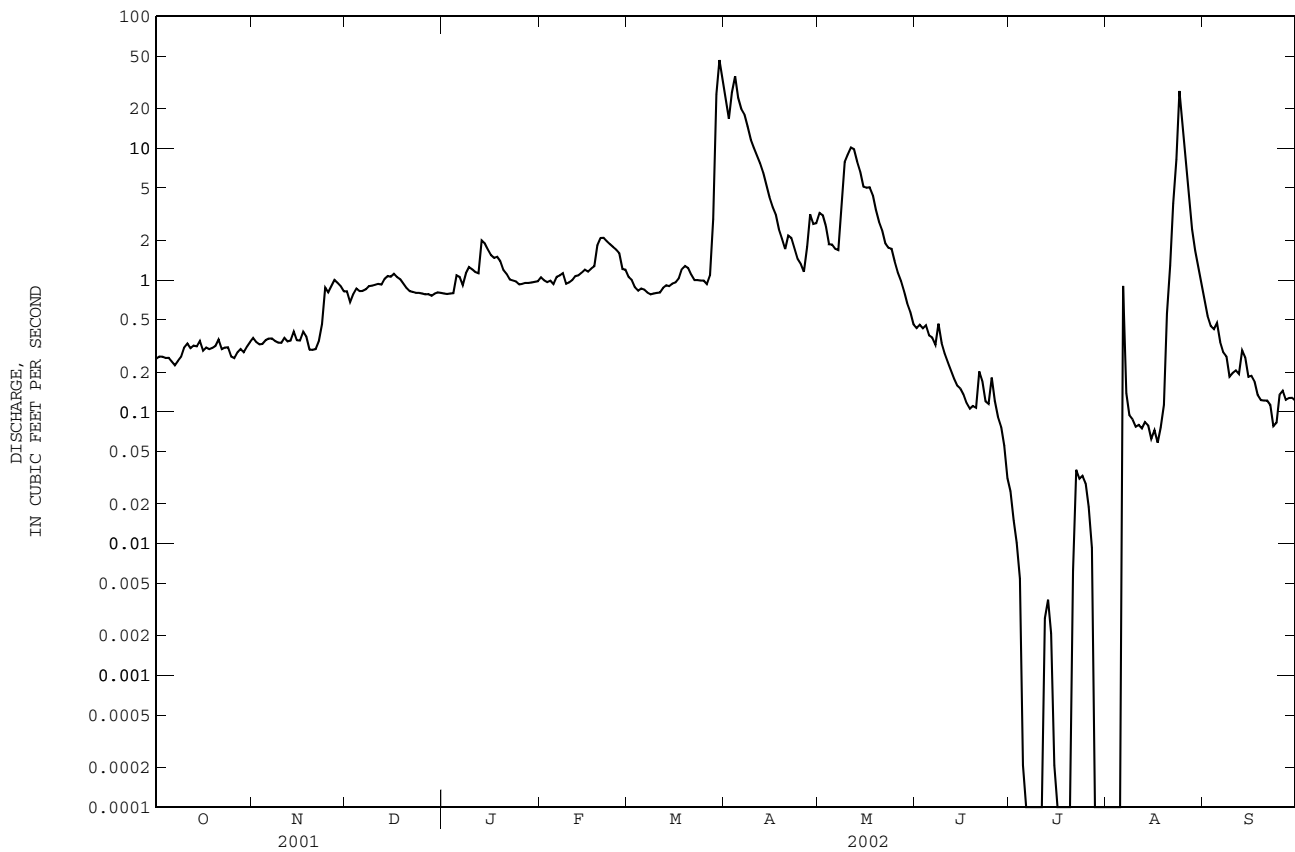
a Median of annual mean discharges, 11 ft³/s.

b No flow for many days in most years.

c Gage height, 15.34 ft.

d Backwater from ice.

e Estimated.



06478000 JAMES RIVER NEAR MITCHELL, SD

LOCATION.--Lat 43°39'32", long 97°55'08", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.9, T.102 N., R.59 W., Hanson County, Hydrologic Unit 10160011, on right bank at downstream side of bridge on county road, 6.5 mi southeast of Mitchell, 6.9 mi downstream of Firesteel Creek, and 2.3 mi upstream of Enemy Creek.

DRAINAGE AREA.--To be determined.

PERIOD OF RECORD.--July 1953 to September 1958 (published as "near Alexandria") and August 1965 to September 1972. Miscellaneous peak discharge measurement in 1995, partial-record crest-stage gage in 1997, and miscellaneous discharge measurements in 2001. October 2001 to September 2002.

GAGE.--Water-stage recorder. Elevation of gage is 1,217 ft above NGVD of 1929, from topographic map. Miscellaneous discharge measurements made in 2001 at present site and datum. Miscellaneous discharge measurements made in 1995 and 1997 at datum 1,197.93 ft above NGVD of 1929 at site 7.2 mi upstream (SD Hwy 38). August 1965 to September 1972 at datum 1,198.00 ft above NGVD of 1929 (South Dakota Department of Transportation bench mark) at site 6.7 mi upstream (Interstate I-90), and was nonrecording gage Aug. 17 to Dec. 7, 1965. July 1953 to September 1958 nonrecording gage at datum 1,195.03 ft above NGVD of 1929 at site 3.8 mi downstream.

REMARKS.--Records good. Only daily discharges above 500 ft³/s published because flows below are unreliable due to wind effect. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,000 ft³/s, Apr. 7, 1997, gage height, 23.14 ft, site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge at current site, 24,700 ft³/s, Apr. 11, 2001, from rating curve extended above 20,100 ft³/s, gage height, 25.33 ft, from high-water mark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 752 ft³/s, Oct. 1, gage height, 13.43 ft, stage falling, from peak in April 2001; maximum peak discharge, 691 ft³/s, Aug. 23, gage height, 13.20 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

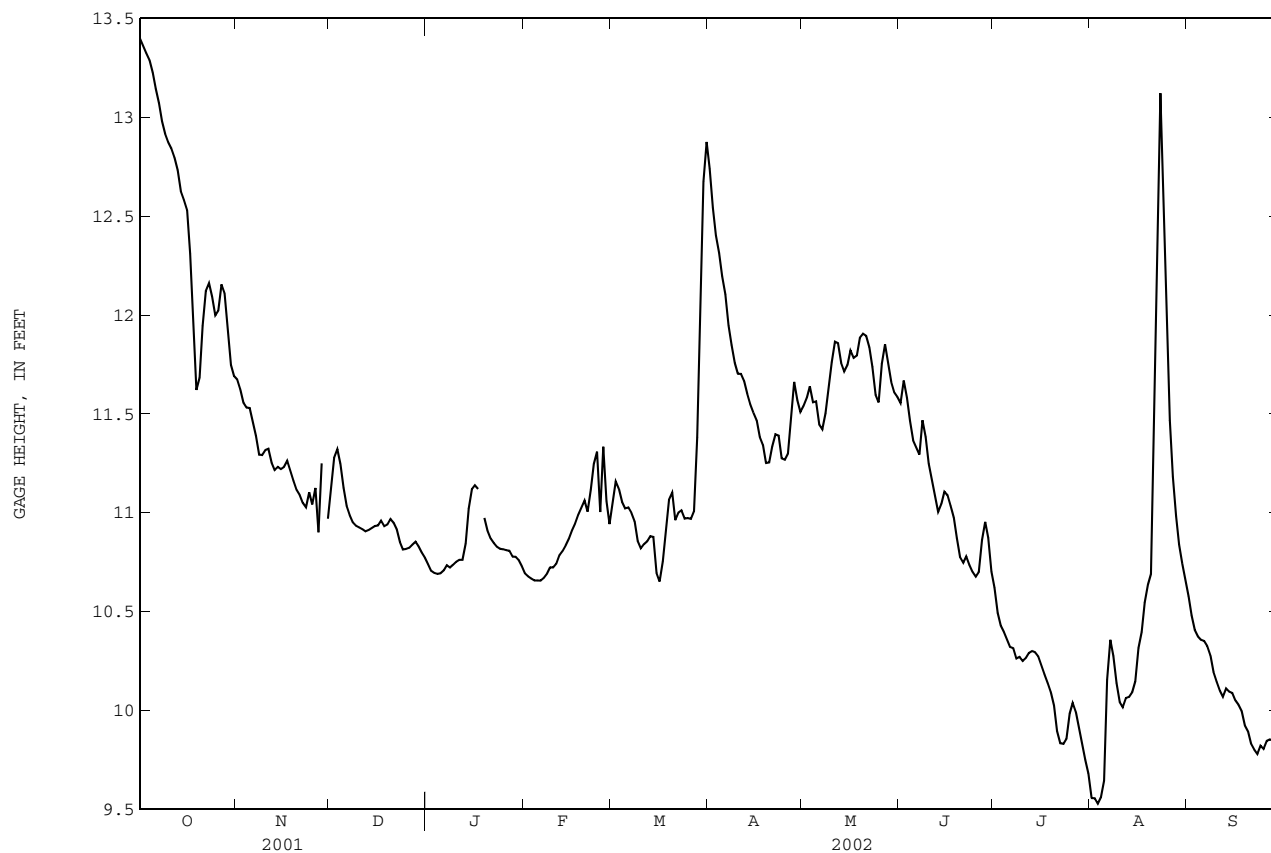
Daily discharge above 500 ft³/s are given herewith.

Oct. 1	743	Oct. 7	659	Oct. 13	580	Apr. 1	581
2	733	8	637	14	556	2	538
3	723	9	621	15	547	3	509
4	714	10	611	16	536	Aug. 22	506
5	698	11	604	Mar. 30	567	23	671
6	677	12	594	31	612	24	560

06478000 JAMES RIVER NEAR MITCHELL, SD--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.40	11.67	11.11	10.74	10.69	11.05	12.74	11.54	11.55	10.62	9.56	10.58
2	13.36	11.63	11.28	10.71	10.68	11.16	12.54	11.58	11.67	10.49	9.56	10.48
3	13.32	11.56	11.32	10.70	10.67	11.12	12.40	11.64	11.58	10.43	9.53	10.41
4	13.29	11.53	11.25	10.69	10.66	11.05	12.31	11.56	11.47	10.40	9.56	10.37
5	13.23	11.53	11.13	10.69	10.66	11.02	12.20	11.56	11.37	10.36	9.64	10.36
6	13.15	11.46	11.04	10.71	10.66	11.03	12.10	11.45	11.33	10.32	10.16	10.35
7	13.07	11.39	10.99	10.73	10.67	11.00	11.95	11.42	11.29	10.31	10.36	10.33
8	12.98	11.29	10.95	10.72	10.69	10.96	11.85	11.50	11.47	10.26	10.28	10.28
9	12.92	11.29	10.93	10.74	10.72	10.86	11.76	11.63	11.38	10.27	10.14	10.19
10	12.87	11.32	10.93	10.75	10.72	10.82	11.70	11.76	11.25	10.25	10.04	10.14
11	12.84	11.32	10.92	10.76	10.74	10.84	11.70	11.86	11.16	10.27	10.02	10.10
12	12.80	11.25	10.91	10.76	10.78	10.85	11.67	11.86	11.08	10.29	10.06	10.07
13	12.73	11.22	10.91	10.84	10.81	10.88	11.60	11.76	11.00	10.30	10.07	10.11
14	12.63	11.23	10.92	11.02	10.83	10.88	11.55	11.71	11.04	10.29	10.09	10.09
15	12.58	11.22	10.93	11.12	10.87	10.69	11.51	11.75	11.11	10.27	10.15	10.09
16	12.53	11.23	10.94	11.14	10.91	10.65	11.47	11.82	11.09	10.23	10.32	10.05
17	12.31	11.26	10.96	11.12	10.94	10.75	11.38	11.78	11.04	10.18	10.40	10.03
18	11.90	11.21	10.93	---	10.99	10.92	11.34	11.79	10.97	10.14	10.55	10.0
19	11.62	11.16	10.94	10.97	11.02	11.07	11.25	11.89	10.87	10.09	10.64	9.92
20	11.68	11.12	10.97	10.91	11.06	11.10	11.25	11.91	10.77	10.02	10.69	9.89
21	11.95	11.09	10.95	10.87	11.00	10.96	11.34	11.89	10.75	9.90	11.58	9.83
22	12.12	11.05	10.92	10.85	11.12	11.00	11.40	11.84	10.78	9.83	12.39	9.80
23	12.16	11.03	10.85	10.83	11.25	11.01	11.39	11.74	10.74	9.83	13.12	9.78
24	12.09	11.10	10.81	10.82	11.31	10.97	11.27	11.60	10.70	9.86	12.64	9.82
25	12.00	11.04	10.82	10.82	11.00	10.97	11.27	11.56	10.68	9.98	11.95	9.80
26	12.02	11.12	10.82	10.81	11.33	10.97	11.30	11.75	10.70	10.04	11.47	9.85
27	12.15	10.90	10.84	10.81	11.06	11.01	11.49	11.85	10.86	9.99	11.18	9.85
28	12.11	11.25	10.85	10.78	10.94	11.38	11.66	11.76	10.95	9.92	10.98	9.85
29	11.94	---	10.83	10.78	---	12.06	11.57	11.66	10.87	9.83	10.84	9.88
30	11.75	10.97	10.80	10.76	---	12.67	11.51	11.61	10.70	9.75	10.74	9.86
31	11.69	---	10.77	10.73	---	12.88	---	11.58	---	9.68	10.66	---
MEAN	12.49	---	10.95	---	10.88	11.12	11.68	11.70	11.07	10.14	10.62	10.07
MAX	13.40	---	11.32	---	11.33	12.88	12.74	11.91	11.67	10.62	13.12	10.58
MIN	11.62	---	10.77	---	10.66	10.65	11.25	11.42	10.68	9.68	9.53	9.78



06478500 JAMES RIVER NEAR SCOTLAND, SD

LOCATION.--Lat 43°11'09", long 97°38'07", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.30, T.97 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 5.0 ft downstream from highway bridge, 0.3 mi upstream from Dawson Creek, and 5.2 mi northeast of Scotland.

DRAINAGE AREA.--20,653 mi², of which 4,148 mi² is probably noncontributing.

PERIOD OF RECORD.--September 1928 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 956: 1937-38. WSP 1279: 1932, 1948. WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area. WDR SD-88-1: Datum.

GAGE.--Water-stage recorder, crest-stage gage, and rock and earth control. Datum of gage is 1,168.02 ft above NGVD of 1929. Prior to Nov. 28, 1972, at site 0.25 mi downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. Occasional backwater caused by Dawson Creek; reverse flow occurred for part of May 15, 1961, from information by local residents. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	829	350	242	e132	e126	e198	921	393	305	155	34	223
2	813	333	234	e128	e117	e190	893	381	290	150	29	221
3	793	329	241	e125	e111	e180	802	366	301	142	31	327
4	782	314	269	e124	e104	e185	702	353	332	138	42	295
5	770	295	297	e126	e102	e193	644	354	322	121	46	236
6	755	287	310	e129	e103	e200	590	345	286	102	47	191
7	730	291	296	e132	e105	e194	532	335	253	94	38	173
8	697	292	265	e135	e111	e185	521	328	266	91	42	157
9	685	272	237	e142	e120	e172	495	355	294	94	77	146
10	703	251	250	e150	122	e165	443	344	353	106	108	142
11	687	242	236	e157	131	e169	429	365	404	103	104	137
12	645	241	243	165	e152	e174	432	399	333	99	84	128
13	640	251	237	171	164	e175	416	415	276	92	79	135
14	636	246	217	180	173	e170	398	411	238	88	77	133
15	612	239	226	180	190	e140	377	374	207	80	71	126
16	583	235	238	e179	198	e163	357	362	195	77	72	117
17	560	234	244	e179	202	e173	338	368	195	73	77	108
18	536	235	243	e177	212	e179	320	371	191	73	91	101
19	479	246	212	e175	226	e173	310	361	186	73	112	102
20	391	238	199	e172	238	e170	291	356	180	66	132	102
21	333	228	e191	e162	252	e165	286	354	174	58	192	100
22	330	222	e188	e155	247	e170	289	339	169	50	259	87
23	373	233	e182	e152	240	e200	292	352	159	50	467	79
24	424	322	e150	e144	e238	e225	311	357	155	42	710	72
25	454	369	e190	e141	e222	e220	316	341	155	38	826	66
26	437	339	e180	e140	e205	212	292	319	154	41	698	64
27	410	315	e164	e132	e185	232	284	311	152	55	522	71
28	403	180	e158	e122	e200	465	313	336	151	62	377	69
29	434	207	e150	e112	---	623	360	354	151	59	289	66
30	428	233	e144	e127	---	665	397	344	155	52	282	67
31	393	---	e138	e131	---	777	---	321	---	41	271	---
TOTAL	17745	8069	6771	4576	4796	7502	13351	11064	6982	2565	6286	4041
MEAN	572	269	218	148	171	242	445	357	233	82.7	203	135
MAX	829	369	310	180	252	777	921	415	404	155	826	327
MIN	330	180	138	112	102	140	284	311	151	38	29	64
AC-FT	35200	16000	13430	9080	9510	14880	26480	21950	13850	5090	12470	8020

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY)

	MEAN	179	173	129	70.5	119	804	1967	1425	1158	705	401	245
MAX	1613	2050	1885	716	800	4118	20950	13180	7585	8582	4154	2048	
(WY)	2000	1999	1999	1999	1994	1994	1997	1995	1984	1993	1993	1999	
MIN	0.000	0.000	2.72	1.52	2.14	16.8	18.5	8.52	5.14	0.79	0.000	0.27	
(WY)	1940	1940	1940	1940	1940	1940	1934	1934	1981	1936	1934	1941	

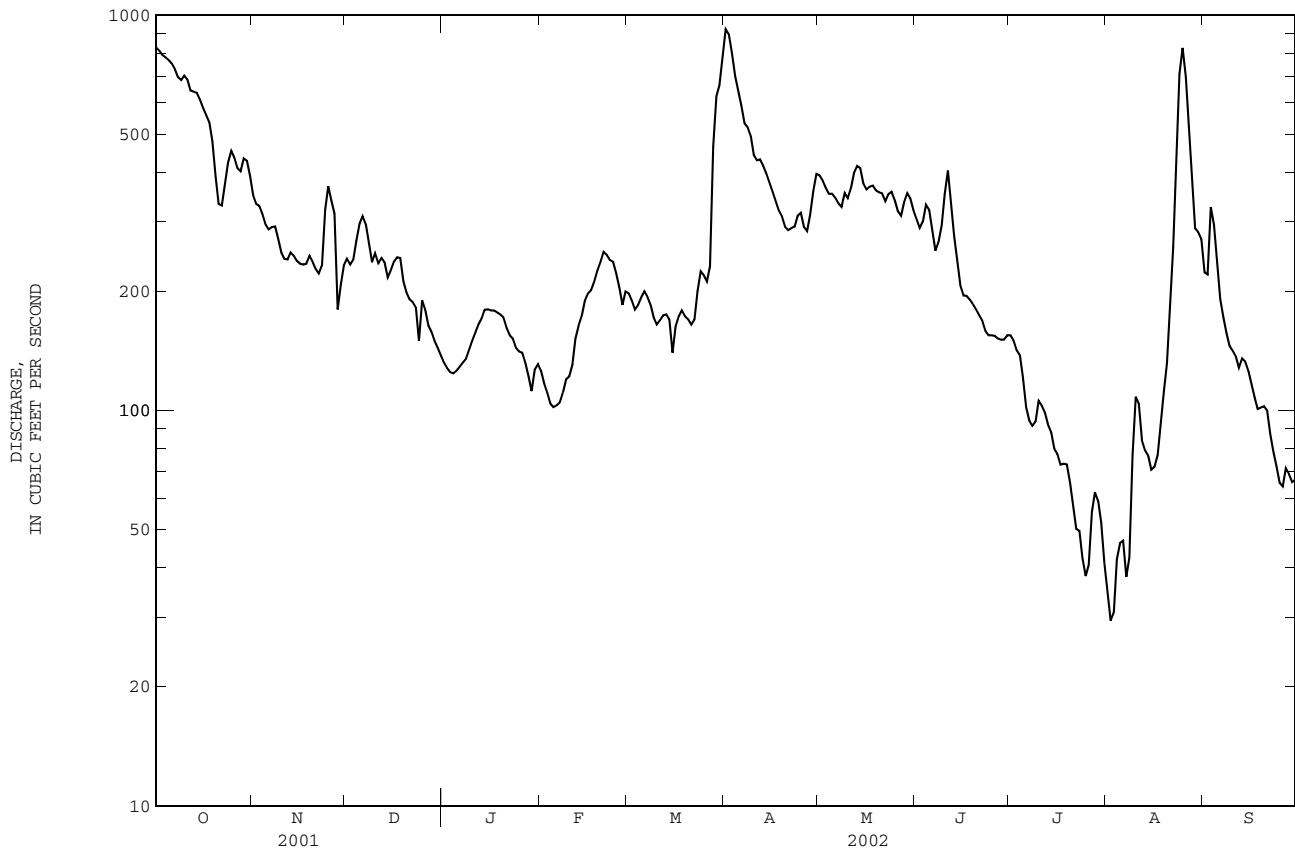
06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1929 - 2002	
ANNUAL TOTAL	958037		93748		615a	
ANNUAL MEAN	2625		257		3996	
HIGHEST ANNUAL MEAN					13.8	
LOWEST ANNUAL MEAN					27800	
HIGHEST DAILY MEAN	23800	Apr 13	921	Apr 1	0.00	Jul 28 1934b
LOWEST DAILY MEAN	95	Mar 10	29	Aug 2	0.00	Jul 28 1934
ANNUAL SEVEN-DAY MINIMUM	98	Mar 6	38	Aug 1	29400	Jun 23 1984
MAXIMUM PEAK FLOW			943	Apr 1	20.45	Jun 23 1984
MAXIMUM PEAK STAGE			6.72	Apr 1		
ANNUAL RUNOFF (AC-FT')	1900000		185900		445800	
10 PERCENT EXCEEDS	7250		466		1580	
50 PERCENT EXCEEDS	1040		212		97	
90 PERCENT EXCEEDS	153		78		9.0	

a Median of annual mean discharges, 290 ft³/s.

b No flow for many days in some years.

e Estimated.



LOCATION.--Lat 42°51'01", long 97°13'12", in SW¹/₄ NW¹/₄ sec.27, T.93 N., R.54 W., Yankton County, Hydrologic Unit 10170101, 3.8 mi southwest of Gayville, 4.1 mi downstream from James River, and at mile 796.0.

PERIOD OF RECORD.--October 1969 to current year.

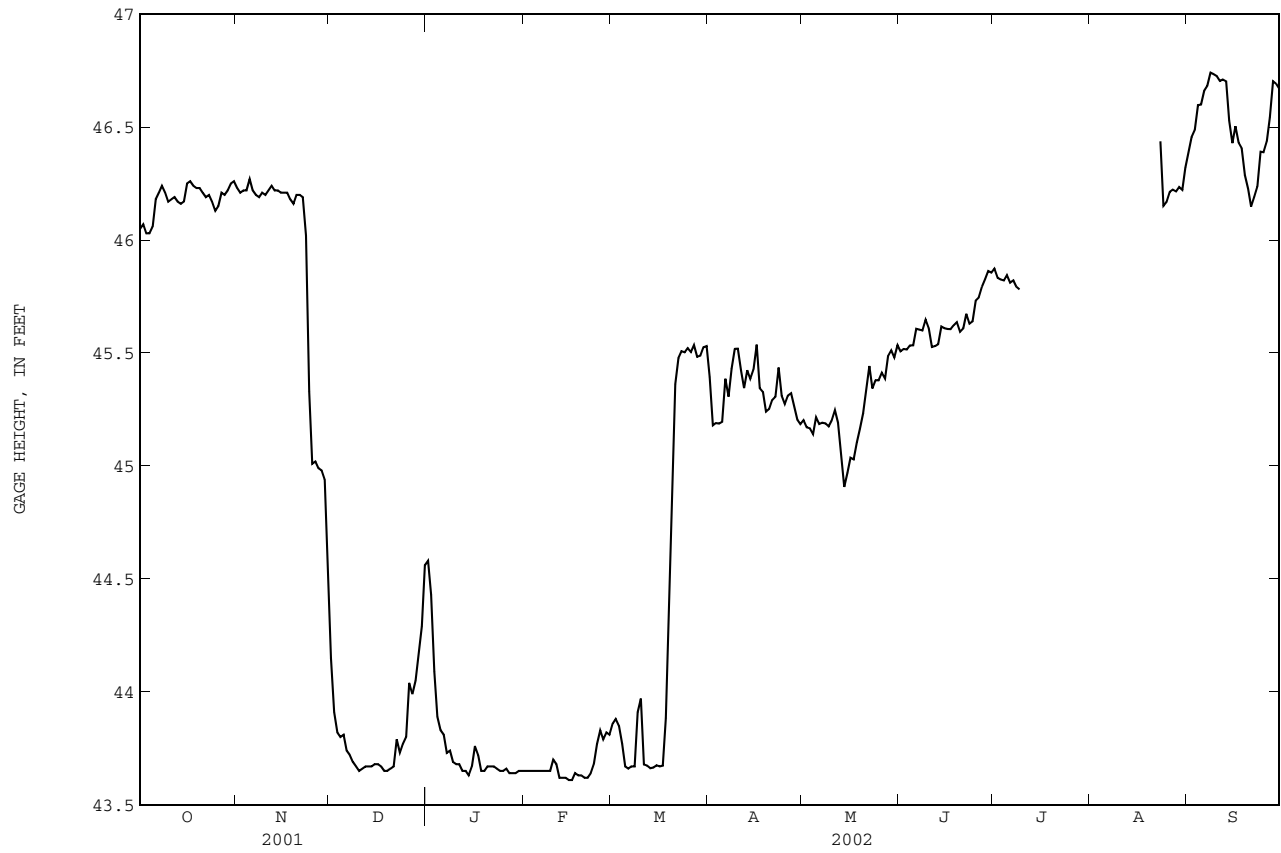
GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft above NGVD of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for June 27 to July 9 and Aug. 23 to Sept. 5, which are fair. Stage regulated by Gavins Point Dam 15.0 mi upstream. U.S. Army Corps of Engineers data-collection platform at station. Gage heights for period of October 1969 to September 1980 in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46.05	46.23	44.15	44.58	43.65	43.86	45.39	45.20	45.51	45.87	---	46.39
2	46.07	46.21	43.91	44.43	43.65	43.88	45.18	45.17	45.52	45.83	---	46.46
3	46.03	46.22	43.82	44.09	43.65	43.85	45.19	45.17	45.52	45.83	---	46.49
4	46.03	46.22	43.80	43.89	43.65	43.77	45.19	45.14	45.53	45.82	---	46.60
5	46.06	46.27	43.81	43.83	43.65	43.67	45.20	45.22	45.53	45.85	---	46.60
6	46.18	46.22	43.74	43.81	43.65	43.66	45.39	45.19	45.61	45.81	---	46.66
7	46.21	46.20	43.72	43.73	43.65	43.67	45.31	45.19	45.60	45.82	---	46.68
8	46.24	46.19	43.69	43.74	43.65	43.67	45.43	45.19	45.60	45.79	---	46.74
9	46.21	46.21	43.67	43.69	43.65	43.91	45.52	45.17	45.65	45.78	---	46.73
10	46.17	46.20	43.65	43.68	43.70	43.97	45.52	45.20	45.61	---	---	46.73
11	46.18	46.22	43.66	43.68	43.68	43.68	45.42	45.25	45.53	---	---	46.70
12	46.19	46.24	43.67	43.65	43.62	43.67	45.34	45.19	45.53	---	---	46.71
13	46.17	46.22	43.67	43.65	43.62	43.66	45.42	45.05	45.54	---	---	46.70
14	46.16	46.22	43.67	43.63	43.62	43.67	45.39	44.91	45.62	---	---	46.53
15	46.17	46.21	43.68	43.67	43.61	43.67	45.43	44.97	45.61	---	---	46.43
16	46.25	46.21	43.68	43.76	43.61	43.67	45.54	45.04	45.61	---	---	46.50
17	46.26	46.21	43.67	43.72	43.64	43.67	45.34	45.03	45.61	---	---	46.43
18	46.24	46.18	43.65	43.65	43.63	43.88	45.33	45.11	45.62	---	---	46.41
19	46.23	46.16	43.65	43.65	43.63	44.39	45.24	45.16	45.64	---	---	46.29
20	46.23	46.20	43.66	43.67	43.62	44.93	45.25	45.23	45.59	---	---	46.23
21	46.21	46.20	43.67	43.67	43.62	45.36	45.29	45.33	45.61	---	---	46.15
22	46.19	46.19	43.79	43.67	43.64	45.48	45.31	45.44	45.67	---	---	46.19
23	46.20	46.02	43.73	43.66	43.68	45.51	45.44	45.34	45.63	---	46.44	46.24
24	46.17	45.33	43.77	43.65	43.77	45.50	45.31	45.38	45.64	---	46.15	46.39
25	46.13	45.01	43.80	43.65	43.83	45.52	45.27	45.38	45.73	---	46.17	46.39
26	46.15	45.02	44.04	43.66	43.79	45.50	45.31	45.41	45.75	---	46.21	46.44
27	46.21	44.99	43.99	43.64	43.82	45.54	45.32	45.39	45.79	---	46.22	46.54
28	46.20	44.98	44.05	43.64	43.81	45.48	45.27	45.49	45.83	---	46.22	46.70
29	46.22	44.94	44.17	43.64	---	45.49	45.20	45.51	45.86	---	46.23	46.69
30	46.25	44.56	44.29	43.65	---	45.52	45.18	45.48	45.86	---	46.22	46.67
31	46.26	---	44.56	43.65	---	45.53	---	45.53	---	---	46.32	---
MEAN	46.18	45.92	43.82	43.75	43.67	44.43	45.33	45.24	45.63	---	---	46.51
MAX	46.26	46.27	44.56	44.58	43.83	45.54	45.54	45.53	45.86	---	---	46.74
MIN	46.03	44.56	43.65	43.63	43.61	43.66	45.18	44.91	45.51	---	---	46.15

06478515 MISSOURI RIVER NEAR GAYVILLE, SD--Continued



06478535 EAST FORK VERMILLION RIVER NEAR RAMONA, SD

LOCATION.--Lat 44°06'35", long 97°23'13", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.1, T.107 N., R.55 W., Miner County, Hydrologic Unit 10170102, near right downstream side of county highway bridge, 8.3 mi west of Ramona, and 1.9 mi downstream from Lake Thompson outlet.

DRAINAGE AREA.--508 mi².

PERIOD OF RECORD.--November 1986 to September 1989, October 1995 to September 2002 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,678.46 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	65	e140	e29	e30	e32	e60	57	57	30	22	3.8
2	88	66	e150	e30	e30	e32	e60	56	52	28	20	8.6
3	92	64	e160	e31	e30	e35	e60	36	59	33	17	7.7
4	93	64	e170	e31	e31	e38	e59	37	57	31	20	5.8
5	95	55	e160	e31	e32	e40	e50	31	55	27	21	3.7
6	92	53	e150	e32	e33	e36	38	42	47	27	17	3.2
7	79	54	e137	e32	e34	e30	40	51	44	26	8.8	2.9
8	69	42	e122	e32	e37	e38	53	101	42	31	5.9	2.1
9	74	40	e104	e33	e39	e45	49	101	24	33	8.0	2.4
10	89	40	e83	e33	e38	e40	43	85	25	36	14	4.1
11	85	38	e80	e33	e39	e45	52	77	36	34	12	4.8
12	73	33	e68	e33	e41	e50	51	78	42	34	17	5.5
13	78	36	e64	e34	e43	e53	42	76	48	30	18	5.8
14	85	62	e60	e33	e44	e52	45	67	50	26	15	8.3
15	90	63	e55	e33	e46	e50	46	57	49	22	14	6.3
16	90	60	e54	e32	e48	e48	37	67	46	19	9.2	4.3
17	80	52	e54	e31	e48	e45	40	66	40	18	13	2.7
18	79	54	e54	e30	e49	e43	45	66	35	18	8.8	1.9
19	80	62	e53	e30	e49	e43	56	66	33	20	10	3.8
20	79	59	e52	e30	e49	e41	56	62	37	18	8.0	3.3
21	79	57	e51	e30	e46	e40	59	39	70	19	12	4.2
22	74	56	e46	e30	e42	e39	54	16	51	23	12	4.3
23	71	58	e35	e30	e45	e39	46	37	37	23	14	6.3
24	79	80	e28	e31	e45	e39	64	45	41	16	14	2.7
25	93	87	e25	e31	e42	e40	65	53	60	14	13	3.3
26	90	e100	e25	e32	e38	e41	55	54	54	16	11	3.6
27	85	e120	e26	e32	e32	e43	44	55	49	16	9.3	2.9
28	67	e140	e27	e31	e32	e45	60	54	42	17	7.4	3.0
29	73	e130	e26	e30	---	e48	56	56	34	21	6.1	3.0
30	69	e150	e27	e30	---	e50	55	57	32	21	7.9	2.7
31	63	---	e28	e30	---	e52	---	57	---	19	5.0	---
TOTAL	2522	2040	2314	970	1112	1312	1540	1802	1348	746	390.4	127.0
MEAN	81.4	68.0	74.6	31.3	39.7	42.3	51.3	58.1	44.9	24.1	12.6	4.23
MAX	95	150	170	34	49	53	65	101	70	36	22	8.6
MIN	63	33	25	29	30	30	37	16	24	14	5.0	1.9
AC-FT	5000	4050	4590	1920	2210	2600	3050	3570	2670	1480	774	252

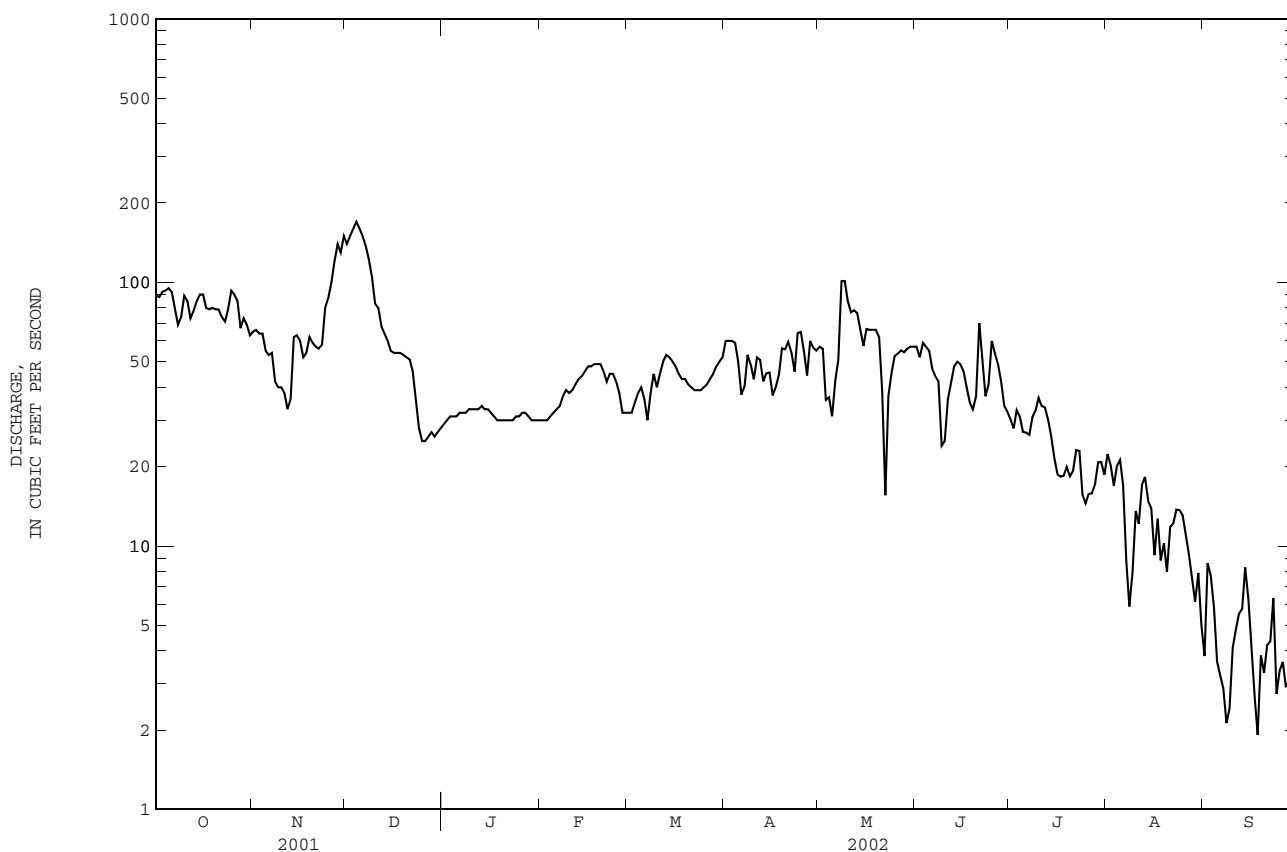
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1989, 1996 - 2002, BY WATER YEAR (WY)

	1988	1989	1989	1989	1989	2001	1989	1989	1989	1989	1988	1989
MEAN	48.5	45.6	40.9	23.6	23.2	45.7	105	130	79.1	62.4	53.8	35.6
MAX	191	214	190	130	119	194	468	615	229	168	129	103
(WY)	1996	1996	1996	1996	1996	1996	1997	1997	1997	1996	1997	2001
MIN	0.000	0.003	0.000	0.000	0.000	0.11	0.021	0.000	0.045	0.004	0.000	0.000
(WY)	1989	1989	1989	1989	1989	2001	1989	1989	1989	1989	1988	1989

06478535 EAST FORK VERMILLION RIVER NEAR RAMONA, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1988-1989, 1996-2002	
ANNUAL TOTAL	27564.55		16223.4		57.9	
ANNUAL MEAN	75.5		44.4		165	
HIGHEST ANNUAL MEAN					0.020	
LOWEST ANNUAL MEAN					1030	
HIGHEST DAILY MEAN	186	Jun 13	170	Dec 4	0.00	May 1 1997
LOWEST DAILY MEAN	0.00	Jan 1	1.9	Sep 18	0.00	Feb 14 1988a
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	3.0	Sep 24	0.00	Feb 14 1988
MAXIMUM PEAK FLOW			170	Dec 4b	1600	Apr 30 1997
MAXIMUM PEAK STAGE			6.14	Nov 29c	8.50	Apr 30 1997
ANNUAL RUNOFF (AC-FT)	54670		32180		41980	
10 PERCENT EXCEEDS	143		80		165	
50 PERCENT EXCEEDS	85		40		26	
90 PERCENT EXCEEDS	0.00		8.5		0.00	

- a No flow for many days in some years.
b Maximum daily mean due to backwater from ice.
c Backwater from ice.
e Estimated.



MISSOURI-LEWIS AND CLARK RIVER BASIN

06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD
(Hydrologic bench-mark station)

LOCATION.--Lat 43°47'39", long 97°22'02", in SW¹/₄ sec.19, T.104 N., R.54 W., McCook County, Hydrologic Unit 10170102, on right bank near downstream end of culvert on county road, 2.0 mi upstream from small left-bank tributary, and 5.2 mi northeast of Salem.

DRAINAGE AREA.--78.6 mi².

PERIOD OF RECORD.--October 1966 to current year.

REVISED RECORDS.--WDR SD-84-1, WDR SD-89-1: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and concrete dam. Elevation of gage is 1,510 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	e0.05	28	1.2	0.00	0.00	0.00	0.47
2	0.00	0.00	0.00	0.00	0.00	e0.04	19	1.1	0.00	0.00	0.00	0.44
3	0.00	0.00	0.00	0.00	0.00	e0.02	11	0.98	0.00	0.00	0.00	0.52
4	0.00	0.00	0.02	0.00	0.00	e0.02	8.5	0.84	0.00	0.00	0.00	0.60
5	0.00	0.00	0.04	0.00	0.00	e0.02	5.0	0.73	0.00	0.00	0.00	0.61
6	0.00	0.00	0.07	0.00	0.00	e0.01	3.1	0.65	0.00	0.00	0.00	0.53
7	0.00	0.00	0.08	0.00	0.00	e0.01	2.3	0.57	0.00	0.00	0.00	0.42
8	0.00	0.00	0.07	0.00	0.00	e0.01	1.7	0.57	0.00	0.00	0.00	0.30
9	0.00	0.00	0.07	0.00	e0.00	e0.01	1.4	0.53	0.00	0.00	0.00	0.22
10	0.00	0.00	0.07	0.00	e0.00	e0.01	1.2	0.47	0.00	0.00	0.00	0.17
11	0.00	0.00	0.08	0.00	e0.00	e0.01	1.3	0.49	0.00	0.00	0.00	0.12
12	0.00	0.00	0.11	0.00	e0.01	e0.02	1.3	0.50	0.00	0.00	0.00	0.08
13	0.00	0.00	0.13	0.01	e0.02	e0.02	1.3	0.46	0.00	0.00	0.00	0.09
14	0.00	0.00	0.15	0.00	e0.02	e0.01	1.3	0.39	0.00	0.00	0.00	0.09
15	0.00	0.00	0.18	0.00	e0.03	e0.01	1.4	0.34	0.00	0.00	0.00	0.06
16	0.00	0.00	0.27	0.00	e0.04	e0.01	1.4	0.28	0.00	0.00	0.00	0.04
17	0.00	0.00	0.35	0.00	e0.06	e0.01	1.5	0.23	0.00	0.00	0.00	0.02
18	0.00	0.00	0.34	0.00	e0.08	e0.01	1.4	0.19	0.00	0.00	0.00	0.01
19	0.00	0.00	0.28	0.00	e0.12	e0.00	1.2	0.16	0.00	0.00	0.00	0.00
20	0.00	0.00	0.23	0.00	e0.13	e0.00	1.0	0.14	0.00	0.00	0.00	0.00
21	0.00	0.00	0.20	0.00	e0.13	e0.00	1.1	0.11	0.00	0.00	0.06	0.00
22	0.00	0.00	0.18	0.00	e0.11	e0.00	1.3	0.11	0.00	0.00	0.18	0.00
23	0.00	0.00	0.14	0.00	e0.08	e0.00	1.3	0.11	0.00	0.00	0.94	0.00
24	0.00	0.00	0.12	0.00	e0.06	e0.00	1.2	0.08	0.00	0.00	3.9	0.00
25	0.00	0.00	0.10	0.00	e0.04	e0.00	1.0	0.07	0.00	0.00	4.5	0.00
26	0.00	0.00	0.07	0.00	e0.04	e0.01	0.89	0.06	0.00	0.00	3.3	0.00
27	0.00	0.00	0.06	0.00	e0.05	e0.03	1.0	0.05	0.00	0.00	2.1	0.00
28	0.00	0.00	0.05	0.00	e0.04	e0.15	1.3	0.04	0.00	0.00	1.2	0.00
29	0.00	0.00	0.03	0.00	---	e1.5	1.3	0.03	0.00	0.00	0.71	0.00
30	0.00	0.00	0.01	0.00	---	25	1.3	0.02	0.00	0.00	0.63	0.00
31	0.00	---	0.00	0.00	---	33	---	0.00	---	0.00	0.59	---
TOTAL	0.00	0.00	3.50	0.01	1.06	59.99	105.99	11.50	0.00	0.00	18.11	4.79
MEAN	0.000	0.000	0.11	0.000	0.038	1.94	3.53	0.37	0.000	0.000	0.58	0.16
MAX	0.00	0.00	0.35	0.01	0.13	33	28	1.2	0.00	0.00	4.5	0.61
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00
AC-FT	0.00	0.00	6.9	0.02	2.1	119	210	23	0.00	0.00	36	9.5

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2002, BY WATER YEAR (WY)

	MEAN	2.17	1.50	0.41	0.050	2.34	20.7	23.0	10.5	15.8	14.5	2.98	2.62
MAX	40.0	17.1	4.08	0.91	40.7	158	173	95.7	186	430	50.3	63.0	
(WY)	1996	1996	1983	1983	1983	1997	1997	1995	1993	1993	1992	1986	
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(WY)	1967	1967	1967	1967	1968	1968	1967	1967	1968	1968	1967	1967	1967

06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD--Continued
(Hydrologic bench-mark station)

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1967 - 2002	
ANNUAL TOTAL	5425.76		204.95		8.06a	
ANNUAL MEAN	14.9		0.56		73.4	
HIGHEST ANNUAL MEAN					0.000	
LOWEST ANNUAL MEAN					1993	
HIGHEST DAILY MEAN	450	Apr 2	33	Mar 31	2500	Jul 4 1993
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	0.00	Oct 1 1966c
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 1	0.00	Oct 1 1966
MAXIMUM PEAK FLOW			35	Mar 30	3300	Jul 4 1993e
MAXIMUM PEAK STAGE			5.54	Mar 30	11.95	Jul 4 1993d
ANNUAL RUNOFF (AC-FT)	10760		407		5840	
10 PERCENT EXCEEDS	45		1.0		10	
50 PERCENT EXCEEDS	0.00		0.00		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

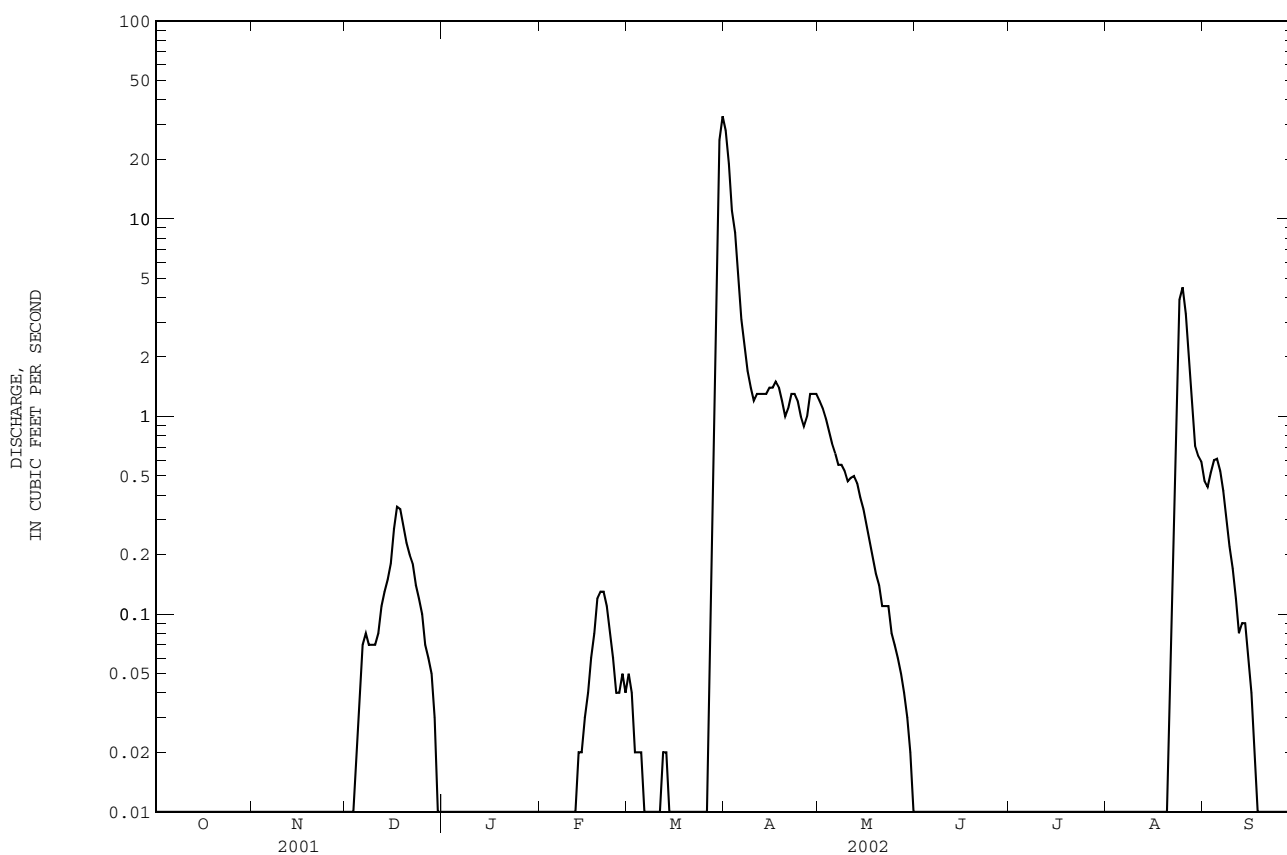
a Median of annual mean discharges, 3.2 ft³/s.

b Also 1975 and 1981 water years.

c No flow for many days in each year.

d From floodmark.

e Estimated.



06478600 EAST FORK VERMILLION RIVER NEAR PARKER, SD

LOCATION.--Lat 43°26'43", long 97°06'34", in NW¹/₄ NW¹/₄ NE¹/₄ sec.33, T.100 N., R.53 W., Turner County, Hydrologic Unit 10170102, on left bank at downstream end of county highway bridge, 4.1 mi upstream from the confluence with West Fork Vermillion River, 14.5 mi west of Tea, and 3.5 mi north-northeast of Parker.

DRAINAGE AREA.--973 mi².

PERIOD OF RECORD.--October 1995 to current year.

REVISED RECORDS.--WDR SD-97-1: 1996 (daily discharges, June 2-5, 21), 1996 (M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,320 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	79	e90	e33	e27	e75	e300	87	54	40	14	25
2	87	74	e80	e33	e27	e72	e230	81	71	35	15	26
3	87	69	e90	e35	e27	e70	276	69	81	34	14	25
4	82	67	e100	e37	e27	e80	175	68	64	30	20	19
5	81	65	114	e40	e28	e85	141	62	56	27	22	15
6	78	65	124	e38	e28	e80	114	65	52	28	21	15
7	76	65	119	e35	e29	e74	113	62	51	27	20	14
8	75	71	e115	e36	e29	e66	115	58	77	27	24	12
9	87	57	e100	e38	e30	e60	96	81	75	26	27	11
10	107	59	e95	e39	e30	e60	82	68	60	28	29	12
11	95	57	89	e40	e32	e70	92	83	56	32	25	12
12	90	55	89	e39	e33	e80	88	115	49	29	32	9.9
13	92	57	83	e38	e34	e87	81	118	45	28	32	11
14	91	56	75	e37	e36	e90	88	106	42	28	27	11
15	84	54	70	e35	e38	e86	87	92	36	26	23	11
16	77	52	77	e33	e41	e80	79	99	35	23	23	8.6
17	73	51	76	e30	e46	e85	90	88	35	21	19	7.4
18	78	e50	79	e31	e50	e100	79	78	35	20	21	7.3
19	77	e50	79	e32	54	e95	82	72	36	20	16	6.9
20	79	e52	87	e33	60	e88	62	68	37	22	15	8.2
21	78	e54	67	e33	60	e80	65	64	37	21	77	7.0
22	77	57	e58	e33	60	e90	69	62	41	21	269	6.7
23	77	63	e48	e33	69	e70	71	88	39	19	277	6.1
24	82	109	e40	e30	80	e60	95	75	41	19	144	5.9
25	87	114	e35	e33	e80	e62	76	58	42	25	78	6.1
26	69	103	e33	e34	e70	e70	58	52	42	27	49	5.7
27	62	e200	e34	e35	e60	103	65	51	41	25	36	6.0
28	60	e170	e34	e30	e70	273	94	52	42	23	30	5.8
29	69	e130	e33	e27	---	585	90	54	45	21	25	5.6
30	72	e110	e33	e26	---	570	89	57	41	18	25	5.6
31	76	---	e33	e26	---	470	---	57	---	16	26	---
TOTAL	2498	2315	2279	1052	1255	4016	3242	2290	1458	786	1475	327.8
MEAN	80.6	77.2	73.5	33.9	44.8	130	108	73.9	48.6	25.4	47.6	10.9
MAX	107	200	124	40	80	585	300	118	81	40	277	26
MIN	60	50	33	26	27	60	58	51	35	16	14	5.6
AC-FT	4950	4590	4520	2090	2490	7970	6430	4540	2890	1560	2930	650

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2002, BY WATER YEAR (WY)

MEAN	104	108	59.7	35.4	58.7	208	457	285	177	107	80.9	63.5
MAX	332	280	151	128	215	732	1070	832	467	180	156	101
(WY)	1996	1996	1996	1996	1996	1997	1997	1997	1996	1996	1996	1999
MIN	5.35	5.36	2.21	1.80	1.55	45.9	46.6	68.5	36.8	25.4	7.14	5.41
(WY)	2001	2001	2001	2001	2001	2000	2000	2000	2000	2002	2000	2000

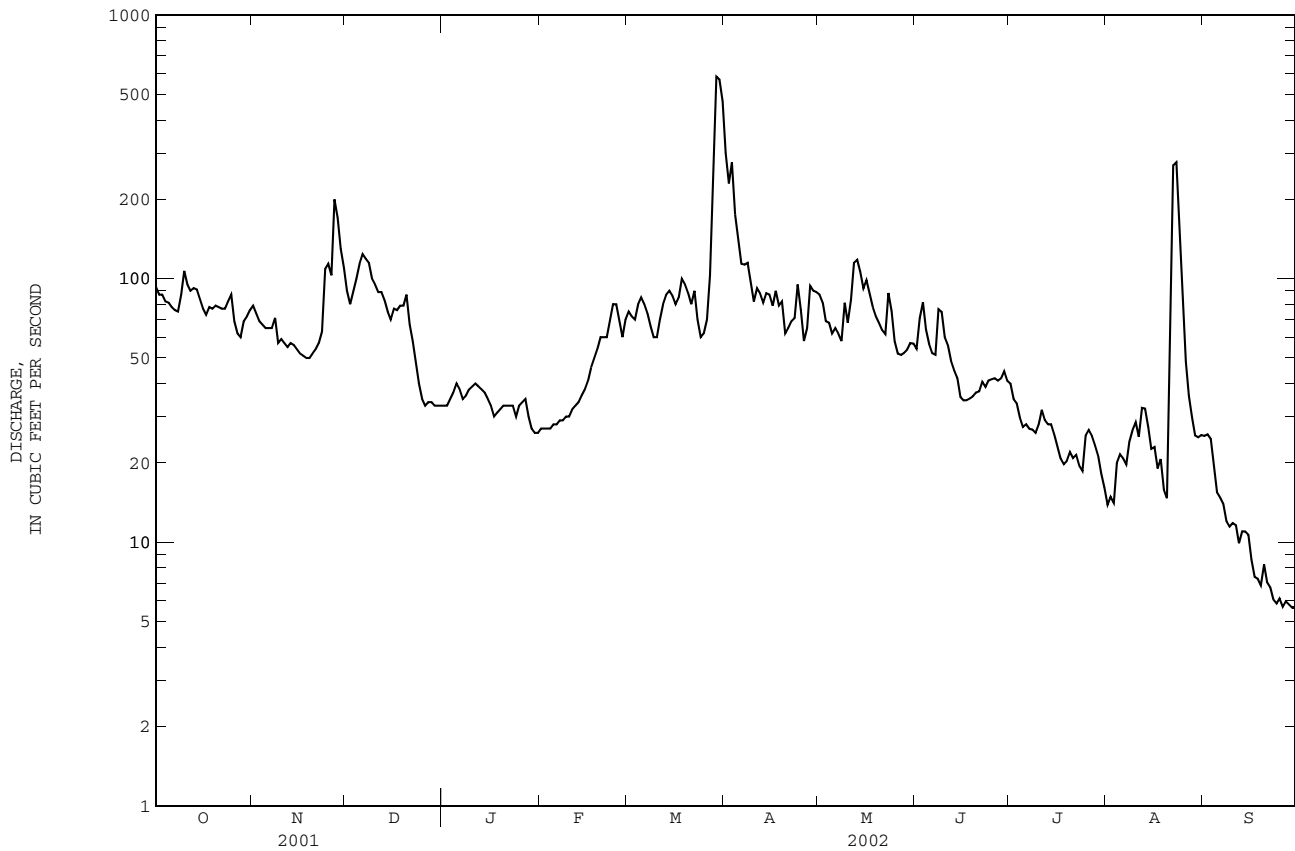
06478600 EAST FORK VERMILLION RIVER NEAR PARKER, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1996 - 2002	
ANNUAL TOTAL	67981.65		22993.8		145	
ANNUAL MEAN	186		63.0		298	
HIGHEST ANNUAL MEAN					33.0	
LOWEST ANNUAL MEAN					1997	
HIGHEST DAILY MEAN	2060	Apr 23	585	Mar 29	3960	Mar 29 1997
LOWEST DAILY MEAN	0.95	Feb 2	5.6	Sep 29	0.95	Feb 2 2001
ANNUAL SEVEN-DAY MINIMUM	1.1	Jan 30	5.8	Sep 24	1.1	Jan 30 2001
MAXIMUM PEAK FLOW			657	Mar 29	4210	Mar 29 1997a
MAXIMUM PEAK STAGE			6.78	Mar 29	12.75	Mar 22 1997b
ANNUAL RUNOFF (AC-FT)	134800		45610		105300	
10 PERCENT EXCEEDS	398		95		307	
50 PERCENT EXCEEDS	97		56		70	
90 PERCENT EXCEEDS	1.7		19		9.0	

a Gage height, 12.73 ft.

b Backwater from ice.

e Estimated.



MISSOURI-LEWIS AND CLARK RIVER BASIN

06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD

LOCATION.--Lat 43°24'55", long 97°12'18", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.10, T.99 N., R.54 W., Turner County, Hydrologic Unit 10170102, on right bank 10 ft downstream from bridge, 3.7 mi northwest of Parker, and 13.9 mi upstream from confluence with East Fork Vermillion River.

DRAINAGE AREA.--377 mi².

PERIOD OF RECORD.--August 1961 to current year.

REVISED RECORDS.--WDR SD-89-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,340 ft above NGVD of 1929, from topographic map. Prior to Oct. 11, 1973, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good except those for May 1-20, July 5-10, and Aug. 26 to Sept. 30, which are fair, and those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.63	0.59	e3.2	2.8	e2.3	e3.2	82	27	1.9	2.3	e0.45	26
2	0.60	0.65	e3.7	2.6	e2.4	e3.3	55	24	9.6	2.0	e0.45	21
3	0.52	0.56	4.1	2.5	e2.3	3.5	43	21	105	2.1	e5.0	12
4	0.43	0.58	4.7	2.3	e2.1	3.3	55	16	32	e2.5	e5.0	8.2
5	0.39	0.54	5.2	2.4	2.3	3.4	38	12	12	e2.0	e4.0	9.4
6	0.44	0.50	5.6	2.7	2.5	3.3	33	9.0	4.8	e1.6	e3.0	6.7
7	0.41	0.52	5.9	2.6	2.7	3.1	30	9.9	3.3	e1.3	e2.5	4.9
8	0.43	0.50	6.1	2.7	3.3	e2.8	25	13	3.2	e1.0	e2.0	4.7
9	0.69	0.44	5.1	3.1	3.6	e2.5	20	71	68	e0.70	e2.0	3.4
10	1.1	0.49	4.8	3.4	e3.0	e2.8	15	44	28	e0.36	e2.0	2.9
11	0.58	0.45	4.6	3.3	e3.2	2.9	17	24	8.3	e0.34	e2.0	3.3
12	0.59	0.49	4.4	3.2	e3.0	3.1	18	18	4.0	e0.32	e1.5	2.9
13	0.72	0.50	4.2	e3.2	3.2	3.2	17	16	2.9	e0.30	e1.5	3.4
14	0.88	0.50	4.2	e3.4	3.2	e2.8	18	9.9	2.1	e0.30	e1.0	3.6
15	0.95	0.50	4.4	e3.3	3.4	e2.8	17	11	1.8	e0.29	e1.0	2.9
16	0.83	0.47	5.3	e3.2	3.6	e2.9	14	41	1.5	e0.28	e1.0	2.2
17	0.72	0.50	6.1	e3.0	3.8	3.3	13	37	1.3	e0.27	e0.50	1.8
18	0.67	0.57	6.7	e2.8	4.4	3.8	12	29	1.1	e0.26	e0.50	3.0
19	0.60	0.74	e6.0	2.7	4.7	e3.0	12	24	1.0	e0.25	e0.40	2.7
20	0.55	0.77	5.3	2.6	4.7	e2.7	12	17	0.87	e0.24	e0.40	2.6
21	0.48	0.52	4.8	2.7	4.4	e2.4	15	13	0.81	e0.23	e1.0	2.1
22	0.46	0.58	e4.5	2.7	4.2	e2.4	14	11	0.82	e0.22	e250	1.8
23	0.53	1.5	e4.0	3.0	4.5	e2.4	18	7.9	16	e0.21	568	1.7
24	0.68	7.4	e3.8	2.8	4.8	e2.6	19	5.9	6.5	e3.0	315	1.7
25	0.62	7.8	3.6	2.7	5.1	e3.0	13	5.1	4.1	e2.5	141	1.7
26	0.51	7.0	3.6	3.0	e4.0	4.0	22	4.7	2.7	e2.5	81	1.6
27	0.51	e6.0	3.3	3.4	e3.0	25	25	4.1	2.0	e1.5	46	1.6
28	0.55	e4.0	3.2	e2.7	e3.0	162	30	3.4	1.6	e1.0	28	1.6
29	0.63	e3.5	3.1	e2.5	---	287	29	2.9	1.0	e0.50	18	1.4
30	0.58	e3.2	3.1	e2.3	---	215	26	2.5	1.9	e0.50	21	1.4
31	0.61	---	3.0	e2.3	---	128	---	2.2	---	e0.50	30	---
TOTAL	18.89	52.36	139.6	87.9	96.7	895.5	757	536.5	330.10	31.37	1544.20	144.2
MEAN	0.61	1.75	4.50	2.84	3.45	28.9	25.2	17.3	11.0	1.01	49.8	4.81
MAX	1.1	7.8	6.7	3.4	5.1	287	82	71	105	3.0	568	26
MIN	0.39	0.44	3.0	2.3	2.1	2.4	12	2.2	0.81	0.21	0.40	1.4
AC-FT	37	104	277	174	192	1780	1500	1060	655	62	3060	286

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2002, BY WATER YEAR (WY)

	MEAN	6.73	9.78	2.94	1.08	17.2	129	143	63.6	81.5	47.5	10.1	11.4
MAX	106	156	33.4	9.05	267	795	1112	550	1345	1081	144	324	
(WY)	1996	1999	1999	1983	1983	1997	2001	1995	1984	1993	1993	1986	
MIN	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.001	0.008	0.000	0.000	0.000	
(WY)	1975	1982	1965	1965	1975	1981	1990	1990	1981	1989	1989	1989	

06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1962 - 2002	
ANNUAL TOTAL	46616.87		4634.32		43.6a	
ANNUAL MEAN	128		12.7		249	
HIGHEST ANNUAL MEAN					0.019	
LOWEST ANNUAL MEAN					4410	
HIGHEST DAILY MEAN	4410	Apr 23	568	Aug 23	4410	Apr 23 2001
LOWEST DAILY MEAN	0.00	Jan 1	0.21	Jul 23	0.00	Oct 6 1961b
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 12	0.24	Jul 17	0.00	Nov 4 1961
MAXIMUM PEAK FLOW			624	Aug 23	6370	Apr 23 2001c
MAXIMUM PEAK STAGE			5.75	Aug 23	13.14	May 8 1993d
ANNUAL RUNOFF (AC-FT)	92460		9190		31570	
10 PERCENT EXCEEDS	248		24		65	
50 PERCENT EXCEEDS	1.7		3.0		1.0	
90 PERCENT EXCEEDS	0.00		0.50		0.00	

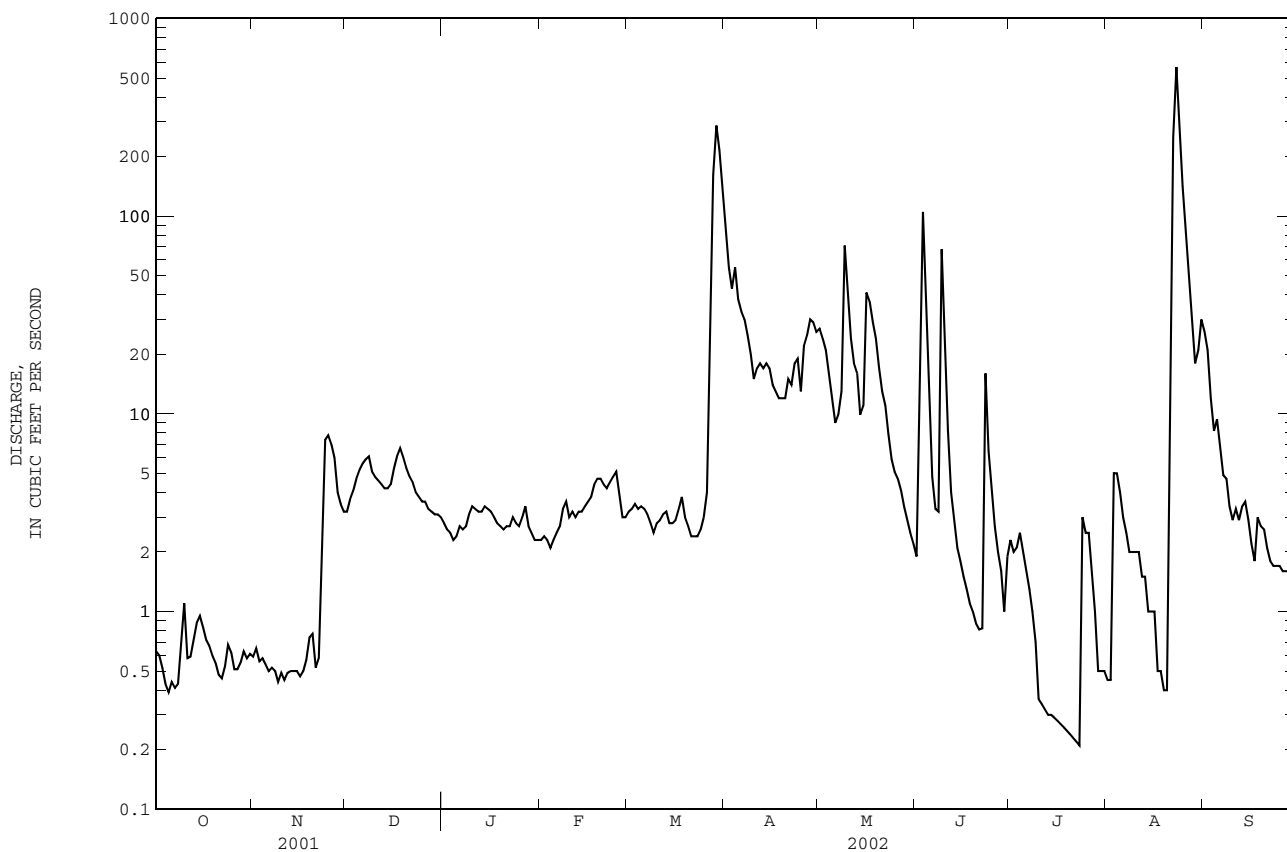
a Median of annual mean discharges, 18 ft³/s.

b No flow for many days in most years.

c Gage height, 12.22 ft.

d Discharge, 6,300 ft³/s.

e Estimated.



MISSOURI-LEWIS AND CLARK RIVER BASIN

06479010 VERMILLION RIVER NEAR VERMILLION, SD

LOCATION.--Lat 42°49'02", long 96°55'26", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.1, T.92 N., R.52 W., Clay County, Hydrologic Unit 10170102, on left bank 30 ft downstream from bridge, 2.7 mi north of Vermillion, 2.9 mi upstream from Clay Creek, and 10.8 mi upstream from mouth.

DRAINAGE AREA.--2,302 mi², of which 494 mi² usually is noncontributing (area was contributing during 1986-88, 1993-2002).

PERIOD OF RECORD.--October 1983 to current year.

REVISED RECORDS.--WDR SD-89-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,125 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite data-collection platform at station. Flow affected by East Vermillion Lake Reservoir, capacity, 550 acres, located about 54 mi upstream. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	91	e110	e98	e80	e99	674	228	129	76	40	89
2	108	94	e115	e96	e78	e97	572	218	125	77	37	82
3	105	95	e120	e96	e72	e92	460	211	122	74	36	78
4	105	95	124	e97	e64	e90	397	202	124	72	35	75
5	102	93	129	e99	e62	e92	346	186	153	68	44	71
6	99	91	161	e100	e60	e94	290	171	183	64	40	68
7	97	90	193	e99	e60	e94	259	166	152	59	40	62
8	96	88	213	e100	e60	e98	238	162	136	56	38	56
9	96	87	177	e100	e60	e92	218	165	128	53	37	51
10	101	87	202	e100	e61	e88	215	164	127	e52	37	49
11	112	90	218	e100	e63	e90	212	180	142	e51	38	48
12	112	83	210	e97	e65	e95	209	225	159	e50	43	46
13	118	82	215	e94	e66	e100	212	237	141	e54	45	47
14	115	81	181	e92	e68	98	216	249	121	e58	45	48
15	112	80	182	e90	e72	95	208	247	107	60	43	46
16	110	79	198	e89	e80	90	200	231	100	55	46	44
17	108	79	183	e88	88	101	194	210	96	53	47	41
18	106	78	177	e87	102	97	187	198	94	51	44	40
19	102	77	170	e86	113	114	178	201	90	49	42	40
20	98	75	139	e85	118	115	169	188	90	47	38	39
21	98	76	136	e86	116	106	167	174	88	45	38	37
22	99	81	e134	e86	111	e105	166	164	88	42	138	36
23	99	83	e132	e86	114	117	165	156	84	40	141	36
24	99	102	e130	e85	125	153	170	146	81	40	119	35
25	99	188	e128	e85	117	143	164	144	82	47	377	35
26	95	237	e126	e85	e110	117	160	156	81	52	498	35
27	98	249	e120	e85	e104	120	175	145	87	53	324	35
28	102	147	e116	e79	e100	131	173	139	85	48	218	35
29	94	113	e110	e80	---	153	185	149	82	46	174	35
30	89	e110	e106	e80	---	339	215	161	79	45	130	34
31	86	---	e100	e80	---	592	---	140	---	42	105	---
TOTAL	3170	3101	4755	2810	2389	4007	7394	5713	3356	1679	3077	1473
MEAN	102	103	153	90.6	85.3	129	246	184	112	54.2	99.3	49.1
MAX	118	249	218	100	125	592	674	249	183	77	498	89
MIN	86	75	100	79	60	88	160	139	79	40	35	34
AC-FT	6290	6150	9430	5570	4740	7950	14670	11330	6660	3330	6100	2920

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	158	156	98.8	56.8	103	544	1159	752	832	587	198	157							
MAX	643	681	288	204	454	1693	4405	2432	6062	5920	1434	754							
(WY)	1987	1999	1996	1996	1994	1997	1984	1995	1984	1993	1993	1986							
MIN	5.54	7.99	7.37	6.71	9.00	15.3	13.1	21.8	15.4	14.2	13.2	5.22							
(WY)	1990	1990	1991	1991	1989	1991	1990	1991	1989	1989	1990	1991							

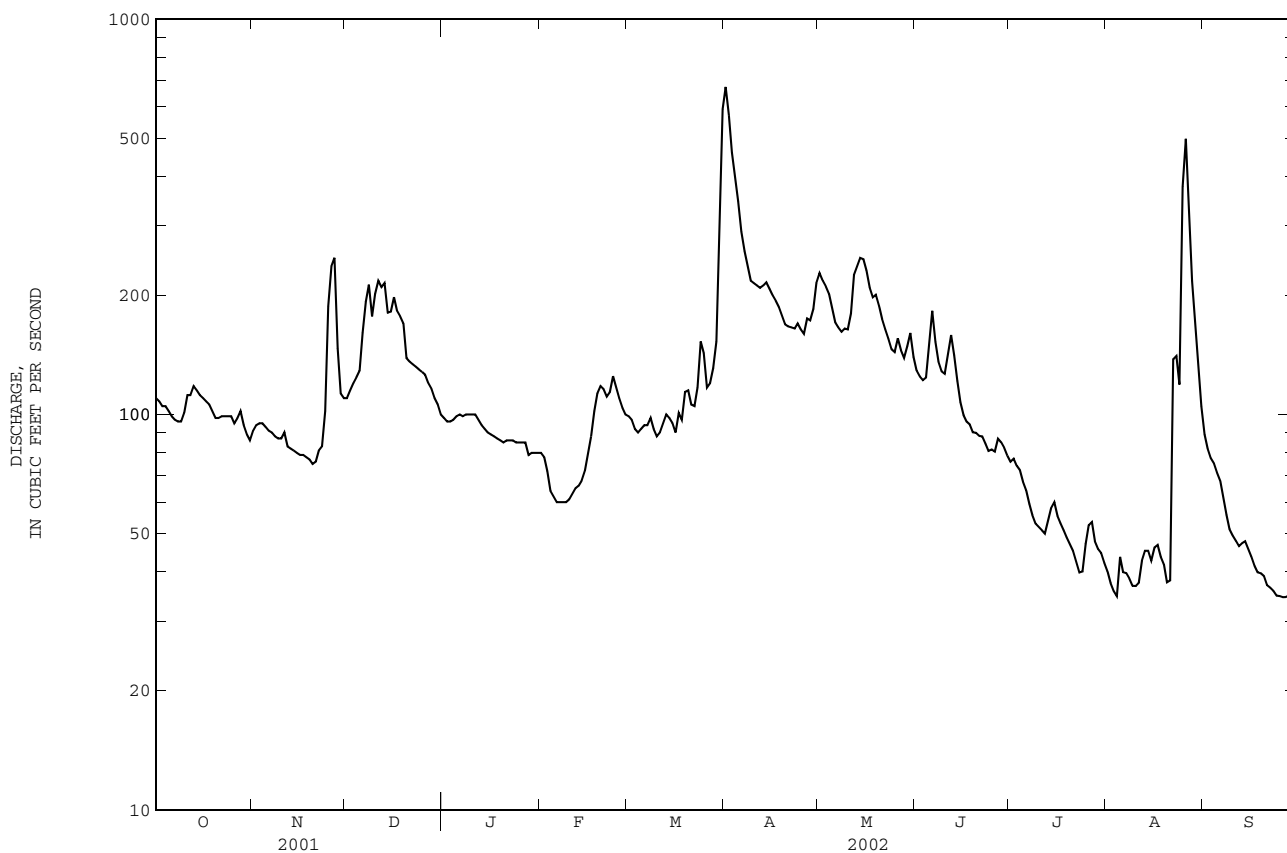
06479010 VERMILLION RIVER NEAR VERMILLION, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1984 - 2002	
ANNUAL TOTAL	174041		42924		400a	
ANNUAL MEAN	477		118		1416	
HIGHEST ANNUAL MEAN					27.9	
LOWEST ANNUAL MEAN					20200	
HIGHEST DAILY MEAN	3020	Apr 30	674	Apr 1	Jun 23	1993
LOWEST DAILY MEAN	16	Feb 21	34	Sep 30	Oct 10	1991b
ANNUAL SEVEN-DAY MINIMUM	17	Feb 21	35	Sep 24	Oct 6	1991
MAXIMUM PEAK FLOW			693	Apr 1	Jun 23	1984
MAXIMUM PEAK STAGE			8.50	Apr 1	Jun 23	1984
ANNUAL RUNOFF (AC-FT)	345200		85140		290100	
10 PERCENT EXCEEDS	1930		208		960	
50 PERCENT EXCEEDS	142		98		108	
90 PERCENT EXCEEDS	19		45		14	

a Median of annual mean discharges, 289 ft³/s.

b Also Oct. 18, 1991.

e Estimated.



06479159 BLUE DOG LAKE INFLOW (OWENS CREEK) NEAR WAUBAY, SD

LOCATION.--Lat 45°20'48", long 97°15'07", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.14, T.122 N., R.53 W., Day County, Hydrologic Unit 10160010, on left bank at downstream side of township bridge, 2.1 mi upstream from Blue Dog Lake, 1.3 mi west of Day-Roberts County line, and 2.8 mi northeast of Waubay.

DRAINAGE AREA.--63.7 mi² (included in Waubay Lakes Chain Closed Basin).

PERIOD OF RECORD.--July 1999 to current year. Miscellaneous discharge measurements only prior to October 1999.

GAGE.--Water-stage recorder. Elevation of gage is 1,820 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	11	e7.0	e4.2	e2.7	e6.0	e25	16	9.0	4.3	3.2	5.1
2	8.0	10	e8.0	e4.5	e3.0	e6.0	e20	14	9.6	4.4	3.2	4.6
3	8.0	10	e8.0	e4.8	e3.0	e6.0	e15	13	9.3	5.1	5.6	4.3
4	7.8	10	e9.0	e5.5	e3.5	e6.0	e8.0	13	8.8	4.5	7.1	4.0
5	7.7	11	e10	e6.0	e4.0	e6.0	e14	13	8.0	3.9	4.9	3.8
6	7.8	11	e10	e5.5	e4.5	e5.1	19	13	7.3	3.8	4.5	3.8
7	8.1	10	e11	e6.0	e5.0	e6.1	27	15	7.9	4.0	4.4	3.6
8	8.1	11	11	e6.5	e6.0	e6.9	25	44	7.3	4.4	3.8	3.1
9	8.9	10	12	e6.5	e6.2	e6.0	20	60	7.0	4.2	3.5	3.2
10	17	10	12	e6.5	e6.2	e4.8	30	37	6.7	5.2	3.6	5.4
11	20	10	11	e6.5	e6.3	e6.4	29	26	6.4	6.1	3.6	4.7
12	13	10	11	e6.5	e6.8	e7.9	22	38	5.7	5.4	7.0	4.3
13	13	10	10	e6.0	e7.5	e10	23	29	5.7	4.7	5.3	4.4
14	13	13	10	e5.0	e9.0	e10	23	21	6.3	4.3	4.2	4.6
15	12	12	10	e4.5	e11	e8.0	22	19	5.7	3.9	4.1	4.5
16	11	11	11	e4.0	e15	e6.1	21	17	5.4	3.5	4.1	4.3
17	11	11	11	e4.0	e18	e7.9	20	15	5.4	3.3	3.7	4.1
18	11	12	11	e3.8	e21	e8.0	17	14	5.3	3.9	3.7	3.9
19	11	11	9.1	e3.0	e30	e8.6	16	13	5.9	4.5	3.6	4.3
20	11	10	8.5	e3.5	e22	e7.6	14	12	5.5	4.3	3.7	4.3
21	11	11	8.3	e4.0	e18	e5.5	15	12	23	4.7	6.0	4.1
22	11	11	e7.0	e4.0	e15	e6.9	17	11	33	5.1	5.7	4.1
23	10	11	e6.0	e4.0	e15	e7.1	16	11	14	4.5	4.9	4.1
24	10	e13	e5.8	e4.0	e11	e6.8	15	11	12	4.5	4.5	4.4
25	15	e13	e5.5	e4.0	e7.0	e5.9	14	10	10	5.5	4.2	4.5
26	24	e10	e5.5	e4.0	e5.0	e4.9	13	10	7.6	4.8	4.0	4.7
27	9.8	e7.0	e5.0	e3.2	e5.5	e9.1	18	11	6.5	6.8	3.8	4.8
28	12	e6.5	e5.0	e2.8	e6.0	e20	29	11	6.2	6.0	3.7	5.5
29	13	e6.5	e4.0	e2.5	---	e50	29	11	5.2	4.6	3.7	6.3
30	11	e6.5	e4.0	e2.5	---	e70	20	11	4.5	4.0	4.9	5.8
31	11	---	e4.0	e2.5	---	e40	---	10	---	3.6	7.0	---
TOTAL	353.1	309.5	260.7	140.3	273.2	365.6	596.0	561	260.2	141.8	139.2	132.6
MEAN	11.4	10.3	8.41	4.53	9.76	11.8	19.9	18.1	8.67	4.57	4.49	4.42
MAX	24	13	12	6.5	30	70	30	60	33	6.8	7.1	6.3
MIN	7.7	6.5	4.0	2.5	2.7	4.8	8.0	10	4.5	3.3	3.2	3.1
AC-FT	700	614	517	278	542	725	1180	1110	516	281	276	263

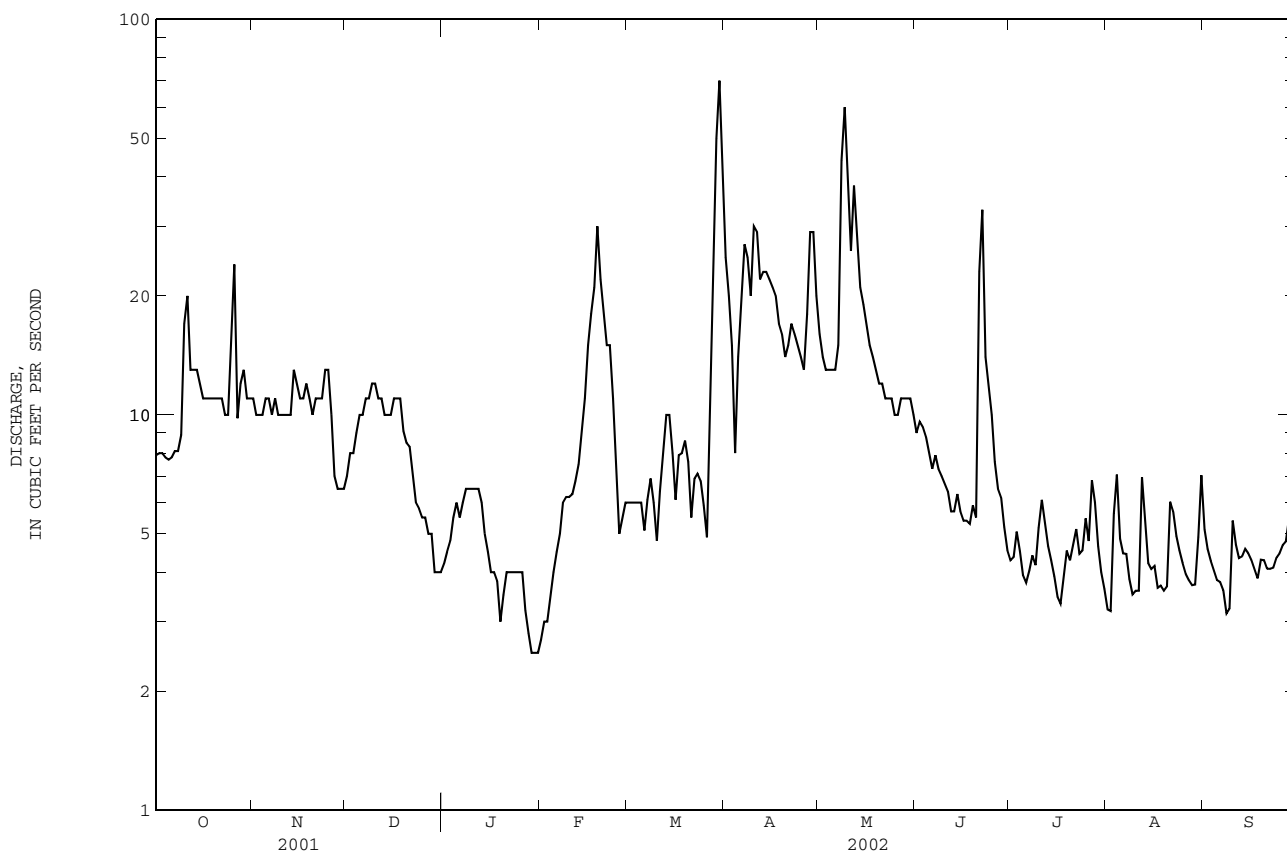
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2002, BY WATER YEAR (WY)

MEAN	8.79	8.99	6.36	4.65	6.71	9.19	43.7	19.9	15.9	7.67	4.88	5.43
MAX	11.4	10.3	8.41	4.85	9.76	11.8	98.8	30.0	31.1	10.4	5.75	8.41
(WY)	2002	2002	2002	2000	2002	2002	2001	2001	2001	2000	2001	2001
MIN	5.55	7.15	4.11	4.53	3.78	5.14	12.4	11.7	7.88	4.57	4.41	3.47
(WY)	2001	2001	2001	2002	2001	2001	2000	2000	2000	2002	2000	2000

06479159 BLUE DOG LAKE INFLOW (OWENS CREEK) NEAR WAUBAY, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2000 - 2002	
ANNUAL TOTAL	6835.2		3533.2		11.8	
ANNUAL MEAN	18.7		9.68		17.6	
HIGHEST ANNUAL MEAN					8.17	
LOWEST ANNUAL MEAN					350	
HIGHEST DAILY MEAN	350	Apr 8	70	Mar 30	2.5	Apr 8 2001
LOWEST DAILY MEAN	3.0	Feb 10	2.5	Jan 29	2.5	Sep 14 2000
ANNUAL SEVEN-DAY MINIMUM	3.4	Feb 10	2.7	Jan 28	2.7	Sep 13 2000
MAXIMUM PEAK FLOW			80	Mar 30	410	Apr 8 2001
MAXIMUM PEAK STAGE			4.20	Mar 30a	5.42	Apr 8 2001a
ANNUAL RUNOFF (AC-FT)	13560		7010		8560	
10 PERCENT EXCEEDS	41		18		19	
50 PERCENT EXCEEDS	8.8		7.0		6.8	
90 PERCENT EXCEEDS	4.0		3.9		4.0	

a Backwater from ice.
e Estimated.



LOCATION.--Lat 45°10'51", long 97°11'09", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.17, T.120 N., R.52 W., Grant County, Hydrologic Unit 10170202, on right bank near downstream side of county highway bridge, 11.0 mi northeast of Florence, and 2.2 mi upstream from Indian Creek.

DRAINAGE AREA.--638 mi², of which 570 mi² usually is noncontributing.

PERIOD OF RECORD.--June 6, 1984, to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,780.57 ft above NGVD of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.76	1.7	e0.60	0.38	0.44	e2.0	e45	27	2.7	3.8	0.25	0.31
2	1.1	1.9	e0.70	0.34	0.45	e2.0	e25	25	2.7	2.8	0.20	0.34
3	1.0	1.9	e0.75	0.34	0.49	e2.0	e20	21	2.3	2.4	0.27	0.30
4	0.99	2.2	e0.95	0.32	0.47	e2.0	e17	18	2.2	1.6	0.28	0.28
5	0.91	2.4	e1.0	0.34	0.45	e2.1	e16	14	2.2	1.1	0.23	0.24
6	0.84	2.4	e1.3	e0.35	0.56	e1.7	e16	12	2.0	0.97	0.25	0.22
7	1.2	2.2	e1.4	0.37	0.67	e1.3	19	11	1.6	0.88	0.24	0.19
8	1.6	1.6	e1.5	0.55	0.82	e1.0	18	16	1.3	0.73	0.21	0.17
9	2.4	e1.3	e1.6	0.72	0.64	e0.80	15	34	1.1	0.53	0.20	0.21
10	2.8	e1.3	e1.7	0.68	0.61	e0.70	17	36	1.0	0.46	0.20	0.30
11	2.1	e1.3	e1.7	0.67	e0.65	e0.80	18	36	0.90	0.47	0.18	0.27
12	1.7	1.3	e1.7	0.72	0.74	e1.3	19	41	0.78	0.42	0.25	0.35
13	2.0	1.3	e1.7	0.76	0.79	e3.0	18	41	0.80	0.35	0.22	0.40
14	2.6	1.2	e1.7	e0.70	0.88	e6.0	18	41	0.83	0.28	0.19	0.44
15	3.1	1.0	e1.7	e0.70	0.88	e3.5	17	37	0.76	0.22	0.19	0.40
16	3.1	1.1	e1.7	e0.70	0.98	e3.0	17	31	0.67	0.18	0.20	0.36
17	3.2	1.2	e1.7	e0.65	e1.5	e7.0	17	25	0.64	0.16	0.17	0.21
18	3.0	1.0	e1.7	e0.60	e3.5	e4.5	16	21	0.63	0.20	0.17	0.18
19	2.6	0.74	e1.7	e0.60	e20	e3.0	15	18	0.65	0.20	0.18	0.17
20	2.6	0.87	e1.6	0.61	e32	e2.5	13	14	0.59	0.24	0.28	0.19
21	2.6	0.91	e1.5	0.62	e20	e3.0	12	11	3.4	0.37	0.68	0.18
22	2.5	0.76	e1.4	e0.60	e22	e3.0	13	8.5	3.4	0.28	0.33	0.18
23	2.4	e0.65	e1.3	e0.60	e24	e2.0	14	7.7	14	0.23	0.32	0.25
24	2.1	e0.60	e1.2	e0.62	e15	e1.8	14	6.3	24	0.26	0.32	0.25
25	1.8	e0.50	e1.2	0.74	e5.5	e1.7	11	5.4	28	0.42	0.30	0.35
26	1.8	e0.42	1.2	0.80	e3.0	e2.0	9.2	4.8	22	0.36	0.27	0.29
27	1.8	e0.42	1.2	0.79	e2.0	e4.0	11	4.3	18	0.73	0.23	0.25
28	1.7	e0.46	1.1	0.67	e2.0	e30	19	4.1	13	0.50	0.22	0.28
29	1.5	e0.48	0.84	0.54	---	e100	26	3.7	8.5	0.43	0.22	0.26
30	1.5	e0.55	0.66	0.46	---	e80	27	3.3	5.5	0.35	0.46	0.23
31	1.7	---	0.48	0.45	---	e80	---	2.9	---	0.31	0.38	---
TOTAL	61.00	35.66	40.48	17.99	161.02	357.70	532.2	581.0	166.15	22.23	8.09	8.05
MEAN	1.97	1.19	1.31	0.58	5.75	11.5	17.7	18.7	5.54	0.72	0.26	0.27
MAX	3.2	2.4	1.7	0.80	32	100	45	41	28	3.8	0.68	0.44
MIN	0.76	0.42	0.48	0.32	0.44	0.70	9.2	2.9	0.59	0.16	0.17	0.17
AC-FT	121	71	80	36	319	709	1060	1150	330	44	16	16

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2002, BY WATER YEAR (WY)

MEAN	6.94	4.75	2.38	0.91	4.57	40.8	59.0	23.6	15.7	22.2	7.19	4.34
MAX	56.0	25.5	8.19	3.05	45.8	111	297	70.5	61.1	169	50.8	20.6
(WY)	1996	1996	1996	1996	1998	1986	1997	1995	1986	1993	1995	1986
MIN	0.010	0.056	0.025	0.000	0.000	0.25	1.08	1.73	0.28	0.020	0.067	0.032
(WY)	1989	1989	1990	1990	1990	2001	1990	1988	1988	1988	1988	1988

06479215 BIG SIOUX RIVER NEAR FLORENCE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1985 - 2002
ANNUAL TOTAL	8849.61	1991.57	
ANNUAL MEAN	24.2	5.46	16.1a
HIGHEST ANNUAL MEAN			39.6
LOWEST ANNUAL MEAN			0.62
HIGHEST DAILY MEAN	925 Apr 8	100 Mar 29	1600 Apr 5 1997
LOWEST DAILY MEAN	0.01 Sep 13	0.16 Jul 17	0.00 Aug 8 1985b
ANNUAL SEVEN-DAY MINIMUM	0.05 Sep 7	0.19 Aug 13	0.00 Dec 16 1989
MAXIMUM PEAK FLOW		110 Mar 29	2000 Apr 4 1997c
MAXIMUM PEAK STAGE		7.10 Mar 29d	9.52 Apr 2 1997d
ANNUAL RUNOFF (AC-FT)	17550	3950	11640
10 PERCENT EXCEEDS	57	18	35
50 PERCENT EXCEEDS	0.99	1.2	1.8
90 PERCENT EXCEEDS	0.15	0.25	0.08

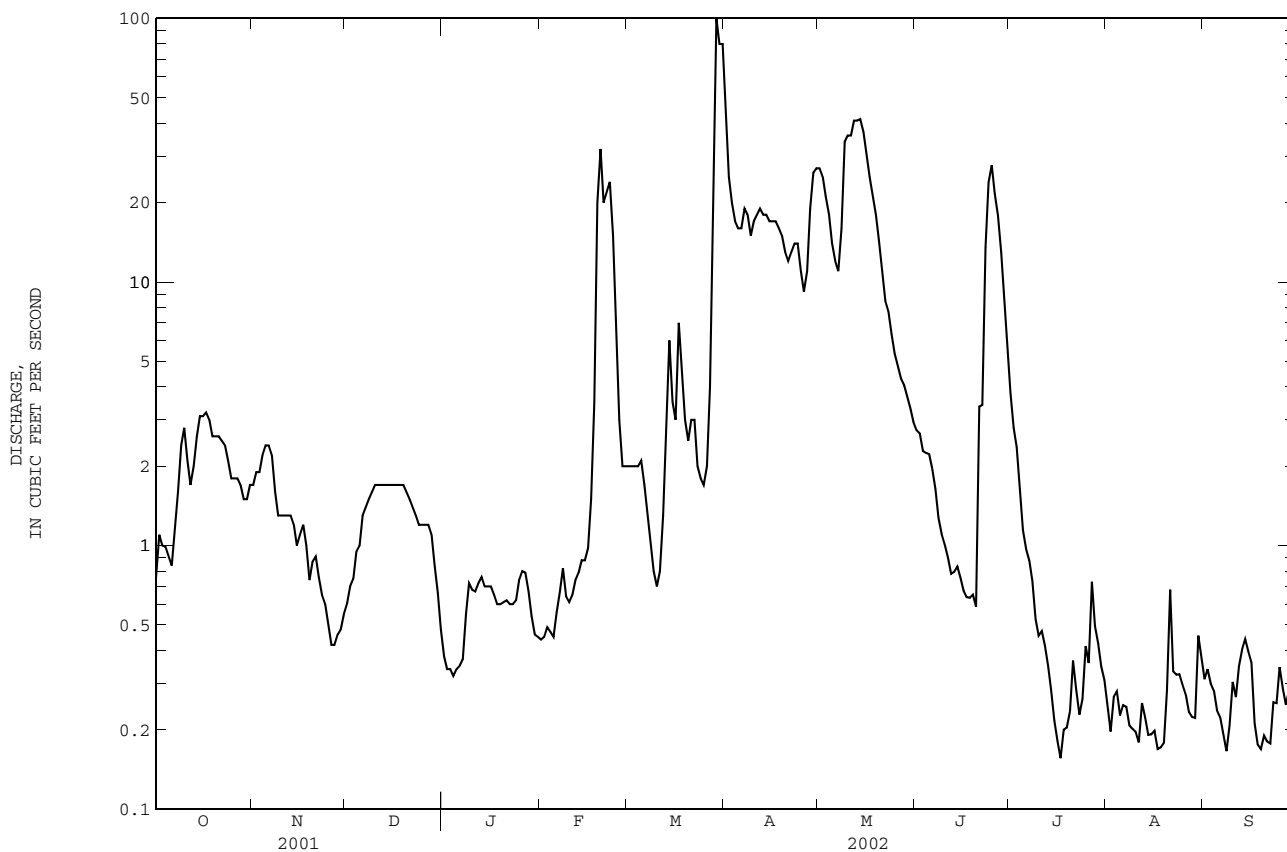
a Median of annual mean discharges, 11 ft³/s.

b No flow Aug. 9-11, 1985, Dec. 16 to Mar. 5, 1990, and Feb. 16-25, 1991.

c Gage height, 9.32 ft.

d Backwater from ice.

e Estimated.



LOCATION.--Lat 45°00'22", long 97°09'53", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.16, T.118 NR., R.52 WR., Codington County, Hydrologic Unit 10170202, on left bank at downstream side of county highway bridge, 4.9 mi downstream from Mahoney Creek, 6.5 mi upstream from inlet-outlet to Lake Kampeska, and 7.5 mi northwest of Watertown.

DRAINAGE AREA.--1,007 mi², of which 779 mi² usually is noncontributing (213 mi² of the noncontributing area contributed runoff in the 1994-2002 water years).

PERIOD OF RECORD.--October 1972 to current year.

REVISED RECORDS.--WDR SD-78-1: 1973-74(M), 1976-77(M). WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,725.81 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	6.2	e4.3	1.9	e2.1	e10	e175	63	15	11	1.7	2.6
2	4.2	6.3	e4.8	1.8	e2.0	e9.8	e90	55	15	9.5	1.0	2.4
3	3.8	6.1	e5.0	1.8	e2.0	e9.6	e70	48	15	10	1.0	2.1
4	3.7	6.1	e6.0	1.6	e2.0	e9.4	e60	40	14	7.5	0.99	1.5
5	3.3	6.4	7.0	1.7	e2.0	e9.3	e55	35	13	6.7	0.91	1.1
6	3.5	6.3	7.3	1.8	e2.0	e9.2	e54	32	12	5.1	1.5	0.87
7	3.7	6.5	7.3	1.8	e2.0	e8.3	57	30	12	4.6	1.7	0.58
8	3.6	6.5	7.3	2.0	e2.0	e8.0	65	35	11	4.2	1.6	0.48
9	3.8	6.3	6.8	2.3	e2.0	e8.0	66	46	11	3.7	1.5	0.36
10	5.9	6.0	6.8	2.5	e2.0	e7.5	57	66	10	3.6	1.5	0.49
11	7.7	6.5	6.8	2.7	e2.0	e5.9	52	74	9.7	3.6	1.6	0.54
12	10	6.5	6.5	2.8	e2.0	e6.7	52	69	8.5	3.2	2.0	0.42
13	8.9	6.2	6.1	3.0	e2.0	e7.0	52	73	7.8	2.8	1.6	0.46
14	7.8	6.4	5.6	e2.9	e2.0	e11	49	82	7.8	2.4	1.3	0.54
15	7.5	6.4	5.8	e2.8	e2.0	e10	47	68	7.6	2.0	1.3	0.52
16	6.5	6.7	6.0	e2.6	e2.1	e6.0	46	56	6.9	1.5	0.96	0.41
17	6.5	6.8	6.0	e2.5	e2.3	e18	46	46	6.2	1.2	0.69	0.49
18	6.4	6.4	5.6	e2.5	e2.7	e15	45	38	5.6	1.1	0.33	0.45
19	6.5	6.0	e5.0	e2.5	e3.2	e12	42	33	5.3	1.1	0.28	0.32
20	6.4	5.9	5.0	e2.5	e15	e10	40	29	4.9	0.97	1.4	0.34
21	6.1	5.7	5.0	e2.5	e150	e7.0	38	26	6.4	1.1	5.9	0.27
22	6.1	5.9	4.8	e2.5	e70	e7.2	39	24	10	1.3	7.2	0.29
23	6.1	6.1	e3.5	e2.5	e45	e7.4	39	23	13	2.6	6.3	0.24
24	6.2	8.4	e3.0	e2.5	e30	e7.6	38	21	17	2.6	4.7	0.22
25	6.2	8.7	e2.9	e2.5	e25	e7.8	35	20	22	2.5	3.4	0.24
26	e6.0	7.0	3.0	e2.5	e20	e8.0	33	19	24	2.1	2.3	0.28
27	5.7	e5.8	3.1	e2.5	e15	e9.0	34	19	23	2.2	1.6	0.28
28	6.1	e4.5	3.0	e2.3	e12		42	18	20	2.4	1.3	0.34
29	6.5	e4.0	2.9	e2.1	---	e200	50	18	16	2.9	1.0	0.40
30	6.4	e4.1	2.5	e2.0	---	e600	61	17	13	2.4	1.8	0.50
31	6.3	---	2.2	e2.1	---	e350	---	16	---	1.8	2.6	---
TOTAL	181.2	186.7	156.9	72.0	422.4	1406.7	1629	1239	362.7	109.67	62.96	20.03
MEAN	5.85	6.22	5.06	2.32	15.1	45.4	54.3	40.0	12.1	3.54	2.03	0.67
MAX	10	8.7	7.3	3.0	150	600	175	82	24	11	7.2	2.6
MIN	3.3	4.0	2.2	1.6	2.0	5.9	33	16	4.9	0.97	0.28	0.22
AC-FT	359	370	311	143	838	2790	3230	2460	719	218	125	40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2002, BY WATER YEAR (WY)

	MEAN	17.6	14.7	7.17	3.16	10.3	103	174	66.4	52.4	47.5	20.7	12.3
MAX	221	155	55.7	26.5	120	321	1415	290	184	467	190	125	
(WY)	1996	1996	1996	1996	1998	1986	1997	1995	1995	1993	1995	1995	
MIN	0.034	0.10	0.005	0.000	0.000	0.26	2.95	0.57	0.035	0.051	0.035	0.028	
(WY)	1989	1989	1977	1977	1977	1975	1990	1981	1976	1976	1976	1982	

06479438 BIG SIOUX RIVER NEAR WATERTOWN, SD--Continued

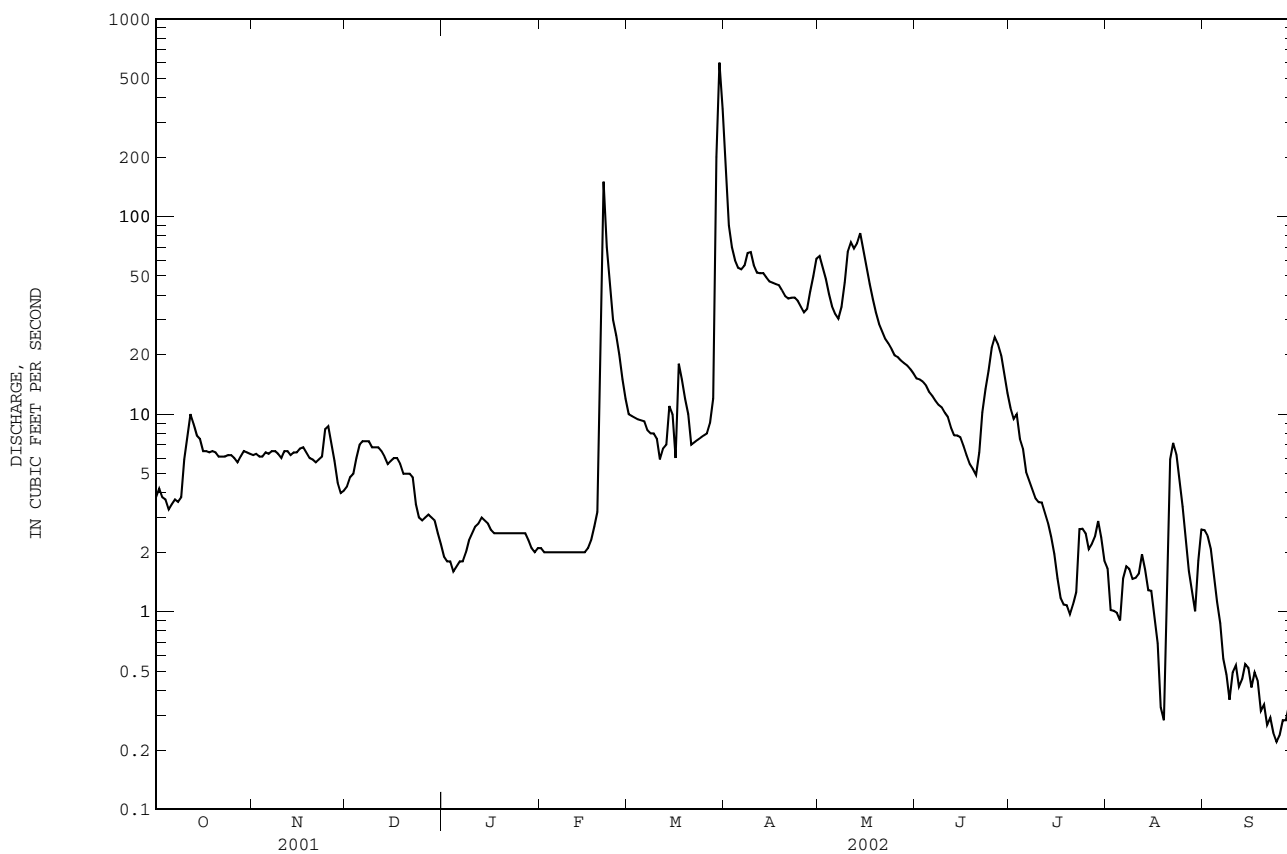
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1973 - 2002	
ANNUAL TOTAL	35574.01		5849.26		44.2a	
ANNUAL MEAN	97.5		16.0		155	
HIGHEST ANNUAL MEAN					2.22	
LOWEST ANNUAL MEAN					6400	
HIGHEST DAILY MEAN	5330	Apr 8	600	Mar 30	0.00	Apr 5 1997
LOWEST DAILY MEAN	0.30	Jan 3	0.22	Sep 24	0.00	Feb 1 1974b
ANNUAL SEVEN-DAY MINIMUM	0.33	Jan 1	0.26	Sep 21	0.00	Feb 1 1974
MAXIMUM PEAK FLOW			800	Mar 29	8000	Apr 7 2001
MAXIMUM PEAK STAGE			8.97	Mar 29c	12.33	Apr 7 2001c
ANNUAL RUNOFF (AC-FT)	70560		11600		32020	
10 PERCENT EXCEEDS	189		45		88	
50 PERCENT EXCEEDS	6.1		6.0		5.8	
90 PERCENT EXCEEDS	0.75		1.1		0.08	

a Median of annual mean discharges, 25 ft³/s.

b No flow for many days in some years.

c Backwater from ice.

e Estimated.



BIG SIOUX RIVER BASIN

06479449 LAKE KAMPESKA AT WATER TREATMENT PLANT, AT WATERTOWN, SD

LOCATION.--Lat 44°55'04", long 97°11'17", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.117 N., R.53 W., Codington County, Hydrologic Unit 10170202, along east/southeast side of Lake Kampeska at Water Treatment Plant northwest of Watertown about 3 mi.

DRAINAGE AREA.--28.8 mi². Does not include upstream drainage area of the Big Sioux River, which can contribute inflow to the lake.

PERIOD OF RECORD.--October 2001 to Sept. 30, 2002.

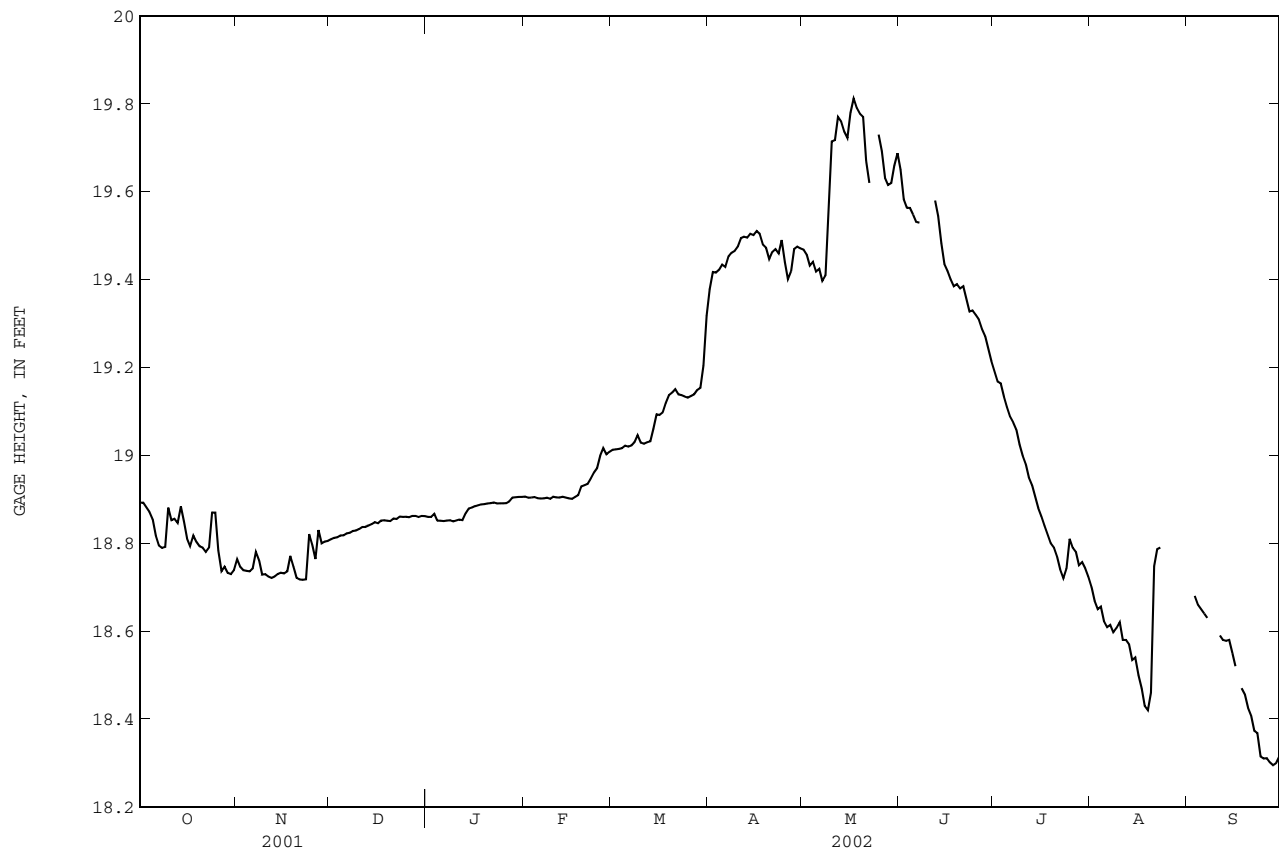
GAGE.--Water-stage recorder. Datum of gage is 1,697.93 ft above NGVD of 1929.

REMARKS.--Published stage records fair. Satellite data-collection platform at station.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.89	18.76	18.81	18.86	18.91	19.01	19.38	19.47	19.65	19.19	18.70	---
2	18.89	18.75	18.81	18.86	18.90	19.01	19.42	19.46	19.58	19.17	18.67	---
3	18.88	18.74	18.81	18.87	18.90	19.01	19.42	19.43	19.56	19.16	18.65	18.68
4	18.87	18.74	18.82	18.85	18.91	19.02	19.42	19.44	19.56	19.13	18.66	18.66
5	18.85	18.74	18.82	18.85	18.90	19.02	19.43	19.42	19.55	19.11	18.62	18.65
6	18.82	18.74	18.82	18.85	18.90	19.02	19.43	19.42	19.53	19.09	18.61	18.64
7	18.79	18.78	18.82	18.85	18.90	19.02	19.45	19.40	19.53	19.07	18.61	18.63
8	18.79	18.76	18.83	18.85	18.90	19.03	19.46	19.41	---	19.06	18.60	---
9	18.79	18.73	18.83	18.85	18.90	19.05	19.47	19.59	---	19.02	18.61	---
10	18.88	18.73	18.83	18.85	18.91	19.03	19.48	19.71	---	19.00	18.62	---
11	18.85	18.72	18.84	18.85	18.90	19.03	19.49	19.72	---	18.98	18.58	18.59
12	18.86	18.72	18.84	18.85	18.90	19.03	19.50	19.77	19.58	18.95	18.58	18.58
13	18.85	18.72	18.84	18.87	18.91	19.03	19.50	19.76	19.54	18.93	18.57	18.58
14	18.88	18.73	18.84	18.88	18.90	19.06	19.50	19.74	19.48	18.91	18.53	18.58
15	18.85	18.73	18.85	18.88	18.90	19.09	19.50	19.72	19.44	18.88	18.54	18.55
16	18.81	18.73	18.85	18.88	18.90	19.09	19.51	19.78	19.42	18.86	18.50	18.52
17	18.79	18.74	18.85	18.89	18.91	19.10	19.50	19.81	19.40	18.84	18.47	---
18	18.82	18.77	18.85	18.89	18.91	19.12	19.48	19.79	19.39	18.82	18.43	18.47
19	18.80	18.75	18.85	18.89	18.93	19.14	19.47	19.78	19.39	18.80	18.42	18.46
20	18.79	18.72	18.85	18.89	18.93	19.14	19.45	19.77	19.38	18.79	18.46	18.43
21	18.79	18.72	18.86	18.89	18.93	19.15	19.46	19.67	19.39	18.77	18.75	18.41
22	18.78	18.72	18.86	18.89	18.95	19.14	19.47	19.62	19.36	18.74	18.79	18.37
23	18.79	18.72	18.86	18.89	18.96	19.14	19.46	---	19.33	18.72	18.79	18.37
24	18.87	18.82	18.86	18.89	18.97	19.13	19.49	---	19.33	18.74	---	18.31
25	18.87	18.80	18.86	18.89	19.00	19.13	19.44	19.73	19.32	18.81	---	18.31
26	18.78	18.76	18.86	18.89	19.02	19.14	19.40	19.69	19.31	18.79	---	18.31
27	18.74	18.83	18.86	18.90	19.00	19.14	19.42	19.63	19.29	18.78	---	18.30
28	18.75	18.80	18.86	18.90	19.01	19.15	19.47	19.62	19.27	18.75	---	18.29
29	18.73	18.80	18.86	18.90	---	19.15	19.48	19.62	19.24	18.76	---	18.30
30	18.73	18.81	18.86	18.91	---	19.20	19.47	19.66	19.21	18.74	---	18.31
31	18.74	---	18.86	18.91	---	19.32	---	19.69	---	18.72	---	---
MEAN	18.82	18.75	18.84	18.88	18.93	19.09	19.46	---	---	18.91	---	---
MAX	18.89	18.83	18.86	18.91	19.02	19.32	19.51	---	---	19.19	---	---
MIN	18.73	18.72	18.81	18.85	18.90	19.01	19.38	---	---	18.72	---	---

06479449 LAKE KAMPESKA AT WATER TREATMENT PLANT, AT WATERTOWN, SD--Continued



06479500 BIG SIOUX RIVER AT WATERTOWN, SD

LOCATION.--Lat 44°56'33", long 9°08'45", in SW¹/₄ SW¹/₄ NW¹/₄ sec.13, T.117 N., R.53 W., Codington County, on right bank near downstream end of highway bridge over 453 Avenue, 1.7 mi downstream from inlet-outlet to Lake Kampeska, 7.1 mi upstream from Willow Creek, and 3.5 mi northwest of Watertown.

DRAINAGE AREA.--1,129 mi², of which 779 mi² is usually noncontributing (213 mi² of the noncontributing area contributed runoff in the 1994-2002 water years).

PERIOD OF RECORD.--October 1945 to September 1972 daily streamflow. October 1996 to September 1997 as crest-stage gage. October 1999 to current year.

REVISED RECORDS.--WDR SD-00-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,710.44 ft above NGVD of 1929. Prior to Oct. 15, 1958, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water is stored naturally offstream in Lake Kampeska (capacity, 35,500 acre-ft) during periods when river is rising and then naturally released, in part, when river is falling. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	4.6	e2.0	e1.4	e0.75	e5.0	e250	47	28	7.8	0.05	1.2
2	3.8	4.4	e3.0	e1.3	e0.80	e4.5	e150	47	27	6.3	0.03	1.2
3	3.5	4.4	e5.0	e1.3	e0.80	e5.0	e100	42	25	5.9	0.05	0.97
4	3.4	4.4	e5.0	e1.3	e0.85	e5.5	e50	40	26	5.2	0.11	0.90
5	3.2	4.6	e5.0	e1.3	e0.90	e5.0	e50	36	25	4.2	0.08	0.84
6	3.2	4.2	e5.0	e1.4	e0.92	e5.0	e50	34	23	3.4	0.08	0.70
7	3.6	4.5	e5.0	e1.5	e1.0	e4.5	46	33	21	2.6	0.06	0.60
8	3.7	3.8	e5.0	e1.8	e1.0	e5.0	43	36	20	2.2	0.05	0.45
9	3.8	4.2	e5.0	e2.0	e1.3	e4.0	43	43	20	1.4	0.05	0.54
10	5.2	4.4	e5.0	e2.0	e1.4	e2.5	43	44	19	1.8	0.13	0.76
11	4.7	4.4	e4.9	e2.0	e1.4	e4.0	41	53	18	1.3	0.07	0.77
12	4.7	4.5	e4.8	e2.0	e1.5	e8.0	39	63	16	1.0	0.20	0.85
13	5.3	4.4	e4.7	e2.0	e1.7	e6.0	38	64	17	0.84	0.21	0.93
14	5.3	4.7	e4.6	e1.8	e1.9	e4.5	38	62	16	0.57	0.20	1.0
15	5.2	4.5	e4.5	e1.6	e2.1	e4.0	37	63	15	0.43	0.19	0.88
16	4.7	4.7	e4.4	e1.4	e2.4	e3.0	36	58	15	0.27	0.14	0.88
17	4.5	4.8	e4.0	e1.2	e2.7	e4.5	36	48	13	0.20	0.13	0.71
18	4.4	4.5	e3.5	e1.0	e3.2	e6.0	35	41	12	0.20	0.03	0.75
19	4.9	4.1	e3.0	e1.2	e3.8	e5.0	34	36	12	0.16	0.02	0.82
20	4.8	4.1	e2.0	e1.3	e4.1	e4.0	32	34	12	0.14	1.0	0.77
21	4.8	4.3	e2.2	e1.3	e4.5	e3.0	33	32	12	0.15	2.6	0.67
22	4.5	4.4	e2.0	e1.2	e7.0	e2.5	33	32	14	0.16	1.8	0.57
23	4.6	4.6	e1.7	e1.1	e10	e2.0	34	31	14	0.12	1.7	0.60
24	5.4	e5.0	e1.6	e1.0	e17	e2.0	34	28	13	0.16	1.3	0.57
25	e5.5	e5.0	e1.5	e1.5	e11	e2.0	32	27	14	0.19	1.0	0.73
26	5.0	e3.0	e1.5	e1.6	e7.0	e2.0	29	26	14	0.14	0.86	0.88
27	4.3	e1.3	e1.5	e1.5	e5.0	e10	31	26	14	0.12	0.75	0.92
28	4.8	e1.3	e1.5	e1.2	e5.5	e30.0	37	27	14	0.12	0.72	0.93
29	4.1	e1.5	e1.5	e1.0	---	e100	41	28	12	0.16	0.68	0.95
30	4.1	e1.7	e1.5	e0.80	---	e350	43	28	11	0.10	1.0	1.1
31	4.4	---	e1.4	e0.70	---	e300	---	28	---	0.07	1.3	---
TOTAL	137.2	120.3	103.3	43.70	101.52	898.5	1538	1237	512	47.40	16.59	24.44
MEAN	4.43	4.01	3.33	1.41	3.63	29.0	51.3	39.9	17.1	1.53	0.54	0.81
MAX	5.5	5.0	5.0	2.0	17	350	250	64	28	7.8	2.6	1.2
MIN	3.2	1.3	1.4	0.70	0.75	2.0	29	26	11	0.07	0.02	0.45
AC-FT	272	239	205	87	201	1780	3050	2450	1020	94	33	46

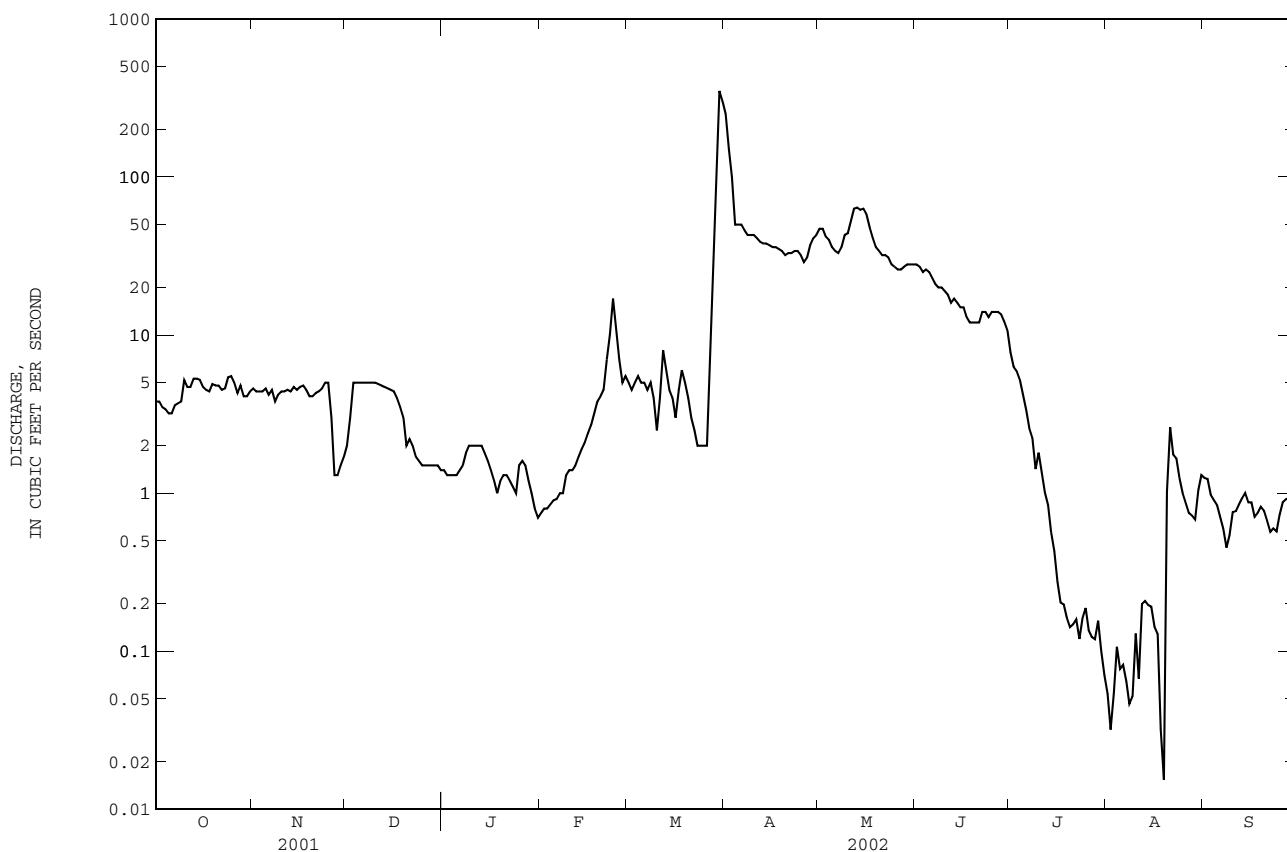
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1972, 2000 - 2002, BY WATER YEAR (WY)

MEAN	3.63	4.04	2.44	0.86	1.43	40.6	156	85.6	61.9	35.0	18.5	4.03
MAX	33.6	42.6	18.6	6.99	9.86	215	885	367	418	332	159	40.9
(WY)	1947	1947	1947	1972	1954	1946	2001	1962	1962	1962	1953	1972
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.54	0.79	0.46	0.039	0.000	0.000
(WY)	1960	1960	1956	1946	1946	1965	1959	1959	1959	1959	1959	1959

06479500 BIG SIOUX RIVER AT WATERTOWN, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1946-1972, 2000-2002	
ANNUAL TOTAL	42721.09		4779.95		34.4	
ANNUAL MEAN	117		13.1		116	
HIGHEST ANNUAL MEAN					0.20	
LOWEST ANNUAL MEAN					2270	
HIGHEST DAILY MEAN	2270	Apr 7	350	Mar 30	2270	Apr 7 2001
LOWEST DAILY MEAN	0.00	Feb 13	0.02	Aug 19	0.00	Dec 9 1945a
ANNUAL SEVEN-DAY MINIMUM	0.00	Feb 13	0.07	Aug 1	0.00	Dec 9 1945
MAXIMUM PEAK FLOW			370	Mar 30	5800	Apr 6 1997
MAXIMUM PEAK STAGE			7.66	Mar 30b	12.49	Apr 6 1997c
ANNUAL RUNOFF (AC-FT)	84740		9480		24940	
10 PERCENT EXCEEDS	359		36		90	
50 PERCENT EXCEEDS	4.7		4.1		2.0	
90 PERCENT EXCEEDS	0.04		0.44		0.00	

a No flow at times in most years.
b From floodmark, backwater from ice.
c Backwater from ice.
e Estimated.



Location.--Lat 44°55'08", long 97°02'43", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.117 N., R.52 W., Codington County, Hydrologic Unit 10170202, on right downstream bank at bridge, about 6.7 river miles upstream from mouth, 3.1 mi east from intersection of U.S. Highways 81 and 212 and then 2.0 mi north.

DRAINAGE AREA.--109 mi².

PERIOD OF RECORD.--September 1971 to September 1986 daily streamflow. October 1996 to September 1997 crest-stage partial record. October 1999 to current year (seasonal mean daily gage heights and yearly instantaneous peak discharge).

REVISED RECORDS.--WDR SD-00-1: 1972(M,P); 1977-80, 1983(M); 1984(M,P, June 15 daily discharge); 1985(M); 1986(M, P, Mar. 27-31 daily discharge).

GAGE.--Water-stage recorder. Datum of gage is 1,731.29 ft above NGVD of 1929, from GPS survey. Prior to October 1999, 2 mi downstream at datum 1,721.24 ft above NGVD of 1929.

REMARKS.--Published record good. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

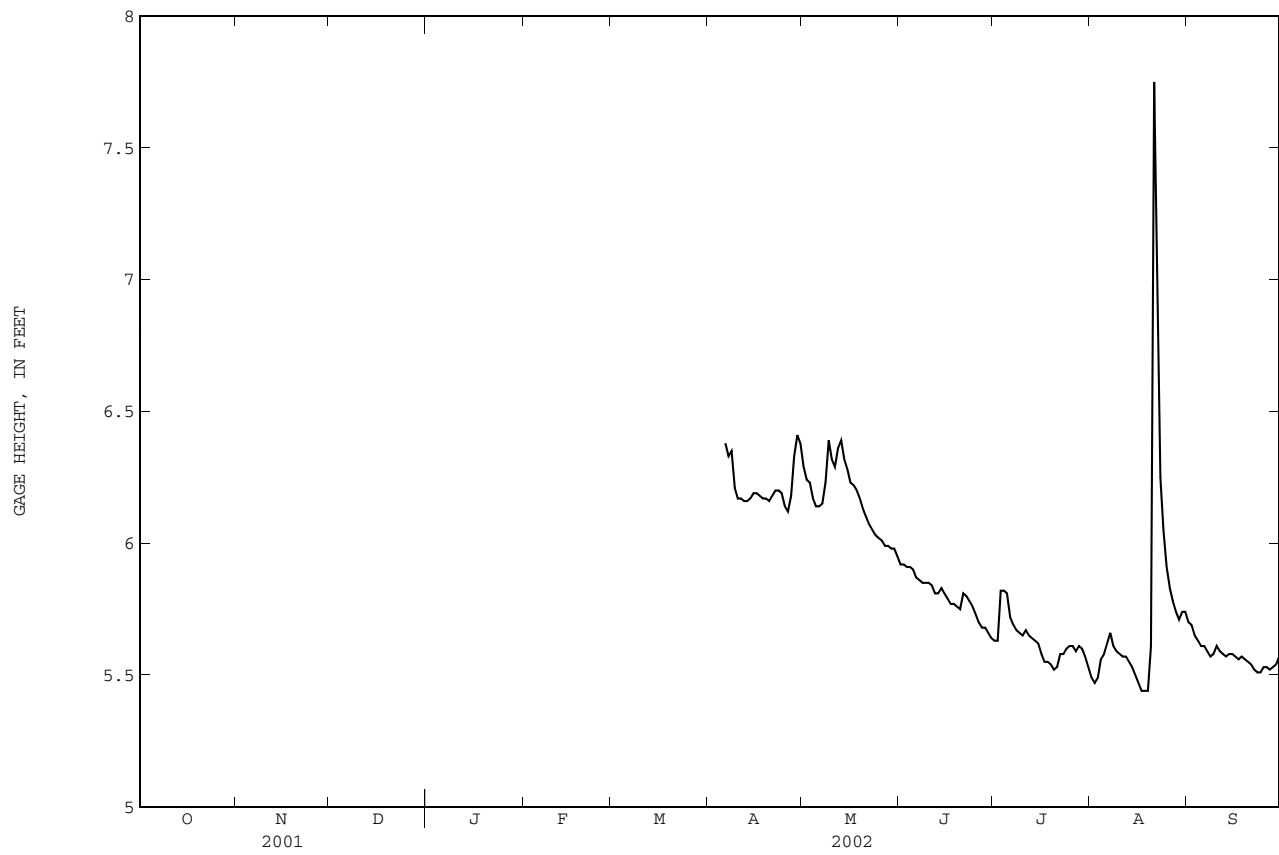
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,650 ft³/s, Apr. 5, 1997, gage height, 10.93 ft, from floodmark, at different site and datum; maximum gage height, 12.51 ft, Apr. 7, 2001, backwater from ice.

EXTREMES FOR CURRENT YEAR.--Maximum discharge for water year 2002, 514 ft³/s, Aug. 21, gage height, 8.88 ft.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	6.29	5.92	5.63	5.49	5.70
2	---	---	---	---	---	---	---	6.24	5.92	5.63	5.47	5.69
3	---	---	---	---	---	---	---	6.23	5.91	5.82	5.49	5.65
4	---	---	---	---	---	---	---	6.17	5.91	5.82	5.56	5.63
5	---	---	---	---	---	---	---	6.14	5.90	5.81	5.58	5.61
6	---	---	---	---	---	---	6.38	6.14	5.87	5.72	5.62	5.61
7	---	---	---	---	---	---	6.33	6.15	5.86	5.69	5.66	5.59
8	---	---	---	---	---	---	6.35	6.23	5.85	5.67	5.61	5.57
9	---	---	---	---	---	---	6.21	6.39	5.85	5.66	5.59	5.58
10	---	---	---	---	---	---	6.17	6.32	5.85	5.65	5.58	5.61
11	---	---	---	---	---	---	6.17	6.29	5.84	5.67	5.57	5.59
12	---	---	---	---	---	---	6.16	6.36	5.81	5.65	5.57	5.58
13	---	---	---	---	---	---	6.16	6.39	5.81	5.64	5.55	5.57
14	---	---	---	---	---	---	6.17	6.32	5.83	5.63	5.53	5.58
15	---	---	---	---	---	---	6.19	6.28	5.81	5.62	5.50	5.58
16	---	---	---	---	---	---	6.19	6.23	5.79	5.58	5.47	5.57
17	---	---	---	---	---	---	6.18	6.22	5.77	5.55	5.44	5.56
18	---	---	---	---	---	---	6.17	6.20	5.77	5.55	5.44	5.57
19	---	---	---	---	---	---	6.17	6.17	5.76	5.54	5.44	5.56
20	---	---	---	---	---	---	6.16	6.13	5.75	5.52	5.61	5.55
21	---	---	---	---	---	---	6.18	6.10	5.81	5.53	7.75	5.54
22	---	---	---	---	---	---	6.20	6.07	5.80	5.58	6.72	5.52
23	---	---	---	---	---	---	6.20	6.05	5.78	5.58	6.25	5.51
24	---	---	---	---	---	---	6.19	6.03	5.76	5.60	6.05	5.51
25	---	---	---	---	---	---	6.14	6.02	5.73	5.61	5.91	5.53
26	---	---	---	---	---	---	6.12	6.01	5.70	5.61	5.83	5.53
27	---	---	---	---	---	---	6.18	5.99	5.68	5.59	5.78	5.52
28	---	---	---	---	---	---	6.33	5.99	5.68	5.61	5.74	5.53
29	---	---	---	---	---	---	6.41	5.98	5.66	5.60	5.71	5.54
30	---	---	---	---	---	---	6.38	5.98	5.64	5.57	5.74	5.57
31	---	---	---	---	---	---	---	5.95	---	5.53	5.74	---
MEAN	---	---	---	---	---	---	---	6.16	5.80	5.63	5.74	5.58
MAX	---	---	---	---	---	---	---	6.39	5.92	5.82	7.75	5.70
MIN	---	---	---	---	---	---	---	5.95	5.64	5.52	5.44	5.51

06479515 WILLOW CREEK NEAR WATERTOWN, SD--Continued



LOCATION.--Lat 44°50'32", long 97°02'57", in NE¹/₄ NE¹/₄ NE¹/₄ sec.22, T.116 N., R.52 W., Codington County, Hydrologic Unit 10170202, on left bank near the downstream end of bridge on township gravel road, 3.0 river miles downstream from mouth of Willow Creek, 3.3 river miles upstream from the Codington-Hamlin County line, and 4.1 mi southeast of Watertown.

DRAINAGE AREA.--1,902 mi², of which 1,391 mi² usually is noncontributing (213 mi² of the noncontributing area contributed runoff in the 1994-2002 water years).

PERIOD OF RECORD.--October 1994 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,694.29 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	10	e27	e6.0	e2.9	e22	e300	87	34	e21	5.5	13
2	9.0	11	e24	e5.5	e2.9	e20	e210	85	34	e18	5.0	12
3	8.7	11	e24	e6.0	e2.9	e20	144	84	28	e40	7.0	12
4	8.7	12	e25	e6.5	e3.0	e20	106	73	30	e20	9.0	11
5	8.6	13	e26	e6.5	e3.5	e20	86	68	28	e17	5.6	12
6	8.7	13	e24	e6.6	e5.0	e21	81	54	29	e15	7.7	12
7	8.7	13	e22	e7.1	e8.6	e22	84	51	28	e13	6.8	12
8	9.1	13	e21	e7.5	e18	e21	91	88	23	11	6.1	12
9	8.7	13	e19	e7.3	e16	e20	86	102	26	10	6.3	14
10	14	13	e18	e7.2	e13	e18	75	93	29	9.4	7.0	18
11	10	12	e17	e7.1	e15	e20	76	86	26	8.9	5.7	12
12	9.6	13	e16	e7.1	e16	e20	76	99	24	8.8	7.2	12
13	10	14	e14	e6.9	e17	e30	77	105	26	8.7	5.8	11
14	11	13	e13	e6.7	e18	e28	76	102	31	8.3	5.4	12
15	10	13	e14	e6.5	e19	e33	72	100	24	8.3	5.7	11
16	9.4	13	e13	e6.1	e20	e34	79	92	24	8.1	5.1	11
17	9.1	13	e13	e5.8	e21	e36	77	82	24	8.1	5.5	11
18	9.3	14	e13	e5.4	e21	e40	60	74	23	8.1	4.8	11
19	10	13	e14	e5.1	e40	e46	54	65	25	7.6	5.1	e13
20	11	12	e14	e4.9	e60	e43	51	58	25	7.5	97	e13
21	11	13	e13	e4.6	e60	e42	57	59	e30	8.9	e400	e12
22	12	13	e13	e4.5	e80	e41	63	62	e40	13	e150	e12
23	12	12	e9.6	e4.5	e90	e41	66	59	e30	7.3	48	e11
24	13	20	e8.5	e4.3	e100	e42	72	42	e30	7.9	25	e11
25	e14	18	e8.0	e4.2	e60	e43	69	42	e28	8.2	17	e12
26	e15	e28	e7.5	e4.1	e40	e50	49	38	e27	6.5	14	e12
27	12	e30	e7.0	e4.0	e30	e60	62	35	e26	6.7	13	e11
28	10	e35	e6.5	e3.6	e25	e100	82	40	e25	6.3	12	e10
29	9.6	e30	e6.0	e2.8	---	e350	96	37	e24	8.3	12	e9.5
30	9.4	e30	e6.0	e2.9	---	e300	93	44	e23	6.3	21	e9.0
31	9.7	---	e6.0	e2.9	---	e350	---	36	---	5.7	15	---
TOTAL	320.5	481	462.1	170.2	807.8	1953	2670	2142	824	341.9	940.3	354.5
MEAN	10.3	16.0	14.9	5.49	28.9	63.0	89.0	69.1	27.5	11.0	30.3	11.8
MAX	15	35	27	7.5	100	350	300	105	40	40	400	18
MIN	8.6	10	6.0	2.8	2.9	18	49	35	23	5.7	4.8	9.0
AC-FT	636	954	917	338	1600	3870	5300	4250	1630	678	1870	703

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2002, BY WATER YEAR (WY)

	MEAN	76.1	85.0	54.6	31.3	71.2	150	696	391	202	99.4	63.0	43.8
MAX	366	356	183	88.7	210	385	2309	814	469	321	234	237	
(WY)	1996	1996	1996	1996	1998	1996	1997	1997	1995	1995	1995	1995	
MIN	5.07	8.50	5.58	4.80	2.12	6.06	15.6	19.9	20.9	11.0	6.75	4.53	
(WY)	2001	2001	2001	2001	2001	2001	2000	2000	2000	2002	2000	2000	

06479520 BIG SIOUX RIVER BELOW WATERTOWN, SD--Continued

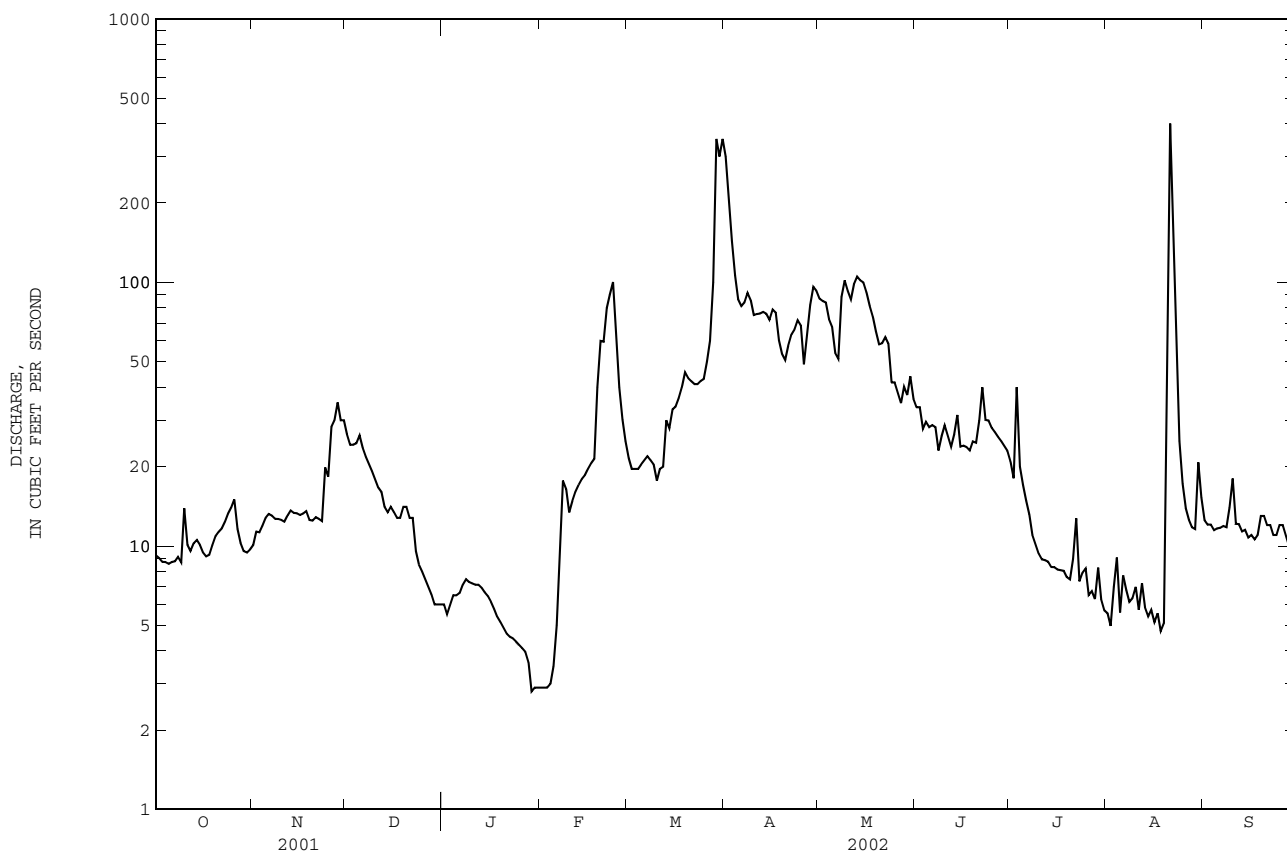
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1995 - 2002	
ANNUAL TOTAL	69843.4		11467.3		163	
ANNUAL MEAN	191		31.4		311	
HIGHEST ANNUAL MEAN					12.2	
LOWEST ANNUAL MEAN					4350	
HIGHEST DAILY MEAN	3010	Apr 8	400	Aug 21	1.0	Apr 11 1997
LOWEST DAILY MEAN	1.0	Feb 10	2.8	Jan 29	1.6	Feb 10 2001
ANNUAL SEVEN-DAY MINIMUM	1.6	Feb 10	2.9	Jan 29	1.6	Feb 10 2001
MAXIMUM PEAK FLOW			800	Aug 21	6700	Apr 11 1997a
MAXIMUM PEAK STAGE			10.76	Aug 21b	13.13	Apr 2 1997c
ANNUAL RUNOFF (AC-FT)	138500		22750		118200	
10 PERCENT EXCEEDS	608		78		415	
50 PERCENT EXCEEDS	14		14		50	
90 PERCENT EXCEEDS	3.0		6.0		7.0	

a Gage height, 12.99 ft.

b Backwater from downstream tributaries.

c Backwater from ice.

e Estimated.



LOCATION.--Lat 44°43'54", long 97°02'39", in SW¹/₄ SW¹/₄ sec.26, T.115 N., R.52 W., Hamlin County, Hydrologic Unit 10170202, on right bank at upstream side of bridge on State Highway 22, 3.2 mi east of intersection of U.S. Highway 81 and State Highway 22, and 1.0 mi northwest of Castlewood.

DRAINAGE AREA.--1,997 mi², of which 1,427 mi² usually is noncontributing (213 mi² of the noncontributing area contributed runoff in the 1994-2002 water years).

PERIOD OF RECORD.--October 1976 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,667.52 ft above NGVD of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for Oct. 1-3, Oct. 11 to Nov. 5, Nov. 17-26, which are fair, and those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	17	e30	e9.0	e7.0	e24	e360	93	50	33	5.2	23
2	14	17	e27	e8.5	e7.0	e22	e250	89	49	29	5.2	20
3	13	19	e27	e8.3	e7.0	e20	e180	83	45	82	6.0	18
4	13	17	e28	e8.5	e7.0	e22	e140	82	44	64	9.5	18
5	13	15	e30	e8.5	e7.0	e25	e100	72	44	42	8.2	18
6	12	15	e29	e8.5	e8.0	e25	95	69	44	32	6.7	17
7	13	15	e27	e9.0	e12	e25	92	64	45	23	7.7	17
8	13	15	e25	e9.5	e20	e25	94	79	39	17	6.6	16
9	13	15	e24	e9.5	e17	e23	92	113	37	15	6.2	17
10	15	15	e23	e9.0	e15	e20	86	109	40	13	6.4	26
11	22	15	e22	e9.0	e17	e21	80	96	40	11	6.7	19
12	18	15	e21	e9.0	e17	e30	82	105	37	11	6.7	18
13	19	16	e20	e9.0	e19	e40	80	114	35	11	7.1	18
14	19	16	e18	e8.5	e19	e35	81	114	41	10	6.0	17
15	18	16	e18	e8.5	e20	e35	79	110	35	9.9	5.6	16
16	18	16	e18	e8.0	e20	e37	76	104	32	9.4	5.6	16
17	16	20	e18	e7.0	e22	e40	82	92	31	10	5.2	16
18	15	21	e17	e6.0	e22	e45	71	84	30	10	5.1	18
19	15	20	e17	e7.0	e25	e50	66	77	31	9.6	4.5	18
20	17	19	e17	e7.0	e80	e47	63	70	32	9.0	6.1	15
21	17	19	e17	e7.5	e100	e45	64	68	38	9.6	513	14
22	18	19	e16	e8.0	e90	e45	69	71	50	12	420	14
23	19	19	e13	e7.0	e90	e45	70	72	42	12	141	14
24	21	25	e12	e6.5	e220	e45	70	63	41	8.9	79	14
25	21	30	e11	e7.0	e170	e45	74	58	40	8.6	51	14
26	25	29	e10	e8.0	e60	e46	65	59	40	8.5	37	14
27	23	e30	e9.5	e7.5	e35	e55	66	55	38	8.0	30	13
28	20	e35	e9.5	e7.5	e30	e100	82	56	37	7.7	26	13
29	18	e40	e9.0	e7.0	---	e400	96	56	35	7.6	24	14
30	17	e35	e9.0	e6.5	---	e600	99	55	35	8.5	25	14
31	18	---	e9.0	e6.5	---	e470	---	54	---	6.0	39	---
TOTAL	528	615	581.0	246.3	1163.0	2507	3004	2486	1177	548.3	1511.3	499
MEAN	17.0	20.5	18.7	7.95	41.5	80.9	100	80.2	39.2	17.7	48.8	16.6
MAX	25	40	30	9.5	220	600	360	114	50	82	513	26
MIN	12	15	9.0	6.0	7.0	20	63	54	30	6.0	4.5	13
AC-FT	1050	1220	1150	489	2310	4970	5960	4930	2330	1090	3000	990

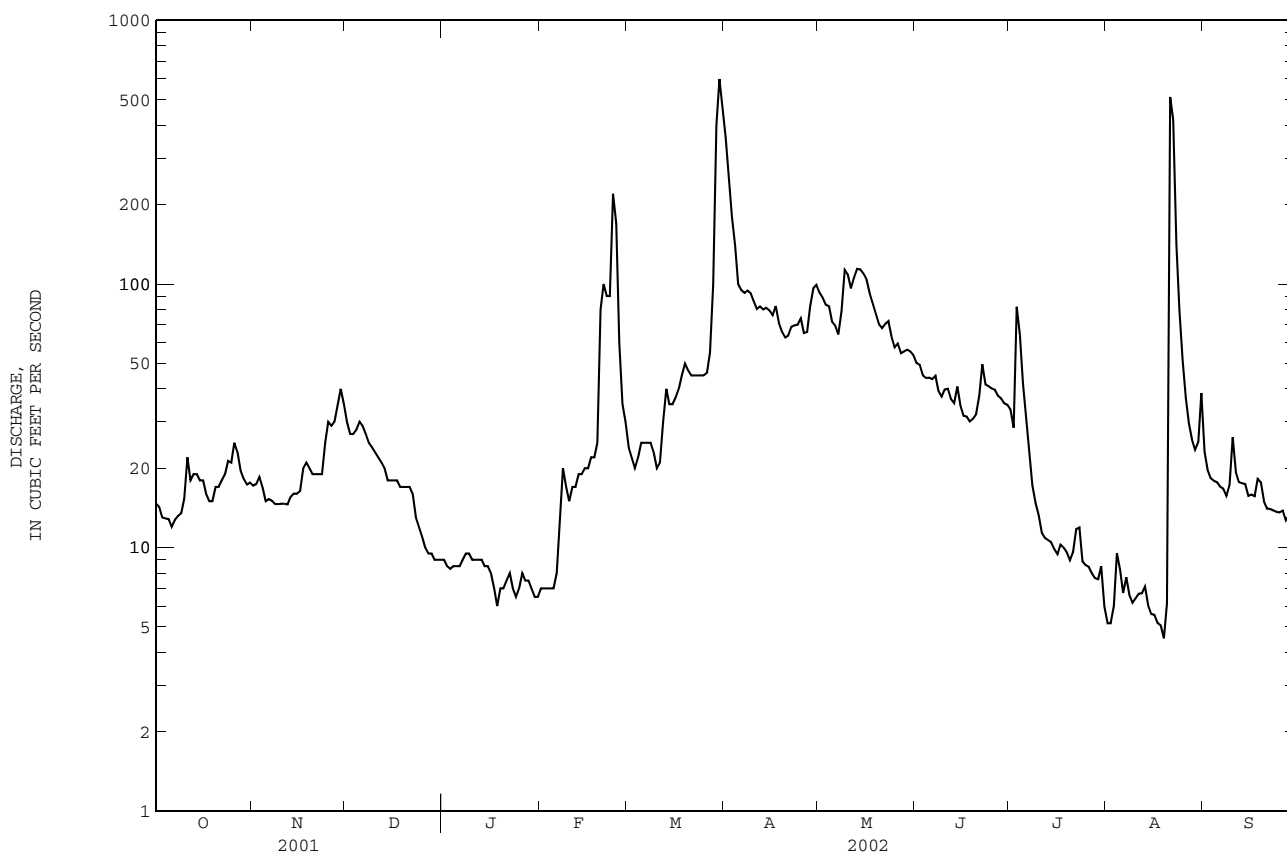
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 2002, BY WATER YEAR (WY)

	MEAN	45.9	45.5	29.2	16.4	34.1	143	391	208	141	93.0	67.3	45.0
MAX	424	414	210	96.9	204	562	2544	834	508	419	375	217	
(WY)	1996	1996	1996	1996	1998	1994	1997	1995	1995	1993	1993	1995	
MIN	1.06	0.71	0.039	0.000	0.000	0.035	7.60	3.28	3.11	3.17	2.33	2.94	
(WY)	1977	1977	1977	1977	1977	2001	1990	1977	1988	1988	1983	1990	

06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1977 - 2002	
ANNUAL TOTAL	70930.20		14865.9		105a	
ANNUAL MEAN	194		40.7		333	
HIGHEST ANNUAL MEAN					8.15	
LOWEST ANNUAL MEAN					4090	
HIGHEST DAILY MEAN	2740	Apr 8	600	Mar 30	0.00	Apr 11 1997
LOWEST DAILY MEAN	0.00	Feb 1	4.5	Aug 19	0.00	Dec 30 1976b
ANNUAL SEVEN-DAY MINIMUM	0.00	Feb 1	5.4	Aug 14	0.00	Dec 30 1976
MAXIMUM PEAK FLOW			837	Aug 21	4300	Apr 11 1997c
MAXIMUM PEAK STAGE			9.63	Aug 21	13.19	Apr 7 1997d
ANNUAL RUNOFF (AC-FT)	140700		29490		76000	
10 PERCENT EXCEEDS	610		83		269	
50 PERCENT EXCEEDS	20		20		24	
90 PERCENT EXCEEDS	0.00		7.6		1.6	

- a Median of annual mean discharges, 74 ft³/s.
b No flow for many days in some years.
c Gage height, 12.87 ft, backwater from ice.
d Backwater from ice.
e Estimated.



LOCATION.--Lat 44°28'04", long 96°53'14", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.36, T.112 N., R.51 W., Brookings County, Hydrologic Unit 10170202, on right bank at downstream end of county highway bridge, 7.4 mi downstream from confluence with Peg Munky Run, 4.9 mi east-northeast of Oakwood Lakes State Park, and 1.8 mi north of Bruce.

DRAINAGE AREA.--To be determined.

PERIOD OF RECORD.--October 2000 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,620 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	194	119	e155	e50	e49	e80	751	253	141	57	19	48
2	190	120	e160	e52	e50	e60	605	233	133	54	17	42
3	185	116	e165	e54	e50	e50	418	213	125	51	18	36
4	e183	114	e170	e56	e52	e45	299	203	126	66	21	31
5	181	115	e175	e57	e53	e45	292	185	123	81	20	31
6	175	115	e180	e59	e55	e40	283	172	113	72	26	29
7	171	110	e175	e60	e60	e40	286	167	111	58	23	27
8	167	107	e175	e62	e70	e40	308	216	102	51	17	24
9	166	110	e170	e65	e80	e40	282	305	100	44	18	24
10	180	106	e170	e65	e78	e38	262	334	99	41	18	25
11	180	102	e165	e64	e75	e40	250	291	95	39	15	25
12	176	104	e165	e63	e80	e40	253	263	92	34	19	29
13	173	102	e160	e62	e90	e42	245	275	89	31	18	25
14	173	104	e160	e61	e100	e48	241	274	89	29	16	25
15	172	102	e155	e60	e110	e50	234	262	86	27	16	25
16	163	100	e160	e59	e120	e52	237	238	79	25	14	24
17	157	102	e155	e58	e130	e55	241	217	75	23	14	21
18	153	105	e150	e57	e135	e57	237	202	72	22	13	23
19	152	93	e135	e60	e140	e60	216	186	72	22	12	25
20	152	97	e110	e60	e145	e58	207	174	71	20	12	24
21	148	94	e98	e62	e150	e55	205	166	76	21	17	22
22	145	92	e90	e62	e170	e55	209	162	83	24	317	20
23	143	90	e85	e60	188	e55	212	162	92	23	396	19
24	150	98	e80	e62	234	e55	207	152	80	23	230	17
25	159	106	e77	e65	e165	e55	206	146	78	23	142	19
26	150	e120	e69	e70	e145	e55	193	142	75	21	106	20
27	133	e130	e65	e65	e120	e60	183	135	70	21	74	19
28	134	e140	e58	e60	e100	e100	198	135	67	20	59	20
29	119	e145	e50	e55	---	e400	247	138	64	21	50	20
30	116	e150	e50	e50	---	e1500	269	143	60	20	45	20
31	118	---	e50	e47	---	1310	---	143	---	19	43	---
TOTAL	4958	3308	3982	1842	2994	4680	8276	6287	2738	1083	1825	759
MEAN	160	110	128	59.4	107	151	276	203	91.3	34.9	58.9	25.3
MAX	194	150	180	70	234	1500	751	334	141	81	396	48
MIN	116	90	50	47	49	38	183	135	60	19	12	17
AC-FT	9830	6560	7900	3650	5940	9280	16420	12470	5430	2150	3620	1510

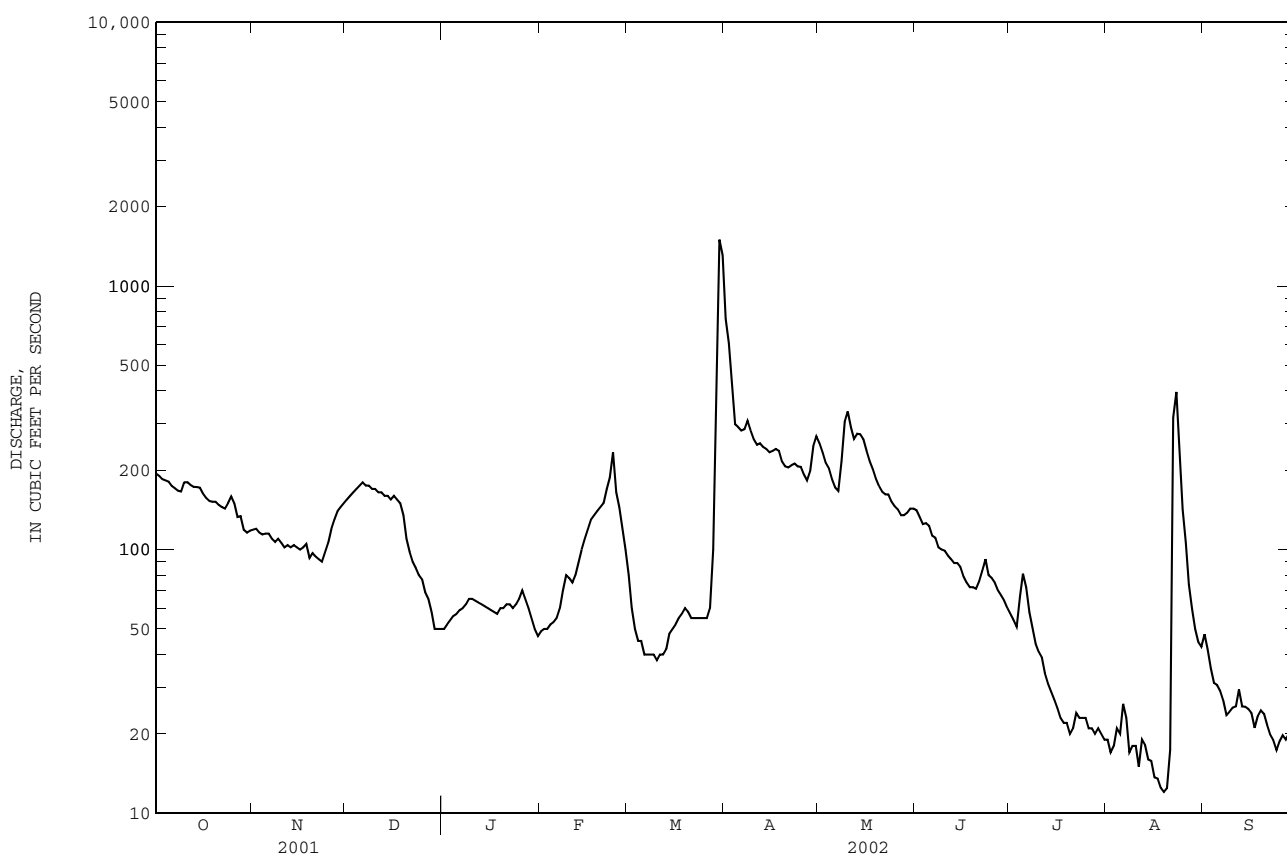
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001
MEAN	87.6	66.6	66.1	29.9	53.6	77.8	1131	840	602	364	255	141
MAX	160	110	128	59.4	107	151	1986	1477	1112	694	451	256
(WY)	2002	2002	2002	2002	2002	2002	2001	2001	2001	2001	2001	2001
MIN	15.3	22.9	3.76	0.39	0.18	4.56	276	203	91.3	34.9	58.9	25.3
(WY)	2001	2001	2001	2001	2001	2001	2002	2002	2002	2002	2002	2002

06479770 BIG SIOUX RIVER NEAR BRUCE, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2001 - 2002	
ANNUAL TOTAL	194299.45		42732		310	
ANNUAL MEAN	532		117		502	
HIGHEST ANNUAL MEAN					117	
LOWEST ANNUAL MEAN					3540	
HIGHEST DAILY MEAN	3540	Apr 9	1500	Mar 30	3540	Apr 9 2001
LOWEST DAILY MEAN	0.10	Feb 10	12	Aug 19, 20	0.10	Feb 10 2001
ANNUAL SEVEN-DAY MINIMUM	0.14	Feb 8	14	Aug 14	0.14	Feb 8 2001
MAXIMUM PEAK FLOW			1900	Mar 30	3810	Apr 9 2001
MAXIMUM PEAK STAGE			9.01	Mar 30a	10.60	Apr 9 2001
ANNUAL RUNOFF (AC-FT)	385400		84760		224300	
10 PERCENT EXCEEDS	1720		231		968	
50 PERCENT EXCEEDS	194		89		90	
90 PERCENT EXCEEDS	0.25		21		0.50	

a Backwater from ice.
e Estimated.



BIG SIOUX RIVER BASIN

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD

LOCATION.--Lat 44°10'48", long 96°44'55", in NW¹/₄ NW¹/₄ sec.8, T.108 N., R.49 W., Moody County, Hydrologic Unit 10170203, on right bank 3 ft downstream from highway bridge, 2.2 mi downstream from Medary Creek, and 9.5 mi southeast of Brookings.

DRAINAGE AREA.--3,898 mi², of which 1,479 mi² usually is noncontributing (213 mi² of the noncontributing area contributed runoff in the 1994-2002 water years).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1953 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,551.91 ft above NGVD of 1929. Prior to May 30, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	229	161	e205	e80	e80	e160	e2000	600	285	89	34	59
2	223	158	e210	e80	e80	e130	2290	548	283	83	30	58
3	217	158	e230	e82	e80	e100	1740	490	277	78	30	56
4	210	155	e220	e84	e80	e90	1110	446	268	73	32	51
5	204	152	e200	e85	e82	e80	847	413	259	70	34	48
6	202	152	e200	e85	e85	e70	703	386	252	87	52	45
7	200	151	e210	e85	e90	e60	646	374	238	80	73	43
8	194	144	e210	e90	e95	e55	682	671	228	71	57	40
9	191	142	e220	e90	e90	e50	697	1410	226	65	46	38
10	214	141	e210	e95	e90	e50	630	2000	217	62	48	39
11	216	140	e210	e95	e93	e50	581	2230	201	58	47	38
12	220	137	e190	e190	e96	e55	567	1770	193	57	45	37
13	213	142	e180	e95	e100	e60	577	1310	185	54	44	38
14	209	137	e185	e95	e120	e55	591	1090	179	51	41	39
15	203	136	e190	e95	e140	e60	590	956	173	47	37	35
16	202	135	e185	e93	e160	e60	618	811	164	44	34	34
17	197	131	e180	e90	e180	e60	608	696	156	42	33	33
18	191	135	e180	e89	e175	e70	652	607	144	41	31	36
19	190	133	e180	e88	e170	e80	611	538	136	40	29	36
20	184	125	e160	e85	162	e75	527	482	125	38	30	34
21	184	130	e140	e85	161	e70	490	452	144	37	54	33
22	180	129	e130	e85	165	e70	497	430	194	37	63	31
23	180	129	e120	e85	192	e70	515	390	208	37	149	30
24	177	187	e110	e85	228	e75	500	365	202	39	327	29
25	174	243	e105	e90	e200	e75	459	350	184	38	260	29
26	180	e210	e100	e95	e190	e80	439	333	161	37	180	31
27	186	e140	e95	e90	e180	e90	435	315	141	35	129	31
28	176	e180	e92	e85	e165	e100	463	300	123	38	98	31
29	176	e190	e90	e80	---	e200	535	297	110	54	81	33
30	166	e200	e85	e75	---	e750	602	293	99	43	70	33
31	163	---	e82	e80	---	e1500	---	289	---	37	63	---
TOTAL	6051	4603	5104	2716	3729	4550	22202	21642	5755	1662	2281	1148
MEAN	195	153	165	87.6	133	147	740	698	192	53.6	73.6	38.3
MAX	229	243	230	100	228	1500	2290	2230	285	89	327	59
MIN	163	125	82	75	80	50	435	289	99	35	29	29
AC-FT	12000	9130	10120	5390	7400	9020	44040	42930	11420	3300	4520	2280

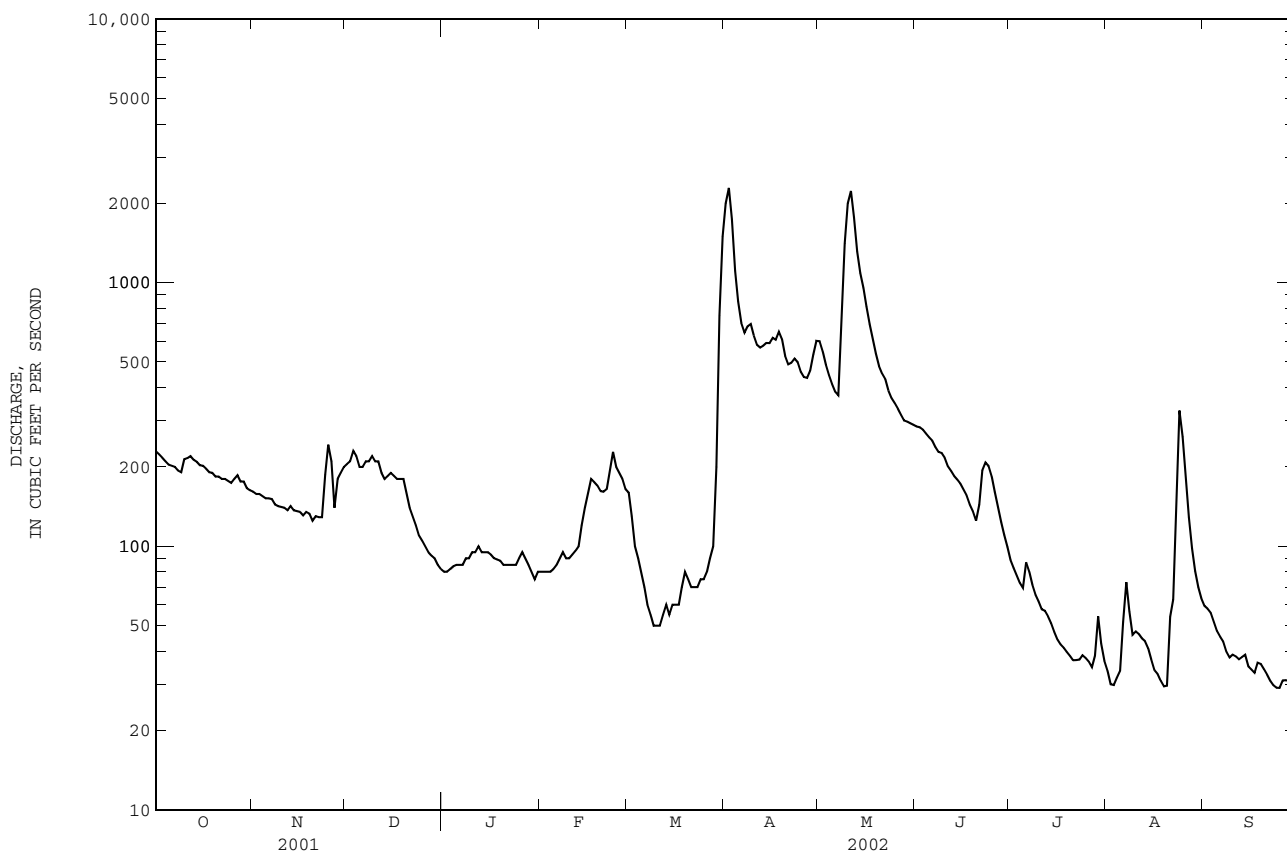
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2002, BY WATER YEAR (WY)

	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
MEAN	146	120	73.1	39.0	72.3	497	971	571	597	347	205	158
MAX	1424	1007	563	284	606	2037	5717	2804	3432	3269	1553	1693
(WY)	1996	1996	1996	1996	1998	1985	1997	1986	1984	1993	1993	1986
MIN	0.039	0.094	0.088	0.000	0.000	1.45	27.3	21.4	13.5	0.94	0.015	0.011
(WY)	1977	1977	1977	1977	1956	1975	1959	1959	1976	1976	1976	1976

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1954 - 2002	
ANNUAL TOTAL	319041.8		81443		317a	
ANNUAL MEAN	874		223		1174	
HIGHEST ANNUAL MEAN					15.5	
LOWEST ANNUAL MEAN					31200	
HIGHEST DAILY MEAN	6470	Apr 25	2290	Apr 2	1993	1959
LOWEST DAILY MEAN	4.5	Jan 1	29	Aug 19	0.00	Jan 18 1956b
ANNUAL SEVEN-DAY MINIMUM	5.0	Jan 1	30	Sep 22	0.00	Jan 18 1956
MAXIMUM PEAK FLOW			2340	Apr 2	33900	Apr 9 1969
MAXIMUM PEAK STAGE			8.79	Apr 2	14.77	Apr 9 1969
ANNUAL RUNOFF (AC-FT)	632800		161500		229400	
10 PERCENT EXCEEDS	3050		536		832	
50 PERCENT EXCEEDS	239		136		70	
90 PERCENT EXCEEDS	7.5		38		5.0	

a Median of annual mean discharges, 190 ft³/s.
b No flow at times in 1956, 1976, 1977, and 1982.
e Estimated.



06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1967 to September 1969, October 1969 to September 1973 (partial-record station), October 2001 to September 2002.

Sediment records: Periodic samples taken in 1967, 1970, October 1970 to September 1973, and October 2001 to September 2002.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 2001 to September 2002.

SPECIFIC CONDUCTANCE: October 2001 to September 2002.

pH: October 2001 to September 2002.

DISSOLVED OXYGEN: October 2001 to September 2002.

TURBIDITY: October 2001 to September 2002.

REMARKS.--Daily records are collected at 15-minute intervals using multi-parameter water-quality instrument. Satellite data-collection platform at station. Interruptions in daily records due to probes fouling and/or instrument malfunctions.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	9.6	7.9	9.1	0.2	0.1	0.1	0.2	0.1	0.1
2	---	---	---	8.7	6.4	7.6	0.2	0.1	0.1	0.2	0.1	0.1
3	---	---	---	8.8	6.4	7.6	0.3	0.1	0.1	0.2	0.1	0.1
4	---	---	---	8.9	6.5	7.7	0.3	0.1	0.2	0.2	0.1	0.1
5	---	---	---	11.1	7.4	9.2	1.4	0.2	0.7	0.2	0.1	0.1
6	---	---	---	11.8	10.1	10.8	1.2	0.0	0.5	0.2	0.1	0.1
7	---	---	---	11.5	9.0	10.1	1.0	0.0	0.5	0.2	0.1	0.1
8	---	---	---	9.6	6.3	7.8	0.4	0.0	0.2	0.2	0.1	0.1
9	---	---	---	7.3	5.1	6.2	0.7	0.1	0.4	0.1	0.1	0.1
10	---	---	---	7.4	5.4	6.3	0.6	0.0	0.3	0.1	0.1	0.1
11	13.2	---	---	6.8	4.6	5.7	1.1	0.0	0.5	0.2	0.1	0.1
12	12.3	10.8	11.8	7.9	5.4	6.6	0.6	0.0	0.3	0.2	0.1	0.1
13	13.5	11.4	12.4	9.1	7.1	8.1	1.0	0.0	0.3	0.1	0.1	0.1
14	12.6	9.0	10.4	11.5	9.0	10.3	0.6	0.0	0.3	0.1	0.1	0.1
15	9.0	7.0	7.7	10.1	8.2	9.2	1.8	0.3	1.0	0.2	0.1	0.1
16	8.0	5.3	6.7	10.0	7.4	8.7	1.5	0.2	0.9	0.1	0.1	0.1
17	8.5	5.7	7.2	11.4	9.0	10.2	0.9	0.0	0.4	0.1	0.1	0.1
18	9.5	7.4	8.4	10.7	7.1	9.6	0.8	0.0	0.3	0.1	0.1	0.1
19	9.5	7.1	8.4	7.1	3.7	5.1	0.6	0.1	0.2	0.1	0.1	0.1
20	10.8	8.1	9.3	4.3	2.5	3.4	0.3	0.1	0.2	0.1	0.1	0.1
21	11.2	9.0	10.2	5.1	2.8	3.8	0.3	0.1	0.2	0.1	0.1	0.1
22	10.2	8.9	9.7	5.4	3.7	4.6	0.3	0.1	0.2	0.1	0.1	0.1
23	10.7	8.9	9.9	6.0	5.0	5.5	0.5	0.1	0.2	0.1	0.1	0.1
24	9.8	4.6	7.4	5.9	4.4	5.4	0.2	0.1	0.1	0.1	0.1	0.1
25	4.6	2.0	3.0	4.4	2.7	3.6	0.2	0.1	0.1	0.1	0.1	0.1
26	3.0	0.7	1.9	2.7	0.0	0.7	0.2	0.1	0.1	0.2	0.1	0.1
27	3.3	0.5	1.9	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1
28	6.4	2.6	4.4	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1
29	6.3	4.9	5.6	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
30	7.0	5.1	6.0	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
31	9.4	6.7	8.1	---	---	---	0.2	0.1	0.1	0.1	0.1	0.1
MONTH	---	---	---	11.8	0.0	6.1	1.8	0.0	0.3	0.2	0.1	0.1

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	0.1	0.1	0.1	0.1	0.0	0.0	3.8	0.5	2.0	12.8	10.3	11.5
2	0.1	0.1	0.1	0.3	0.0	0.0	3.8	1.2	2.6	12.0	8.0	10.0
3	0.1	0.1	0.1	0.3	0.0	0.1	1.2	0.0	0.6	13.9	8.7	11.3
4	0.1	0.1	0.1	0.2	0.0	0.1	3.1	0.0	1.4	15.1	10.8	12.9
5	0.1	0.1	0.1	0.1	0.1	0.1	5.2	1.3	3.2	15.2	10.9	13.2
6	0.2	0.1	0.1	0.2	0.1	0.1	6.2	2.9	4.6	16.2	12.6	14.5
7	0.2	0.1	0.1	0.1	0.0	0.0	7.1	5.3	6.1	15.0	9.3	11.8
8	0.2	0.1	0.1	---	---	---	8.9	5.9	7.4	9.3	---	---
9	0.1	0.1	0.1	0.2	0.1	0.1	9.6	5.9	7.8	---	---	---
10	0.2	0.1	0.1	0.2	0.1	0.1	10.2	8.2	9.2	8.9	7.0	7.9
11	0.2	0.1	0.1	0.2	0.1	0.1	10.0	8.3	9.0	---	---	---
12	0.2	0.1	0.1	0.3	0.1	0.1	11.5	7.0	9.1	---	---	---
13	0.3	0.1	0.1	0.2	0.1	0.1	13.0	9.5	11.1	---	---	---
14	0.3	0.1	0.1	0.1	0.1	0.1	14.9	11.5	13.2	---	---	---
15	0.3	0.1	0.1	0.2	0.1	0.1	17.6	12.8	15.1	---	---	---
16	0.3	0.1	0.2	0.2	0.1	0.1	20.1	16.0	17.9	---	---	---
17	0.4	0.1	0.2	0.1	0.1	0.1	18.6	14.7	16.6	---	---	---
18	0.8	0.1	0.4	0.1	0.1	0.1	18.4	14.6	16.4	---	---	---
19	1.0	0.5	0.8	0.2	0.1	0.1	16.1	11.0	12.6	---	---	---
20	2.1	0.3	1.1	0.1	0.1	0.1	11.0	7.8	8.7	---	---	---
21	2.2	0.0	0.9	0.1	0.0	0.0	7.8	5.6	6.7	---	---	---
22	1.6	0.0	0.8	0.2	0.0	0.1	9.1	5.4	7.1	---	---	---
23	3.8	0.7	2.2	0.2	0.0	0.1	13.7	7.6	10.4	15.7	13.7	14.8
24	2.6	0.0	0.4	0.2	0.1	0.1	13.5	10.7	11.9	15.4	11.6	13.8
25	0.2	0.0	0.1	0.2	0.0	0.1	10.7	7.0	8.9	17.9	12.7	15.4
26	0.2	0.1	0.1	0.2	0.0	0.1	10.7	7.2	9.0	19.0	15.1	17.1
27	0.2	0.1	0.1	0.8	0.0	0.2	10.0	5.3	7.6	21.7	15.9	18.7
28	0.2	0.0	0.0	2.7	0.4	1.5	6.0	4.3	5.1	21.2	21.4	20.7
29	---	---	---	2.8	0.0	1.4	10.3	4.8	7.4	25.4	19.5	22.4
30	---	---	---	2.2	0.0	0.9	13.5	9.0	11.2	26.5	21.7	24.1
31	---	---	---	2.2	0.2	1.1	---	---	---	25.7	21.3	24.0
MONTH	3.8	0.0	0.3	---	---	---	20.1	0.0	8.7	---	---	---
JUNE				JULY			AUGUST			SEPTEMBER		
1	24.5	21.9	22.6	30.6	26.2	28.3	28.4	23.4	25.6	26.9	21.7	24.2
2	22.0	18.6	19.9	27.7	24.5	26.1	26.6	19.4	23.2	25.9	22.6	24.3
3	18.6	15.4	16.4	29.9	24.7	27.3	28.3	20.8	24.2	24.9	18.7	21.9
4	19.5	14.3	16.9	29.7	23.5	26.7	24.8	22.4	23.1	24.1	19.6	22.0
5	22.3	16.7	19.4	30.7	24.6	27.5	24.9	21.2	23.0	24.9	20.8	22.6
6	23.9	18.8	21.4	31.8	25.8	28.5	26.6	21.6	23.8	27.7	21.7	24.5
7	23.6	20.2	22.2	29.8	26.3	28.1	28.3	22.1	24.9	27.7	22.4	25.0
8	23.6	19.4	21.5	28.8	24.9	26.8	28.6	22.8	25.6	27.2	21.5	24.4
9	24.7	21.1	22.7	29.4	24.2	26.5	25.2	22.4	23.6	26.9	22.4	24.5
10	24.7	22.0	23.2	27.9	24.5	26.2	26.9	20.3	23.6	24.5	19.5	22.1
11	25.0	20.1	22.5	24.9	21.0	22.6	28.3	21.8	24.9	23.2	18.1	20.9
12	23.4	19.6	21.4	27.3	19.0	22.9	25.4	20.5	22.3	22.5	18.3	20.7
13	19.6	17.2	18.5	28.8	20.9	24.7	24.6	17.5	21.0	21.0	18.5	19.5
14	22.7	16.0	19.2	29.8	22.3	26.0	26.2	18.6	22.3	21.5	17.7	19.2
15	22.3	19.2	20.6	30.0	22.9	26.4	25.2	20.4	22.8	20.5	14.7	17.7
16	24.5	18.0	21.2	30.6	23.3	26.9	22.6	19.0	20.6	22.0	15.5	18.7
17	25.3	20.8	22.9	31.7	24.1	28.1	21.8	17.1	19.7	21.3	16.4	19.2
18	23.5	20.5	22.1	29.2	25.8	27.3	21.3	15.7	18.9	23.3	17.9	20.4
19	24.6	20.7	22.7	30.9	24.7	27.6	24.2	16.6	20.4	21.0	17.6	18.7
20	24.7	20.4	22.6	32.7	25.9	29.1	21.9	17.9	19.9	20.4	---	---
21	23.1	19.4	21.5	29.5	25.7	27.6	24.2	19.2	21.6	18.1	14.7	16.2
22	28.1	21.5	24.5	27.7	22.2	24.9	23.5	21.9	22.7	15.9	11.2	13.8
23	26.5	24.4	25.3	24.9	20.3	22.9	24.9	21.1	22.9	14.4	11.1	12.4
24	29.2	23.4	26.1	26.2	19.7	22.7	25.7	21.6	23.8	13.7	8.7	11.3
25	30.4	24.3	27.3	29.0	21.7	25.2	27.0	22.4	24.8	---	---	---
26	30.2	25.8	28.0	29.9	23.7	26.9	27.2	23.1	25.3	14.2	---	---
27	29.4	24.3	26.9	29.0	24.1	26.5	27.2	23.1	25.2	14.7	9.2	12.2
28	29.6	24.3	26.9	28.5	23.7	25.6	28.0	23.1	25.5	13.5	10.9	11.4
29	30.5	23.8	26.9	29.3	21.2	25.0	27.9	23.8	25.6	15.8	11.3	13.2
30	30.9	24.2	27.4	29.3	23.5	26.5	25.4	22.0	23.5	19.2	13.5	16.2
31	---	---	---	31.1	24.2	27.9	26.2	19.9	22.9	---	---	---
MONTH	30.9	14.3	22.7	32.7	19.0	26.3	28.6	15.7	23.1	---	---	---

BIG SIOUX RIVER BASIN

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	1100	1090	1100	1200	1170	1180	1300	1290	1300
2	---	---	---	1100	1080	1090	1270	1200	1250	1320	1300	1310
3	---	---	---	1100	1080	1090	1260	1220	1240	1330	1320	1320
4	---	---	---	1100	1080	1090	1220	1200	1210	1330	1320	1320
5	---	---	---	1100	1080	1090	1200	1180	1190	1320	1280	1300
6	---	---	---	1080	1070	1080	1210	1190	1200	1280	1260	1270
7	---	---	---	1080	1060	1070	1220	1190	1210	1270	1260	1270
8	---	---	---	1100	1060	1080	1220	1190	1210	1260	1230	1250
9	---	---	---	1120	1100	1110	1210	1170	1190	1230	1180	1210
10	---	---	---	1120	1100	1110	1180	1160	1170	1180	1160	1170
11	---	1080	---	1110	1100	1100	1170	1110	1140	1180	1150	1170
12	1090	1070	1080	1120	1100	1110	1150	1120	1140	1150	1140	1150
13	1070	1060	1070	1100	1080	1090	1150	1120	1140	1140	1130	1140
14	1070	1060	1070	1090	1080	1090	1150	1120	1140	1140	1130	1140
15	1070	1060	1070	1100	1090	1090	1150	1120	1140	1160	1130	1140
16	1080	1070	1070	1100	1090	1100	1120	1100	1110	1160	1140	1150
17	1080	1070	1080	1100	1090	1100	1140	1100	1120	1170	1150	1160
18	1080	1070	1070	1100	1080	1090	1130	1070	1110	1190	1150	1170
19	1070	1070	1070	1120	1080	1100	1170	1100	1130	1170	1160	1160
20	1080	1070	1080	1130	1120	1130	1160	1130	1140	1180	1160	1180
21	1080	1070	1080	1140	1110	1130	1170	1140	1160	1170	1160	1170
22	1080	1080	1080	1120	1110	1110	1180	1130	1150	1170	1150	1160
23	1100	1060	1080	1120	1070	1110	1230	1170	1180	1170	1150	1160
24	1110	1080	1110	1070	988	1040	1260	1230	1250	1190	1160	1170
25	1140	1110	1120	1040	976	1020	1280	1250	1260	1170	1160	1170
26	1160	1140	1150	1090	1040	1060	1280	1220	1250	1160	1150	1160
27	1160	1150	1150	1100	1070	1080	1260	1220	1240	1170	1140	1150
28	1160	1140	1150	1120	1100	1110	1260	1240	1250	1210	1160	1190
29	1140	1120	1130	1200	1090	1150	1250	1240	1250	1240	1200	1210
30	1130	1110	1120	1210	1170	1200	1260	1250	1250	1250	1230	1240
31	1130	1100	1120	---	---	---	1290	1260	1270	1260	1240	1250
MONTH	---	---	---	1210	976	1100	1290	1070	1190	1330	1130	1200
FEBRUARY			MARCH			APRIL			MAY			
1	1270	1250	1260	1090	974	1040	373	351	360	953	923	940
2	1310	1270	1300	1070	1000	1040	394	352	372	927	916	922
3	1280	1270	1280	1070	1010	1050	445	394	427	925	916	918
4	1300	1260	1280	1090	1060	1080	516	440	479	926	919	921
5	1290	1270	1280	1080	1060	1070	592	514	550	922	913	917
6	1280	1260	1270	1080	1070	1080	657	591	618	921	902	913
7	1270	1240	1250	---	1080	---	652	634	639	902	853	889
8	1240	1190	1220	---	---	---	679	655	666	853	837	847
9	1190	1170	1180	1130	1100	1110	708	679	697	---	615	---
10	1220	1170	1190	1150	1130	1150	737	708	722	656	616	630
11	1190	1140	1170	1170	1140	1150	784	737	760	---	---	---
12	1160	1140	1140	1140	1080	1110	807	784	798	---	---	---
13	1150	1110	1140	1080	1040	1060	835	807	819	---	---	---
14	1110	1060	1090	1090	1050	1060	854	835	845	---	---	---
15	1130	1060	1090	1090	1060	1070	878	853	864	---	---	---
16	1100	1050	1080	1090	1060	1080	894	876	883	---	---	---
17	1050	1020	1040	1060	1040	1050	901	893	897	---	---	---
18	1020	1010	1020	1040	963	1020	937	898	914	---	---	---
19	1010	968	984	1020	957	982	937	926	929	---	---	---
20	972	948	963	1100	1020	1060	930	925	927	---	---	---
21	976	933	957	1120	1060	1090	930	913	920	---	---	---
22	935	894	915	1100	1070	1090	940	918	930	---	---	---
23	904	866	891	1100	1070	1080	956	940	949	---	938	---
24	886	857	868	1090	1060	1070	961	952	958	945	936	940
25	915	886	902	1120	1060	1080	955	942	950	944	929	938
26	998	909	962	1120	1070	1090	951	922	944	942	922	934
27	999	955	970	1080	982	1050	951	932	943	929	907	923
28	988	969	975	996	649	854	940	930	933	927	909	920
29	---	---	---	804	663	705	959	940	952	919	890	910
30	---	---	---	717	494	628	957	947	951	905	894	899
31	---	---	---	494	372	442	---	---	---	907	896	902
MONTH	1310	857	1100	---	---	---	961	351	787	---	---	---

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	916	899	907	989	959	976	897	864	882	859	759	818
2	922	904	913	977	939	962	922	895	909	905	856	891
3	923	910	917	970	931	952	942	900	922	888	864	880
4	937	914	925	962	926	948	931	903	917	864	834	842
5	923	759	883	951	916	936	931	905	918	860	832	846
6	910	846	882	1080	916	974	909	808	842	856	838	847
7	925	906	913	1290	1080	1180	813	621	702	839	822	827
8	911	904	908	1390	1290	1350	784	640	716	825	811	817
9	931	905	922	1350	970	1110	856	781	821	828	808	817
10	940	906	924	1090	959	1020	904	854	878	834	816	827
11	912	901	907	1000	934	960	900	867	888	855	822	836
12	919	906	911	1080	998	1030	867	823	836	867	849	857
13	935	919	930	1080	1030	1050	849	818	831	878	855	866
14	936	891	924	1070	1030	1050	869	738	800	881	862	873
15	909	896	904	1080	945	1040	801	699	762	895	864	876
16	920	905	914	946	908	928	842	727	801	911	887	896
17	913	901	907	909	840	881	878	798	841	920	903	910
18	906	891	902	887	852	878	852	766	813	922	889	904
19	906	890	898	910	881	898	848	701	789	906	872	886
20	922	899	911	928	907	916	818	738	779	901	851	880
21	927	884	902	939	917	930	752	716	735	901	859	875
22	884	802	842	943	907	928	757	633	702	895	858	878
23	881	837	869	927	899	911	796	630	736	919	876	897
24	932	878	909	909	863	886	630	387	429	947	911	930
25	1010	927	968	898	853	873	509	419	465	---	---	---
26	1060	1000	1040	895	865	879	568	509	541	---	---	---
27	1070	1030	1060	907	870	888	630	568	607	975	933	952
28	1040	1010	1030	912	826	875	671	630	658	976	937	954
29	1010	984	1000	827	763	788	712	670	698	972	934	954
30	993	966	982	805	741	766	725	706	718	968	925	948
31	---	---	---	870	805	833	760	719	747	---	---	---
MONTH	1070	759	927	1390	741	955	942	387	764	---	---	---

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH		
1	---	---	8.6	8.5	8.0	8.0	7.8	7.8	7.7	7.7	7.9	7.9
2	---	---	8.7	8.5	8.0	8.0	7.8	7.8	7.8	7.7	7.9	7.8
3	---	---	8.7	8.5	8.0	8.0	7.8	7.8	7.8	7.8	7.8	7.8
4	---	---	8.7	8.5	8.0	8.0	7.8	7.8	7.8	7.8	7.8	7.8
5	---	---	8.8	8.5	8.1	8.0	7.8	7.8	7.8	7.7	7.8	7.8
6	---	---	8.8	8.5	8.1	8.1	7.8	7.8	7.8	7.8	7.8	7.8
7	---	---	8.8	8.6	8.1	8.1	7.8	7.8	7.8	7.8	7.8	7.8
8	---	---	8.8	8.6	8.1	8.1	7.8	7.8	7.9	7.8	---	---
9	---	---	8.7	8.6	8.1	8.1	7.9	7.7	7.9	7.9	---	---
10	---	---	8.7	8.5	8.1	8.1	7.8	7.7	7.9	7.9	---	7.7
11	8.6	---	8.7	8.5	8.2	8.1	7.8	7.8	8.0	7.9	7.8	7.7
12	8.6	8.5	8.6	8.4	8.2	8.2	7.8	7.8	8.0	7.9	7.8	7.7
13	8.6	8.5	8.6	8.4	8.2	8.2	7.8	7.8	8.0	7.9	7.9	7.8
14	8.6	8.5	8.5	8.3	8.2	8.2	7.8	7.8	8.0	8.0	7.9	7.9
15	8.7	8.6	8.5	8.3	8.2	8.2	7.8	7.8	8.1	8.0	8.0	7.8
16	8.7	8.6	8.5	8.3	8.2	8.2	7.8	7.8	8.1	8.0	8.0	7.9
17	8.7	8.6	8.4	8.3	8.2	8.2	7.8	7.8	8.1	8.0	8.0	7.9
18	8.7	8.6	8.4	8.3	8.2	8.2	7.8	7.7	8.2	8.1	8.0	7.9
19	8.7	8.6	8.4	8.3	8.2	8.2	7.7	7.7	8.2	8.1	8.0	8.0
20	8.7	8.6	8.4	8.4	8.2	8.2	7.7	7.7	8.2	8.2	8.1	8.0
21	8.8	8.6	8.4	8.3	8.2	8.2	7.7	7.7	8.2	8.2	8.1	7.9
22	8.8	8.7	8.4	8.3	8.2	8.2	7.7	7.7	8.2	8.2	8.0	8.0
23	8.8	8.7	8.4	8.3	8.2	8.2	7.8	7.7	8.2	8.2	8.0	7.9
24	8.8	8.6	8.3	8.2	8.2	8.1	7.8	7.7	8.3	8.2	8.0	7.9
25	8.7	8.6	8.2	8.2	8.1	8.0	7.8	7.7	8.2	8.1	8.0	7.9
26	8.7	8.6	8.2	8.2	8.0	7.9	7.8	7.8	8.2	8.1	8.0	7.9
27	8.6	8.5	8.2	8.1	7.9	7.9	7.8	7.8	8.1	8.0	8.0	8.0
28	8.6	8.5	8.1	8.0	7.9	7.8	7.8	7.8	8.0	7.8	8.0	8.0
29	8.6	8.5	8.0	8.0	7.8	7.8	7.8	7.7	---	---	8.1	8.0
30	8.7	8.5	8.0	8.0	7.8	7.8	7.8	7.7	---	---	8.1	8.0
31	8.7	8.5	---	---	7.8	7.8	7.8	7.7	---	---	8.0	7.9
MONTH	---	---	8.8	8.0	8.2	7.8	7.9	7.7	8.3	7.7	---	---

BIG SIOUX RIVER BASIN

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.9	7.8	8.4	8.3	8.4	8.1	8.2	7.9	8.8	8.2	8.6	8.1
2	7.8	7.8	8.5	8.4	8.4	8.1	8.2	8.0	8.8	8.4	8.4	8.0
3	7.9	7.8	8.6	8.4	8.4	8.2	8.6	8.0	8.7	8.4	8.2	7.9
4	7.9	7.9	8.6	8.4	8.7	8.3	8.7	8.3	8.5	8.1	8.2	7.8
5	8.0	7.9	8.5	8.4	8.6	8.2	8.5	8.0	8.4	8.0	8.3	7.8
6	8.1	8.0	8.6	8.4	8.4	8.1	---	---	8.6	8.1	8.6	7.8
7	8.0	8.0	8.5	8.4	8.4	8.1	---	---	8.6	8.1	8.7	7.8
8	8.1	8.0	---	---	8.3	8.1	---	---	8.6	7.9	8.4	7.8
9	8.1	8.1	---	---	8.5	8.2	---	---	8.4	8.0	8.0	7.6
10	8.1	8.1	7.8	7.8	8.4	8.2	---	---	8.6	8.0	7.8	7.6
11	8.1	8.1	7.8	7.8	8.5	8.1	---	---	8.7	8.1	7.7	7.5
12	8.2	8.1	---	---	8.4	8.2	---	---	8.7	8.2	7.7	7.6
13	8.2	8.1	---	---	8.6	8.2	---	---	8.8	8.2	7.7	7.6
14	8.2	8.2	---	---	8.6	8.3	---	---	8.9	8.5	7.8	7.6
15	8.2	8.2	---	---	8.6	8.2	---	---	8.9	8.3	7.8	7.7
16	8.3	8.2	---	---	8.6	8.3	---	---	8.9	8.4	8.0	7.7
17	8.4	8.2	---	---	8.6	8.2	8.9	---	9.0	8.4	8.1	7.8
18	8.4	8.3	---	---	8.4	8.1	8.7	8.3	8.9	8.6	8.1	7.8
19	8.5	8.4	---	---	8.4	8.0	8.8	8.2	8.8	8.4	8.1	7.8
20	8.6	8.4	---	---	8.4	8.1	8.9	8.3	8.8	8.5	8.7	7.8
21	8.5	8.4	---	---	8.3	8.1	8.7	8.4	8.8	8.1	8.7	8.1
22	8.5	8.4	---	---	8.5	8.0	8.8	8.2	8.6	7.7	8.6	8.1
23	8.5	8.4	8.4	---	8.4	8.2	8.8	8.4	8.5	7.7	8.5	8.1
24	8.5	8.4	8.5	8.4	8.4	8.1	8.8	8.3	7.9	7.6	8.4	8.1
25	8.6	8.4	8.5	8.3	8.4	8.2	9.0	8.4	8.0	7.6	---	---
26	8.5	8.4	8.6	8.3	8.5	8.2	9.0	8.5	8.4	7.7	8.5	---
27	8.5	8.4	8.6	8.4	8.4	8.1	8.9	8.5	8.8	8.1	8.6	8.2
28	8.4	8.3	8.6	8.3	8.4	8.1	8.7	8.3	8.9	8.5	8.5	8.1
29	8.4	8.3	8.5	8.3	8.5	8.1	8.3	7.9	8.8	8.4	8.5	8.0
30	8.4	8.3	8.5	8.2	8.4	8.1	8.6	8.0	8.6	8.2	8.6	8.2
31	---	---	8.4	8.2	---	---	8.8	8.0	8.6	8.2	---	---
MONTH	8.6	7.8	---	---	8.7	8.0	---	---	9.0	7.6	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	14.3	10.2	12.1	11.7	11.3	11.5	10.6	10.2	10.4
2	---	---	---	16.0	10.9	13.0	11.8	11.4	11.7	10.8	10.2	10.6
3	---	---	---	16.3	11.2	13.3	11.8	11.3	11.7	10.9	10.4	10.6
4	---	---	---	16.7	11.1	13.4	11.9	11.6	11.8	10.8	10.4	10.6
5	---	---	---	15.9	10.9	12.8	12.6	11.8	12.2	10.6	10.3	10.5
6	---	---	---	15.8	9.6	12.2	12.8	12.6	12.7	10.6	10.3	10.5
7	---	---	---	16.4	10.0	12.4	12.9	12.4	12.8	11.0	10.5	10.8
8	---	---	---	15.4	10.2	12.1	13.1	12.8	13.0	10.8	10.6	10.7
9	---	---	---	15.3	10.6	12.5	13.2	12.8	13.1	11.3	10.6	11.0
10	---	---	---	15.0	10.6	12.4	13.1	12.8	13.0	11.5	11.2	11.4
11	12.9	---	---	14.8	10.8	12.4	13.2	12.9	13.1	11.7	11.2	11.6
12	12.6	9.5	10.8	14.1	10.6	12.0	13.3	12.8	13.2	11.9	11.5	11.8
13	12.7	9.5	10.9	13.1	9.9	11.1	13.3	12.9	13.2	11.9	11.4	11.6
14	12.5	9.7	11.0	12.1	9.2	10.4	13.3	13.1	13.2	11.7	11.3	11.5
15	13.7	10.8	12.1	12.6	9.2	10.6	13.3	12.8	13.1	11.9	11.6	11.7
16	14.5	11.7	12.9	12.3	9.6	10.7	13.3	12.8	13.1	11.8	11.2	11.5
17	14.6	11.7	12.9	11.6	9.3	10.2	13.4	13.0	13.3	11.4	10.8	11.2
18	14.4	10.9	12.3	10.1	8.8	9.5	13.4	13.0	13.3	11.0	10.2	10.8
19	14.3	10.8	12.4	12.6	10.0	11.3	13.4	13.0	13.4	10.6	10.2	10.4
20	14.5	10.5	12.2	13.1	11.6	12.2	13.4	13.3	13.4	10.8	10.1	10.5
21	15.0	10.2	12.3	12.9	11.6	12.1	13.4	13.1	13.3	10.6	10.1	10.4
22	14.4	10.2	12.0	12.7	11.3	11.8	13.4	13.1	13.3	10.7	10.2	10.5
23	15.4	9.9	12.0	12.0	10.8	11.3	13.3	13.0	13.2	11.1	10.4	10.8
24	14.2	10.4	12.1	11.1	10.6	10.9	13.2	12.5	12.9	11.2	10.8	11.1
25	15.1	12.2	13.5	11.8	11.0	11.4	12.5	11.8	12.2	11.3	10.8	11.1
26	16.0	13.2	14.4	12.9	11.8	12.4	11.9	11.1	11.5	11.6	11.1	11.4
27	15.9	13.5	14.5	12.6	12.0	12.3	11.3	10.9	11.2	11.7	11.2	11.5
28	15.9	12.6	13.9	12.0	11.4	11.7	10.9	10.5	10.7	11.9	11.2	11.7
29	16.0	11.8	13.6	11.6	11.3	11.5	10.8	10.4	10.6	11.6	11.2	11.5
30	15.9	11.9	13.4	11.4	11.2	11.3	10.6	10.2	10.4	11.7	11.1	11.4
31	15.3	11.0	12.8	---	---	---	10.6	10.3	10.4	11.9	11.1	11.4
MONTH	---	---	---	16.7	8.8	11.8	13.4	10.2	12.4	11.9	10.1	11.0

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	11.5	11.0	11.3	12.9	11.9	12.6	12.4	11.2	12.0	10.5	9.3	9.9
2	12.2	11.5	11.9	13.0	12.4	12.8	12.5	11.0	11.6	12.0	9.6	10.6
3	12.0	11.3	11.7	12.7	12.3	12.5	13.1	12.5	12.9	11.5	9.6	10.5
4	12.3	11.6	12.0	12.5	12.1	12.3	13.0	12.3	12.8	11.5	8.8	10.0
5	12.4	11.4	12.0	12.2	11.8	12.1	12.8	10.7	11.7	10.7	8.9	9.7
6	12.7	11.9	12.3	12.5	11.9	12.3	11.1	10.6	10.9	11.0	8.3	9.5
7	12.9	12.1	12.4	12.8	---	---	10.6	10.3	10.5	10.4	8.5	9.4
8	13.0	12.2	12.6	---	---	---	10.4	10.1	10.3	---	---	---
9	12.5	12.0	12.3	---	12.2	---	10.7	10.2	10.5	---	---	---
10	13.2	12.2	12.7	13.3	12.4	12.9	10.3	9.8	10.1	9.7	8.9	9.3
11	13.1	12.4	12.7	13.2	12.1	12.8	10.2	9.4	9.9	---	8.6	---
12	13.4	12.3	12.9	13.2	12.0	12.7	10.9	10.1	10.4	---	---	---
13	13.2	12.3	12.8	13.5	12.6	13.1	10.1	9.5	9.9	---	---	---
14	12.8	12.0	12.3	13.0	12.2	12.8	9.8	9.0	9.4	---	---	---
15	13.3	12.1	12.7	13.3	11.5	12.3	9.7	8.6	9.1	---	---	---
16	13.4	12.3	12.8	13.6	12.5	13.0	9.4	8.0	8.6	---	---	---
17	13.2	12.1	12.6	13.4	12.3	12.8	10.4	7.7	8.9	---	---	---
18	12.9	12.0	12.4	13.6	12.4	13.0	10.4	8.3	9.3	---	---	---
19	12.7	12.0	12.3	13.5	12.6	13.2	11.9	8.8	10.2	---	---	---
20	12.8	12.3	12.5	14.2	13.0	13.6	13.1	10.3	11.5	---	---	---
21	12.8	12.2	12.5	14.7	13.2	13.8	13.3	11.0	12.1	---	---	---
22	12.8	12.0	12.3	14.6	13.4	13.9	13.6	11.3	12.4	---	---	---
23	12.3	11.6	12.0	14.3	13.2	13.6	12.8	10.5	11.6	10.8	---	---
24	12.3	11.6	12.1	14.4	13.2	13.7	11.5	9.4	10.5	12.2	9.2	10.6
25	12.5	12.0	12.2	15.0	13.6	14.2	13.0	10.3	11.6	12.4	9.3	10.7
26	12.2	11.8	12.0	15.1	13.7	14.3	13.0	10.4	11.8	12.9	8.7	10.5
27	11.9	11.2	11.7	14.7	12.7	13.9	11.6	10.4	11.1	14.0	8.7	11.1
28	12.1	11.1	11.5	14.1	12.7	13.4	13.5	11.6	12.4	12.2	7.9	9.9
29	---	---	---	13.9	12.6	13.3	12.8	11.3	12.3	12.5	7.5	9.6
30	---	---	---	13.4	12.3	13.1	11.7	10.4	11.0	11.3	6.5	8.7
31	---	---	---	12.8	12.4	12.6	---	---	---	10.3	6.2	7.9
MONTH	13.4	11.0	12.3	---	---	---	13.6	7.7	10.9	---	---	---
JUNE				JULY			AUGUST			SEPTEMBER		
1	9.8	6.3	7.9	---	---	---	15.0	4.9	9.6	13.5	5.7	9.1
2	10.3	6.8	8.6	---	---	---	16.9	6.1	11.2	12.6	4.8	9.0
3	11.5	7.8	9.3	12.2	---	---	15.7	6.0	9.5	12.4	6.0	8.7
4	16.2	9.3	12.7	13.6	5.5	9.0	9.6	4.2	6.7	12.0	5.4	8.1
5	14.5	9.0	11.7	14.8	5.8	9.9	14.0	5.3	9.0	12.0	4.1	7.2
6	12.4	7.4	9.8	13.6	4.7	8.5	12.5	5.6	8.7	15.2	2.0	7.2
7	10.6	6.5	8.5	---	---	---	12.6	5.5	8.4	17.0	2.6	9.0
8	9.7	5.8	7.4	---	---	---	14.2	5.0	8.7	15.9	3.4	8.7
9	10.7	6.0	8.1	---	---	---	---	4.4	---	---	---	---
10	10.5	5.9	7.9	---	---	---	---	---	---	---	---	---
11	12.0	5.8	8.5	---	---	---	---	---	---	---	---	---
12	9.5	6.1	8.0	---	---	---	---	---	---	---	---	---
13	12.4	7.2	9.8	---	---	---	---	---	---	---	---	---
14	14.9	8.1	11.3	---	---	---	16.9	---	---	---	---	---
15	13.5	7.1	10.0	---	---	---	19.0	5.5	11.6	---	---	---
16	14.4	7.5	10.6	---	---	---	---	6.2	---	---	---	---
17	12.4	6.4	9.3	17.5	---	---	18.0	6.5	11.9	---	---	---
18	10.6	6.1	8.2	---	---	---	19.4	6.9	13.0	---	---	---
19	9.3	5.6	7.5	---	---	---	23.7	6.2	14.1	---	---	---
20	10.5	6.1	8.1	---	---	---	17.3	5.6	11.4	16.0	---	---
21	8.9	6.0	7.3	---	---	---	16.5	4.5	9.5	15.3	6.8	10.6
22	10.5	6.0	7.9	---	---	---	11.5	1.9	6.7	15.2	8.2	11.4
23	8.3	4.9	6.6	---	---	---	10.9	2.3	6.7	14.6	8.5	11.3
24	10.9	5.4	7.6	14.9	---	---	6.8	3.8	5.4	14.4	9.7	11.9
25	10.9	5.0	7.6	17.6	4.7	10.0	8.6	5.5	6.8	---	---	---
26	11.8	4.6	7.8	---	---	---	11.0	5.9	7.8	17.8	---	---
27	12.3	4.4	7.9	---	---	---	8.0	---	---	18.4	10.4	14.0
28	12.5	4.6	7.7	---	---	---	---	---	---	13.1	9.8	11.5
29	11.7	5.0	7.8	---	---	---	---	---	---	18.1	9.4	12.9
30	---	---	---	---	---	---	11.2	---	---	18.8	9.1	13.1
31	---	---	---	16.4	---	---	13.9	6.7	9.6	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

BIG SIOUX RIVER BASIN

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	24	13	16	16	8.9	12	5.3	3.7	4.2
2	---	---	---	21	12	14	17	8.3	11	5.4	3.3	3.9
3	---	---	---	20	11	13	12	7.6	9.5	4.9	3.0	3.7
4	---	---	---	16	11	13	12	7.0	8.6	4.3	2.9	3.5
5	---	---	---	20	12	14	16	8.9	12	4.0	2.8	3.3
6	---	---	---	21	12	16	13	7.0	11	4.2	2.8	3.3
7	---	---	---	33	12	16	15	6.2	12	5.0	2.9	3.4
8	---	---	---	22	6.3	13	17	6.1	12	4.0	2.8	3.3
9	---	---	---	17	6.1	7.5	16	6.2	11	4.4	2.7	3.3
10	---	---	---	14	6.0	7.9	13	6.5	11	3.7	2.7	3.1
11	37	---	---	8.9	6.2	7.2	13	4.6	9.7	3.8	2.9	3.2
12	37	22	29	11	6.5	8.1	13	8.3	9.7	4.5	2.9	3.3
13	35	21	27	19	7.9	10	10	5.0	7.9	3.9	2.8	3.2
14	33	17	23	23	11	14	11	4.4	7.8	4.0	3.0	3.4
15	23	14	17	17	11	13	13	8.6	10	4.5	3.0	3.7
16	22	14	16	14	8.6	11	11	7.7	9.0	5.3	3.1	3.7
17	33	14	18	23	11	14	13	5.7	8.8	4.2	3.1	3.6
18	37	15	21	18	12	15	13	7.1	11	5.1	3.1	3.8
19	28	16	20	16	7.8	9.8	14	5.5	8.8	4.7	3.2	3.7
20	24	15	19	11	7.2	8.4	11	4.6	7.5	4.2	2.8	3.5
21	25	15	18	12	7.1	8.4	12	5.9	7.7	4.5	2.8	3.4
22	23	15	17	11	7.4	8.6	10	6.2	7.7	3.9	2.7	3.1
23	23	12	17	15	8.3	9.8	8.9	5.0	6.6	4.2	2.7	3.2
24	21	14	16	36	14	23	12	5.5	7.4	4.5	2.7	3.3
25	24	16	19	32	20	26	10	5.8	7.6	3.9	2.6	3.1
26	24	15	18	39	17	22	13	7.4	9.5	4.9	2.5	3.0
27	22	16	18	20	11	13	10	6.2	7.6	4.2	2.7	3.2
28	19	14	17	13	10	11	8.3	4.9	6.4	4.6	2.9	3.6
29	24	13	15	16	9.3	11	7.2	4.5	5.5	5.1	3.2	3.9
30	18	13	14	14	8.7	11	8.0	4.2	5.0	5.2	3.1	3.7
31	21	12	14	---	---	---	7.4	3.8	4.5	4.0	2.7	3.2
MONTH	---	---	---	39	6.0	13	17	3.8	8.9	5.4	2.5	3.4
FEBRUARY			MARCH			APRIL			MAY			
1	3.9	2.9	3.3	16	11	14	160	120	136	79	56	66
2	4.1	2.7	3.1	13	9.5	10	127	93	106	68	44	56
3	3.7	2.7	3.1	10	8.0	8.8	146	91	117	64	43	50
4	4.0	2.8	3.2	9.0	6.0	7.1	156	116	138	60	47	54
5	4.0	2.7	3.2	6.5	5.2	5.8	198	103	138	71	52	62
6	3.5	2.4	2.8	6.4	4.3	5.0	126	92	108	68	51	60
7	4.6	2.5	2.9	5.2	4.1	4.5	103	82	90	123	48	64
8	5.0	2.6	3.1	---	---	---	102	81	89	---	88	---
9	5.9	2.6	3.2	7.0	4.0	4.9	95	68	81	217	---	---
10	5.9	3.0	3.9	6.3	3.8	4.5	83	62	69	177	79	122
11	5.1	2.9	3.6	4.4	3.2	3.8	76	60	69	81	43	60
12	4.9	3.2	3.8	4.5	3.1	3.6	63	49	57	---	---	---
13	6.8	2.9	3.6	4.8	3.5	4.0	85	48	63	---	---	---
14	6.8	3.1	3.9	6.3	3.6	4.5	76	56	65	---	---	---
15	5.8	3.8	4.8	8.8	4.5	6.0	88	52	67	---	---	---
16	6.2	3.8	5.0	6.7	3.7	4.8	78	52	64	---	---	---
17	11	4.4	6.6	4.8	3.4	4.0	86	52	71	---	---	---
18	9.0	5.4	7.0	7.5	4.1	5.0	108	66	81	---	---	---
19	11	7.0	8.6	14	6.0	9.5	88	61	75	---	---	---
20	14	7.9	10	12	7.4	9.3	68	38	54	---	---	---
21	15	5.4	11	15	6.0	9.3	48	33	39	---	---	---
22	18	6.3	12	13	6.4	8.8	43	32	36	---	---	---
23	28	11	16	10	6.1	7.7	62	37	45	75	---	---
24	32	12	23	11	6.6	8.3	109	58	74	74	51	57
25	18	6.9	11	18	7.1	9.9	80	46	61	58	46	53
26	16	8.0	11	13	6.4	8.6	59	41	49	81	43	54
27	15	8.6	12	22	7.6	12	79	37	48	64	42	51
28	21	9.3	14	62	16	29	50	29	34	80	43	53
29	---	---	---	139	34	67	49	28	34	94	42	54
30	---	---	---	220	92	142	62	42	53	94	37	50
31	---	---	---	172	122	144	---	---	---	65	37	53
MONTH	32	2.4	7.1	---	---	---	198	28	74	---	---	---

[illegible]

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

SED.
SUSP.
SIEVE
DIAM.
% FINER
THAN
.062 MM
(70331)

MAY	2002	
23...		98
JUN		
07...		98
19...		--
JUL		
03...		99
13...		--
17...		--
30...		--
a30...		--
31...		99
AUG		
14...		--
30...		98
SEP		
20...		98

a Laboratory duplicate sample collected for water-quality purposes.

THIS PAGE IS INTENTIONALLY BLANK

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD

LOCATION.--Lat 43°47'25", long 96°44'42", in NW¹/₄ NW¹/₄ sec.29, T.104 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on left bank at downstream side of highway bridge, 0.2 mi downstream from confluence of divided channels, and 3.0 mi southwest of Dell Rapids.

DRAINAGE AREA.--4,483 mi², of which 1,479 mi² usually is noncontributing (213 mi² of the noncontributing area contributed runoff in the 1994-2001 water years).

PERIOD OF RECORD.--May 1948 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,455.99 ft above NGVD of 1929. Prior to Nov. 11, 1949, nonrecording gage and Nov. 11, 1949, to Sept. 30, 1951, water-stage recorder, at present site at datum 0.04 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	276	199	e210	e140	e100	e190	2100	736	350	224	80	140
2	272	193	e240	e130	e100	e185	2090	738	348	208	75	125
3	259	192	e270	e120	e101	e185	2250	693	359	188	73	117
4	254	190	e290	e115	e102	e175	2250	625	352	181	88	111
5	247	190	e280	e110	e102	e160	1680	581	349	170	99	107
6	243	187	278	e110	e102	e140	1210	523	350	165	117	101
7	240	181	294	e110	e103	e130	959	491	334	158	156	97
8	237	174	e300	e112	e103	e130	851	473	340	149	135	93
9	237	177	316	e115	e104	e130	806	566	315	149	157	84
10	253	172	326	e118	e105	e125	826	1130	294	130	170	78
11	256	170	328	e120	e106	e120	799	1680	281	122	143	77
12	258	170	339	e120	e108	e120	751	2040	256	121	135	74
13	267	172	305	e120	e111	e120	728	2140	239	112	125	77
14	264	171	330	e119	e114	e115	721	1790	239	109	115	77
15	258	171	318	e116	e118	e110	726	1440	232	104	102	70
16	252	171	317	e114	e128	e105	731	1220	225	100	101	68
17	249	172	297	e112	e140	e100	777	1030	219	92	93	67
18	243	167	e290	e112	e150	e110	831	882	213	87	88	75
19	238	161	e280	e111	e170	e115	826	763	197	85	83	66
20	237	162	e270	e111	e190	e120	802	676	184	86	82	64
21	233	163	e250	e111	e221	e120	732	606	218	81	387	63
22	228	160	e240	e113	e240	e110	684	562	350	76	329	62
23	227	170	e220	e114	e270	e110	670	525	427	72	215	58
24	214	226	e200	e113	e240	e110	653	495	444	76	212	59
25	203	274	e170	e110	e210	e115	646	456	418	81	253	60
26	211	e300	e175	e110	e190	e120	610	432	373	74	332	60
27	212	e270	e180	e110	e170	e120	587	413	327	74	291	57
28	218	e220	e175	e107	e200	e250	597	393	290	74	237	59
29	219	e170	e165	e104	---	e800	629	373	261	77	200	60
30	211	e160	e160	e102	---	2140	683	366	239	75	176	59
31	209	---	e150	e100	---	2070	---	364	---	80	158	---
TOTAL	7425	5655	7963	3529	4098	8750	29205	25202	9023	3580	5007	2365
MEAN	240	188	257	114	146	282	974	813	301	115	162	78.8
MAX	276	300	339	140	270	2140	2250	2140	444	224	387	140
MIN	203	160	150	100	100	100	587	364	184	72	73	57
AC-FT	14730	11220	15790	7000	8130	17360	57930	49990	17900	7100	9930	4690

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2002, BY WATER YEAR (WY)

MEAN	181	160	103	50.7	97.0	693	1480	746	751	480	271	208
MAX	1736	1365	665	294	586	2813	8439	3699	5392	5362	1914	2541
(WY)	1996	1996	1996	1996	1998	1985	1997	1986	1984	1993	1993	1986
MIN	1.60	3.43	2.30	0.71	1.30	10.6	45.3	42.6	19.4	2.77	0.17	0.000
(WY)	1977	1977	1977	1977	1977	1975	1959	1981	1976	1976	1976	1976

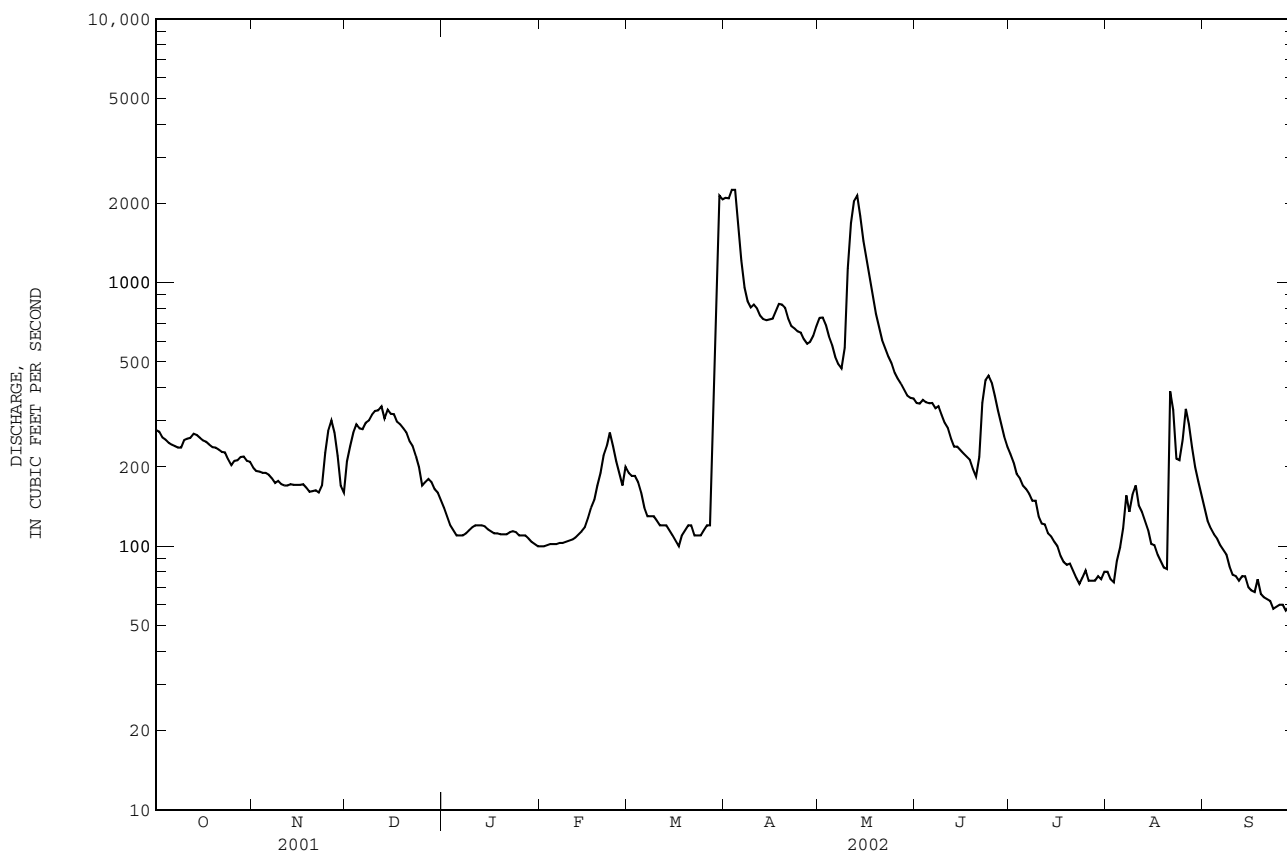
06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1949 - 2002	
ANNUAL TOTAL	406608		111802		435a	
ANNUAL MEAN	1114		306		1654	
HIGHEST ANNUAL MEAN					23.1	
LOWEST ANNUAL MEAN					35000	
HIGHEST DAILY MEAN	8650	Apr 24	2250	Apr 3	1654	1993
LOWEST DAILY MEAN	10	Feb 21	57	Sep 27	23.1	1959
ANNUAL SEVEN-DAY MINIMUM	11	Feb 21	59	Sep 23	0.00	Aug 25 1976b
MAXIMUM PEAK FLOW			2330	Apr 4	0.00	Aug 25 1976
MAXIMUM PEAK STAGE			8.90	Apr 4	41300	Apr 9 1969
ANNUAL RUNOFF (AC-FT)	806500		221800		16.47	Apr 9 1969
10 PERCENT EXCEEDS	3970		704		315300	
50 PERCENT EXCEEDS	318		185		1070	
90 PERCENT EXCEEDS	16		83		105	
					11	

a Median of annual mean discharges, 270 ft³/s.

b Also Aug. 26 to Oct. 17, 1976.

e Estimated.



LOCATION.--Lat 43°50'53", long 96°50'10", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.4, T.104 N., R.50 W., Minnehaha County, Hydrologic Unit 10170203, on right bank near downstream of county highway bridge, 5.6 mi southeast of Chester.

DRAINAGE AREA.--53.2 mi².

PERIOD OF RECORD.--August 1984 to September 1987, October 2001 to September 2002.

GAGE.--Water-stage recorder. Datum of gage is 1,557.23 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.3	e6.0	e1.6	e1.2	e1.5	84	22	1.1	0.52	0.37	0.64
2	1.2	1.1	e5.5	e1.7	e1.2	e1.4	69	21	1.0	0.51	0.37	0.64
3	1.2	1.1	e6.0	e1.9	e1.2	e1.3	45	19	1.0	0.51	0.62	0.61
4	1.1	1.0	8.0	e2.0	e1.3	e1.4	35	12	1.1	0.47	0.56	0.59
5	1.1	1.0	10	e2.2	e1.4	e1.5	29	13	1.2	0.47	0.42	0.60
6	1.2	1.3	13	e1.9	e1.6	e1.4	25	9.2	1.1	0.47	0.88	0.57
7	1.1	1.2	13	e1.7	e2.0	e1.3	21	8.7	1.1	0.46	0.64	0.55
8	1.2	1.0	12	e1.8	e2.5	e1.3	23	17	1.3	0.49	0.52	0.53
9	1.4	1.0	11	e2.0	e2.4	e1.2	21	35	1.8	0.50	0.54	0.63
10	2.2	1.0	11	e2.3	e2.4	e1.1	19	23	1.9	0.53	0.59	0.58
11	3.1	1.0	9.7	e2.7	e2.3	e1.2	22	16	1.3	0.51	0.52	0.50
12	2.7	1.0	10	e2.8	e2.2	e1.4	25	23	0.98	0.49	1.1	0.51
13	2.0	1.1	9.5	e3.4	e2.2	e1.6	24	24	0.92	0.46	0.69	0.63
14	1.8	1.1	8.3	e3.4	e2.2	e1.6	26	21	0.83	0.45	0.58	0.55
15	1.8	1.1	9.1	e3.2	e2.5	e1.5	26	16	0.74	0.44	0.54	0.50
16	1.4	1.1	13	e3.0	2.8	e1.7	26	14	0.73	0.44	0.58	0.49
17	1.5	1.2	12	e2.7	3.0	e2.2	53	13	0.76	0.44	0.57	0.49
18	1.6	1.4	11	e2.2	3.3	e3.0	44	10	0.75	0.47	0.52	0.69
19	1.4	1.2	9.7	e2.3	3.8	e3.1	29	7.9	0.76	0.46	0.51	0.52
20	1.7	1.1	9.1	e2.3	3.9	e3.1	21	6.4	0.75	0.43	0.74	0.48
21	1.3	1.1	7.8	e2.4	4.5	e2.8	22	4.9	1.8	0.51	26	0.50
22	1.1	1.1	6.4	e2.4	4.7	e2.7	27	4.6	2.5	0.49	41	0.50
23	1.1	1.5	e4.5	e2.2	5.1	e2.6	25	3.9	1.7	0.44	30	0.51
24	1.4	15	e3.0	e2.0	4.8	e2.6	26	3.8	1.1	0.72	17	0.50
25	1.4	23	e2.0	e2.0	e4.0	e2.6	23	3.9	1.1	0.68	5.9	0.57
26	1.0	15	e1.8	e2.4	e3.5	e2.8	13	3.1	0.90	0.46	2.0	0.55
27	1.0	17	e1.9	e2.0	e2.5	3.6	9.7	2.4	0.76	0.46	1.2	0.50
28	1.1	12	e2.0	e1.4	e2.0	35	28	2.1	0.68	0.59	0.79	0.55
29	1.2	e8.5	e1.8	e1.3	---	93	29	1.9	0.61	0.45	0.69	0.53
30	1.1	e7.0	e1.7	e1.2	---	107	26	1.6	0.55	0.42	0.69	0.54
31	1.1	---	e1.6	e1.2	---	87	---	1.3	---	0.40	0.66	---
TOTAL	44.7	123.5	231.4	67.6	76.5	375.5	895.7	364.7	32.82	15.14	137.79	16.55
MEAN	1.44	4.12	7.46	2.18	2.73	12.1	29.9	11.8	1.09	0.49	4.44	0.55
MAX	3.1	23	13	3.4	5.1	107	84	35	2.5	0.72	41	0.69
MIN	1.0	1.0	1.6	1.2	1.2	1.1	9.7	1.3	0.55	0.40	0.37	0.48
AC-FT	89	245	459	134	152	745	1780	723	65	30	273	33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1987, 2002, BY WATER YEAR (WY)

	MEAN	60.0	23.1	13.2	6.96	8.87	124	169	102	56.0	53.6	12.0	53.2
MAX	210	71.2	37.5	22.2	22.9	270	284	304	191	154	38.5	256	
(WY)	1987	1987	1987	1987	1987	1985	1986	1986	1986	1986	1986	1986	1986
MIN	1.44	1.28	0.73	0.56	0.61	12.1	29.9	11.8	1.09	0.49	1.09	0.55	
(WY)	2002	1986	1986	1986	1986	2002	2002	2002	2002	2002	1985	2002	

06481480 SKUNK CREEK NEAR CHESTER, SD--Continued

SUMMARY STATISTICS

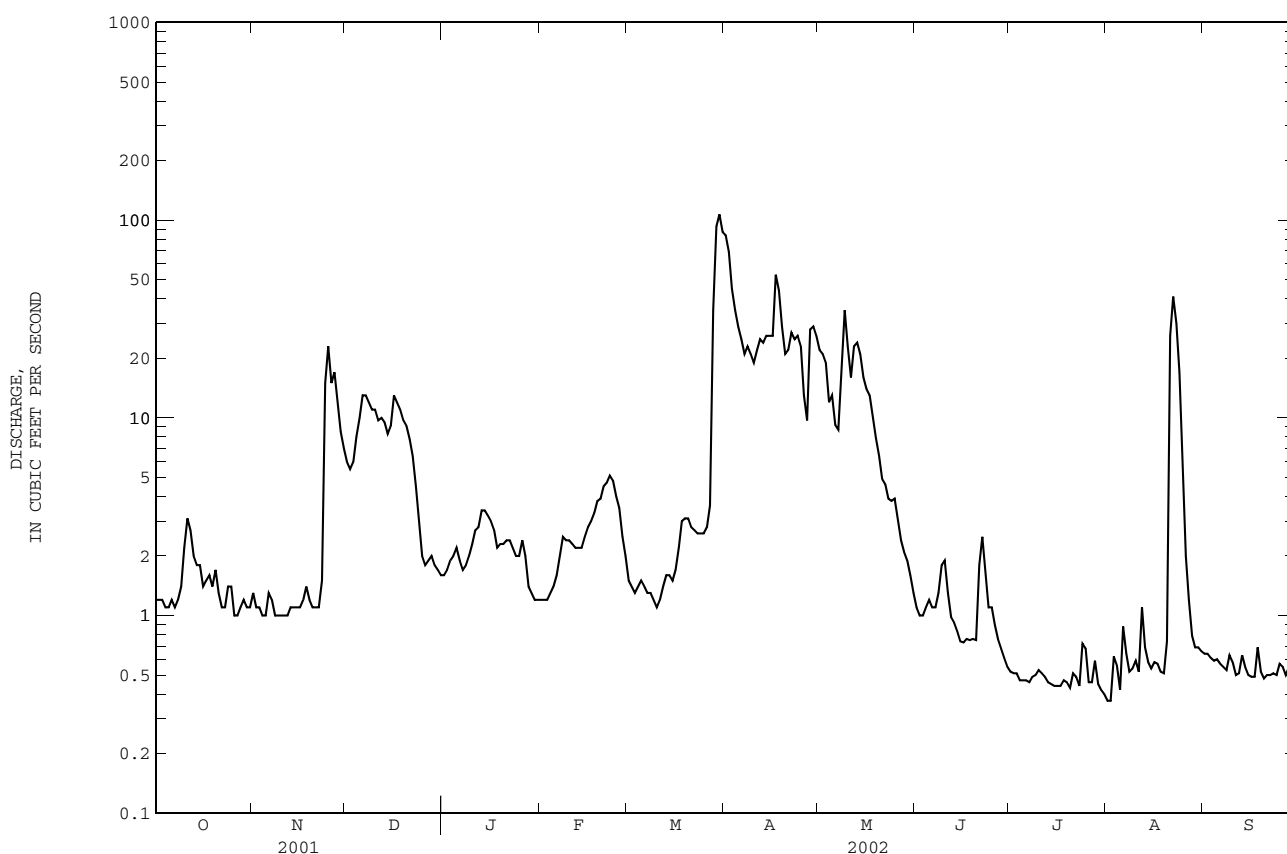
FOR 2002 WATER YEAR

WATER YEARS 1984 - 1987, 2002

ANNUAL TOTAL	2381.90			
ANNUAL MEAN	6.53		58.0	
HIGHEST ANNUAL MEAN			110	1986
LOWEST ANNUAL MEAN			6.53	2002
HIGHEST DAILY MEAN	107	Mar 30	813	Sep 22 1986
LOWEST DAILY MEAN	0.37	Aug 1	0.37	Aug 1 2002a
ANNUAL SEVEN-DAY MINIMUM	0.44	Jul 27	0.44	Jul 27 2002
MAXIMUM PEAK FLOW	150	Mar 29	1060	Sep 21 1986
MAXIMUM PEAK STAGE	3.72	Mar 29	6.95	Sep 21 1986
ANNUAL RUNOFF (AC-FT)	4720		42000	
10 PERCENT EXCEEDS	22		208	
50 PERCENT EXCEEDS	1.6		8.1	
90 PERCENT EXCEEDS	0.51		0.67	

a Also Aug. 2, 2002.

e Estimated.



LOCATION.--Lat 43°32'01", long 96°47'26", in NW¹/₄ NW¹/₄ SW¹/₄ sec.24, T.101 N., R.50 W., Minnehaha County, Hydrologic Unit 10170203, on left bank 5 ft downstream from bridge on Marion Road, 1.3 mi upstream from mouth, 1.8 mi downstream from small right-bank tributary, and 4.0 mi southwest of Sioux Falls.

DRAINAGE AREA.--622 mi², of which 8.51 mi² is probably noncontributing.

PERIOD OF RECORD.--May 1948 to September 2001 (daily discharge). October 2001 to September 2002 (daily gage height). May 1948 to September 1971 (published as "near Sioux Falls").

REVISED RECORDS.--WDR SD-84-1: Drainage area.

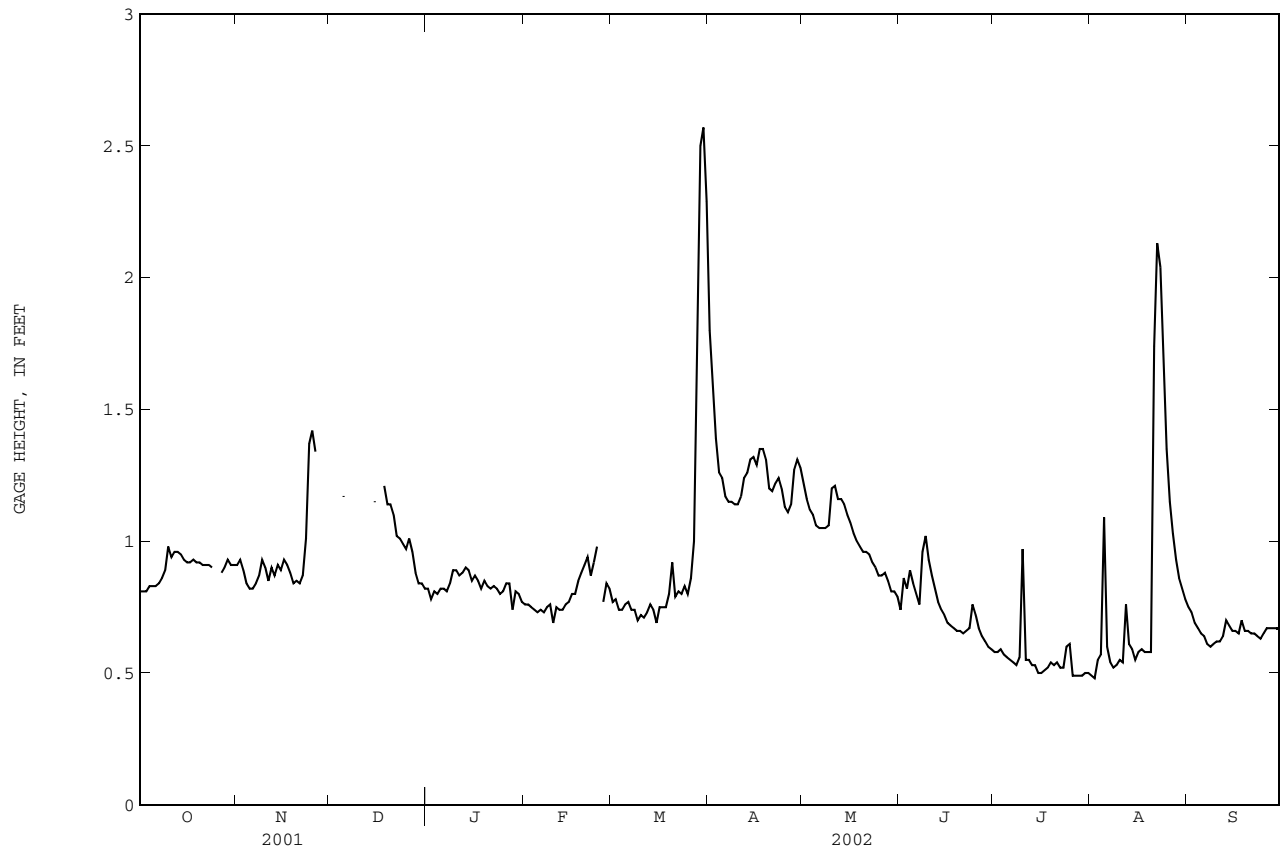
GAGE.--Water-stage recorder. Datum of gage is 1,405.10 ft above NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Oct. 24, 1949, nonrecording gage, and Oct. 24, 1949, to Apr. 28, 1972, water-stage recorder, both at site 1.9 mi upstream at datum 10.19 ft higher, and from Apr. 28, 1972, to May 18, 1987, near right end of bridge at same site and datum.

REMARKS.--Published stage records good. U.S. Army Corps of Engineers satellite data-collection platform at station.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.81	0.91	---	0.82	0.76	0.77	1.80	1.22	0.74	0.58	0.49	0.75
2	0.81	0.93	---	0.78	0.76	0.78	1.59	1.16	0.86	0.58	0.48	0.73
3	0.81	0.89	---	0.81	0.75	0.74	1.39	1.12	0.82	0.59	0.55	0.69
4	0.83	0.84	---	0.80	0.74	0.74	1.26	1.10	0.89	0.57	0.57	0.67
5	0.83	0.82	1.17	0.82	0.73	0.76	1.24	1.06	0.84	0.56	1.09	0.65
6	0.83	0.82	---	0.82	0.74	0.77	1.17	1.05	0.80	0.55	0.60	0.64
7	0.84	0.84	---	0.81	0.73	0.74	1.15	1.05	0.76	0.54	0.54	0.61
8	0.86	0.87	---	0.84	0.75	0.74	1.15	1.05	0.96	0.53	0.52	0.60
9	0.89	0.93	---	0.89	0.76	0.70	1.14	1.06	1.02	0.56	0.53	0.61
10	0.98	0.90	---	0.89	0.69	0.72	1.14	1.20	0.93	0.97	0.55	0.62
11	0.94	0.85	---	0.87	0.75	0.71	1.17	1.21	0.87	0.55	0.54	0.62
12	0.96	0.90	---	0.88	0.74	0.73	1.24	1.16	0.82	0.55	0.76	0.64
13	0.96	0.87	---	0.90	0.74	0.76	1.26	1.16	0.77	0.53	0.61	0.70
14	0.95	0.91	---	0.89	0.76	0.74	1.31	1.14	0.74	0.53	0.59	0.68
15	0.93	0.89	1.15	0.85	0.77	0.69	1.32	1.10	0.72	0.50	0.55	0.66
16	0.92	0.93	---	0.87	0.80	0.75	1.29	1.07	0.69	0.50	0.58	0.66
17	0.92	0.91	---	0.85	0.80	0.75	1.35	1.03	0.68	0.51	0.59	0.65
18	0.93	0.88	1.21	0.82	0.85	0.75	1.35	1.00	0.67	0.52	0.58	0.70
19	0.92	0.84	1.14	0.85	0.88	0.80	1.31	0.98	0.66	0.54	0.58	0.66
20	0.92	0.85	1.14	0.83	0.91	0.92	1.20	0.96	0.66	0.53	0.58	0.66
21	0.91	0.84	1.10	0.82	0.94	0.79	1.19	0.96	0.65	0.54	1.74	0.65
22	0.91	0.87	1.02	0.83	0.87	0.81	1.22	0.95	0.66	0.52	2.13	0.65
23	0.91	1.01	1.01	0.82	0.92	0.80	1.24	0.92	0.67	0.52	2.04	0.64
24	0.90	1.37	0.99	0.80	0.98	0.83	1.20	0.90	0.76	0.60	1.66	0.63
25	---	1.42	0.97	0.81	---	0.80	1.13	0.87	0.72	0.61	1.35	0.65
26	---	1.34	1.01	0.84	0.77	0.86	1.11	0.87	0.67	0.49	1.15	0.67
27	0.88	---	0.96	0.84	0.84	1.00	1.14	0.88	0.64	0.49	1.03	0.67
28	0.90	---	0.88	0.74	0.82	1.87	1.27	0.85	0.62	0.49	0.93	0.67
29	0.93	---	0.84	0.81	---	2.50	1.31	0.81	0.60	0.49	0.86	0.67
30	0.91	---	0.84	0.80	---	2.57	1.28	0.81	0.59	0.50	0.82	0.67
31	0.91	---	0.82	0.77	---	2.29	---	0.79	---	0.50	0.78	---
MEAN	---	---	---	0.83	---	0.97	1.26	1.02	0.75	0.55	0.85	0.66
MAX	---	---	---	0.90	---	2.57	1.80	1.22	1.02	0.97	2.13	0.75
MIN	---	---	---	0.74	---	0.69	1.11	0.79	0.59	0.49	0.48	0.60

06481500 SKUNK CREEK AT SIOUX FALLS, SD--Continued



BIG SIOUX RIVER BASIN

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD

LOCATION.--Lat 43°34'01", long 96°42'39", in SW¹/₄ NW¹/₄ sec.10, T.101 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on right bank 20 ft downstream from bridge on North Cliff Avenue and 4.1 mi upstream from Slip Up Creek.

DRAINAGE AREA.--5,216 mi², of which 1,487 mi² usually is noncontributing (213 mi² of the noncontributing area contributed runoff in the 1994-2002 water years).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1962 to September 1971 (gage heights and discharge measurements only in files of U.S. Army Corps of Engineers). October 1971 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,294.18 ft above NGVD of 1929 (levels by U.S. Army Corps of Engineers). Prior to Dec. 15, 1971, nonrecording gage 20 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow is regulated by a flood-control diversion channel, which starts 16.1 river miles upstream from gage, just north of Foss Air Field, and rejoins the river 0.4 mi upstream from gage since July 1961. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 10, 1969, reached a stage of 27.45 ft, discharge, 40,700 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	284	222	e252	e175	e150	e220	2100	878	346	145	43	128
2	264	231	e270	e170	e145	e210	2040	878	459	126	40	123
3	270	216	291	e165	e140	e200	2060	835	371	118	69	110
4	260	210	338	e160	e140	e200	2100	783	387	110	118	86
5	237	203	441	e160	e137	205	1840	718	352	105	431	83
6	268	199	388	e160	e137	203	1340	653	335	98	110	80
7	237	200	377	e165	137	177	1110	615	323	91	95	78
8	219	200	343	175	140	174	997	607	472	85	103	75
9	235	203	366	188	150	161	925	585	361	88	94	71
10	306	204	409	194	132	e155	927	872	313	582	133	67
11	254	204	393	197	147	156	959	1420	281	113	123	60
12	246	200	414	198	156	158	919	1720	251	98	315	62
13	278	195	366	209	146	170	911	1890	230	89	100	78
14	299	188	351	210	156	180	914	1750	214	81	86	79
15	280	245	400	204	164	138	916	1430	197	72	78	68
16	273	183	425	e195	170	e150	912	1220	183	67	72	61
17	259	192	374	e187	186	e160	919	1080	174	63	66	58
18	255	193	388	e185	227	e167	987	950	185	60	63	104
19	246	e190	298	e185	242	e170	992	848	157	52	61	70
20	254	e195	296	e182	257	e170	953	762	159	52	61	61
21	255	200	310	e188	247	e150	955	689	137	53	1810	55
22	253	198	271	191	e230	e165	850	650	182	50	833	54
23	247	335	187	176	300	e180	828	602	309	43	622	54
24	233	893	e200	178	330	e190	817	544	362	66	444	51
25	224	535	e210	183	171	194	778	507	366	136	325	55
26	221	440	e215	189	e140	198	745	507	312	62	334	60
27	226	329	e220	186	e220	260	822	486	245	51	330	58
28	235	274	e215	173	e220	606	785	444	207	47	257	56
29	237	226	e200	e165	---	1170	796	410	182	42	188	60
30	228	e240	e190	e160	---	1940	843	375	162	41	176	58
31	231	---	e180	e155	---	2270	---	360	---	43	161	---
TOTAL	7814	7743	9578	5608	5117	10847	33040	26068	8214	2929	7741	2163
MEAN	252	258	309	181	183	350	1101	841	274	94.5	250	72.1
MAX	306	893	441	210	330	2270	2100	1890	472	582	1810	128
MIN	219	183	180	155	132	138	745	360	137	41	40	51
AC-FT	15500	15360	19000	11120	10150	21520	65530	51710	16290	5810	15350	4290

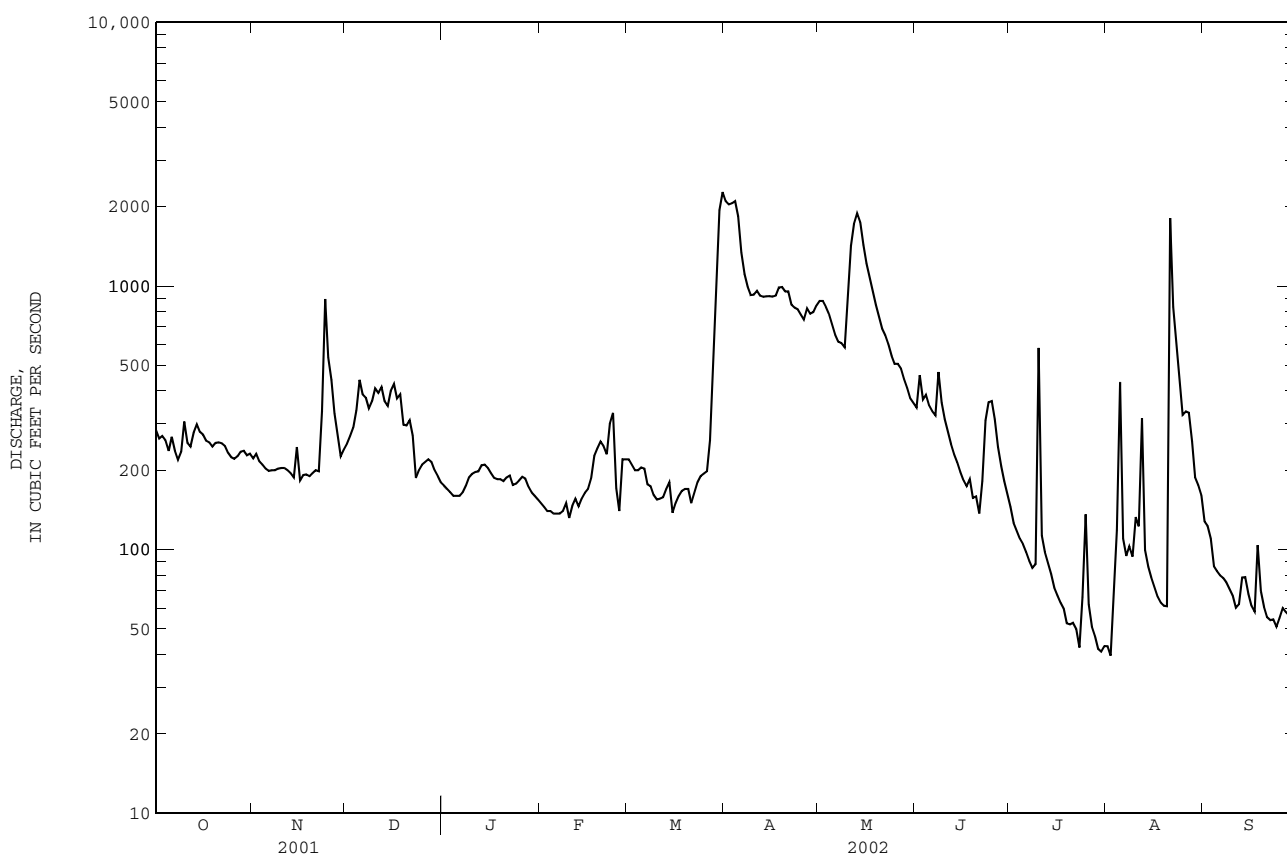
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2002, BY WATER YEAR (WY)

	MEAN	330	309	203	106	188	1117	2075	1271	1195	873	457	382
MAX	1869	1528	793	437	798	3479	9974	4516	6880	8612	2528	3468	
(WY)	1996	1996	1999	1996	1983	1985	1997	1986	1984	1993	1993	1986	
MIN	15.9	17.4	15.0	6.26	10.2	31.7	40.8	54.4	31.6	19.4	20.3	16.7	
(WY)	1989	1977	1990	1982	1989	1975	1990	1977	1976	1976	1976	1976	

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1972 - 2002	
ANNUAL TOTAL	496797		126862		710a	
ANNUAL MEAN	1361		348		2312	
HIGHEST ANNUAL MEAN					50.4	
LOWEST ANNUAL MEAN					20700	
HIGHEST DAILY MEAN	12000	Apr 24	2270	Mar 31	20700	Jun 22 1984
LOWEST DAILY MEAN	15	Feb 18	40	Aug 2	0.81	Feb 13 1982
ANNUAL SEVEN-DAY MINIMUM	16	Feb 20	44	Jul 27	1.3	Feb 8 1982
MAXIMUM PEAK FLOW			2910	Aug 21	21600	Jun 22 1984
MAXIMUM PEAK STAGE			12.01	Aug 21	25.40	Jun 22 1984
ANNUAL RUNOFF (AC-FT)	985400		251600		514100	
10 PERCENT EXCEEDS	4610		874		1850	
50 PERCENT EXCEEDS	388		204		214	
90 PERCENT EXCEEDS	22		67		25	

a Median of annual mean discharges, 560 ft³/s.
e Estimated.



06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1972 to September 1981, October 2001 to September 2002.
Sediment records: Periodic samples taken October 2001 to September 2002.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 2001 to September 2002.
SPECIFIC CONDUCTANCE: October 2001 to September 2002.
pH: October 2001 to September 2002.
DISSOLVED OXYGEN: October 2001 to September 2002.
TURBIDITY: October 2001 to September 2002.

REMARKS.--Daily records are collected at 15-minute intervals using multi-parameter water-quality instrument. Satellite data-collection platform at station. Interruptions in daily records due to probes fouling and/or instrument malfunctions.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	11.2	9.7	10.4	1.7	0.1	0.6	0.7	0.0	0.3
2	---	---	---	9.6	7.9	8.9	2.3	0.3	0.9	0.6	0.0	0.2
3	---	---	---	9.9	8.3	8.9	2.2	0.0	0.8	0.9	0.0	0.4
4	---	---	---	9.8	8.4	9.1	2.1	0.3	1.2	1.3	0.2	0.8
5	---	---	---	10.9	8.9	9.9	3.8	1.9	2.8	1.6	0.3	1.0
6	---	---	---	12.9	10.9	11.8	2.4	1.1	1.7	0.6	0.1	0.4
7	---	---	---	12.7	10.7	11.5	2.5	1.1	1.7	1.3	0.0	0.6
8	---	---	---	10.8	7.7	9.4	1.7	0.5	1.1	1.8	0.3	1.1
9	---	---	---	8.4	7.1	7.6	2.0	0.3	1.0	1.7	0.5	1.2
10	---	---	---	7.9	6.7	7.4	2.0	0.7	1.3	1.3	0.2	1.0
11	---	---	---	8.2	6.8	7.5	2.6	1.0	1.7	1.9	0.3	1.1
12	---	---	---	9.2	7.1	8.2	2.1	1.2	1.7	1.6	0.3	0.9
13	---	---	---	11.8	9.2	10.7	1.8	0.6	1.2	1.0	0.4	0.7
14	---	---	---	13.4	11.6	12.5	2.2	0.5	1.3	1.1	0.1	0.5
15	---	---	---	11.9	10.4	11.0	2.9	0.7	2.0	1.3	0.0	0.7
16	---	---	---	11.7	9.9	10.6	3.1	1.7	2.5	1.3	0.2	0.7
17	---	8.9	---	12.2	10.4	11.4	2.0	0.9	1.5	1.2	0.1	0.6
18	10.7	9.1	9.8	11.6	8.7	10.7	1.9	0.8	1.4	1.0	0.0	0.5
19	10.6	8.9	9.8	8.7	5.0	6.5	1.6	0.0	0.8	1.1	0.0	0.6
20	11.3	9.5	10.5	6.6	4.5	5.4	1.9	0.2	0.9	---	0.0	---
21	12.0	10.4	11.3	7.2	4.3	5.7	1.3	0.1	0.7	1.6	0.0	0.8
22	11.6	10.5	11.0	7.1	5.1	6.2	0.5	0.0	0.2	1.9	0.3	1.0
23	11.5	10.5	11.0	9.0	5.8	7.0	0.5	0.0	0.2	1.4	0.0	0.8
24	10.8	6.4	9.1	8.5	5.8	7.7	0.8	0.0	0.3	1.8	0.0	0.9
25	6.4	3.7	4.6	5.8	4.2	4.9	0.3	0.0	0.0	1.8	0.2	1.0
26	4.5	2.8	3.7	4.2	0.0	1.5	0.7	0.0	0.4	1.8	0.1	1.0
27	5.2	3.0	4.2	---	0.0	---	0.7	0.2	0.4	1.5	0.1	0.6
28	7.2	4.7	5.9	1.3	0.1	0.7	0.9	0.0	0.4	0.6	0.0	0.3
29	7.8	6.8	7.2	1.1	0.3	0.7	0.7	0.0	0.4	0.7	0.0	0.4
30	8.4	7.0	7.7	1.5	0.3	0.8	0.4	0.0	0.1	0.9	0.1	0.4
31	10.3	8.4	9.6	---	---	---	0.7	0.0	0.2	0.8	0.1	0.5
MONTH	---	---	---	---	0.0	---	3.8	0.0	1.0	---	0.0	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	1.5	0.0	0.7	0.8	0.0	0.4	4.1	1.8	3.0	13.7	10.6	12.0
2	1.6	0.0	0.7	0.9	0.0	0.5	3.6	2.4	3.1	11.9	8.8	10.5
3	1.0	0.0	0.4	0.9	0.0	0.4	2.6	1.2	1.9	13.8	10.2	12.1
4	1.5	0.0	0.6	1.5	0.0	0.6	3.4	1.2	2.0	14.9	12.0	13.5
5	2.0	0.3	0.9	2.3	0.3	1.1	4.8	1.9	3.2	15.7	12.9	14.3
6	2.4	0.1	1.2	1.4	0.0	0.7	6.3	3.4	5.0	17.8	14.4	16.1
7	2.7	0.3	1.4	0.9	0.4	0.6	7.7	5.9	6.7	16.7	12.8	14.5
8	2.8	0.6	1.5	1.1	---	---	9.4	6.8	8.2	12.8	11.4	12.4
9	1.4	0.0	0.9	1.1	0.0	0.5	10.5	7.0	8.8	11.4	9.3	10.3
10	1.7	0.0	0.6	1.2	0.0	0.6	12.3	9.2	10.6	10.9	9.4	10.0
11	1.7	0.1	0.8	2.0	0.1	0.8	12.0	10.1	10.9	9.8	8.7	9.1
12	1.9	0.0	1.0	2.5	0.6	1.3	12.5	9.2	10.8	9.6	8.5	9.0
13	2.6	0.1	1.3	1.8	0.5	1.2	13.5	11.2	12.2	12.2	8.8	10.3
14	2.4	0.3	1.4	---	---	---	14.5	12.2	13.3	14.2	11.0	12.5
15	2.7	0.3	1.8	2.5	0.2	1.1	17.9	13.5	15.6	16.6	13.3	14.8
16	2.9	0.4	1.7	2.5	0.0	1.2	19.4	17.0	18.1	16.2	14.0	15.0
17	2.9	0.4	1.6	1.8	0.4	1.0	18.6	16.0	17.6	15.4	12.4	14.0
18	2.7	0.6	1.7	1.9	0.1	1.1	19.2	16.4	17.7	15.9	13.2	14.6
19	1.9	1.0	1.5	2.2	0.2	1.2	17.8	13.4	14.6	16.2	13.6	15.0
20	2.6	0.8	1.6	3.0	0.3	1.1	13.4	10.0	11.1	16.8	14.0	15.5
21	3.5	0.3	1.7	1.8	0.0	0.7	10.0	7.3	8.0	16.8	14.5	15.7
22	2.7	0.7	1.9	2.7	0.1	1.1	10.4	7.2	8.6	17.1	14.7	16.0
23	4.8	1.6	2.9	2.5	0.3	1.1	14.5	9.6	11.8	17.0	15.6	16.4
24	2.8	0.4	2.0	2.1	0.0	0.7	14.6	12.1	13.2	15.9	14.3	15.4
25	1.1	0.0	0.4	2.7	0.0	1.4	12.1	9.2	10.7	17.7	15.0	16.3
26	1.1	0.0	0.6	2.9	0.4	1.3	11.7	9.1	10.6	20.0	17.3	18.2
27	1.8	0.0	0.7	6.2	0.3	2.5	11.3	7.4	9.4	21.4	18.0	19.7
28	1.6	0.0	0.7	3.3	2.3	2.9	7.4	6.4	6.9	22.8	20.4	21.8
29	---	---	---	3.8	1.1	2.7	11.5	6.6	8.8	25.1	22.0	23.3
30	---	---	---	3.7	1.3	2.5	13.7	10.7	12.2	26.2	23.9	24.9
31	---	---	---	3.2	1.2	2.3	---	---	---	25.1	23.7	24.3
MONTH	4.8	0.0	1.2	---	---	---	19.4	1.2	9.8	26.2	8.5	15.1
	JUNE			JULY			AUGUST			SEPTEMBER		
1	24.6	22.8	23.6	29.4	26.4	27.7	28.1	24.7	26.4	25.8	22.9	23.8
2	22.8	18.5	20.7	---	---	---	29.0	22.4	25.3	25.2	22.4	24.2
3	19.7	17.1	18.6	---	---	---	30.1	23.2	25.7	24.5	21.0	22.4
4	19.4	15.2	17.7	---	---	---	26.1	24.6	25.2	24.9	20.6	22.5
5	21.5	18.5	19.8	---	---	---	24.6	22.7	23.5	26.1	21.8	23.4
6	23.0	20.3	21.4	---	---	---	25.8	---	---	---	---	---
7	22.7	21.0	21.8	---	---	---	27.2	23.0	24.9	---	---	---
8	23.9	20.0	22.2	---	---	---	26.9	24.0	25.3	---	---	---
9	24.8	23.0	23.5	---	---	---	25.3	23.6	24.3	---	---	---
10	24.8	23.3	23.9	---	---	---	26.4	22.8	24.5	25.3	21.2	---
11	24.9	22.6	23.7	---	---	---	26.0	22.7	24.4	24.3	20.3	22.2
12	24.4	22.6	23.2	25.5	---	---	24.1	20.5	21.4	23.1	20.0	21.3
13	22.7	19.5	21.1	26.8	22.1	24.2	23.8	19.4	21.4	21.1	19.5	20.3
14	21.7	18.4	20.2	28.0	22.8	25.3	24.5	19.5	22.0	21.8	18.5	20.0
15	22.6	20.7	21.3	28.9	23.4	26.0	24.9	21.3	22.9	21.1	17.0	19.1
16	23.6	20.1	21.7	29.7	24.2	26.6	---	---	---	22.1	16.3	18.9
17	24.8	20.6	23.1	30.9	24.8	27.4	22.9	19.4	21.1	21.8	17.7	19.7
18	24.4	22.3	23.4	31.6	26.9	28.8	22.3	18.1	20.3	21.6	18.3	19.9
19	---	22.7	---	31.9	27.1	29.4	24.5	18.7	21.2	19.8	18.3	19.0
20	25.0	23.0	23.7	32.6	27.4	29.7	22.8	19.4	20.8	21.6	17.6	19.3
21	25.5	---	---	31.5	27.1	28.8	---	20.2	---	18.7	16.2	17.7
22	27.6	23.7	25.4	29.6	25.1	27.2	23.5	22.2	22.8	18.4	14.2	16.4
23	27.7	24.8	26.2	28.8	23.3	25.7	24.2	22.8	23.5	16.3	13.2	14.8
24	27.9	25.1	26.5	27.7	23.2	24.4	25.2	23.0	23.9	15.3	12.2	14.0
25	28.8	26.1	27.3	28.0	22.8	25.0	26.5	23.5	25.0	15.0	13.4	14.1
26	29.2	27.2	28.1	30.1	24.9	27.4	---	24.3	---	15.9	12.5	14.0
27	28.6	26.2	27.4	30.1	25.1	27.3	26.6	24.4	25.2	16.7	11.8	14.1
28	28.6	26.3	27.5	---	25.5	---	26.8	24.4	25.2	14.2	12.6	13.7
29	28.8	26.0	27.3	31.3	24.9	28.1	26.1	24.2	24.9	16.8	13.9	15.0
30	29.4	26.2	27.6	32.1	25.4	28.3	24.4	23.0	23.8	20.0	14.7	17.0
31	---	---	---	31.4	25.8	28.3	24.8	22.4	23.4	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

BIG SIOUX RIVER BASIN

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	1200	1100	1170	1420	1130	1200	1490	1440	1470
2	---	---	---	1180	1060	1120	1900	1190	1320	1500	1430	1470
3	---	---	---	1110	1020	1080	1360	1150	1220	1510	1460	1490
4	---	---	---	1070	1020	1040	1410	1120	1190	1750	1450	1510
5	---	---	---	1100	966	1030	1180	976	1050	1520	1390	1460
6	---	---	---	1140	1060	1120	1020	913	970	1390	1370	1380
7	---	---	---	1150	1080	1120	1290	1010	1110	1410	1350	1390
8	---	---	---	1170	994	1080	1210	1100	1150	1460	1310	1400
9	---	---	---	1040	865	947	1170	1070	1120	1390	1320	1360
10	---	---	---	929	729	835	1180	1100	1150	1340	1220	1300
11	---	---	---	874	737	809	1220	1120	1170	1320	1230	1290
12	---	---	---	798	730	772	1210	1120	1180	1310	1180	1260
13	---	---	---	827	768	799	1230	1170	1200	1460	1180	1260
14	---	---	---	828	779	809	1260	1140	1220	1300	1220	1260
15	---	---	---	840	777	808	1260	1140	1210	1300	1210	1270
16	---	---	---	885	802	854	1190	1160	1170	1290	1210	1260
17	---	---	---	895	829	875	1210	1140	1180	1260	1200	1240
18	1120	1060	1090	906	835	866	1240	1130	1200	1280	1200	1240
19	1160	1060	1120	989	882	941	1260	1200	1240	1340	1210	1260
20	1160	1080	1130	1010	927	982	1320	1170	1260	1250	1200	1240
21	1140	1080	1130	1010	947	991	1610	1200	1330	1260	1190	1240
22	1190	1070	1170	1020	966	997	1260	1180	1230	1280	---	---
23	1230	970	1130	1020	337	791	1470	1200	1290	1250	1190	1230
24	1040	950	992	539	385	452	1420	1310	1370	1250	1190	1230
25	978	893	937	825	446	637	1350	1290	1310	1260	1200	1240
26	937	784	869	1510	825	1040	1370	1300	1330	1260	1170	1210
27	975	737	872	---	1210	---	1360	1300	1340	1180	1130	1150
28	924	822	874	1360	1080	1250	1390	1300	1360	1220	1130	1190
29	917	865	889	1180	1100	1150	1410	1350	1390	1240	1180	1220
30	963	883	935	1450	1100	1230	1400	1360	1380	1270	1200	1240
31	1220	915	1140	---	---	---	1450	1360	1410	1550	1210	1300
MONTH	---	---	---	---	337	---	1900	913	1230	1750	---	--
FEBRUARY			MARCH			APRIL			MAY			
1	1970	1220	1380	1160	1030	1110	530	393	470	814	790	807
2	1910	1250	1360	2790	1070	1410	529	504	518	823	805	818
3	1330	1250	1300	1230	1120	1180	519	440	472	824	813	819
4	1340	1230	1320	2010	1170	1360	466	421	443	818	797	807
5	1340	1260	1310	1740	1210	1320	525	418	466	800	792	798
6	1360	1250	1320	1320	1160	1260	614	522	568	820	792	809
7	1340	1220	1300	3510	1210	1290	675	600	637	820	798	813
8	1290	1200	1260	---	---	---	750	664	713	864	816	841
9	2180	1190	1330	2520	1360	1580	797	710	767	876	856	866
10	2900	470	1290	2820	1410	1590	810	772	792	876	856	868
11	1760	1290	1400	3970	1290	1730	872	758	822	856	721	792
12	1540	1300	1410	1900	1390	1550	905	798	867	767	712	744
13	1360	1230	1290	1590	1360	1470	914	806	893	745	706	722
14	1270	1130	1230	1980	1280	1440	959	895	933	800	745	770
15	1200	1120	1170	3290	1230	1740	1050	957	999	860	800	833
16	1170	1050	1110	2500	1470	1750	1070	979	1050	873	853	864
17	1100	1020	1070	1860	1520	1660	1100	999	1050	895	863	882
18	1080	1000	1060	2170	1370	1490	1120	1050	1080	912	894	904
19	1080	1000	1040	2240	1460	1770	1100	1050	1080	921	904	912
20	1040	979	1010	1550	1340	1470	1100	1050	1070	958	920	939
21	1030	943	1000	1540	1190	1300	1610	1010	1100	958	931	946
22	1030	927	992	1290	1100	1190	1090	1050	1070	958	890	935
23	1010	913	960	1220	1000	1130	1090	1050	1080	925	872	903
24	5260	906	1260	1100	1030	1070	1090	1060	1080	888	848	873
25	1180	989	1070	1120	1030	1080	1080	1050	1070	858	823	839
26	1190	1040	1130	1160	1050	1130	1110	1070	1100	1730	823	880
27	1200	1070	1140	1150	651	1010	1110	820	943	872	810	831
28	1130	1030	1090	980	602	778	1020	832	934	882	855	874
29	---	---	---	602	413	490	1060	793	970	885	868	874
30	---	---	---	431	400	419	820	805	814	916	884	899
31	---	---	---	419	364	389	---	---	---	917	893	913
MONTH	5260	470	1200	---	---	---	1610	393	862	1730	706	851

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	914	880	901	938	875	913	1670	1270	1500	786	687	755
2	880	769	823	966	---	---	1720	1570	1660	814	768	787
3	877	814	839	---	---	---	1680	398	1460	875	796	835
4	897	768	866	---	---	---	851	623	716	963	---	---
5	926	884	909	---	---	---	853	241	443	1010	963	990
6	926	878	913	---	---	---	792	422	634	---	985	---
7	935	857	912	---	---	---	899	742	858	---	---	---
8	926	136	672	---	---	---	934	861	906	---	---	---
9	810	731	785	---	---	---	987	753	955	---	---	---
10	890	807	853	---	---	---	913	630	789	1140	943	1070
11	945	881	910	---	---	---	683	408	655	1230	1110	1200
12	978	928	954	1070	---	---	622	418	524	1250	1080	1180
13	976	894	937	1140	1040	1090	808	585	692	1130	874	1030
14	961	902	941	1160	1030	1080	915	802	871	1090	922	1000
15	955	890	928	1230	1100	1160	985	896	945	1100	958	1020
16	949	904	923	1290	1180	1240	1040	914	991	1170	965	1060
17	982	782	942	1320	1240	1300	1090	980	1050	1230	1110	1190
18	979	791	947	1370	1240	1340	1080	998	1030	1250	173	898
19	992	938	975	1420	1310	1380	1080	987	1050	1100	705	984
20	981	772	930	1410	1260	1330	1100	936	1060	1180	1050	1130
21	---	924	---	1370	844	1250	936	94	246	1260	1150	1220
22	1030	854	975	1460	---	---	501	303	436	1260	1110	1200
23	962	871	912	1560	1460	1530	584	474	523	1280	1090	1230
24	900	846	888	1600	---	---	632	574	600	1280	1160	1240
25	898	847	871	932	648	819	748	632	696	1260	799	1190
26	890	812	858	1040	839	952	832	717	778	1210	1060	1160
27	858	789	822	1160	1010	1080	---	---	---	1190	1080	1140
28	818	758	802	1240	1050	1110	---	---	---	1240	1100	1210
29	883	816	854	1460	1210	1340	910	817	865	1200	1040	1150
30	902	853	882	1500	1390	1450	855	679	747	1190	1070	1160
31	---	---	---	1530	1370	1480	736	652	694	---	---	---
MONTH	---	136	---	---	---	---	---	---	---	---	---	---

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	8.4	8.2	8.2	8.1	8.0	8.0	8.1	8.0	8.4	8.3
2	---	---	8.4	8.2	8.2	8.1	8.0	8.0	8.1	8.0	8.4	8.3
3	---	---	8.4	8.2	8.2	8.1	8.0	7.9	8.1	8.1	8.4	8.3
4	---	---	8.4	8.2	8.2	8.1	8.0	8.0	8.1	8.0	8.4	8.2
5	---	---	8.4	8.2	8.4	8.1	8.0	8.0	8.1	8.0	8.3	8.2
6	---	---	8.4	8.1	8.2	8.1	8.1	8.0	8.2	8.1	8.4	8.2
7	---	---	8.4	8.1	8.3	8.1	8.0	8.0	8.2	8.1	---	---
8	---	---	8.5	8.1	8.2	8.1	8.1	8.0	8.2	8.1	---	---
9	---	---	8.5	8.3	8.2	8.2	8.1	8.0	8.2	8.1	8.3	8.2
10	---	---	8.7	8.3	8.2	8.2	8.1	8.0	8.2	8.1	8.3	8.2
11	---	---	8.6	8.4	8.2	8.2	8.1	8.0	8.2	8.1	8.3	8.2
12	---	---	8.6	8.4	8.3	8.2	8.1	8.0	8.2	8.1	8.3	8.2
13	---	---	8.6	8.3	8.2	8.2	8.1	8.0	8.2	8.1	8.3	8.2
14	---	---	8.6	8.2	8.3	8.1	8.1	8.0	8.3	8.2	---	---
15	---	---	8.6	8.3	8.3	8.2	8.1	8.0	8.3	8.2	8.3	8.2
16	---	---	8.5	8.2	8.3	8.2	8.1	8.0	8.3	8.2	8.3	8.1
17	---	---	8.6	8.3	8.3	8.2	8.1	8.0	8.3	8.2	8.2	8.2
18	8.6	8.4	8.5	8.3	8.2	8.2	8.1	8.0	8.3	8.2	8.2	8.1
19	8.7	8.4	8.7	8.3	8.2	8.2	8.1	8.0	8.3	8.2	8.2	8.1
20	8.7	8.4	8.8	8.6	8.2	8.2	8.1	8.0	8.4	8.2	8.2	8.1
21	8.7	8.4	8.7	8.6	8.2	8.2	8.1	8.0	8.4	8.3	8.4	8.2
22	8.6	8.3	8.8	8.5	8.2	8.2	8.1	8.0	8.4	8.3	8.4	8.3
23	8.5	---	8.7	8.1	8.2	8.1	8.1	8.0	8.4	8.3	8.4	8.3
24	8.5	8.2	8.2	8.0	8.2	8.1	8.1	8.0	8.4	8.3	8.5	8.3
25	8.5	8.3	8.1	7.9	8.2	8.1	8.1	8.0	8.4	8.2	8.5	8.4
26	8.5	8.3	8.0	7.9	8.1	8.1	8.2	8.0	8.4	8.3	8.5	8.3
27	8.5	8.3	---	8.0	8.2	8.1	8.2	8.1	8.4	8.3	8.4	8.2
28	8.5	8.3	8.2	8.1	8.1	8.1	8.2	8.1	8.4	8.3	8.2	8.1
29	8.5	8.3	8.2	8.1	8.1	8.0	8.1	8.0	---	---	8.1	8.0
30	8.5	8.3	8.2	8.1	8.1	8.0	8.2	8.0	---	---	8.1	8.0
31	8.4	8.2	---	---	8.0	8.0	8.1	8.1	---	---	8.0	8.0
MONTH	---	---	---	7.9	8.4	8.0	8.2	7.9	8.4	8.0	---	---

BIG SIOUX RIVER BASIN

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	8.0	8.0	8.4	8.3	8.6	8.1	8.5	8.1	8.6	7.9	8.6	8.2
2	8.1	8.0	8.4	8.2	8.4	8.0	8.4	8.1	8.6	7.9	8.6	8.2
3	8.1	8.0	8.2	8.0	8.4	8.3	8.6	8.2	8.6	7.9	---	---
4	8.0	8.0	8.0	7.9	8.6	8.3	8.6	---	8.1	7.8	---	---
5	8.1	8.0	7.9	7.8	8.6	8.3	---	---	8.3	7.9	---	---
6	8.2	8.1	7.8	7.7	8.6	8.2	---	---	8.3	7.9	---	---
7	8.2	8.2	7.8	7.8	8.5	8.2	---	---	8.6	8.0	---	---
8	8.3	8.2	7.8	7.8	8.5	8.1	---	---	8.7	8.3	---	---
9	8.3	8.2	7.8	7.8	8.3	8.0	---	---	8.6	8.2	---	---
10	8.3	8.3	7.8	7.8	8.2	8.0	---	---	8.8	8.1	8.4	8.0
11	8.3	8.3	7.9	7.8	8.3	8.0	---	---	8.8	8.3	8.5	8.0
12	8.4	8.3	7.9	7.9	8.5	8.1	8.5	---	8.6	7.9	8.5	8.1
13	8.4	8.3	7.9	7.7	8.4	8.2	8.5	8.1	8.4	7.9	8.2	8.0
14	8.5	8.3	7.7	7.6	8.5	8.2	8.5	8.1	8.7	8.1	8.3	8.0
15	8.5	8.3	7.8	7.5	8.5	8.2	8.5	8.1	8.6	8.1	8.5	---
16	8.5	8.4	8.4	7.8	8.5	8.2	8.5	8.0	8.4	8.0	8.6	8.1
17	8.5	8.3	8.5	8.4	8.5	8.1	8.5	8.0	8.6	7.9	8.6	8.1
18	8.5	8.3	8.6	8.4	8.4	8.2	8.5	7.9	8.6	8.0	8.6	7.9
19	8.6	8.4	8.6	8.5	8.4	8.2	8.5	7.9	8.6	8.0	8.4	7.9
20	8.6	8.5	8.7	8.5	8.4	8.1	8.3	7.9	8.5	8.0	8.6	8.0
21	8.6	8.5	8.7	8.5	8.3	8.1	8.6	7.9	8.5	7.9	8.5	8.1
22	8.7	8.5	8.6	8.3	8.4	8.1	8.6	7.8	8.0	7.9	8.5	---
23	8.7	8.4	8.6	8.3	8.5	8.2	8.7	7.8	8.0	8.0	8.5	8.1
24	8.6	8.4	8.6	8.3	8.6	8.2	8.6	7.8	8.2	8.0	8.5	---
25	8.6	8.4	8.5	8.3	8.7	8.2	8.4	7.9	8.3	8.0	8.4	---
26	8.6	8.4	8.4	8.0	8.7	8.2	8.8	7.8	8.5	8.1	8.5	8.1
27	8.4	8.3	8.1	7.8	8.7	8.2	8.8	7.9	8.5	8.3	8.5	8.1
28	8.6	8.4	8.1	7.7	8.5	8.2	8.7	7.8	8.6	8.2	8.3	8.1
29	8.6	8.5	8.3	8.0	8.4	8.2	8.7	7.8	8.5	8.2	8.5	8.1
30	8.6	8.4	8.2	7.9	8.4	8.1	8.6	7.8	8.4	8.1	8.6	8.1
31	---	---	8.5	8.0	---	---	8.6	7.8	8.6	8.2	---	---
MONTH	8.7	8.0	8.7	7.5	8.7	8.0	---	---	8.8	7.8	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	13.7	10.9	11.9	14.1	13.7	13.9	16.0	14.7	15.2
2	---	---	---	14.3	11.4	12.7	14.0	13.6	13.8	16.2	14.8	15.3
3	---	---	---	14.5	11.7	12.7	14.2	13.7	13.9	15.9	14.6	15.0
4	---	---	---	14.8	11.6	12.8	14.1	13.4	13.8	16.1	14.4	14.9
5	---	---	---	14.6	11.0	12.5	13.6	12.9	13.2	16.0	14.4	15.0
6	---	---	---	14.0	10.4	11.4	14.0	13.6	13.8	16.3	14.7	15.3
7	---	---	---	13.8	10.0	11.5	14.0	13.5	13.9	16.3	14.7	15.3
8	---	---	---	12.3	10.0	10.9	14.6	13.8	14.2	---	13.3	---
9	---	---	---	12.2	10.0	10.7	14.5	14.1	14.3	14.8	13.2	13.7
10	---	---	---	12.3	10.0	10.8	14.4	13.9	14.2	14.7	13.4	13.9
11	---	---	---	12.3	10.0	10.8	14.2	13.8	14.0	15.0	13.5	14.1
12	---	---	---	12.0	9.6	10.6	14.4	13.7	14.0	15.2	13.6	14.2
13	---	---	---	11.5	8.9	9.9	14.6	14.1	14.2	14.7	13.5	13.9
14	---	---	---	11.0	8.7	9.3	14.5	14.0	14.2	14.9	13.7	14.1
15	---	---	---	11.2	8.9	9.8	14.3	13.6	14.0	15.4	13.9	14.4
16	---	---	---	11.1	9.2	9.8	14.3	13.6	13.9	15.4	13.9	14.5
17	---	---	---	10.9	8.5	9.4	14.6	13.2	13.7	15.6	14.0	14.5
18	12.8	10.6	11.3	9.8	8.3	9.0	14.2	13.2	13.6	15.8	14.2	14.7
19	13.1	10.6	11.6	11.7	9.2	10.6	14.5	13.6	14.0	15.4	13.9	14.5
20	13.3	10.6	11.5	12.4	10.5	11.3	14.6	13.8	14.1	---	14.0	---
21	13.8	10.5	11.6	11.9	10.3	10.9	14.8	13.8	14.2	15.6	14.0	14.6
22	13.5	10.5	11.6	11.6	10.2	10.7	14.8	13.9	14.2	15.6	14.0	14.6
23	12.6	9.9	11.1	11.6	8.2	10	15.0	13.9	14.3	15.9	14.2	14.9
24	12.5	10.1	11.0	10.9	9.2	9.8	15.3	14.3	14.6	15.7	14.4	14.9
25	13.7	11.5	12.7	11.2	10.8	11.0	15.5	14.5	14.8	16.0	14.3	14.8
26	14.4	12.6	13.4	12.6	11.1	12.0	15.5	14.3	14.7	15.8	14.2	14.8
27	14.4	12.6	13.3	13.0	12.3	12.6	15.3	14.3	14.6	15.9	14.3	15.0
28	14.1	12.0	12.9	14.2	12.9	13.4	15.4	14.2	14.7	15.6	14.6	15.0
29	14.0	12.0	13.0	13.9	13.7	13.8	15.6	14.5	14.8	15.9	14.6	15.1
30	14.4	11.7	12.7	13.8	13.5	13.7	16.0	14.7	15.1	15.7	14.6	15.0
31	13.7	11.0	12.0	---	---	---	16.0	14.7	15.1	15.3	14.4	14.7
MONTH	---	---	---	14.8	8.2	11.2	16.0	12.9	14.2	---	13.2	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	15.5	14.3	14.8	15.9	14.8	15.3	14.6	13.7	14.1	11.8	9.9	10.9
2	15.6	14.2	14.8	15.9	14.8	15.2	14.5	13.9	14.2	13.0	10.8	11.9
3	15.8	14.5	15.0	16.0	14.8	15.3	15.0	14.1	14.6	12.8	10.3	11.6
4	15.9	14.6	15.1	15.5	14.6	14.9	14.8	14.0	14.5	13.0	10.3	11.5
5	15.7	14.5	14.9	15.8	14.4	15.0	14.6	13.4	14.1	12.6	9.8	11.2
6	15.4	14.3	14.7	16.1	14.5	15.1	13.7	12.5	13.2	12.4	9.5	10.8
7	15.4	14.3	14.7	15.4	14.7	15.0	12.7	12.1	12.5	12.0	9.5	10.7
8	15.4	14.2	14.6	---	---	---	12.6	11.8	12.2	11.7	9.7	10.5
9	14.9	14.0	14.5	16.0	---	---	12.8	11.4	12.2	12.7	9.8	11.6
10	15.7	14.7	15.1	16.2	14.9	15.5	12.2	11.0	11.8	12.3	9.4	10.8
11	15.4	14.3	14.8	15.8	14.6	15.1	11.9	11.0	11.4	---	---	---
12	15.5	14.4	14.8	15.7	14.3	14.9	12.7	11.1	12.0	---	---	---
13	15.5	14.2	14.9	16.0	14.2	14.9	12.2	10.9	11.5	---	---	---
14	15.3	14.1	14.6	---	14.4	---	12.0	10.5	11.2	---	---	---
15	15.6	14.1	14.8	15.4	14.3	14.9	11.8	9.7	10.9	---	---	---
16	15.5	14.1	14.7	15.6	14.5	14.9	11.2	9.5	10.2	---	---	---
17	15.5	13.8	14.7	15.3	14.4	14.8	---	---	---	---	---	---
18	15.4	13.8	14.5	15.6	14.3	14.8	---	---	---	---	---	---
19	15.1	14.0	14.5	15.0	14.1	14.5	---	---	---	---	---	---
20	15.2	14.2	14.6	15.4	14.3	14.7	---	---	---	---	---	---
21	15.4	14.3	14.8	15.8	14.7	15.2	---	---	---	---	---	---
22	15.4	13.9	14.7	15.6	14.7	15.1	---	---	---	11.0	---	---
23	14.9	13.4	14.1	15.6	14.5	14.9	---	---	---	11.2	8.7	9.9
24	14.7	13.5	14.0	15.7	14.5	15.0	---	---	---	11.6	9.2	10.3
25	15.6	14.2	15.0	15.6	14.6	15.1	---	---	---	11.6	8.7	10.1
26	---	---	---	15.5	14.2	14.9	---	---	---	10.9	8.2	9.4
27	15.7	14.7	15.2	15.3	12.8	14.0	---	---	---	10.5	6.4	9.0
28	15.7	14.7	15.2	14.4	13.4	13.9	---	---	---	8.8	6.0	7.3
29	---	---	---	14.9	13.6	14.1	---	---	---	7.1	4.2	6.3
30	---	---	---	14.9	13.6	14.4	12.2	9.9	11.0	10.5	4.8	8.1
31	---	---	---	14.9	14.1	14.5	---	---	---	11.1	6.1	8.6
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
JUNE				JULY			AUGUST			SEPTEMBER		
1	11.7	7.3	8.7	9.0	5.6	7.2	13.4	4.6	8.7	11.3	7.3	8.4
2	9.7	7.7	8.8	8.4	5.6	6.9	15.2	5.4	9.6	11.5	7.4	9.1
3	10.9	8.6	9.4	9.3	5.7	7.2	14.6	5.3	8.8	12.2	8.0	9.6
4	12.5	9.0	10.6	---	---	---	8.6	6.4	7.6	10.9	---	---
5	13.4	8.9	10.6	---	---	---	9.0	6.4	8.4	---	---	---
6	12.3	8.8	10.4	---	---	---	9.5	7.9	8.5	---	---	---
7	11.8	8.7	9.9	---	---	---	11.5	7.8	9.3	---	---	---
8	10.4	8.5	9.5	---	---	---	12.4	7.6	9.6	---	---	---
9	11.3	8.2	9.6	---	---	---	12.2	7.4	9.7	---	---	---
10	10.9	8.0	9.2	---	---	---	11.8	7.9	9.6	11.7	6.8	9.1
11	12.2	8.0	9.8	---	---	---	11.5	7.9	9.3	13.4	7.0	9.4
12	12.6	8.4	9.9	---	---	---	9.8	8.1	9.3	12.2	7.3	8.8
13	11.7	8.5	10.2	---	---	---	11.2	8.6	9.8	9.8	7.6	8.4
14	12.8	9.1	11.2	---	---	---	13.9	8.0	10.6	11.4	8.0	9.2
15	12.2	8.9	10.3	---	---	---	13.5	7.9	10.3	12.8	8.0	10.1
16	12.4	8.7	10.5	---	---	---	---	---	---	13.3	7.9	10.1
17	11.6	8.3	9.9	---	---	---	---	---	---	13.4	7.7	9.9
18	11.1	7.9	9.4	---	---	---	---	---	---	10.0	7.6	8.7
19	---	7.9	---	12.4	---	---	---	---	---	11.7	7.6	9.0
20	11.1	7.8	9.2	10.2	4.7	7.3	---	---	---	13.3	7.8	9.9
21	---	---	---	13.5	5.1	8.5	---	---	---	12.2	7.7	9.6
22	9.4	6.8	8.0	14.1	4.4	9.8	---	---	---	12.8	8.6	10.5
23	9.2	6.8	7.8	15.8	5.3	10.1	---	---	---	12.8	8.7	10.5
24	9.7	6.9	8.2	14.8	5.5	8.5	---	---	---	13.5	9.2	11.1
25	10.5	6.6	8.2	10.7	6.6	8.6	---	---	---	---	9.2	---
26	10.3	6.5	8.1	15.2	6.3	10.2	---	---	---	14.1	9.4	10.9
27	10.8	6.6	8.5	16.8	5.3	10.1	---	---	---	14.4	9.2	11.3
28	9.9	5.9	7.9	15.8	4.5	8.7	11.5	---	---	12.4	9.1	10.2
29	9.7	6.0	7.7	14.5	4.8	9.3	11.1	7.7	8.9	14.2	8.8	10.9
30	9.7	6.0	7.7	14.5	4.4	8.9	10.5	7.9	8.8	14.3	7.9	10.6
31	---	---	---	13.4	4.8	8.6	11.2	7.6	9.1	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	30	23	26	16	9.2	11	6.1	4.5	5.1
2	---	---	---	26	18	21	88	8.7	22	6.0	4.0	4.7
3	---	---	---	26	17	20	76	9.2	18	6.8	3.6	4.6
4	---	---	---	26	19	22	169	8.4	32	11	3.8	4.7
5	---	---	---	25	20	23	150	34	63	7.6	3.7	4.9
6	---	---	---	---	---	---	66	14	34	5.1	3.4	3.9
7	---	---	---	---	---	---	48	12	17	4.0	2.9	3.4
8	---	---	---	20	12	14	18	10	13	15	3.1	4.8
9	---	---	---	15	11	12	15	10	12	6.7	3.2	4.2
10	---	---	---	14	11	12	14	10	12	4.5	2.7	3.3
11	---	---	---	13	10	11	14	9.4	11	5.3	2.7	3.2
12	---	---	---	17	9.6	11	22	8.6	10	3.7	2.9	3.3
13	---	---	---	19	13	15	13	7.4	8.4	9.0	3.0	3.8
14	---	---	---	26	16	19	13	6.6	8.1	5.2	3.1	3.5
15	---	---	---	44	16	25	14	7.8	9.7	4.2	2.9	3.4
16	---	---	---	38	22	28	13	8.5	10	10	3.2	3.9
17	---	---	---	49	21	24	11	7.7	8.8	8.2	3.2	3.8
18	65	52	58	27	19	23	13	7.5	8.3	5.3	3.2	3.8
19	63	51	55	20	14	17	8.8	6.7	7.6	5.0	3.1	3.6
20	58	48	52	20	14	17	9.6	6.4	7.4	4.2	2.9	3.3
21	65	50	56	21	12	14	29	6.3	8.4	6.3	2.9	3.3
22	57	43	48	31	11	17	9.1	5.6	6.8	5.5	3.0	3.6
23	51	36	42	---	29	---	9.2	4.6	5.8	5.7	3.0	3.7
24	60	37	44	365	98	149	5.6	4.2	4.9	6.1	3.1	4.0
25	49	32	39	192	46	113	6.7	4.2	4.8	6.7	3.5	4.1
26	40	27	33	50	28	39	5.7	4.3	4.9	7.5	3.2	3.9
27	31	24	27	33	20	27	6.0	4.7	5.2	4.0	3.0	3.4
28	34	23	25	21	12	16	6.8	5.1	5.5	5.2	3.0	3.8
29	27	21	24	16	7.1	12	7.7	4.5	5.3	5.9	3.2	4.1
30	29	21	23	34	9.5	12	6.4	4.4	4.9	5.0	3.2	3.9
31	33	22	25	---	---	---	6.5	4.4	5.0	7.3	3.3	3.9
MONTH	---	---	---	---	---	---	169	4.2	12	15	2.7	3.9
	FEBRUARY			MARCH			APRIL			MAY		
1	16	3.2	5.0	7.1	4.9	5.8	351	228	284	79	45	51
2	47	3.2	5.4	12	5.2	6.5	350	230	283	53	39	45
3	4.0	3.0	3.4	7.0	4.6	5.4	398	229	287	52	40	46
4	7.1	3.0	4.3	12	5.1	6.2	328	220	274	56	40	47
5	10	3.1	4.2	11	4.8	5.9	240	152	192	50	40	45
6	8.0	3.1	4.0	6.6	4.3	4.8	161	118	144	51	40	45
7	4.8	2.9	3.5	---	4.0	---	125	86	106	67	33	42
8	5.2	2.9	3.5	---	---	---	89	68	78	---	---	---
9	30	2.8	5.2	21	3.6	5.9	69	52	58	---	---	---
10	77	3.6	13	13	3.6	4.7	59	48	53	---	---	---
11	68	3.5	10	141	3.5	15	---	---	---	---	---	---
12	40	3.5	6.7	25	4.3	8.1	60	40	48	---	---	---
13	6.1	3.1	3.7	6.8	4.1	4.9	443	43	69	---	---	---
14	6.0	3.3	3.8	---	---	---	73	43	54	---	---	---
15	5.6	3.3	3.8	178	3.7	30	76	44	51	---	---	---
16	5.4	3.2	3.8	194	5.1	37	103	52	59	---	---	---
17	6.7	3.3	4.1	36	9.0	19	74	52	63	---	---	---
18	13	3.7	6.4	280	6.4	32	97	53	65	---	---	---
19	15	4.0	7.0	323	17	87	72	54	61	---	---	---
20	13	3.9	6.1	152	20	39	170	48	55	---	---	---
21	10	4.8	6.0	23	7.8	12	170	35	47	---	---	---
22	10	5.5	6.8	14	5.4	7.8	---	---	---	---	44	---
23	9.0	5.8	7.0	40	4.3	9.7	---	---	---	47	38	43
24	93	7.8	14	10	4.6	5.8	---	---	---	42	33	37
25	11	5.9	7.4	10	4.0	5.0	---	---	---	43	32	38
26	29	1.8	8.2	18	4.2	7.5	---	---	---	165	26	48
27	11	5.1	5.9	186	4.7	47	---	---	---	92	29	46
28	7.2	5.3	5.7	145	54	103	---	---	---	158	31	64
29	---	---	---	370	112	232	---	---	---	---	---	---
30	---	---	---	485	282	361	54	37	42	---	---	---
31	---	---	---	461	267	361	---	---	---	---	---	---
MONTH	93	1.8	6.0	---	---	---	---	---	---	---	---	---

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	75	50	62	54	32	40	92	70	78
2	---	---	---	85	50	62	80	29	37	104	69	81
3	---	---	---	88	63	69	855	29	84	---	---	---
4	---	---	---	75	56	64	191	58	105	---	---	---
5	---	38	61	---	---	---	939	63	375	---	---	---
6	47	36	41	---	---	---	321	83	153	---	---	---
7	138	35	44	---	---	---	84	64	74	---	---	---
8	632	45	100	---	---	---	72	63	69	---	---	---
9	86	42	51	---	---	---	132	60	68	---	---	---
10	64	49	56	1040	90	473	81	56	69	88	60	67
11	68	54	61	---	---	---	434	53	67	84	62	71
12	78	57	67	---	64	---	668	125	199	78	64	70
13	85	66	73	88	64	76	130	62	95	99	69	86
14	92	69	74	80	66	71	76	60	67	88	59	72
15	80	66	73	80	62	71	76	49	63	66	54	59
16	83	72	76	118	64	71	83	50	64	67	58	62
17	---	69	---	73	54	64	83	59	71	75	57	64
18	---	56	---	60	44	52	69	59	63	683	60	122
19	---	61	---	53	41	47	80	48	65	81	49	61
20	---	55	---	57	44	49	88	51	65	61	44	51
21	---	55	---	294	43	57	1060	80	501	63	49	55
22	90	62	74	72	50	59	971	246	526	62	44	52
23	115	71	81	66	47	53	686	142	261	53	41	45
24	93	67	78	---	42	---	243	93	171	56	36	42
25	104	64	75	216	68	134	158	89	115	229	35	47
26	86	56	70	74	34	50	---	75	---	68	36	46
27	79	58	68	62	35	46	105	70	79	40	25	32
28	136	61	84	54	34	43	83	67	74	40	28	32
29	105	60	71	52	34	40	86	65	75	44	34	38
30	124	61	74	50	30	37	98	76	88	45	33	40
31	---	---	---	78	31	39	98	78	89	---	---	---
MONTH	---	---	---	---	---	---	---	29	---	---	---	---

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (MG/L) (00301)	TRIAZIN SCREEN (ELISA) WAT,WH REC,AS ATRAZIN (UG/L) (34757)	2,4-D SCREEN (ELISA) WAT,WH REC (UG/L) (99906)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
MAY 2002													
22...	1550	671	959	8.5	18.0	15.7	47	718	10.5	113	--	--	68
JUN													
05...	1405	389	926	8.5	27.0	20.5	40	729	11.6	135	.8	<.700	43
21...	1130	--	1020	8.1	--	22.8	61	--	7.4	--	.2	<.700	--
JUL													
01...	1430	115	939	8.4	33.5	28.9	--	727	--	--	6	<.700	79
19...	0950	--	1400	8.2	--	28.8	44	--	8.7	110	.2	<.700	--
29...	1445	45	1320	8.6	31.0	30.2	--	725	12.6	177	1	2.61	42
AUG													
28...	1445	227	901	8.5	30.0	27.0	74	733	10.8	142	--	--	69
29...	1445	--	--	--	--	--	--	--	--	--	.1	<.700	--
a29...	1446	--	--	--	--	--	--	--	--	--	<.1	<.700	--
SEP													
18...	1400	96	858	8.2	22.0	21.0	110	715	9.2	110	<.1	<.700	128

SED.
SUSP.
SIEVE
DIAM.
% FINER
THAN
.062 MM
(70331)

MAY 2002		
22...	96	
JUN		
05...	98	
21...	--	
JUL		
01...	96	
19...	--	
29...	97	
AUG		
28...	98	
29...	--	
a29...	--	
SEP		
18...	98	

a Laboratory duplicate sample collected for water-quality purposes.

THIS PAGE IS INTENTIONALLY BLANK

06482610 SPLIT ROCK CREEK AT CORSON, SD

LOCATION.--Lat 43°36'59", long 96°33'54", in NE¹/₄ NW¹/₄ sec.26, T.102 N., R.48 W., Minnehaha County, Hydrologic Unit 10170203, on left bank 6 ft downstream from highway bridge, 0.3 mi east of Corson, and 3.4 mi upstream from mouth.

DRAINAGE AREA.--464 mi².

PERIOD OF RECORD.--October 1965 to September 1997, October 2001 to September 2002 (February 1951 to September 1965 gage heights and discharge measurements only in files of U.S. Army Corps of Engineers).

REVISED RECORDS.--WDR SD-84-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,304.22 ft above NGVD of 1929 (levels by U.S. Army Corps of Engineers). February 1951 to Aug. 15, 1964, nonrecording gage at datum 0.15 ft higher. Aug. 15, 1964, to Sept. 3, 1970, nonrecording gage at present site and datum. October 1970 to September 1989, continuous record station and October 1989 to September 1997, partial-record station (crest-stage gage) at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 17, 1957, reached a stage of 15.41 ft, discharge, 19,300 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	33	e56	e34	e23	e36	324	176	50	49	14	58
2	29	32	e59	e34	e24	e34	302	168	49	43	12	51
3	28	31	e62	e38	e25	e32	173	151	47	41	14	44
4	27	31	70	e40	e27	e32	125	129	98	34	28	40
5	25	31	96	e34	e30	e32	119	114	208	31	23	37
6	24	31	146	e30	e34	e32	111	109	165	29	21	35
7	25	31	134	e30	e38	e26	102	97	122	27	21	33
8	26	30	119	e32	e43	e29	103	98	111	24	31	30
9	28	29	127	e31	e44	e31	97	111	105	24	30	28
10	33	29	118	e30	e43	e30	96	102	100	29	41	27
11	33	28	103	e30	e40	e26	105	118	98	28	38	25
12	33	28	116	e30	e41	e28	122	134	88	27	60	24
13	35	29	99	e32	e42	e30	132	136	83	24	42	26
14	35	30	106	e31	e44	e32	149	127	76	23	33	26
15	33	30	104	e30	e45	e34	155	122	66	21	28	26
16	31	29	112	e28	e48	e30	161	112	61	20	25	24
17	30	29	119	e27	e52	e32	171	97	58	18	27	23
18	29	30	113	e26	e58	e38	193	89	53	17	22	26
19	29	29	97	e26	e60	e48	198	81	47	17	21	28
20	29	28	129	e26	e59	e60	178	74	46	16	19	31
21	29	27	126	e27	e56	e50	173	68	43	16	747	28
22	29	28	e100	e28	e54	e40	176	65	60	16	609	26
23	29	31	e70	e26	55	e35	167	65	74	14	447	24
24	29	172	e50	e24	66	e33	164	61	115	15	327	23
25	27	262	e46	e25	54	e33	148	59	127	19	276	24
26	27	172	e40	e28	e45	e38	129	58	121	18	212	25
27	27	74	e37	e31	e39	82	130	60	96	17	150	26
28	29	e60	e35	e26	e36	265	169	55	77	16	113	25
29	30	e56	e35	e24	---	259	182	53	63	14	89	24
30	31	e55	e34	e23	---	307	178	51	54	12	77	24
31	33	---	e34	e23	---	289	---	52	---	14	66	---
TOTAL	914	1535	2692	904	1225	2103	4732	2992	2561	713	3663	891
MEAN	29.5	51.2	86.8	29.2	43.8	67.8	158	96.5	85.4	23.0	118	29.7
MAX	35	262	146	40	66	307	324	176	208	49	747	58
MIN	24	27	34	23	23	26	96	51	43	12	12	23
AC-FT	1810	3040	5340	1790	2430	4170	9390	5930	5080	1410	7270	1770

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1989, 2002, BY WATER YEAR (WY)

MEAN	45.1	50.3	26.1	16.9	46.2	266	302	117	150	61.4	39.8	70.4
MAX	231	372	86.8	75.3	299	859	2019	526	1595	403	364	1212
(WY)	1987	1983	2002	1973	1983	1983	1969	1984	1984	1983	1979	1986
MIN	2.72	3.07	2.28	0.42	0.20	11.1	17.2	7.86	3.57	2.43	0.82	1.82
(WY)	1968	1968	1977	1977	1977	1975	1968	1981	1976	1976	1976	1976

06482610 SPLIT ROCK CREEK AT CORSON, SD--Continued

SUMMARY STATISTICS

FOR 2002 WATER YEAR

WATER YEARS 1966 - 1989, 2002

ANNUAL TOTAL	24925				
ANNUAL MEAN	68.3			99.2a	
HIGHEST ANNUAL MEAN				348	1984
LOWEST ANNUAL MEAN				11.3	1968
HIGHEST DAILY MEAN	747	Aug 21		16400	Apr 8 1969
LOWEST DAILY MEAN	12	Jul 30		0.00	Jul 20 1966b
ANNUAL SEVEN-DAY MINIMUM	14	Jul 28		0.00	Jan 28 1977
MAXIMUM PEAK FLOW	1320	Aug 21		18900	May 8 1993c
MAXIMUM PEAK STAGE	6.10	Aug 21		17.58	May 8 1993d
ANNUAL RUNOFF (AC-FT)	49440			71840	
10 PERCENT EXCEEDS	148			178	
50 PERCENT EXCEEDS	36			23	
90 PERCENT EXCEEDS	24			4.2	

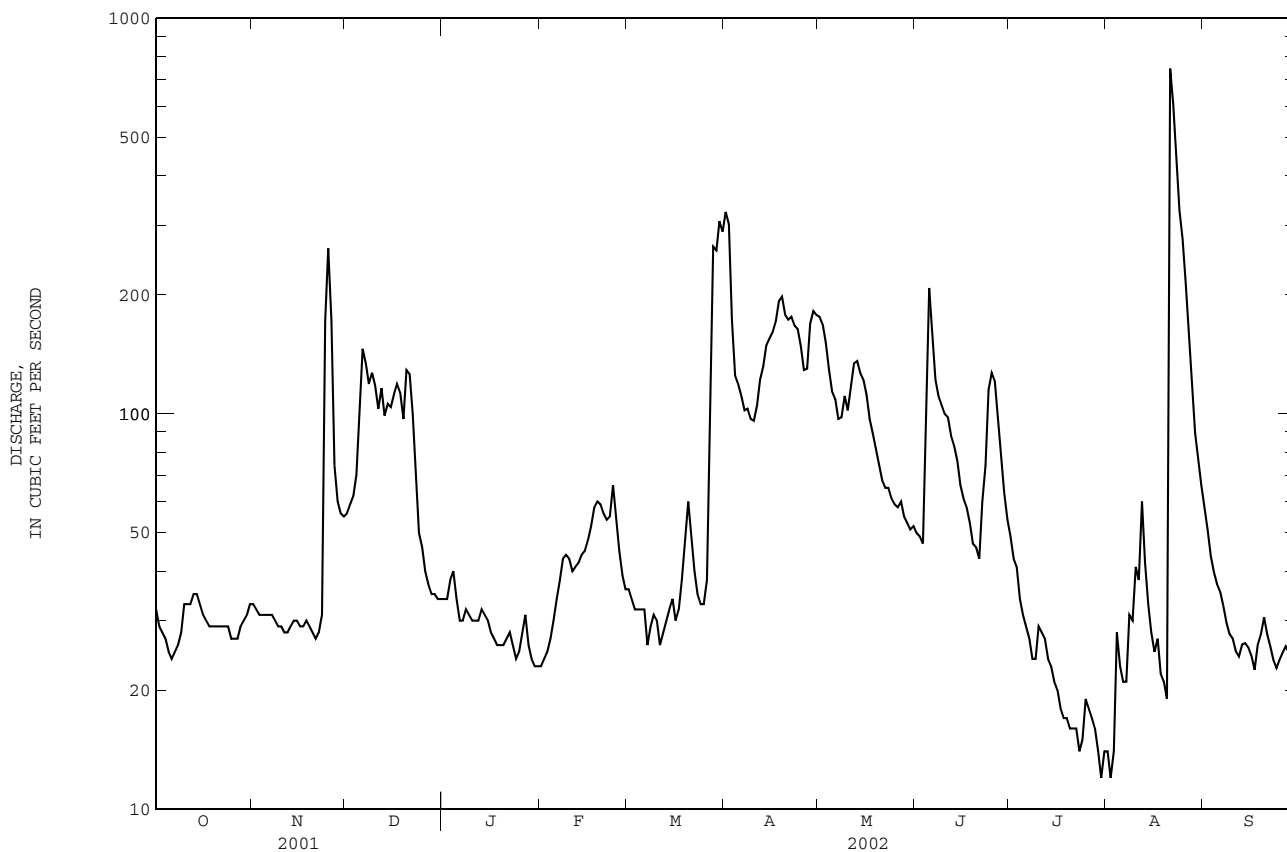
a Median of annual mean discharges, 54 ft³/s.

b No flow at times in some years.

c Reflects water years 1966-97, 2002.

d From floodmark.

e Estimated.



LOCATION.--Lat 43°12'52", long 96°17'39", in SW¹/₄ SW¹/₄ sec.16, T.97 N., R.46 W., Sioux County, Hydrologic Unit 10170204, on left bank 15 ft upstream from bridge on county highway K30, 0.3 mi north of Rock Valley, and at mile 19.1.

DRAINAGE AREA.--1,592 mi².

PERIOD OF RECORD.--June 1948 to current year.

REVISED RECORDS.--WSP 1439: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,222.54 ft above NGVD of 1929. Prior to Aug. 13, 1952, nonrecording gage with supplementary water-stage recorder operating above 6.2 ft gage height. June 4, 1949, to Aug. 12, 1952, and Aug. 13, 1952, to May 4, 1976, water-stage recorder, at site 3.2 mi downstream at datum 10.73 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1897 reached a stage of 17.0 ft, former site and datum, discharge not determined, from information by State Highway Commission.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	111	389	e237	e154	e237	757	844	606	200	76	201
2	135	111	356	e162	e164	e226	559	803	598	181	76	176
3	121	111	367	e173	e160	e214	442	721	582	175	78	152
4	111	110	393	e195	e155	e260	392	646	554	165	88	133
5	110	110	451	e199	e152	e292	362	586	540	151	80	120
6	108	111	646	e152	e157	e298	341	548	575	139	99	110
7	109	112	722	e148	e154	e294	331	516	552	128	86	102
8	111	110	737	e182	e159	e290	331	702	668	117	75	94
9	114	108	655	e163	e161	e295	329	780	593	111	81	84
10	129	110	670	e148	e156	282	322	715	565	172	100	81
11	127	110	632	e163	e185	285	344	760	567	163	94	78
12	124	111	593	e157	e195	299	395	980	538	138	107	74
13	124	115	566	e173	e195	337	437	1020	530	133	129	76
14	119	117	513	e164	e208	373	490	965	505	120	113	83
15	115	115	515	e161	e221	e383	517	893	469	111	92	76
16	114	113	524	e167	e235	e377	523	817	434	104	79	72
17	114	112	521	e189	e240	e355	549	744	419	97	80	69
18	113	111	525	e179	e275	e342	557	674	402	93	73	86
19	112	110	e267	e203	e315	e354	545	618	384	87	67	85
20	114	110	e248	e207	e302	e304	503	572	431	83	63	79
21	112	109	e218	e191	e302	e289	501	534	413	78	99	72
22	110	110	e187	e198	e297	e243	518	511	398	78	588	69
23	110	118	e168	e181	e286	e272	531	513	371	72	1150	67
24	109	268	e174	e164	e284	e267	530	479	370	72	1120	64
25	106	633	e213	e170	e271	e252	501	453	340	77	806	65
26	105	682	e263	e172	e194	e255	466	439	311	77	590	65
27	107	569	e282	e177	e223	294	479	445	288	75	457	68
28	108	454	e296	e169	e253	348	616	434	268	74	371	68
29	110	426	e256	e167	---	554	764	417	248	73	311	70
30	111	405	e268	e157	---	1060	836	454	224	73	269	69
31	112	---	e253	e163	---	1070	---	578	---	75	235	---
TOTAL	3559	6002	12868	5431	6053	11001	14768	20161	13743	3492	7732	2708
MEAN	114.8	200.1	415.1	175.2	216.2	354.9	492.3	650.4	458.1	112.6	249.4	90.27
MAX	135	682	737	237	315	1070	836	1020	668	200	1150	201
MIN	105	108	168	148	152	214	322	417	224	72	63	64
AC-FT	7060	11900	25520	10770	12010	21820	29290	39990	27260	6930	15340	5370
CFSM	0.07	0.13	0.26	0.11	0.14	0.22	0.31	0.41	0.29	0.07	0.16	0.06
IN.	0.08	0.14	0.30	0.13	0.14	0.26	0.35	0.47	0.32	0.08	0.18	0.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2002, BY WATER YEAR (WY)

	MEAN	231.4	259.7	148.5	82.04	220.7	1008	1337	715.7	969.0	605.8	270.6	231.5
MAX	1232	2039	676	434	1059	4646	6507	3728	6495	9088	2251	2135	
(WY)	1993	1980	1983	1996	1966	1997	1969	1993	1993	1993	1993	1986	
MIN	2.39	9.70	3.22	0.037	0.30	35.1	35.9	44.4	46.3	21.9	6.79	3.26	
(WY)	1959	1959	1959	1977	1959	1959	1959	1968	1964	1976	1976	1955	

06483500 ROCK RIVER NEAR ROCK VALLEY, IA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1949 - 2002	
ANNUAL TOTAL	417949		107518		506.7	
ANNUAL MEAN	1145		294.6		2656	
HIGHEST ANNUAL MEAN					31.0	
LOWEST ANNUAL MEAN					1993	
HIGHEST DAILY MEAN	18200	Jun 14	1150	Aug 23	35400	Apr 7 1969
LOWEST DAILY MEAN	16	Feb 3	63	Aug 20	0.00	Feb 20 1959a
ANNUAL SEVEN-DAY MINIMUM	17	Jan 29	67	Sep 22	0.00	Feb 27 1959
MAXIMUM PEAK FLOW			1250	Aug 24	40400	Apr 7 1969
MAXIMUM PEAK STAGE			6.06	Mar 31b	17.32	Apr 7 1969c
INSTANTANEOUS LOW FLOW			60	Aug 20d		
ANNUAL RUNOFF (AC-FT)	829000		213300		367100	
ANNUAL RUNOFF (CFSM)	0.72		0.19		0.32	
ANNUAL RUNOFF (INCHES)	9.77		2.51		4.32	
10 PERCENT EXCEEDS	2590		595		1150	
50 PERCENT EXCEEDS	267		207		136	
90 PERCENT EXCEEDS	19		80		16	

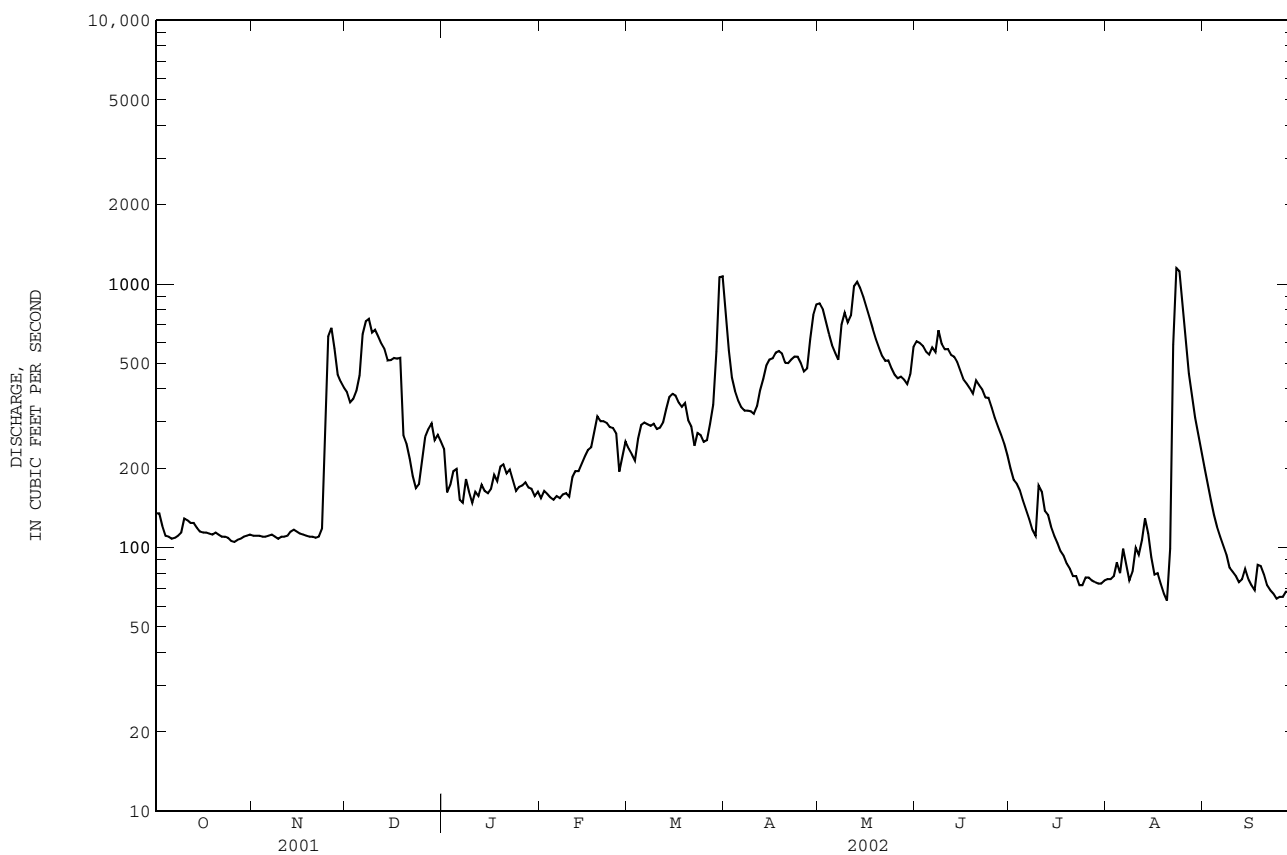
a Many days during winter periods in 1959 and 1977.

b Also Aug. 24.

c At location and datum then in use.

d Also Aug. 21

e Estimated.



BIG SIOUX RIVER BASIN

06485500 BIG SIOUX RIVER AT AKRON, IA

LOCATION.--Lat 42°50'14", long 96°33'41", in SW¹/₄ SE¹/₄ SW¹/₄ sec.30, T.93 N., R.48 W., Plymouth County, Hydrologic Unit 10170203, on left bank 15 ft downstream from Iowa Highway 403 bridge, 0.5 mi northwest of Akron, and 2.9 mi upstream from Union Creek.

DRAINAGE AREA.--8,424 mi², of which 1,487 mi² usually is noncontributing (213 mi² of the noncontributing area contributed runoff in the 1994-2002 water years).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929(M), 1931-33(M), 1936(M), 1938(M), 1940(M). WSP 1389: Drainage area. WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,118.90 ft above NGVD of 1929. Prior to Dec. 3, 1934, nonrecording gage at bridge 0.5 mi downstream at same datum. From Dec. 3, 1934, to Oct. 31, 1985, water-stage recorder at site 0.6 mi downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	570	560	1200	e1060	e575	e770	3490	2180	1300	689	297	669
2	563	560	1140	e1020	e610	e750	3530	2200	1310	633	282	612
3	555	555	1080	e970	e615	e750	3290	2170	1280	596	278	553
4	531	549	1110	e920	e600	e750	3060	2070	1330	567	294	503
5	516	550	1140	e880	e590	e770	2920	1930	1270	542	386	468
6	517	548	1260	e835	e570	e780	2860	1800	1240	515	448	432
7	506	548	1630	e800	e565	e765	2550	1690	1330	485	528	392
8	514	542	1790	e765	e585	e750	2110	1610	1330	462	617	365
9	543	536	1750	e755	e605	e730	1860	1750	1420	442	484	344
10	607	533	1620	e765	e595	e720	1720	1790	1380	484	439	328
11	598	533	1590	e765	e595	e725	1670	1780	1350	644	452	311
12	623	539	1600	e765	e585	e720	1700	2100	1340	845	462	303
13	625	539	1530	e775	e575	e740	1770	2890	1200	742	538	299
14	602	541	1510	e770	e580	e750	1800	3270	1130	574	642	297
15	597	542	1430	e750	e585	e760	1850	3390	1070	511	688	303
16	614	536	1370	e740	e600	e770	1900	3180	1010	469	564	309
17	600	532	1410	e720	e620	e810	1940	2780	968	439	585	301
18	592	556	1450	e705	e645	e820	1950	2460	924	411	503	282
19	592	529	1430	e685	e680	e740	1940	2230	886	394	465	286
20	583	524	1310	e655	e735	e690	1970	2030	910	380	433	291
21	579	525	1250	e665	e790	e670	1980	1870	916	370	429	317
22	577	547	1220	e680	e850	e630	1950	1740	862	349	560	285
23	573	545	e1230	e670	e920	854	1970	1670	838	330	2850	267
24	568	633	e1300	e670	977	915	1900	1590	809	324	2900	251
25	563	983	e1330	e650	951	914	1820	1510	861	384	2340	248
26	553	2260	e1320	e640	907	781	1750	1430	947	370	1780	242
27	547	2240	e1300	e680	838	734	1710	1390	965	362	1410	240
28	548	1730	e1270	e670	e800	790	1730	1370	927	414	1170	251
29	552	1310	e1210	e625	---	905	1950	1360	839	363	1040	255
30	552	1230	e1180	e570	---	1490	2120	1290	756	331	898	254
31	556	---	e1120	e540	---	2560	---	1250	---	312	772	---
TOTAL	17616	22855	42080	23160	19143	26303	64760	61770	32698	14733	25534	10258
MEAN	568.3	761.8	1357	747.1	683.7	848.5	2159	1993	1090	475.3	823.7	341.9
MAX	625	2260	1790	1060	977	2560	3530	3390	1420	845	2900	669
MIN	506	524	1080	540	565	630	1670	1250	756	312	278	240
AC-FT	34940	45330	83470	45940	37970	52170	128500	122500	64860	29220	50650	20350
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY)												
MEAN	531.3	528.0	364.5	217.3	514.6	2364	3406	1881	2195	1495	771.6	669.4
MAX	4039	3022	1987	920	2399	8866	20690	9499	15820	21740	6200	7313
(WY)	1987	1980	1999	1996	1966	1983	1969	1993	1984	1993	1993	1986
MIN	32.9	47.9	32.1	6.68	12.1	124	139	73.3	100	50.7	45.2	36.4
(WY)	1959	1959	1977	1977	1936	1931	1931	1934	1933	1931	1976	1976

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

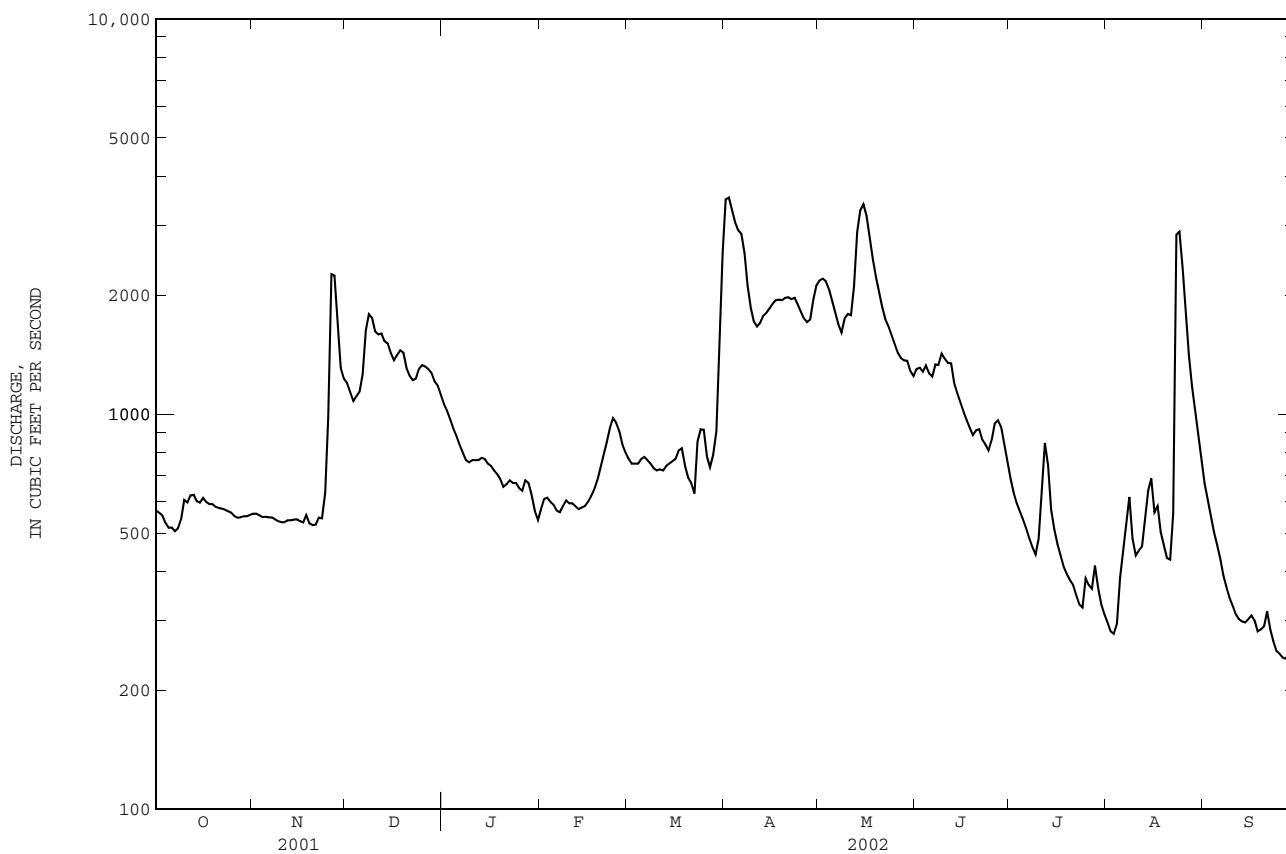
SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1929 - 2002	
ANNUAL TOTAL	1246938		360910		1245a	
ANNUAL MEAN	3416		988.8		6271	
HIGHEST ANNUAL MEAN					120	
LOWEST ANNUAL MEAN					77500	
HIGHEST DAILY MEAN	37800	Apr 26	3530	Apr 2	4.0	Jan 17 1977
LOWEST DAILY MEAN	155	Jan 1	240	Sep 27	4.4	Jan 15 1977
ANNUAL SEVEN-DAY MINIMUM	161	Jan 1	249	Sep 24	80800	Apr 9 1969b
MAXIMUM PEAK FLOW			3660	Apr 2	23.38	Apr 26 2001c
MAXIMUM PEAK STAGE			11.65	Apr 2		
ANNUAL RUNOFF (AC-FT)	2473000		715900		902200	
10 PERCENT EXCEEDS	10700		1930		2950	
50 PERCENT EXCEEDS	1210		742		404	
90 PERCENT EXCEEDS	174		376		72	

a Median of annual mean discharges, 860 ft³/s.

b Gage height, 22.99 ft.

c Discharge, 40,400 ft³/s.

e Estimated.



06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1966 to September 1994 and October 2001 to September 2002 (discontinued).

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1974 to September 1981 and October 2001 to September 2002.

SPECIFIC CONDUCTANCE: October 1974 to September 1981 and October 2001 to September 2002.

pH: October 2001 to September 2002.

DISSOLVED OXYGEN: October 2001 to September 2002.

TURBIDITY: October 2001 to September 2002.

REMARKS.--Daily records are collected at 15-minute intervals using multi-parameter water-quality instrument. Satellite data-collection platform at station. Interruptions in daily records due to probes fouling and/or instrument malfunctions. Water-quality instrument was not in operation during winter period, November 28 to April 4.

[illegible]

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	12.4	11.5	12.1
2	---	---	---	---	---	---	---	---	---	12.4	10.8	11.6
3	---	---	---	---	---	---	---	---	---	13.6	11.5	12.5
4	---	---	---	---	---	---	4.1	---	---	14.6	12.5	13.5
5	---	---	---	---	---	---	5.2	3.4	4.3	16.0	13.6	14.8
6	---	---	---	---	---	---	6.3	4.4	5.3	18.4	15.7	16.9
7	---	---	---	---	---	---	7.3	6.3	6.8	17.7	15.6	16.7
8	---	---	---	---	---	---	9.1	7.3	8.1	15.6	13.6	14.8
9	---	---	---	---	---	---	10.2	8.1	9.1	13.6	12.1	12.6
10	---	---	---	---	---	---	12.2	9.8	10.8	12.2	10.9	11.3
11	---	---	---	---	---	---	---	12.0	---	11.0	10.3	10.6
12	---	---	---	---	---	---	13.1	11.1	12.0	10.6	10.1	10.4
13	---	---	---	---	---	---	13.7	12.4	13.0	12.2	9.8	10.9
14	---	---	---	---	---	---	14.8	12.9	13.8	14.1	11.7	12.8
15	---	---	---	---	---	---	17.5	14.5	15.9	16.0	13.9	14.8
16	---	---	---	---	---	---	19.2	17.4	18.2	15.9	15.0	15.7
17	---	---	---	---	---	---	19.0	17.5	18.3	15.5	14.1	14.8
18	---	---	---	---	---	---	19.7	17.7	18.6	15.8	14.0	15.0
19	---	---	---	---	---	---	18.5	15.5	16.9	16.2	14.2	15.2
20	---	---	---	---	---	---	15.5	12.4	13.9	16.8	14.7	15.8
21	---	---	---	---	---	---	12.4	9.9	11.1	17.1	15.1	16.1
22	---	---	---	---	---	---	11.1	9.1	10.1	16.7	15.3	16.0
23	---	---	---	---	---	---	13.7	10.5	11.9	17.4	15.5	16.4
24	---	---	---	---	---	---	14.2	13.0	13.6	16.6	15.4	16.0
25	---	---	---	---	---	---	13.2	11.8	12.4	17.8	14.7	16.2
26	---	---	---	---	---	---	12.4	10.9	11.6	18.5	16.7	17.7
27	---	---	---	---	---	---	11.5	9.3	10.6	20.7	17.3	18.9
28	---	---	---	---	---	---	9.3	8.1	8.5	23.0	19.9	21.3
29	---	---	---	---	---	---	10.4	7.6	8.9	25.0	21.7	23.3
30	---	---	---	---	---	---	12.3	10.2	11.2	26.4	23.5	25.0
31	---	---	---	---	---	---	---	---	---	26.8	24.0	25.4
MONTH	---	---	---	---	---	---	---	---	---	26.8	9.8	15.6
	JUNE			JULY			AUGUST			SEPTEMBER		
1	26.2	24.1	25.2	30.9	---	---	28.4	25.0	26.7	25.9	23.8	25.0
2	24.7	21.4	22.8	---	---	---	27.4	22.1	24.7	26.2	24.3	25.2
3	21.4	18.6	19.7	29.0	---	---	29.3	22.8	25.7	25.4	22.4	23.9
4	19.6	17.6	18.6	31.9	25.3	28.2	29.1	25.6	27.2	26.8	22.1	24.0
5	21.5	18.1	19.7	33.5	24.9	28.8	27.6	25.3	26.4	28.0	22.4	24.7
6	23.2	---	---	---	---	---	27.4	25.2	26.0	---	---	---
7	23.3	21.0	22.2	---	---	---	27.8	24.2	26.0	---	---	---
8	24.8	21.8	23.3	---	---	---	28.0	24.9	26.4	---	---	---
9	25.1	23.3	24.2	29.8	---	---	26.6	24.3	25.5	27.3	---	---
10	25.5	24.0	24.7	29.2	26.1	27.7	28.3	23.7	25.9	25.7	23.2	24.3
11	26.2	23.8	25.0	27.3	22.8	24.9	26.6	24.5	25.6	24.5	20.9	22.7
12	25.3	23.7	24.4	24.8	21.6	23.2	25.5	21.6	23.3	23.0	20.8	21.9
13	23.9	21.2	22.5	27.2	23.3	25.0	23.7	20.0	21.8	21.6	20.3	20.8
14	22.0	19.6	20.9	28.3	24.3	26.2	24.6	20.7	22.6	21.3	19.5	20.2
15	23.4	20.3	21.8	29.0	25.1	27.0	25.3	22.1	23.8	21.2	17.3	19.3
16	23.9	20.4	22.2	29.6	25.9	27.7	24.0	21.8	22.5	21.7	17.7	19.6
17	24.7	21.6	23.0	30.8	26.1	28.4	22.4	19.8	21.3	21.2	18.3	19.8
18	---	---	---	31.4	27.8	29.5	21.5	18.9	20.4	21.9	19.2	20.4
19	---	---	---	31.8	28.2	29.9	23.5	19.1	21.2	20.6	18.5	19.4
20	---	---	---	33.1	28.8	30.8	24.1	20.4	22.0	20.8	17.3	18.9
21	26.2	23.2	24.5	32.5	28.6	30.3	25.9	22.6	24.2	19.1	16.2	17.7
22	28.0	24.8	26.4	30.3	26.8	28.7	26.7	23.1	25.3	17.3	14.2	15.8
23	28.6	25.5	27.0	28.9	24.4	26.7	26.0	22.7	23.7	16.4	13.9	15.1
24	29.0	25.8	27.4	26.7	24.2	25.6	23.9	23.2	23.5	15.2	12.3	13.8
25	29.3	26.4	27.8	28.0	22.3	25.1	25.6	23.4	24.4	17.6	13.8	15.4
26	29.8	27.1	28.5	30.4	25.6	27.7	26.1	24.6	25.3	15.9	13.4	14.6
27	29.6	26.9	28.3	31.4	26.5	28.7	26.6	24.8	25.7	15.3	11.6	13.3
28	29.2	26.6	28.1	31.7	27.5	29.5	27.1	24.9	26.0	14.2	13.0	13.7
29	29.5	26.5	28.4	31.7	26.7	29.1	26.4	25.1	25.8	15.9	13.9	14.6
30	30.6	26.6	28.9	31.5	26.8	29.4	25.6	24.3	25.0	19.1	14.9	16.7
31	---	---	---	30.9	26.4	28.6	26.0	23.5	24.7	---	---	---
MONTH	---	---	---	---	---	---	29.3	18.9	24.5	---	---	---

BIG SIOUX RIVER BASIN

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	1000	950	979	---	---	---	---	---	---
2	---	---	---	989	932	965	---	---	---	---	---	---
3	---	---	---	964	932	950	---	---	---	---	---	---
4	---	---	---	961	920	941	---	---	---	---	---	---
5	---	---	---	965	926	943	---	---	---	---	---	---
6	---	---	---	975	928	955	---	---	---	---	---	---
7	---	---	---	958	604	850	---	---	---	---	---	---
8	---	---	---	644	596	616	---	---	---	---	---	---
9	---	---	---	624	---	---	---	---	---	---	---	---
10	898	---	---	624	577	601	---	---	---	---	---	---
11	945	881	929	641	566	594	---	---	---	---	---	---
12	947	925	934	658	586	626	---	---	---	---	---	---
13	944	928	937	603	534	584	---	---	---	---	---	---
14	969	944	960	611	582	597	---	---	---	---	---	---
15	972	967	969	604	570	588	---	---	---	---	---	---
16	982	972	977	591	559	575	---	---	---	---	---	---
17	995	982	989	582	543	563	---	---	---	---	---	---
18	1010	995	1000	594	550	570	---	---	---	---	---	---
19	1010	1000	1010	621	594	608	---	---	---	---	---	---
20	1010	1010	1010	628	613	620	---	---	---	---	---	---
21	1020	1010	1020	622	614	618	---	---	---	---	---	---
22	1030	979	1010	632	620	625	---	---	---	---	---	---
23	989	959	977	633	616	625	---	---	---	---	---	---
24	975	934	960	622	599	609	---	---	---	---	---	---
25	958	933	947	717	606	651	---	---	---	---	---	---
26	970	940	951	801	692	767	---	---	---	---	---	---
27	979	947	961	735	691	705	---	---	---	---	---	---
28	987	968	980	---	735	---	---	---	---	---	---	---
29	991	959	978	---	---	---	---	---	---	---	---	---
30	995	968	982	---	---	---	---	---	---	---	---	---
31	1000	971	985	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	853	842	847
2	---	---	---	---	---	---	---	---	---	861	849	854
3	---	---	---	---	---	---	---	---	---	866	860	863
4	---	---	---	---	---	---	518	---	---	866	862	864
5	---	---	---	---	---	---	535	517	526	865	861	863
6	---	---	---	---	---	---	541	531	534	866	845	860
7	---	---	---	---	---	---	553	541	548	845	834	843
8	---	---	---	---	---	---	584	553	567	834	829	831
9	---	---	---	---	---	---	614	584	599	843	828	833
10	---	---	---	---	---	---	652	609	624	832	809	815
11	---	---	---	---	---	---	699	652	677	826	812	818
12	---	---	---	---	---	---	735	699	715	839	813	825
13	---	---	---	---	---	---	760	735	750	850	839	845
14	---	---	---	---	---	---	777	760	769	844	781	812
15	---	---	---	---	---	---	802	773	785	781	764	769
16	---	---	---	---	---	---	810	800	805	792	767	778
17	---	---	---	---	---	---	823	808	815	828	792	809
18	---	---	---	---	---	---	846	823	833	855	827	839
19	---	---	---	---	---	---	852	846	849	874	855	863
20	---	---	---	---	---	---	854	849	851	889	873	881
21	---	---	---	---	---	---	854	849	851	886	869	875
22	---	---	---	---	---	---	863	852	858	875	867	870
23	---	---	---	---	---	---	873	863	869	893	875	882
24	---	---	---	---	---	---	883	872	877	904	842	874
25	---	---	---	---	---	---	877	866	872	846	826	836
26	---	---	---	---	---	---	866	850	858	849	833	843
27	---	---	---	---	---	---	851	839	844	848	834	842
28	---	---	---	---	---	---	849	837	843	841	823	835
29	---	---	---	---	---	---	867	847	859	823	789	805
30	---	---	---	---	---	---	885	853	869	808	760	789
31	---	---	---	---	---	---	---	---	---	772	747	762
MONTH	---	---	---	---	---	---	---	---	---	904	747	836

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	752	712	737	---	---	---	792	668	737	739	690	715
2	734	710	720	---	---	---	707	610	674	693	649	674
3	778	734	767	---	717	---	726	632	696	701	661	680
4	832	778	808	770	686	739	699	632	670	683	624	658
5	856	823	843	766	695	740	738	677	707	652	583	624
6	840	786	812	776	652	719	801	683	755	---	---	---
7	830	801	816	721	---	---	842	718	789	---	---	---
8	801	771	785	---	---	---	989	779	892	---	---	---
9	782	753	766	769	---	---	779	649	729	---	---	---
10	794	753	776	777	732	751	649	607	635	698	660	680
11	820	793	807	---	765	---	634	602	623	717	698	708
12	809	747	785	---	---	---	725	633	680	711	700	705
13	825	809	819	---	---	---	777	723	751	720	706	711
14	819	814	817	---	---	---	840	748	797	732	720	726
15	814	791	806	---	---	---	839	666	773	736	724	729
16	797	780	790	---	---	---	666	614	635	746	730	740
17	---	---	---	---	---	---	668	644	653	766	742	753
18	---	---	---	---	678	---	712	665	690	773	750	761
19	---	---	---	722	646	686	709	669	697	773	732	755
20	---	804	---	710	655	686	707	674	693	747	675	723
21	855	803	822	767	686	729	706	691	701	731	675	702
22	835	815	826	801	762	778	708	615	683	747	696	727
23	833	796	820	842	801	823	790	439	576	728	699	717
24	807	777	796	842	817	837	556	439	494	749	691	725
25	797	777	788	817	726	772	602	556	580	699	663	685
26	810	789	801	784	730	767	656	602	624	708	666	694
27	829	790	813	819	777	797	690	656	675	739	708	725
28	825	802	818	833	774	812	712	689	703	767	724	745
29	816	806	810	875	822	850	752	712	736	799	767	786
30	826	797	815	837	656	759	786	752	773	813	771	793
31	---	---	---	827	677	799	783	739	771	---	---	---
MONTH	---	---	---	---	---	---	989	439	697	---	---	---

[illegible]

BIG SIOUX RIVER BASIN

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	8.5	8.4	8.6	8.2	---	---	9.1	7.7	8.8	8.2
2	---	---	8.5	8.4	8.5	8.3	8.7	---	9.2	8.0	8.2	7.9
3	---	---	8.6	8.5	8.5	8.4	8.7	---	9.2	8.1	8.3	8.0
4	7.8	7.8	8.5	8.4	8.6	8.4	8.8	8.1	9.2	7.8	8.6	7.9
5	7.9	7.8	8.5	8.3	8.7	8.4	8.9	7.9	9.0	7.8	---	---
6	7.9	7.8	8.5	8.3	8.6	8.3	---	---	9.1	7.9	---	---
7	7.9	7.7	8.4	8.3	8.5	8.2	---	---	9.1	8.3	---	---
8	7.8	7.7	8.5	8.4	8.4	8.1	---	---	9.0	8.4	---	---
9	7.9	7.8	8.5	8.4	8.4	8.1	8.9	---	9.3	8.8	---	---
10	8.0	7.9	8.4	8.3	8.4	8.1	8.9	8.0	9.3	8.7	9.2	8.5
11	8.0	7.9	8.4	8.4	8.5	8.4	---	---	9.1	7.9	8.7	8.1
12	8.1	8.0	8.4	8.3	8.4	8.2	---	---	8.8	8.0	8.3	8.0
13	8.1	8.1	8.3	8.2	8.4	8.3	---	---	9.1	7.9	8.2	8.0
14	8.2	8.1	8.2	8.1	8.5	8.4	---	---	9.2	8.6	8.5	8.0
15	8.3	8.2	8.1	8.1	8.5	8.3	---	---	9.1	8.8	8.4	8.0
16	8.3	8.2	8.1	8.1	8.5	8.2	---	---	8.8	8.4	8.3	8.1
17	8.3	8.2	8.2	8.1	---	---	---	---	8.5	8.2	8.2	8.1
18	8.4	8.3	8.2	8.1	---	---	8.8	---	8.5	8.2	8.2	8.0
19	8.4	8.3	8.4	8.2	---	---	8.6	7.8	8.6	8.1	8.9	8.1
20	8.4	8.4	8.4	8.3	---	---	8.3	7.6	8.3	8.0	9.0	8.2
21	8.4	8.4	8.6	8.4	8.6	8.2	---	---	8.2	7.8	8.9	8.0
22	8.5	8.4	8.6	8.5	8.6	8.1	---	---	8.4	7.6	8.9	8.3
23	8.5	8.4	8.6	8.4	8.5	8.1	---	---	8.3	7.5	9.0	8.2
24	8.5	8.4	8.6	8.3	8.6	8.1	---	---	7.6	7.5	9.0	8.2
25	8.6	8.5	8.6	8.4	8.3	8.0	---	---	7.7	7.5	9.1	8.2
26	8.6	8.5	8.6	8.3	8.3	7.9	---	---	7.9	7.7	8.9	8.1
27	8.5	8.4	8.6	8.2	8.4	8.1	---	---	8.0	7.9	9.0	8.3
28	8.6	8.5	8.6	8.2	8.4	8.0	---	---	8.1	8.0	8.9	8.2
29	8.6	8.5	8.5	8.2	8.5	8.1	---	---	8.4	8.0	8.8	8.2
30	8.5	8.4	8.6	8.1	8.6	8.1	9.3	---	8.8	8.4	8.9	8.0
31	---	---	8.6	8.2	---	---	8.6	7.7	8.9	8.6	---	---
MONTH	---	---	8.6	8.1	---	---	---	---	9.3	7.5	---	---

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

[illegible]

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	11.1	9.9	10.2
2	---	---	---	---	---	---	---	---	---	11.2	9.5	10.3
3	---	---	---	---	---	---	---	---	---	11.0	9.5	10.2
4	---	---	---	---	---	---	---	---	---	10.7	8.8	9.7
5	---	---	---	---	---	---	11.8	11.4	11.6	10.0	8.4	9.2
6	---	---	---	---	---	---	11.5	10.9	11.3	9.6	7.5	8.6
7	---	---	---	---	---	---	---	---	---	8.5	7.2	7.7
8	---	---	---	---	---	---	---	---	---	7.4	6.6	7.1
9	---	---	---	---	---	---	---	---	---	7.5	6.3	6.9
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	9.3	9.3	9.3	---	---	---
12	---	---	---	---	---	---	9.9	9.3	9.6	---	---	---
13	---	---	---	---	---	---	9.8	9.5	9.7	---	---	---
14	---	---	---	---	---	---	10.1	9.5	9.8	---	---	---
15	---	---	---	---	---	---	10.0	9.3	9.7	---	---	---
16	---	---	---	---	---	---	9.5	8.6	9.0	---	---	---
17	---	---	---	---	---	---	9.5	8.1	8.8	---	---	---
18	---	---	---	---	---	---	9.7	8.4	9.0	---	---	---
19	---	---	---	---	---	---	10.2	8.7	9.4	---	---	---
20	---	---	---	---	---	---	10.6	9.5	10.0	---	---	---
21	---	---	---	---	---	---	11.2	10.1	10.6	---	---	---
22	---	---	---	---	---	---	12.3	10.8	11.5	---	---	---
23	---	---	---	---	---	---	12.4	11.0	11.7	---	---	---
24	---	---	---	---	---	---	11.9	10.3	11.1	---	---	---
25	---	---	---	---	---	---	12.9	10.5	11.7	14.6	10.6	12.5
26	---	---	---	---	---	---	13.6	11.3	12.4	13.4	10.6	11.8
27	---	---	---	---	---	---	12.5	11.0	11.4	14.9	9.4	11.9
28	---	---	---	---	---	---	12.9	10.9	11.8	12.7	9.5	11.1
29	---	---	---	---	---	---	13.7	11.7	12.6	13.1	8.5	10.7
30	---	---	---	---	---	---	12.8	11.1	11.8	13.3	7.7	10.5
31	---	---	---	---	---	---	---	---	---	15.1	8.1	11.6
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
JUNE				JULY			AUGUST			SEPTEMBER		
1	14.1	7.8	10.5	---	---	---	17.7	4.2	10.2	17.0	7.9	11.9
2	---	---	---	12.1	---	---	19.6	6.8	12.7	18.3	7.3	12.3
3	---	---	---	15.7	---	---	19.1	7.1	12.5	19.8	7.5	12.8
4	---	---	---	---	---	---	17.9	5.7	11.1	20.6	7.5	13.3
5	---	---	---	---	---	---	---	---	---	18.1	6.3	12.2
6	14.3	---	---	---	---	---	---	---	---	---	---	---
7	13.6	9.0	11.1	---	---	---	---	---	---	---	---	---
8	14.6	8.3	11.3	---	---	---	---	---	---	---	---	---
9	11.3	6.6	8.1	18.3	---	---	---	---	---	---	---	---
10	9.3	6.3	7.6	17.3	7.2	11.8	---	---	---	---	---	---
11	9.5	6.8	8.1	11.4	5.6	7.5	---	---	---	---	---	---
12	8.5	5.8	7.1	11.3	5.9	8.7	---	---	---	---	---	---
13	9.7	7.2	8.4	12.5	8.2	10.2	---	---	---	---	---	---
14	11.8	8.2	10.1	17.0	8.7	12.2	---	---	---	---		
15	13.9	8.6	11.0	19.3	8.9	14.0	18.4	---	---	---	---	---
16	15.1	8.7	11.6	20.9	9.2	14.9	12.5	7.8	10.3	---	---	---
17	14.7	8.5	11.1	18.8	8.6	13.8	16.7	6.8	10.4	---	---	---
18	---	---	---	16.4	7.2	11.5	18.8	7.5	13.5	---	---	---
19	---	---	---	14.2	5.8	10.0	---	---	---	15.1	---	---
20	---	---	---	---	---	---	---	---	---	20.5	8.0	13.4
21	12.6	7.4	9.6	---	---	---	17.6	6.8	11.9	15.7	8.7	11.6
22	14.1	7.6	10.7	---	---	---	17.4	4.8	10.9	19.8	8.9	13.8
23	14.7	7.2	10.7	---	---	---	10.4	1.2	4.1	20.0	10.0	14.5
24	15.9	7.4	11.3	---	---	---	6.4	4.5	5.8	20.2	10.4	14.8
25	15.0	7.3	10.9	---	---	---	6.9	6.1	6.6	21.4	9.9	15.3
26	14.2	7.2	10.5	---	---	---	7.5	6.6	7.0	16.9	9.7	13.0
27	12.4	6.6	9.4	---	---	---	7.8	6.8	7.3	22.8	10.2	15.8
28	12.7	6.7	9.9	---	---	---	9.1	6.8	7.8	16.8	10.9	13.5
29	12.9	6.8	10.5	---	---	---	9.5	6.7	8.0	20.4	9.3	13.7
30	13.3	6.8	10.8	19.9	---	---	12.4	7.1	9.5	23.3	10.0	15.9
31	---	---	---	10.6	5.0	8.1	16.5	7.7	11.6	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

BIG SIOUX RIVER BASIN

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	63	34	43	---	---	---	---	---	---
2	---	---	---	72	39	47	---	---	---	---	---	---
3	---	---	---	58	37	46	---	---	---	---	---	---
4	---	---	---	57	35	43	---	---	---	---	---	---
5	---	---	---	90	35	50	---	---	---	---	---	---
6	---	---	---	87	43	53	---	---	---	---	---	---
7	---	---	---	99	33	60	---	---	---	---	---	---
8	---	---	---	82	24	41	---	---	---	---	---	---
9	---	---	---	46	22	28	---	---	---	---	---	---
10	220	76	130	34	22	25	---	---	---	---	---	---
11	110	67	80	28	20	23	---	---	---	---	---	---
12	110	57	74	27	16	20	---	---	---	---	---	---
13	120	50	67	35	18	24	---	---	---	---	---	---
14	120	53	64	32	21	26	---	---	---	---	---	---
15	89	42	57	34	19	26	---	---	---	---	---	---
16	68	37	44	57	20	24	---	---	---	---	---	---
17	58	34	43	38	16	23	---	---	---	---	---	---
18	80	36	46	76	20	32	---	---	---	---	---	---
19	69	39	49	31	15	21	---	---	---	---	---	---
20	72	40	49	19	12	15	---	---	---	---	---	---
21	59	37	44	17	12	14	---	---	---	---	---	---
22	61	30	39	18	12	14	---	---	---	---	---	---
23	87	29	36	32	13	16	---	---	---	---	---	---
24	210	29	64	178	13	58	---	---	---	---	---	---
25	200	27	67	249	44	88	---	---	---	---	---	---
26	110	26	40	355	145	213	---	---	---	---	---	---
27	77	25	30	279	113	162	---	---	---	---	---	---
28	58	26	31	---	---	---	---	---	---	---	---	---
29	43	27	31	---	---	---	---	---	---	---	---	---
30	39	26	31	---	---	---	---	---	---	---	---	---
31	51	31	38	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	96	62	76	
2	---	---	---	---	---	---	---	---	106	60	80	
3	---	---	---	---	---	---	---	---	101	67	80	
4	---	---	---	---	---	---	---	259	90	54	73	
5	---	---	---	---	---	---	350	234	268	94	53	72
6	---	---	---	---	---	---	---	---	---	74	45	62
7	---	---	---	---	---	---	---	---	---	165	49	67
8	---	---	---	---	---	---	---	---	---	109	54	68
9	---	---	---	---	---	---	---	---	---	240	44	73
10	---	---	---	---	---	---	---	---	---	387	200	279
11	---	---	---	---	---	---	162	102	114	221	137	177
12	---	---	---	---	---	---	156	93	113	171	95	131
13	---	---	---	---	---	---	151	103	120	194	132	166
14	---	---	---	---	---	---	139	87	111	324	175	225
15	---	---	---	---	---	---	187	82	121	311	183	231
16	---	---	---	---	---	---	198	98	134	206	130	169
17	---	---	---	---	---	---	206	72	126	170	65	107
18	---	---	---	---	---	---	250	81	120	91	49	66
19	---	---	---	---	---	---	185	91	113	92	50	67
20	---	---	---	---	---	---	172	92	110	82	40	58
21	---	---	---	---	---	---	132	79	96	171	54	97
22	---	---	---	---	---	---	97	71	82	183	53	95
23	---	---	---	---	---	---	136	71	81	143	44	89
24	---	---	---	---	---	---	149	71	92	98	48	62
25	---	---	---	---	---	---	99	65	81	63	36	50
26	---	---	---	---	---	---	161	70	85	97	44	55
27	---	---	---	---	---	---	97	44	78	72	38	52
28	---	---	---	---	---	---	82	53	64	76	35	50
29	---	---	---	---	---	---	93	50	68	109	34	49
30	---	---	---	---	---	---	124	49	74	86	30	41
31	---	---	---	---	---	---	---	---	---	62	31	43
MONTH	---	---	---	---	---	---	---	---	---	387	30	97

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	67	40	53	---	---	---	97	44	59	139	72	94
2	---	58	---	---	35	---	104	52	69	116	58	82
3	85	56	69	---	27	---	138	61	80	127	51	71
4	122	53	72	344	21	37	124	63	78	90	32	49
5	87	44	62	41	21	29	193	70	103	106	30	41
6	83	43	61	74	17	27	133	82	99	---	30	---
7	201	55	79	41	14	18	135	83	103	---	---	---
8	94	41	66	41	17	25	156	73	113	---	---	---
9	324	62	170	107	29	68	130	68	86	---	---	---
10	268	74	142	198	71	107	129	67	82	130	50	68
11	150	64	100	160	63	104	114	62	81	64	44	56
12	562	114	253	401	111	171	85	63	72	65	43	54
13	232	90	124	355	94	152	92	60	78	81	42	55
14	167	91	121	128	62	91	127	65	90	63	40	50
15	125	64	91	175	50	82	145	56	95	83	46	59
16	91	46	69	119	29	72	154	59	78	84	54	65
17	186	46	78	114	35	72	246	68	121	---	58	---
18	110	42	73	138	35	70	274	90	129	---	---	---
19	---	---	---	---	---	---	156	75	101	---	52	---
20	152	---	---	---	54	---	122	67	89	74	53	62
21	182	113	128	---	---	---	137	69	84	81	57	65
22	124	83	102	---	---	---	975	73	164	68	50	56
23	112	66	83	---	58	---	529	178	403	68	49	54
24	108	58	81	172	64	80	368	233	283	61	45	52
25	152	71	105	667	73	165	245	196	221	68	44	57
26	187	121	144	160	58	91	219	151	175	83	55	65
27	194	119	148	---	---	---	168	129	150	92	58	69
28	163	123	141	---	---	---	155	120	139	100	70	81
29	---	---	---	---	---	---	159	87	124	122	73	88
30	---	---	---	---	56	---	161	75	109	196	92	136
31	---	---	---	199	48	71	139	65	100	---	---	---
MONTH	---	---	---	---	---	---	975	44	121	---	---	---

BIG SIOUX RIVER BASIN

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (MG/L) (00301)	TRIAZIN SCREEN 2,4-D (ELISA) WAT,WH REC,AS ATRAZIN (UG/L) (34757)	SCREEN (ELISA) WAT,WH REC (UG/L) (99906)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
MAY 2002													
24...	1450	1590	870	8.5	15.0	16.0	60	736	12.2	128	--	--	137
JUN													
06...	1320	1140	842	8.4	25.0	20.6	66	729	10.8	126	.8	<.700	168
20...	1630	--	824	8.5	--	24.5	130	--	12.0	154	2	<.700	--
JUL													
02...	1430	574	765	8.0	32.0	26.9	62	733	--	--	.8	<.700	196
18...	1630	--	775	8.8	30.0	28.5	80	--	14.7	--	.8	<.700	--
30...	1330	256	789	9.2	30.0	30.1	80	730	18.0	250	<.1	<.700	83
30...	1331	256	789	9.2	30.0	30.1	80	730	18.0	250	<.1	<.700	--
AUG													
15...	1200	--	813	8.9	--	--	97	--	14.1	--	.1	<.700	--
29...	1415	1460	745	8.2	25.0	25.1	130	736	6.9	87	.5	<.700	179
SEP													
19...	1400	285	762	8.3	15.0	19.0	65	724	9.4	107	.1	<.700	75

Date	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)

MAY 2002	
24...	95
JUN	
06...	97
20...	--
JUL	
02...	97
18...	--
30...	95
30...	--
AUG	
15...	--
29...	98
SEP	
19...	97

a Laboratory duplicate sample collected for water-quality purposes.

THIS PAGE IS INTENTIONALLY BLANK

MISSOURI RIVER MAIN STEM

06486000 MISSOURI RIVER AT SIOUX CITY, IA

LOCATION.--Lat. 42°29'09", long 96°24'49", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.16, T.29 N., R.9 E., sixth principal meridian, Dakota County, Nebraska, Hydrologic Unit 10230001, on right bank on upstream side of bridge on U.S. Highway 20 and 77 at South Sioux City, Nebraska, 1.9 mi downstream from Big Sioux River, and at mile 732.2.

DRAINAGE.--314,600 mi², approximately. The 3,959 mi² in Great Divide basin are not included.

PERIOD OF RECORD.--October 1897 to current year in reports of the U.S. Geological Survey. Prior to October 1928 and October 1931 to September 1938, monthly discharges only, published in WSP 1310. January 1879 to December 1890, monthly discharges only, in House Document 238, 73rd Congress, 2d session, Missouri River. Gage height records collected in this vicinity September 1878 to December 1899 are contained in reports of Missouri River Commission and since July 1889 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 716: 1929-30. WSP 876: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,056.98 ft above NGVD of 1929. Sept. 2, 1878, to Dec. 31, 1905, nonrecording gages at various locations within 1.7 mi of present site and at various datums. Jan. 1, 1906, to Feb. 14, 1935, nonrecording gage, and Feb. 15, 1935, to Sept. 30, 1969, water-stage recorder at site 227 ft downstream at datum 19.98 ft higher, and Oct. 1, 1969, to Sept. 30, 1970, at datum 20.00 ft higher. Oct. 1, 1970, to Jan. 30, 1981, water-stage recorder at site 227 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. Fort Randall Dam was completed in July 1952, with storage beginning in December 1952. Gavins Point Dam was completed in July 1955, with storage beginning in December 1955. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft³/s, Apr. 14, 1952, gage height, 24.28 ft, datum then in use; minimum, 2,500 ft³/s, Dec. 29, 1941; minimum gage height, 7.02 ft, Jan. 19, 1996.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28000	30200	22100	16100	16100	17500	29200	26100	25800	26100	26000	30400
2	27900	30200	19500	16100	15700	15700	29500	26500	26000	26000	25800	31000
3	27900	30000	17700	16200	15800	17200	28100	25800	26500	26300	25700	31400
4	27700	30000	16900	16000	15300	17200	27400	25300	26700	26400	26300	31400
5	27400	30100	16800	18000	15100	18200	27300	25400	26400	26300	27400	31700
6	27500	30200	16600	16500	15600	16900	27100	25600	26100	26400	26400	31900
7	28300	30500	16400	15200	14900	15600	27400	25400	26500	26400	25900	31900
8	28400	30600	16600	15500	14900	15600	27300	25400	27300	26300	25800	31800
9	28600	30400	16600	15600	15300	15100	27600	25200	26300	26400	25800	32100
10	29200	30500	16500	15200	16400	14000	27500	24700	26300	28100	25900	32200
11	28900	30500	16300	15000	16800	15800	27600	25900	27200	27400	25600	32400
12	28600	30700	16300	15100	16800	16500	27200	26100	26800	26800	25800	32200
13	28800	30800	16300	15100	15300	15800	26200	25700	26600	26800	25900	32600
14	28800	30900	16200	15500	14900	15500	26500	25500	26400	26900	25400	32900
15	28700	31000	16100	15400	15000	15400	26300	24600	26700	26600	25700	31400
16	28900	30900	16400	15700	14900	15100	26300	25000	26600	26300	29700	30600
17	29400	30700	16400	16200	14900	15200	26800	25500	26500	26100	32700	31000
18	29500	30800	16300	15800	15000	15100	26300	24900	26400	26000	31400	30600
19	29700	30900	16200	14900	15300	16700	25900	24800	26300	26000	31100	30600
20	29500	30600	16000	15400	15200	19400	25900	24900	26700	25900	31000	30000
21	29500	30700	15700	15000	15000	22500	26300	25000	26500	26000	31700	29300
22	29400	30700	16200	14900	15100	24400	26500	25000	26300	26100	34200	28800
23	29400	31000	15800	14800	15800	26100	26400	25800	26100	25500	34700	28900
24	29400	31700	15000	14000	16600	26200	27200	25300	26100	25600	33700	29200
25	29500	27800	14900	14300	17300	26500	27000	25200	26100	27400	31700	30300
26	28900	25900	14800	14200	16000	26500	26400	24800	26700	26800	31500	30500
27	29100	27400	15300	14300	15400	26200	26900	24700	26800	26100	31400	31100
28	29300	26100	16500	14600	17400	26400	27700	24500	26600	26200	31100	31700
29	29300	24900	16500	14800	---	26500	26700	27300	26400	26300	30700	33300
30	29900	24100	16500	15100	---	26800	25800	26100	26200	26200	30300	33200
31	30100	---	16200	16000	---	27900	---	25400	---	26000	30000	---
TOTAL	895500	890800	511600	476500	437800	609500	810300	787400	793900	817700	896300	936400
MEAN	28890	29690	16500	15370	15640	19660	27010	25400	26460	26380	28910	31210
MAX	30100	31700	22100	18000	17400	27900	29500	27300	27300	28100	34700	33300
MIN	27400	24100	14800	14000	14900	14000	25800	24500	25800	25500	25400	28800
AC-FT	1776000	1767000	1015000	945100	868400	1209000	1607000	1562000	1575000	1622000	1778000	1857000
CFSM	0.09	0.09	0.05	0.05	0.05	0.06	0.09	0.08	0.08	0.08	0.09	0.10
IN.	0.11	0.11	0.06	0.06	0.05	0.07	0.10	0.09	0.09	0.10	0.11	0.11

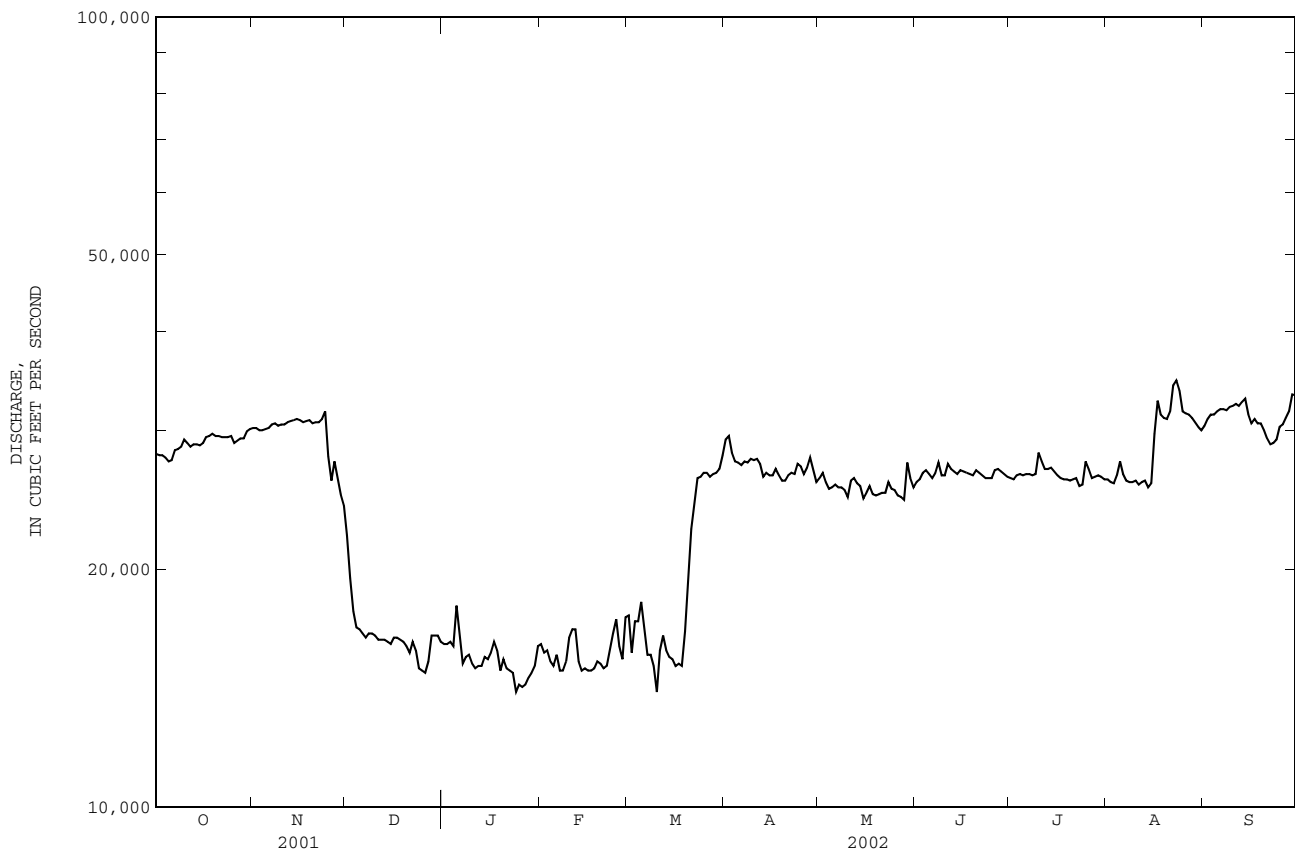
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2002, BY WATER YEAR (WY)

	MEAN	36150	31350	18920	16140	17280	23300	33380	33890	35540	36090	36470	36720
MAX	69300	71600	39880	27720	31120	47020	88040	78720	66400	65550	65360	66400	
(WY)	1998	1998	1998	1987	1997	1997	1997	1997	1997	1997	1997	1997	
MIN	14350	6951	8271	7316	6293	9135	17450	23820	23270	26380	24270	25790	
(WY)	1962	1962	1962	1964	1963	1957	1957	1962	1960	2002	1993	1962	

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1953 - 2002a	
ANNUAL TOTAL	9722900		8863700		29650	
ANNUAL MEAN	26640		24280		55890	
HIGHEST ANNUAL MEAN					19770	
LOWEST ANNUAL MEAN					105000	
HIGHEST DAILY MEAN	62000	Apr 28	34700	Aug 23	3000	Dec 11 1961
LOWEST DAILY MEAN	12600	Jan 20	14000	Jan 24	5430	Feb 22 1963
ANNUAL SEVEN-DAY MINIMUM	13600	Jan 20	14400	Jan 23	101000	Apr 3 1960
MAXIMUM PEAK FLOW			36100	Aug 22	30.65	Feb 19 1971
MAXIMUM PEAK STAGE			16.55	Aug 22		
INSTANTANEOUS LOW FLOW			13200	Mar 10		
ANNUAL RUNOFF (AC-FT)	19290000		17580000		21480000	
ANNUAL RUNOFF (CFSM)	0.085		0.077		0.094	
ANNUAL RUNOFF (INCHES)	1.15		1.05		1.28	
10 PERCENT EXCEEDS	35900		30900		46400	
50 PERCENT EXCEEDS	28400		26200		30100	
90 PERCENT EXCEEDS	14900		15300		12000	

a Post regulation.



As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge and gage height for each water year are given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined. Stations that are noted with "METWARN" are part of a flood-warning system for Rapid City and surrounding area and are equipped with real-time satellite data-collection platforms. METWARN stations are operated from April 1 to September 30.

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
RED RIVER OF THE NORTH BASIN										
05051650	La Belle Creek near Veblen, SD	Lat 45°53'33", long 97°21'40", in SW ¹ / ₄ SE ¹ / ₄ sec.1, T.128 N., R.54 W., Marshall County, Hydrologic Unit 09020105, on downstream left wing-wall on county bridge, 3.0 mi west of Veblen on State Highway 25, 2.0 mi north, and 0.5 mi west. Elevation of gage is 1,330 ft above NGVD of 1929, from topographic map.	8.74	1988-99†, 2001-02	3-31-02	^a 4.91	40	4- 1-97 5-18-96	12.57 7.34	(^a) 664
GRAND-MOREAU RIVER BASIN										
06357620	Willow Creek near Keldron, SD	Lat 45°50'00", long 101°52'02", in SE ¹ / ₄ SE ¹ / ₄ SW ¹ / ₄ sec.27, T.22 N., R.18 E., Corson County, Hydrologic Unit 10130303, on left downstream bank at bridge, 0.1 mi west of Corson County Road 33, 0.8 mi upstream of West Branch Willow Creek confluence, and 8.0 mi south-south-west of Keldron. Elevation of gage is 2,355 ft above NGVD of 1929, from topographic map.	30.0	1999-2002	3-27-02	^a 3.82	^b .10	7- 7-98	^c 13.5	(^d)
MISSOURI-OAHE RIVER BASIN										
06361045	Unnamed tributary Swift Bird Bay, Lake Oahe, near LaPlant, SD	Lat 45°08'38", long 100°23'35", in SW ¹ / ₄ NW ¹ / ₄ SE ¹ / ₄ sec.25, T.14 N., R.30 E., Dewey County, Hydrologic Unit 10130105, on left bank at downstream side of county road, 12.6 mi southeast of LaPlant, 25.6 mi southeast of Whitehorse, and 42.4 mi northeast of Eagle Butte. Elevation of gage is 1,660 ft above NGVD of 1929, from topographic map.	8.99	1999-2002	2002	--	(^e)	5- 5-99	9.09	405

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
CHEYENNE RIVER BASIN										
06394300	Redbird Canyon near Newcastle, WY	Lat 43°46'34", long 104°01'37", in SE ¹ / ₄ SE ¹ / ₄ NW ¹ / ₄ sec.20, T.3 N., R.1 E., Custer County, Hydrologic Unit 10120107, 4.1 mi south of Fanny Peak, 9.6 mi east of Newcastle, and 21.0 mi west of Custer. Elevation of gage is 3,580 ft above NGVD of 1929, from topographic map.	62.1	1999-2002	^f 7- 5-02	29.13	111	7- 7-01	30.20	1,140
06394450	Pass Creek near Dewey, SD	Lat 43°33'05", long 103°56'15", in NE ¹ / ₄ NE ¹ / ₄ sec.12, T.6 S., R.1 E., Custer County, Hydrologic Unit 10120107, in centerline of Pass Creek 7.0 mi east of Dewey on County Road 769 and 140 ft south of road. Elevation of gage is 3,870 ft above NGVD of 1929, from topographic map.	35.9	1999-2002	2002	--	(^e)	(^f)	^g 18.05	1,430
06402470	Beaver Creek above Buffalo Gap, SD	Lat 43°31'20", long 103°21'23", in SW ¹ / ₄ SE ¹ / ₄ SW ¹ / ₄ sec.13, T.6 S., R.6 E., Custer County, Hydrologic Unit 10120109, on right side of flume approximately 1.0 mi downstream from commercial fish hatchery and approximately 4.0 mi northeast of Buffalo Gap. Elevation of gage is 3,772 ft above NGVD of 1929, from topographic map.	111	1991-97†, 1999-2002	10- 3-01	11.10	10	6-19-99	13.50	120
06402995	French Creek above Stockade Lake, near Custer, SD	Lat 43°46'10", long 103°32'10", in SE ¹ / ₄ NW ¹ / ₄ SW ¹ / ₄ sec.21, T.3 S., R.5 E., Custer County, Hydrologic Unit 10120109, on right bank 0.3 mi above Stockade Lake, 0.4 mi below mouth of Willow Creek, and 2.5 mi east of Custer on Highway 16A. Elevation of gage is 5,190 ft above NGVD of 1929, from topographic map.	68.7	1991-97†, 1998-2002	^f 10- 2-01	6.39	181	8- 7-99	8.87	1,070

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
CHEYENNE RIVER BASIN--Continued										
06403810	Battle Creek above Keystone, SD	Lat 43°54'17", long 103°27'48", in SE ¹ / ₄ SW ¹ / ₄ NE ¹ / ₄ sec.1, T.2 S., R.5 E., Pennington County, Hydrologic Unit 10120109, on right bank 15 ft downstream from concrete culvert along Pennington County Highway 323 about 3.0 mi west of Keystone. Elevation of gage is 4,600 ft above NGVD of 1929, from topographic map. METWARN station.	6.8	1998-2002	4-27-02	4.77	1.8	6-18-99	8.48	^h ₁ ,140
06403850	Grizzly Bear Creek near Keystone, SD	Lat 43°52'41", long 103°26'14", in NW ¹ / ₄ SW ¹ / ₄ NW ¹ / ₄ sec.17, T.2 S., R.6 E., Pennington County, Hydrologic Unit 10120109, on downstream right wing-wall of Highway 16A bridge, and 1.2 mi southwest of Keystone. Elevation of gage is 4,510 ft above NGVD of 1929, from topographic map. METWARN station.	4.52	1998-2002	(^f) 6-17-02	5.30 ⁱ 2.54	(^a) ⁱ 1.73	7-11-01	5.60	713
06404800	Grace Coolidge Creek near Hayward, SD	Lat 43°48'07", long 103°26'03", in NE ¹ / ₄ NW ¹ / ₄ SW ¹ / ₄ sec.8, T.3 S., R.6 E., Custer County, Hydrologic Unit 10120109, in Custer State Park, at right downstream side of bridge, near intersection of State Highway 87 and CSP 753, approximately 1.0 mi upstream from Center Lake, and 7.0 mi southwest of Hayward. Elevation of gage is 4,780 ft above NGVD of 1929, from topographic map.	7.48	1989-98†, 1999-2002	6-11-02	ⁱ 4.28	ⁱ 1.52	5- 8-95	7.57	337

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
CHEYENNE RIVER BASIN--Continued										
06405800	Bear Gulch near Hayward, SD	Lat 43°47'31", long 103°20'49", in NW ¹ / ₄ SW ¹ / ₄ NE ¹ / ₄ sec.13, T.3 S., R.6 E., Custer County, Hydrologic Unit 10120109, in Custer State Park, on right bank 3.5 mi upstream from mouth, 2.1 mi north from intersection of Alt. 16 and Highway 36, and 5.5 mi south of Hayward. Elevation of gage is 4,110 ft above NGVD of 1929, from topographic map.	4.23	1989-98†, 1999-2002	6-11-02	ⁱ 4.75	ⁱ 1.2	9- 7-89	^g 10.68	^h 1,250
06406700	Spring Creek at Oreville, near Hill City, SD	Lat 43°51'58", long 103°37'24", in SE ¹ / ₄ NW ¹ / ₄ NE ¹ / ₄ sec.22, T.2 S., R.4 E., Pennington County, Hydrologic Unit 10120109, on left bank 75 ft downstream from Tenderfoot Creek, near U.S. Highway 16/ Alt 85, and about 5.5 mi southwest of Hill City. Elevation of gage is 5,355 ft above NGVD of 1929, from topographic map. METWARN station.	42.3	1998-2002	4- 6-02	5.25	61	6-18-98	8.23	430
06406740	Sunday Gulch below Johnson Canyon, near Hill City, SD	Lat 43°52'10", long 103°34'55", in SW ¹ / ₄ SE ¹ / ₄ SE ¹ / ₄ sec.13, T.2 S., R.4 E., Pennington County, Hydrologic Unit 10120109, on left bank along State Highway 87/89 about 0.5 mi downstream from Johnson Canyon and 4.0 mi south of Hill City. Elevation of gage is 5,410 ft above NGVD of 1929, from topographic map. METWARN station.	4.85	1998-2002	8- 5-02	4.44	13	6-18-98	5.89	91
06406760	Reno Gulch near Hill City, SD	Lat 43°54'35", long 103°36'43", in SW ¹ / ₄ NE ¹ / ₄ NW ¹ / ₄ sec.2, T.2 S., R.4 E., Pennington County, Hydrologic Unit 10120109, on right bank 0.8 mi upstream from Spring Creek, and about 2.0 mi southwest of Hill City. Elevation of gage is 5,350 ft above NGVD of 1929, from topographic map. METWARN station.	3.96	1998-2002	7-19-02	3.85	1.6	6-18-98	5.84	99

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
CHEYENNE RIVER BASIN--Continued										
06411900	Rapid Creek above Johnson Siding, below Pactola Dam, SD	Lat 44°04'56", long 103°26'32", in NE ¹ / ₄ NW ¹ / ₄ sec.6, T.1 N., R.6 E., Pennington County, Hydrologic Unit 10120110, on left downstream wingwall about 2.0 mi east of Pactola Dam. Elevation of gage is 4,305 ft above NGVD of 1929, from topographic map. METWARN station.	332	1998-2002	7- 6-02	3.85	158	6-24-98	4.62	638
06412000	Rapid Creek at Big Bend, near Rapid City, SD	Lat 44°03'18", long 103°25'00", in NW ¹ / ₄ SE ¹ / ₄ sec.8, T.1 N., R.6 E., Pennington County, Hydrologic Unit 10120110, on right upstream wingwall of bridge about 3.0 mi from Pactola Dam, and 9.0 mi west of Rapid City. Elevation of gage is 4,110 ft above NGVD of 1929, from topographic map. METWARN station.	338	1998-2002	3- 9-02 7- 9-02	5.47 4.51	(^a) 112	6-17-99	6.50	555
06412200	Rapid Creek above Victoria Creek, near Rapid City, SD	Lat 44°02'48", long 103°21'06", in SW ¹ / ₄ NW ¹ / ₄ sec.13, T.1 N., R.6 E., Pennington County, Hydrologic Unit 10120110, on left bank 0.5 mi above Victoria Creek, and 3.0 mi west of Canyon Lake. Elevation of gage is 3,570 ft above NGVD of 1929, from topographic map. METWARN station.	355	1989-97+, 1998-2002	7-20-02	6.06	166	6- 2-97	8.38	1,180
06412220	Victoria Creek above Victoria Dam, near Rapid City, SD	Lat 44°01'47", long 103°26'06", in NE ¹ / ₄ SE ¹ / ₄ sec.19, T.1 N., R.6 E., Pennington County, Hydrologic Unit 10120110, on left bank about 3.5 mi upstream of Victoria Dam and 7.0 mi southwest of Rapid City. Elevation of gage is 4,630 ft above NGVD of 1929, from topographic map. METWARN station.	2.25	1998-2002	4- 7-02	3.73	1.4	6-15-99	4.45	14

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
CHEYENNE RIVER BASIN--Continued										
06412250	Victoria Creek below Victoria Dam, near Rapid City, SD	Lat 44°01'05", long 103°23'07", in SW ¹ / ₄ SE ¹ / ₄ NW ¹ / ₄ sec.27, T.1 N., R.6 E., Pennington County, Hydrologic Unit 10120110, along right bank upstream of culverts 1,000 ft downstream from Victoria Dam, and about 3.5 mi southwest of Rapid City on National Forest Service Road 159. Elevation of gage is 4,160 ft above NGVD of 1929, from topographic map. METWARN station.	4.56	1998-2002	5-11-02	3.93	1.3	6-15-99	6.20	73
06412580	Wild Irishman Gulch near Rapid City, SD	Lat 44°04'52", long 103°21'54", in NW ¹ / ₄ NE ¹ / ₄ NW ¹ / ₄ sec.2, T.1 N., R.6 E., Pennington County, Hydrologic Unit 10120110, on left bank about 3.0 mi west of Rapid City on Pennington County Highway 246 (Schroeder Road). Elevation of gage is 4,055 ft above NGVD of 1929, from topographic map. METWARN station.	3.22	1998-2002	2002	--	(^e)	1998-2002	--	(^e)
06413620	South Canyon near Rapid City, SD	Lat 44°05'34", long 103°19'37", in NE ¹ / ₄ SW ¹ / ₄ NW ¹ / ₄ sec.31, T.2 N., R.7 E., Pennington County, Hydrologic Unit 10120110, along left bank downstream of concrete culvert at the intersection of CR 234 (Nemo Road) and Echo Drive in the northwest side of Rapid City. Elevation of gage is 3,710 ft above NGVD of 1929, from topographic map. METWARN station.	2.90	1998-2002	2002	--	(^e)	7-15-01	4.64	18
06416000	Rapid Creek below Hawthorn Ditch, at Rapid City	Lat 44°04'03", long 103°10'50", in NW ¹ / ₄ NE ¹ / ₄ sec.8, T.1 N., R.8 E., Pennington County, Hydrologic Unit 10120110, 1.5 mi downstream from diversion to Hawthorn Ditch and 1.0 mi upstream from diversion to Murphy Ditch. Datum of gage is 3,124.18 ft above NGVD of 1929. METWARN station.	418	1947-54, 1982+, 2000-02	7-20-02	13.93	744	5-23-52	19.19	2,130

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
CHEYENNE RIVER BASIN--Continued										
06421800	Lindsey Draw near Farmingdale, SD	Lat 43°54'27", long 102°51'31", in NE ¹ / ₄ SE ¹ / ₄ NE ¹ / ₄ sec.1, T.2 S., R.10 E., Pennington County, Hydrologic Unit 10120110, on left downstream side of County Road C459, 2.0 mi southwest of the confluence of Lindsey Draw and Rapid Creek, and 4.2 mi south-south-east of Farmingdale. Elevation of gage is 2,755 ft above NGVD of 1929, from topographic map.	12.8	1998-02	5-12-02	2.08	^(d)	6-17-98	7.90	^(d)
BELLE FOURCHE RIVER BASIN										
06430898	Squaw Creek near Spearfish, SD	Lat 44°24'04", long 103°53'35", in NE ¹ / ₄ NE ¹ / ₄ sec.17, T.5 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on right bank 200 ft upstream from mouth and 8.0 mi south of Spearfish. Elevation of gage is 4,480 ft above NGVD of 1929, from topographic map.	6.95	1989-98†, 1999-2002	1-24-02 6-10-02	ⁱ 5.69 ⁱ 4.32	^(a) ⁱ 1.4	5- 8-95	9.47	860
06432020	Spearfish Creek below Spearfish, SD	Lat 44°34'48", long 103°53'37", in SW ¹ / ₄ NE ¹ / ₄ SE ¹ / ₄ sec.8, T.7 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on right bank 2.3 mi above mouth and 5.0 mi north of Spearfish. Elevation of gage is 3,280 ft above NGVD of 1929 from topographic map.	204	1989-98†, 1999-2002	10- 9-01	ⁱ 4.97	ⁱ 107	5- 9-95	7.37	1,590
06432172	False Bottom Creek near Central City, SD	Lat 44°23'28", long 103°47'58", in NW ¹ / ₄ SW ¹ / ₄ SE ¹ / ₄ sec.18, T.5 N., R.3 E., Lawrence County, Hydrologic Unit 10120203, at bridge, 0.5 mi upstream from Maitland, 0.8 mi upstream from Paradise Gulch, and 2.0 mi northwest of Central City. Elevation of gage is 4,950 ft above NGVD of 1929, from topographic map. Gage operated as a miscellaneous surface-water discharge and miscellaneous surface-water-quality site August 1988 to August 1999.	3.79	2001-2002	1-28-02 9-18-02	ⁱ 11.30 11.03	^(a) 3.0	1-28-02 4- 7-01	ⁱ 11.30 10.98	^(a) ^k 11

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
BELLE FOURCHE RIVER BASIN--Continued										
06436156	Whitetail Creek at Lead, SD	Lat 44°20'36", long 103°45'57", in NE ¹ / ₄ NE ¹ / ₄ NW ¹ / ₄ sec.4, T.4 N., R.3 E., Lawrence County, Hydrologic Unit 10120202, on right bank 0.5 mi upstream from confluence of Whitewood Creek and 0.2 mi upstream from Kirk Power Plant. Elevation of gage is 5,080 ft above NGVD of 1929, from topographic map.	6.15	1989-98†, 1999-2002	1-23-02 5-21-02	1.94 ⁱ 1.18	(^a) ⁱ 4.2	5- 8-95	6.67	507
06437200	Bear Butte Creek near Galena, SD	Lat 44°23'48", long 103°34'36", in SE ¹ / ₄ SE ¹ / ₄ NW ¹ / ₄ sec.13, T.5 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on right downstream bridge wingwall along U.S. Highway Alt. 14 about 4.5 mi west of Sturgis. Elevation of gage is 3,770 ft above NGVD of 1929, from topographic map. METWARN station.	51.8	1998-2002	4- 7-02	4.05	8.3	6-18-98	5.72	541
06437500	Bear Butte Creek near Sturgis, SD	Lat 44°28'53", long 103°16'31", in NW ¹ / ₄ SE ¹ / ₄ sec.16, T.6 N., R.7 E., Meade County, Hydrologic Unit 10120202, on left bank 0.8 mi downstream from Spring Creek, 12.5 mi northeast of Sturgis, and 13.4 mi upstream from mouth. Datum of gage is 2,779.91 ft above NGVD of 1929.	192	1946-62, 1962-72†, 1990-2002	10- 2-01 4-15-02	ⁱ 4.16 ⁱ 3.96	(^b) ⁱ 2.6	6-16-62	^g 12.45	12,700
06437650	Elm Creek near Fairpoint, SD	Lat 44°46'59", long 103°03'43", in SW ¹ / ₄ NE ¹ / ₄ SE ¹ / ₄ sec.31, T.10 N., R.9 E., Butte County, Hydrologic Unit 10120202, at bridge on old Highway 212 (Killdeer Road) and 19.5 mi east of Newell. Elevation of gage is 2,820 ft above NGVD of 1929, from topographic map.	8.8	1999-2002	3-29-02	ⁱ 4.22	ⁱ 3.4	6- 6-99	7.10	680

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
CHEYENNE RIVER BASIN										
06438800	Elm Creek near Red Owl, SD	Lat 44°45'04", long 102°26'55", in NW ¹ / ₄ SW ¹ / ₄ sec.8, T.9 N., R.14 E., Meade County, Hydrologic Unit 10120113, on Fox Ridge Road, 6.2 mi northeast of Red Owl and 1.2 mi southwest of the confluence of Elm Creek and Sulphur Creek. Elevation of gage is 2,455 ft above NGVD of 1929, from topographic map.	15.0	1999-2002	3- 8-02	^a 2.06	^k 1.0	7- 7-00 3- 9-01	5.16 ^a 12.30	(^d) (^a)
MISSOURI-OAHE RIVER BASIN										
06439770	Unnamed tributary Stone Lake near Lebanon, SD	Lat 44°55'35", long 99°44'48", in NE ¹ / ₄ NW ¹ / ₄ sec.27, T.117 N., R.74 W., Potter County, Hydrologic Unit 10130106, on right bank at downstream side of county road, 5.6 mi upstream from Stone Lake, 10.3 mi south-southeast of Lebanon, 11.7 mi southeast of Gettysburg, and 22.2 mi northeast of Onida. Elevation of gage is 1,875 ft above NGVD of 1929, from topographic map.	12.4	1999-2002	2002	--	(^e)	9- 3-99	7.01	(^d)
06439960	Chantier Creek near Hayes, SD	Lat 44°31'20", long 100°42'13", in NE ¹ / ₄ SW ¹ / ₄ sec.35, T.7 N., R.28 E., Stanley County, Hydrologic Unit 10130105, at bridge on State Highway 1806, 1.7 mi upstream from mouth, 18.0 mi northeast of Hayes, and 23.0 mi northwest of Pierre. Elevation of gage is 1,670 ft above NGVD of 1929, from topographic map.	21.5	1990-2002	3-28-02	^g 1.34	^{a,k} 35	6- 7-93	^g 14.81	¹ 8,000
MISSOURI-FORT RANDALL RIVER BASIN										
06440300	Unnamed tributary Cottonwood Creek near Quinn, SD	Lat 43°57'39", long 102°08'17", in NW ¹ / ₄ SW ¹ / ₄ NW ¹ / ₄ sec.18, T.1 S., R.17 E., Pennington County, Hydrologic Unit 10140102, on left downstream wingwall of bridge, located 0.5 mi west of Quinn on Highway 14, and 1.8 mi south on county road T152. Elevation of gage is 2,600 ft above NGVD of 1929, from topographic map.	9.56	1999-2002	5-13-02	7.72	.49	4-21-00	11.96	171

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
MISSOURI-FORT RANDALL RIVER BASIN--Continued										
06440850	Medicine Creek near Phillip, SD	Lat 44°03'17", long 101°29'12", in NE ¹ / ₄ SE ¹ / ₄ (revised) sec.8, T.1 N., R.22 E., Haakon County, Hydrologic Unit 10140102, at bridge on county highway, 1.3 mi upstream from mouth, and 9.0 mi east of Philip. Prior to October 1998, datum 2.00 ft lower. Elevation of gage is 2,040 ft above NGVD of 1929, from topographic map.	56.5	1989-2002	2002	--	(^e)	6- 6-99	11.27	450
06441100	Plum Creek near Hayes, SD	Lat 44°20'41", long 101°07'40", in SW ¹ / ₄ sec.32, T.5 N., R.25 E., Stanley County, Hydrologic Unit 10140102, at bridge on U.S. Highway 14 and State Highway 63, 7.0 mi southwest of Hayes. Elevation of gage is 2,034 ft above NGVD of 1929, from topographic map.	24.5	1989-2002	2002	--	(^e)	5- 9-95	6.74	936
06441110	Plum Creek below Hayes, SD	Lat 44°12'38", long 100°43'34", in NW ¹ / ₄ NW ¹ / ₄ sec.23, T.3 N., R.28 E., Stanley County, Hydrologic Unit 10140102, on left bank at downstream side of county bridge, 0.3 mi upstream from mouth, 3.0 mi southwest of Wendte, 18.5 mi southeast of Hayes, and 21.2 mi southwest of Ft. Pierre. Elevation of gage is 1,612 ft above NGVD of 1929, from topographic map.	252	1989-95†, 1998-2002	10- 3-01 ‡3-28-02	ⁱ 5.15 ^g 4.80	(^m) ^k <20	5-30-91	^g 23.74	^h 13,500
06442150	Cedar Creek near Kennebec, SD	Lat 44°08'27", long 99°56'37", in SW ¹ / ₄ NW ¹ / ₄ SW ¹ / ₄ sec.22, T.108 N., R.76 W., Lyman County, Hydrologic Unit 10140101, on left bank about 0.6 mi upstream from Highway 1806 bridge, 19.5 mi northwest of Kennebec, and 20 mi northwest of Lower Brule. Elevation of gage is 1,440 ft above NGVD of 1929, from topographic map.	140	2002	3-28-02	^g 8.57	ⁿ 1,540	3-28-02	^g 8.57	ⁿ 1,540

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
MISSOURI-FORT RANDALL RIVER BASIN--Continued										
06442500	Medicine Creek at Kennebec, SD	Lat 43°54'17", long 99°52'35", in NW ¹ / ₄ NE ¹ / ₄ sec.18, T.105 N., R.75 W., Lyman County, Hydrologic Unit 10140104, on downstream side of bridge, 0.5 mi west of Kennebec, and 0.5 mi downstream from small right-bank tributary. Datum of gage is 1,659.64 ft above NGVD of 1929.	464	1955-90†, 1991-97, 2001-02	3-29-02	^g 7.86	746	6-4-97	19.28	16,600
06442670	Counselor Creek near Lower Brule, SD	Lat 44°01'34", long 99°31'00", in SE ¹ / ₄ NE ¹ / ₄ SW ¹ / ₄ sec.31, T.107 N., R.72 W., Lyman County, Hydrologic Unit 10140101, on left bank 1,260 ft upstream from highway BIA 10 bridge, 4.4 mi southeast of Lower Brule, and 11.0 mi northeast of Reliance. Elevation of gage is 1,440 ft above NGVD of 1929, from topographic map.	32.8	2002	3-27-02	7.24	ⁿ 393	3-27-02	7.24	ⁿ 393
WHITE RIVER BASIN										
06445980	White Clay Creek near Oglala, SD	Lat 43°08'46", long 102°40'58", in NW ¹ / ₄ SE ¹ / ₄ SE ¹ / ₄ sec.30, T.37 N., R.45 W., Shannon County, Hydrologic Unit 10140201, on left bank at downstream side of bridge on U.S. Highway 18, 4.3 mi southeast of Oglala, 5.5 mi upstream from Oglala Dam, and 11 mi northwest of Pine Ridge. Datum of gage is 3,001.54 ft above NGVD of 1929.	340	1966-81†, 1988-99†, 2000-02	^f 4-01-02	9.55	^a 106	3-11-66 6-16-67	15.02 14.74	(^a) 659
06446100	Wounded Knee Creek at Wounded Knee, SD	Lat 43°08'38", long 102°21'28", in NE ¹ / ₄ NW ¹ / ₄ sec.36, T.37 N., R.43 W., Shannon County, Hydrologic Unit 10140201, on left bank at upstream end of culvert on Tribal Road 27 in Wounded Knee, and above the confluence of Spring Creek. Elevation of gage is 3,200 ft above NGVD of 1929, from topographic map.	82.5	1993-97†, 1998-2002	(^f)	5.16	24	6- 3-97	^g 9.13	321

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
WHITE RIVER BASIN--Continued										
06447050	Unnamed tributary Buzzard Creek near Long Valley, SD	Lat 43°27'42", long 101°25'59", in SW ¹ / ₄ SW ¹ / ₄ sec.2, T.40 N., R.35 W., Jackson County, Hydrologic Unit 10140202, on left bank, 22 ft north-west from downstream end of culvert on county road, 3.1 mi east of Long Valley, and 11.5 mi west of Norris. Elevation of gage is 2,575 ft above NGVD of 1929, from topographic map.	9.26	1999-2002	3-28-02	3.97	3.0	4-19-00	4.88	46
06451600	Unnamed tributary White Thunder Creek near Wood, SD	Lat 43°37'23", long 100°30'33", in NW ¹ / ₄ NW ¹ / ₄ sec.14, T.42 N., R.27 W., Mellette County, Hydrologic Unit 10140204, on right bank 300 ft downstream from road culvert on county road, 9.9 mi north of Wood, and 2.5 mi upstream from confluence with White Thunder Creek. Datum of gage is 1,958.75 ft above NGVD of 1929.	13.0	1998-2002	2002	--	(^e)	7-30-98	^g 9.44	(^d)
06451650	Williams Creek near Vivian, SD	Lat 43°43'33", long 100°17'50", in SW ¹ / ₄ NW ¹ / ₄ sec.16, T.103 N., R.79 W., Lyman County, Hydrologic Unit 10140204, on right bank at downstream side of Highway 53 bridge, approximately 2.0 mi upstream of confluence with White River, 13.2 mi south of Interstate 90 and Highway 53 intersection. Elevation of gage is 1,700 ft above NGVD of 1929, from topographic map.	48.8	1999-2002	5- 4-02	4.48	26	9- 4-99	^g 9.64	^h 1,980

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
MISSOURI-FORT RANDALL RIVER BASIN										
06452275	Snake Creek near Bijou Hills, SD	Lat 43°29'58", long 99°07'13", in NW ¹ / ₄ NW ¹ / ₄ sec.10, T.100 N., R.70 W., Charles Mix County, Hydrologic Unit 10140101, at downstream side of State Highway 50, 3.3 mi upstream from Academy Lake, 3.5 mi northwest of Academy, and 16.5 mi northwest of Platte. Elevation of gage is 1,690 ft above NGVD of 1929, from topographic map.	23.8	1999-2002	3-31-02	⁹ 5.04	35	5- 5-99	8.31	830
06452290	East Fork Platte Creek near Aurora Center, SD	Lat 43°33'36", long 98°36'58", in SE ¹ / ₄ NE ¹ / ₄ SE ¹ / ₄ sec.9, T.101 N., R.65 W., Aurora County, Hydrologic Unit 10140101, on left bank at downstream end of culvert on county road, 1.2 mi west and 2.2 mi north of Aurora Center, and 0.6 mi upstream of Laffey Lake. Elevation of gage is 1,605 ft above NGVD of 1929, from topographic map.	20.8	1999-2002	2002	--	(^e)	7- 4-99 3-21-01	6.06 6.45	323 (^a)
NIOBRARA RIVER BASIN										
06463900	Antelope Creek near Mission, SD	Lat 43°16'26", long 100°40'56", in SE ¹ / ₄ SW ¹ / ₄ sec.7, T.38 N., R.28 W., Todd County, Hydrologic Unit 10150006, at culvert on county road, 2.0 mi south of Mission on State Highway 83 and then 1.6 mi west. Elevation of gage is 2,595 ft above NGVD of 1929, from topographic map.	71.3	1999-2002	5- 1-02	5.37	57	2-18-97 7- 3-98	7.40 6.96	(^a) 88

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
NIOBRARA RIVER BASIN--Continued										
06464120	Sand Creek near Olsonville, SD	Lat 43°01'03", long 100°24'46", in SW ¹ / ₄ SW ¹ / ₄ sec.8, T.35 N., R.26 W., Todd County, Hydrologic Unit 10150006, on left bank 40 ft downstream of county road culvert, approximately 23.5 mi upstream from confluence with Keya Paha River, 2.5 mi southeast of Littleburg, and 12.2 mi southeast of Olsonville. Elevation of gage is 2,575 ft above NGVD of 1929, from topographic map.	11.0	1999-2002	3- 5-02 4-16-02	6.50 ⁱ 6.04	(^a) ⁱ 1.67	^f 4-25-01	8.16	ⁿ 250
MISSOURI-LEWIS AND CLARK RIVER BASIN										
06466715	Snatch Creek near Tabor, SD	Lat 42°54'30", long 97°46'33", in SW ¹ / ₄ SE ¹ / ₄ SE ¹ / ₄ sec.35, T.94 N., R.59 W., Bon Homme County, Hydrologic Unit 10170101, at right upstream wingwall of highway bridge, 5.0 mi southwest of Tabor and 2.0 mi upstream from mouth. Elevation of gage is 1,330 ft above NGVD of 1929, from topographic map.	44	1993-2002	^f 3-28-02	^b 3.48	^k 10	5-30-95	10.58	1,660
JAMES RIVER BASIN										
06472050	Antelope Creek near Langford, SD	Lat 45°34'22", long 97°50'10", in NE ¹ / ₄ NE ¹ / ₄ sec.7, T.124 N., R.58 W., Day County, Hydrologic Unit 10160005, on right downstream wingwall of box culvert, 2.0 mi south of Langford or 5.0 mi north of Pierpont. Elevation of gage is 1,390 ft above NGVD of 1929, from topographic map.	24.5	1999-2002	^f 3- 4-02	4.16	^a <1.0	4-11-01	6.42	410
06473020	Howard tributary near Leola, SD	Lat 45°37'48", long 98°55'52", in SW ¹ / ₄ NW ¹ / ₄ sec.21, T.125 N., R.67 W., McPherson County, Hydrologic Unit 10160008, on left bank 20 ft downstream from State Highway 45, 6.3 mi south of Leola, and 4.8 mi upstream of Compton Lake. Elevation of gage is 1,520 ft above NGVD of 1929, from topographic map.	45.2	1999-2002	2002	--	(^e)	5-10-99	3.57	290

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
JAMES RIVER BASIN--Continued										
06473300	Preachers Run tributary at Ipswich, SD	Lat 45°27'08", long 99°01'45", in SW ¹ / ₄ NW ¹ / ₄ SW ¹ / ₄ (revised) sec.22, T.123 N., R.68 W., Edmunds County, Hydrologic Unit 10160008, on right bank 15 ft downstream from double-corrugated culvert on county highway, 0.3 mi north of U.S. Highway 12 at Ipswich. Elevation of gage is 1,530 ft above NGVD of 1929, from topographic map.	7.88	1971-80, 1999-2002	2002	--	(^e)	3-24-78 4- 7-01	^j 7.42 3.42	(^a) 95
06474000	Turtle Creek near Tulare, SD	Lat 44°44'06", long 98°35'09", in SE ¹ / ₄ SE ¹ / ₄ sec.25, T.115 N., R.65 W., Spink County, Hydrologic Unit 10160009, on right bank 200 ft upstream from highway bridge, 3.9 mi west of Tulare, and 8.9 mi downstream from Wolf Creek. Elevation of gage is 1,300 ft above NGVD of 1929, by barometer.	1,124	1954-56, 1966-81+, 1985-89+, 1990-2002	(^f)	(^b)	^k <10	3-26-97 3-28-97	19.32 18.80	(^a) 13,500
06475600	Turton tributary south near Turton, SD	Lat 45°03'07", long 97°59'38", in NE ¹ / ₄ NE ¹ / ₄ NW ¹ / ₄ sec.12, T.118 N., R.60 W., Spink County, Hydrologic Unit 10160006, on right downstream wingwall of highway bridge, 10.0 mi north of southwest corner of Raymond, then 2.5 mi west. Elevation of gage is 1,400 ft above NGVD of 1929, from topographic map.	19.7	1999-2002	3-31-02	^a 3.58	(^d)	4- 7-01	5.59	(^d)
06475850	Foster Creek tributary near Carpenter, SD	Lat 44°37'56", long 98°03'42", in NW ¹ / ₄ NE ¹ / ₄ NE ¹ / ₄ sec.5, T.113 N., R.60 W., Beadle County, Hydrologic Unit 10160006, on left downstream concrete culvert apron, 7.7 mi east from junction of State Highways 37 and 28. Elevation of gage is 1,325 ft above NGVD of 1929, from topographic map.	4.93	1971-80, 1999-2002	3-29-02	3.21	24	3-12-77 4- 7-01	^j 5.41 ⁱ 4.56	(^a) ⁱ 210

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
JAMES RIVER BASIN--Continued										
06477150	Rock Creek near Fulton, SD	Lat 43°45'30", long 97°54'32", in NE ¹ / ₄ sec.4, T.103 N., R.59 W., Hanson County, Hydrologic Unit 10160011, on right downstream wingwall of highway bridge, 4.8 mi northwest of Fulton, and 9.3 mi upstream from mouth. Elevation of gage is 1,240 ft above NGVD of 1929, from topographic map. Prior to August 1989 at site 0.16 mi upstream from present location and different datum. From August 1989 to August 1995 at site 0.16 mi upstream from present location and same datum.	240	1967-72+, 1973-79, 1989-2002	4- 8-02	ⁱ 3.20	ⁱ 9.0	3-29-97	13.74	3,120
06478052	Enemy Creek near Mitchell, SD	Lat 43°38'33", long 97°59'09", in NW ¹ / ₄ sec.13, T.102 N., R.60 W., Davison County, Hydrologic Unit 10160011, at right downstream wingwall of highway bridge, 7.3 mi upstream from mouth, and 4.5 mi southeast of Mitchell. Elevation of gage is 1,280 ft above NGVD of 1929, from topographic map.	163	1976-87+, 1989-2002	3-31-02	7.43	210	6-22-84	15.15	4,280
06478390	Wolf Creek near Clayton, SD	Lat 43°22'18", long 97°36'12", in NW ¹ / ₄ sec.29, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, at left downstream pier on highway bridge, 4.1 mi upstream from mouth, and 5.6 mi southeast of Clayton. Elevation of gage is 1,210 ft above NGVD of 1929, from topographic map.	396	1976-88+, 1989-2002	8-23-02	^g 6.01	300	6-21-84	18.01	6,520
06478513	James River near Yankton, SD	Lat 42°59'45", long 97°22'10", in NE ¹ / ₄ sec.5, T.94 N., R.55 W., Yankton County, Hydrologic Unit 10160011, at highway bridge 3.9 mi upstream from Beaver Creek, 17.2 mi upstream from mouth, and 9.0 mi northeast of Yankton. Datum of gage is 1,153.38 ft above NGVD of 1929.	20,942 4,148 NC	1981-95+, 1996-2002	8-26-02	5.81	1,100	6-23-84 4- 9-97	24.34 22.94	26,400 28,800

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
MISSOURI-LEWIS AND CLARK RIVER BASIN										
06479000	Vermillion River near Wakonda, SD	Lat 42°59'27", long 96°57'49", in SW ¹ / ₄ NW ¹ / ₄ sec.2, T.94 N.,R.52 W., Clay County, Hydro-logic Unit 10170102, at right downstream wingwall of State Highway 19, 4.3 mi down-stream from Frog Creek, 7.4 mi southeast of Wakonda, and 29.6 mi upstream from mouth. Datum of gage is 1,150.9 ft above NGVD of 1929 (levels by Corps of Engineers).	2,170 494 NC	1946-83†, 1984-2002	3-31-02	^g 5.36	245	6-23-84	^g 17.62	17,000
WAUBAY LAKES CHAIN CLOSED BASIN										
06479158	Unnamed tributary Blue Dog Lake near Ortley, SD	Lat 45°21'02", long 97°08'39", in NE ¹ / ₄ SE ¹ / ₄ NE ¹ / ₄ sec.15, T.122 N.,R.52 W., Roberts County, Hydrologic Unit 10160010, on right downstream bridge wingwall, about 6.5 mi upstream from Blue Dog Lake or 2.5 mi east of Ortley and then 1.5 mi north. Elevation of gage is 1,890 ft above NGVD of 1929, from topographic map.	11.8	1999-2002	^f 3-29-02	4.13	^a 20	4-10-01	5.42	^k 140
BIG SIOUX RIVER BASIN										
06479452	Big Sioux River at Lake Kampeska, near Watertown, SD	Lat 44°56'56", long 97°09'38", in SW ¹ / ₄ SE ¹ / ₄ SW ¹ / ₄ sec.11, T.117 N., R.53 W., Codington County, Hydrologic Unit 10170202, about 6.6 mi northwest of Watertown and about 1.8 mi upstream from inlet/outlet to Lake Kampeska. Elevation of gage is 1,720 ft above NGVD of 1929, from topographic map. High flow site only to determine timing of Lake Kampeska peak.	(^d)	2002	Big Sioux River did not reach minimum recordable gage height.					

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
BIG SIOUX RIVER BASIN--Continued										
06479490	Mud Creek near Rauville, SD	Lat 45°00'29", long 97°06'21", in NE ¹ / ₄ SE ¹ / ₄ sec.19, T.118 N., R.52 W., Codington County, Hydrologic Unit 10170202, at left downstream end of bridge, 7.6 mi upstream of Big Sioux River, and 2.2 mi north of Rauville. Prior to Oct. 1, 1999, at site 0.2 mi downstream at same datum. Elevation of gage is 1,765 ft above NGVD of 1929, from topographic map.	28.9	1998-2002	3-28-02	^a 9.68	600	4- 7-01	^a 10.38	850
06479498	South Branch tributary Mud Creek near Rauville, SD	Lat 44°57'12", long 97°06'23", in SE ¹ / ₄ NE ¹ / ₄ SE ¹ / ₄ sec.7, T.117 N., R.52 W., Codington County, Hydrologic Unit 10170202, on right bank 40 ft north of right edge of wing-wall, 4.3 mi north from junction of U.S. Highways 81 and 212 or by driving south 1.9 mi on U.S. Highway 81 from the town of Rauville. Elevation of gage is 1,740 ft above NGVD of 1929, from topographic map.	15.1	2000-02	3-29-02	^a 3.88	200	4- 7-01	^a 5.50	^k 180
06479512	Big Sioux River at Broadway, at Watertown, SD	Lat 44°53'22", long 97°07'07", in NE ¹ / ₄ NW ¹ / ₄ sec.6, T.116 N., R.52 W., Codington County, Hydrologic Unit 10170202, on right downstream bank at bridge on Broadway Street, 0.1 mi south of the intersection with U.S. Highway 212, 0.3 mi downstream from the confluence of Big Sioux River and Pelican Lake outflow (low flow), and 1.7 mi upstream from Willow Creek. Datum of gage is 1,701.41 ft above NGVD of 1929.	(^b)	1997, 2000-02	3-31-02	^a 8.72	275	4- 6-97 4-12-97	ⁱ 13.67 ^a 13.53	(^a) ⁱ 2,760

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
BIG SIOUX RIVER BASIN--Continued										
06479640	Hidewood Creek near Estelline, SD	Lat 44°36'42", long 96°54'17", in SW ¹ / ₄ NW ¹ / ₄ sec.12, T.113 N., R.51 W., Hamlin County, Hydrologic Unit 10170202, at left upstream wing-wall, 2.7 mi north of Estelline, 2.8 mi southeast of Dempster, and 4.7 mi upstream from mouth. Elevation of gage is 1,665 ft above NGVD of 1929, by barometer.	164	1969-85†, 1990-2002	3-31-02	^a 8.16	^k 600	6-16-92	^g 13.10	^h 17,300
06479980	Medary Creek near Brookings, SD	Lat 44°13'27", long 96°46'02", in NE ¹ / ₄ NE ¹ / ₄ sec.25, T.109 N., R.50 W., Brookings County, Hydrologic Unit 10170202, on right downstream wingwall of county bridge, 5.1 mi downstream from Deer Creek, 4.2 mi upstream from mouth, and 6.1 mi southeast of Brookings. Prior to October 1995, 400 ft downstream at same datum. Datum of gage is 1,570.20 ft above NGVD of 1929.	200	1981-90†, 1991-2002	4- 1-02	^a 8.38	^k 600	7- 4-93 3-28-97	11.78 ^a 13.02	3,710 3,500
06480650	Flandreau Creek above Flandreau, SD	Lat 44°03'45", long 96°29'15", in SE ¹ / ₄ NE ¹ / ₄ sec.20, T.107 N., R.47 W., Moody County, Hydrologic Unit 10170203, on right bank at county highway bridge 5.9 mi upstream from mouth, and 5.2 mi east of Flandreau. Elevation of gage is 1,555 ft above NGVD of 1929, from topographic map.	100	1982-91†, 1992-2002	4- 1-02	8.89	1,020	6-20-84 3-28-97	11.02 ^a 11.40	2,650 1,800
06481400	Big Sioux River below diversion, at Sioux Falls, SD	Lat 43°34'23", long 96°45'50", in NE ¹ / ₄ NW ¹ / ₄ sec.7, T.101 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on right bank at downstream side of walkway bridge, about 3.4 mi upstream from confluence with Skunk Creek and in the city of Sioux Falls. Elevation of gage is 1,410 ft above NGVD of 1929, from topographic map.	(to be determined)	2002	8-29-02	^P 4.67	(^d)	8-29-02	4.67	(^d)

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
BIG SIOUX RIVER BASIN--Continued										
06481493	Skunk Creek near Hartford, SD	Lat 43°38'09", long 96°54'00", in SW ¹ / ₄ NW ¹ / ₄ SE ¹ / ₄ sec.13, T.102 N., R.51 W., Minnehaha County, Hydrologic Unit 10170203, on left downstream end of bridge between 465 and 466 Ave., 2.3 mi northeast of Hartford, and about 3 mi downstream from confluence of West Branch Skunk Creek. Elevation of gage is 1,480 ft above NGVD of 1929, from topographic map.	514	2002	3-27-02 8-22-02	7.20 6.23	(^a) 285	3-27-02 8-22-02	7.20 6.23	(^a) 285
06481497	Willow Creek near Crooks, SD	Lat 43°37'51", long 96°49'37", in NE ¹ / ₄ NW ¹ / ₄ NW ¹ / ₄ sec.22, T.102 N., R.50 W., Minnehaha County, Hydrologic Unit 10170203, on left downstream end of bridge 2.2 mi southwest from Crooks or 0.2 mi east from the intersection of 259 St. and 469 Ave. Elevation of gage is 1,480 ft above NGVD of 1929, from topographic map.	30.0	2002	3-29-02	8.46	(^d)	3-29-02	8.46	(^d)
06482010	Silver Creek near Sioux Falls, SD	Lat 43°36'08", long 96°43'53", in SE ¹ / ₄ SE ¹ / ₄ SE ¹ / ₄ sec.29, T.102 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on left bank at downstream side of highway bridge, about 0.3 mi upstream from confluence with Big Sioux River, and in the city of Sioux Falls. Elevation of gage is 1,420 ft above NGVD of 1929, from topographic map. Only peak stage determined due to backwater conditions from Big Sioux River.		2002	5-13-02	P2.27	--	5-13-02	P2.27	--

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi ²)	Period of record	Water year 2002 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
BIG SIOUX RIVER BASIN--Continued										
06482848	Beaver Creek at Canton, SD	Lat 43°17'12", long 96°35'46", in SW ¹ / ₄ SE ¹ / ₄ sec.23, T.98 N., R.49 W., Lincoln County, Hydrologic Unit 10170203, on left bank about 1,000 ft downstream from county highway bridge, 1.0 mi southwest of Canton, and 2.2 mi upstream from mouth. Elevation of gage is 1,225 ft above NGVD of 1929, from topographic map.	124	1983-89†, 1990-2002	^f 5- 9-02	2.33	69	6- 7-93 6-20-83	^g 12.93 14.61	^k 3,680 (^q)

† Operated as a continuous-record gaging station.

a Backwater from ice.

b Less than indicated value and/or below minimum recordable.

c From local observer.

d To be determined.

e No evidence of flow for year or designated period.

f Month or date of occurrence is unknown or not exact.

g From floodmark.

h Discharge determined by indirect measurement of peak flow.

i Observed and/or measured.

j At different datum and/or site.

k Estimated.

l Discharge determined by slope-area indirect measurement; peak resulted from stock dam failure.

m Backwater from debris, beaver dam, and/or tributary inflow.

n From significant rating curve extension.

o Unknown.

p Partial record year.

q Backwater from Big Sioux River.

DAILY PRECIPITATION STATIONS

445

CHEYENNE RIVER BASIN

435827104032500 PRECIP AT LITTLE BEAR RUN NEAR NEWCASTLE, WY

LOCATION.--Lat 43°58'27", long 104°03'25", in NW¹/₄ SW¹/₄ SW¹/₄ sec.10, T.46 N., R.61 W., Weston County, Hydrologic Unit 10120107, 1.2 mi northwest of Moon, 3.2 mi south-southeast of Four Corners, and 4.2 mi northeast of Newcastle.

PERIOD OF RECORD.--September 1991 to current year.

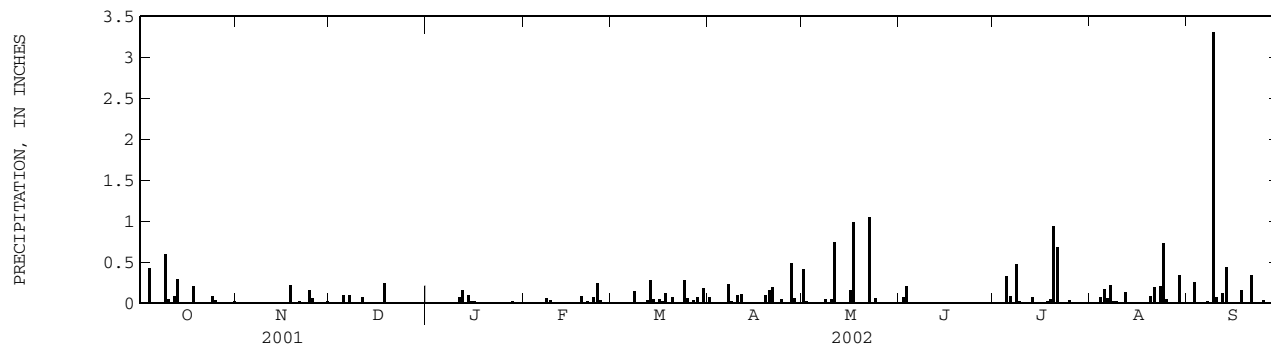
INSTRUMENTATION.--Precipitation recorder with shielded 8.0-in. orifice and 12-in. capacity. Elevation of gage is 6,250 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair.

PRECIPITATION INCHES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.41	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.07	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.20	0.00	0.00	0.25
4	0.42	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
5	0.01	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.17	0.00
6	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.08	0.06	0.01
7	0.00	0.00	0.09	0.00	0.00	0.00	0.23	0.00	0.00	0.01	0.21	0.02
8	0.00	0.00	0.00	0.00	0.06	0.14	0.02	0.04	0.00	0.47	0.02	0.01
9	0.59	0.00	0.00	0.00	0.03	0.00	0.00	0.01	0.00	0.02	0.02	3.31
10	0.04	0.00	0.00	0.00	0.00	0.00	0.09	0.04	0.00	0.00	0.00	0.07
11	0.00	0.00	0.07	0.07	0.00	0.00	0.11	0.74	0.00	0.00	0.00	0.00
12	0.08	0.00	0.00	0.15	0.00	0.03	0.00	0.01	0.00	0.01	0.13	0.12
13	0.29	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.07	0.01	0.43
14	0.01	0.00	0.00	0.09	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.02	0.00	0.04	0.00	0.16	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.99	0.00	0.00	0.00	0.00
18	0.20	0.22	0.24	0.01	0.00	0.12	0.01	0.00	0.00	0.02	0.00	0.16
19	0.00	0.00	0.00	0.00	0.08	0.00	0.09	0.00	0.00	0.04	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.07	0.15	0.00	0.00	0.94	0.08	0.00
21	0.00	0.02	0.00	0.00	0.02	0.00	0.19	0.00	0.00	0.68	0.19	0.34
22	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.05	0.00	0.00	0.01	0.00
23	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.20	0.00
24	0.08	0.15	0.00	0.00	0.24	0.27	0.05	0.06	0.00	0.00	0.73	0.00
25	0.03	0.06	0.00	0.00	0.03	0.06	0.00	0.00	0.00	0.03	0.04	0.03
26	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.03	0.48	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.02	0.00	0.07	0.06	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	---	0.01	0.00	0.00	0.00	0.00	0.34	0.00
30	0.00	0.02	0.00	0.00	---	0.18	0.00	0.00	0.00	0.00	0.00	0.02
31	0.02	---	0.00	0.00	---	0.00	---	0.00	---	0.00	0.00	---
TOTAL	1.78	0.48	0.49	0.40	0.54	1.37	1.56	3.54	0.27	2.70	2.28	4.77

CAL YR 2001 TOTAL 19.29
WTR YR 2002 TOTAL 20.18



DAILY PRECIPITATION STATIONS

CHEYENNE RIVER BASIN

434002103214500 PRECIP AT RACETRACK BUTTE NEAR FAIRBURN, SD

LOCATION.--Lat 43°40'02", long 103°21'45", in SW¹/₄ SE¹/₄ SE¹/₄ sec.26, T.4 S., R.6 E., Custer County, Hydrologic Unit 10120109, 100 ft east of Wildlife Loop Road CSP #1, 0.8 mi southeast of Racetrack Butte, and 7.0 mi west of Fairburn.

PERIOD OF RECORD.--October 1983 to current year. Published as Custer State Park from October 1983 to September 1987, and as Precip at Custer State Park at Racetrack Butte, near Fairburn, SD, from October 1987 to September 1989.

INSTRUMENTATION.--Precipitation recorder with shielded 8.0-in. orifice and 12-in. capacity. Elevation of gage is 3,970 ft above NGVD of 1929, from topographic map.

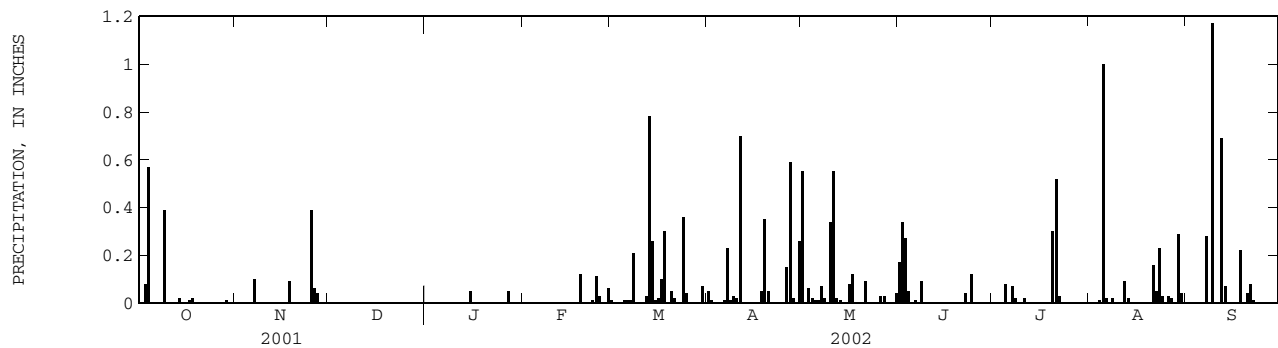
AVERAGE ANNUAL PRECIPITATION.--19 years, 18.86 in.

REMARKS.--Records poor.

PRECIPITATION INCHES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.55	0.17	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.34	0.00	0.00	0.00
3	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.27	0.00	0.00	0.00
4	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.00	0.01	0.00
5	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.08	1.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.02	0.00
7	0.00	0.10	0.00	0.00	0.00	0.01	0.23	0.07	0.00	0.07	0.00	0.28
8	0.00	0.00	0.00	0.00	0.00	0.21	0.01	0.02	0.09	0.02	0.02	0.00
9	0.39	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	1.17
10	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.34	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.55	0.00	0.02	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.00	0.00	0.09	0.69
13	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.01	0.00	0.00	0.02	0.07
14	0.02	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.08	0.00	0.00	0.00	0.00
17	0.01	0.00	0.00	0.00	0.00	0.10	0.00	0.12	0.00	0.00	0.00	0.00
18	0.02	0.09	0.00	0.00	0.00	0.30	0.05	0.00	0.00	0.00	0.00	0.22
19	0.00	0.00	0.00	0.00	0.12	0.00	0.35	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.30	0.00	0.04
21	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.09	0.00	0.52	0.16	0.08
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.05	0.01
23	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.23	0.00
24	0.00	0.00	0.00	0.00	0.11	0.36	0.00	0.00	0.12	0.00	0.03	0.00
25	0.00	0.39	0.00	0.00	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.06	0.00	0.00	0.00	0.00	0.15	0.03	0.00	0.00	0.03	0.00
27	0.00	0.04	0.00	0.05	0.00	0.00	0.59	0.03	0.00	0.00	0.02	0.00
28	0.00	0.00	0.00	0.00	0.06	0.00	0.02	0.00	0.00	0.00	0.00	0.00
29	0.01	0.00	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.29	0.00
30	0.00	0.00	0.00	0.00	---	0.07	0.26	0.00	0.00	0.00	0.04	0.08
31	0.00	---	0.00	0.00	---	0.00	---	0.04	---	0.00	0.00	---
TOTAL	1.10	0.68	0.00	0.10	0.33	2.29	2.53	2.05	1.09	1.04	2.01	2.64

CAL YR 2001 TOTAL 19.41
WTR YR 2002 TOTAL 15.86



MISCELLANEOUS WATER QUALITY DATA

447

00430061 HURON WELL FIELD
(National Trends Network Acid Precipitation Station)

LOCATION.--Lat 44°21'18", long 98°17'38", 3.0 mi west of the City of Huron at the City of Huron Municipal Well Field.

PRECIPITATION RECORDS

PERIOD OF RECORD.--December 1983 to current year.

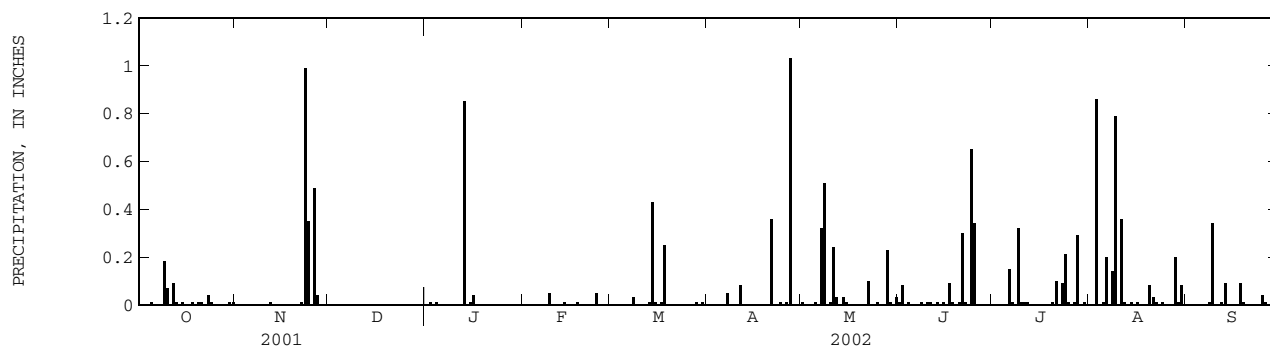
INSTRUMENTATION.--The sample collector is a straight-sided polyethylene bucket that is triggered into opening and closing by a precipitation switch, and a shielded weighing-type precipitation recorder. Installation and equipment conforms to guidelines set by National Atmospheric Deposition Program.

REMARKS.--Records good. Field measurements are taken as part of the National Atmospheric Deposition Program and National Trends Network (NADP/NTN).

PRECIPITATION INCHES, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	0.01	0.00	0.00	0.00
2	0.00	0.00	0.00	<0.01	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.00
4	0.00	0.00	0.00	<0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
5	<0.01	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	0.00	0.00	<0.01	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.20	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.32	0.00	0.01	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.51	<0.01	0.00	0.14	0.01
9	0.18	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.32	0.79	0.34
10	0.07	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	<0.01	<0.01	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.24	<0.01	0.01	0.36	0.00
12	0.09	<0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.00	<0.01	0.01	<0.01
13	<0.01	0.00	0.00	0.85	0.00	<0.01	0.00	0.00	<0.01	0.00	0.00	0.09
14	0.00	0.00	0.00	0.00	<0.01	0.43	0.00	0.03	0.00	0.00	<0.01	0.00
15	<0.01	0.00	0.00	0.01	0.00	<0.01	0.00	<0.01	<0.01	0.00	0.00	0.00
16	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	0.00
17	0.00	0.00	0.00	0.00	0.00	<0.01	0.00	0.00	0.09	0.00	0.00	0.00
18	<0.01	0.00	0.00	0.00	<0.01	0.25	0.00	0.00	<0.01	0.00	0.00	0.09
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.01
20	<0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	<0.01	0.08	0.00
21	<0.01	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.30	0.10	0.03	0.00
22	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.10	<0.01	0.00	<0.01	0.00
23	0.04	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
24	0.01	0.35	0.00	0.00	0.05	0.00	<0.01	0.00	0.65	0.21	<0.01	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	0.34	<0.01	0.00	0.04
26	0.00	0.49	0.00	0.00	0.00	0.00	<0.01	0.00	0.00	0.00	0.00	<0.01
27	0.00	0.04	0.00	0.00	0.00	0.00	1.03	0.00	0.00	0.01	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	<0.01	0.00	0.23	0.00	0.29	0.20	0.24
29	0.00	0.00	0.00	0.00	---	0.00	0.00	<0.01	0.00	0.00	<0.01	0.00
30	<0.01	0.00	0.00	0.00	---	<0.01	0.00	0.00	0.00	0.01	0.08	0.00
31	<0.01	---	0.00	0.00	---	0.00	---	0.03	---	0.00	0.00	---
TOTAL	0.47	1.89	0.00	0.92	0.12	0.76	1.54	1.55	1.56	1.24	2.81	0.84
CAL YR 2001	TOTAL 24.07											
WTR YR 2002	TOTAL 13.70											

< Actual value is known to be less than the value shown



MISCELLANEOUS WATER QUALITY DATA

00430061 HURON WELL FIELD--Continued
(National Trends Network Acid Precipitation Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1983 to current year (weekly composite).

REMARKS.--Field measurements are taken and samples collected on a weekly basis as part of the National Atmospheric Deposition Program (NADP) and National Trends Network. Precipitation water-quality laboratory analyses are performed by the Central Analytical Laboratory (CAL), Illinois State Water Survey, Champaign, Illinois. The records of precipitation and precipitation water-quality presented below are from the National Atmospheric Deposition Program (NRSP-3)/National Trends Network (2003), NADP Program Office, Illinois State Water Survey, 2204 Griffith Drive, Champaign, IL 61820. These records were retrieved from the Internet on Feb. 11, 2003, at <http://nadp.sws.uiuc.edu/nadpdata>; the data were not reviewed for accuracy or consistency by the South Dakota District of the USGS.

WATER-QUALITY DATA

DATE	TOTAL PRECIP- ITATION FOR DEFINED PERIOD (IN) (00193)	VOLUME ATM DEP WET (L) (83177)	PH FIELD ATM DEP WET T (UNITS) (83106)	PH LAB ATM DEP WET T (UNITS) (83107)	SPEC. CONDUCT- TANCE FIELD ATM DEP WET TOT (US/CM) (83154)	SPEC. CONDUCT- TANCE LAB ATM DEP WET TOT (US/CM) (83156)	CALCIUM ATM DEP WET DIS (MG/L) (82932)
OCT 2001							
02-09	<.01	.0	--	--	--	--	--
OCT 09-16	.34	.270	--	--	--	--	--
OCT 16-23	<.01	.0	--	--	--	--	--
OCT 23-30	.05	.050	--	6.6	--	--	.82
OCT 30-NOV 06	<.01	.0	--	--	--	--	--
NOV 06-13	<.01	.0	5.05	--	--	--	--
NOV 13-20	.00	.0	--	--	--	--	--
NOV 20-27	1.88	2.100	5.28	5.5	9.3	8.4	.12
NOV 27-DEC 04	.00	.0	--	--	--	--	--
DEC 04-11	.00	.0	--	--	--	--	--
DEC 11-18	.00	.0	--	--	--	--	--
DEC 18-25	.00	.0	--	--	--	--	--
DEC 25 2001- JAN 01 2002	.00	.0	--	--	--	--	--
JAN 01-08	<.01	.020	--	5.7	--	--	--
JAN 08-15	.85	1.500	5.16	5.2	5.1	4.9	.03
JAN 15-22	.05	.030	--	5.7	--	--	.16
JAN 22-29	.00	.0	--	--	--	--	--
JAN 29-FEB 05	.00	.0	--	--	--	--	--
FEB 05-12	.05	.0	--	--	--	--	--
FEB 12-19	.00	.020	--	6.7	--	40.7	1.88
FEB 19-26	.05	.0	--	--	--	--	--
FEB 26-MAR 05	.00	.0	--	--	--	--	--
MAR 05-12	.03	.0	--	--	--	--	--
MAR 12-19	.68	.490	5.79	6.2	8.8	9.0	.39
MAR 19-26	.00	.0	--	--	--	--	--
MAR 26-APR 02	<.01	.010	--	6.4	--	--	--
APR 02-09	.05	.090	--	--	--	--	--
APR 09-16	.08	.140	6.46	6.8	13.8	14.0	.28
APR 16-23	.36	.620	6.16	6.4	6.4	6.6	.26
APR 23-30	1.03	1.630	5.77	6.1	5.4	6.2	.27
APR 30-MAY 07	.07	.120	--	--	--	--	--

MISCELLANEOUS WATER QUALITY DATA

449

00430061 HURON WELL FIELD--Continued
(National Trends Network Acid Precipitation Station)

WATER-QUALITY DATA

DATE	MAG- NESIUM ATM DEP WET DIS (MG/L) (83002)	POTAS- SIUM ATM DEP WET DIS (MG/L) (83120)	SODIUM ATM DEP WET DIS (MG/L) (83138)	CHLO- RIDE ATM DEP WET DIS (MG/L) (82944)	SULFATE ATM DEP WET DIS AS SO4 (MG/L) (83160)	NI- TROGEN AMMON. ATM DEP WET DIS AS NH4 (MG/L) (83047)	NI- TROGEN NITRATE ATM DEP WET DIS AS NO3 (MG/L) (83071)
OCT 2001							
02-09	--	--	--	--	--	--	--
OCT 09-16	--	--	--	--	--	--	--
OCT 16-23	--	--	--	--	--	--	--
OCT 23-30	.14	.19	.20	.12	1.35	.840	1.39
OCT 30-NOV 06	--	--	--	--	--	--	--
NOV 06-13	--	--	--	--	--	--	--
NOV 13-20	--	--	--	--	--	--	--
NOV 20-27	.01	.01	.01	.03	.99	.650	1.38
NOV 27-DEC 04	--	--	--	--	--	--	--
DEC 04-11	--	--	--	--	--	--	--
DEC 11-18	--	--	--	--	--	--	--
DEC 18-25	--	--	--	--	--	--	--
DEC 25 2001-JAN 01 2002	--	--	--	--	--	--	--
JAN 01-08	--	--	--	--	--	--	--
JAN 08-15	.01	M	.01	.02	.21	.130	.68
JAN 15-22	.02	<.01	.03	.10	.20	.360	1.55
JAN 22-29	--	--	--	--	--	--	--
JAN 29-FEB 05	--	--	--	--	--	--	--
FEB 05-12	--	--	--	--	--	--	--
FEB 12-19	.15	.08	.17	.23	3.35	2.15	4.75
FEB 19-26	--	--	--	--	--	--	--
FEB 26-MAR 05	--	--	--	--	--	--	--
MAR 05-12	--	--	--	--	--	--	--
MAR 12-19	.03	.01	.05	.08	.77	.660	1.52
MAR 19-26	--	--	--	--	--	--	--
MAR 26-APR 02	--	--	--	--	--	--	--
APR 02-09	--	--	--	--	--	--	--
APR 09-16	.06	.01	.02	.05	.47	1.40	1.66
APR 16-23	.04	.01	.03	.05	.44	.520	.66
APR 23-30	.05	.02	.03	.03	.58	.380	.76
APR 30-MAY 07	--	--	--	--	--	--	--

MISCELLANEOUS WATER QUALITY DATA

00430061 HURON WELL FIELD--Continued
(National Trends Network Acid Precipitation Station)

WATER-QUALITY DATA

DATE	TOTAL PRECIP- ITATION FOR DEFINED PERIOD (IN) (00193)	VOLUME ATM DEP WET (L) (83177)	PH FIELD ATM DEP WET T (UNITS) (83106)	PH LAB ATM DEP WET T (UNITS) (83107)	SPEC. CONDUCT- TANCE FIELD ATM DEP WET TOT (US/CM) (83154)	SPEC. CONDUCT- TANCE LAB ATM DEP WET TOT (US/CM) (83156)	CALCIUM ATM DEP WET DIS (MG/L) (82932)
MAY 2002							
07-14	1.03	1.640	6.26	6.5	12.5	13.7	.36
MAY							
14-21	.03	.050	--	7.0	--	--	2.30
MAY							
21-28	.33	.520	6.60	6.8	20.6	22.3	1.16
MAY 28-							
JUN 04	.13	.230	6.76	6.8	33.3	29.3	1.59
JUN							
04-11	<.01	.010	--	6.8	--	--	--
JUN							
11-18	.09	.150	--	--	--	--	--
JUN							
18-25	.95	1.550	6.36	6.6	16.9	17.5	.70
JUN 25-							
JUL 02	.34	.590	6.60	7.0	15.8	17.9	.22
JUL							
02-09	.48	.840	5.56	6.0	11.0	10.5	.23
JUL							
09-16	.01	.020	--	--	--	--	--
JUL							
16-23	.10	.080	--	--	--	--	--
JUL							
23-30	.60	1.040	6.42	6.7	15.9	17.2	.59
JUL 30-							
AUG 06	1.07	1.790	5.96	6.2	10.1	10.3	.32
AUG							
06-13	1.30	2.190	5.59	5.5	9.1	9.7	.17
AUG							
13-20	<.01	.0	--	--	--	--	--
AUG							
20-27	.11	.190	6.08	6.3	16.6	18.1	.72
AUG 27-							
SEP 03	.28	.490	6.28	6.5	16.2	17.9	1.01
SEP							
03-10	.35	.560	6.24	6.6	12.1	12.4	.43
SEP							
10-17	.09	.160	4.97	5.3	16.5	15.2	.34
SEP							
17-24	.09	.160	6.48	6.6	14.6	15.9	.67
SEP 24-							
OCT 01	.28	.400	6.51	6.6	18.8	20.2	.79

MISCELLANEOUS WATER QUALITY DATA

451

00430061 HURON WELL FIELD--Continued
(National Trends Network Acid Precipitation Station)

WATER-QUALITY DATA

DATE	MAG- NESIUM ATM DEP WET DIS (MG/L) (83002)	POTAS- SIUM ATM DEP WET DIS (MG/L) (83120)	SODIUM ATM DEP WET DIS (MG/L) (83138)	CHLO- RIDE ATM DEP WET DIS (MG/L) (82944)	SULFATE ATM DEP WET DIS AS SO4 (MG/L) (83160)	NI- TROGEN AMMON. ATM DEP WET DIS AS NH4 (MG/L) (83047)	NI- TROGEN NITRATE ATM DEP WET DIS AS NO3 (MG/L) (83071)
MAY 2002							
07-14	.04	.03	.06	.07	1.14	1.34	1.97
MAY							
14-21	.22	.42	.15	.18	3.13	2.32	5.80
MAY							
21-28	.09	.10	.09	.12	1.45	1.72	2.91
MAY 28-							
JUN 04	.24	.18	.23	.22	2.82	2.95	5.70
JUN							
04-11	--	--	--	--	--	--	--
JUN							
11-18	--	--	--	--	--	--	--
JUN							
18-25	.06	.08	.09	.15	1.49	1.42	2.53
JUN 25-							
JUL 02	.05	.06	.04	.08	.54	2.09	1.60
JUL							
02-09	.04	.03	.08	.14	.92	.910	1.90
JUL							
09-16	--	--	--	--	--	--	--
JUL							
16-23	--	--	--	--	--	--	--
JUL							
23-30	.10	.10	.04	.08	.92	1.50	2.81
JUL 30-							
AUG 06	.03	.03	.04	.06	1.10	.810	1.84
AUG							
06-13	.02	.01	.01	.05	1.03	.720	1.69
AUG							
13-20	--	--	--	--	--	--	--
AUG							
20-27	.10	.10	.11	.16	1.38	1.18	3.66
AUG 27-							
SEP 03	.14	.09	.03	.12	1.37	1.14	3.19
SEP							
03-10	.07	.06	.02	.06	.83	1.16	1.13
SEP							
10-17	.02	.01	.01	.04	2.20	1.05	2.26
SEP							
17-24	.07	.10	.02	.08	1.42	1.28	2.13
SEP 24-							
OCT 01	.08	.09	.03	.08	1.37	1.77	3.26

MISCELLANEOUS WATER QUALITY DATA

The following water-quality data are for a sewage lagoon and a reservoir at EROS Data Center, and private wells downgradient of EROS Data Center near Garretson, South Dakota. Water samples are routinely collected one time per year as part of a monitoring program with the EROS Data Center.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

STATION NAME	STATION NUMBER	DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)		
LAGOON 1	434415096371501	05-29-02	1030	1180	7.1	22.1	20.0	716	8.0		
EROS LAKE	434405096365501	05-29-02	1330	722	8.5	26.0	21.0	716	11.2		
103N48W 5CACA2	434508096372701	05-30-02	1330	904	7.1	30.5	9.5	716	.9		
103N48W 9CCDA	434400096362201	05-30-02	1130	1200	7.1	27.7	9.9	717	8.3		
103N48W17ACCCC2	434332096371501	05-30-02	0915	866	7.0	19.5	9.7	715	.5		
STATION NAME	DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) (00608)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) (00631)
LAGOON 1	05-29-02	94	29.0	130	73	89	0	853	.23	.701	16.3
EROS LAKE	05-29-02	134	--	30	230	273	4	455	<.04	<.008	E.04
103N48W 5CACA2	05-30-02	8	--	<10	296	360	0	648	<.04	<.008	.07
103N48W 9CCDA	05-30-02	73	--	10	394	480	0	735	<.04	<.008	19.3
103N48W17ACCCC2	05-30-02	47	--	<10	342	417	0	587	.15	<.008	<.05
STATION NAME	DATE	NITRO- GEN- NITRATE DIS- SOLVED (MG/L AS N) (00618)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	BORON, TOTAL RECOV- ERABLE (UG/L AS B) (01022)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	CYANIDE TOTAL ERABLE (MG/L AS CN) (00720)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)
LAGOON 1	05-29-02	15.6	2.41	402	230	<32.0	.09	3000	335	.9	142
EROS LAKE	05-29-02	--	.05	9	230	<.8	<.01	40	<.3	<.1	1
103N48W 5CACA2	05-30-02	--	E.01	5	170	<.8	<.01	2020	<.3	<.1	72
103N48W 9CCDA	05-30-02	--	.02	<2	60	E.6	<.01	<10	<.3	<.1	30
103N48W17ACCCC2	05-30-02	--	E.01	<2	280	<.8	<.01	270	<.3	<.1	7

E Estimated.

MISCELLANEOUS WATER QUALITY DATA

453

430419098401600 LAKE FRANCIS CASE NEAR LAKE ANDES, SD

LOCATION.--Lat 43°04'14", long 98°40'16", in SE¹/₄ sec.5, T.95 N., R.66 W., Charles Mix County, Hydrologic Unit 10140101, about 6 mi west of Ft. Randall Dam.

PERIOD OF RECORD.--April 2002 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	SPE- CIFIC CON- DUCT- ANCE	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB FLD. AS CACO3 (MG/L)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	
		(US/CM) (00095)	(00400)	(00020)	(00010)	(00025)	(00300)	(00301)	(00900)	(00904)				
APR 2002														
22...	1600	771	8.3	12.5	6.0	724	12.6	107	240	77	160	172	56.8	
MAY														
20...	1410	772	8.5	19.0	12.2	735	8.1	79	240	80	156	167	57.4	
JUL														
15...	1415	786	8.4	33.0	25.0	726	8.0	102	230	100	131	166	56.3	
AUG														
05...	1530	792	8.3	26.5	<.04	726	7.8	--	240	73	163	165	55.4	
SEP														
16...	1520	769	8.3	32.0	22.5	726	8.1	98	230	75	156	168	54.0	
Date		MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD (MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD (MG/L AS CO3 (00452)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
APR 2002														
22...	23.1	70.2	39	2	4.25	190	2	219	10.1	.5	5.6	487	511	
MAY														
20...	22.5	71.5	39	2	4.57	178	6	222	10.6	.5	5.3	488	532	
JUL														
15...	22.5	73.2	40	2	4.97	157	2	220	11.0	.5	3.6	471	510	
AUG														
05...	23.7	75.2	40	2	4.80	189	5	223	10.7	.5	4.0	496	515	
SEP														
16...	23.4	76.4	41	2	5.13	190	0	214	10.3	.5	5.1	482	509	
Date		NITRO- GEN, AM- MONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ANTI- MONY, DIS- SOLVED (UG/L AS SB) (01095)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)
APR 2002														
22...	<.04	.25	.18	<.008	.16	<.06	<.06	.05	<1	.43	E1	33	<.06	
MAY														
20...	<.04	.25	.22	<.008	.08	<.06	<.06	<.02	<1	.43	E2	30	<.06	
JUL														
15...	<.04	.22	.17	<.008	E.02	<.06	<.06	<.02	2	.47	E2	31	<.06	
AUG														
05...	<.04	.25	.18	<.008	<.05	<.06	<.06	.02	1	.47	E1	30	<.06	
SEP														
16...	<.04	.28	.21	<.008	<.05	E.04	<.06	.03	<1	.59	3	36	<.06	

E Estimated value.

MISCELLANEOUS WATER QUALITY DATA

430419098401600 LAKE FRANCIS CASE NEAR LAKE ANDES, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
APR 2002													
22...	.04	<.8	.17	2.5	E.05	9.2	2.9	3.45	E1	<1	3.94	3	3.2
MAY													
20...	.04	<.8	.14	2.5	<.08	.3	2.8	2.09	E1	<1	4.12	3	3.7
JUL													
15...	<.04	<.8	.14	2.4	<.08	.5	5.0	2.38	E1	<1	4.47	3	3.2
AUG													
05...	<.04	<.8	.15	2.1	<.08	.4	3.4	3.18	E2	<1	3.90	2	3.8
SEP													
16...	<.04	<.8	.17	1.9	<.08	44.2	3.6	3.75	2	<1	4.01	2	4.2
Date	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)
APR 2002													
22...	3.4	<.006	<.004	<.006	.023	E.006	<.050	<.010	<.005	<.002	<.041	<.020	<.018
MAY													
20...	3.3	E.005	<.004	<.006	.025	E.004	<.050	<.010	<.005	<.002	<.041	<.020	<.018
JUL													
15...	3.3	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
05...	3.8	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
16...	3.5	--	--	--	--	--	--	--	--	--	--	--	--
Date	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P, P' DDE DISSOLV (UG/L) (34653)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)
APR 2002													
22...	<.003	<.003	<.005	<.005	<.02	<.002	<.009	<.005	<.003	<.004	<.035	<.027	E.010
MAY													
20...	<.003	<.003	<.005	<.005	<.02	.004	<.009	<.005	<.003	<.004	<.035	<.027	E.005
JUL													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
Date	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	PARA- THION, DIS- SOLVED (UG/L) (39542)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)
APR 2002													
22...	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006	<.011	E.01	<.004	<.010	<.011
MAY													
20...	<.006	<.002	<.010	<.006	<.007	<.004	<.022	<.006	<.011	<.01	<.004	<.010	<.011
JUL													
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
16...	--	--	--	--	--	--	--	--	--	--	--	--	--

E Estimated value.

430419098401600 LAKE FRANCIS CASE NEAR LAKE ANDES, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
APR 2002 22...	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009
MAY 20...	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009
JUL 15...	--	--	--	--	--	--	--	--
AUG 05...	--	--	--	--	--	--	--	--
SEP 16...	--	--	--	--	--	--	--	--

Date	Time	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)
SEP 2002 b16...	1528	E.01	<.008	<.09	.01	E.01	E.07	<.01	<.13	<.015	<.002	<.013	<.007

Date	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)
SEP 2002 b16...	<.2	<7	<10	<.3	<.3	.10	<.2

b Field blank sample collected for quality-control purposes.

E Estimated value.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

The following discharge measurements were made at current streamflow and crest-stage partial-record stations. Sites are listed in downstream order.

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
05289985 BIG COULEE CR NEAR PEEVER, SD (LAT 45 29 14N LONG 096 57 26W)					
OCT 2001					
01...	1550	.02	1420	23.0	15.0
NOV					
13...	1150	.61	1550	19.0	6.5
JAN 2002					
02...	1145	.12	1500	-8.0	0.0
MAR					
04...	1420	.68	1620	-2.0	0.0
APR					
09...	1355	5.5	893	10.0	3.0
JUL					
02...	1215	.14	1400	19.0	19.0
05292704 NORTH FORK YELLOW BANK RIVER NEAR ODESSA, MN (LAT 45 11 21N LONG 096 24 54W)					
OCT 2001					
01...	1830	4.5	988	23.0	16.0
NOV					
13...	1540	6.4	1060	15.0	7.0
JAN 2002					
02...	1705	4.5	913	-5.0	0.0
MAR					
04...	1725	13	1080	2.0	0.0
APR					
09...	1630	141	693	9.0	5.0
MAY					
21...	0835	25	1090	11.0	12.0
JUL					
02...	1005	3.9	973	22.0	22.5
05299700 COBB CREEK NEAR GARY, SD (LAT 44 44 22N LONG 096 27 26W)					
OCT 2001					
03...	1350	2.9	814	15.0	14.0
NOV					
05...	1445	4.2	810	20.0	8.0
JAN 2002					
03...	1415	1.8	990	-4.0	0.0
MAR					
01...	0845	2.8	917	-11.0	0.0
APR					
09...	1230	38	440	10.0	4.0
MAY					
20...	1420	16	919	19.0	14.0
06334500 LITTLE MISSOURI R AT CAMP CROOK, SD (LAT 45 32 49N LONG 103 58 23W)					
OCT 2001					
10...	0810	6.6	1650	7.0	7.0
NOV					
16...	0805	5.3	1920	3.0	3.0
JAN 2002					
07...	0915	3.2	2820	4.0	0.0
FEB					
14...	0900	5.3	2700	1.0	0.0
MAR					
27...	0840	8.9	1970	4.0	0.0
APR					
15...	0830	11	1810	6.0	11.0
MAY					
20...	0835	4.4	2030	10.0	8.0
JUN					
24...	0845	3.1	1220	28.0	21.0
AUG					
05...	0955	.96	1930	21.0	19.5

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06354882 OAK CR NEAR WAKPALA, SD (LAT 45 42 43N LONG 100 33 32W)					
OCT 2001					
03...	0750	.47	1250	2.0	13.5
NOV					
13...	1540	2.0	1180	9.5	3.0
JAN 2002					
08...	0810	1.7	1600	2.5	0.0
MAR					
26...	0830	8.3	955	0.0	0.0
APR					
17...	1535	6.4	943	16.5	15.0
JUN					
19...	0800	.14	1620	21.0	21.0
06355500 NORTH FORK GRAND R NEAR WHITE BUTTE, SD (LAT 45 48 08N LONG 102 21 43W)					
OCT 2001					
10...	1115	5.4	2630	11.0	10.0
NOV					
16...	1105	4.9	2900	11.0	4.5
JAN 2002					
07...	1240	2.5	5020	13.0	0.0
FEB					
14...	1235	6.2	3410	2.0	0.0
MAR					
27...	1205	10	2380	16.0	1.5
APR					
15...	1145	12	2080	15.0	13.0
MAY					
20...	1200	3.1	2760	18.0	15.5
JUN					
24...	1145	.22	3410	33.0	28.0
06357800 GRAND R AT LITTLE EAGLE, SD (LAT 45 39 28N LONG 100 49 04W)					
OCT 2001					
02...	1335	129	1900	23.0	19.5
NOV					
13...	1305	54	1940	16.0	4.5
JAN 2002					
07...	1415	24	2570	12.0	0.0
MAR					
25...	1450	67	1550	-1.5	0.0
APR					
17...	1245	58	1590	19.0	14.0
JUN					
18...	1620	29	2420	29.0	30.0
JUL					
31...	1110	36	2510	30.0	25.0
AUG					
06...	1345	16	2270	26.0	24.0
06359500 MOREAU R NEAR FAITH, SD (LAT 45 11 52N LONG 102 09 22W)					
OCT 2001					
10...	1545	28	2000	12.0	12.0
NOV					
16...	1420	12	2370	19.0	7.0
JAN 2002					
07...	1545	1.8	4910	16.0	0.0
FEB					
15...	1630	12	2180	2.0	0.0
MAR					
27...	1645	26	1600	13.0	0.5
APR					
15...	1530	21	1930	19.0	18.0
MAY					
20...	1635	7.7	2490	21.5	18.5
JUN					
24...	1600	5.5	3150	36.0	32.0
AUG					
28...	1045	223	544	23.0	17.5

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06360500 MOREAU R NEAR WHITEHORSE, SD (LAT 45 15 21N LONG 100 50 33W)					
NOV 2001					
13...	1015	4.6	4350	6.0	4.0
JAN 2002					
07...	1120	.07	6030	8.5	0.0
MAR					
25...	1125	13	2760	-2.0	0.0
APR					
17...	0922	31	1670	10.0	10.0
06394300 REDBIRD CANYON NEAR NEWCASTLE, WY (LAT 43 46 34N LONG 104 01 37W)					
JUL 2002					
18...	1200	111	--	--	--
06395000 CHEYENNE R AT EDMONT, SD (LAT 43 18 20N LONG 103 49 14W)					
OCT 2001					
01...	1045	3.1	6000	18.0	16.5
DEC					
03...	0940	13	5450	2.0	0.0
JAN 2002					
14...	1300	7.7	3830	2.0	0.0
MAR					
19...	1230	34	3900	10.0	0.0
APR					
10...	0835	46	3870	10.0	10.0
JUN					
11...	1015	2.7	6400	17.0	17.0
AUG					
26...	1200	65	876	26.0	22.5
06400000 HAT CR NEAR EDMONT, SD (LAT 43 14 24N LONG 103 35 16W)					
NOV 2001					
08...	1140	.50	6180	12.0	8.0
DEC					
03...	1210	2.5	3010	8.0	0.0
JAN 2002					
14...	1450	1.2	3910	2.0	0.0
MAR					
21...	1000	2.3	2750	6.0	0.0
APR					
10...	1035	21	1550	15.0	10.0
JUN					
11...	0830	.30	3610	13.0	15.0
AUG					
06...	0940	144	2140	29.5	20.5
26...	1400	1.2	2720	29.0	23.0
06400875 HORSEHEAD CR AT OELRICHS, SD (LAT 43 11 17N LONG 103 13 34W)					
DEC 2001					
04...	1420	.26	3840	5.0	2.0
JAN 2002					
17...	0900	.24	5170	-7.0	0.0
FEB					
14...	0910	.19	4880	4.0	0.5
MAR					
21...	1210	.36	3950	-12.0	0.0
APR					
26...	1300	.14	3000	16.0	9.5
JUN					
10...	1510	.02	3490	28.5	19.0

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06401500 CHEYENNE R BELOW ANGOSTURA DAM, SD (LAT 43 20 42N LONG 103 26 12W)					
OCT 2001					
04...	0950	7.6	2780	9.0	16.0
DEC					
03...	1510	3.6	2820	10.0	3.5
JAN 2002					
17...	1045	3.3	2860	2.0	1.5
MAR					
21...	1345	3.8	2890	-4.0	3.0
MAY					
03...	0940	4.0	2370	16.0	9.5
JUN					
13...	1500	3.2	2800	26.0	19.5
AUG					
29...	1120	1.8	2790	25.0	22.0
06402000 FALL R AT HOT SPRINGS, SD (LAT 43 25 50N LONG 103 28 33W)					
OCT 2001					
05...	0800	29	1250	5.0	21.0
06402430 BEAVER CREEK NEAR PRINGLE, SD (LAT 43 34 53N LONG 103 28 34W)					
OCT 2001					
03...	0810	1.0	525	5.0	7.0
DEC					
05...	0810	1.2	522	-3.0	0.0
JAN 2002					
16...	1600	.84	548	-3.0	1.0
MAR					
04...	1335	1.1	530	8.0	1.5
MAY					
14...	1215	1.3	509	22.0	13.5
JUN					
13...	1300	1.1	506	18.5	15.5
06402470 BEAVER CREEK ABOVE BUFFALO GAP, SD (LAT 43 31 20N LONG 103 21 23W)					
OCT 2001					
03...	1105	10	2370	25.0	16.0
JUN 2002					
14...	1125	9.7	2360	24.0	17.5
06402500 BEAVER CR NEAR BUFFALO GAP, SD (LAT 43 28 00N LONG 103 18 20W)					
OCT 2001					
03...	1255	6.8	2480	10.0	13.5
DEC					
05...	1115	9.7	2480	5.0	5.5
JAN 2002					
10...	1035	7.5	2520	6.0	2.5
MAR					
22...	1000	12	2450	-5.0	0.0
APR					
12...	0815	9.3	2470	13.0	9.5
JUN					
14...	0830	3.9	2470	15.5	14.0
AUG					
29...	0845	2.3	2550	22.0	18.5
06402995 FRENCH CREEK ABOVE STOCKADE LAKE NEAR CUSTER, SD (LAT 43 46 10N LONG 103 32 10W)					
OCT 2001					
05...	1050	1.6	443	3.0	5.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06403300 FRENCH CR ABOVE FAIRBURN, SD (LAT 43 43 02N LONG 103 22 03W)					
OCT 2001					
09...	0900	5.3	312	10.0	11.0
DEC					
06...	0845	.93	318	-3.0	0.0
JAN 2002					
18...	0950	2.2	336	-4.0	0.0
MAR					
05...	0940	1.8	295	9.0	0.0
APR					
11...	0820	20	280	8.0	4.0
JUN					
13...	0930	4.9	331	18.0	9.0
AUG					
28...	0945	1.4	296	21.0	18.0
06403700 CHEYENNE RIVER AT REDSHIRT, SD (LAT 43 40 23N LONG 102 53 36W)					
OCT 2001					
11...	0830	94	2600	8.0	8.0
NOV					
28...	1045	94	2810	5.0	0.0
JAN 2002					
23...	1115	79	2400	7.0	0.0
MAR					
08...	0930	56	2540	-8.0	0.0
APR					
09...	0820	88	3460	4.0	6.0
JUN					
14...	1100	55	2550	28.0	19.0
AUG					
30...	0840	69	2790	22.0	20.5
06403810 BATTLE CR ABOVE KEYSTONE, SD (LAT 43 54 17N LONG 103 27 48W)					
JUN 2002					
17...	0840	.12	534	--	10.5
06403850 GRIZZLY BEAR CREEK NEAR KEYSTONE, SD (LAT 43 52 41N LONG 103 26 14W)					
JUN 2002					
17...	0955	.73	96	24.5	16.0
06404000 BATTLE CR NEAR KEYSTONE, SD (LAT 43 52 21N LONG 103 20 10W)					
OCT 2001					
10...	1235	4.6	376	9.0	9.0
NOV					
29...	1040	2.3	369	10.0	0.0
JAN 2002					
24...	1240	.73	500	5.0	0.0
MAR					
08...	1155	1.2	421	-10.0	0.0
APR					
09...	1035	12	239	22.0	1.0
JUN					
12...	0730	4.3	292	11.0	14.0
06404800 GRACE COOLIDGE CREEK NEAR HAYWARD, SD (LAT 43 48 07N LONG 103 26 03W)					
OCT 2001					
10...	1055	.44	100	9.0	7.0

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06404998 GRACE COOLIDGE CR NR GAME LODGE NR CUSTER, SD (LAT 43 45 40N LONG 103 21 49W)					
OCT 2001					
10...	0820	2.6	234	8.0	7.5
DEC					
06...	1130	2.0	223	4.0	0.0
JAN 2002					
09...	1035	1.4	220	6.0	0.0
MAR					
05...	1220	1.6	214	15.0	0.0
APR					
11...	1025	3.1	200	12.0	7.5
JUN					
13...	0720	2.3	228	10.0	13.0
AUG					
28...	1220	.94	243	23.0	19.5
06405800 BEAR GULCH NEAR HAYWARD, SD (LAT 43 47 31N LONG 103 20 49W)					
OCT 2001					
10...	0915	.05	144	16.0	6.5
06406000 BATTLE CR AT HERMOSA, SD (LAT 43 49 41N LONG 103 11 44W)					
OCT 2001					
11...	1230	18	495	17.0	9.0
NOV					
28...	0850	13	515	-16.0	0.0
JAN 2002					
25...	0945	14	519	11.0	1.0
MAR					
06...	1200	12	382	-8.0	0.0
APR					
12...	1200	14	504	20.0	11.0
JUN					
12...	0900	14	453	15.5	15.0
AUG					
30...	1215	4.6	578	30.0	20.5
06406500 BATTLE CR BELOW HERMOSA, SD (LAT 43 43 30N LONG 102 54 15W)					
OCT 2001					
11...	1015	18	619	13.0	8.0
NOV					
28...	1150	15	665	-5.0	0.0
JAN 2002					
25...	1220	14	652	18.0	0.0
MAR					
06...	0930	16	708	-6.0	0.0
APR					
12...	1025	16	677	35.0	9.5
JUN					
12...	1030	16	593	18.5	18.0
AUG					
30...	1025	1.3	692	31.0	21.0
06406700 SPRING CR AT OREVILLE, NR HILL CITY, SD (LAT 43 51 58N LONG 103 37 24W)					
JUN 2002					
18...	0800	2.8	350	10.5	18.5
06406740 SUNDAY GULCH BL JOHNSON CANYON NR HILL CITY, SD (LAT 43 52 10N LONG 103 34 55W)					
JUN 2002					
18...	0925	.66	83	23.0	12.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)

06406920 SPRING CREEK ABOVE SHERIDAN LAKE NEAR KEYSTONE, SD (LAT 43 57 39N LONG 103 29 18W)

OCT 2001					
05...	1300	8.0	375	6.0	7.0
NOV					
14...	1225	8.7	388	14.5	3.0
JAN 2002					
02...	1415	.88	523	4.0	0.0
FEB					
08...	1225	2.2	481	3.0	0.0
MAR					
20...	1205	4.1	479	1.0	0.0
APR					
11...	1350	20	293	9.0	5.5
MAY					
15...	1105	21	300	15.0	11.0
JUN					
19...	0815	6.9	355	15.0	17.0
AUG					
12...	0810	2.4	414	11.0	15.0

06407500 SPRING CR NEAR KEYSTONE, SD (LAT 43 58 45N LONG 103 20 25W)

FEB 2002					
11...	1215	3.3	341	14.0	0.0
MAR					
20...	1355	5.4	329	0.0	0.0
APR					
11...	1210	25	316	6.0	6.5
MAY					
15...	1245	26	325	17.0	13.5
JUN					
19...	0945	7.9	336	15.0	19.0
AUG					
12...	1025	2.9	337	15.0	18.0

06408500 SPRING CR NEAR HERMOSA, SD (LAT 43 56 31N LONG 103 09 32W)

OCT 2001					
03...	1430	1.1	1190	19.0	14.0
NOV					
30...	1340	3.1	1190	9.5	0.0
JAN 2002					
04...	1045	2.7	1190	7.0	0.0
FEB					
11...	1030	2.5	1200	18.0	0.0
MAR					
21...	0825	1.6	1200	-16.0	0.0
APR					
10...	1430	1.7	1190	14.0	13.0
MAY					
13...	1300	1.7	1030	21.0	14.0
JUN					
20...	0800	.62	1230	11.5	11.5
AUG					
09...	1145	.19	1240	28.0	21.0

06408700 RHOADS FORK NEAR ROCHFORD, SD (LAT 44 08 12N LONG 103 51 29W)

OCT 2001					
02...	1425	6.6	475	22.0	10.5
NOV					
09...	1430	6.0	473	16.0	6.5
DEC					
10...	1606	6.0	473	-3.0	4.0
APR 2002					
15...	1550	6.7	462	17.0	9.0
MAY					
30...	1610	5.7	459	24.5	14.0
AUG					
23...	0815	5.3	474	13.0	7.0

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06409000 CASTLE CR ABOVE DEERFIELD RES NEAR HILL CITY, SD (LAT 44 00 49N LONG 103 49 48W)					
OCT 2001					
01...	1325	14	451	30.5	10.0
NOV					
15...	1240	14	455	16.0	2.5
DEC					
14...	0940	14	485	3.5	0.0
JAN 2002					
22...	1020	12	474	1.0	1.5
MAR					
07...	1200	14	475	12.0	1.5
APR					
10...	1300	30	312	19.0	5.0
JUN					
11...	1250	15	470	19.0	12.0
JUL					
08...	1050	12	462	26.5	14.5
AUG					
16...	1310	12	455	29.0	13.5
06410000 CASTLE CR BELOW DEERFIELD DAM, SD (LAT 44 01 45N LONG 103 46 53W)					
OCT 2001					
01...	1220	12	418	30.5	11.0
MAR 2002					
07...	1010	14	435	6.0	3.0
APR					
10...	1050	11	442	15.5	4.5
JUN					
11...	1045	20	408	17.5	8.0
JUL					
08...	0945	12	409	24.0	9.0
AUG					
16...	1135	12	416	28.0	10.0
06410500 RAPID CR ABOVE PACTOLA RES AT SILVER CITY, SD (LAT 44 05 05N LONG 103 34 48W)					
OCT 2001					
05...	0835	33	412	-2.5	4.0
NOV					
14...	0910	33	419	0.0	1.0
JAN 2002					
02...	1030	20	462	-18.0	0.0
FEB					
07...	0910	31	460	-3.0	0.0
MAR					
20...	0845	28	454	0.0	0.0
APR					
18...	1100	62	402	8.0	5.5
MAY					
15...	0830	54	402	11.0	7.0
JUN					
19...	1150	34	410	17.0	16.0
AUG					
08...	0800	22	413	17.0	16.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06411500 RAPID CR BELOW PACTOLA DAM, SD (LAT 44 04 36N LONG 103 28 54W)					
OCT 2001					
05...	1045	16	388	7.0	7.0
NOV					
14...	1100	23	384	12.0	7.0
JAN 2002					
02...	1220	27	380	3.0	3.0
FEB					
08...	1035	28	392	6.0	3.0
MAR					
20...	1025	29	402	-.5	3.0
MAY					
15...	0945	55	382	8.0	6.5
JUN					
19...	1345	67	383	15.5	17.0
AUG					
08...	1010	70	385	29.0	7.5
06411900 RAPID CR ABV JOHNSON SIDING BLW PACTOLA DAM, SD (LAT 44 04 55N LONG 103 27 32W)					
JUN 2002					
14...	0945	65	370	19.0	7.5
06412000 RAPID CR AT BIG BEND NR RAPID CITY, SD (LAT 44 03 43N LONG 103 25 05W)					
OCT 2001					
12...	1315	--	389	12.0	7.0
NOV					
05...	1405	--	374	22.0	6.0
APR 2002					
26...	1405	--	380	10.0	7.5
JUN					
14...	1135	60	370	20.5	10.5
JUL					
09...	1015	--	384	25.0	10.0
AUG					
19...	1310	--	382	27.0	11.0
06412200 RAPID CREEK AB VICTORIA CR NR RAPID CITY, SD (LAT 44 02 48N LONG 103 21 06W)					
OCT 2001					
03...	1255	--	385	20.0	13.0
APR 2002					
08...	1245	--	375	--	5.0
06412220 VICTORIA CR ABOVE VICTORIA DAM NR RAPID CITY, SD (LAT 44 01 47N LONG 103 26 06W)					
OCT 2001					
09...	1315	--	254	6.5	9.0
NOV					
02...	1030	--	278	15.0	7.5
APR 2002					
26...	1310	--	251	10.0	7.5
JUN					
18...	1130	--	258	22.5	19.0
JUL					
08...	0725	--	--	21.5	--
AUG					
19...	1125	--	--	25.5	--
06412250 VICTORIA CR BELOW VICTORIA DAM NR RAPID CITY, SD (LAT 44 01 05N LONG 103 23 07W)					
JUN 2002					
18...	1200	.25	241	27.5	22.0

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)

06412500 RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY, SD (LAT 44 03 04N LONG 103 18 47W)

OCT 2001					
19...	0930	22	384	17.0	6.5
DEC					
14...	1145	20	481	10.5	2.0
JAN 2002					
22...	1330	25	387	3.0	1.0
MAR					
07...	1405	23	367	11.5	0.0
27...	0925	34	--	--	--
27...	1000	37	385	28.0	0.5
29...	0900	24	382	10.0	1.0
29...	0935	24	--	--	--
APR					
05...	0945	24	390	5.0	3.0
05...	1030	25	390	5.0	3.0
09...	0915	25	385	22.0	4.0
09...	1005	25	385	22.0	4.0
JUN					
13...	1445	59	380	18.5	13.5
JUL					
09...	1200	117	379	28.0	15.0
10...	0815	104	387	23.0	13.0
AUG					
21...	1035	69	383	31.0	13.5

06412810 CLEGHORN SPRINGS AT RAPID CITY, SD (LAT 44 03 32N LONG 103 17 49W)

NOV 2001					
09...	1211	--	377	24.0	12.0
FEB 2002					
01...	1402	--	376	10.5	11.5
MAR					
26...	1541	11	388	8.5	12.5
MAY					
30...	1345	--	378	26.5	14.0
AUG					
30...	1133	--	382	27.0	13.0

06413650 LIME CREEK AT MOUTH AT RAPID CITY, SD (LAT 44 04 30N LONG 103 16 00W)

NOV 2001					
15...	1420	2.2	957	19.0	10.5
JUN 2002					
27...	1120	1.4	1060	29.5	16.5
AUG					
23...	1200	1.2	1100	24.0	15.5

06414000 RAPID CR AT RAPID CITY, SD (LAT 44 05 09N LONG 103 14 31W)

OCT 2001					
01...	1135	26	677	22.0	13.5
NOV					
13...	1148	46	583	9.0	8.5
DEC					
31...	1420	37	596	-4.0	2.5
FEB 2002					
07...	1345	49	722	14.0	5.5
MAR					
19...	1315	45	583	2.0	6.0
MAY					
13...	1130	82	534	15.0	11.5
JUN					
17...	1345	57	482	37.0	23.0
JUL					
08...	1020	112	422	24.0	16.5
AUG					
08...	1400	69	439	30.0	22.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06416000 RAPID CR BELOW HAWTHORN DITCH AT RAPID CITY, SD (LAT 44 04 02N LONG 103 10 49W)					
JUN 2002					
17...	1155	47	502	32.0	18.0
JUL					
10...	1010	84	466	23.5	17.5
AUG					
21...	1210	55	482	29.5	14.0
06418900 RAPID CR BL SEWAGE TREATMENT PL NR RAPID CITY, SD (LAT 44 01 24N LONG 103 05 43W)					
OCT 2001					
01...	1335	43	1020	32.0	18.5
NOV					
13...	0825	48	879	5.0	7.0
DEC					
31...	0930	41	849	-13.0	2.0
FEB 2002					
07...	0855	65	759	3.0	2.5
MAR					
19...	0900	64	854	-2.0	2.5
MAY					
13...	0800	90	853	15.0	10.0
JUN					
17...	0805	62	738	20.0	19.0
17...	0945	60	--	28.0	20.0
27...	0845	36	969	29.0	22.0
27...	1015	36	--	32.0	23.0
JUL					
02...	1030	30	--	27.0	22.0
AUG					
09...	1005	48	--	21.0	19.5
SEP					
04...	0820	32	1000	27.0	20.0
06421500 RAPID CR NEAR FARMINGDALE, SD (LAT 43 56 31N LONG 102 51 12W)					
OCT 2001					
04...	1350	24	1070	10.5	13.0
NOV					
13...	1010	60	895	8.0	4.0
DEC					
31...	1245	47	910	-5.0	0.0
FEB 2002					
07...	1155	65	784	13.0	0.0
MAR					
19...	1130	77	1180	2.0	2.0
APR					
10...	1230	71	958	13.0	12.0
MAY					
13...	0930	119	718	14.0	11.5
JUN					
17...	1130	13	1010	31.0	22.0
AUG					
09...	0810	20	903	20.0	21.0

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06422500 BOXELDER CR NEAR NEMO, SD (LAT 44 08 38N LONG 103 27 16W)					
OCT 2001					
15...	1345	6.8	345	7.0	7.0
DEC					
06...	1335	7.3	349	10.0	0.0
JAN 2002					
25...	1325	2.8	394	17.0	0.5
MAR					
25...	0945	5.5	358	-3.0	0.0
APR					
26...	1135	9.3	315	--	6.5
JUN					
13...	1255	5.5	344	17.0	16.0
JUL					
22...	1125	4.7	332	25.0	20.5
AUG					
26...	1330	2.6	365	30.5	22.0
06423500 CHEYENNE RIVER NEAR WASTA, SD (LAT 44 04 52N LONG 102 24 03W)					
OCT 2001					
01...	1115	110	1630	27.0	19.5
NOV					
16...	1400	159	1820	22.0	8.5
DEC					
10...	1420	174	940	6.0	1.0
JAN 2002					
23...	1000	149	1880	-4.0	0.0
FEB					
28...	1040	135	2360	-3.0	0.5
APR					
03...	1020	225	1990	0.0	0.5
MAY					
14...	0920	259	1480	13.0	15.0
JUL					
11...	1325	57	2040	29.0	23.5
AUG					
26...	1020	67	2050	27.0	19.0
06424000 ELK CR NEAR ROUBAIX, SD (LAT 44 17 41N LONG 103 35 47W)					
OCT 2001					
15...	1200	2.8	373	4.0	3.0
DEC					
06...	1150	1.7	379	4.5	0.0
JAN 2002					
25...	1145	1.8	394	9.0	0.0
MAR					
25...	1230	2.0	387	3.0	0.0
APR					
19...	0940	6.5	296	-1.0	1.5
JUN					
13...	1105	2.6	347	14.5	12.0
AUG					
02...	1205	1.3	326	23.5	17.5
22...	0940	3.1	340	22.5	15.0
06425100 ELK CR NR RAPID CITY, SD (LAT 44 14 25N LONG 103 09 03W)					
OCT 2001					
09...	0835	2.8	1330	11.5	11.0
NOV					
13...	1330	5.4	1260	13.0	6.0
JAN 2002					
03...	1340	2.8	1640	15.0	0.0
FEB					
12...	1315	5.8	1420	3.0	0.0
MAR					
21...	1020	4.8	1340	-12.0	0.0
APR					
11...	1000	6.9	1200	13.0	11.5
MAY					
16...	1120	6.4	1370	11.0	14.0
JUN					
20...	0935	1.0	1430	16.0	--

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06425500 ELK CR NEAR ELM SPRINGS, SD (LAT 44 14 54N LONG 102 30 10W)					
NOV 2001					
15...	0840	.12	6350	3.0	2.5
FEB 2002					
12...	0900	2.4	2490	-1.0	0.0
MAR					
22...	1245	3.2	2230	-1.0	0.0
APR					
16...	1145	7.2	2140	14.0	12.0
MAY					
14...	1020	12	2150	19.0	14.0
JUN					
18...	1030	.07	4110	30.0	26.0
06428500 BELLE FOURCHE R AT WY-SD STATE LINE (LAT 44 44 59N LONG 104 02 49W)					
OCT 2001					
01...	0950	10	2390	16.0	13.0
NOV					
13...	1010	18	2170	8.0	1.0
JAN 2002					
02...	1110	4.7	3170	-4.5	0.0
FEB					
11...	1020	13	2190	9.0	0.0
MAR					
28...	1050	51	1800	4.5	0.0
APR					
23...	1105	39	1620	25.0	11.0
MAY					
10...	1300	32	1790	15.0	14.0
JUN					
24...	0950	136	--	26.0	23.5
AUG					
08...	1115	243	1710	30.0	23.5
06429997 MURRAY DITCH AB HEADGATE AT WY-SD STATE LINE (LAT 44 34 35N LONG 104 03 20W)					
OCT 2001					
03...	1210	7.9	1500	20.0	10.5
MAY 2002					
16...	1250	2.0	1470	15.0	16.0
JUN					
18...	1000	11	1450	21.5	16.0
AUG					
05...	1030	22	1600	26.0	16.0
06430500 REDWATER CR AT WY-SD STATE LINE (LAT 44 34 26N LONG 104 02 54W)					
JAN 2002					
03...	1110	40	1530	9.0	2.0
FEB					
13...	1100	38	1560	6.0	2.5
MAR					
27...	1110	40	1500	13.0	7.5
MAY					
16...	1410	39	1520	13.0	13.5
JUN					
17...	1245	20	1540	31.0	18.0
27...	1300	9.6	1760	34.5	22.0
AUG					
05...	1155	8.0	1890	28.0	19.0

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06430532 CROW CREEK NEAR BEULAH, WY (LAT 44 34 14N LONG 104 00 19W)					
OCT 2001					
03...	1010	33	1280	11.5	10.0
NOV					
19...	1005	34	1300	3.0	7.5
JAN 2002					
03...	0935	35	1280	3.0	7.0
FEB					
13...	0920	36	1320	0.5	6.5
MAR					
27...	0945	35	1280	11.5	9.0
MAY					
16...	1125	35	1290	15.0	12.5
JUN					
17...	1010	31	1310	26.0	12.5
AUG					
05...	0910	33	1260	20.0	13.0
06430770 SPEARFISH CREEK NEAR LEAD, SD (LAT 44 17 56N LONG 103 52 02W)					
OCT 2001					
16...	1200	30	459	13.0	4.5
DEC					
10...	1035	28	455	-2.0	2.0
MAY 2002					
21...	1145	34	444	23.0	12.5
JUL					
11...	0955	28	455	22.0	9.0
AUG					
27...	1145	27	460	20.5	9.0
06430800 ANNIE CREEK NEAR LEAD, SD (LAT 44 19 37N LONG 103 53 38W)					
MAY 2002					
21...	1250	.99	388	--	--
06430850 LITTLE SPEARFISH CREEK NEAR LEAD, SD (LAT 44 20 58N LONG 103 56 08W)					
OCT 2001					
17...	1205	17	484	19.0	7.0
DEC					
10...	1300	17	484	3.5	5.5
JAN 2002					
24...	1010	13	485	-4.5	4.5
MAR					
04...	1250	17	478	3.5	4.0
APR					
23...	1335	16	477	25.0	10.0
JUN					
10...	1325	15	474	22.5	14.0
JUL					
22...	1310	14	479	--	10.0
AUG					
29...	1235	15	479	22.5	10.5
06430898 SQUAW CREEK NEAR SPEARFISH, SD (LAT 44 24 04N LONG 103 53 35W)					
JUN 2002					
10...	1435	1.4	278	22.5	17.5

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06430900 SPEARFISH CREEK ABOVE SPEARFISH, SD (LAT 44 24 06N LONG 103 53 40W)					
DEC 2001					
11...	1210	64	449	3.5	3.0
JAN 2002					
24...	1245	65	446	10.0	1.5
MAR					
08...	1000	59	440	-15.0	0.5
APR					
15...	1000	78	439	15.0	5.5
JUN					
10...	1530	57	422	22.5	14.0
JUL					
12...	1015	55	438	21.0	10.5
AUG					
29...	1400	57	433	26.5	11.5
06431500 SPEARFISH CR AT SPEARFISH, SD (LAT 44 28 57N LONG 103 51 40W)					
OCT 2001					
17...	0950	63	452	17.0	5.5
DEC					
12...	1025	61	437	1.5	1.5
JAN 2002					
28...	1130	59	438	-11.5	1.0
MAR					
08...	1200	56	466	-3.5	0.5
APR					
15...	1210	75	421	17.5	6.0
MAY					
28...	1320	60	433	28.0	9.5
JUL					
12...	0835	53	435	20.0	11.5
AUG					
30...	1040	54	441	27.0	11.5
06432020 SPEARFISH CREEK BELOW SPEARFISH, SD (LAT 44 34 48N LONG 103 53 37W)					
OCT 2001					
15...	1210	74	622	7.0	6.5
NOV					
01...	1220	81	573	13.0	8.0
06432172 FALSE BOTTOM CREEK NR CENTRAL CITY (LAT 44 23 28N LONG 103 47 58W)					
NOV 2001					
14...	1235	.70	347	12.5	2.0
DEC					
11...	1030	.32	362	3.5	0.0
JAN 2002					
28...	0930	.32	348	-7.5	0.0
MAR					
04...	0920	.31	347	6.0	0.0
APR					
24...	1350	1.4	352	4.0	5.0
JUN					
10...	1100	1.1	295	21.0	13.0
AUG					
28...	1240	.13	377	25.0	15.5
06433000 REDWATER RIVER ABOVE BELLE FOURCHE, SD (LAT 44 40 02N LONG 103 50 20W)					
JAN 2002					
04...	1030	188	1110	6.0	0.0
FEB					
11...	1220	167	1150	8.5	3.0
MAR					
27...	1400	171	1090	13.0	7.5
MAY					
14...	1230	155	1110	24.0	14.0
JUN					
18...	1140	15	1330	31.0	21.0
JUL					
03...	1220	7.6	1360	27.5	23.5
AUG					
08...	1300	28	1270	31.0	24.0

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06434505 INLET CANAL ABOVE BELLE FOURCHE RESERVOIR, SD (LAT 44 42 05N LONG 103 44 00W)					
OCT 2001					
01...	1310	126	1240	27.5	15.5
NOV					
15...	1025	189	1230	11.5	5.0
JAN 2002					
07...	0930	175	1240	5.0	0.0
23...	1005	164	1190	1.5	0.0
FEB					
11...	1330	178	1270	5.0	3.0
MAR					
29...	1030	195	1250	6.0	4.5
MAY					
14...	1100	187	1280	21.0	13.0
06436000 BELLE FOURCHE R NEAR FRUITDALE, SD (LAT 44 41 27N LONG 103 44 14W)					
OCT 2001					
01...	1130	11	1760	22.0	15.5
NOV					
15...	1150	9.8	1720	20.0	4.5
JAN 2002					
02...	1310	9.2	1890	-5.5	0.5
FEB					
12...	0950	10	1660	0.5	0.0
MAR					
28...	1315	6.6	1870	8.0	3.5
MAY					
10...	1055	3.7	2130	12.5	11.0
JUN					
20...	1230	10	2020	21.5	17.0
06436156 WHITETAIL CREEK AT LEAD, SD (LAT 44 20 36N LONG 103 45 57W)					
MAY 2002					
21...	0950	4.2	560	25.0	11.0
06436180 WHITEWOOD CR ABOVE WHITEWOOD, SD (LAT 44 26 32N LONG 103 37 44W)					
OCT 2001					
04...	0845	9.4	1540	6.0	9.5
NOV					
13...	1245	8.8	1400	9.0	4.0
JAN 2002					
17...	1305	2.3	906	-5.0	0.0
FEB					
20...	0920	5.2	1220	5.0	0.0
MAR					
19...	1010	2.3	1100	-2.0	0.0
APR					
23...	0850	15	875	17.0	5.0
JUN					
26...	0920	6.7	1310	25.5	18.0
AUG					
09...	0905	11	1020	18.0	12.0
06436190 WHITEWOOD CREEK NEAR WHITEWOOD, SD (LAT 44 32 30N LONG 103 34 16W)					
OCT 2001					
04...	1010	7.1	1280	12.0	10.5
NOV					
20...	0955	9.1	1450	13.5	2.5
JAN 2002					
03...	1355	4.5	1470	9.0	2.5

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)

06436190 WHITEWOOD CREEK NEAR WHITEWOOD, SD (LAT 44 32 30N LONG 103 34 16W)--Continued

FEB 2002					
13...	1530	7.6	1390	9.5	4.5
MAR					
25...	1345	12	1280	-2.0	2.0
MAY					
10...	0840	16	1070	9.0	8.0
JUN					
26...	1110	4.8	1330	25.0	19.0
AUG					
09...	1035	16	1030	20.0	15.0

06436198 WHITEWOOD CR ABOVE VALE, SD (LAT 44 37 04N LONG 103 28 52W)

OCT 2001					
04...	1130	5.7	1570	10.5	10.5
NOV					
20...	1120	16	1540	--	0.0
JAN 2002					
17...	1005	5.2	1670	-3.5	0.0
FEB					
13...	1355	9.8	1560	--	--
MAR					
25...	1140	7.8	1450	-6.0	0.0
APR					
29...	1135	17	1190	15.5	11.0
JUN					
27...	1015	1.2	1500	30.0	22.5
AUG					
09...	1155	9.1	1980	22.0	18.5

06436760 HORSE CR ABOVE VALE, SD (LAT 44 39 08N LONG 103 21 59W)

OCT 2001					
02...	1250	34	2090	20.5	15.0
NOV					
14...	1400	3.1	4300	14.0	3.5
JAN 2002					
08...	1025	2.0	6570	3.0	0.0
FEB					
14...	1020	1.9	5470	0.5	0.0
MAR					
25...	0945	1.8	4740	-7.0	0.0
APR					
19...	1045	2.1	3880	5.0	4.5
MAY					
13...	1235	2.5	4700	19.0	17.0
JUN					
25...	1115	30	1930	32.0	23.5

06437000 BELLE FOURCHE R NEAR STURGIS, SD (LAT 44 30 47N LONG 103 08 11W)

OCT 2001					
02...	0955	143	1970	19.5	14.5
NOV					
14...	1100	41	2270	3.0	2.5
JAN 2002					
08...	1255	30	2850	13.0	0.0
FEB					
15...	1015	30	2430	7.0	0.0
MAR					
05...	1015	25	2810	3.0	0.0
APR					
04...	0955	90	2660	-1.0	0.0
15...	1030	55	2060	16.0	13.0
JUN					
20...	0905	246	1820	20.0	17.0

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06437020 BEAR BUTTE CREEK NEAR DEADWOOD, SD (LAT 44 20 08N LONG 103 38 06W)					
OCT 2001					
15...	1000	1.5	1900	1.0	1.5
DEC					
06...	0945	1.2	1480	-5.0	0.0
JAN 2002					
25...	1020	.84	549	9.0	0.0
MAR					
08...	1340	1.1	462	-15.0	0.0
APR					
19...	1155	4.0	348	-2.0	1.5
JUN					
13...	0940	1.5	1740	12.0	10.5
AUG					
22...	1055	1.5	668	19.5	15.0
06437200 BEAR BUTTE CR NEAR GALENA, SD (LAT 44 23 48N LONG 103 34 36W)					
SEP 2002					
19...	1720	1.8	810	12.0	11.5
06437400 BEAR BUTTE CREEK AT STURGIS, SD (LAT 44 24 44N LONG 103 29 10W)					
JAN 2002					
04...	1325	1.6	1240	7.5	5.5
FEB					
14...	0855	1.5	1280	0.0	2.5
APR					
02...	0915	1.3	1230	-9.5	0.0
MAY					
17...	0945	1.2	1280	10.0	8.5
JUN					
24...	1400	.86	--	33.5	21.0
AUG					
14...	1500	.89	1340	33.0	21.5
06437500 BEAR BUTTE CR NEAR STURGIS, SD (LAT 44 28 53N LONG 103 16 31W)					
APR 2002					
15...	0845	2.5	2160	13.0	11.5
06437650 ELM CREEK NEAR FAIRPOINT, SD (LAT 44 46 59N LONG 103 03 43W)					
MAR 2002					
29...	1325	3.4	2030	7.0	0.5
06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS (LAT 44 22 11N LONG 102 33 56W)					
OCT 2001					
04...	1015	135	1970	18.0	12.0
NOV					
15...	1040	43	2310	5.0	3.0
JAN 2002					
03...	1050	9.8	4170	4.0	0.0
FEB					
12...	1035	35	2490	4.0	0.0
MAR					
22...	1100	38	2400	-1.0	0.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06438500 CHEYENNE R NEAR PLAINVIEW, SD (LAT 44 31 54N LONG 101 55 47W)					
OCT 2001					
11...	0935	309	2140	9.0	8.0
NOV					
20...	1130	190	2150	9.0	0.5
JAN 2002					
08...	1040	152	2370	4.0	0.0
FEB					
15...	0935	197	2020	5.0	0.0
MAR					
28...	1030	332	1910	7.0	0.0
APR					
16...	0915	280	2090	13.0	12.0
MAY					
21...	0930	282	2210	21.0	14.0
JUN					
25...	0845	262	2140	26.0	19.0
AUG					
06...	1030	163	--	30.0	24.5
06438800 ELM CREEK NEAR RED OWL, SD (LAT 44 45 04N LONG 102 26 55W)					
APR 2002					
15...	1840	.74	2200	19.0	14.0
06439000 CHERRY CR NEAR PLAINVIEW, SD (LAT 44 44 35N LONG 102 03 11W)					
MAR 2002					
28...	0820	.02	4290	2.0	0.0
APR					
15...	1705	.02	4210	24.0	19.0
MAY					
21...	0741	.01	5610	13.0	12.0
06440200 SOUTH FORK BAD R NEAR COTTONWOOD, SD (LAT 43 53 08N LONG 101 46 00W)					
MAR 2002					
28...	1350	1.3	3510	9.0	1.5
MAY					
13...	1030	80	364	15.0	11.0
06440300 UNNAMED TRIB COTTONWOOD CREEK NEAR QUINN, SD (LAT 43 57 39N LONG 102 08 17W)					
MAY 2002					
13...	0840	.16	482	11.0	9.0
06442150 CEDAR CREEK NEAR KENNEBEC, SD (LAT 44 08 27N LONG 099 56 37W)					
MAR 2002					
29...	1510	293	577	10.5	2.5
06442500 MEDICINE CR AT KENNEBEC, SD (LAT 43 54 17N LONG 099 52 35W)					
MAR 2002					
29...	1130	118	1400	5.0	0.5
06442670 COUNSELOR CREEK NEAR LOWER BRULE, SD (LAT 44 01 34N LONG 099 31 00W)					
MAR 2002					
28...	1700	28	1260	6.0	2.0
APR					
25...	1005	.08	4250	3.0	6.5

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06442718 CAMPBELL C NR LEE'S CORNER, SD (LAT 44 04 39N LONG 099 22 51W)					
NOV 2001					
15...	1510	.08	3300	15.0	9.0
JAN 2002					
22...	1145	.04	3610	3.5	0.0
MAR					
27...	1640	11	1350	13.5	0.5
APR					
25...	1735	.09	3410	12.0	15.0
MAY					
29...	1055	.05	3530	26.0	19.5
06445685 WHITE R NR NE-SD STATE LINE (LAT 43 00 47N LONG 102 50 07W)					
OCT 2001					
02...	1250	4.8	848	23.0	16.0
DEC					
04...	0850	13	888	2.0	0.0
JAN 2002					
15...	1020	14	800	2.0	0.0
MAR					
20...	0950	26	573	-1.0	0.0
APR					
26...	1125	39	638	12.0	8.5
JUN					
10...	1100	17	758	21.5	20.5
06445980 WHITE CLAY CR NEAR OGLALA, SD (LAT 43 08 46N LONG 102 40 58W)					
OCT 2001					
02...	0750	13	469	9.0	13.5
06446000 WHITE R NEAR OGLALA, SD (LAT 43 15 17N LONG 102 49 29W)					
OCT 2001					
02...	1440	4.5	1070	27.0	16.0
DEC					
04...	1130	31	763	7.0	0.0
JAN 2002					
15...	1430	14	1140	2.0	0.0
MAR					
20...	1400	62	535	-5.0	0.0
APR					
26...	0840	53	657	7.0	9.0
JUN					
10...	1300	26	879	29.0	23.0
06446100 WOUNDED KNEE CREEK AT WOUNDED KNEE, SD (LAT 43 08 38N LONG 102 21 28W)					
OCT 2001					
02...	1005	1.5	385	21.0	12.5
06446700 BEAR IN THE LODGE CR NEAR WANBLEE, SD (LAT 43 32 05N LONG 101 47 30W)					
OCT 2001					
16...	1110	7.0	539	10.0	4.5
NOV					
13...	1530	11	530	23.0	5.0
DEC					
13...	1035	11	303	5.0	0.5
JAN 2002					
10...	1105	11	560	13.0	0.5
FEB					
21...	1200	26	465	14.0	1.0
APR					
01...	1245	145	270	20.0	5.5
MAY					
17...	1015	17	576	13.0	13.5
JUL					
16...	0910	3.4	--	32.0	24.5
AUG					
23...	1020	1.7	493	22.0	21.5

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06447000 WHITE R NEAR KADOKA, SD (LAT 43 45 09N LONG 101 31 28W)					
OCT 2001					
03...	1300	7.2	882	19.0	17.5
NOV					
16...	1110	39	720	17.0	7.5
DEC					
13...	1230	85	347	7.0	1.5
JAN 2002					
11...	1350	31	917	11.0	1.0
FEB					
22...	1250	245	505	22.0	3.5
APR					
10...	1245	245	520	15.0	12.0
MAY					
15...	1320	182	486	21.0	18.0
JUL					
16...	1040	2.7	840	32.0	29.5
AUG					
26...	1315	225	509	22.0	19.5
06447050 UNNAMED TRIB BUZZARD CREEK NR LONG VALLEY, SD (LAT 43 27 42N LONG 101 25 59W)					
MAR 2002					
28...	1120	1.8	70	14.0	1.5
06447230 BLACK PIPE CREEK NR BELVIDERE, SD (LAT 43 45 28N LONG 101 13 40W)					
NOV 2001					
16...	0920	3.0	841	11.0	3.5
DEC					
13...	1450	4.5	405	8.0	0.5
JAN 2002					
11...	1135	3.2	881	7.0	0.5
MAR					
04...	1230	5.2	796	6.0	1.5
APR					
10...	1055	12	651	11.0	9.5
MAY					
15...	1115	9.7	633	20.0	19.0
JUL					
16...	1145	0.0	--	32.0	--
06447450 WHITE RIVER NEAR WHITE RIVER, SD (LAT 43 42 50N LONG 100 41 05W)					
OCT 2001					
05...	1430	12	1960	12.0	13.5
NOV					
15...	1510	44	1120	22.0	10.0
DEC					
19...	1620	90	903	8.0	0.0
JAN 2002					
11...	0930	28	1700	2.0	0.5
FEB					
27...	1225	58	882	2.0	0.5
APR					
15...	1230	247	628	24.0	17.5
MAY					
17...	1445	231	562	18.0	14.5
JUN					
12...	1100	43	976	22.0	20.5
JUL					
26...	1305	7.0	2380	30.0	27.5
AUG					
26...	1715	6.8	1100	23.0	21.0
SEP					
12...	1300	1630	502	18.0	18.0

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)

06447500 LITTLE WHITE R NEAR MARTIN, SD (LAT 43 10 00N LONG 101 37 47W)

OCT 2001					
10...	1330	15	224	13.5	12.0
NOV					
14...	0815	17	242	9.0	5.0
DEC					
20...	1310	13	282	6.0	0.5
JAN 2002					
24...	1350	13	266	6.0	1.0
FEB					
22...	0945	36	223	10.5	0.5
APR					
01...	1450	89	275	18.0	7.0
JUN					
20...	1445	11	287	23.0	21.5
JUL					
29...	1620	5.3	251	35.0	28.0
AUG					
23...	0825	9.4	222	15.5	20.5

06448000 LAKE CR ABOVE REFUGE NEAR TUTHILL, SD (LAT 43 05 07N LONG 101 36 04W)

OCT 2001					
10...	1220	30	128	22.0	12.0
NOV					
14...	1000	24	110	15.0	7.0
DEC					
20...	1200	29	119	7.0	2.0
JAN 2002					
24...	1455	31	120	10.0	2.0
FEB					
22...	0830	27	127	2.0	2.0
APR					
01...	1610	42	163	16.0	12.0
JUN					
20...	1140	19	114	25.5	18.0
JUL					
29...	1450	16	106	38.0	27.0
AUG					
22...	1610	22	111	34.0	26.5

06449000 LAKE CR BELOW REFUGE NEAR TUTHILL, SD (LAT 43 08 46N LONG 101 30 38W)

OCT 2001					
10...	1055	11	463	13.0	11.0
NOV					
14...	1125	16	317	17.0	9.5
DEC					
20...	1100	22	320	5.0	3.0
JAN 2002					
24...	1605	21	317	9.0	3.5
FEB					
22...	1050	22	189	14.5	3.0
APR					
02...	1030	53	194	-7.0	1.0
JUN					
20...	1700	12	396	24.0	23.5
JUL					
29...	1310	2.4	632	36.0	24.5
AUG					
13...	1025	1.8	540	24.5	16.0
22...	1325	6.3	603	34.0	29.5

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06449100 LITTLE WHITE R NEAR VETAL, SD (LAT 43 06 03N LONG 101 13 49W)					
OCT 2001					
16...	1400	36	366	12.0	10.0
NOV					
14...	1310	49	318	21.0	11.0
DEC					
20...	0930	60	345	0.0	0.0
JAN 2002					
24...	1145	35	320	7.0	1.0
FEB					
21...	1500	67	259	10.0	8.0
APR					
02...	0900	206	241	-8.0	1.5
JUN					
21...	0940	45	377	30.0	21.0
JUL					
30...	0945	22	323	30.0	21.0
AUG					
22...	1205	26	295	31.0	24.5
SEP					
23...	1055	88	334	11.0	11.0
06449500 LITTLE WHITE R NEAR ROSEBUD, SD (LAT 43 19 32N LONG 100 53 00W)					
OCT 2001					
17...	1300	96	327	23.0	10.5
NOV					
14...	1645	108	309	22.0	9.5
DEC					
19...	1330	133	285	9.0	1.5
JAN 2002					
17...	1345	121	344	0.0	0.5
FEB					
12...	1215	144	296	4.0	1.5
APR					
16...	1700	223	303	20.0	17.5
JUN					
11...	1140	116	341	27.0	22.0
JUL					
31...	1150	60	303	39.5	26.5
AUG					
29...	1530	81	303	32.0	27.5
SEP					
25...	1130	121	307	14.0	13.5
06450500 LITTLE WHITE R BELOW WHITE RIVER, SD (LAT 43 36 05N LONG 100 44 58W)					
OCT 2001					
18...	1505	91	359	14.0	12.0
NOV					
15...	1350	106	331	22.0	9.5
DEC					
19...	1500	89	360	9.0	1.0
JAN 2002					
10...	1350	151	325	11.0	0.5
MAR					
04...	1620	158	370	8.0	1.0
APR					
15...	1450	231	335	24.0	19.0
MAY					
17...	1255	218	365	15.0	16.5
JUN					
11...	1640	94	364	28.0	25.5
JUL					
31...	0845	46	350	32.0	25.5
AUG					
29...	1700	62	305	32.0	28.5

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06452320 PLATTE CREEK NEAR PLATTE, SD (LAT 43 19 38N LONG 098 58 13W)					
OCT 2001					
16...	1445	.46	2730	11.0	8.0
NOV					
29...	1325	1.9	2900	-2.0	0.5
JAN 2002					
09...	1425	2.5	2740	--	0.5
APR					
02...	1455	28	1630	0.0	7.0
MAY					
20...	1810	1.9	2130	18.5	20.5
JUL					
10...	1205	.01	2360	24.5	26.0
06453255 CHOTEAU CR NR AVON, SD (LAT 42 55 24N LONG 098 06 21W)					
OCT 2001					
17...	0945	3.0	1980	10.5	7.0
NOV					
30...	1125	6.0	2220	0.0	0.5
JAN 2002					
10...	0920	5.1	2810	2.0	0.0
APR					
03...	1025	8.3	2260	-.5	1.5
11...	0915	46	--	8.0	12.5
MAY					
21...	1630	5.7	2300	18.5	20.5
JUL					
09...	1800	1.2	1780	32.0	32.5
AUG					
20...	1015	1.0	1670	19.0	19.5
06463900 ANTELOPE CR NEAR MISSION, SD (LAT 43 16 26N LONG 100 40 56W)					
MAR 2002					
05...	1330	5.3	449	14.0	0.5
06464100 KEYA PAHA R NEAR KEYAPAHA, SD (LAT 43 07 45N LONG 100 06 24W)					
OCT 2001					
17...	1615	27	455	24.0	13.5
NOV					
15...	1040	32	450	19.0	8.5
DEC					
17...	1730	47	540	5.0	0.0
JAN 2002					
18...	1100	42	492	-2.5	0.0
MAR					
05...	1120	33	483	13.0	1.5
APR					
16...	1230	64	427	--	19.0
JUN					
10...	1700	24	440	25.5	26.5
JUL					
30...	1230	8.9	400	36.5	30.0
AUG					
29...	1145	13	406	25.5	25.0
06464120 SAND CREEK NEAR OLSONVILLE, SD (LAT 43 01 03N LONG 100 24 46W)					
APR 2002					
16...	1435	.67	495	22.0	20.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06464500 KEYA PAHA R AT WEWELA, SD (LAT 43 01 44N LONG 099 46 49W)					
OCT 2001					
18...	0820	55	469	7.5	7.5
NOV					
15...	0900	58	420	11.0	7.5
DEC					
17...	1545	112	543	12.0	0.0
JAN 2002					
18...	0900	83	350	-10.0	0.0
MAR					
05...	0910	58	525	4.0	1.0
APR					
16...	1040	124	445	21.0	17.5
JUN					
10...	1430	52	429	25.5	27.5
JUL					
30...	1415	12	420	39.0	34.0
AUG					
29...	1005	29	400	23.5	22.0
06471000 JAMES R AT COLUMBIA, SD (LAT 45 36 13N LONG 098 18 36W)					
OCT 2001					
03...	1020	213	1220	8.5	14.0
NOV					
14...	1415	9.6	1500	10.0	8.0
JAN 2002					
08...	1245	47	2260	10.0	0.5
APR					
03...	1500	83	1260	-1.0	1.0
MAY					
07...	0945	222	879	2.0	7.0
JUN					
12...	1550	114	1320	19.0	21.0
JUL					
24...	0910	44	1540	21.0	19.0
SEP					
04...	1635	38	1170	26.0	24.0
06471200 MAPLE R AT ND-SD STATE LINE (LAT 45 56 20N LONG 098 27 08W)					
JAN 2002					
08...	1530	.89	3110	10.5	1.0
APR					
03...	1155	4.3	1720	-5.0	0.5
MAY					
07...	1325	6.7	1240	5.5	7.0
JUN					
12...	1255	.23	1560	17.5	19.5
SEP					
04...	1400	.03	1180	28.5	26.0
06471500 ELM R AT WESTPORT, SD (LAT 45 39 22N LONG 098 29 48W)					
OCT 2001					
02...	0905	8.8	1600	11.5	15.0
NOV					
14...	0935	1.3	1840	5.5	6.0
JAN 2002					
09...	1125	2.6	2270	4.0	0.5
APR					
03...	1635	7.6	1230	-2.0	5.5
MAY					
07...	1535	8.6	1400	3.0	7.5
29...	1240	5.5	1600	23.0	22.0
JUN					
12...	0935	1.4	1670	19.0	19.0
28...	1145	.05	1800	31.5	27.0
JUL					
24...	1235	.81	1810	25.5	21.5
SEP					
06...	1015	2.7	1880	24.0	--

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06471770 MOCCASIN CREEK AT ABERDEEN, SD (LAT 45 28 13N LONG 098 27 13W)					
NOV 2001					
13...	1615	.06	3500	12.5	10.0
JAN 2002					
09...	0845	.03	3400	1.5	6.5
APR					
04...	0855	.14	2180	-3.0	1.0
MAY					
06...	1610	.45	3370	6.0	9.5
JUN					
13...	1045	.02	3190	14.5	11.5
JUL					
24...	1525	.04	2820	27.0	28.0
SEP					
06...	0815	.04	2060	20.0	19.0
06471800 FOOT CREEK NEAR ABERDEEN, SD (LAT 45 31 08N LONG 098 34 37W)					
OCT 2001					
02...	1415	.21	1800	22.5	20.5
NOV					
14...	0815	.25	1840	6.0	5.5
JAN 2002					
09...	1300	.24	1930	4.0	0.5
APR					
03...	0755	.18	1270	-7.0	0.5
MAY					
06...	1420	.24	1980	7.5	11.0
JUN					
12...	0800	.18	1950	16.0	19.0
JUL					
24...	1415	.23	1740	28.5	24.5
SEP					
06...	1200	.19	1680	--	--
06472000 JAMES R NEAR STRATFORD, SD (LAT 45 14 30N LONG 098 23 28W)					
OCT 2001					
01...	1720	600	1320	27.5	18.0
NOV					
15...	0950	69	1610	11.5	7.0
JAN 2002					
08...	0950	58	2110	3.0	0.5
APR					
04...	1230	97	1530	5.5	3.0
MAY					
08...	0935	235	1210	5.0	7.5
JUN					
13...	0920	145	1370	14.5	19.5
JUL					
23...	1625	37	1470	19.5	23.5
SEP					
05...	0910	44	1420	23.0	22.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06473000 JAMES R AT ASHTON, SD (LAT 44 59 54N LONG 098 28 50W)					
OCT 2001					
01...	1500	658	1330	28.5	17.5
NOV					
13...	1415	111	1580	14.0	6.5
JAN 2002					
07...	1650	61	2230	2.0	0.5
APR					
02...	1505	121	1500	-2.5	2.5
MAY					
08...	1245	251	1420	6.5	9.5
JUN					
11...	1805	162	1340	27.0	25.0
JUL					
08...	1550	92	1560	28.5	28.0
SEP					
05...	1455	53	1450	32.0	25.5
06475000 JAMES R NEAR REDFIELD, SD (LAT 44 54 33N LONG 098 28 18W)					
OCT 2001					
01...	1250	784	1300	24.5	17.5
NOV					
13...	1140	124	1590	11.0	6.0
JAN 2002					
07...	1440	68	2310	4.0	0.0
MAR					
07...	1330	85	2120	-3.0	0.0
APR					
02...	1210	139	1580	-2.0	3.0
MAY					
08...	1640	266	1570	9.0	10.0
JUN					
11...	1525	182	1320	27.0	25.0
JUL					
23...	1310	37	1570	22.0	24.0
SEP					
03...	1455	65	1490	31.0	24.5
06476000 JAMES R AT HURON, SD (LAT 44 21 49N LONG 098 11 56W)					
OCT 2001					
04...	1130	755	1320	10.5	--
NOV					
06...	1450	246	1580	18.5	--
AUG 2002					
07...	1435	34	1500	32.0	26.0
06477000 JAMES R NEAR FORESTBURG, SD (LAT 43 58 26N LONG 098 04 14W)					
OCT 2001					
12...	0945	594	1450	12.0	12.0
JAN 2002					
17...	1135	131	2040	-5.0	0.0
MAR					
27...	1210	150	1860	4.0	1.0
APR					
04...	1715	370	1590	9.0	4.5
MAY					
09...	1635	377	1640	14.0	10.5
JUL					
11...	1400	82	1500	20.0	24.0
AUG					
27...	1300	140	1710	25.5	26.5

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06477150 ROCK CR NEAR FULTON, SD (LAT 43 45 30N LONG 097 54 25W)					
APR 2002					
08...	0955	9.0	604	5.0	8.0
06477500 FIRESTEEL CR NEAR MOUNT VERNON, SD (LAT 43 46 30N LONG 098 14 33W)					
OCT 2001					
12...	1140	.24	1460	14.0	12.5
NOV					
30...	0945	.89	1720	-2.5	0.0
JAN 2002					
16...	1625	1.5	1740	-1.5	0.0
MAR					
27...	0930	.90	1460	1.5	0.5
MAY					
29...	1340	.64	1980	32.0	26.0
AUG					
27...	1535	3.7	676	25.5	28.5
06478000 JAMES R NEAR MITCHELL, SD (LAT 43 39 32N LONG 097 55 08W)					
OCT 2001					
11...	1720	591	1390	20.0	14.0
JAN 2002					
16...	1240	172	2030	-1.5	0.0
APR					
05...	0935	471	1630	2.5	4.5
MAY					
09...	1130	304	1590	5.0	9.5
JUL					
11...	1040	80	1540	19.0	25.0
SEP					
04...	1415	98	1720	25.0	24.0
06478390 WOLF CR NEAR CLAYTON, SD (LAT 43 22 18N LONG 097 36 12W)					
AUG 2002					
28...	1010	54	930	23.5	24.0
06478500 JAMES R NEAR SCOTLAND, SD (LAT 43 11 09N LONG 097 38 07W)					
OCT 2001					
11...	1335	688	1400	18.0	14.5
NOV					
29...	1250	211	1570	-5.0	0.0
JAN 2002					
14...	1550	179	2040	-.5	0.0
MAR					
26...	1510	219	2020	4.5	2.0
MAY					
23...	1725	355	1730	12.0	17.0
JUL					
10...	1005	110	1780	22.5	28.0
AUG					
20...	1815	136	1840	25.5	23.0
SEP					
18...	1555	104	1570	27.0	22.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06478535 EAST FORK VERMILLION RIVER NEAR RAMONA, SD (LAT 44 06 35N LONG 097 23 13W)					
OCT 2001					
01...	1210	88	1300	20.0	17.0
NOV					
15...	1240	62	1290	17.0	8.0
JAN 2002					
04...	1135	31	1720	0.0	0.0
FEB					
19...	1135	49	1290	3.0	0.5
APR					
11...	0850	50	986	5.0	8.0
MAY					
20...	1020	63	1180	10.0	12.0
JUL					
09...	1555	33	1330	29.0	30.0
06478540 LITTLE VERMILLION R NEAR SALEM, SD (LAT 43 47 39N LONG 097 22 02W)					
FEB 2002					
19...	1410	.11	698	3.0	0.5
APR					
09...	1340	1.4	902	12.0	10.0
MAY					
20...	1135	.14	1980	12.0	14.0
AUG					
29...	1150	.70	1000	25.0	24.0
06478600 EAST FORK VERMILLION RIVER NEAR PARKER, SD (LAT 43 26 43N LONG 097 06 34W)					
NOV 2001					
13...	1305	58	1390	17.0	9.0
JAN 2002					
02...	1350	33	1670	-8.0	0.0
FEB					
20...	0845	59	1650	0.5	1.5
APR					
08...	1510	120	1000	12.0	10.5
MAY					
20...	1630	67	1350	15.0	19.0
JUL					
10...	0945	28	1400	24.0	25.0
06478690 WEST FORK VERMILLION R NEAR PARKER, SD (LAT 43 24 55N LONG 097 12 18W)					
OCT 2001					
02...	1035	.64	1630	22.0	17.0
NOV					
13...	1105	.48	1700	16.0	9.0
JAN 2002					
02...	1120	2.6	2590	-9.0	0.0
FEB					
20...	1010	4.8	1640	1.5	1.0
APR					
08...	1250	29	1020	12.5	9.0
MAY					
20...	1435	18	2230	19.0	15.0
JUL					
10...	1215	.36	1670	23.0	27.0
AUG					
23...	1210	610	371	29.0	24.0
06479000 VERMILLION R NEAR WAKONDA, SD (LAT 42 59 27N LONG 096 57 49W)					
MAR 2002					
26...	1120	107	1560	0.0	2.0

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06479010 VERMILLION RIVER NR VERMILLION, SD (LAT 42 49 02N LONG 096 55 26W)					
OCT 2001					
10...	1745	101	1400	16.5	15.0
NOV					
28...	1620	126	1520	-5.0	1.0
JAN 2002					
15...	1045	89	1700	-3.0	0.0
MAR					
25...	1635	139	1580	3.0	4.5
MAY					
22...	1400	163	1590	18.5	16.0
JUL					
09...	1615	53	1470	29.5	29.0
AUG					
22...	1720	244	310	26.0	24.5
06479159 BLUE DOG LAKE INFLOW (OWENS CR) NR WAUBAY, SD (LAT 45 20 48N LONG 097 15 07W)					
OCT 2001					
02...	1000	7.3	567	18.0	11.0
NOV					
13...	1315	9.9	584	20.0	7.0
JAN 2002					
02...	1345	4.6	432	-8.0	0.0
MAR					
05...	1025	5.9	475	-4.0	0.0
APR					
10...	0920	30	379	5.0	2.0
MAY					
20...	1505	12	543	15.0	15.0
06479215 BIG SIOUX RIVER NR FLORENCE, SD (LAT 45 10 51N LONG 097 11 09W)					
NOV 2001					
14...	0820	1.0	623	12.5	7.5
JAN 2002					
03...	0900	.31	967	-8.0	0.0
MAR					
05...	1430	2.1	545	3.0	0.0
MAY					
21...	1120	11	609	15.0	14.0
JUL					
02...	1510	2.8	607	20.0	20.0
06479438 BIG SIOUX R NEAR WATERTOWN, SD (LAT 45 00 22N LONG 097 09 53W)					
OCT 2001					
02...	1540	4.2	881	25.0	16.0
NOV					
14...	1135	6.4	716	14.0	7.5
JAN 2002					
03...	1155	2.0	1010	-6.0	0.5
MAR					
06...	0930	9.5	746	-8.0	0.0
APR					
10...	1605	55	495	10.0	8.0
MAY					
21...	1615	27	685	16.0	15.0
JUL					
03...	1025	10	556	24.0	23.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06479500 BIG SIOUX R AT WATERTOWN, SD (LAT 44 56 33N LONG 097 08 45W)					
OCT 2001					
02...	1655	4.0	677	25.0	20.0
NOV					
14...	1420	4.5	706	16.0	9.0
JAN 2002					
04...	0920	1.3	888	-4.0	0.0
MAR					
06...	1200	5.0	--	-10.0	0.0
APR					
11...	1335	41	521	6.0	6.0
MAY					
22...	0800	32	737	13.5	15.0
06479515 WILLOW CR NEAR WATERTOWN, SD (LAT 44 55 08N LONG 097 02 43W)					
AUG 2002					
21...	1245	210	518	25.0	19.0
06479520 BIG SIOUX RIVER BELOW WATERTOWN, SD (LAT 44 50 32N LONG 097 02 57W)					
OCT 2001					
02...	1820	8.6	1040	23.0	21.0
JAN 2002					
04...	1200	6.6	1240	-4.0	0.0
MAR					
06...	1620	20	966	0.0	0.0
APR					
11...	1600	79	588	7.0	7.0
MAY					
21...	1200	54	801	16.0	12.0
JUL					
08...	1400	11	933	25.0	27.0
AUG					
21...	1455	368	291	27.0	19.0
23...	1140	53	571	26.0	20.5
06479525 BIG SIOUX R NEAR CASTLEWOOD, SD (LAT 44 43 54N LONG 097 02 39W)					
NOV 2001					
05...	1150	16	1050	15.0	10.0
JAN 2002					
03...	1050	8.3	1280	-8.0	0.0
MAR					
01...	1115	24	793	-12.0	0.0
APR					
09...	1030	96	609	3.5	4.0
MAY					
20...	1145	70	809	11.0	13.0
JUL					
08...	1520	16	869	26.0	27.0
AUG					
21...	1805	742	242	28.0	20.0
06479770 BIG SIOUX RIVER NEAR BRUCE, SD (LAT 44 28 04N LONG 096 53 14W)					
OCT 2001					
03...	1740	182	1140	16.0	15.0
NOV					
05...	1730	119	1140	--	--
JAN 2002					
04...	1345	56	1260	0.0	0.0
FEB					
28...	1435	100	987	-5.0	0.0
APR					
10...	0950	268	739	8.0	7.0
MAY					
21...	0920	168	940	12.0	10.0
JUN					
27...	1105	71	934	29.0	24.0

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06479980 MEDARY CR NEAR BROOKINGS, SD (LAT 44 13 26N LONG 096 46 02W)					
JUN 2002					
27...	0810	28	806	18.0	21.0
06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD (LAT 44 10 48N LONG 096 44 55W)					
OCT 2001					
04...	1025	203	1160	10.0	14.0
NOV					
06...	1025	153	1140	7.0	9.0
JAN 2002					
04...	1020	84	1310	-2.0	0.0
FEB					
28...	1105	165	990	-4.0	0.0
APR					
05...	1210	831	552	5.0	2.0
MAY					
20...	1745	474	949	18.0	--
06480650 FLANDREAU CR ABOVE FLANDREAU, SD (LAT 44 03 45N LONG 096 29 14W)					
APR 2002					
09...	0855	48	605	-1.0	3.5
06481000 BIG SIOUX R NEAR DELL RAPIDS, SD (LAT 43 47 25N LONG 096 44 42W)					
OCT 2001					
03...	0945	260	1060	10.0	15.0
JAN 2002					
03...	1220	117	1380	-8.0	0.0
FEB					
21...	1140	242	920	3.0	1.0
APR					
09...	1620	808	661	17.0	10.0
MAY					
21...	1505	601	931	19.0	16.0
JUL					
11...	1330	122	878	18.0	23.0
06481400 BIG SIOUX RIVER BELOW DIVERSION AT SIOUX FALLS, SD (LAT 43 34 23N LONG 096 45 50W)					
MAY 2002					
01...	0915	94	867	8.0	10.0
06481480 SKUNK CR NR CHESTER, SD (LAT 43 50 53N LONG 096 50 10W)					
OCT 2001					
03...	1150	1.1	916	15.0	15.0
NOV					
14...	0910	1.1	1040	15.0	9.0
JAN 2002					
03...	0955	1.9	1730	-10.0	-.5
FEB					
21...	0950	7.6	1020	1.0	0.5
APR					
09...	1105	21	932	7.0	7.0
MAY					
21...	1130	4.7	1340	12.0	14.0
JUL					
11...	1655	.55	864	20.0	23.0
06481493 SKUNK CREEK NEAR HARTFORD, SD (LAT 43 38 09N LONG 096 54 00W)					
AUG 2002					
22...	1510	286	514	25.0	22.0

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06481497 WILLOW CREEK NEAR CROOKS, SD (LAT 43 37 51N LONG 096 49 37W)					
NOV 2001					
14...	1710	4.3	1490	16.0	10.0
FEB 2002					
19...	1640	2.8	770	3.0	0.5
APR					
10...	1400	9.9	873	22.0	15.0
AUG					
22...	1300	10	464	28.0	23.0
06482020 BIG SIOUX R AT NORTH CLIFF AVE AT SIOUX FALLS, SD (LAT 43 34 01N LONG 096 42 39W)					
OCT 2001					
02...	1650	264	1200	21.0	30.0
NOV					
14...	1255	188	1170	16.0	9.0
JAN 2002					
02...	1640	168	1480	-10.0	0.5
FEB					
21...	1510	238	1050	4.0	4.0
APR					
10...	1005	895	834	16.0	11.0
JUL					
12...	1140	98	960	25.0	24.0
06482610 SPLIT ROCK CR AT CORSON, SD (LAT 43 36 59N LONG 096 33 54W)					
OCT 2001					
02...	1510	28	583	22.0	18.0
NOV					
14...	1500	32	860	19.0	9.0
FEB 2002					
20...	1630	57	600	1.0	5.0
APR					
10...	1145	98	622	17.0	14.0
MAY					
21...	1700	68	729	20.0	20.0
JUL					
12...	0935	27	658	22.0	20.0
06485500 BIG SIOUX R AT AKRON IA (LAT 42 50 14N LONG 096 33 41W)					
OCT 2001					
10...	1515	631	903	16.5	14.5
NOV					
07...	1555	551	920	18.0	11.5
JAN 2002					
15...	1605	757	1060	-2.0	0.0
MAR					
25...	1410	896	1030	2.0	2.0
APR					
04...	1430	3140	520	11.0	3.5
MAY					
23...	1220	1670	909	16.0	16.0
JUL					
09...	1325	447	766	28.5	27.5
AUG					
22...	1236	560	703	27.0	26.0
23...	1330	3280	430	24.5	23.5
SEP					
19...	1320	285	762	15.0	19.0

MISCELLANEOUS DISCHARGE MEASUREMENTS

489

The following miscellaneous discharge measurements are listed in downstream order.

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
444700096281300	W.FORK LAC QUI PARLE R EMAP S. NR GARY, SD (LAT 44 47 00N LONG 096 28 13W)				
AUG 2002					
14...	1200	1.7	900	--	13.0
454114101502100	GRAND R EMAP S. ABV BLACK HORSE BUTTE CR, SD (LAT 45 41 14N LONG 101 50 21W)				
JUN 2002					
27...	1240	27	1830	36.0	28.5
453957101421400	GRAND R EMAP S. BLW BLACK HORSE BUTTE CR, SD (LAT 45 39 57N LONG 101 42 14W)				
JUN 2002					
12...	1530	30	2130	25.0	19.0
453147101192100	FIRESTEEL CREEK EMAP SITE NEAR FIRESTEEL, SD (LAT 45 31 47N LONG 101 19 21W)				
JUL 2002					
23...	0815	0.0	1720	22.5	19.5
454615101163600	WHITE SHIRT CREEK EMAP SITE NEAR MCINTOSH, SD (LAT 45 46 15N LONG 101 16 36W)				
JUN 2002					
11...	1100	0.0	--	--	19.5
452012103203900	NORTH FORK OF MOREAU RIVER EMAP SITE, SD (LAT 45 20 12N LONG 103 20 39W)				
JUN 2002					
26...	1030	.15	2060	32.0	25.5
450812102484800	MOREAU RIVER EMAP SITE NEAR IMOGENE, SD (LAT 45 08 12N LONG 102 48 48W)				
JUN 2002					
13...	1445	1.7	2900	21.0	17.5
450914102354500	MOREAU RIVER EMAP SITE, SD (LAT 45 09 14N LONG 102 35 45W)				
JUN 2002					
25...	1330	4.2	3380	38.0	29.0
451923100113700	SWAN CREEK EMAP SITE NEAR AKASAKA, SD (LAT 45 19 23N LONG 100 11 37W)				
JUL 2002					
24...	0800	0.0	2770	20.0	19.5
434422103503300	HELL CANYON CR AT JEWEL CAVE ABV HWY16, NR CUSTER, SD (LAT 43 44 22N LONG 103 50 33W)				
APR 2002					
04...	1300	.87	--	10.0	--
Discharge measurements made by National Park Service personnel.					
431850103471200	CHEYENNE R EMAP, 1.5 MI. E. OF EDMONT, SD (LAT 43 18 50N LONG 103 47 12W)				
JUN 2002					
18...	1700	1.5	3000	32.0	30.0
430803103375200	HAT CREEK EMAP SITE NEAR RUMFORD, SD (LAT 43 08 03N LONG 103 37 52W)				
JUN 2002					
18...	1115	--	3100	--	20.5

MISCELLANEOUS DISCHARGE MEASUREMENTS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
433608103303600 BEAVER CREEK 1/4 MI. S. OF COREY RANCH (LAT 43 36 08N LONG 103 30 36W)					
JAN 2002					
16...	1130	.81	550	3.0	0.5
MAR					
04...	1030	.85	515	5.0	0.5
MAY					
14...	0855	.90	530	20.0	7.0
JUL					
23...	1500	.57	516	31.0	20.0
SEP					
10...	1355	.66	490	26.0	15.0
433444103295200 COLD SPRING CR @ 0.1 M W OF PARK BOUND. ON HWY 385 (LAT 43 34 44N LONG 103 29 52W)					
JAN 2002					
16...	1430	.17	646	-2.0	1.0
MAR					
04...	1150	.16	604	8.0	1.0
MAY					
14...	1020	.34	612	21.0	9.0
JUL					
24...	1430	.15	578	36.0	21.5
SEP					
10...	1425	.10	614	28.0	16.5
433451103284000 COLD SPRING CR @200 FT ABV CONFLUENCE OF BEAVER CR (LAT 43 34 51N LONG 103 28 40W)					
JAN 2002					
16...	1625	.12	448	-5.0	4.5
MAR					
04...	1315	.16	582	8.0	7.5
MAY					
14...	1140	.41	580	21.0	13.0
JUL					
24...	1030	.14	549	26.0	12.5
SEP					
11...	0840	.09	586	10.0	9.0
433459103280800 BEAVER CREEK SITE C, WIND CAVE NATL. PARK, SD (LAT 43 34 59N LONG 103 28 08W)					
MAY 2002					
14...	1510	1.1	460	25.0	19.5
JUL					
24...	1325	.66	437	31.0	25.0
SEP					
11...	1230	.55	494	20.0	16.0
433506103273500 BEAVER CREEK SITE D, WIND CAVE NATL. PARK, SD (LAT 43 35 06N LONG 103 27 35W)					
MAY 2002					
14...	1355	.72	475	32.0	18.0
JUL					
24...	1230	.45	443	30.0	22.5
SEP					
11...	1120	.46	487	25.0	13.5
433745103261900 HIGHLAND CR ABV MADISON OUTCROP NR PRINGLE, SD (LAT 43 37 45N LONG 103 26 19W)					
JAN 2002					
16...	0920	1.4	318	-2.0	2.5
MAR					
04...	0850	1.5	155	3.0	4.5
MAY					
13...	0845	1.2	300	21.0	9.0
JUL					
23...	0910	1.2	303	21.0	14.0
SEP					
10...	0845	1.1	311	16.0	10.0

MISCELLANEOUS DISCHARGE MEASUREMENTS

491

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
433706103260400 HIGHLAND CREEK SITE B, WIND CAVE NATL. PARK, SD (LAT 43 37 06N LONG 103 26 04W)					
MAY 2002					
13...	1120	1.1	282	16.0	13.0
JUL					
23...	1200	.78	283	29.0	22.5
SEP					
10...	1225	.59	276	22.0	17.5
433654103254800 HIGHLAND CREEK SITE C, WIND CAVE NATL. PARK, SD (LAT 43 36 54N LONG 103 25 48W)					
MAY 2002					
13...	1230	.98	261	18.0	18.0
JUL					
23...	1235	.68	233	29.0	27.0
SEP					
10...	1130	.57	275	20.0	19.5
433639103254000 HIGHLAND CREEK SITE D, WIND CAVE NATL. PARK, SD (LAT 43 36 39N LONG 103 25 40W)					
MAY 2002					
13...	1400	.62	240	27.0	19.0
JUL					
23...	1320	.58	216	32.0	26.5
SEP					
10...	1040	.44	313	18.0	13.5
435914103250500 SPRING CREEK EMAP SITE BELOW SHERIDAN LAKE, SD (LAT 43 59 14N LONG 103 25 05W)					
JUN 2002					
05...	1525	17	318	--	19.8
440242103190400 RAPID CREEK WEST OF RAPID CITY, SD (LAT 44 02 42N LONG 103 19 04W)					
APR 2002					
05...	1025	25	--	--	--
05...	1110	24	--	--	--
09...	0925	24	--	--	--
09...	1050	24	--	--	--
440321103181101 RAPID CR AT BRAEBURN ADDITION AT RAPID CITY, SD (LAT 44 03 21N LONG 103 18 11W)					
MAR 2002					
27...	1005	38	--	--	--
27...	1110	33	--	--	--
29...	0930	25	--	--	--
29...	1025	27	--	--	--
440330103175101 RAPID CR AB CONF WITH CLEGHORN SPRING AT RC, SD (LAT 44 03 30N LONG 103 17 51W)					
MAR 2002					
27...	0945	32	--	--	--
27...	1045	36	--	--	--
29...	0925	26	--	--	--
29...	1012	27	--	--	--
APR					
05...	1000	25	--	--	--
05...	1046	26	--	--	--
09...	0940	26	--	--	--
09...	1022	26	--	--	--

MISCELLANEOUS DISCHARGE MEASUREMENTS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)

06412900 RAPID CREEK BLW CLEGHORN SPGS AT RAPID CITY, SD (LAT 44 03 33N LONG 103 17 49W)

MAR 2002					
27...	0945	45	--	--	--
27...	1035	45	--	--	--
29...	0915	39	--	--	--
29...	1000	42	--	--	--
APR					
05...	0950	38	--	--	--
05...	1040	39	--	--	--
09...	0920	40	--	--	--
09...	1000	36	--	--	--

06413570 RAPID C AB JACKSON BLVD AT RAPID CITY, SD (LAT 44 03 55N LONG 103 16 21W)

OCT 2001					
15...	0810	34	404	4.0	7.0
26...	1230	--	397	10.5	8.0
JAN 2002					
04...	0900	43	411	5.0	4.5
09...	1300	--	387	12.0	5.0
16...	1310	--	390	0.0	3.0
25...	1250	--	389	13.0	4.5
FEB					
11...	0830	45	392	9.0	2.5
MAR					
21...	1215	34	399	-5.0	1.5
JUN					
03...	0805	57	389	13.5	16.0
AUG					
08...	1215	67	374	28.0	20.5

441459103102200 ELK CREEK EMAP SITE NEAR BEND, SD (LAT 44 14 59N LONG 103 10 22W)

JUN 2002					
04...	1600	3.3	1280	--	23.0

06429000 BELLE FOURCHE R AT BELLE FOURCHE, SD (LAT 44 40 30N LONG 103 51 20W)

OCT 2001					
12...	0930	14	2380	7.5	8.0
NOV					
02...	0920	21	2250	5.5	5.0

06432172 FALSE BOTTOM CREEK NR CENTRAL CITY, SD (LAT 44 23 28N LONG 103 47 58W)

NOV 2001					
14...	1235	.70	347	12.5	2.0
DEC					
11...	1030	.32	362	3.5	0.0
JAN 2002					
28...	0930	.32	348	-7.5	0.0
MAR					
04...	0920	.31	347	6.0	0.0
APR					
24...	1350	1.4	352	4.0	5.0
JUN					
10...	1100	1.1	295	21.0	13.0
JUL					
26...	--	--	377	24.0	17.5
AUG					
12...	1145	--	376	12.0	12.5
28...	1240	.13	377	25.0	15.5

MISCELLANEOUS DISCHARGE MEASUREMENTS

493

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06434500 INLET CANAL NEAR BELLE FOURCHE, SD (LAT 44 42 14N LONG 103 49 23W)					
NOV 2001					
13...	1110	--	1220	16.0	5.0
JUN 2002					
24...	1200	126	--	34.0	--
JUL					
16...	1205	142	1740	37.0	26.5
444016103325300 BELLE FOURCHE RIVER AT NISLAND, SD (LAT 44 40 16N LONG 103 32 53W)					
OCT 2001					
03...	1415	22	1990	17.5	14.0
NOV					
15...	1325	18	2040	18.5	5.5
06436250 BELLE FOURCHE RIVER AT VALE, SD (LAT 44 38 10N LONG 103 25 37W)					
OCT 2001					
12...	1220	44	1880	10.5	9.5
NOV					
02...	1150	37	1900	18.0	6.5
APR 2002					
19...	0945	37	1570	1.0	4.5
JUN					
10...	1248	64	1760	22.5	21.0
JUL					
24...	1030	71	1870	30.0	25.0
AUG					
14...	1145	52	1920	29.5	20.0
SEP					
11...	1055	108	1790	19.0	18.5
444642103313600 HORSE CREEK ABOVE NEWELL, SD (LAT 44 46 42N LONG 103 31 36W)					
FEB 2002					
12...	1223	--	4780	6.0	0.0
APR					
18...	1025	.16	4890	9.5	8.5
JUN					
10...	0900	2.5	1720	16.0	17.0
JUL					
23...	0850	.48	2180	21.0	20.0
AUG					
13...	0915	.25	5110	22.0	15.5
SEP					
10...	0850	1.7	2340	16.5	15.5
444215103275400 HORSE CREEK BELOW INDIAN CREEK NEAR NEWELL, SD (LAT 44 42 15N LONG 103 27 54W)					
FEB 2002					
12...	1251	--	5620	8.0	0.0
APR					
18...	1205	1.2	3910	7.5	11.0
JUN					
10...	1020	46	1820	18.5	18.5
JUL					
23...	1030	25	1970	24.0	22.0
AUG					
13...	1035	14	2090	23.0	17.5
SEP					
10...	1005	42	1930	17.0	17.0

MISCELLANEOUS DISCHARGE MEASUREMENTS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
444050103253700 HORSE CREEK BELOW NEWELL, SD (LAT 44 40 50N LONG 103 25 37W)					
FEB 2002					
12...	1325	--	5460	5.0	0.0
APR					
18...	1310	1.3	3970	9.0	10.5
JUN					
10...	1135	56	1860	22.5	19.0
JUL					
23...	1150	35	1800	30.0	22.5
AUG					
13...	1140	19	2110	23.5	18.5
SEP					
10...	1115	43	2010	21.0	18.5
443942103172800 WILLOW CREEK NEAR VALE, SD (LAT 44 39 42N LONG 103 17 28W)					
JUL 2002					
30...	0835	63	1550	27.0	21.0
AUG					
15...	0835	25	1780	17.5	16.0
27...	1050	47	1690	26.0	19.5
SEP					
12...	0901	42	1730	16.5	17.5
443738103152000 BELLE FOURCHE RIVER NEAR VALE, SD (LAT 44 37 38N LONG 103 15 20W)					
OCT 2001					
02...	1130	149	1870	19.0	15.0
NOV					
20...	1250	50	2400	--	1.0
FEB 2002					
15...	1115	--	2340	9.0	0.0
APR					
15...	1235	56	1980	20.5	14.5
JUN					
25...	0935	206	1730	31.0	23.0
443619103155800 NINEMILE CREEK NEAR VALE, SD (LAT 44 36 19N LONG 103 15 58W)					
JUL 2002					
30...	1005	40	1500	29.0	22.5
AUG					
15...	0955	4.0	1650	19.5	17.0
27...	0935	9.1	1690	21.0	19.0
SEP					
12...	1015	28	1540	19.5	18.5
442252102574800 BELLE FOURCHE RIVER ABOVE HEREFORD, SD (LAT 44 22 52N LONG 102 57 48W)					
OCT 2001					
30...	1300	--	2240	13.0	8.5
MAR 2002					
28...	1310	--	--	13.0	0.5
APR					
09...	1245	99	2270	23.0	9.5
10...	0835	--	2330	11.0	11.0
MAY					
14...	1345	60	2390	28.0	18.0
30...	1208	--	2050	31.5	27.5
JUN					
18...	1345	249	1810	28.0	26.0
JUL					
25...	0920	271	1760	29.0	25.0
AUG					
07...	0910	206	1870	28.0	23.0
27...	1300	223	1920	29.0	22.5
SEP					
20...	1225	501	1890	18.5	15.0

MISCELLANEOUS DISCHARGE MEASUREMENTS

495

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
06437600 BELLE FOURCHE R NEAR HEREFORD, SD (LAT 44 21 02N LONG 102 50 17W)					
MAR 2002					
28...	1340	--	--	13.0	--
APR					
09...	1440	--	--	27.0	--
10...	1035	109	2260	10.5	11.0
MAY					
14...	1210	65	2360	24.0	18.0
21...	1120	--	3510	25.5	19.0
30...	1400	--	2020	32.5	28.5
JUN					
18...	1215	222	1800	30.0	24.0
30...	1400	--	2020	32.5	28.5
JUL					
25...	1110	274	1760	34.0	26.5
AUG					
07...	1110	211	1900	39.0	24.5
27...	1415	205	1920	31.0	24.5
SEP					
20...	1405	529	1850	19.0	15.0
440624100581400 BAD RIVER EMAP SITE AT CAPA, SD (LAT 44 06 24N LONG 100 58 14W)					
JUL 2002					
09...	0840	0.0	1020	29.0	23.5
440646100570200 BAD RIVER EMAP SITE NEAR CAPA, SD (LAT 44 06 46N LONG 100 57 02W)					
JUL 2002					
09...	1310	0.0	5050	35.0	30.5
442632100000100 MEDICINE KNOLL CR EMAP SITE NR CANNING, SD (LAT 44 26 32N LONG 100 00 01W)					
JUL 2002					
25...	0755	.01	3230	21.5	22.0
432903102303900 WHITE RIVER EMAP SITE NEAR ROCKYFORD, SD (LAT 43 29 03N LONG 102 30 39W)					
JUN 2002					
19...	1345	18	727	28.0	24.5
433226101483200 BEAR-IN-THE-LODGE CR EMAP S. NR WANBLEE, SD (LAT 43 32 26N LONG 101 48 32W)					
JUL 2002					
30...	0643	E1.0	601	--	20.5
430647101062100 COFFEE CREEK ABOVE SPRING CREEK, SD (LAT 43 06 47N LONG 101 06 21W)					
SEP 2002					
23...	1340	4.4	276	16.0	14.5
430610101044300 SPRING CREEK(NR SPRING CR) NEAR ST. FRANCIS, SD (LAT 43 06 10N LONG 101 04 43W)					
SEP 2002					
24...	1010	4.1	208	13.0	10.5
430509101022500 SPRING CREEK EMAP SITE ABOVE LITTLE WHITE RIVER, SD (LAT 43 05 09N LONG 101 02 25W)					
JUL 2002					
12...	1030	1.7	291	27.0	15.5
430724101010200 SAWMILL CANYON NEAR SPRING CREEK, SD (LAT 43 07 24N LONG 101 01 02W)					
SEP 2002					
25...	0830	1.2	304	9.0	9.5
E Estimated value.					

MISCELLANEOUS DISCHARGE MEASUREMENTS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
430939101003500 LITTLE WHITE R, VALANDRA BRDG NR SPRING CREEK, SD (LAT 43 09 39N LONG 101 00 35W)					
SEP 2002					
23...	1450	115	309	22.0	15.0
431146100574900 OMAHA CREEK NEAR ROSEBUD, SD (LAT 43 11 46N LONG 100 57 49W)					
SEP 2002					
24...	1130	.82	403	20.0	11.0
431205100580200 BEADS CREEK NR ROSEBUD, SD (LAT 43 12 05N LONG 100 58 02W)					
SEP 2002					
25...	0915	1.3	312	12.0	12.0
431312100573600 UNNAMED TRIB CRAZY HORSE CANYON NR ROSEBUD, SD (LAT 43 13 12N LONG 100 57 36W)					
SEP 2002					
24...	1200	.13	424	22.0	11.5
431343100571700 SOUTH FORK IRONWOOD CREEK NEAR ROSEBUD, SD (LAT 43 13 43N LONG 100 57 17W)					
SEP 2002					
24...	1255	1.8	308	17.0	12.5
431600100433600 ROSEBUD CREEK AT LWR CONFLUENCE BELOW ROSEBUD, SD (LAT 43 16 00N LONG 100 43 36W)					
SEP 2002					
24...	1350	7.9	334	23.0	16.0
431911100525200 SOLDIER CREEK NR ROSEBUD, SD (LAT 43 19 11N LONG 100 52 52W)					
SEP 2002					
25...	1030	1.1	348	13.0	10.5
432136100520700 LITTLE WHITE R NEAR TODD/MELLETT COUNTY LINE, SD (LAT 43 21 36N LONG 100 52 07W)					
SEP 2002					
25...	1245	128	310	13.0	14.5
433415100454500 LITTLE WHITE RIVER EMAP SITE AT WHITE RIVER, SD (LAT 43 34 15N LONG 100 45 45W)					
JUL 2002					
17...	1930	61	--	38.0	32.5
18...	0615	--	370	24.0	24.0
432000100532200 LITTLE WHITE RIVER EMAP SITE NR SOLDIER CREEK, SD (LAT 43 20 00N LONG 100 53 22W)					
JUL 2002					
17...	1100	65	322	31.5	24.5
434038100053000 COTTONWOOD CREEK EMAP SITE NEAR PRESNO, SD (LAT 43 40 38N LONG 100 05 30W)					
JUL 2002					
10...	0835	0.0	4870	26.0	20.0
425421098152000 SPRING CREEK EMAP SITE NR GREENWOOD, SD (LAT 42 54 21N LONG 098 15 20W)					
AUG 2002					
06...	0712	--	1710	--	15.0

MISCELLANEOUS DISCHARGE MEASUREMENTS

497

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
425402098070200 CHOTEAU CREEK EMAP SITE NEAR AVON, SD (LAT 42 54 02N LONG 098 07 02W)					
AUG 2002					
06...	1557	1.8	1530	--	32.0
430516100321400 ROCK CREEK EMAP SITE NEAR VALENTINE, NE (LAT 43 05 16N LONG 100 32 14W)					
JUL 2002					
31...	0740	<.10	556	--	17.5
425133097563800 EMANUEL CREEK EMAP SITE NEAR SPRINGFIELD, SD (LAT 42 51 33N LONG 097 56 38W)					
AUG 2002					
07...	0750	1.7	1480	--	23.0
433148097554600 TWELVEMILE CREEK EMAP SITE NEAR ETHAN, SD (LAT 43 31 48N LONG 097 55 46W)					
MAY 2002					
02...	1055	0.0	--	--	21.5
430110097273000 BEAVER CREEK EMAP SITE ABOVE BEAVER LAKE (LAT 43 01 10N LONG 097 27 30W)					
JUL 2002					
24...	0630	0.0	2300	21.0	22.0
432932097093800 E. FORK VERMILLION R EMAP SITE NR MONROE, SD (LAT 43 29 32N LONG 097 09 38W)					
AUG 2002					
01...	1245	11	1480	--	24.0
430820097003400 TURKEY RIDGE CREEK EMAP SITE NEAR CENTERVILLE, SD (LAT 43 08 20N LONG 097 00 34W)					
JUL 2002					
11...	1100	8.8	2020	22.0	23.0
25...	0710	4.9	1430	21.5	21.5
453051097132900 CHEKAPA CREEK EMAP SITE NEAR GRENVILLE, SD (LAT 45 30 51N LONG 097 13 29W)					
AUG 2002					
13...	1140	.28	712	--	13.0
06479167 LITTLE RUSH LAKE OUTFLOW NR WAUBAY, SD (LAT 45 19 18N LONG 097 19 37W)					
OCT 2001					
02...	1200	34	1040	23.0	16.0
MAR 2002					
05...	1235	31	745	1.0	2.0
MAY					
20...	1640	33	1060	12.0	15.0
JUL					
01...	1630	--	--	37.0	--
06479430 STILL LAKE OUTFLOW NEAR FLORENCE, SD (LAT 45 02 15N LONG 097 12 25W)					
OCT 2001					
02...	1345	1.0	1500	25.0	16.0
444402096570900 STRAY HORSE CR EMAP SITE NR CASTLEWOOD, SD (LAT 44 44 02N LONG 096 57 09W)					
AUG 2002					
15...	1224	0.0	1020	--	23.0
443455096481200 PEG MUNKY RUN EMAP SITE NEAR ESTELLINE, SD (LAT 44 34 55N LONG 096 48 12W)					
AUG 2002					
14...	1406	.19	642	--	23.0

MISCELLANEOUS DISCHARGE MEASUREMENTS

WATER QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)
435110096304100 PIPESTONE CREEK EMAP SITE NR MINNESOTA BORDER (LAT 43 51 10N LONG 096 30 41W)					
JUL 2002					
23...	0720	3.7	734	24.0	20.5
434522096325600 WEST PIPESTONE CR EMAP SITE NEAR SHERMAN, SD (LAT 43 45 22N LONG 096 32 56W)					
AUG 2002					
16...	0727	0.0	849	--	15.0
06481500 SKUNK CR AT SIOUX FALLS, SD (LAT 43 32 01N LONG 096 47 26W)					
NOV 2001					
13...	1545	16	1060	17.0	8.0
433541096355800 BIG SIOUX RIVER AT BRANDON, SD (LAT 43 35 41N LONG 096 35 58W)					
SEP 2002					
11...	1030	74	--	20.0	--
432053096323600 PETERSON CREEK EMAP SITE NEAR CANTON, SD (LAT 43 20 53N LONG 096 32 36W)					
AUG 2002					
08...	0710	.23	2400	--	18.0

The ground-water observation well network in South Dakota is used to monitor quantitative and at times qualitative changes in the glacial and bedrock aquifers. Federal, state, and local agencies monitor approximately 2,000 wells throughout the state. These wells are a sample of the South Dakota observation well network. All measurements are in feet above or below land-surface datum.

AURORA COUNTY

435039098263403.

LOCATION.--Lat 43°50'39", long 98°26'34", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.6, T.104 N., R.63 W., Hydrologic Unit 10160011, 8.5 mi north-northeast of Plankinton. Owner: South Dakota Department of Environment and Natural Resources.

AQUIFER.--Niobrara.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in., depth 134 ft, perforated 114 to 134 ft.

INSTRUMENTATION.--Water-level recorder collects hourly values.

DATUM.--Elevation of land-surface datum is 1,418 ft above NGVD of 1929. Measuring point: Top of casing 2.0 ft above land-surface datum.

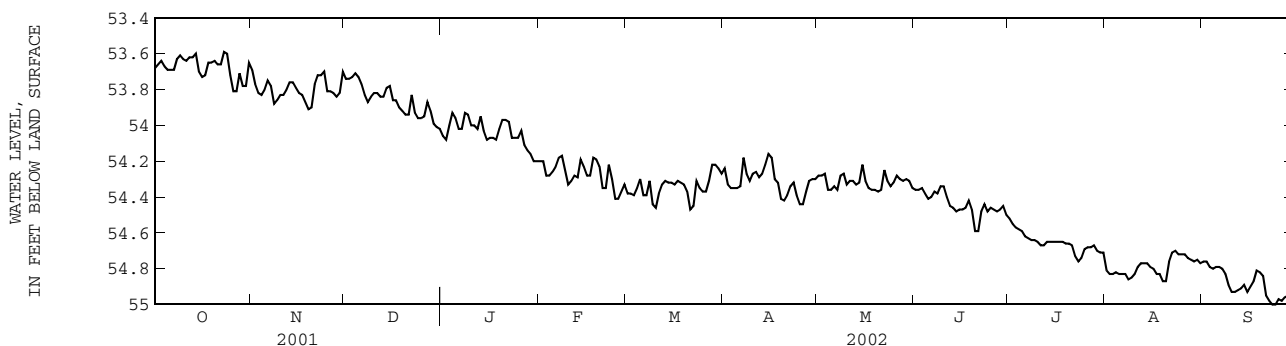
REMARKS.--Water levels affected by pumping of nearby well.

PERIOD OF RECORD.--April 1979 to September 2002 (discontinued).

EXTREMES.--Jan. 1, 1981, to current year: Maximum water level, 76.59 ft below land-surface datum, Sept. 8, 1990; minimum water level, 51.21 ft below land-surface datum, Apr. 17, 18, 1987.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53.68	53.69	53.74	54.06	54.20	54.38	54.24	54.28	54.36	54.52	54.81	54.76
2	53.66	53.77	53.74	54.08	54.20	54.38	54.33	54.28	54.36	54.55	54.83	54.76
3	53.64	53.82	53.73	54.00	54.28	54.39	54.35	54.27	54.35	54.57	54.83	54.79
4	53.67	53.83	53.71	53.93	54.28	54.35	54.35	54.36	54.38	54.58	54.82	54.80
5	53.69	53.80	53.73	53.96	54.26	54.30	54.35	54.36	54.41	54.59	54.83	54.79
6	53.69	53.75	53.77	54.02	54.23	54.39	54.34	54.34	54.40	54.62	54.83	54.79
7	53.69	53.78	53.83	54.02	54.18	54.39	54.18	54.36	54.37	54.63	54.83	54.80
8	53.63	53.88	53.87	53.93	54.17	54.31	54.27	54.28	54.38	54.64	54.86	54.83
9	53.61	53.86	53.84	53.94	54.25	54.44	54.31	54.27	54.34	54.64	54.85	54.89
10	53.63	53.83	53.82	54.00	54.33	54.46	54.27	54.33	54.34	54.65	54.83	54.93
11	53.64	53.83	53.82	54.00	54.31	54.38	54.26	54.31	54.40	54.67	54.79	54.93
12	53.62	53.80	53.84	54.02	54.28	54.33	54.29	54.31	54.45	54.67	54.77	54.92
13	53.62	53.76	53.84	53.95	54.29	54.31	54.27	54.33	54.46	54.65	54.77	54.91
14	53.60	53.76	53.79	54.03	54.19	54.32	54.22	54.32	54.48	54.65	54.77	54.89
15	53.70	53.79	53.78	54.08	54.23	54.32	54.16	54.22	54.47	54.65	54.79	54.93
16	53.73	53.82	53.86	54.07	54.28	54.33	54.18	54.31	54.47	54.65	54.80	54.90
17	53.72	53.83	53.86	54.07	54.28	54.31	54.30	54.35	54.46	54.65	54.83	54.87
18	53.65	53.87	53.90	54.08	54.18	54.32	54.32	54.36	54.42	54.65	54.83	54.81
19	53.65	53.91	53.92	54.02	54.19	54.33	54.41	54.36	54.47	54.66	54.87	54.82
20	53.64	53.90	53.94	53.97	54.23	54.37	54.42	54.37	54.59	54.66	54.87	54.84
21	53.66	53.77	53.94	53.97	54.35	54.47	54.39	54.36	54.59	54.67	54.76	54.95
22	53.66	53.72	53.83	53.98	54.35	54.45	54.34	54.25	54.48	54.73	54.71	54.98
23	53.59	53.72	53.93	54.07	54.22	54.31	54.32	54.31	54.44	54.76	54.70	55.00
24	53.60	53.70	53.96	54.07	54.30	54.35	54.39	54.34	54.48	54.74	54.72	55.00
25	53.72	53.81	53.96	54.07	54.41	54.37	54.44	54.32	54.46	54.69	54.72	54.97
26	53.81	53.81	53.95	54.03	54.41	54.37	54.44	54.28	54.47	54.68	54.72	54.98
27	53.81	53.82	53.87	54.11	54.37	54.31	54.37	54.30	54.48	54.68	54.74	54.96
28	53.71	53.84	53.92	54.14	54.33	54.22	54.31	54.31	54.47	54.67	54.75	54.95
29	53.78	53.82	53.99	54.16	---	54.22	54.30	54.30	54.45	54.70	54.76	54.95
30	53.78	53.70	54.01	54.20	---	54.24	54.30	54.31	54.50	54.71	54.75	54.89
31	53.65	---	54.02	54.20	---	54.27	---	54.35	---	54.71	54.77	---
MAX	53.81	53.91	54.02	54.20	54.41	54.47	54.44	54.37	54.59	54.76	54.87	55.00



BEADLE COUNTY

442112098174001.

LOCATION.--Lat 44°21'12", long 98°17'40", in SW¹/₄ SW¹/₄ SW¹/₄ NW¹/₄ sec.9, T.110 N., R.62 W., Hydrologic Unit 10160006, at southwest corner of city well field, 3.5 mi west of Huron. Owner: City of Huron.

AQUIFER.--Glacial Outwash.

WELL CHARACTERISTICS.--Drilled artesian unused public supply well, diameter 12 in., depth 74 ft, perforated 38 to 74 ft.

INSTRUMENTATION.--Water-level recorder collects hourly values.

DATUM.--Elevation of land-surface datum is 1,306.93 ft above NGVD of 1929, from topographic map. Measuring point: Top of platform 2.40 ft above land-surface datum. On Aug. 28, 1997, the measuring point was changed to 2.20 ft.

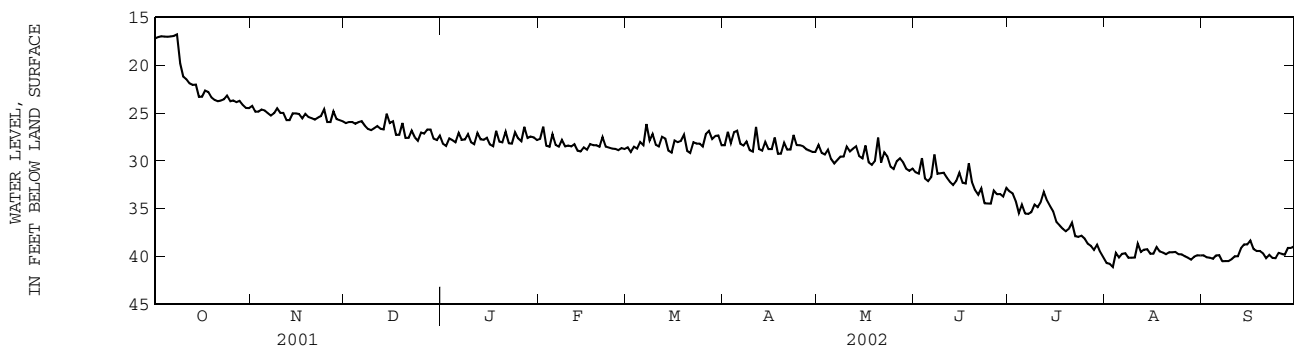
REMARKS.--Water levels affected by pumping of nearby city wells.

PERIOD OF RECORD.--February 1954 to September 2002 (discontinued).

EXTREMES.--Jan. 1, 1981, to current year: Maximum water level, 53.40 ft below land-surface datum, Nov. 6, 1989; minimum water level, 12.54 ft below land-surface datum, Sept. 26, 1998.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.20	24.24	26.05	28.21	27.71	28.59	28.37	28.33	31.19	33.18	40.68	39.89
2	17.04	24.84	25.94	28.44	26.42	29.06	26.95	29.17	31.35	33.41	40.77	40.09
3	16.97	24.85	25.93	27.66	28.42	28.52	28.16	29.34	29.72	34.19	41.10	40.14
4	16.99	24.63	26.12	27.83	28.53	28.72	27.00	28.82	31.85	35.48	39.63	40.26
5	17.01	24.73	25.96	28.06	27.21	28.03	26.86	29.81	32.14	34.57	40.12	39.90
6	16.98	25.00	25.85	27.07	28.33	28.37	28.22	30.27	31.72	35.51	39.74	39.86
7	16.93	25.26	26.33	27.80	28.52	26.16	28.40	29.93	29.33	35.54	39.67	40.51
8	16.78	25.01	26.66	27.77	27.82	27.88	27.98	29.55	31.34	35.37	40.13	40.49
9	19.81	24.50	26.79	27.20	28.48	27.19	28.88	29.55	31.30	34.58	40.14	40.49
10	21.18	24.98	26.59	28.07	28.39	28.31	29.03	28.52	31.24	34.84	40.12	40.29
11	21.46	24.99	26.36	28.26	28.50	28.50	26.46	29.02	31.76	34.30	38.65	39.98
12	21.89	25.74	26.64	27.10	28.26	27.48	28.77	28.73	32.22	33.25	39.53	39.98
13	22.05	25.74	26.71	27.74	28.93	27.66	28.93	28.48	32.53	34.15	39.30	39.13
14	22.02	25.04	25.07	27.79	29.01	28.92	28.01	29.51	32.10	34.74	39.25	38.74
15	23.29	25.04	26.04	27.57	28.60	29.14	28.77	29.74	31.25	35.32	39.71	38.75
16	23.29	25.10	25.86	28.28	28.84	27.86	28.77	28.40	32.29	36.41	39.71	38.35
17	22.65	25.55	27.27	28.47	28.24	28.05	27.56	30.15	32.36	36.74	39.03	39.23
18	22.80	25.08	27.27	26.85	28.36	27.93	29.25	30.42	30.27	37.10	39.48	39.43
19	23.36	25.41	26.03	27.98	28.37	27.28	29.25	30.02	32.18	37.37	39.60	39.43
20	23.62	25.54	27.59	28.07	28.54	28.97	28.09	27.58	33.05	37.11	39.76	39.68
21	23.76	25.68	27.59	26.95	27.51	29.19	28.81	30.19	33.56	36.48	39.56	40.18
22	23.70	25.49	26.84	28.17	28.52	28.06	28.81	29.11	32.91	37.87	39.56	39.84
23	23.56	25.31	27.55	28.19	28.61	28.20	27.29	29.54	34.45	37.96	39.53	40.16
24	23.18	24.61	27.90	27.01	28.72	28.20	28.35	30.60	34.46	37.84	39.77	40.18
25	23.76	25.93	27.04	27.64	28.75	28.50	28.36	30.86	34.48	38.15	39.78	39.63
26	23.68	25.93	27.16	27.95	28.89	27.17	28.47	30.04	33.10	38.67	39.99	39.74
27	23.86	24.82	26.72	26.44	28.66	26.85	28.76	29.74	33.48	38.89	40.13	39.82
28	23.73	25.63	26.72	27.61	28.77	27.71	28.91	30.14	33.47	39.32	40.33	39.11
29	24.15	25.76	27.68	27.46	---	27.39	29.07	30.82	33.74	38.76	40.03	39.11
30	24.47	25.87	27.83	27.54	---	27.34	29.07	31.05	32.84	39.54	39.88	38.95
31	24.48	---	27.34	27.83	---	28.37	---	30.81	---	40.12	39.90	---
MAX	24.48	25.93	27.90	28.47	29.01	29.19	29.25	31.05	34.48	40.12	41.10	40.51



CODINGTON COUNTY

450905097072202.

LOCATION.--Lat 45°09'05", long 97°07'22", in NW¹/₄ NW¹/₄ NW¹/₄ NW¹/₄ sec.25, T.120 N., R.52 W., Hydrologic Unit 10170201, 10 mi north-northeast of Florence. Owner: U.S. Geological Survey.

AQUIFER.--Prairie Coteau.

WELL CHARACTERISTICS.--Drilled observation well, diameter 40 ft of 4 in., 40 ft of 3 in., 80 ft of 2 in., and 15 ft sand point, depth 172 ft.

INSTRUMENTATION.--Water-level recorder collects hourly values.

DATUM.--Elevation of land-surface datum is 1,828 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing 3.6 ft above land-surface datum.

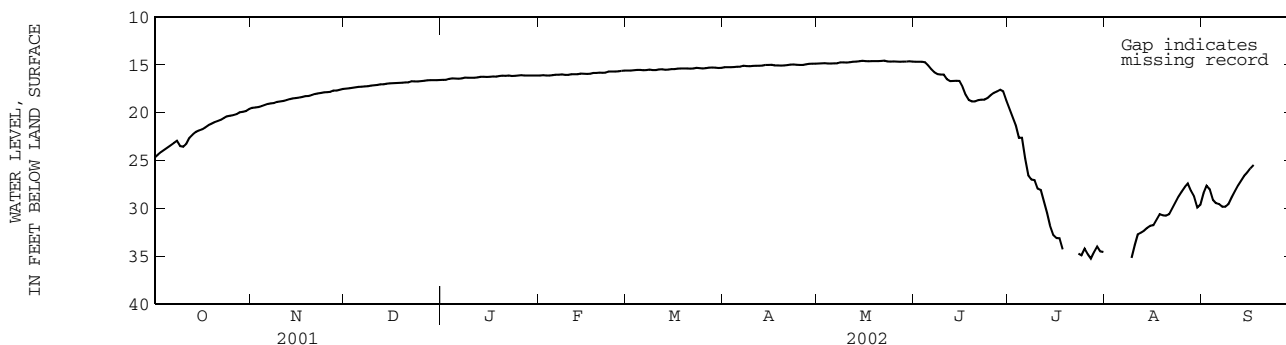
REMARKS.--Water levels affected by pumping of nearby well.

PERIOD OF RECORD.--February 1986 to September 2002 (discontinued).

EXTREMES.--Feb. 21, 1986, to current year: Maximum water level, 52.98 ft below land-surface datum, July 29, 1988; minimum water level, 9.91 ft below land-surface datum, Nov. 11, 1996.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.66	19.49	17.48	16.56	16.10	15.59	15.24	14.84	14.66	19.60	---	28.41
2	24.35	19.45	17.44	16.55	16.07	15.59	15.23	14.83	14.66	20.48	---	27.64
3	24.09	19.40	17.40	16.45	16.11	15.55	15.23	14.82	14.67	21.28	---	28.01
4	23.86	19.32	17.35	16.41	16.10	15.51	15.21	14.85	14.71	22.61	---	29.12
5	23.62	19.20	17.29	16.42	16.07	15.51	15.19	14.84	15.05	22.62	---	29.47
6	23.40	19.08	17.27	16.43	16.02	15.55	15.18	14.83	15.43	24.79	---	29.57
7	23.17	19.02	17.24	16.41	16.02	15.53	15.09	14.83	15.77	26.56	---	29.83
8	22.94	18.98	17.22	16.32	15.99	15.48	15.12	14.73	15.96	26.98	---	29.84
9	23.48	18.87	17.16	16.33	16.03	15.54	15.13	14.73	16.00	27.06	35.19	29.57
10	23.55	18.81	17.13	16.34	16.03	15.54	15.10	14.75	16.00	27.94	33.86	28.87
11	23.23	18.76	17.09	16.33	15.97	15.47	15.08	14.72	16.48	28.09	32.73	28.21
12	22.61	18.68	17.03	16.31	15.97	15.45	15.08	14.67	16.69	29.24	32.55	27.62
13	22.28	18.58	17.03	16.23	15.97	15.50	15.06	14.65	16.68	30.48	32.34	27.11
14	22.02	18.50	16.95	16.23	15.91	15.49	14.99	14.62	16.65	31.85	32.05	26.60
15	21.87	18.46	16.93	16.25	15.92	15.43	14.99	14.57	16.67	32.80	31.82	26.24
16	21.74	18.41	16.91	16.24	15.94	15.43	14.98	14.59	17.29	33.12	31.76	25.82
17	21.54	18.34	16.89	16.21	15.92	15.39	15.05	14.61	18.12	33.13	31.18	25.47
18	21.31	18.26	16.87	16.22	15.84	15.37	15.04	14.60	18.67	34.30	30.62	---
19	21.16	18.25	16.85	16.15	15.83	15.36	15.06	14.60	18.82	---	30.73	---
20	21.00	18.17	16.83	16.12	15.81	15.37	15.05	14.60	18.81	---	30.77	---
21	20.88	18.04	16.82	16.13	15.82	15.38	15.01	14.58	18.68	---	30.62	---
22	20.74	17.98	16.71	16.11	15.80	15.36	14.97	14.54	18.63	---	30.02	---
23	20.54	17.92	16.73	16.15	15.68	15.30	14.95	14.63	18.63	34.74	29.38	---
24	20.38	17.86	16.72	16.13	15.68	15.34	14.98	14.65	18.46	34.93	28.77	---
25	20.31	17.84	16.69	16.10	15.68	15.36	14.99	14.63	18.16	34.24	28.26	---
26	20.26	17.81	16.65	16.07	15.66	15.34	14.99	14.65	17.93	34.81	27.78	---
27	20.16	17.68	16.60	16.11	15.61	15.29	14.93	14.66	17.77	35.27	27.41	---
28	19.95	17.68	16.59	16.11	15.59	15.26	14.88	14.65	17.60	34.60	28.20	---
29	19.91	17.60	16.59	16.10	---	15.29	14.87	14.64	17.76	34.00	28.76	---
30	19.82	17.51	16.59	16.10	---	15.31	14.86	14.62	18.73	34.50	29.91	---
31	19.62	---	16.57	16.10	---	15.30	---	14.64	---	34.58	29.64	---
MAX	24.66	19.49	17.48	16.56	16.11	15.59	15.24	14.85	18.82	---	---	---



LINCOLN COUNTY

431619096460202.

LOCATION.--Lat 43°16'19", long 96°46'02", in NE¹/₄ NE¹/₄ NE¹/₄ sec.32, T.98 N., R.50 W., Hydrologic Unit 10170102, 4 mi south of Worthing. Owner: South Dakota Department of Environment and Natural Resources.

AQUIFER.--Dakota Sandstone.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 383 ft, screened 363 to 383 ft.

INSTRUMENTATION.--Water-level recorder collects hourly values.

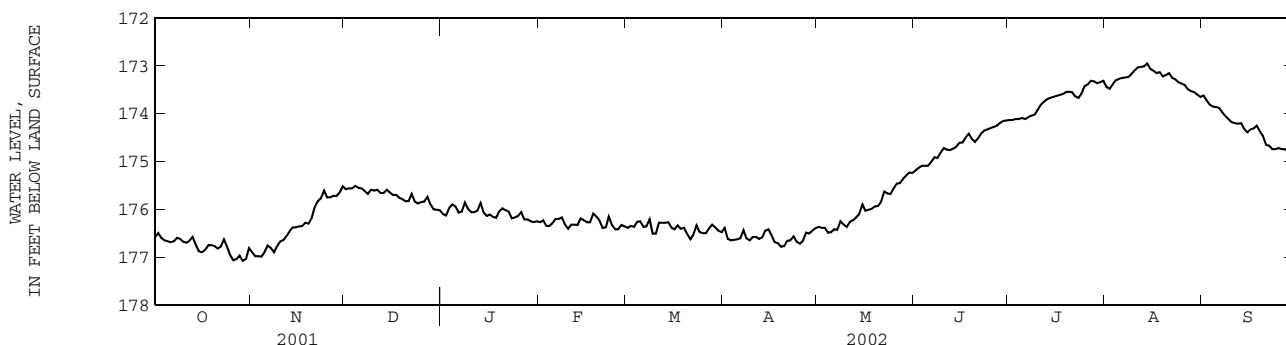
DATUM.--Elevation of land-surface datum is 1,320 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder platform 3.0 ft above land-surface datum.

PERIOD OF RECORD.--August 1979 to September 2002 (discontinued).

EXTREMES.--Jan. 1, 1981, to current year: Maximum water level, 177.08 ft below land-surface datum, Oct. 29, 2001; minimum water level, 151.81 ft below land-surface datum, Feb. 21-23, 1981.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	176.59	176.90	175.58	176.10	176.27	176.39	176.39	176.37	175.19	174.13	173.44	173.62
2	176.50	176.98	175.56	176.13	176.23	176.35	176.62	176.39	175.13	174.13	173.48	173.72
3	176.60	176.98	175.56	175.97	176.35	176.37	176.65	176.39	175.09	174.11	173.38	173.81
4	176.65	176.99	175.51	175.90	176.35	176.26	176.64	176.49	175.09	174.11	173.30	173.85
5	176.67	176.89	175.55	175.94	176.29	176.25	176.63	176.48	175.09	174.09	173.27	173.86
6	176.69	176.76	175.56	176.07	176.20	176.37	176.61	176.42	175.01	174.11	173.25	173.88
7	176.67	176.81	175.62	176.05	176.20	176.36	176.44	176.43	174.91	174.07	173.24	173.97
8	176.60	176.90	175.68	175.86	176.17	176.21	176.61	176.25	174.93	174.04	173.23	174.05
9	176.62	176.77	175.59	175.99	176.32	176.51	176.65	176.32	174.81	174.02	173.17	174.11
10	176.68	176.67	175.61	176.06	176.41	176.51	176.58	176.37	174.72	173.92	173.09	174.18
11	176.70	176.65	175.59	176.06	176.32	176.28	176.58	176.26	174.75	173.81	173.03	174.20
12	176.66	176.56	175.66	176.03	176.32	176.28	176.62	176.23	174.76	173.75	173.02	174.21
13	176.58	176.46	175.66	175.87	176.33	176.28	176.59	176.17	174.73	173.70	173.01	174.20
14	176.74	176.38	175.59	176.07	176.19	176.27	176.45	176.10	174.69	173.67	172.95	174.32
15	176.88	176.38	175.65	176.14	176.23	176.39	176.42	175.90	174.61	173.65	173.06	174.39
16	176.90	176.36	175.70	176.11	176.27	176.42	176.55	176.03	174.60	173.63	173.10	174.33
17	176.85	176.35	175.70	176.16	176.27	176.34	176.69	176.01	174.50	173.61	173.15	174.31
18	176.75	176.28	175.76	176.18	176.09	176.41	176.71	175.99	174.42	173.59	173.13	174.25
19	176.75	176.30	175.79	176.04	176.15	176.39	176.78	175.94	174.53	173.55	173.22	174.37
20	176.77	176.19	175.83	175.98	176.23	176.52	176.77	175.93	174.59	173.54	173.19	174.47
21	176.82	175.95	175.83	176.02	176.39	176.63	176.66	175.84	174.51	173.55	173.15	174.65
22	176.78	175.83	175.68	176.05	176.38	176.53	176.65	175.63	174.41	173.64	173.25	174.67
23	176.63	175.77	175.84	176.19	176.15	176.34	176.57	175.67	174.35	173.67	173.28	174.74
24	176.78	175.61	175.88	176.17	176.33	176.48	176.68	175.68	174.33	173.58	173.34	174.74
25	176.96	175.75	175.85	176.14	176.42	176.50	176.72	175.56	174.30	173.42	173.37	174.72
26	177.07	175.75	175.84	176.06	176.42	176.50	176.66	175.46	174.28	173.39	173.40	174.74
27	177.04	175.72	175.74	176.21	176.33	176.40	176.49	175.45	174.25	173.31	173.49	174.74
28	176.97	175.72	175.90	176.21	176.36	176.32	176.51	175.36	174.19	173.32	173.53	174.78
29	177.08	175.65	176.00	176.25	---	176.38	176.45	175.29	174.15	173.36	173.55	174.78
30	177.04	175.52	176.01	176.27	---	176.45	176.40	175.23	174.14	173.34	173.60	174.76
31	176.81	---	176.02	176.25	---	176.48	---	175.24	---	173.31	173.65	---
MAX	177.08	176.99	176.02	176.27	176.42	176.63	176.78	176.49	175.19	174.13	173.65	174.78



MARSHALL COUNTY

454745097450401.

LOCATION.--Lat 45°47'45", long 97°45'04", in SE¹/₄ NE¹/₄ SE¹/₄ sec.23, T.127 N., R.58 W., Hydrologic Unit 09020105, within city limits of Britton. Owner: City of Britton.

AQUIFER.--Dakota Sandstone.

WELL CHARACTERISTICS.--Drilled artesian unused public supply well, diameter 8 in, depth 1,060 ft.

INSTRUMENTATION.--Water-level recorder collects hourly values.

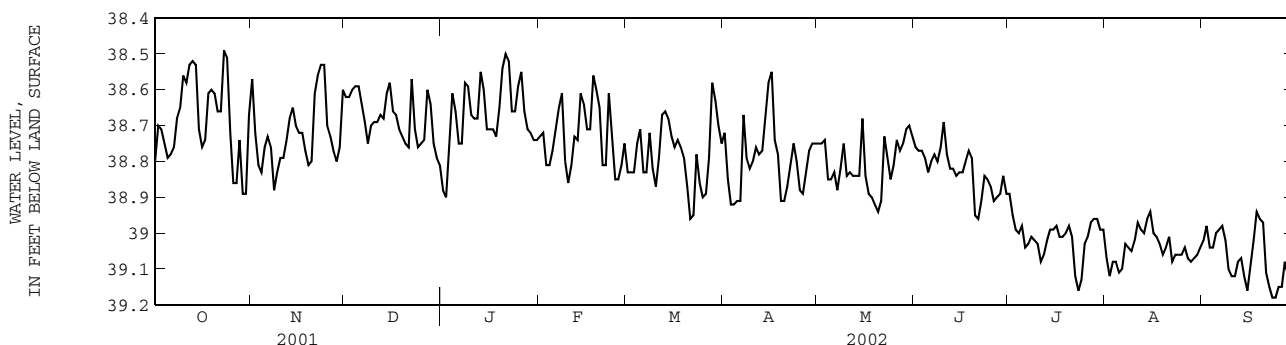
DATUM.--Elevation of land-surface datum is 1,360 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder platform 1.95 ft above land-surface datum.

PERIOD OF RECORD.--July 1970 to September 2002 (discontinued).

EXTREMES.--Jan. 1, 1981, to current year: Maximum water level, 44.98 ft below land-surface datum, Aug. 4, 1982; minimum water level, 37.93 ft below land-surface datum, June 26, 1998.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38.80	38.57	38.62	38.88	38.73	38.83	38.72	38.75	38.76	38.89	39.07	39.02
2	38.70	38.72	38.62	38.90	38.72	38.83	38.85	38.75	38.77	38.95	39.12	38.98
3	38.71	38.81	38.60	38.76	38.81	38.83	38.92	38.74	38.77	38.99	39.08	39.04
4	38.75	38.83	38.59	38.61	38.81	38.75	38.92	38.85	38.79	39.00	39.08	39.04
5	38.79	38.76	38.59	38.66	38.77	38.71	38.91	38.85	38.83	38.98	39.11	39.00
6	38.78	38.73	38.64	38.75	38.71	38.83	38.91	38.83	38.80	39.04	39.10	38.99
7	38.76	38.76	38.69	38.75	38.65	38.83	38.67	38.88	38.78	39.03	39.03	38.98
8	38.68	38.88	38.75	38.58	38.61	38.72	38.79	38.82	38.80	39.01	39.04	39.02
9	38.65	38.83	38.70	38.59	38.80	38.82	38.82	38.75	38.76	39.02	39.05	39.10
10	38.56	38.79	38.69	38.67	38.86	38.87	38.80	38.84	38.69	39.03	39.02	39.12
11	38.58	38.79	38.69	38.68	38.81	38.79	38.76	38.83	38.78	39.08	38.97	39.12
12	38.53	38.74	38.67	38.68	38.73	38.67	38.78	38.84	38.82	39.06	38.99	39.08
13	38.52	38.68	38.68	38.55	38.74	38.66	38.77	38.84	38.82	39.02	39.00	39.07
14	38.53	38.65	38.61	38.60	38.61	38.68	38.67	38.84	38.84	38.99	38.96	39.12
15	38.71	38.70	38.58	38.71	38.64	38.73	38.58	38.68	38.83	38.99	38.94	39.16
16	38.76	38.72	38.66	38.71	38.71	38.76	38.55	38.84	38.83	38.98	39.00	39.09
17	38.74	38.72	38.67	38.71	38.71	38.74	38.74	38.89	38.80	39.01	39.01	39.02
18	38.61	38.77	38.71	38.73	38.56	38.76	38.78	38.90	38.77	39.01	39.03	38.94
19	38.60	38.81	38.73	38.65	38.60	38.79	38.91	38.92	38.79	39.00	39.06	38.96
20	38.61	38.80	38.75	38.54	38.65	38.87	38.91	38.94	38.95	38.98	39.04	38.97
21	38.66	38.61	38.76	38.50	38.81	38.96	38.87	38.91	38.96	39.01	39.01	39.11
22	38.66	38.56	38.57	38.52	38.81	38.95	38.81	38.73	38.91	39.12	39.08	39.15
23	38.49	38.53	38.71	38.66	38.61	38.78	38.75	38.79	38.84	39.16	39.06	39.18
24	38.51	38.53	38.76	38.66	38.74	38.86	38.80	38.85	38.85	39.13	39.06	39.18
25	38.72	38.70	38.75	38.59	38.85	38.90	38.88	38.81	38.87	39.03	39.06	39.15
26	38.86	38.73	38.74	38.55	38.85	38.89	38.89	38.74	38.91	39.01	39.04	39.15
27	38.86	38.77	38.60	38.66	38.81	38.79	38.83	38.77	38.90	38.97	39.07	39.08
28	38.74	38.80	38.64	38.71	38.75	38.58	38.77	38.75	38.89	38.96	39.08	39.12
29	38.89	38.76	38.75	38.72	---	38.63	38.75	38.71	38.84	38.96	39.07	39.10
30	38.89	38.60	38.79	38.74	---	38.70	38.75	38.70	38.89	38.99	39.06	38.98
31	38.67	---	38.81	38.74	---	38.75	---	38.73	---	38.99	39.04	---
MAX	38.89	38.88	38.81	38.90	38.86	38.96	38.92	38.94	38.96	39.16	39.12	39.18



SHANNON COUNTY

430027102311801.

LOCATION.--Lat 43°00'27", long 102°31'18", in SW¹/₄ NW¹/₄ SE¹/₄ sec.17, T.35 N., R.44 W., Hydrologic Unit 10140201, 2.0 mi southeast of Pine Ridge. Owner: Oglala Sioux Tribe.

AQUIFER.--Arikaree.

WELL CHARACTERISTICS.--Drilled artesian production well, diameter 16 in, depth 180 ft, slotted from 60 to 180 ft. Inside is a 12-in steel liner from -2.00 to 60 ft with a 12-in diameter wire-wrapped screen from 60 to 140 ft. Annular space is filled with Luther Mattox Type C well gravel.

INSTRUMENTATION.--Digital water-level recorder collects hourly values.

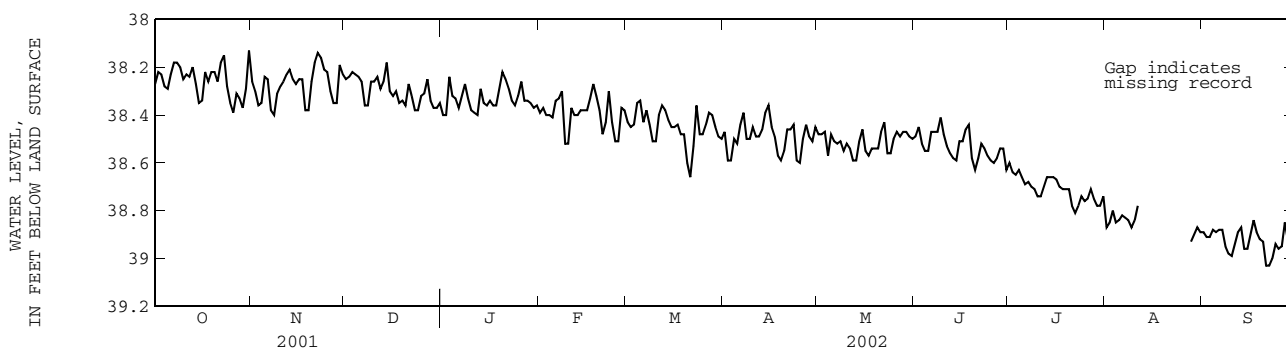
DATUM.--Elevation of land-surface datum is 3,296 ft above NGVD of 1929. Measuring point: Top of steel casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--September 1987 to September 2002 (discontinued).

EXTREMES.--June 9, 1989, to current year: Maximum water level, 43.13 ft below land-surface datum, Dec. 23, 1992; minimum water level, 37.75 ft below land-surface datum, Apr. 6, 2001.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38.27	38.26	38.25	38.40	38.39	38.43	38.47	38.48	38.49	38.60	38.87	38.89
2	38.22	38.30	38.24	38.40	38.37	38.45	38.59	38.48	38.45	38.64	38.85	38.91
3	38.23	38.36	38.22	38.24	38.40	38.44	38.59	38.47	38.52	38.65	38.80	38.91
4	38.28	38.35	38.23	38.32	38.40	38.35	38.50	38.57	38.55	38.63	38.85	38.88
5	38.29	38.24	38.24	38.33	38.41	38.34	38.52	38.48	38.55	38.66	38.84	38.89
6	38.23	38.25	38.26	38.37	38.34	38.43	38.44	38.51	38.47	38.69	38.82	38.88
7	38.18	38.38	38.36	38.32	38.33	38.38	38.39	38.52	38.47	38.68	38.83	38.88
8	38.18	38.40	38.36	38.27	38.30	38.44	38.50	38.51	38.47	38.70	38.84	38.95
9	38.20	38.31	38.26	38.33	38.52	38.51	38.50	38.55	38.41	38.71	38.87	38.98
10	38.25	38.28	38.26	38.38	38.52	38.51	38.45	38.52	38.48	38.74	38.84	38.99
11	38.23	38.26	38.24	38.39	38.37	38.40	38.49	38.54	38.53	38.74	38.78	38.94
12	38.24	38.23	38.29	38.40	38.40	38.36	38.49	38.59	38.56	38.70	---	38.89
13	38.20	38.21	38.26	38.29	38.40	38.38	38.46	38.59	38.58	38.66	---	38.87
14	38.27	38.25	38.18	38.35	38.38	38.42	38.39	38.51	38.59	38.66	---	38.96
15	38.35	38.27	38.30	38.36	38.38	38.45	38.36	38.46	38.51	38.66	---	38.96
16	38.34	38.25	38.32	38.34	38.38	38.45	38.45	38.55	38.51	38.67	---	38.90
17	38.22	38.25	38.30	38.36	38.33	38.44	38.49	38.57	38.46	38.70	---	38.84
18	38.26	38.38	38.35	38.36	38.27	38.48	38.57	38.54	38.44	38.71	---	38.89
19	38.22	38.38	38.34	38.29	38.32	38.48	38.59	38.54	38.58	38.71	---	38.92
20	38.22	38.26	38.36	38.22	38.38	38.60	38.55	38.54	38.63	38.71	---	38.93
21	38.26	38.18	38.27	38.25	38.48	38.66	38.46	38.47	38.58	38.78	---	39.03
22	38.18	38.14	38.32	38.29	38.43	38.53	38.46	38.43	38.52	38.81	---	39.03
23	38.15	38.16	38.38	38.34	38.30	38.36	38.44	38.56	38.54	38.78	---	39.00
24	38.28	38.21	38.38	38.36	38.43	38.48	38.59	38.56	38.57	38.74	---	38.94
25	38.35	38.22	38.32	38.32	38.51	38.48	38.60	38.50	38.59	38.76	---	38.96
26	38.39	38.30	38.31	38.26	38.51	38.44	38.50	38.47	38.60	38.75	---	38.95
27	38.31	38.35	38.25	38.34	38.37	38.39	38.44	38.49	38.58	38.71	---	38.85
28	38.33	38.35	38.34	38.34	38.38	38.40	38.49	38.47	38.54	38.75	38.93	38.93
29	38.37	38.19	38.37	38.35	---	38.45	38.51	38.47	38.54	38.78	38.90	38.92
30	38.29	38.23	38.37	38.37	---	38.49	38.45	38.49	38.63	38.78	38.87	38.89
31	38.13	---	38.35	38.36	---	38.50	---	38.50	---	38.74	38.89	---
MAX	38.39	38.40	38.38	38.40	38.52	38.66	38.60	38.59	38.63	38.81	---	39.03



SHANNON COUNTY--Continued

430027102311806.

LOCATION.--Lat 43°00'27", long 102°31'18", in SW¹/₄ NW¹/₄ SE¹/₄ sec.17, T.35 N., R.44 W., Hydrologic Unit 10140201, 2.5 mi southeast of Pine Ridge. Owner: Oglala Sioux Tribe.

AQUIFER.--Arikaree.

WELL CHARACTERISTICS.--Drilled artesian production well, diameter 12 in., depth 835 ft, 12-in steel casing from 0 to 505 ft. Alternating 8-in screen and casing from 505 to 835 ft.

INSTRUMENTATION.--Digital water-level recorder collects hourly values.

DATUM.--Elevation of land-surface datum is 3,296 ft above NGVD of 1929. Measuring point: Top of steel casing 2.09 ft above land-surface datum.

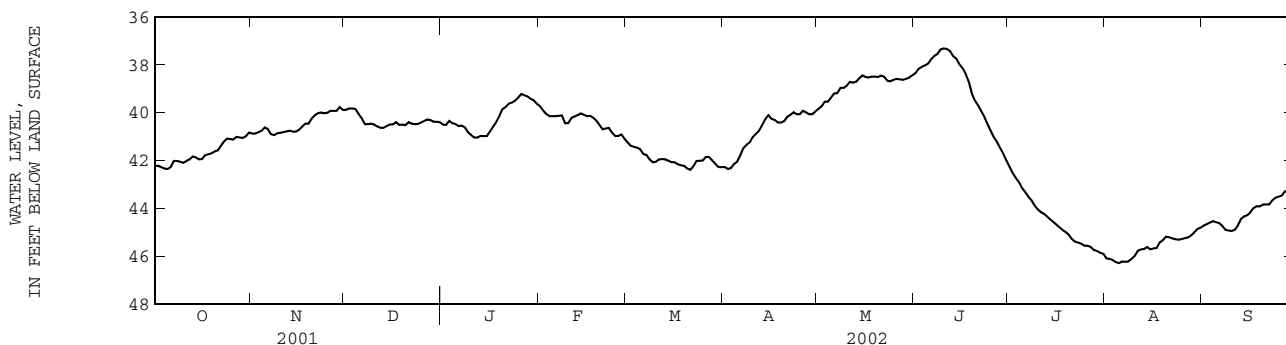
PERIOD OF RECORD.--September 1987 to September 2002 (discontinued).

EXTREMES.--June 9, 1989, to current year: Maximum water level, 46.53 ft below land-surface datum, Aug. 15, 2000; minimum water level, 34.18 ft below land-surface datum, Feb. 25, 1998.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e42.24	40.87	39.88	40.50	39.73	41.24	42.27	39.84	38.34	42.25	46.10	44.73
2	e42.22	40.87	39.82	40.51	39.91	41.38	42.35	39.72	38.16	42.52	46.12	44.67
3	42.28	40.82	39.82	40.34	40.05	41.43	42.32	39.53	38.07	42.72	46.17	44.60
4	42.34	40.76	39.84	40.44	40.14	41.46	42.15	39.54	38.02	42.90	46.26	44.54
5	42.35	40.62	40.05	40.48	40.14	41.53	42.05	39.37	37.94	43.14	46.30	44.58
6	42.27	40.68	40.23	40.56	40.14	41.73	41.78	39.19	37.76	43.32	46.23	44.62
7	42.02	40.90	40.48	40.54	40.13	41.76	41.47	39.18	37.62	43.51	46.24	44.74
8	42.02	40.94	40.48	40.62	40.11	41.96	41.34	38.96	37.54	43.66	46.23	44.90
9	42.05	40.86	40.46	40.82	40.44	42.07	41.24	38.96	37.35	43.88	46.12	44.93
10	42.10	40.84	40.49	40.94	40.44	42.06	41.01	38.87	37.31	44.04	45.99	44.95
11	42.02	40.81	40.58	41.04	40.22	41.96	40.88	38.71	37.33	44.16	45.78	44.90
12	41.96	40.78	40.63	41.04	40.16	41.94	40.75	38.74	37.42	44.23	45.72	44.72
13	41.83	40.75	40.63	40.97	40.10	41.95	40.51	38.70	37.63	44.34	45.70	44.44
14	41.87	40.79	40.56	40.98	40.03	42.01	40.27	38.56	37.74	44.46	45.62	44.34
15	41.95	40.79	40.49	40.97	40.09	42.07	40.10	38.44	37.97	44.57	45.72	44.29
16	41.94	40.71	40.49	40.78	40.14	42.07	40.26	38.50	38.13	44.69	45.68	44.17
17	41.78	40.58	40.40	40.58	40.13	42.16	40.30	38.53	38.37	44.80	45.66	43.99
18	41.74	40.46	40.51	40.39	40.21	42.20	40.41	38.49	38.70	44.91	45.43	43.91
19	41.70	40.46	40.50	40.14	40.33	42.22	40.41	38.49	39.20	45.00	45.34	43.92
20	41.62	40.25	40.52	39.85	40.52	42.34	40.36	38.50	39.50	45.12	45.19	43.84
21	41.58	40.11	40.40	39.76	40.69	42.39	40.17	38.45	39.70	45.29	45.21	43.84
22	41.39	40.02	40.46	39.62	40.66	42.24	40.09	38.50	39.94	45.40	45.26	43.84
23	41.20	39.99	40.48	39.58	40.64	42.02	39.98	38.66	40.18	45.44	45.29	43.67
24	41.08	40.02	40.47	39.49	40.83	42.01	40.06	38.68	40.48	45.49	45.31	43.56
25	41.10	40.00	40.41	39.37	40.97	42.00	40.06	38.62	40.75	45.57	45.29	43.52
26	41.13	39.92	40.35	39.22	40.97	41.85	39.92	38.58	41.02	45.57	45.25	43.47
27	41.01	39.92	40.28	39.27	40.91	41.85	39.99	38.60	41.22	45.63	45.22	43.29
28	41.03	39.92	40.31	39.32	41.09	41.99	40.06	38.62	41.48	45.75	45.14	43.28
29	41.05	39.77	40.38	39.42	---	42.14	40.06	38.58	41.71	45.79	45.01	43.20
30	40.99	39.88	40.38	39.48	---	42.27	39.95	38.53	42.00	45.86	44.87	43.04
31	40.83	---	40.40	39.63	---	42.28	---	38.43	---	45.91	44.82	---
MAX	42.35	40.94	40.63	41.04	41.09	42.39	42.35	39.84	42.00	45.91	46.30	44.95

e Estimated



	Page		Page
A			
Aberdeen, Foot Creek near	328–329, 481	Bear Butte Creek, at Sturgis	192–193, 473
Moccasin Creek at	326–327, 481	near Deadwood	190–191, 473
Access to USGS water data	20	near Galena	431, 473
Acid neutralizing capacity, definition of	20	near Sturgis	431, 473
Acre-foot, definition of	20	Bear Gulch near Hayward	427, 461
Adenosine triphosphate, definition of	20	Bear in the Lodge Creek, EMAP site	
Akaska, Swan Creek EMAP site near	489	near Wanblee	495
Akron, IA, Big Sioux River at	410–420, 488	near Wanblee	230–231, 475
Algae, Blue-green, definition of	21	Beaver Creek, 1/4 mile south of Corey Ranch	490
Fire, definition of	23	above Buffalo Gap	425, 459
Green, definition of	24	at Canton (Big Sioux River Basin)	444
Algal growth potential, definition of	20	at Mallo Camp, near Four Corners, WY	66–68
Alkalinity, definition of	20	EMAP site above Beaver Lake	497
Andes Creek near Armour	260	near Buffalo Gap	86–87, 459
Angostura Dam, Cheyenne River below	80–81, 459	near Pringle	84–85, 459
Angostura Reservoir near Hot Springs	78	site C, Wind Cave National Park	490
Annie Creek near Lead	160–161, 469	site D, Wind Cave National Park	490
Annual 7-day minimum, definition of	20	Beaver Lake, Beaver Creek EMAP site above	497
Annual runoff, definition of	20	Bed material, definition of	21
Antelope Creek, near Langford (James		Bedload discharge, definition of	21
River Basin)	437	Bedload, definition of	21
near Mission (Niobrara River Basin)	436, 479	Belle Fourche, Inlet Canal near	493
Aquifer, water table, definition of	31	Redwater River above	168–169, 470
Armour, Andes Creek near	260	Belle Fourche Reservoir, Inlet Canal above	170–171, 471
Lake Andes tributary No. 3 near	261	near Belle Fourche	172
Aroclor, definition of	20	Belle Fourche River, above Hereford	494
Artificial substrate, definition of	21	at Belle Fourche	492
Ash mass, definition of	21	at Nisland	493
Ashton, James River at	332–333, 482	at Vale	493
Aspect, definition of	21	at Wyoming-South Dakota State line	146–147, 468
Aurora Center, East Fork Platte Creek near	436	near Elm Springs	194–195, 473
Aurora County, ground-water levels in	499	near Fruitdale	174–175, 471
Avon, Choteau Creek below	290–291	near Hereford	495
Choteau Creek EMAP site near	497	near Sturgis	188–189, 472
Choteau Creek near	288–289, 479	near Vale	494
B			
Bacteria, definition of	21	Belvidere, Black Pipe Creek near	234–235, 476
Enterococcus, definition of	23	Benthic organisms, definition of	21
<i>Escherichia coli</i> , definition of	23	Beulah, WY, Crow Creek near	156–157, 469
Fecal coliform, definition of	23	Sand Creek near Ranch A, near	150–151
Fecal streptococcal, definition of	23	Big Coulee Creek near Peever	40–41, 456
Total coliform, definition of	30	Big Sioux River, at Akron, IA	410–420, 488
Bad River, EMAP site at Capa	495	at Brandon	498
EMAP site near Capa	495	at Broadway, at Watertown	441
near Fort Pierre	208–212	at Lake Kampeska, near Watertown	440
near Midland	206	at North Cliff Avenue, at Sioux Falls	394–404, 488
Bankfull stage, definition of	21	at Watertown	366–367, 486
Base discharge (for peak discharge), definition of	21	below diversion, at Sioux Falls	442, 487
Base flow, definition of	21	below Watertown	370–371, 486
Battle Creek, above Keystone	426, 460	near Brookings	376–386, 487
at Hermosa	96–97, 461	near Bruce	374–375, 486
below Hermosa	98–99, 461	near Castlewood	372–373, 486
near Keystone	92–93, 460	near Dell Rapids	388–389, 487
Beadle County, ground-water levels in	500	near Florence	360–361, 485
Beads Creek near Rosebud	496	near Watertown	362–363, 485
		Big Stone City, Whetstone River near	44–45
		Bijou Hills, Snake Creek near	436
		Biochemical oxygen demand, definition of	21

	Page		Page
Biomass pigment ratio, definition of	21	Choteau Creek, below Avon	290–291
Biomass, definition of	21	EMAP site near Avon	497
Black Horse Butte Creek, Grand River		near Avon	288–289, 479
EMAP site above	489	near Dante	287
Grand River EMAP site below	489	near Wagner	286
Black Pipe Creek near Belvidere	234–235, 476	Clayton, Wolf Creek near	439, 483
Blue Dog Lake inflow (Owens Creek)		Cleghorn Springs at Rapid City	122–123, 465
near Waubay	358–359, 485	<i>Clostridium perfringens</i>	22
Blue-green algae, definition of	21	Cobb Creek near Gary	48–49, 456
Bois de Sioux River near White Rock	38–39	Codington County, ground-water levels in	501
Bottom material (see "Bed material").	21	Coffee Creek above Spring Creek	495
Boxelder Creek, near Nemo	132–133, 467	Cold Spring Creek, at 0.1 mile west of park	
near Rapid City	134	boundary on Hwy 385	490
Brandon, Big Sioux River at	498	at 200 ft above confluence of Beaver Creek. . .	490
Brookings, Big Sioux River near	376–386, 487	Cold Springs Creek at Buckhorn, WY	148–149
Medary Creek near	442, 487	Coliphages, definition of	22
Bruce, Big Sioux River near	374–375, 486	Color unit, definition of	22
Buckhorn, WY, Cold Springs Creek at	148–149	Columbia, James River at	316–317, 480
Buffalo Gap, Beaver Creek above	425, 459	Confined aquifer, definition of	22
Beaver Creek near	86–87, 459	Contents, definition of	22
Bulk electrical conductivity, definition of	21	Continuous-record station, definition of	22
C		Control structure, definition of	22
Camp Crook, Little Missouri River at	50–51, 456	Control, definition of	22
Campbell Creek near Lee's Corner	222–223, 475	Cooperation	1
Canning, Medicine Knoll Creek EMAP site near . .	495	Corey Ranch, Beaver Creek 1/4 mile south of	490
Canton, Beaver Creek at	444	Corson, Split Rock Creek at	406–407, 488
Peterson Creek EMAP site near	498	Cottonwood Creek EMAP site near Presho	496
Capa, Bad River EMAP site at	495	Cottonwood, South Fork Bad River near	204–205, 474
Bad River EMAP site near	495	Counselor Creek near Lower Brule	434, 474
Carpenter, Foster Creek tributary near	438	Crooks, Willow Creek near	443, 488
Castle Creek, above Deerfield Reservoir,		Crow Creek near Beulah, WY	156–157, 469
near Hill City	108–109, 463	Cubic foot per second per square mile,	
below Deerfield Dam	112–113, 463	definition of	22
Castlewood, Big Sioux River near	372–373, 486	Cubic foot per second, definition of	22
Stray Horse Creek EMAP site near	497	Cubic foot per second-day, definition of	22
Cedar Creek near Kennebec	433, 474	Custer, French Creek above Stockade Lake, near . .	425, 459
Cells volume	21	Grace Coolidge Creek near	
Cells/volume, definition of	21	Game Lodge, near	94–95, 461
Centerville, Turkey Ridge Creek EMAP site near . .	497	Hell Canyon Creek at Jewel Cave	
Central City, False Bottom Creek near	430, 470, 492	above Hwy 16, near	489
Cfs-day (see "Cubic foot per second-day")	21	D	
Chamberlain, Lake Francis Case		Daily mean suspended-sediment concentration,	
(American Creek Bay) at	224–225	definition of	22
Change in National Trends Network procedures . .	34	Daily-record station, definition of	22
Channel bars, definition of	21	Dante, Choteau Creek near	287
Chantier Creek near Hayes	432	Data Collection Platform, definition of	22
Chekapa Creek EMAP site near Grenville	497	Data logger, definition of	22
Chemical oxygen demand, definition of	21	Datum, definition of	22
Cherry Creek near Plainview	198–199, 474	Deadwood, Bear Butte Creek near	190–191, 473
Chester, Skunk Creek near	390–391, 487	Deerfield Dam, Castle Creek below	112–113, 463
Cheyenne River, at Edgemont	72–73, 458	Deerfield Reservoir near Hill City	110
at Redshirt	90–91, 460	Definition of terms	20–31
below Angostura Dam	80–81, 459	Dell Rapids, Big Sioux River near	388–389, 487
EMAP, 1.5 mi east of Edgemont	489	Dewey, Pass Creek near	425
near Plainview	196–197, 474	Diatom, definition of	22
near Wasta	136–137, 467	Diel, definition of	22
		Discharge, definition of	22
		Discontinued surface-water stations	xii–xxii
		Dissolved oxygen, definition of	22

	Page		Page
Dissolved trace-element concentrations	34	Flandreau Creek above Flandreau	442, 487
Dissolved, definition of	22	Florence, Big Sioux River near	360–361, 485
Dissolved-solids concentration, definition of	22	Still Lake outflow near	497
Diversity index, definition of	23	Flow-duration percentiles, definition of	23
Drainage area, definition of	23	Foot Creek near Aberdeen	328–329, 481
Drainage basin, definition of	23	Forestburg, James River near	338–339, 482
Dry mass, definition of	23	Fort Pierre, Bad River near	208–212
Dry weight, definition of	23	Fort Randall Dam, Missouri River at	278–280
E		Fort Thompson, Lake Sharpe near	220
East Fork Platte Creek near Aurora Center	436	Foster Creek tributary near Carpenter	438
East Fork Vermillion River, EMAP site		Four Corners, WY, Beaver Creek at	
near Monroe	497	Mallo Camp, near	66–68
near Parker	352–353, 484	Frederick, Elm River near	318–319
near Ramona	348–349, 484	French Creek, above Fairburn	88–89, 460
Edgemont, Cheyenne River at	72–73, 458	above Stockade Lake, near Custer	425, 459
Cheyenne River EMAP, 1.5 mi east of	489	Fruitdale, Belle Fourche River near	174–175, 471
Hat Creek near	74–75, 458	Fulton, Rock Creek near	439, 483
Elk Creek, EMAP site near Bend	492	G	
near Elm Springs	142–143, 468	Gage datum, definition of	23
near Rapid City	140–141, 467	Gage height, definition of	24
near Roubaix	138–139, 467	Gage values, definition of	24
Elm Creek, near Fairpoint (Belle Fourche		Gaging station, definition of	24
River Basin	431, 473	Galena, Bear Butte Creek near	431, 473
near Red Owl (Cheyenne River Basin)	432, 474	Gary, Cobb Creek near	48–49, 456
Elm River, at Westport	322–323, 480	West Fork Lac qui Parle River	
near Frederick	318–319	EMAP site near	489
near Ordway	324–325	Gas chromatography/flame ionization	
Elm Springs, Belle Fourche River near	194–195, 473	detector, definition of	24
Elk Creek near	142–143, 468	Gayville, Missouri River near	346–347
Embeddedness, definition of	23	Geomorphic channel units, definition of	24
Emanuel Creek EMAP site near Springfield	497	Grace Coolidge Creek, near Game Lodge,	
Enemy Creek near Mitchell	439	near Custer	94–95, 461
Enterococcus bacteria, definition of	23	near Hayward	426, 460
EPT Index, index	23	Grand River, at Little Eagle	60–61, 457
EROS, miscellaneous water quality at	452	EMAP site above Black Horse Butte Creek	489
<i>Escherichia coli</i> (<i>E. coli</i>), definition of	23	EMAP site below Black Horse Butte Creek	489
Estelline, Hidewood Creek near	442	Green algae, definition of	23
Peg Munky Run EMAP site near	497	Green algae, definition of	24
Estimated (E) value, definition of	23	Greenwood, Missouri River below	282–283
Ethan, Twelvemile Creek EMAP site near	497	Spring Creek EMAP site near	496
Euglenoids, definition of	23	Grenville, Chekapa Creek EMAP site near	497
Explanation of the records	10	Grizzly Bear Creek near Keystone	426, 460
Extractable organic halides, definition of	23	Ground water	6
F		Ground-water level records	499–505
Fairburn, French Creek above	88–89, 460	H	
Precip at Racetrack Butte near	446	Habitat quality index, definition of	24
Fairpoint, Elm Creek near	431, 473	Habitat, definition of	24
Faith, Moreau River near	62–63, 457	Hardness, definition of	24
Fall River at Hot Springs	82–83, 459	Hartford, Skunk Creek near	443, 487
False Bottom Creek near Central City	430, 470, 492	Hat Creek, EMAP site near Rumford	489
Farmingdale, Lindsey Draw near	430	near Edgemont	74–75, 458
Rapid Creek near	130–131, 466	Hayes, Chantier Creek near	432
Fecal coliform bacteria, definition of	23	Plum Creek below	433
Fecal streptococcal bacteria, definition of	23	Plum Creek near	433
Fire algae, definition of	23	Hayward, Bear Gulch near	427, 461
Firesteel Creek, EMAP site near Firesteel		Grace Coolidge Creek near	426, 460
(Moreau River Basin)	489	Hell Canyon Creek at Jewel Cave above	
near Mount Vernon (James River Basin)	340–341, 483	Hwy 16, near Custer	489

	Page		Page
Hereford, Belle Fourche River above	494	Keya Paha River, at Wewela	298–299, 480
Belle Fourche River near	495	near Keyapaha	296–297, 479
Hermosa, Battle Creek at	96–97, 461	Keyhole Reservoir near Moorcroft, WY	144
Battle Creek below	98–99, 461	Keystone, Battle Creek above	426, 460
Spring Creek near	104–105, 462	Battle Creek near	92–93, 460
Hidewood Creek near Estelline	442	Grizzly Bear Creek near	426, 460
Highland Creek, above Madison outcrop,		Spring Creek above Sheridan Lake, near	100–101, 462
near Pringle	490	Spring Creek near	102–103, 462
site B, Wind Cave National Park	491		
site C, Wind Cave National Park	491	L	
site D, Wind Cave National Park	491	LaBelle Creek near Veblen	424
Hill City, Castle Creek above Deerfield		Laboratory reporting level, definition of	24
Reservoir, near	108–109, 463	Lake Andes, above Lake Andes	274–276
Deerfield Reservoir near	110	above Ravinia	264–267
Reno Gulch near	427	Lake Francis Case near	453–455
Spring Creek at Oreville, near	427, 461	near Ravinia	268–270
Sunday Gulch below Johnson Canyon, near	427, 461	tributary No. 1 near Lake Andes	263
Hilsenhoff's Biotic Index, definition of	24	tributary No. 2 near Lake Andes	262
Horizontal datum (See "Datum")	24	tributary No. 3 near Armour	261
Horse Creek, above Newell	493	Lake Creek, above refuge, near Tuthill	242–243, 477
above Vale	186–187, 472	below refuge, near Tuthill	244–245, 477
below Indian Creek, near Newell	493	Lake Francis Case (American Creek Bay)	
below Newell	494	at Chamberlain	224–225
Horsehead Creek at Oelrichs	76–77, 458	Lake Francis Case, at Pickstown	277
Hot Springs, Angostura Reservoir near	78	near Lake Andes	453–455
Fall River at	82–83, 459	Lake Kampeska at Water Treatment Plant,	
Howard tributary near Leola	437	at Watertown	364–365
Huron Well Field, Miscellaneous water		Lake Oahe near Pierre	200
quality data at	447–451	Lake Sharpe near Fort Thompson	220
Huron, James River at	336–337, 482	Lakes and reservoirs	
Hydrologic bench-mark network	7	Angostura Reservoir near Hot Springs	78
Hydrologic index station, definition of	24	Belle Fourche Reservoir near Belle Fourche	172
Hydrologic unit, definition of	24	Deerfield Reservoir near Hill City	110
I		Keyhole Reservoir near Moorcroft, WY	144
Imogene, Moreau River EMAP site near	489	Lake Francis Case at Pickstown	277
Inch, definition of	24	Lake Oahe near Pierre	200
Inlet Canal, above Belle Fourche Reservoir	170–171, 471	Lake Sharpe near Fort Thompson	220
near Belle Fourche	493	Lewis and Clark Lake near Yankton	302
Instantaneous discharge, definition of	24	Pactola Reservoir near Silver City	116
Introduction	1	Shadehill Reservoir at Shadehill	58
Ipswich, Preachers Run tributary at	438	Land-surface datum, definition of	24
Island, definition of	24	Langford, Antelope Creek near	437
J		LaPlant, Unnamed tributary Swift Bird	
James River, at Ashton	332–333, 482	Bay, Lake Oahe, near	424
at Columbia	316–317, 480	Latent heat flux, definition of	24
at Huron	336–337, 482	Lead, Annie Creek near	160–161, 469
at North Dakota-South Dakota State line	314–315	Little Spearfish Creek near	162–163, 469
near Forestburg	338–339, 482	Spearfish Creek near	158–159, 469
near Mitchell	342–343, 483	Whitetail Creek at	431, 471
near Redfield	334–335, 482	Lebanon, Unnamed tributary Stone Lake near	432
near Scotland	344–345, 483	Lee's Corner, Campbell Creek near	222–223, 475
near Stratford	330–331, 481	Leola, Howard tributary near	437
near Yankton	439	Lewis and Clark Lake, at Springfield	300–301
K		near Yankton	302
Kadoka, White River near	232–233, 476	Light-attenuation coefficient, definition of	24
Keldron, Willow Creek near	424	Lime Creek at mouth, at Rapid City	124–125, 465
Kennebec, Cedar Creek near	433, 474	Lincoln County, ground-water levels in	502
Medicine Creek at	434, 474	Lindsey Draw near Farmingdale	430
		Lipid, definition of	25
		Little Eagle, Grand River at	60–61, 457

	Page		Page
Little Minnesota River near Peever	42–43	Missouri River, above Choteau Creek, near	
Little Missouri River at Camp Crook	50–51, 456	Verdel, NE	284–285
Little Rush Lake outflow near Waubay	497	at Bismarck, ND	52–53
Little Spearfish Creek near Lead	162–163, 469	at Farm Island, near Pierre	218–219
Little Vermillion River near Salem	350–351, 484	at Fort Randall Dam	278–280
Little White River, below White River	250–251, 478	at La Framboise Island, at Pierre	214–215
EMAP site at White River	496	at Pierre	202–203
EMAP site near Soldier Creek	496	at Sioux City, IA	422–423
near Martin	240–241, 477	at Yankton	304–313
near Rosebud	248–249, 478	below Choteau Creek, near Verdel, NE	292–295
near Todd/Mellette County line	496	below Greenwood	282–283
near Vetal	246–247, 478	below La Framboise Island, at Pierre	216–217
Spring Creek EMAP site above	495	near Gayville	346–347
Valandra Bridge near Spring Creek	496	Mitchell, James River near	342–343, 483
Long Valley, Unnamed tributary Buzzard		Enemy Creek near	439
Creek near	435, 476	Moccasin Creek at Aberdeen	326–327, 481
Long-term method detection level, definition of ...	25	Monroe, East Fork Vermillion River	
Low flow, 7-day 10-year, definition of	28	EMAP site near	497
Lower Brule, Counselor Creek near	434, 474	Moorcroft, WY, Keyhole Reservoir near	144
M		Moreau River, EMAP site	489
Macrophytes, definition of	25	EMAP site near Imogene	489
Maple River at North Dakota-South		near Faith	62–63, 457
Dakota State line	320–321, 480	near Whitehorse	64–65, 458
Marshall County, ground-water levels in	503	Most probable number (MPN), definition of	25
Martin, Little White River near	240–241, 477	Mount Vernon, Firesteel Creek near	340–341, 483
McIntosh, White Shirt Creek EMAP site near	489	Mud Creek near Rauville	441
Mean concentration of suspended sediment,		Mud Lake above White Rock Dam	
definition of	25	near White Rock	36–37
Mean discharge, definition of	25	Multiple-plate samplers, definition of	25
Mean sea level, definition of	25	Murray Ditch above headgate at Wyoming-	
Measuring point, definition of	25	South Dakota State line	152–153, 468
Medary Creek near Brookings	442, 487	N	
Medicine Creek, at Kennebec	434, 474	Nanograms per liter, definition of	25
near Phillip	433	National Geodetic Vertical Datum of 1929,	
Medicine Knoll Creek EMAP site near Canning ...	495	definition of	26
Membrane filter, definition of	25	National stream-quality accounting network	7
Metamorphic stage, definition of	25	National Trends Network, The	7
Method Detection Limit, definition of	25	National Water-Quality Assessment Program, The .	10
Methylene blue active substances, definition of ...	25	Natural substrate, definition of	26
Micrograms per gram, definition of	25	Nebraska-South Dakota State line,	
Micrograms per kilogram, definition of	25	White River near	226–227, 475
Micrograms per liter, definition of	25	Nekton, definition of	26
Microsiemens per centimeter, definition of	25	Nemo, Boxelder Creek near	132–133, 467
Midland, Bad River near	206	Nephelometric turbidity unit, definition of	26
Milligrams per liter, definition of	25	Newcastle, WY, Precip at Little Bear Run near ...	445
Minimum Reporting Level, definition of	25	Redbird Canyon near	425, 458
Minnehaha County, quality of surface and		Stockade Beaver Creek near	70–71
ground water in (EROS Data Center)	452	Newell, Horse Creek above	493
Miscellaneous, discharge measurements	489–498	Horse Creek below	494
water quality data	447–455	Horse Creek below Indian Creek, near	493
temperature measurements and field		NGVD of 1929 (see "National Geodetic Vertical	
determinations	456–488	Datum of 1929")	26
Miscellaneous site, definition of	25	Ninemile Creek near Vale	494
Mission, Antelope Creek near	436, 479	Nisland, Belle Fourche River near	493
		North American Vertical Datum of 1988	
		(NAVD 1988), definition of	26
		North Dakota-South Dakota State line,	
		James River at	314–315
		Maple River at	320–321, 480

	Page		Page
North Fork Grand River near White Butte	56–57, 457	Pierre, Lake Oahe near	200
North Fork of Moreau River EMAP site	489	Missouri River, at	202–203
North Fork Yellow Bank River near		at Farm Island, near	218–219
Odessa, MN	46–47, 456	at La Framboise Island, at	214–215
Numbering system for wells and		below La Framboise Island, at	216–217
miscellaneous sites	10	Pipestone Creek EMAP site near	
O		Minnesota border	498
Oacoma, White River near	252–256	Plainview, Cherry Creek near	198–199, 474
Oak Creek near Wakpala	54–55, 457	Cheyenne River near	196–197, 474
Odessa, MN, North Fork Yellow Bank		Plankton, definition of	27
River near	46–47, 456	Platte Creek near Platte	258–259, 479
Oelrichs, Horsehead Creek at	76–77, 458	Plum Creek, below Hayes	433
Oglala, White Clay Creek near	434, 475	near Hayes	433
White River near	228–229, 475	Polychlorinated biphenyls (PCB' s), definition of . .	27
Olsonville, Sand Creek near	437, 479	Polychlorinated naphthalenes, definition of	27
Omaha Creek near Rosebud	496	Pool, definition of	27
Open or screened interval, definition of	26	Preachers Run tributary at Ipswich	438
Ordway, Elm River near	324–325	Precip at, Little Bear Run near Newcastle, WY	445
Organic carbon, definition of	26	Racetrack Butte near Fairburn	446
Organic mass, definition of	26	Precipitation	2
Organism count, area, definition of	26	Presho, Cottonwood Creek EMAP site near	496
Total, definition	30	Primary productivity, definition of	27
Volume, definition of	26	Carbon method, definition of	27
Organochlorine compounds, definition of	26	Oxygen method, definition of	27
Ortley, Unnamed tributary Blue Dog Lake near	440	Pringle, Beaver Creek near	84–85, 459
Owens Bay near Ravinia	271–273	Highland Creek above Madison	
		outcrop, near	490
P		Q	
Pactola Dam, Rapid Creek above Johnson		Quinn, Unnamed tributary Cottonwood Creek near . .	432, 474
Siding, below	428, 464	R	
Rapid Creek below	118–119, 464	Radioisotopes, definition of	27
Pactola Reservoir near Silver City	116	Ramona, East Fork Vermillion River near	348–349, 484
Parameter code, definition of	26	Rapid City, Boxelder Creek near	134
Parker, East Fork Vermillion River near	352–353, 484	Cleghorn Springs at	122–123, 465
West Fork Vermillion River near	354–355, 484	Elk Creek near	140–141, 467
Partial-record station, definition of	26	Lime Creek at mouth, at	124–125, 465
Partial-record stations	424–444	Rapid Creek, above Canyon Lake, near	120–121, 465
Particle size, definition of	26	above confluence with Cleghorn	
Particle-size classification, definition of	26	Springs at	491
Pass Creek near Dewey	425	above Jackson Boulevard, at	492
Peak flow (peak stage), definition of	26	above Victoria Creek, near	428, 464
Peever, Big Coulee Creek near	40–41, 456	at Big Bend, near	428, 464
Little Minnesota River near	42–43	at Braeburn Addition, at	491
Peg Munky Run EMAP site near Estelline	497	below Cleghorn Springs at	492
Percent composition, definition of	26	below Hawthorn Ditch, at	429, 466
Percent shading, definition of	26	below sewage treatment plant, near	128–129, 466
Periodic-record station, definition of	26	west of	491
Periphyton, definition of	27	Rapid Creek at	126–127, 465
Pesticides, definition of	27	South Canyon near	429
Peterson Creek EMAP site near Canton	498	Victoria Creek above Victoria Dam, near	428, 464
pH, definition of	27	Victoria Creek below Victoria Dam, near	429, 464
Phillip, Medicine Creek near	433	Wild Irishman Gulch near	429
Phytoplankton, definition of	27	Rapid Creek, above Canyon Lake,	
Pickstown, Lake Francis Case at	277	near Rapid City	120–121, 465
Picocurie, definition of	27		

	Page		Page
Rapid Creek, above confluence with Cleghorn Springs, at Rapid City	491	Run, definition of	28
above Jackson Boulevard, at Rapid City	492	Runoff, definition of	28
above Johnson Siding, below Pactola Dam	428, 464	S	
above Pactola Reservoir, at Silver City	114–115, 463	Salem, Little Vermillion River near	350–351, 484
above Victoria Creek, near Rapid City	428, 464	Sand Creek (tributary to Belle Fourche River) near Ranch A, near Beulah, WY	150–151
at Big Bend, near Rapid City	428, 464	Sand Creek near Olsonville	437, 479
at Braeburn Addition, at Rapid City	491	Sawmill Canyon near Spring Creek	495
at Rapid City	126–127, 465	Scotland, James River near	344–345, 483
below Cleghorn Springs, at Rapid City	492	Sea level, definition of	28
below Hawthorn Ditch, at Rapid City	429, 466	Sediment, definition of	28
below Pactola Dam	118–119, 464	Sensible heat flux, definition of	28
below sewage treatment plant, near Rapid City	128–129, 466	Seven-day 10-year low flow, definition of	28
near Farmingdale	130–131, 466	Shadehill Reservoir at Shadehill	58
west of Rapid City	491	Shannon County, ground-water levels in	504–505
Rauville, Mud Creek near	441	Shelves, definition of	28
South Branch tributary Mud Creek near	441	Sheridan Lake, Spring Creek EMAP site below	491
Ravinia, Lake Andes above	264–267	Sherman, West Pipestone Creek EMAP site near	498
Lake Andes near	268–270	Silver City, Rapid Creek above Pactola Reservoir, at	114–115, 463
Owens Bay near	271–273	Pactola Reservoir near	116
Reach, definition of	27	Silver Creek near Sioux Falls	443
Records for hydrologic stations, explanation of	19	Sioux City, IA, Missouri River at	422–423
Records of, ground-water levels, explanation of	19	Sioux Falls, Big Sioux River at North Cliff Avenue, at	394–404, 488
ground-water quality, explanation of	19	Big Sioux River below diversion, at	442, 487
stage and water discharge, explanation of	11	Silver Creek near	443
surface-water quality, explanation of	17	Skunk Creek, at Sioux Falls	392–393, 498
Recoverable, bed (bottom) material, definition of	27	near Chester	390–391, 487
Recurrence interval, definition of	27	near Hartford	443, 487
Red Owl, Elm Creek near	432, 474	Snake Creek near Bijou Hills	436
Redbird Canyon near Newcastle, WY	425, 458	Snatch Creek near Tabor	437
Redfield, James River near	334–335, 482	Sodium adsorption ratio, definition of	28
Redshirt, Cheyenne River at	90–91, 460	Soil heat flux, definition of	28
Redwater Creek at Wyoming-South Dakota State line	154–155, 468	Soil-water content, definition of	28
Redwater River above Belle Fourche	168–169, 470	Soldier Creek, near Rosebud	496
Reno Gulch near Hill City	427	Little White River EMAP site near	496
Replicate samples, definition of	28	South Branch tributary Mud Creek near Rauville	441
Return period (see "Recurrence interval")	28	South Canyon near Rapid City	429
Rhoads Fork near Rochford	106–107, 462	South Fork Bad River near Cottonwood	204–205, 474
Riffle, definition of	28	South Fork Ironwood Creek near Rosebud	496
River mileage, definition of	28	Spearfish, Squaw Creek near	430, 469
Rochford, Rhoads Fork near	106–107, 462	Spearfish Creek, above Spearfish	164–165, 470
Rock Creek, EMAP site near Valentine, NE (Niobrara River Basin)	497	at Spearfish	166–167, 470
near Fulton (James River Basin)	439, 483	below Spearfish	430, 470
Rock River near Rock Valley, IA	408–409	near Lead	158–159, 469
Rockyford, White River EMAP site near	495	Special networks and programs	7
Rosebud, Beads Creek near	496	Specific electrical conductance (conductivity), definition of	28
Little White River near	248–249, 478	Split Rock Creek at Corson	406–407, 488
Omaha Creek near	496	Spring Creek, above Sheridan Lake, near Keystone (Cheyenne River Basin)	100–101, 462
Soldier Creek near	496	at Oreville, near Hill City (Cheyenne River Basin)	427, 461
South Fork Ironwood Creek near	496	Coffee Creek above (White River Basin)	495
Unnamed tributary Crazy Horse Canyon near	496	EMAP site above Little White River (White River Basin)	495
Rosebud Creek at lower confluence below Rosebud	496	EMAP site below Sheridan Lake (Cheyenne River Basin)	491
Roubaix, Elk Creek near	138–139, 467		
Rumford, Hat Creek EMAP site near	489		

	Page		Page
Spring Creek, EMAP site near Greenwood (Missouri-Lewis and Clark River Basin)	496	Total discharge, definition of	30
Little White River Valandra Bridge near (White River Basin)	496	Total in bottom material, definition of	30
near Hermosa (Cheyenne River Basin)	104–105, 462	Total length, definition of	30
near Keystone (Cheyenne River Basin)	102–103, 462	Total load, definition of	30
near St. Francis (White River Basin)	495	Total organism count, definition of	30
Sawmill Canyon near (Cheyenne River Basin)	495	Total recoverable, definition of	30
Springfield, Emanuel Creek EMAP site near	497	Total sediment discharge, definition of	30
Lewis and Clark Lake at	300–301	Total sediment load, definition of	30
Squaw Creek near Spearfish	430, 469	Total, definition of	30
St. Francis, Spring Creek near	495	Bottom material	30
Stable isotope ratio, definition of	28	Coliform bacteria	30
Stage (see Gage height)	28	Transect, definition of	30
Stage-discharge relation, definition of	28	Tulare, Turtle Creek near	438
Station identification numbers	10	Turbidity, definition of	30
Still Lake outflow near Florence	497	Turkey Ridge Creek EMAP site near Centerville . .	497
Stockade Beaver Creek near Newcastle, WY	70–71	Turtle Creek near Tulare	438
Stratford, James River near	330–331, 481	Turton tributary south near Turton	438
Stray Horse Creek EMAP site near Castlewood . . .	497	Tuthill, Lake Creek above refuge, near	242–243, 477
Streamflow, definition of	28	Lake Creek below refuge, near	244–245, 477
Sturgis, Bear Butte Creek at	192–193, 473	Twelvemile Creek EMAP site near Ethan	497
Bear Butte Creek near	431, 473		
Belle Fourche River near	188–189, 472	U	
Substrate, definition of	28	Ultraviolet (UV) absorbance (absorption), definition of	30
Artificial, definition of	21	Unconfined aquifer, definition of	30
Embeddedness Class, definition of	28	Unnamed tributary, Blue Dog Lake near Ortley . .	440
Natural, definition of	26	Buzzard Creek near Long Valley	435, 476
Summary of hydrologic conditions	1	Cottonwood Creek near Quinn	432, 474
Sunday Gulch below Johnson Canyon, near Hill City	427, 461	Crazy Horse Canyon near Rosebud	496
Surface area of a lake, definition of	28	Stone Lake near Lebanon	432
Surface water	2	Swift Bird Bay, Lake Oahe, near LaPlant	424
Surficial bed material, definition of	29	White Thunder Creek near Wood	435
Suspended sediment, definition of	29		
Mean concentration of, definition of	25	V	
Suspended solids, total residue, definition of	29	Vale, Belle Fourche River at	493
Suspended, definition of	29	Belle Fourche River near	494
Recoverable, definition of	29	Horse Creek above	186–187, 472
Total, definition of	29	Ninemile Creek near	494
Suspended-sediment, definition of	29	Whitewood Creek above	182–185, 472
Concentration, definition of	29	Willow Creek near	494
Discharge, definition of	29	Valentine, NE, Rock Creek EMAP site near	497
Load, definition of	29	Veblen, LaBelle Creek near	424
Swan Creek EMAP site near Akaska	489	Verdel, NE, Missouri River above Choteau Creek, near	284–285
Synoptic studies, definition of	29	Missouri River below Choteau Creek, near . . .	292–295
		Vermillion River, near Vermillion	356–357, 485
T		near Wakonda	440, 484
Taxa (Species) richness, definition of	29	Vertical datum (see “Datum”)	30
Taxonomy, definition of	29	Vetal, Little White River near	246–247, 478
Tabor, Snatch Creek near	437	Victoria Creek, above Victoria Dam, near Rapid City	428, 464
Terms, definition of	20–31	below Victoria Dam, near Rapid City	429, 464
Thalweg, definition of	29	Vivian, Williams Creek near	435
Thermograph, definition of	29	Volatile organic compounds, definition of	30
Time-weighted average, definition of	29		
Todd/Mellette County line, Little White River near	496	W	
Tons per acre-foot, definition of	29	Wagner, Choteau Creek near	286
Tons per day, definition of	29	Wakonda, Vermillion River near	440, 484
Total coliform bacteria, definition of	30	Wakpala, Oak Creek near	54–55, 457
		Wanblee, Bear in the Lodge Creek near	230–231, 475
		Bear in the Lodge Creek EMAP site near	495

	Page		Page
Wasta, Cheyenne River near	136–137, 467	White Rock, Bois de Sioux River near	38–39
Water quality	4	Mud Lake above White Rock Dam near	36–37
Water quality-control data	34	White Shirt Creek EMAP site near McIntosh	489
Water table, definition of	30	Whitehorse, Moreau River near	64–65, 458
Water year, definition of	31	Whitetail Creek at Lead	431, 471
Water-table aquifer, definition of	31	Whitewood Creek, above Vale	182–185, 472
Watertown, Big Sioux River at	366–367, 486	above Whitewood	176–179, 471
Big Sioux River at Broadway, at	441	near Whitewood	180–181, 471
Big Sioux River at Lake Kampeska, near	440	Wild Irishman Gulch near Rapid City	429
Big Sioux River below	370–371, 486	Williams Creek near Vivian	435
Big Sioux River near	362–363, 485	Willow Creek, near Crooks (Big Sioux	
Lake Kampeska at Water Treatment Plant, at	364–365	River Basin)	443, 488
Willow Creek near	368–369, 486	near Keldron (Grand-Moreau River Basin)	424
Waubay, Blue Dog Lake inflow (Owens		near Vale (Belle Fourche River Basin)	494
Creek) near	358–359, 485	near Watertown (Big Sioux River Basin)	368–369, 486
Little Rush Lake outflow near	497	Wind Cave National Park, Beaver Creek site C	490
WDR, definition of	31	Beaver Creek site D	490
Weighted average, definition of	31	Highland Creek site B	491
West Fork Lac qui Parle River EMAP		Highland Creek site C	491
site, near Gary	489	Highland Creek site D	491
West Fork Vermillion River near Parker	354–355, 484	Wolf Creek near Clayton	439, 483
West Pipestone Creek EMAP site near Sherman	498	Wood, Unnamed tributary White Thunder	
Westport, Elm River at	322–323, 480	Creek near	435
Wet mass, definition of	31	Wounded Knee Creek at Wounded Knee	434, 475
Wet weight, definition of	31	WSP, definition of	31
Wewela, Keya Paha River at	298–299, 480	Wyoming-South Dakota State line, Belle	
Whetstone River near Big Stone City	44–45	Fourche River at	146–147, 468
White Butte, North Fork Grand River near	56–57, 457	Murray Ditch above headgate, at	152–153, 468
White Clay Creek near Oglala	434, 475	Redwater Creek at	154–155, 468
White River, EMAP site near Rockyford	495	Y	
Little White River below	250–251, 478	Yankton, Missouri River at	304–313
Little White River EMAP site at	496	James River near	439
near Kadoka	232–233, 476	Lewis and Clark Lake near	302
near Nebraska-South Dakota State line	226–227, 475	Z	
near Oacoma	252–256	Zooplankton, definition of	31
near Oglala	228–229, 475		
near White River	236–239, 476		

CONVERSION FACTORS

Multiply	By	To obtain
Length		
inch (in.)	2.54×10^1	millimeter
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter
mile (mi)	1.609×10^0	kilometer
Area		
acre	4.047×10^3	square meter
	4.047×10^{-1}	square hectometer
	4.047×10^{-3}	square kilometer
square mile (mi ²)	2.590×10^0	square kilometer
Volume		
gallon (gal)	3.785×10^0	liter
	3.785×10^0	cubic decimeter
	3.785×10^{-3}	cubic meter
million gallons (Mgal)	3.785×10^3	cubic meter
	3.785×10^{-3}	cubic hectometer
cubic foot (ft ³)	2.832×10^1	cubic decimeter
	2.832×10^{-2}	cubic meter
cubic-foot-per-second day [(ft ³ /s) d]	2.447×10^3	cubic meter
	2.447×10^{-3}	cubic hectometer
acre-foot (acre-ft)	1.233×10^3	cubic meter
	1.233×10^{-3}	cubic hectometer
	1.233×10^{-6}	cubic kilometer
Flow		
cubic foot per second (ft ³ /s)	2.832×10^1	liter per second
	2.832×10^1	cubic decimeter per second
	2.832×10^{-2}	cubic meter per second
gallon per minute (gal/min)	6.309×10^{-2}	liter per second
	6.309×10^{-2}	cubic decimeter per second
	6.309×10^{-5}	cubic meter per second
million gallons per day (Mgal/d)	4.381×10^1	cubic decimeter per second
	4.381×10^{-2}	cubic meter per second
Mass		
ton (short)	9.072×10^{-1}	megagram or metric ton

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$^{\circ}\text{F} = (1.8 \times ^{\circ}\text{C}) + 32$$