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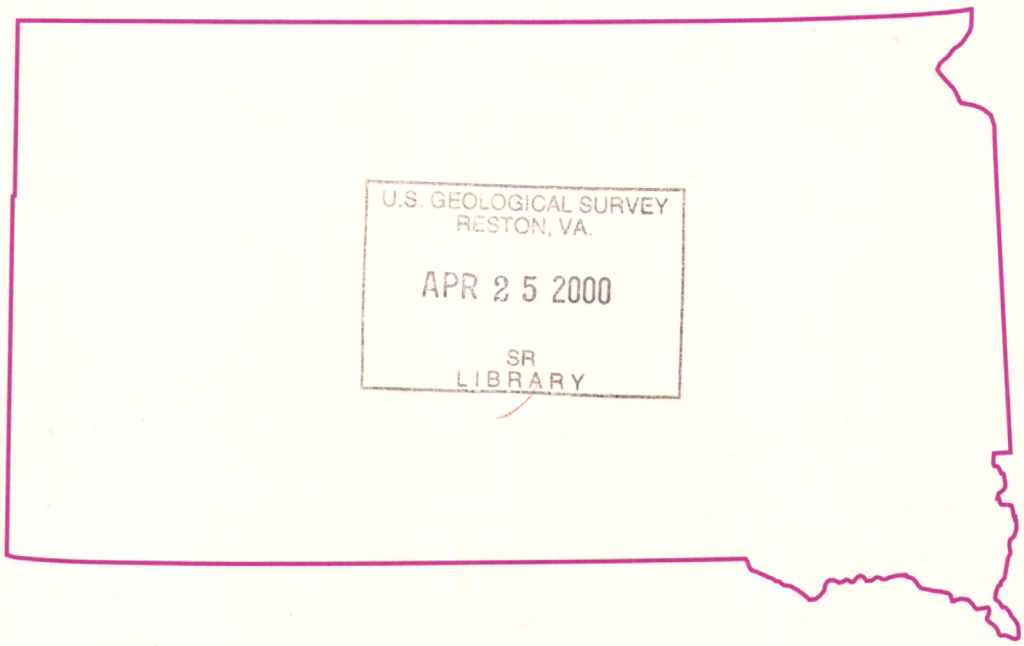
Water Resources Data South Dakota Water Year 1999

Water-Data Report SD-99-1



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 1999

1998

OCTOBER

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1999

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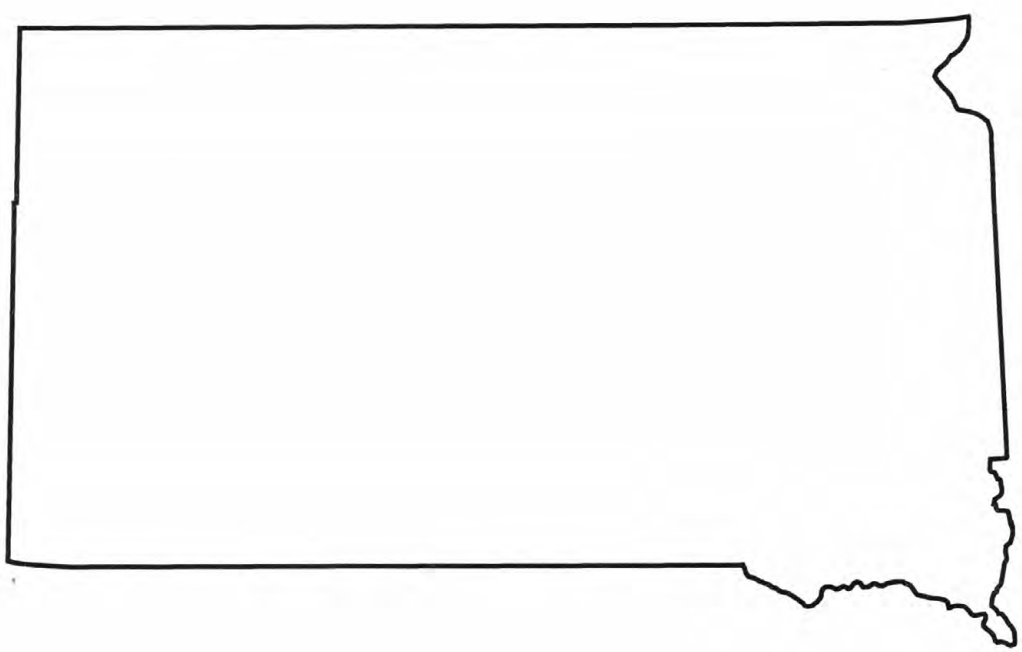
U.S. Department of the Interior
U.S. Geological Survey

Water Resources Data South Dakota Water Year 1999

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

Water-Data Report SD-99-1



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UNITED STATES DEPARTMENT OF THE INTERIOR

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U. S. GEOLOGICAL SURVEY

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Rapid City, South Dakota 57702

2000

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:

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13. ABSTRACT *(Maximum 200 words)*

Water-resources data for the 1999 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 125 streamflow-gaging stations; stage and contents records for 10 lakes and reservoirs, stage for 7 streams and 3 lakes; water-quality records for 3 streamflow-gaging stations, 2 daily sediment stations, 3 wells, 8 ungaged stream sites, 7 lakes, 1 sewage lagoon, and 1 precipitation site; water levels for 7 wells; daily precipitation records at 19 sites; and 63 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

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CONTENTS

CONTENTS—Continued

ILLUSTRATIONS

TABLES

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

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]

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HYDROLOGIC STATIONS FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

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

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
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	1954-56	Daily discharge
			1957	Peak flow
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	Daily discharge
			1978	Water quality/sediment
			1989-97	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*	Water quality/sediment
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	Daily discharge
			1943-51	Monthly discharge
			1950-80	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	Daily discharge
			1912-18, 1928-48	Monthly discharge
			1950-53	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	Daily discharge
			1928-34	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
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	Daily discharge
			1970-73	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

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
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
06403800	Battle Creek tributary near Keystone	.63	1956-80	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

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
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
06413000	Bennett Ditch at Rapid City	--	1946-50	Monthly discharge
06413200	Rapid Creek below Park Drive, at Rapid City	384	1987-89*	Daily discharge
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
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

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
06422000	Rapid Creek at Creston	710	1989-90	Daily discharge
			1929-32	Monthly discharge
06422395	Boxelder Creek at bench mark 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
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*	Water quality/sediment
			1998	Peak flow
06430800	Annie Creek near Lead	3.55	1989-93*	Water quality/sediment
06430850	Little Spearfish Creek near Lead	25.8	1989*	Water quality/sediment
			1989-98	Daily discharge
06430865	Iron Creek near Lead	Not determined	1989	Water quality/sediment
06430898	Squaw Creek near Spearfish	6.95	1989-92*	Water quality/sediment
			1989-98	Daily discharge
06430900	Spearfish Creek above Spearfish	139	1989	Water quality/sediment
			1989-97*	Daily discharge
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*	Water quality/sediment
			1989-98	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	Daily discharge
			1969-94	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*	Water quality/sediment
			1989-98	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

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
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	Daily discharge
			1965, 1967	Water quality/sediment
06436760	Horse Creek above Vale	464	1988-91*	Water quality/sediment
06436770	Dry Creek tributary near Newell	.20	1972	Water quality/sediment
06436800	Horse Creek near Vale	530	1962-80	Daily discharge
			1964-82	Water quality/sediment
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*	Daily discharge
			1945-62	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	Daily discharge
			1971-95	Water quality/sediment
06439400	Plum Creek tributary near Milesville	.50	1970-79	Peak flow
06439500	Cheyenne River near Eagle Butte	24,500	1929-67	Daily discharge
			1950-53, 1973-81	Water quality/sediment
06440200	South Fork Bad River near Cottonwood	250	1990-95*	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	Daily discharge
			1991-97	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
			1991-97	Peak flow
06442850	Elm Creek tributary near Ree Heights	.70	1969-79	Peak 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

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
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
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 1972-73 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 Vetal	415	1986-89*	Water quality/sediment
06449250	Spring Creek near St. Francis	10.0	1960-74	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
06452278	Lake Francis Case (Ft. Randall Reservoir) near Platte		1989-98	Daily stage
06452392	Lake Andes near Lake Andes	--	1983-86, 1989	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 1975-86	Daily discharge Water quality/sediment
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

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
06470980	James River near Hecla	2,188	1985	Water quality/sediment
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
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

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
06477400	Firesteel Creek tributary near Wessington Springs	.22	1968-79	Peak flow
06478000	James River near Mitchell	14,916	1954-58, 1966-72	Daily discharge
			1967-72	Water quality/sediment
			1995, 1997	Peak flow
06478050	Enemy Creek tributary near Mount Vernon	3.38	1969-79	Peak flow
06478052	Enemy Creek near Mitchell	163	1976-87*	Daily discharge
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
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*	Daily discharge
			1945-51	Monthly discharge
			1967-72	Water quality/sediment
06479020	Smoky Run near Irene	4.96	1969-79	Peak flow
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
06479500	Big Sioux River at Watertown	350	1946-72	Daily discharge
			1973-79	Water quality/sediment
			1997	Peak flow
06479515	Willow Creek near Watertown	110	1972-86	Daily discharge
			1972-74	Water quality/sediment
			1997	Peak flow
06479529	Stray Horse Creek near Castlewood	74.5	1969-85	Daily discharge
			1972-74	Water quality/sediment
06479550	Dolph Creek tributary near Lake Norden	5.91	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
06479640	Hidewood Creek near Estelline	164	1969-85*	Daily discharge
			1972-74	Water quality/sediment
06479750	Peg Munky Run near Estelline	25.2	1956-80	Peak flow
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	Daily discharge
			1972-74	Water quality/sediment
06479928	Battle Creek near Nunda	158	1988-97	Daily discharge
06479950	Deer Creek near Brookings	4.04	1956-80	Peak flow
06479980	Medary Creek near Brookings	200	1981-90*	Daily discharge
06480000	Big Sioux River near Brookings	2,419	1967-73*	Water quality/sediment
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
06481480	Skunk Creek near Chester	247	1985-87	Daily discharge
06481489	West Branch Skunk Creek near Hartford	80.5	1985-86	Daily discharge
06481500	Skunk Creek at Sioux Falls	613	1967-69, 1971-74*	Water quality/sediment
06482000	Big Sioux River at Sioux Falls	3,710	1944-60	Daily discharge
06482020	Big Sioux River at North Cliff Avenue, at Sioux Falls	3,729	1973-81*	Water quality/sediment
06482100	Big Sioux River at Brandon	3,774	1960-72	Daily discharge
			1967, 1970-72	Water quality/sediment
06482600	West Pipestone Creek tributary near Garretson	2.16	1969-79	Peak flow
06482610	Split Rock Creek at Corson	464	1966-89	Daily discharge
			1972-74	Water quality/sediment
			1990-97	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
06485500	Big Sioux River at Akron, IA	6,937	1966-94*	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 125 streamflow-gaging stations; (2) stage and contents records for 10 lakes and reservoirs, stage for 7 stream sites and 3 lakes; (3) water-quality records for 3 streamflow-gaging stations, 2 daily sediment stations, 3 wells, 8 ungaged stream sites, 7 lakes, 1 sewage lagoon, and 1 precipitation site; (4) water levels for 7 wells; (5) precipitation records at 19 sites; and (6) 63 partial-record crest-stage gage stations. Locations of these sites are shown in figures 4, 5, 6, and 7. Miscellaneous hydrologic data were collected at 52 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-99-1." 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; Vermillion Basin Water Development District; West Dakota Water Development District; West River Water Development District; City of Huron; City of Rapid City; City of Watertown; Pennington County; Lawrence County; Meade County; Rapid Valley Water Conservation District; Stanley County Conservation District; Angostura Irrigation District; Belle Fourche Irrigation District; Lake Kampeska Water Project District; State of Wyoming; and Minnesota Area II Department of Natural Resources.

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. Fish and Wildlife Service, U.S. Forest Service; U.S. Department of Interior, Bureau of Indian Affairs; U.S. Department of Interior, Bureau of Reclamation; U.S. Department of Interior, U.S. Geological Survey, EROS Data Center; and Oglala Sioux Tribe. Organizations that supplied data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

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

Similar to the previous six water years, several new records were established in 1999 in terms of hydrologic conditions. Precipitation and streamflows generally were higher than normal. This followed 1993, 1995, and 1997 flooding, when several streamflow-gaging stations had peaks exceeding the 100-year recurrence interval. Precipitation patterns in the northeast part of the State during 1999 continued the trend that has prevailed for the past several years. Within the Waubay Lakes Chain in Day County, Bitter Lake rose another foot to an elevation of about 1,792 feet, which is 19.2 feet higher than the lake elevation of 1,772.8 that existed in September 1992. Waubay Lake rose about 1.5 feet during 1999 to an elevation of 1,803.65 feet, which is 19.75 feet higher than the elevation of 1,783.9 that existed in September 1992. The water area within Day County has increased more than 360 percent since 1992. Flood damages to highways and roads, farmsteads, lake property, homes, and farmland have been extensive. Several western South Dakota reservoirs continue to experience unusually high inflows this year resulting in record reservoir storage. The level of Lake Oahe on September 30, 1998, was 4.1 feet higher than at the same time in 1998.

Precipitation

Precipitation for the water year was above normal in all of the State's nine National Weather Service divisions shown in table 1. Cumulative precipitation was above normal at the end of all four quarters of the water year in all nine divisions. The North Central, Central, and Northeast had departures of 11.18, 11.16, and 11.11 inches, respectively, for the October to September period. Total precipitation for the nine divisions for water year 1999 ranged from 23.42 inches in the Northwest to 31.21 inches in the Northeast. Departures ranged from 3.03 inches above normal in the Central to 11.18 inches above normal in the North Central.

Table 1. Cumulative precipitation and departures from normal[1], 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	6.33	+4.36	7.46	+3.83	17.73	+6.35	23.42	+7.29
North Central	6.32	+4.24	7.71	+3.80	19.33	+7.57	28.60	+11.18
Northeast	8.19	+5.68	10.19	+5.51	20.45	+7.65	31.21	+11.11
Black Hills	6.78	+3.90	9.28	+3.64	21.74	+6.24	28.67	+6.82
Southwest	6.79	+4.77	8.48	+4.66	20.09	+8.36	26.52	+9.70
Central	5.84	+3.74	7.06	+3.03	18.77	+7.02	28.65	+11.16
East Central	7.73	+4.74	9.22	+3.73	20.69	+6.50	28.86	+7.18
South Central	6.35	+3.84	8.53	+3.70	21.77	+7.93	29.80	+9.14
Southeast	7.43	+4.20	9.32	+3.43	22.53	+7.18	30.92	+7.37

[1]Based on data from 1961 to 1990.
[2]Shown in figure 1.

Surface Water

Annual streamflow for water year 1999, as recorded at five representative gaging stations, averaged about 345 percent of the long-term median (normal) streamflow. Annual streamflow ranged from 724 percent of the median for the James River near Scotland, to 253 percent of the median for the Moreau River near Whitehorse. Monthly and annual streamflow for water year 1999 are compared with the maximum, minimum, and selected percentiles in figure 1 for the five representative gaging stations.

Streamflow at all five representative gaging stations was much greater than normal during water year 1999. Monthly mean flows for Castle Creek above Deerfield Reservoir, near Hill City, exceeded previous maximum values for 10 of the 12 months of the water year, and the annual mean streamflow was the highest on record. Monthly mean flows for the Moreau River near Whitehorse were the highest on record for November and December and above normal for the rest of the year. Monthly values for the White River near Oacoma were the highest on record four months of the year and above normal for the entire year. Total streamflow for water year 1999 at James River near Scotland was more than three times normal and four of the monthly means were the highest on record. Monthly values for the Big Sioux River at Akron, Iowa, were above normal for all months and the highest on record for December. Peak flows for the five representative gaging stations are shown in table 2. Peak flow during water year 1999 did not exceed the previous recorded maximum at any of the five stations.

Combined storage in the four Missouri River reservoirs (Lakes Oahe, Sharpe, Francis Case, and Lewis and Clark) was 26,467,000 acre-feet on September 30, 1999, an increase of 1,275,000 acre-feet during water year 1999. 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 1999 was 22,149,000 acre-feet on July 11. The highest monthend content for Lake Oahe was 22,042,000 acre-feet on July 31, or 511,000 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 1999 are compared to the distribution of monthend contents since Lake Oahe first reached its normal maximum pool level in 1968.

Table 2. Comparison of water year 1999 peak streamflow to peak for long-term period

[ft^3/s, cubic feet per second]

Gaging-station number and name		Long-term period used for frequency analysis (water years)	Peak streamflow					
			Water year 1999			Long-term period		
			Peak (ft^3/s)	Date	Recurrence interval (years)	Peak	Date	Recurrence interval (years)
06360500	Moreau River near Whitehorse	1955-98	4,320	06-09-99	<2	29,700	03-23-97	27
06409000	Castle Creek above Deerfield Reservoir, near Hill City	1949-98	198	03-25-99	10	1,120	05-22-52	>100
06452000	White River near Oacoma	1929-98	42,400	05-10-99	44	51,900	03-30-52	92
06478500	James River near Scotland	1929-98	5,180	05-28-99	4	29,400	06-23-84	87
06485500	Big Sioux River at Akron, Iowa	1929-98	10,400	04-13-99	2	80,800	04-09-69	>100

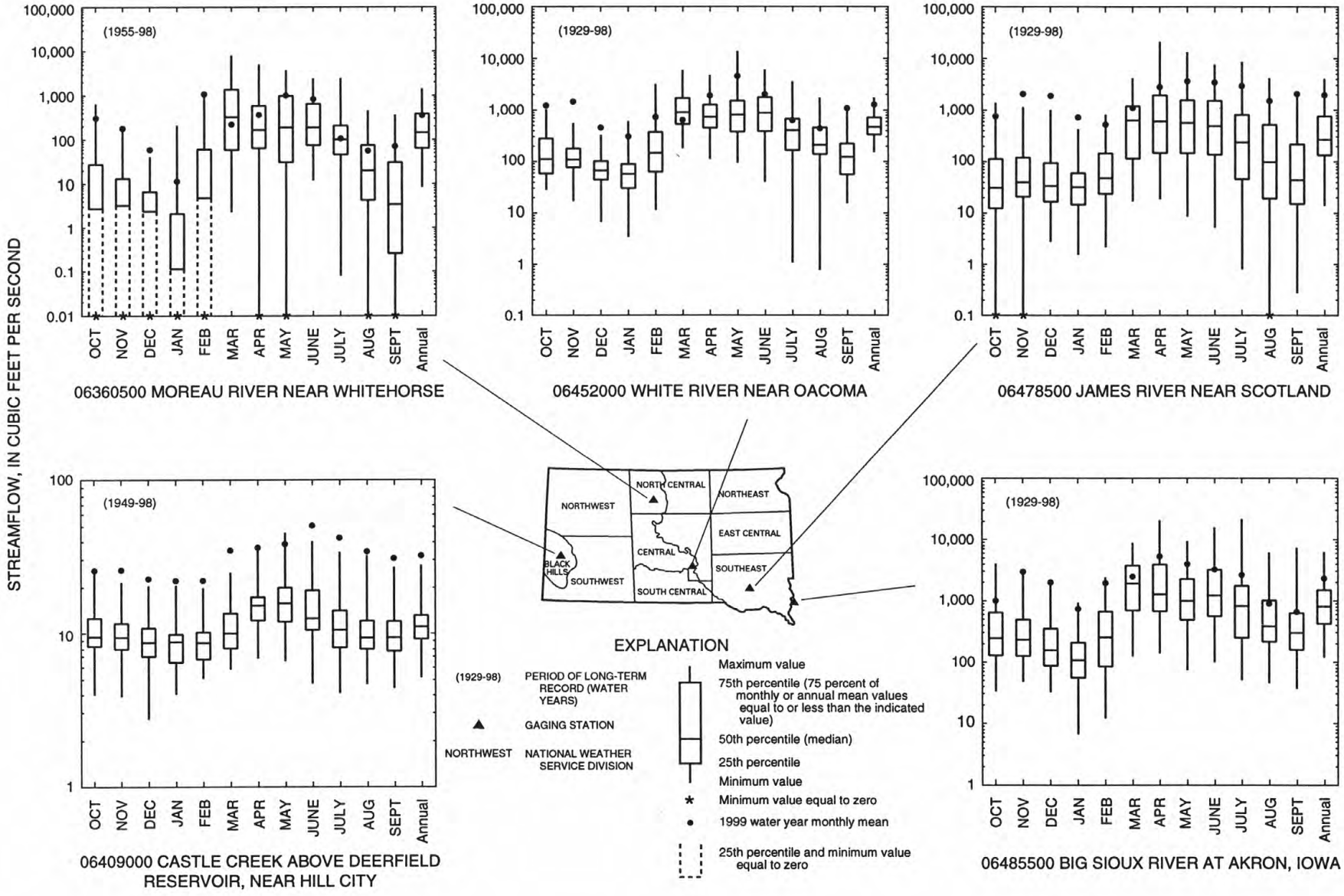


Figure 1. Comparison of 1999 monthly and annual means to long-term distributions of monthly and annual mean flows at five representative gaging stations.

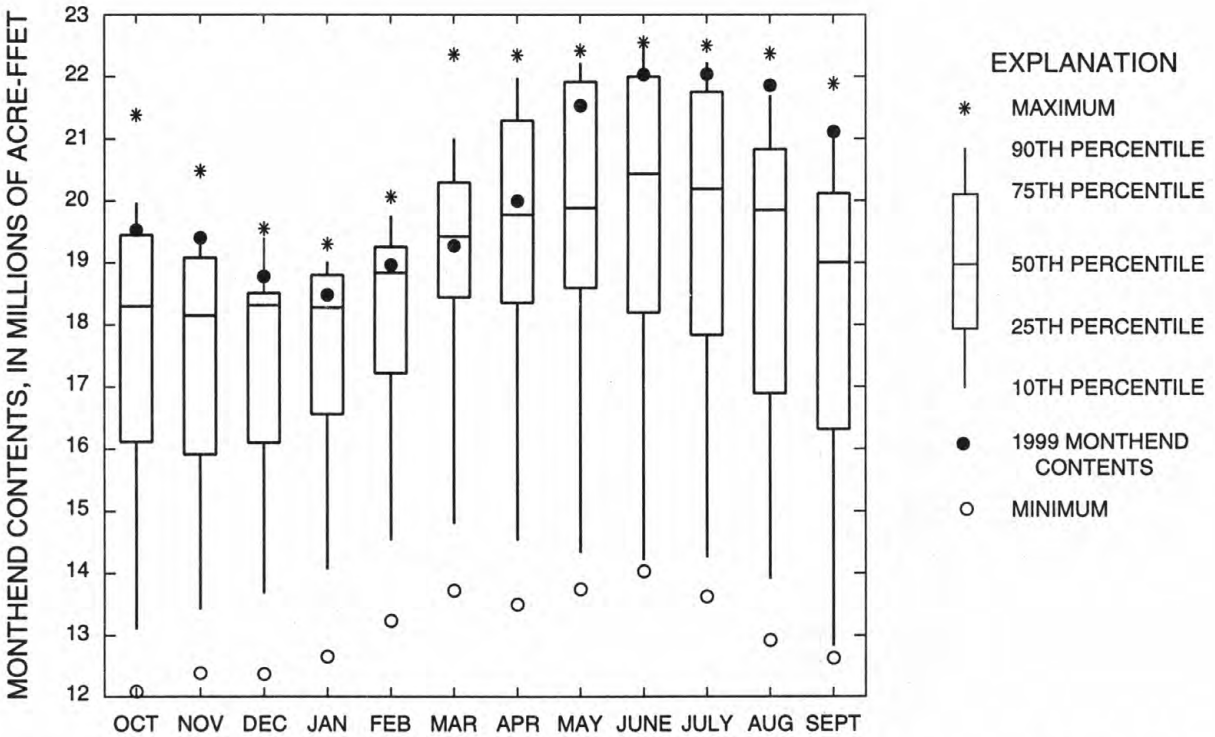


Figure 2. Comparison of monthend contents of Lake Oahe for water year 1999 with distributions of monthend contents for water years 1969-98.

Water Quality

Specific conductance measurements of surface-water samples collected during water year 1999 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 1999 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 represents 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 1, 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.

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 354 microsiemens per centimeter for the March sample at the station on Castle Creek above Deerfield Reservoir, near Hill City to as much as 2,660 microsiemens per centimeter for the August sample at the station on the Moreau River near Whitehorse.

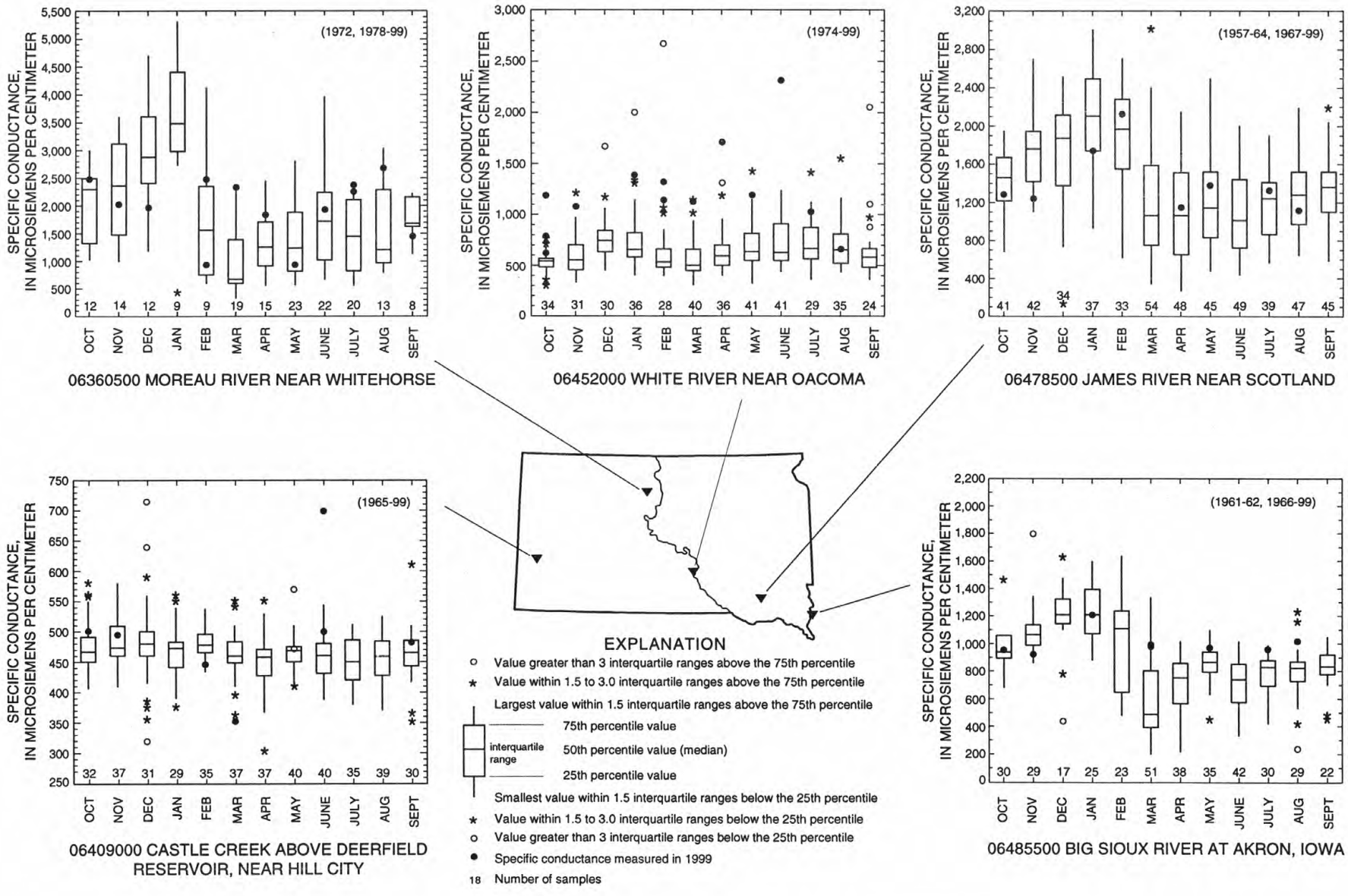


Figure 3. Comparison of 1999 specific conductance measurements to the distributions of long-term monthly values.

For the three selected stations west of the Missouri River, patterns of specific conductance measurements were variable and generally were associated with well above normal streamflow conditions during most of water year 1999. 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 median specific conductances range from about 450 microsiemens per centimeter for July to about 480 microsiemens per centimeter for December, a difference of only 30 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 months in water year 1999, specific conductance measurements generally were near or above the 75th percentiles and were associated with record-high streamflow conditions. Base-flow conditions probably existed during the fall measurements. Although the fall measurements were elevated relative to the long-term distributions, they were within 10 percent of long-term monthly medians. The winter specific conductance measurement was below the 25th percentile for February, and was made on the falling limb of a small runoff event. A specific conductance measurement in early spring (March 25) was made on the rising limb of a runoff event, and was less that the previous minimum for March. During late spring and summer, specific conductance measurements were near or above the 75th percentiles, while monthly mean discharges were record highs. The late spring and summer measurements generally were made during spring base-flow conditions, and although these measurements were elevated relative to long-term distributions, they were within 10 percent of long-term monthly medians.

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. In the fall months, specific conductance measurements generally were less than the 50th percentiles, and were associated with record-high streamflow conditions. During spring and summer, specific conductance measurements generally were much above normal. Although monthly mean discharges generally were near or above normal during spring and summer, most of the conductance measurements were made when discharges were near or below the long-term monthly medians. The specific conductance measurement for March 1 exceeded the previous maximum measurement for the month of March and was made during near-normal spring base-flow conditions. Notable exceptions to the above-normal spring and summer measurements were the specific conductance measurements for May 12 and September 1, which were below the 50th percentiles and were made during runoff events.

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, specific conductance measurements were greater than the 75th percentile, while discharge measurements were at or near record highs. The higher specific conductance measurements during this period (November 5, January 5, and February 16) were measured during base-flow conditions. The greater than normal specific conductance measurements for water year 1999 may have been caused by above-normal base flow, due to extended above-normal moisture. During spring and summer, most specific conductance measurements (March 25, May 13, June 7, and July 14) generally were associated with base-flow periods, while the specific conductance measurement on May 13 was made on the falling limb of a large runoff event. The April and June measurements exceeded the previous maximum measurement for their respective months, and were associated with spring base-flow conditions. The specific conductance measurement on August 28 was the exception to the above-normal specific conductance measurements and was associated with base-flow conditions.

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, fall specific conductance measurements were near or below the 25th percentile and discharge measurements were near or at record-high monthly mean levels. The winter specific conductance measurements were made during base-flow conditions, and generally were near normal. The base flow was much above normal during the 1999 water year, due to extended above-normal moisture. During the spring and summer, the specific conductance measurements generally were near the 50th percentile, and mean monthly discharge measurements were above the 75th percentile.

For the Big Sioux River at Akron station, specific conductance measurements were near or below normal during the fall months and early winter months when monthly mean discharges were at or near record-high mean monthly values. The specific discharge measurement on November 17 was below the 25th percentile and was made on the rising limb of a large runoff event. In late winter (March 2 and March 18), specific conductance measurements were above the 75th percentile and monthly mean discharges were near normal. During spring and summer, specific conductance measurements were above the 75th percentile and discharges were near the 75th percentile. Greater than normal base flow might have contributed to elevated specific conductance measurements.

The pattern of near-normal or above-normal specific conductance associated with above-normal streamflow conditions is not typical for streams in eastern South Dakota. The persistent high-flow conditions during 1993-98 may have resulted in the following situations that could possibly explain the unusual pattern: (1) sloughs and lakes with high concentrations of dissolved solids that do not typically contribute to streamflow may have risen and begun discharging to stream channels; and (2) rising ground-water levels may have increased discharge of ground water with elevated dissolved solids concentrations.

Ground Water

During water year 1999, 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. Hydrographs from seven wells in the observation-well network are shown in figure 4.

The Aurora County well in the southeast part of the State is completed in the Niobrara aquifer and is 134 feet deep. Sharp declines in water levels occur during the summer months in response to nearby irrigation pumpage. 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. Water levels during water year 1999 declined about 1 foot from October through April and then rose slightly through September.

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 city wells. Annually, water levels decline during winter months due to pumping and minimal recharge, rise during spring and fall months due to recharge, and decline slightly 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 demand by water supplies withdrawing from the aquifer. Water levels during water year 1999 generally declined during October and November, remained steady through April, and then rose from May through July. Water levels declined in August probably due to pumping and rose slightly in September.

The Codington County well in the northeast part of the State is completed in the Prairie Coteau aquifer and is 172 feet deep. Water levels show a long-term trend that is generally steady, but fluctuations are common throughout each year in response to pumpage for irrigation. Long-term trends show response to climatic variations. Water levels during water year 1999 followed a similar pattern of recovery in early fall, steady through the winter, small increases in the spring, and sharp declines in the summer from irrigation. The decline in water levels in the summer was about 18 feet compared to as much as 30 feet during dry periods.

The Lincoln County well in the southeast 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. The water-level decline probably is related to pumpage. 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 during water year 1999 rose through the spring and summer similar to the water-level rises noted in 1987, 1992, and 1994. This rise probably was due to a similar delayed response to above-normal precipitation in 1998.

The Marshall County well in the northeast 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 pumpage during wet or dry periods. Water levels during water year 1999 fluctuated between 38.2 and 38.6 feet below land surface, possibly in response to pumpage.

The Shannon County wells in the southwest 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 during 1989 through 1993. Water levels during 1999 continued the steady increase that has occurred since 1993 in response to generally wet years. Minor fluctuations in the water levels probably are due to pumpage. 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 pumpage from the aquifer. The water levels during water year 1999 rose slightly in the fall and winter then sharply declined about 8 feet in the summer due to nearby pumpage. Water levels recovered about 5 feet during September.

Water levels recorded during 1999 for the seven wells shown on the map in figure 5 are presented in the Ground-Water Levels section of this report.

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 hydrology, including water quality, and related factors in representative 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.

National Stream-Quality Accounting Network (NASQAN) monitors the water quality of large rivers within four of the Nation's largest river basins--the Mississippi, Columbia, Colorado, and Rio Grande. The network consists of 39 stations. 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.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) provides continuous measurement and assessment of the chemical climate of precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to accomplish the following objectives; (1) Provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of 191 precipitation chemistry monitoring sites. (2) Provide the mechanism to evaluate the effectiveness of the significant reduction in SO_2 emissions that began in 1995 as implementation of the Clean Air Act Amendments (CAAA) occurred. (3) Provide the scientific basis and nationwide evaluation mechanism for implementation of the Phase II CAAA emission reductions for SO_2 and NO_x scheduled to begin in 2000.

Data from the network, as well as information about individual sites, are available through the world wide web at:

http://nadp.nrel.colostate.edu/NADP

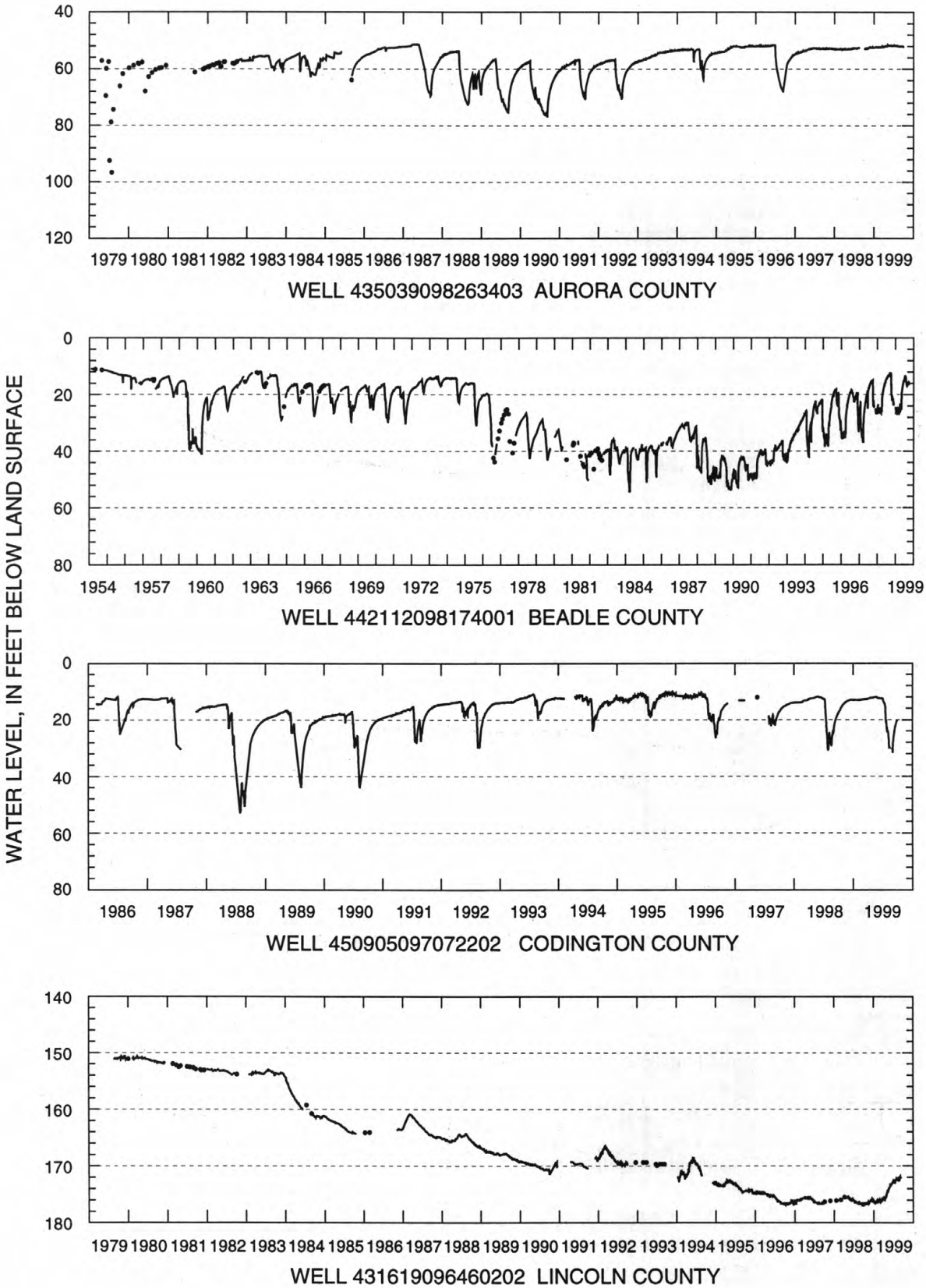
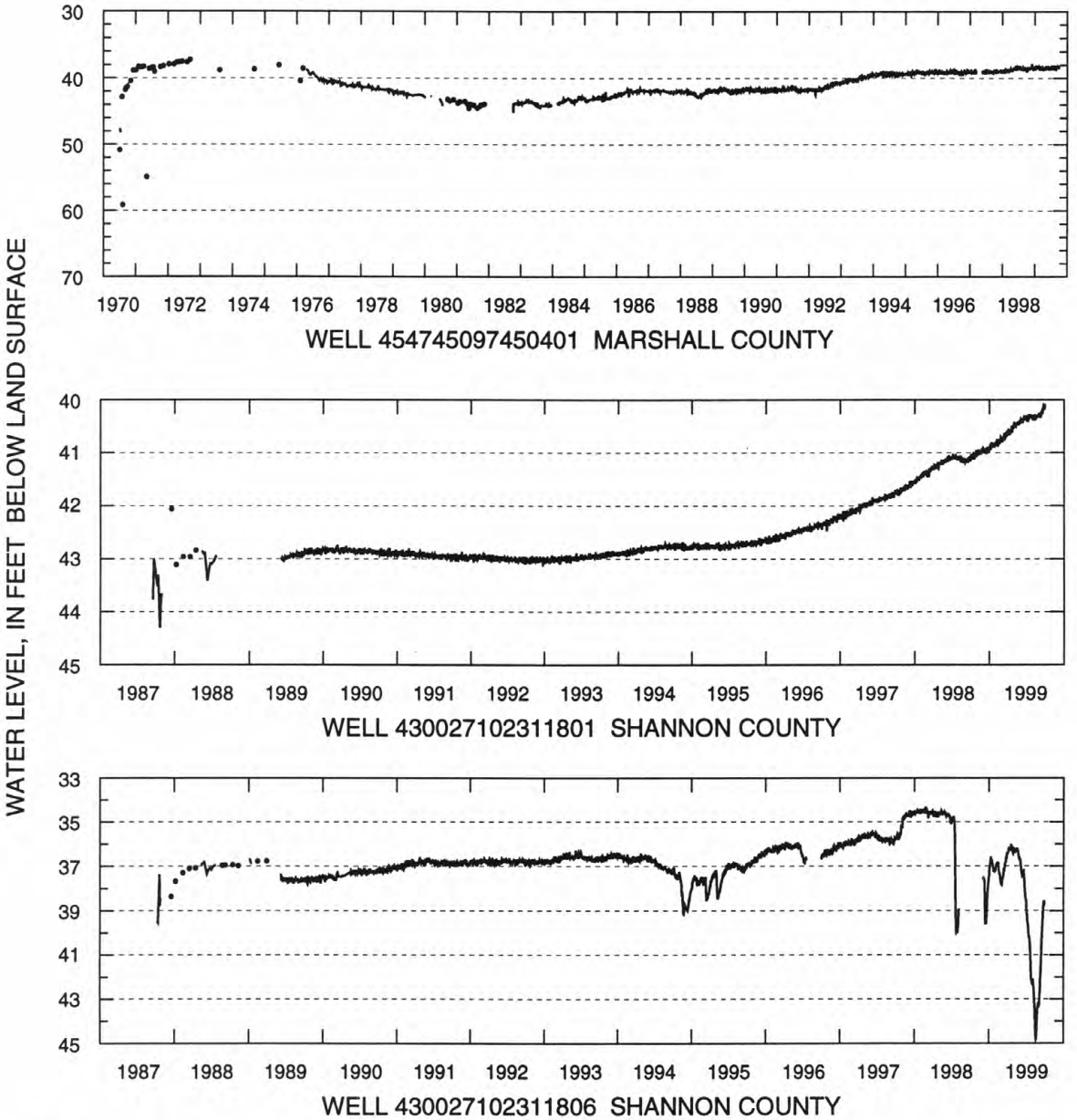
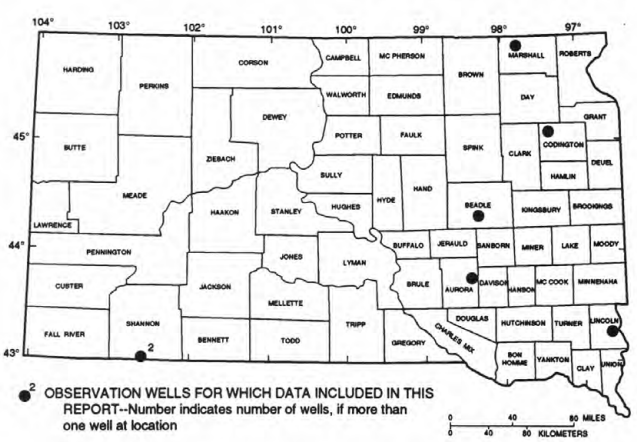


Figure 4. Water levels from selected observation wells.





EXPLANATION

BLANK AREAS REPRESENT MISSING DATA GREATER THAN TWO (2) MONTHS DURATION

ONCE DAILY READING

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 53 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 is available through the world wide web at:

http://wwwrvares.er.usgs.gov/nawqa/nawqa_home.html

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1999 water year that began October 1, 1998, and ended September 30, 1999. 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, 6, and 7. 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.

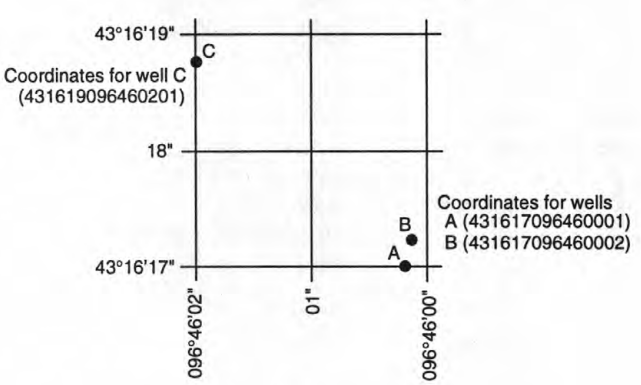
Downstream Order System

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 indention in the "List of Stations" in the front of this report. Each indention represents one rank. This downstream order and system of indention 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.

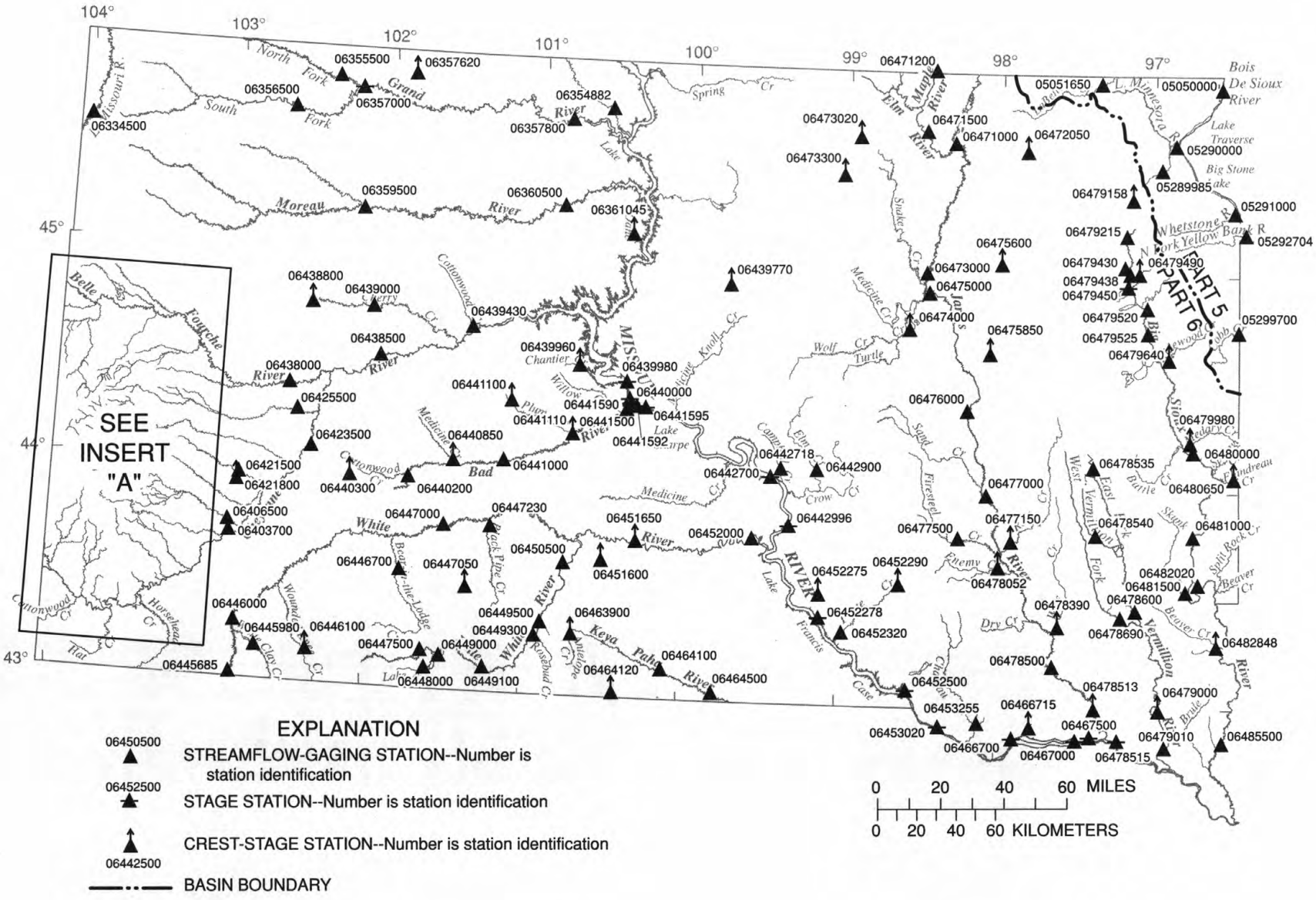


Figure 5. Location of surface-water gaging stations.

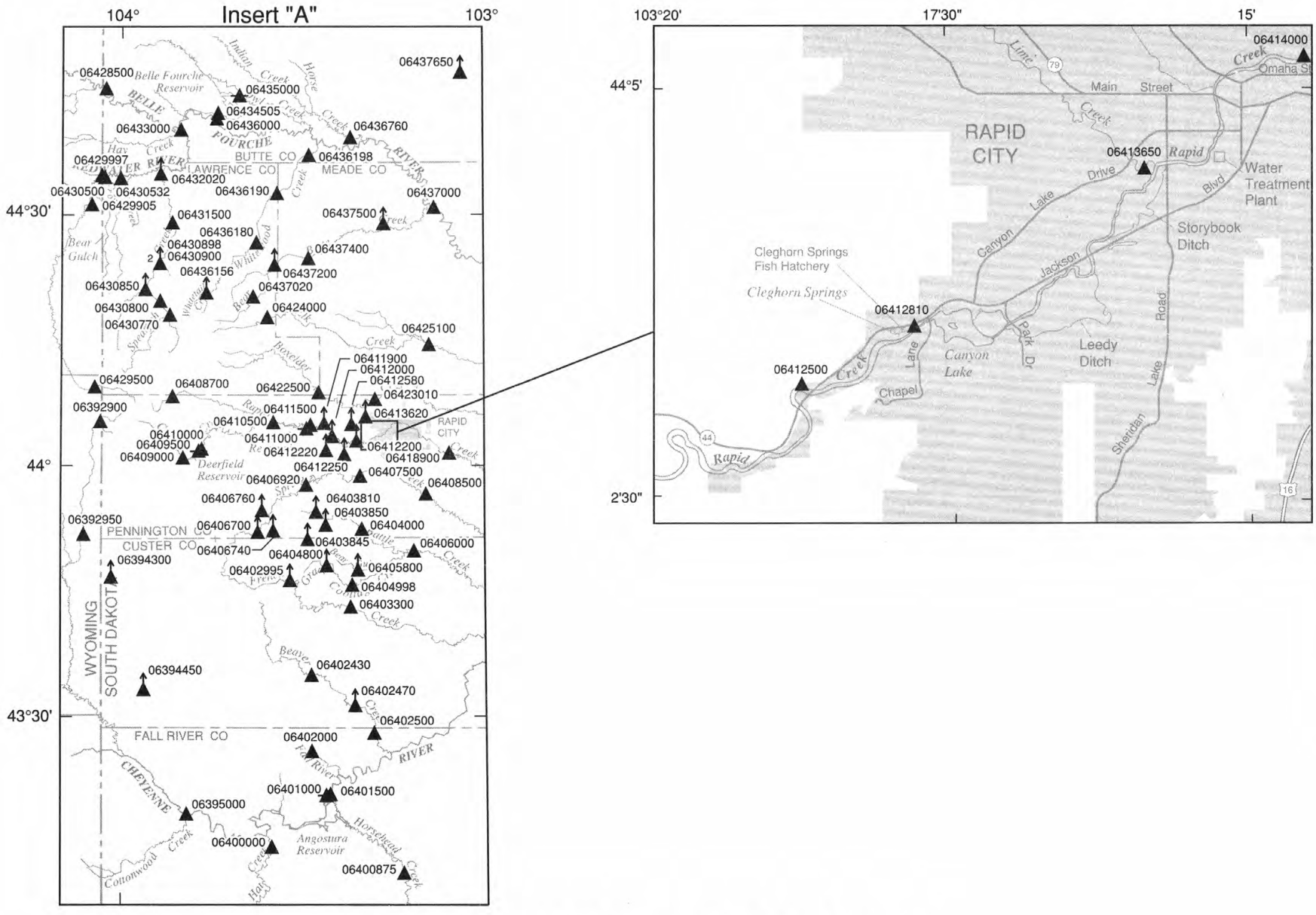
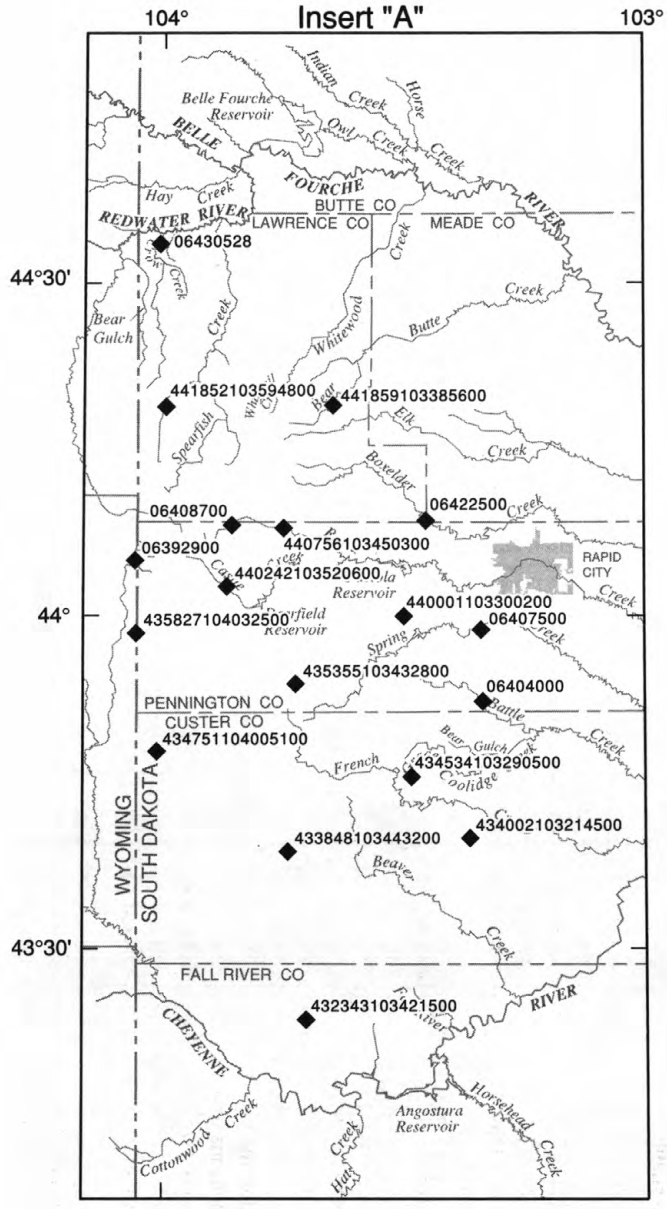


Figure 5. Location of surface-water gaging stations.--Continued



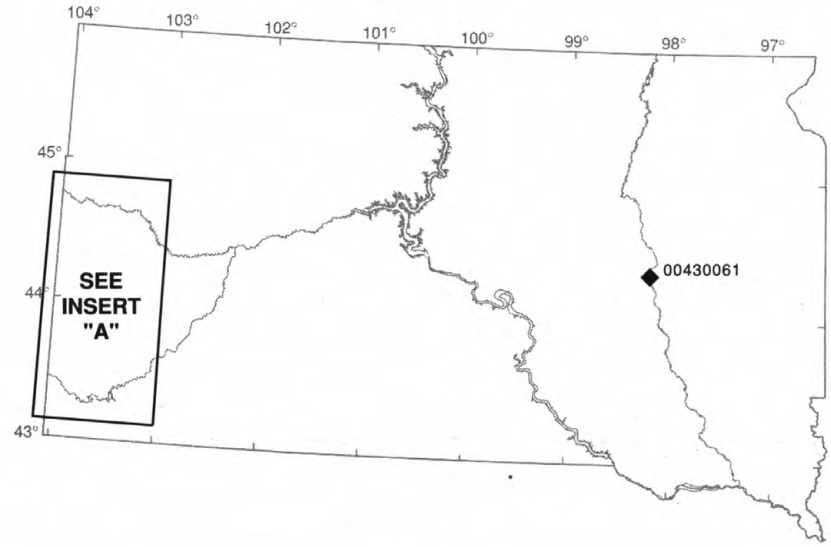


Figure 6. Location of precipitation stations.

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 a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District Office (address given on the back of the title page of this report) to determine if the published records were ever revised after the station was discontinued. Of course, if the data for a discontinued station were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

Headings for AVERAGE DISCHARGE, EXTREMES FOR PERIOD OF RECORD, and EXTREMES FOR CURRENT YEAR have been deleted. The information previously contained in these paragraphs is now presented in the tabular summaries following the discharge table or in the REMARKS paragraph, as appropriate. No changes have been made to the data presentations of lake contents. Secondary instantaneous peak discharges can be obtained from the District office.

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.)

INSTANTANEOUS PEAK FLOW.--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office. (See address on back of title page of this report.)

INSTANTANEOUS PEAK STAGE.--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, 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 ft^3/s; to the nearest tenth between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures for more than 1,000 ft^3/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.

Onsite 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 onsite measurements and for collecting, treating, and shipping samples are detailed in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. 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.

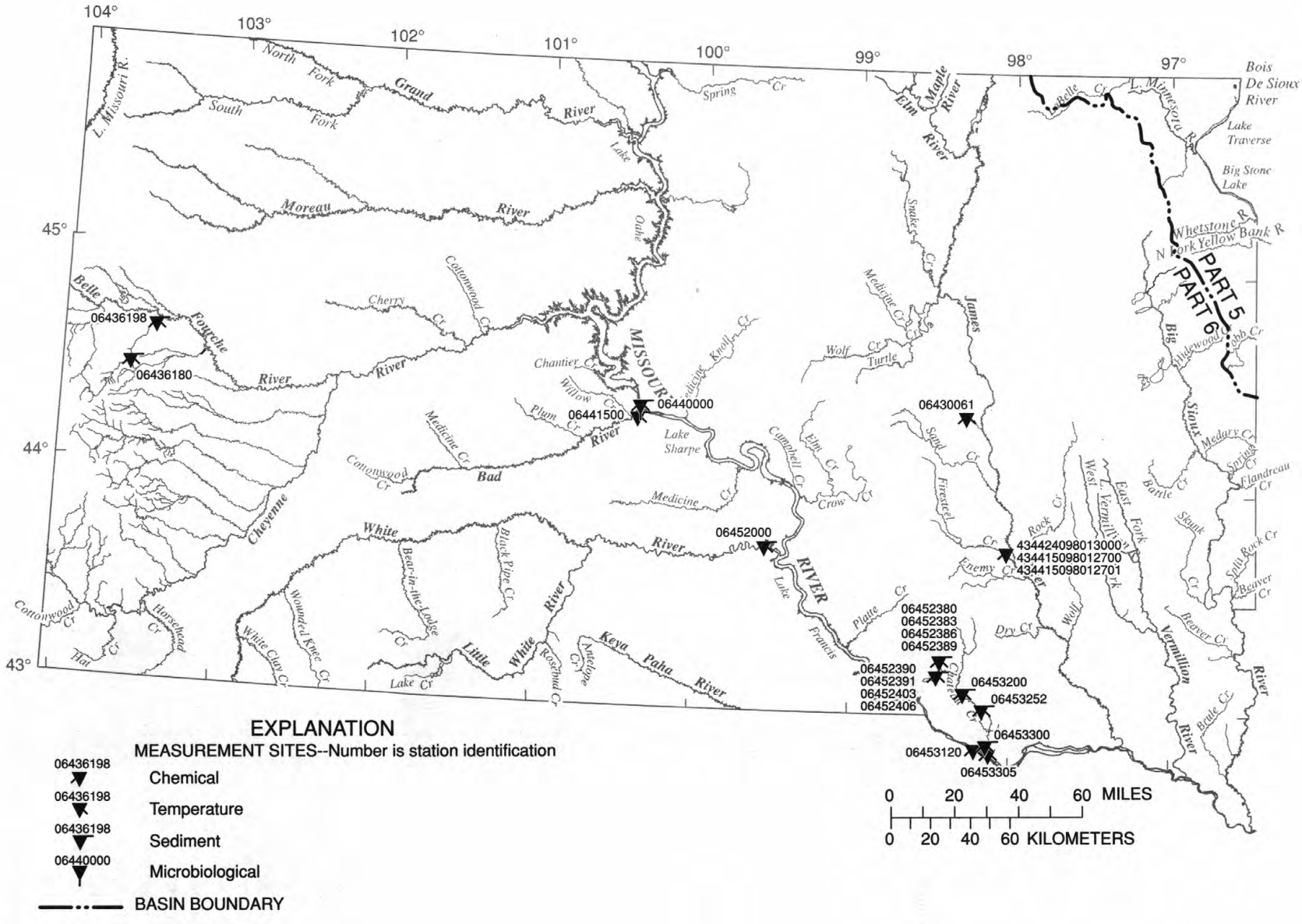


Figure 7. Location of surface-water quality stations.

Historical and current (1999) 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 (1999) 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

Terms related to streamflow, water-quality, and other hydrologic data are defined below. See also table for converting English 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 the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters.

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 in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

> **Acre-foot** (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters.

Base flow is flow in a channel sustained by ground-water discharge in the absence of direct runoff.

Bed material is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

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.

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.

Confined aquifer is a term used to describe an aquifer containing water between two relatively impermeable boundaries. 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 that meets either of the following conditions:

1. Stage or streamflow are recorded at some interval on a continuous basis. The recording interval is usually 15 minutes, but may be less or more frequent.
2. Water-quality, sediment, or other hydrologic measurements are recorded at least daily.

Control designates a feature in the channel downstream from a gaging station that physically influences the water-surface elevation and thereby determines the stage-discharge relation at the station. 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, 448.8 gallons per minute, or 0.02832 cubic meters per second.

Cubic foot per second-day (CFS-DAY, Cfs-day, [$(ft^3/s)/d$]) 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, 1.9835 acre-feet, 646,317 gallons, or 2,447 cubic meters.

Daily record is a summary of streamflow, sediment, or water-quality values computed from data collected with sufficient frequency to obtain reliable estimates of daily mean values.

Daily record station is a site for which daily records of streamflow, sediment, or water-quality values are computed.

Datum, as used in this report, is an elevation above mean sea level to which all gage height readings are referenced.

Discharge, or flow, is the volume of water (or more broadly, volume of fluid including solid- and dissolved-phase material), that passes a given point in a given period of time.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days in a 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.)

Instantaneous discharge is the discharge at a particular instant of time.

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

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 agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved oxygen (DO) content of water in equilibrium with air 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, with small temperature changes having the more significant offset. Photosynthesis and respiration may cause diurnal variations in dissolved-oxygen concentration in water from some streams.

Dissolved-solids concentration of water 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 that analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to reflect the change. Alternatively, alkalinity concentration (as mg/L $CaCO_3$) can be converted to carbonate concentration by multiplying by 0.60.

Drainage area of a site on a stream is that area, measured in a horizontal plane, that has a common outlet at the site for its surface runoff. Figures of drainage area 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 is occupied by a drainage system with a common outlet for its surface runoff (see "Drainage area").

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 the elevation of the zero point of the reference gage from which gage height is determined as compared to sea level (see "Datum"). This elevation is established by a system of levels from known benchmarks, by approximation from topographic maps, or by geographical positioning system.

Gage height (G.H.) is the water-surface elevation referenced to the gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a site on a stream, canal, lake, or reservoir where systematic observations of stage, discharge, or other hydrologic data are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is computed.

Ground-water level is the elevation of the water table or another potentiometric surface at a particular location.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

Hydrologic benchmark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a benchmark station may be used to separate effects of natural from human-induced changes in other basins that have been developed

and in which the physiography, climate, and geology are similar to those in the undeveloped benchmark basin.

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 U.S. Geological Survey. Each hydrologic unit is identified by an 8-digit number.

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

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.

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 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.

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 mg/L and is based on the mass of dry sediment per liter of water-sediment mixture.

Miscellaneous site, or miscellaneous station, is a site where streamflow, sediment, and/or water-quality data are collected once, or more often on a random or discontinuous basis.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, 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*

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.

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 sediments. May be reported as dissolved organic carbon (DOC), suspended organic carbon (SOC), or total organic carbon (TOC).

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 U.S. Geological Survey 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 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

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. 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.

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

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 are termed "acidic," and solutions with a pH greater than 7 are termed "basic." Solutions with a pH of 7 are neutral. The presence and concentration of many dissolved chemical constituents found in water are, in part, influenced by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity

of the water to organisms are also influenced, in part, by the hydrogen-ion activity of water.

Recoverable from 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.

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 non-exceedance 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 non-exceedances of the $7Q_{10}$ occur less than 10 years after the previous non-exceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous non-exceedance. 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.

River mile is the distance of a point on a river measured in miles from the river's mouth along the low-water channel.

River mileage is the linear distance along the meandering path of a stream channel determined in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council.

Runoff in inches (IN., in.) is the depth, in inches, to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sea level refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment of the first-order level nets of the United States and Canada, formerly called Sea Level Datum of 1929. *See: http://www.co-ops.nos.noaa.gov/ glossary/gloss_n.html#NGVD*

Sediment is solid material that is transported by, suspended in, or deposited from water. It originates mostly from disintegrated rocks; it also 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 influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

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 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The entire sample is used for the analysis.

Mean concentration of suspended sediment is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the quantity of sediment moving in suspension, reported as dry weight, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027.

Suspended-sediment load is a term that refers to material in suspension. 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.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, reported as dry weight, that passes a cross section in a given time.

Total sediment load or total load is a term that refers to the total sediment (bed load plus suspended-sediment load) that is in transport. 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 total sediment discharge.

Seven-day 10-year low flow (7Q10, $7Q_{10}$) is the minimum flow averaged over 7 consecutive days that is expected to occur on average, once in any 10-year period. The 7Q10 has a 10-percent chance of occurring in any given year.

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. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific conductance is related to the type and concentration of ions in solution 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.

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.

Surface area of a lake or impoundment is that area encompassed by the boundary of the lake or impoundment as shown on USGS topographic maps, or on other available maps or photographs. The computed surface areas reflect the water levels of the lakes or impoundments at the times when the information for the maps or photographs was obtained.

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

> **Suspended, total** is the total amount of a given constituent in the part of a representative suspended-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 analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

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 that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot is the dry mass of dissolved solids in 1 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 the rate representing a mass of 1 ton of a constituent in streamflow passing a cross section in 1 day. It is equivalent to 2,000 pounds per day, or 0.9072 metric tons per day.

Total is the total amount of a given constituent in a representative suspended-sediment 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 suspended-sediment mixture and that the analytical method determined all of the constituent in the sample.)

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

Total recoverable is the amount of a given constituent that is in solution after a representative suspended-sediment 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, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Turbidity is a measurement of the collective optical properties of a water sample that cause light to be scattered and absorbed rather than transmitted in straight lines; the higher the intensity of scattered light, the higher the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU) or Formazin turbidity units (FTU) depending on the method and equipment used.

Water level is the water-surface elevation or stage of the free surface of a body of water above or below any datum (see "Gage height"), or the surface of water standing in a well, usually indicative of the position of the water table or other potentiometric surface.

Water table is the surface of a ground-water body at which the water is at atmospheric pressure.

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

Water year in U.S. Geological Survey 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, 1999, is called the "1999 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.

Well is an excavation (pit, hole, tunnel), generally cylindrical in form and often walled in, drilled, dug, driven, bored, or jetted into the ground to such a depth as to penetrate water-yielding geologic material and allow the water to flow or to be pumped to the surface.

WSP is used as an abbreviation for "Water-Supply Paper" in reference to previously published reports.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material 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. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Branch of Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

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, Chapter D1. 1975. 65 pages.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W. Wood: USGS–TWRI Book 1, Chapter D2. 1976. 24 pages.

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, Chapter D1. 1974. 116 pages.

2-D2. *Application of seismic-refraction techniques to hydrologic studies,* by F.P. Haeni: USGS–TWRI Book 2, Chapter D2. 1988. 86 pages.

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, Chapter E1. 1971. 126 pages.

2-E2. *Borehole geophysics applied to ground-water investigations,* by W.S. Keys: USGS–TWRI Book 2, Chapter E2. 1990. 150 pages.

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, Chapter F1. 1989. 97 pages.

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, Chapter A1. 1967. 30 pages.

3-A2. *Measurement of peak discharge by the slope-area method,* by Tate Dalrymple and M.A. Benson: USGS–TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods,* by G.L. Bodhaine: USGS–TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods,* by H.F. Matthai: USGS-TWRI Book 3, Chapter A4. 1967. 44 pages.

3-A5. *Measurement of peak discharge at dams by indirect methods,* by Harry Hulsing: USGS–TWRI Book 3. Chapter A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams,* by R.W. Carter and Jacob Davidian: USGS–TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. *Stage measurement at gaging stations,* by T.J. Buchanan and W.P. Somers: USGS–TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations,* by T.J. Buchanan and W.P. Somers: USGS–TWRI Book 3, Chapter A8. 1969. 65 pages.

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, Chapter A9. 1989. 27 pages.

3-A10. *Discharge ratings at gaging stations,* by E.J. Kennedy: USGS–TWRI Book 3, Chapter A10. 1984. 59 pages.

3-A11. *Measurement of discharge by the moving-boat method,* by G.F. Smoot and C.E. Novak: USGS–TWRI Book 3, Chapter A11. 1969. 22 pages.

3-A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS–TWRI Book 3, Chapter A12. 1986. 34 pages.

3-A13. *Computation of continuous records of streamflow*, by E.J. Kennedy: USGS–TWRI Book 3, Chapter A13. 1983. 53 pages.

3-A14. *Use of flumes in measuring discharge,* by F.A. Kilpatrick and V.R. Schneider: USGS–TWRI Book 3, Chapter A14. 1983. 46 pages.

3-A15. *Computation of water-surface profiles in open channels,* by Jacob Davidian: USGS–TWRI Book 3, Chapter A15. 1984. 48 pages.

3-A16. *Measurement of discharge using tracers*, by F.A. Kilpatrick and E.D. Cobb: USGS–TWRI Book 3, Chapter A16. 1985. 52 pages.

3-A17. *Acoustic velocity meter systems,* by Antonius Laenen: USGS–TWRI Book 3, Chapter A17. 1985. 38 pages.

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, Chapter A18. 1989. 52 pages.

3-A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS–TWRI Book 3, Chapter A19. 1990. 31 pages.

3-A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F.A. Kilpatrick: USGS–TWRI Book 3, Chapter A20. 1993. 38 pages.

3-A21 *Stream-gaging cableways,* by C. Russell Wagner: USGS–TWRI Book 3, Chapter A21. 1995. 56 pages.

Section B. Ground-Water Techniques

3-B1. *Aquifer-test design, observation, and data analysis,* by R.W. Stallman: USGS–TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G.D. Bennett: USGS–TWRI Book 3, Chapter B2. 1976. 172 pages.

3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS–TWRI Book 3, Chapter B3. 1980. 106 pages.

3-B4. *Regression modeling of ground-water flow,* by R.L. Cooley and R.L. Naff: USGS–TWRI Book 3, Chapter B4. 1990. 232 pages.

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, Chapter B4. 1993. 8 pages.

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, Chapter B5. 1987. 15 pages.

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, Chapter B6. 1987. 28 pages.

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, Chapter B7. 1992. 190 pages.

Section C. Sedimentation and Erosion Techniques

3-C1. *Fluvial sediment concepts,* by H.P. Guy: USGS–TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. *Field methods for measurement of fluvial sediment*, by H.P. Guy and V.W. Norman: USGS–TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS–TWRI Book 3, Chapter C3. 1972. 66 pages.

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, Chapter A1. 1968. 39 pages.

4-A2. *Frequency curves,* by H.C. Riggs: USGS–TWRI Book 4, Chapter A2. 1968. 15 pages.

Section B. Surface Water

4-B1. *Low-flow investigations,* by H.C. Riggs: USGS–TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply,* by H.C. Riggs and C.H. Hardison: USGS–TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics,* by H.C. Riggs: USGS–TWRI Book 4, Chapter B3. 1973. 15 pages.

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, Chapter D1. 1970. 17 pages.

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, Chapter A1. 1989. 545 pages.

5-A2. *Determination of minor elements in water by emission spectroscopy,* by P.R. Barnett and E.C. Mallory, Jr.: USGS–TWRI Book 5, Chapter A2. 1971. 31 pages.

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, Chapter A3. 1987. 80 pages.

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, Chapter A4. 1989. 363 pages.

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, Chapter A5. 1977. 95 pages.

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, Chapter A6. 1982. 181 pages.

Section C. Sediment Analysis

5-C1. *Laboratory theory and methods for sediment analysis*, by H.P. Guy: USGS–TWRI Book 5, Chapter C1. 1969. 58 pages.

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, Chapter A1. 1988. 586 pages.

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, Chapter A2. 1991. 68 pages.

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, Chapter A3. 1993. 136 pages.

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, Chapter A4. 1992. 108 pages.

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, Chapter A5, 1993. 243 pages.

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. 1996. 125 pages.

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, Chapter C1. 1976. 116 pages.

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, Chapter C2. 1978. 90 pages.

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, Chapter C3. 1981. 110 pages.

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, Chapter A1. 1968. 23 pages.

8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS–TWRI Book 8, Chapter A2. 1983. 57 pages.

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, Chapter B2. 1968. 15 pages.

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 Gibs, and R.T. Iwatsubo: USGS–TWRI Book 9, Chapter 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 Gibs, and R.T. Iwatsubo: USGS–TWRI Book 9, Chapter 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 Gibs, and R.T. Iwatsubo: USGS–TWRI Book 9, Chapter 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 Gibs, and R.T. Iwatsubo: USGS–TWRI Book 9, Chapter A4. 1999. 152 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 Gibs, and R.T. Iwatsubo: USGS–TWRI Book 9, Chapter 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, Chapter A6. 1998. Variously paginated.

9-A7. *National Field Manual for the Collection of Water-Quality Data: Biological Indicators*, by D.N. Myers and F.D. Wilde: USGS–TWRI Book 9, Chapter A7.1. 1997. 49 pages.

9-A7. *National Field Manual for the Collection of Water-Quality Data: Five-Day Biochemical Oxygen Demand*, by G.C. Delzer and S.W. McKenzie: USGS–TWRI Book 9, Chapter A7.2 1999. 28 p.

9-A8. *National Field Manual for the Collection of Water-Quality Data: Bottom-Material Samples*, by D.B. Radtke: USGS–TWRI Book 9, Chapter A8. 1998. 48 pages.

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, Chapter A9. 1998. 60 pages.

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

Remarks Codes

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

PRINT OUTPUT	REMARK
E	Estimated value.
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
K	Results based on colony count outside the acceptance range (non-ideal colony count).
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted).
D	Biological organism count equal to or greater than 15 percent (dominant).
V	Analyte was detected in both the environmental sample and the associated blanks.
&	Biological organism estimated as dominant.

Dissolved Trace-Element Concentrations

NOTE.—Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter (µg/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 µg/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).

Water 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 and presented in this report 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 sample 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 collect in this district are:

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.

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).

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:

Duplicate sample - a type of replicate sample that is collected during the same time period as the primary sample but is composited and processed separately.

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

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05050000 BOIS DE SIOUX RIVER NEAR WHITE ROCK, SD

LOCATION.--Lat 45°51'45", long 96°34'25", in SW¼ SW¼ 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 mi^2 (approximately).

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

GAGE.--Water-stage recorder. Datum of gage is 960.00 ft, 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 fair, except those for estimated daily discharge, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

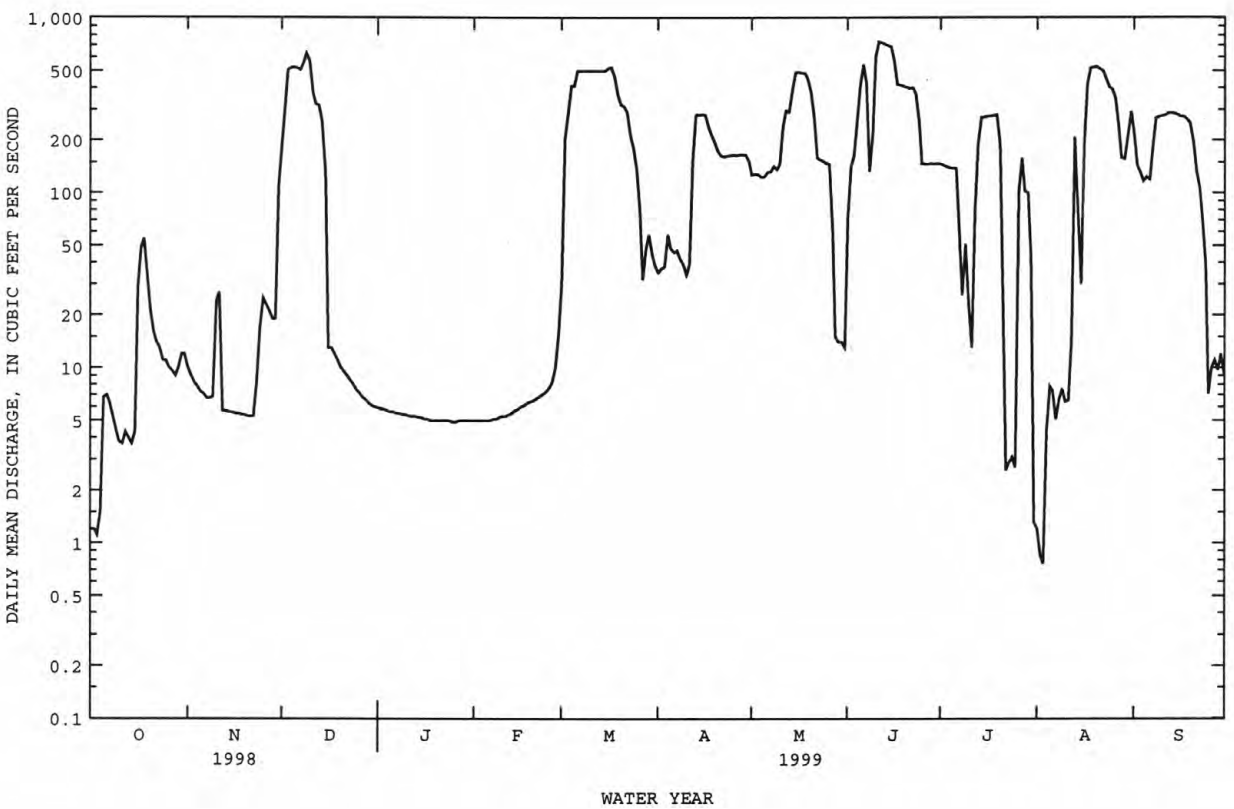
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	10	e200	e5.9	e5.0	e30	35	127	72	146	1.2	219
2	1.2	9.0	341	e5.8	e5.0	e205	37	128	141	144	.85	142
3	1.1	8.2	509	e5.8	e5.0	e275	38	128	162	141	.76	131
4	1.5	7.8	522	e5.7	e5.0	e410	58	123	263	139	4.4	117
5	6.8	7.3	524	e5.6	e5.0	e410	48	124	415	139	7.8	124
6	7.0	7.1	520	e5.6	e5.0	e500	46	131	546	138	7.4	119
7	6.3	6.7	508	e5.5	e5.1	e500	47	132	427	66	5.1	182
8	5.3	6.7	559	e5.5	e5.1	e500	42	142	133	26	6.6	269
9	4.5	6.8	628	e5.4	e5.2	e500	39	136	216	51	7.6	273
10	3.8	24	567	e5.4	e5.3	e500	34	148	602	23	6.4	278
11	3.7	27	377	e5.3	e5.3	e500	39	242	734	13	6.5	278
12	4.3	5.7	323	e5.3	e5.4	e500	154	295	726	78	14	287
13	4.0	e5.7	317	e5.3	e5.5	e500	281	291	712	193	208	287
14	3.7	e5.6	258	e5.2	e5.7	e500	280	386	699	271	78	285
15	4.3	e5.6	132	e5.2	e5.8	e500	281	490	686	270	30	280
16	29	e5.5	13	e5.1	e6.0	517	e280	492	572	276	187	274
17	49	e5.5	13	e5.1	e6.1	524	e240	488	418	276	423	274
18	55	e5.4	12	e5.0	e6.3	460	e215	486	414	277	519	263
19	32	e5.4	e11	e5.0	e6.4	363	e195	450	410	280	524	251
20	21	e5.3	e10	e5.0	e6.5	320	175	382	404	190	531	198
21	16	e5.3	e9.5	e5.0	e6.7	312	164	273	397	29	515	133
22	14	e5.3	e9.0	e5.0	e6.9	289	161	159	400	2.6	500	107
23	13	e8.3	e8.5	e5.0	e7.1	218	163	155	369	2.9	451	71
24	11	e17	e8.0	e5.0	e7.3	182	164	152	258	3.1	404	39
25	11	25	e7.5	e4.9	e7.7	138	165	148	147	2.7	393	7.1
26	10	23	e7.2	e4.9	e8.3	79	164	146	146	102	349	10
27	9.6	21	e6.8	e5.0	e10	32	166	64	146	158	241	11
28	9.0	19	e6.6	e5.0	e16	48	166	15	147	102	159	9.7
29	10	19	e6.3	e5.0	---	58	165	14	146	100	156	12
30	12	e110	e6.1	e5.0	---	45	151	14	147	42	212	9.2
31	12	---	e6.0	e5.0	---	38	---	13	---	1.3	294	---
TOTAL	372.3	423.2	6425.5	162.5	179.7	9953	4193	6474	11055	3682.6	6242.61	4940.0
MEAN	12.0	14.1	207	5.24	6.42	321	140	209	368	119	201	165
MAX	55	110	628	5.9	16	524	281	492	734	280	531	287
MIN	1.1	5.3	6.0	4.9	5.0	30	34	13	72	1.3	.76	7.1
AC-FT	738	839	12740	322	356	19740	8320	12840	21930	7300	12380	9800
CFSM	.01	.01	.18	.00	.01	.28	.12	.18	.32	.10	.17	.14
IN.	.01	.01	.21	.01	.01	.32	.13	.21	.35	.12	.20	.16
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1999, BY WATER YEAR (WY)												
MEAN	29.8	16.7	8.85	3.43	7.50	60.5	306	304	248	161	72.3	36.9
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	.000	.000	.000	.000	.000	.000	.000	.23	.010	.000	.000	.000
(WY)	1942	1942	1942	1942	1942	1942	1942	1977	1977	1961	1970	1960

e Estimated

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

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1942 - 1999	
ANNUAL TOTAL	49887.90		54103.41			
ANNUAL MEAN	137		148		105a	
HIGHEST ANNUAL MEAN					536	1997
LOWEST ANNUAL MEAN					.38	1977
HIGHEST DAILY MEAN	1040	Mar 7	734	Jun 11	7710	Apr 16 1997
LOWEST DAILY MEAN	.40	Sep 16	.76	Aug 3	.00	Oct 1 1941b
ANNUAL SEVEN-DAY MINIMUM	.44	Jan 11	3.4	Jul 31	.00	Oct 1 1941
INSTANTANEOUS PEAK FLOW			737	Jun 11	8750	Apr 20 1997c
INSTANTANEOUS PEAK STAGE			8.83	Jun 11	16.90	Apr 20 1997c
INSTANTANEOUS LOW FLOW			.25	Aug 3	.00	Oct 1 1941
ANNUAL RUNOFF (AC-FT)	98950		107300		75950	
ANNUAL RUNOFF (CFSM)	.12		.13		.090	
ANNUAL RUNOFF (INCHES)	1.60		1.74		1.23	
10 PERCENT EXCEEDS	387		487		343	
50 PERCENT EXCEEDS	17		49		3.0	
90 PERCENT EXCEEDS	.64		5.0		.00	

a Median of annual mean discharges, 60.4 ft^3/s.
b Many days, several years.
c Estimated, from observed readings made under non-ideal conditions. Some evidence that peak occurred Apr. 16 at 7,930 ft^3/s.



05051650 LA BELLE CREEK NEAR VEBLEN, SD

LOCATION.--Lat 45°53'33", long 97°21'40", in SW¼ SW¼ SW¼ SE¼ sec.1, T.128 N., R.54 W., Marshall County, Hydrologic Unit 09020105, on right bank 5 ft downstream from bridge, 3.0 mi west of Veblen on State Highway 25, 2.0 mi north, and 0.5 mi west.

DRAINAGE AREA.--8.74 mi^2.

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,330 ft above sea level, from topographic map.

REMARKS.--Records good except those for Oct. 5-10, Aug. 10, 26, 27, which are fair, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.67	7.0	.31	e.35	e2.5	12	1.9	1.1	1.2	.58	.48
2	.00	.65	6.7	e.28	e.35	e2.5	11	1.7	1.1	1.1	.43	.38
3	.00	.67	6.1	e.27	e.35	e2.0	12	1.6	.94	.99	.40	14
4	.00	.66	5.6	e.25	e.30	e1.8	13	1.9	.83	1.2	.32	49
5	.02	.64	5.3	e.25	e.30	e1.7	11	4.5	6.3	1.2	.23	22
6	.02	.59	e4.9	e.25	e.30	e1.5	11	7.4	5.6	.99	.13	15
7	.02	.57	e4.0	e.25	e.35	e1.3	9.3	12	3.8	.71	.08	12
8	.00	.56	e3.0	e.25	e.45	e1.2	8.2	9.7	3.1	25	.06	10
9	.00	.62	e2.0	e.25	e.60	e1.2	7.0	8.4	3.2	7.8	.03	7.6
10	.00	e.60	e1.0	e.25	e2.0	e1.1	6.8	8.8	2.6	6.1	.01	6.0
11	.15	e.55	e1.0	e.25	e1.5	e1.0	7.8	19	2.0	5.1	.01	8.7
12	.21	e.50	e1.2	e.25	e1.0	e1.0	6.5	11	1.7	3.8	.85	10
13	.05	e.80	e1.3	e.25	e1.5	e1.0	6.0	9.5	1.4	3.2	2.4	7.2
14	.04	e2.0	e1.0	e.27	e1.0	e1.5	5.6	8.5	1.1	2.5	.52	5.8
15	.33	e1.7	e.80	e.35	e.90	e4.0	4.9	8.5	.95	2.0	.36	5.2
16	1.2	1.5	e.50	.39	e.85	e10	4.4	7.6	.79	1.5	.32	4.6
17	11	1.4	e.50	.41	.77	e9.0	4.1	6.6	.69	1.2	.34	3.9
18	3.1	e1.4	e.45	.40	.70	e15	3.7	5.9	.65	3.1	.28	3.5
19	1.1	e1.5	e.20	e.35	.63	13	3.4	5.2	.73	2.7	.17	3.0
20	.64	1.6	e.15	e.35	.56	12	3.7	4.8	.70	2.1	.15	2.6
21	.44	1.6	e.15	e.35	.52	11	3.7	3.9	.67	1.7	.16	2.3
22	.37	2.5	e.10	e.35	.50	10	3.7	3.5	.58	1.4	.13	1.8
23	.30	4.3	e.15	e.35	.48	10	3.0	3.3	.54	1.2	.06	1.5
24	.27	6.2	e.15	e.30	.51	9.2	2.7	2.9	.44	.97	.03	1.3
25	.23	9.8	e.18	e.25	1.2	8.3	2.5	2.7	.38	.88	.01	1.4
26	.21	8.9	.21	e.25	e10	7.5	2.5	2.3	.28	.84	.01	4.8
27	.19	9.2	.37	e.30	e7.0	7.9	3.0	2.0	.25	.91	.01	3.1
28	.20	7.9	.68	e.30	e3.0	19	2.8	1.8	.72	1.2	1.5	2.2
29	1.9	8.1	.66	e.35	---	13	2.3	1.6	.88	.79	.44	1.9
30	3.0	7.6	.39	e.35	---	12	2.1	1.4	1.2	.77	1.8	1.5
31	1.1	---	.35	e.35	---	12	---	1.4	---	.69	1.1	---
TOTAL	26.09	85.28	56.09	9.38	37.97	204.2	179.7	171.3	45.22	84.84	12.92	212.76
MEAN	.84	2.84	1.81	.30	1.36	6.59	5.99	5.53	1.51	2.74	.42	7.09
MAX	11	9.8	7.0	.41	10	19	13	19	6.3	25	2.4	49
MIN	.00	.50	.10	.25	.30	1.0	2.1	1.4	.25	.69	.01	.38
AC-FT	52	169	111	19	75	405	356	340	90	168	26	422

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

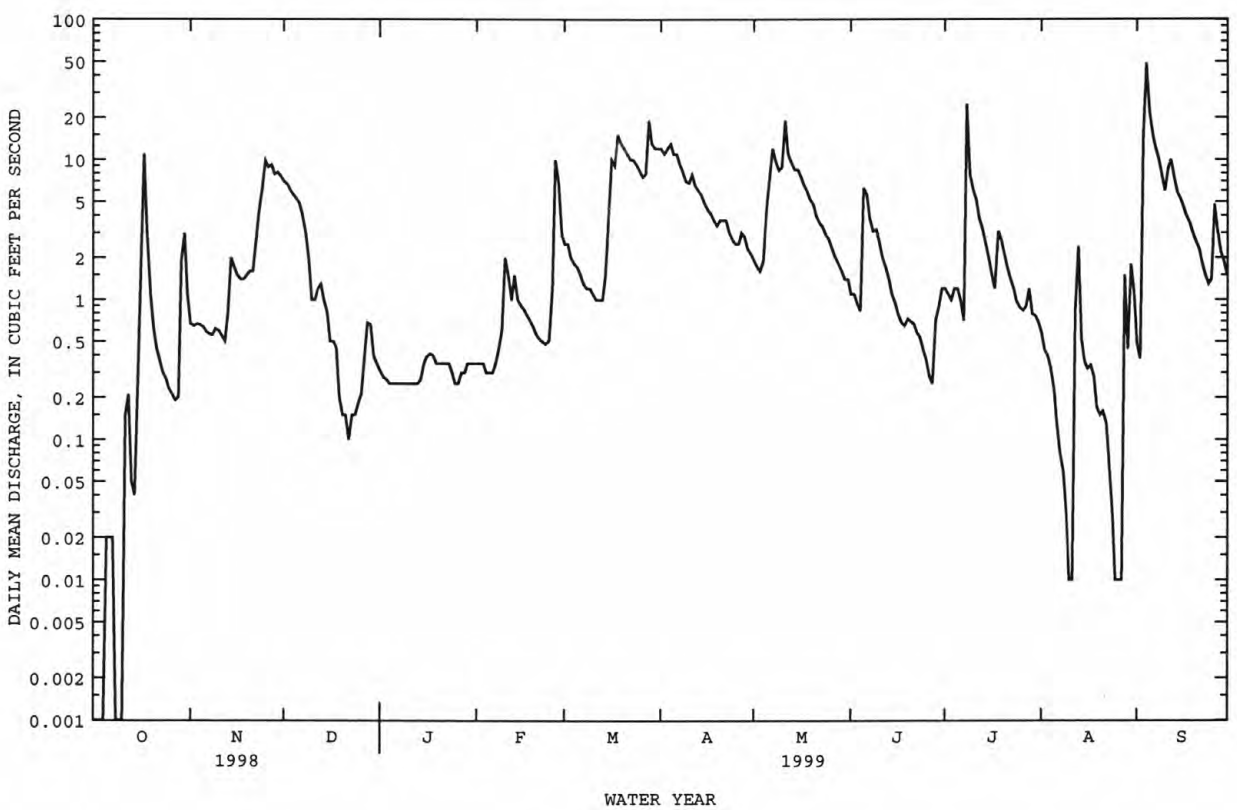
MEAN	.33	.42	.27	.11	.78	6.36	7.29	4.58	2.19	2.50	.78	.71
MAX	2.27	2.84	1.81	.55	3.26	22.4	20.9	15.1	6.46	14.1	7.42	7.09
(WY)	1996	1999	1999	1994	1996	1995	1997	1996	1993	1993	1993	1999
MIN	.000	.000	.000	.000	.000	.22	.26	.091	.001	.000	.000	.000
(WY)	1988	1988	1988	1988	1989	1990	1990	1988	1988	1988	1988	1988

e Estimated

05051650 LA BELLE CREEK NEAR VEBLEN, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1988 - 1999	
ANNUAL TOTAL	1541.86		1125.75			
ANNUAL MEAN	4.22		3.08		2.20a	
HIGHEST ANNUAL MEAN					4.29	1993
LOWEST ANNUAL MEAN					.056	1990
HIGHEST DAILY MEAN	60	May 12	49	Sep 4	200	Mar 12 1995
LOWEST DAILY MEAN	.00	Jan 10	.00	Oct 1	.00	Oct 1 1987b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 10	.01	Oct 1	.00	Oct 1 1987
INSTANTANEOUS PEAK FLOW			97	Jul 8c	664	May 18 1996d
INSTANTANEOUS PEAK STAGE			5.30	Feb 26f	12.57	Apr 1 1997f
ANNUAL RUNOFF (AC-FT)	3060		2230		1590	
10 PERCENT EXCEEDS	10		9.1		6.0	
50 PERCENT EXCEEDS	.66		1.2		.18	
90 PERCENT EXCEEDS	.00		.20		.00	

a Median of annual mean discharges, 2.7 ft^3/s.
b No flow for many days in most years.
c Gage height, 5.15 ft.
d Gage height, 7.34 ft.
f Backwater from ice.



05289985 BIG COULEE CREEK NEAR PEEVER, SD

LOCATION.--Lat 45°29'14", long 96°57'26", in SW¼ SW¼ SW¼ SW¼ sec.29, T.124 N., R.50 W., Roberts County, Hydrologic Unit 07020001, on right downstream side of county highway bridge, 3.9 mi south of Peever.

DRAINAGE AREA.--12.1 mi^2.

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

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

REMARKS.--Records good except those for May 16 to June 16, which are fair, and 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	2.2	4.0	e.15	e.25	e5.0	7.6	e3.5	2.5	e5.0	.67	1.1
2	.00	1.9	4.1	e.15	e.30	e4.5	8.8	e3.5	2.3	e4.0	.59	1.1
3	.00	1.7	3.8	e.15	e.30	e4.0	7.2	e3.5	2.0	e3.0	.46	1.2
4	.11	1.7	3.6	e.15	e.25	e3.5	11	e5.0	2.0	e2.5	.45	9.2
5	.75	1.6	e3.0	e.15	e.30	e3.0	6.3	e14	15	e2.0	.24	11
6	1.2	1.6	e2.5	e.15	e.30	e2.5	15	e19	30	e1.5	.16	2.0
7	.79	1.4	2.5	e.10	e.30	e2.0	9.8	e17	8.0	e1.0	.15	1.4
8	.62	e1.4	2.5	e.10	e1.0	e2.0	6.5	e12	5.4	59	.14	1.3
9	.53	e1.3	2.5	e.10	e5.0	e1.5	5.0	e5.9	5.2	49	.73	1.2
10	.48	e1.0	2.2	e.10	e8.0	e1.5	4.6	e8.9	3.3	21	1.0	1.0
11	.58	e1.0	2.4	e.10	e15	e1.5	7.7	e12	3.4	5.0	.63	.89
12	.68	e1.0	2.3	e.10	e10	e1.5	11	e6.7	3.7	1.8	.65	.97
13	.67	2.3	2.3	e.10	e5.0	e2.0	6.4	e6.5	3.2	1.1	2.0	.95
14	.71	3.5	2.4	e.10	e3.5	e2.5	5.4	e6.0	2.5	1.0	1.4	.92
15	.86	3.4	e2.0	e.15	e3.0	e6.0	5.4	e6.2	2.0	.87	.96	.87
16	4.3	3.4	e2.0	e.15	e5.0	e40	4.7	6.0	2.0	.92	.77	.82
17	45	3.4	e2.0	e.20	e2.0	26	4.1	6.5	e1.5	.73	.57	.70
18	7.0	e3.3	e2.0	e.20	e1.5	10	3.9	6.0	e1.5	.82	.47	.51
19	3.8	e3.2	e.60	e.20	e1.5	5.2	3.9	5.0	e8.9	1.1	.42	.51
20	2.7	3.2	e.40	e.20	e1.5	8.6	3.8	4.0	e9.7	1.1	.35	.56
21	2.3	3.2	e.30	e.20	e1.5	6.2	3.8	3.0	e7.5	.93	.32	.51
22	2.0	3.4	e.25	e.20	e1.5	3.9	3.9	3.0	e3.2	.74	.46	.48
23	1.9	5.0	e.20	e.20	e1.5	4.1	e3.8	3.1	e2.2	.86	.36	.35
24	1.7	5.4	e.20	e.20	e1.5	4.2	e3.6	4.3	e2.0	.75	.25	.33
25	1.6	8.4	e.25	e.15	e2.0	3.2	e3.6	3.6	e1.5	.55	.24	.23
26	1.6	6.2	e.25	e.20	e5.0	3.2	e3.8	3.0	e1.5	.66	.23	.79
27	1.6	6.6	e.25	e.20	e25	4.1	e7.0	2.5	e1.0	.57	.26	1.1
28	1.5	5.2	e.25	e.20	e10	18	e5.0	2.0	e4.0	1.9	.34	.76
29	3.5	4.8	e.20	e.25	---	10	e4.0	2.0	e7.1	1.1	.85	.67
30	4.5	6.2	e.15	e.30	---	7.1	e3.5	2.0	e6.0	.76	1.3	.60
31	2.6	---	e.15	e.25	---	9.0	---	2.0	---	.93	1.7	---
TOTAL	95.58	97.9	51.55	5.15	112.00	205.8	180.1	187.7	150.1	172.19	19.12	44.02
MEAN	3.08	3.26	1.66	.17	4.00	6.64	6.00	6.05	5.00	5.55	.62	1.47
MAX	45	8.4	4.1	.30	25	40	15	19	30	59	2.0	11
MIN	.00	1.0	.15	.10	.25	1.5	3.5	2.0	1.0	.55	.14	.23
AC-FT	190	194	102	10	222	408	357	372	298	342	38	87

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

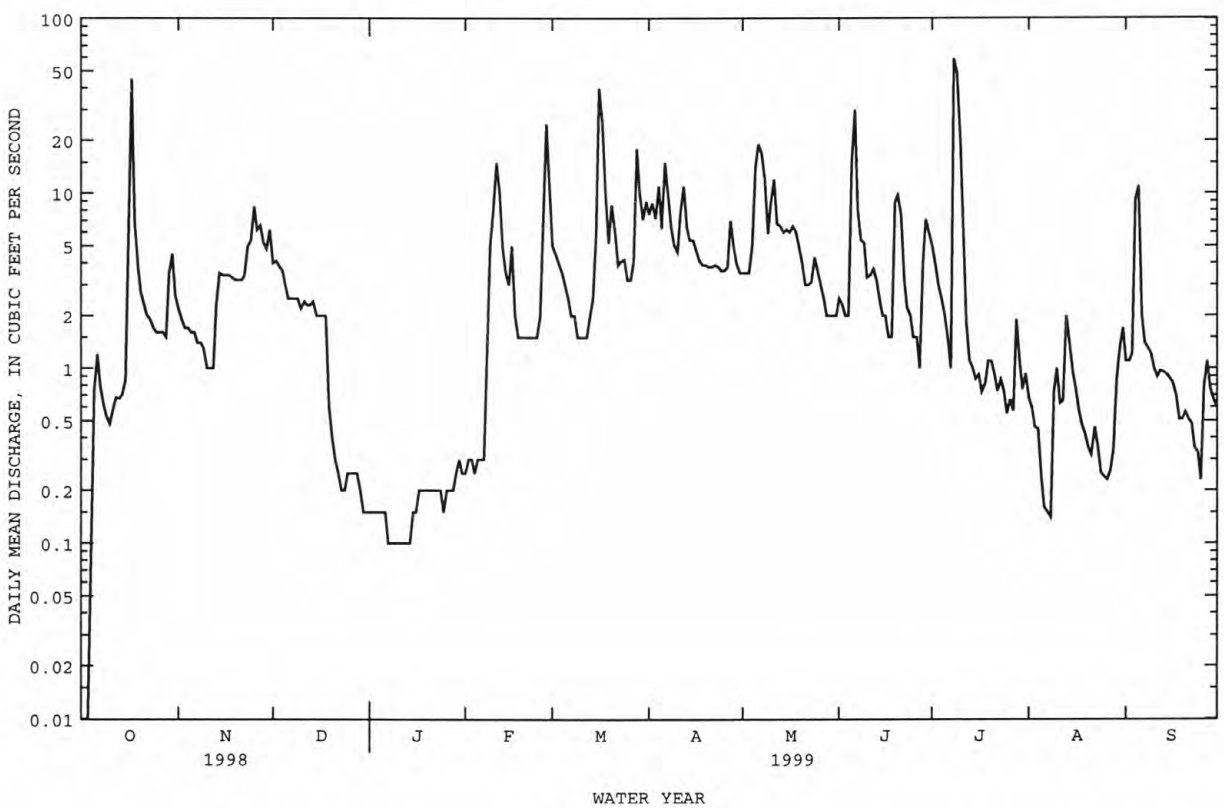
MEAN	1.61	1.24	.66	.33	2.13	10.9	11.7	7.18	4.50	3.88	1.35	1.00
MAX	4.48	3.69	1.66	.96	7.15	23.4	34.0	22.5	11.1	16.6	3.69	2.91
(WY)	1996	1994	1999	1997	1998	1995	1997	1998	1991	1993	1993	1992
MIN	.000	.000	.000	.000	.000	1.42	1.52	1.09	.013	.000	.000	.000
(WY)	1988	1988	1988	1988	1989	1991	1990	1988	1988	1988	1988	1988

e Estimated

05289985 BIG COULEE CREEK NEAR PEEVER, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1988 - 1999	
ANNUAL TOTAL	2240.76		1321.21			
ANNUAL MEAN	6.14		3.62		3.88	
HIGHEST ANNUAL MEAN					6.86	1995
LOWEST ANNUAL MEAN					.63	1990
HIGHEST DAILY MEAN	305	May 12	59	Jul 8	305	May 12 1998
LOWEST DAILY MEAN	.00	Aug 21	.00	Oct 1	.00	Oct 1 1987a
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 9	.10	Jan 7	.00	Oct 1 1987
INSTANTANEOUS PEAK FLOW			136	Oct 17b	614	May 12 1998c
INSTANTANEOUS PEAK STAGE			5.59	Jun 6d	9.43	Mar 27 1997f
ANNUAL RUNOFF (AC-FT)	4440		2620		2810	
10 PERCENT EXCEEDS	11		7.6		9.2	
50 PERCENT EXCEEDS	2.0		2.0		1.0	
90 PERCENT EXCEEDS	.10		.20		.00	

a No flow for many days in most years.
b Gage height, 5.18 ft.
c Gage height, 7.42 ft.
d Backwater from beaver dam.
f Backwater from ice.



05290000 LITTLE MINNESOTA RIVER NEAR PEEVER, SD

LOCATION.--Lat 45°36'05", long 96°52'18", in SW¼ 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 mi^2.

PERIOD OF RECORD.--October 1939 to September 1981, October 1989 to current year.

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

GAGE.--Water-stage recorder. Datum of gage is 1,002.20 ft above sea level. 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 good except those for estimated daily discharges, which are fair.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 18	1030	225	3.91	May 12	2300	225	3.94
Mar 19	1330	297	4.17	Jun 7	1230	*306	4.20
Apr 7	0930	283	4.12				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	49	149	e11	e6.3	e160	213	74	47	50	21	21
2	1.4	52	138	e11	e6.4	e195	210	70	45	49	20	22
3	1.5	48	133	e9.8	e6.4	e185	226	66	41	56	18	21
4	2.6	43	126	e9.0	e6.0	e160	249	60	39	49	16	37
5	5.1	40	119	e8.5	e6.3	e135	271	63	52	42	15	92
6	9.4	36	114	e8.0	e6.4	e120	265	78	146	37	13	112
7	8.7	34	92	e7.5	e7.0	e110	277	113	289	33	13	96
8	6.5	33	e81	e7.2	e10	e100	250	153	225	46	12	109
9	5.3	33	e86	e6.8	e15	e94	218	164	192	95	12	101
10	4.6	40	77	e6.5	e22	e89	197	162	178	95	11	81
11	4.2	24	e83	e6.2	e35	e87	193	187	150	63	12	67
12	4.0	20	83	e6.0	e54	e85	204	212	127	59	14	66
13	3.6	22	79	e5.8	e80	e83	205	224	108	59	16	70
14	3.7	31	72	e5.6	e125	e84	191	208	94	53	29	61
15	5.6	35	70	e5.8	e125	e90	184	188	80	48	29	57
16	13	53	67	e6.0	e114	e110	171	175	71	42	19	55
17	99	61	64	e6.2	e97	274	160	161	67	37	14	53
18	204	68	43	e6.2	e78	262	149	147	65	34	12	51
19	117	62	37	e6.2	e62	248	139	135	65	31	10	49
20	101	e60	e30	e6.2	e51	263	131	124	69	32	8.6	45
21	87	e76	e25	e6.2	e44	223	121	112	70	33	7.9	42
22	72	92	e20	e6.2	e40	198	114	102	65	31	7.8	38
23	61	104	e16	e6.2	e38	183	111	92	60	31	7.1	34
24	49	129	e13	e6.2	e36	168	104	86	54	29	6.4	30
25	41	151	e11	e6.2	e38	153	96	83	49	28	5.9	26
26	35	176	e10	e6.2	e47	140	90	79	43	27	5.4	26
27	31	174	e10	e6.2	e60	134	86	72	39	27	4.5	26
28	28	171	e11	e6.2	e100	151	88	66	41	27	8.2	27
29	34	163	e13	e6.2	---	213	85	60	40	28	7.8	24
30	42	154	e13	e6.2	---	231	78	54	46	31	8.7	21
31	60	---	e12	e6.2	---	227	---	49	---	24	11	---
TOTAL	1141.6	2234	1897	213.7	1315.8	4955	5076	3619	2657	1326	395.3	1560
MEAN	36.8	74.5	61.2	6.89	47.0	160	169	117	88.6	42.8	12.8	52.0
MAX	204	176	149	11	125	274	277	224	289	95	29	112
MIN	1.4	20	10	5.6	6.0	83	78	49	39	24	4.5	21
AC-FT	2260	4430	3760	424	2610	9830	10070	7180	5270	2630	784	3090
CFSM	.08	.17	.14	.02	.11	.36	.38	.26	.20	.10	.03	.12
IN.	.10	.19	.16	.02	.11	.41	.42	.30	.22	.11	.03	.13

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1999, BY WATER YEAR (WY)

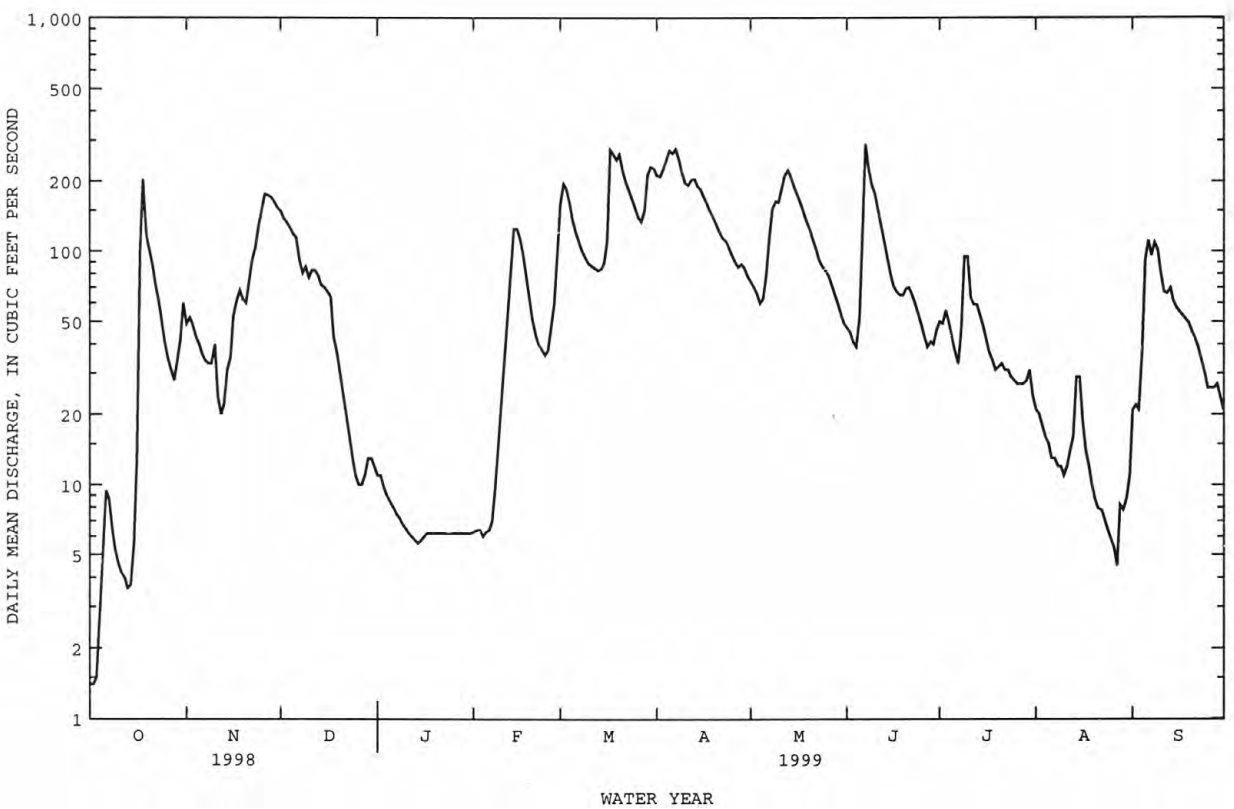
MEAN	6.13	7.09	4.20	1.66	4.57	120	226	103	75.1	54.7	12.8	5.28
MAX	73.9	74.5	61.2	11.4	57.0	603	1321	531	355	865	235	52.0
(WY)	1996	1999	1999	1994	1998	1997	1952	1962	1942	1993	1993	1999
MIN	.21	.25	.10	.000	.000	.51	2.89	2.20	.41	.041	.059	.074
(WY)	1940	1940	1940	1940	1940	1956	1981	1981	1976	1976	1976	1976

e Estimated

05290000 LITTLE MINNESOTA RIVER NEAR PEEVER, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1940 - 1999	
ANNUAL TOTAL	38605.5		26390.4			
ANNUAL MEAN	106		72.3		51.7a	
HIGHEST ANNUAL MEAN					172	1997
LOWEST ANNUAL MEAN					1.37	1981
HIGHEST DAILY MEAN	1190	May 17	289	Jun 7	5400	Jul 25 1993
LOWEST DAILY MEAN	1.2	Sep 21	1.4	Oct 1	.00	Jan 1 1940b
ANNUAL SEVEN-DAY MINIMUM	1.3	Sep 18	4.3	Oct 1	.00	Jan 1 1940
INSTANTANEOUS PEAK FLOW			306	Jun 7	8900	Jul 25 1993
INSTANTANEOUS PEAK STAGE			4.36	Mar 2c	14.40	Mar 27 1997c
INSTANTANEOUS LOW FLOW			1.3	Oct 1d	.00	Jan 1 1940
ANNUAL RUNOFF (AC-FT)	76570		52350		37490	
ANNUAL RUNOFF (CFSM)	.24		.16		.12	
ANNUAL RUNOFF (INCHES)	3.21		2.20		1.57	
10 PERCENT EXCEEDS	335		180		118	
50 PERCENT EXCEEDS	40		51		3.8	
90 PERCENT EXCEEDS	3.1		6.2		.30	

a Median of annual mean discharges, 38.0 ft^3/s.
b Many days, several years.
c Backwater from ice
d Rising stage.



05291000 WHETSTONE RIVER NEAR BIG STONE CITY, SD

LOCATION.--Lat 45°17'32", long 96°29'14", in SE¼ NW¼ 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, and 4.5 mi upstream from Big Stone Lake.

DRAINAGE AREA.--398 mi^2.

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 mean sea level, adjustment 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 down-stream 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 ft^3/s, from dam break.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 230 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 19	0300	271	3.36	Apr 7	1800	314	3.55
Nov 26	1800	202	3.00	Apr 13	1300	279	3.36
Mar 1	(daily)	e215	--	May 8	2300	241	3.16
Mar 17	1500	*325	3.62				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	66	129	e24	e12	e215	114	76	30	23	10	12
2	8.0	61	122	e23	e12	e180	112	70	30	22	10	11
3	8.5	57	110	e21	e12	e166	116	65	29	23	9.9	11
4	14	51	102	e19	e12	e148	133	64	27	24	9.7	46
5	23	47	97	e18	e12	e125	147	72	30	21	8.9	71
6	23	45	90	e17	e13	e115	193	87	33	19	8.6	71
7	21	42	79	e16	e14	e105	269	146	34	17	8.1	48
8	20	41	e67	e15	e16	e100	269	237	56	25	8.1	32
9	16	41	e63	e14	e23	e115	205	226	105	29	9.2	23
10	14	43	e62	e13	e30	e103	163	179	123	25	9.8	17
11	13	51	71	e12	e45	e96	168	144	106	22	8.8	14
12	13	48	62	e11	e56	e87	192	121	83	20	7.9	12
13	12	44	66	e11	e80	e80	259	110	63	18	8.0	11
14	13	48	64	e10	e110	e77	225	101	51	17	7.7	12
15	15	57	62	e10	e100	e79	185	96	43	16	7.5	11
16	38	68	60	e11	e80	82	169	105	38	25	7.2	11
17	161	78	59	e11	e70	251	147	128	34	21	6.4	9.8
18	197	95	50	e12	e64	277	134	169	33	17	7.7	9.1
19	215	93	e35	e12	e60	197	123	135	36	25	7.0	9.1
20	128	96	e28	e12	e58	172	113	107	35	24	6.2	8.9
21	91	129	e24	e12	e58	148	105	91	35	20	6.1	8.7
22	72	112	e23	e12	e60	136	99	79	37	19	6.4	8.5
23	60	111	e22	e12	e63	116	95	69	42	18	6.1	8.5
24	53	129	e22	e12	e66	103	92	62	36	17	5.5	8.6
25	47	158	e21	e12	e73	95	86	58	29	15	5.5	8.3
26	45	187	e21	e12	e81	88	82	52	25	13	5.7	14
27	47	195	e23	e12	e96	83	84	48	25	12	5.2	12
28	45	171	e25	e12	e140	98	83	43	24	13	7.2	11
29	53	154	e26	e12	---	113	85	38	27	12	10	9.8
30	61	136	e25	e12	---	136	82	34	24	12	13	8.9
31	63	---	e25	e12	---	126	---	34	---	11	13	---
TOTAL	1597.7	2654	1735	424	1516	4012	4329	3046	1323	595	250.4	548.2
MEAN	51.5	88.5	56.0	13.7	54.1	129	144	98.3	44.1	19.2	8.08	18.3
MAX	215	195	129	24	140	277	269	237	123	29	13	71
MIN	8.0	41	21	10	12	77	82	34	24	11	5.2	8.3
AC-FT	3170	5260	3440	841	3010	7960	8590	6040	2620	1180	497	1090
CFSM	.13	.22	.14	.03	.14	.33	.36	.25	.11	.05	.02	.05
IN.	.15	.25	.16	.04	.14	.37	.40	.28	.12	.06	.02	.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 1999, BY WATER YEAR (WY)

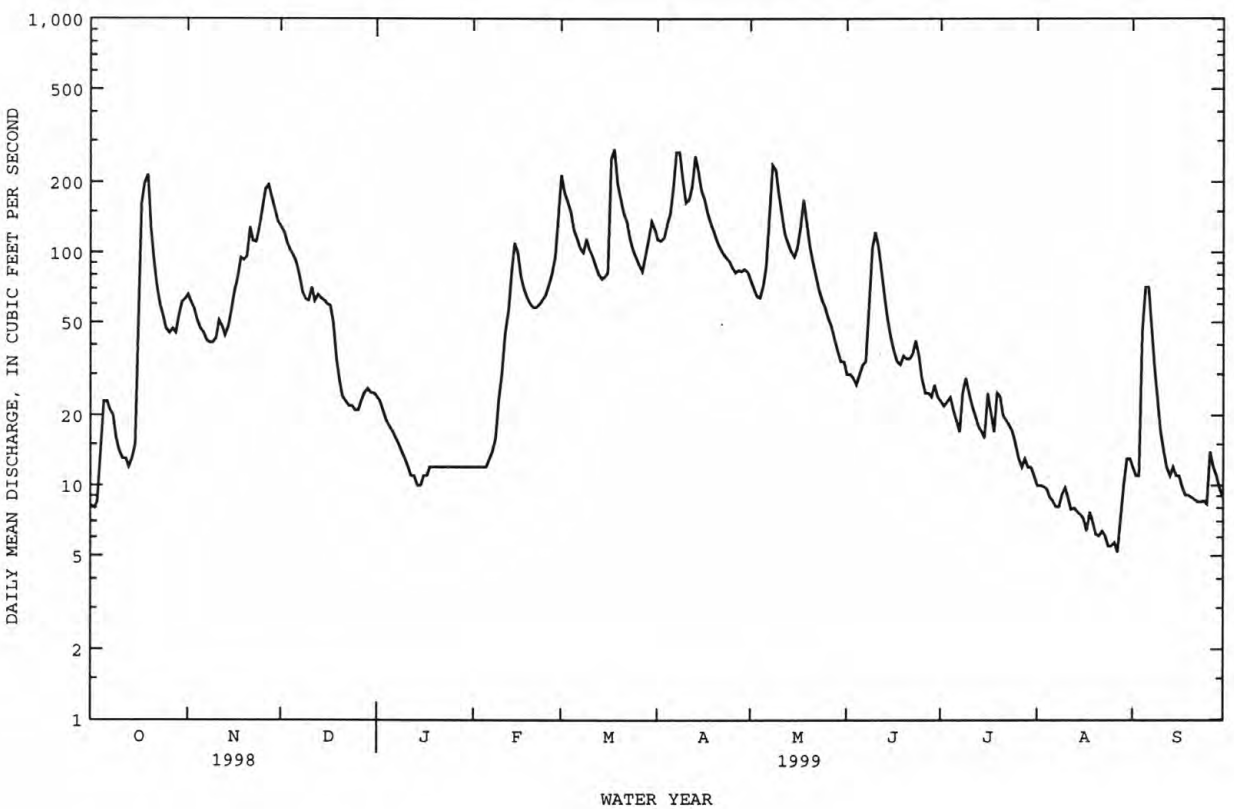
MEAN	14.9	14.7	9.80	6.38	15.2	161	213	92.8	76.8	58.8	19.9	10.6
MAX	280	122	56.0	36.3	168	612	1677	491	478	885	327	77.0
(WY)	1996	1996	1999	1994	1998	1978	1997	1972	1984	1993	1991	1995
MIN	.60	.40	.20	.000	.000	2.85	3.63	.77	1.42	.035	.000	.36
(WY)	1932	1935	1935	1934	1934	1969	1934	1934	1936	1934	1934	1935

e Estimated

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

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1910 - 1999	
ANNUAL TOTAL	36614.7		22030.3			
ANNUAL MEAN	100		60.4		59.6a	
HIGHEST ANNUAL MEAN					232	1997
LOWEST ANNUAL MEAN					1.52	1934
HIGHEST DAILY MEAN	1000	Apr 8	277	Mar 18	6600	Apr 6 1997
LOWEST DAILY MEAN	7.5	Sep 21	5.2	Aug 27	.00	Sep 13 1931b
ANNUAL SEVEN-DAY MINIMUM	8.0	Sep 17	5.8	Aug 21	.00	Jul 31 1933
INSTANTANEOUS PEAK FLOW			325	Mar 17	7930	Apr 6 1997
INSTANTANEOUS PEAK STAGE			4.44	Feb 28c	14.32	Apr 8 1969c
INSTANTANEOUS LOW FLOW			4.9	Aug 27	.00	Sep 13 1931
ANNUAL RUNOFF (AC-FT)	72630		43700		43150	
ANNUAL RUNOFF (CFSM)	.25		.15		.15	
ANNUAL RUNOFF (INCHES)	3.42		2.06		2.03	
10 PERCENT EXCEEDS	217		142		110	
50 PERCENT EXCEEDS	48		41		8.4	
90 PERCENT EXCEEDS	11		9.8		1.4	

a Median of annual mean discharges, 47 ft^3/s.
b Many days, several years.
c Backwater from ice.



05292704 NORTH FORK YELLOW BANK RIVER NEAR ODESSA, MN

LOCATION.--Lat 45°11'21", long 96°24'54", in NW¼ NW¼ SW¼ 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 mi^2.

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,020 ft above sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

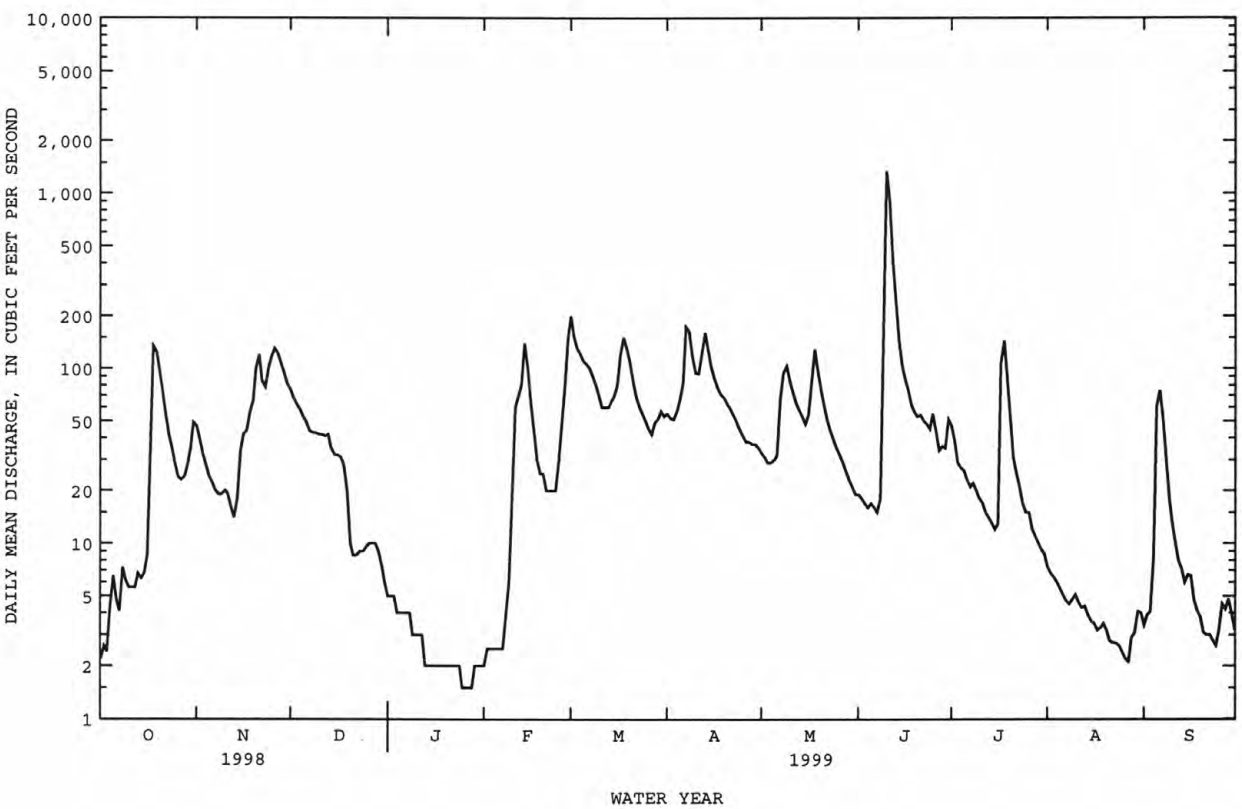
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	47	75	e5.0	e2.0	e200	55	33	19	47	7.3	3.4
2	2.6	39	67	e5.0	e2.5	e150	52	31	18	39	6.7	3.9
3	2.4	32	62	e5.0	e2.5	e130	51	29	17	29	6.4	4.1
4	4.4	28	58	e4.0	e2.5	e120	57	29	16	27	6.0	8.1
5	6.5	24	53	e4.0	e2.5	e110	66	30	17	26	5.5	61
6	4.7	22	49	e4.0	e2.5	e105	83	32	16	23	5.1	75
7	4.1	20	44	e4.0	e2.5	e100	173	67	15	21	4.7	53
8	7.3	19	43	e4.0	e4.0	e90	163	95	18	22	4.5	30
9	6.2	19	43	e3.0	e6.0	e80	116	104	173	20	4.8	18
10	5.6	20	42	e3.0	e20	e70	94	86	1340	18	5.1	13
11	5.6	e19	42	e3.0	e60	e60	93	73	913	17	4.6	10
12	5.6	e16	41	e3.0	e70	e60	123	64	406	15	4.3	8.0
13	6.7	14	42	e2.0	e80	e60	161	58	244	14	4.4	7.1
14	6.3	18	35	e2.0	e140	e65	128	53	144	13	3.9	6.0
15	6.8	34	32	e2.0	e100	e70	101	48	104	12	3.6	6.6
16	8.5	42	32	e2.0	e65	e80	87	54	87	13	3.5	6.5
17	40	44	31	e2.0	e45	e120	77	83	75	107	3.2	4.7
18	134	56	28	e2.0	e30	e150	71	129	62	144	3.3	4.1
19	123	e65	e20	e2.0	e25	e130	68	98	56	84	3.5	3.8
20	95	e100	e10	e2.0	e25	e110	63	76	53	49	3.2	3.1
21	73	e120	e8.5	e2.0	e20	e85	59	61	54	31	2.8	3.0
22	55	84	e8.5	e2.0	e20	69	54	50	50	25	2.7	3.0
23	42	78	e9.0	e2.0	e20	61	49	44	48	21	2.7	2.8
24	35	101	e9.0	e2.0	e20	55	45	39	45	17	2.6	2.6
25	29	118	e9.5	e1.5	e30	50	41	35	55	15	2.4	3.2
26	24	130	e10	e1.5	e50	45	38	32	43	15	2.2	4.5
27	23	121	e10	e1.5	e80	42	38	29	34	12	2.1	4.2
28	24	106	e10	e1.5	e150	49	37	26	36	11	2.9	4.8
29	28	94	e9.0	e2.0	---	51	37	23	35	10	3.1	4.0
30	35	81	e7.5	e2.0	---	57	35	21	51	9.2	4.1	3.2
31	49	---	e6.0	e2.0	---	53	---	19	---	8.7	4.0	---
TOTAL	894.5	1711	946.0	83.0	1077.0	2677	2315	1651	4244	914.9	125.2	364.7
MEAN	28.9	57.0	30.5	2.68	38.5	86.4	77.2	53.3	141	29.5	4.04	12.2
MAX	134	130	75	5.0	150	200	173	129	1340	144	7.3	75
MIN	2.2	14	6.0	1.5	2.0	42	35	19	15	8.7	2.1	2.6
AC-FT	1770	3390	1880	165	2140	5310	4590	3270	8420	1810	248	723
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1999, BY WATER YEAR (WY)												
MEAN	58.6	34.6	17.2	9.67	45.0	205	280	106	92.9	149	31.1	21.2
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	3.98	5.59	5.79	2.68	5.55	36.9	21.8	9.14	24.0	13.2	4.04	2.57
(WY)	1993	1992	1992	1999	1993	1992	1992	1992	1997	1998	1999	1998

e Estimated

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

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1992 - 1999	
ANNUAL TOTAL	17346.7		17003.3			
ANNUAL MEAN	47.5		46.6		87.6	
HIGHEST ANNUAL MEAN					134	1997
LOWEST ANNUAL MEAN					39.8	1992
HIGHEST DAILY MEAN	791	Apr 9	1340	Jun 10	4210	Mar 31 1997
LOWEST DAILY MEAN	1.6	Sep 21	1.5	Jan 25-28	1.5	Jan 25 1999
ANNUAL SEVEN-DAY MINIMUM	1.9	Sep 17	1.7	Jan 22	1.7	Jan 22 1999
INSTANTANEOUS PEAK FLOW			1750	Jun 10	4670	Mar 31 1997a
INSTANTANEOUS PEAK STAGE			12.76	Jun 10	18.02	Mar 29 1997b
ANNUAL RUNOFF (AC-FT)	34410		33730		63450	
10 PERCENT EXCEEDS	107		102		182	
50 PERCENT EXCEEDS	19		28		21	
90 PERCENT EXCEEDS	3.4		2.8		5.5	

a Gage height, 15.94 ft.
b Backwater from ice.



05299700 COBB CREEK NEAR GARY, SD

LOCATION.--Lat 44°44'22", long 96°27'26", in NW¼ NW¼ SW¼ sec.27, T.115 N., R.47 W., Deuel County, Hydrologic Unit 07020003, on right bank at upstream side of county highway bridge, 2.78 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 mi^2.

PERIOD OF RECORD.--May 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,580 ft above sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

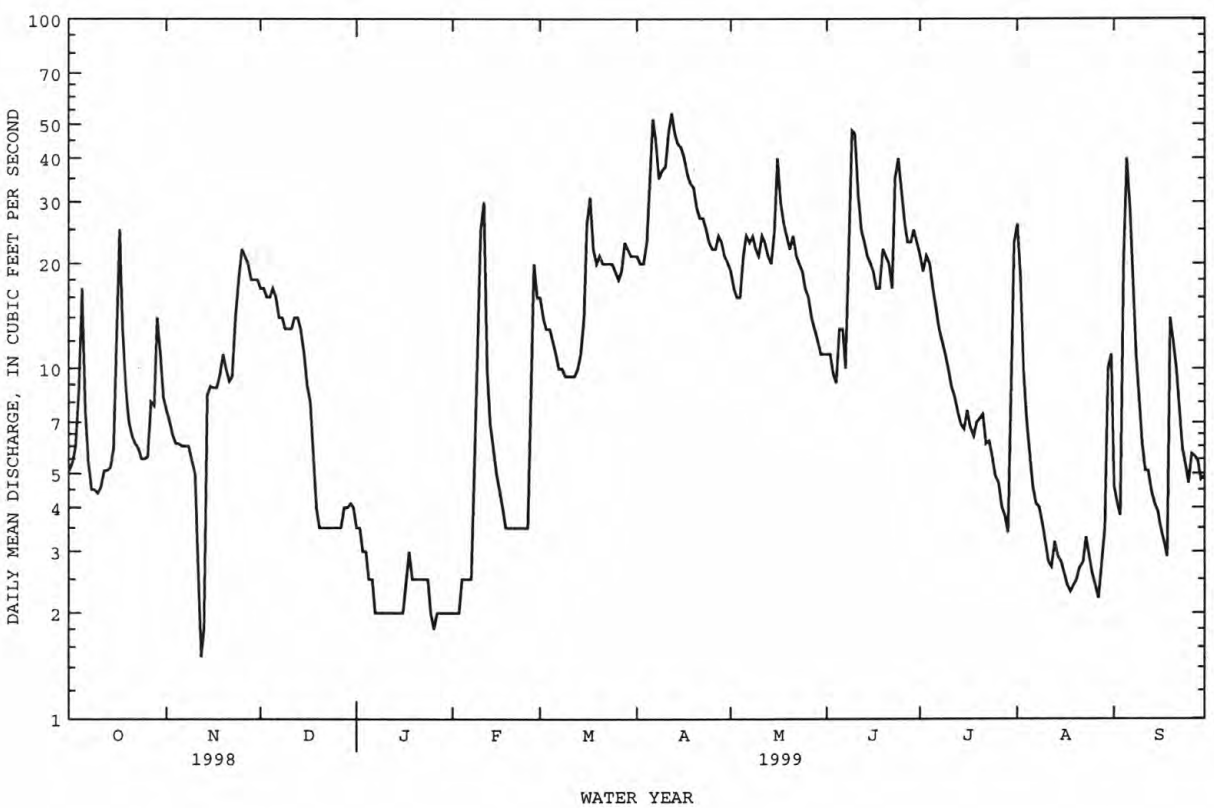
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	7.6	17	e3.5	e2.0	16	21	19	11	21	26	4.6
2	5.4	7.0	17	e3.5	e2.0	e14	20	17	11	19	18	4.1
3	6.0	6.4	16	e3.0	e2.0	e13	20	16	9.7	21	9.9	3.8
4	8.6	6.1	16	e3.0	e2.5	e13	23	16	9.1	20	7.1	20
5	17	6.1	17	e2.5	e2.5	e12	e35	21	13	17	5.6	40
6	7.5	e6.0	e16	e2.5	e2.5	e11	52	24	13	15	4.6	29
7	5.4	e6.0	e14	e2.0	e2.5	e10	45	23	10	13	4.1	17
8	4.5	e6.0	e14	e2.0	e5.0	e10	35	24	22	12	4.0	11
9	4.5	e5.5	e13	e2.0	e10	e9.5	37	22	48	11	3.6	8.1
10	4.4	e5.0	e13	e2.0	e25	e9.5	38	21	47	9.9	3.2	6.1
11	4.6	e2.5	13	e2.0	e30	e9.5	47	24	32	8.8	2.8	5.1
12	5.1	1.5	14	e2.0	e10	e9.5	54	23	25	8.3	2.7	5.1
13	5.1	1.8	14	e2.0	e7.0	e10	47	21	23	7.5	3.2	4.4
14	5.2	8.4	13	e2.0	e6.0	e11	44	e20	21	6.9	2.9	4.1
15	5.9	8.9	e11	e2.0	e5.0	14	43	e25	20	6.7	2.8	3.9
16	10	8.8	e9.0	e2.0	e4.5	26	40	e40	19	7.6	2.6	3.5
17	25	8.8	e8.0	e2.5	e4.0	31	36	e30	17	6.8	2.4	3.2
18	13	9.6	e6.0	e3.0	e3.5	22	34	26	17	6.4	2.3	2.9
19	8.6	e11	e4.0	e2.5	e3.5	20	33	24	22	7.0	2.4	14
20	7.0	e10	e3.5	e2.5	e3.5	21	29	22	21	7.2	2.5	12
21	6.4	9.2	e3.5	e2.5	e3.5	20	27	24	20	7.4	2.7	10
22	6.1	9.5	e3.5	e2.5	e3.5	20	27	21	17	6.1	2.8	7.5
23	5.9	14	e3.5	e2.5	e3.5	20	25	20	35	6.2	3.3	5.9
24	5.5	18	e3.5	e2.5	e3.5	20	23	19	40	5.6	2.9	5.3
25	5.5	22	e3.5	e2.0	e3.5	19	22	17	33	4.9	2.6	4.7
26	5.6	21	e3.5	e1.8	e10	18	22	16	26	4.7	2.4	5.7
27	8.0	20	e3.5	e2.0	e20	19	24	14	23	4.0	2.2	5.6
28	7.8	18	e4.0	e2.0	16	23	23	13	23	3.8	2.8	5.4
29	14	18	e4.0	e2.0	---	22	21	12	25	3.4	3.5	4.8
30	11	18	e4.1	e2.0	---	21	20	11	23	6.4	10	4.9
31	8.3	---	e4.0	e2.0	---	21	---	11	---	23	11	---
TOTAL	242.0	300.7	289.1	72.3	196.5	515.0	967	636	675.8	307.6	158.9	261.7
MEAN	7.81	10.0	9.33	2.33	7.02	16.6	32.2	20.5	22.5	9.92	5.13	8.72
MAX	25	22	17	3.5	30	31	54	40	48	23	26	40
MIN	4.4	1.5	3.5	1.8	2.0	9.5	20	11	9.1	3.4	2.2	2.9
AC-FT	480	596	573	143	390	1020	1920	1260	1340	610	315	519
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1999, BY WATER YEAR (WY)												
MEAN	12.7	10.6	7.22	4.27	11.5	59.2	114	49.0	55.2	25.5	27.3	9.21
MAX	28.4	19.1	9.33	5.62	37.2	119	317	98.9	159	84.9	65.2	17.3
(WY)	1996	1996	1999	1997	1998	1994	1997	1995	1993	1993	1993	1993
MIN	4.61	7.87	4.97	2.33	3.06	16.6	32.2	12.2	5.28	4.40	3.98	3.83
(WY)	1993	1994	1993	1999	1993	1999	1999	1998	1997	1996	1998	1998

e Estimated

05299700 COBB CREEK NEAR GARY, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1993 - 1999	
ANNUAL TOTAL	7765.7		4622.6			
ANNUAL MEAN	21.3		12.7		32.1	
HIGHEST ANNUAL MEAN					53.8	1993
LOWEST ANNUAL MEAN					12.7	1999
HIGHEST DAILY MEAN	314	Apr 8	54	Apr 12	1420	Apr 1 1997
LOWEST DAILY MEAN	1.5	Nov 12	1.5	Nov 12	1.5	Nov 12 1998
ANNUAL SEVEN-DAY MINIMUM	3.3	Aug 15	2.0	Jan 25	2.0	Jan 25 1999
INSTANTANEOUS PEAK FLOW			59	Apr 12a	2100	Mar 31 1997
INSTANTANEOUS PEAK STAGE			7.64	Apr 12a	13.99	Mar 31 1997b
ANNUAL RUNOFF (AC-FT)	15400		9170		23260	
10 PERCENT EXCEEDS	47		25		69	
50 PERCENT EXCEEDS	7.3		9.5		9.3	
90 PERCENT EXCEEDS	3.5		2.5		3.6	

a Also June 9.
b Backwater from ice.



06334500 LITTLE MISSOURI RIVER AT CAMP CROOK, SD

LOCATION.--Lat 45°32'49", long 103°58'23", in SW¼ 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 mi^2, 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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	159	26	e9.0	e16	e210	89	87	46	100	23	17
2	14	346	23	e8.5	e16	e205	77	81	66	220	23	18
3	15	300	22	e8.0	e17	e200	88	75	65	240	23	20
4	23	210	e21	e8.5	e18	e180	81	72	66	176	22	20
5	71	112	e19	e8.5	e19	e170	73	64	192	197	21	30
6	107	80	e17	e9.0	e21	e170	80	60	285	191	21	32
7	278	68	e15	e10	e27	e170	82	56	208	155	21	27
8	835	56	e15	e11	e30	e150	165	207	938	130	22	24
9	509	53	e16	e12	e34	e140	615	239	1670	100	23	22
10	392	42	e17	e13	e37	e140	912	179	1780	83	39	19
11	263	59	e18	e13	e38	e150	993	216	1710	66	35	17
12	140	73	e18	e12	e40	e160	800	320	1290	56	49	17
13	102	71	e17	e11	e50	e170	679	167	908	50	42	15
14	164	65	e14	e11	e65	e175	497	187	931	45	36	13
15	111	53	e12	e11	e80	e130	401	479	685	41	33	12
16	100	86	e17	e12	e95	e210	337	754	453	36	29	11
17	92	189	e19	e13	e100	e400	241	684	354	35	28	11
18	80	125	e17	e12	e110	e700	183	537	298	42	26	11
19	61	86	e13	e12	e120	e900	142	451	234	34	25	11
20	47	66	e11	e11	e140	e1100	116	326	201	30	24	10
21	41	57	e9.0	e11	e160	e1300	115	255	160	29	23	9.8
22	92	61	e9.5	e9.8	e180	1180	165	208	175	30	22	9.8
23	78	52	e10	e9.0	e200	670	216	159	224	28	21	8.7
24	58	54	e10	e8.3	e210	482	319	121	235	30	20	7.7
25	43	48	e11	e8.0	e215	378	224	99	190	30	19	7.0
26	35	41	e12	e8.8	e200	268	184	85	145	31	18	7.1
27	31	35	e12	e9.3	e190	231	198	70	114	44	17	7.7
28	28	32	e13	e11	e195	194	163	57	92	34	17	7.3
29	27	30	e13	e13	---	149	129	51	72	29	16	7.6
30	29	28	e12	e15	---	119	102	51	65	25	15	6.3
31	24	---	e10	e15	---	99	---	46	---	24	14	---
TOTAL	3904	2737	468.5	333.7	2623	10900	8466	6443	13852	2361	767	436.0
MEAN	126	91.2	15.1	10.8	93.7	352	282	208	462	76.2	24.7	14.5
MAX	835	346	26	15	215	1300	993	754	1780	240	49	32
MIN	14	28	9.0	8.0	16	99	73	46	46	24	14	6.3
AC-FT	7740	5430	929	662	5200	21620	16790	12780	27480	4680	1520	865

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1904 - 1905, 1957 - 1999, BY WATER YEAR (WY)

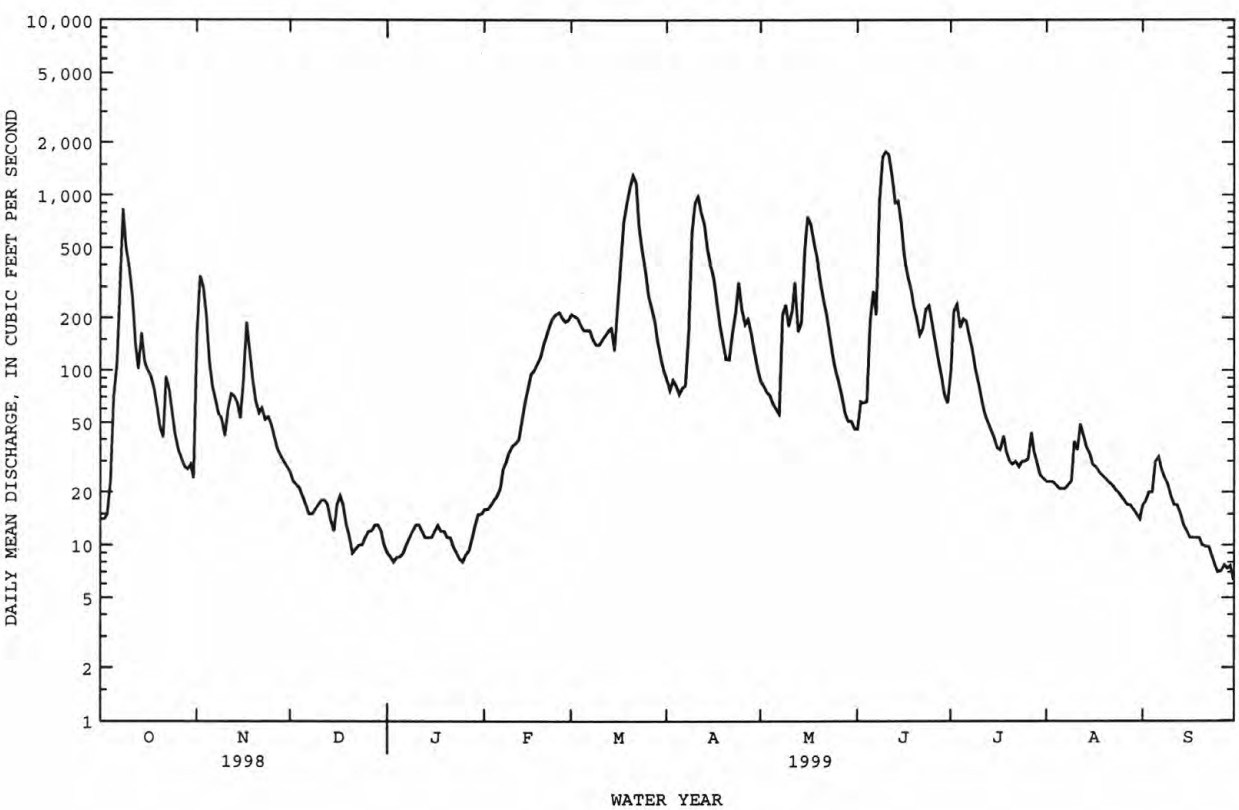
MEAN	60.5	12.7	6.83	7.68	89.0	359	215	358	265	95.4	42.9	32.0
MAX	876	103	34.9	59.7	1112	2121	1198	1894	1107	961	537	244
(WY)	1972	1972	1972	1974	1996	1978	1971	1978	1967	1905	1906	1905
MIN	.29	.000	.000	.000	.000	1.95	1.97	1.12	.11	.000	.000	.61
(WY)	1905	1905	1905	1905	1969	1992	1981	1992	1961	1961	1904	1958

e Estimated

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

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1904-1905, 1957-1999	
ANNUAL TOTAL	28105.2		53291.2			
ANNUAL MEAN	77.0		146		129a	
HIGHEST ANNUAL MEAN					492	1978
LOWEST ANNUAL MEAN					4.68	1961
HIGHEST DAILY MEAN	1640	Mar 28	1780	Jun 10	8560	Mar 24 1978
LOWEST DAILY MEAN	5.7	Sep 9	6.3	Sep 30	.00	Jul 31 1904b
ANNUAL SEVEN-DAY MINIMUM	6.2	Sep 5	7.2	Sep 24	.00	Jul 31 1904
INSTANTANEOUS PEAK FLOW			1860	Jun 10	9420	Mar 24 1978
INSTANTANEOUS PEAK STAGE			9.87	Jun 10	16.90	Mar 24 1978
ANNUAL RUNOFF (AC-FT)	55750		105700		93590	
10 PERCENT EXCEEDS	128		330		250	
50 PERCENT EXCEEDS	21		54		11	
90 PERCENT EXCEEDS	9.5		11		1.2	

a Median of annual mean discharges, 110 ft^3/s.
b No flow at times in some years.



06342500 MISSOURI RIVER AT BISMARCK, ND

LOCATION.--Lat 46°48'51", long 100°49'12", in SE¼NW¼SE¼ 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 mi^2, 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 sea level, revised. See WSP 1729 or 1917 for history of changes prior to Sept. 30, 1937.

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

EXTREMES SINCE COMPLETION OF GARRISON DAM.--Since completion of Garrison Dam in 1953, maximum discharge, 68,900 ft^3/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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20200	14000	23000	e20900	e26100	e27500	24900	24900	29100	29700	27600	26000
2	19300	13700	22300	e21600	e26200	e26500	24700	25000	29600	29800	27700	26300
3	17900	14200	21800	e21600	e25800	e25000	25100	25200	30000	29900	28200	25800
4	15800	14300	23600	e22800	e27300	e25300	26700	24800	29800	29800	28100	26200
5	16200	14800	23200	e22700	e26900	e24500	29400	25100	29800	29700	27900	26000
6	15800	17900	22600	e23900	e26800	e24200	27900	25000	29800	30000	28000	24800
7	15600	19800	23000	e23600	e26200	e23700	28300	25300	30500	29900	28700	25200
8	15300	19600	23000	e24100	e26400	e23800	28600	25300	30400	29900	28300	25000
9	18600	20200	22800	e23600	e26900	e23800	28200	25100	30100	30300	27800	24800
10	19300	21300	22700	e24000	e26900	e23400	28700	25500	30200	29700	27600	24100
11	18500	20300	22700	e24000	e26800	e23400	30000	26400	30000	30100	27700	24300
12	16600	20100	22700	e25000	e26300	25100	29100	25700	29900	30000	30400	24300
13	14700	20300	22500	e25000	e26800	24900	30000	25500	29500	29600	30400	24500
14	14500	20700	22300	e24900	e25900	24900	29400	26100	29100	28000	29200	24300
15	14600	19700	22300	e24900	e26500	25100	29100	26700	30100	27800	28900	24000
16	14500	19800	22800	e25000	e27100	27700	29000	26700	29800	28000	28900	24200
17	14600	20200	22700	e24900	e26400	31000	28700	26300	29700	e27900	28500	24400
18	14900	20300	22000	e24600	e26800	31700	28200	26100	29800	e28200	28600	24000
19	14500	20200	20300	e24700	e26600	32200	28300	25700	29900	e28100	29100	24700
20	14600	20100	e20000	e25200	e26600	33000	e27400	25600	29800	e28200	28800	24600
21	14600	21300	e19900	e26600	e27100	32500	25400	25400	30400	e28300	28000	24500
22	14400	22000	e20000	e26000	e27200	31000	25300	25500	30400	e28300	26700	25100
23	14200	22800	e20200	e25700	e26800	29500	25100	25800	30300	e28400	29000	23200
24	14500	21800	e20200	e25700	e27000	27200	24900	27700	30100	e28400	27700	23200
25	14700	22700	e19700	e25900	e26900	26100	25100	28400	30200	e28200	28800	24600
26	14700	22900	e20000	e25600	e26700	26000	24900	29200	30400	e28300	28400	24800
27	14700	22800	e20100	e25700	e27200	25400	24800	29800	29800	e27800	28900	24200
28	14300	23000	e20200	e26000	e27200	25500	25000	29300	29700	e28200	29600	24200
29	14400	22800	e20400	e25800	---	25100	25200	29500	29800	e27800	27600	24100
30	14200	22600	e20600	e25800	---	25100	25000	29300	29900	e27800	28800	24300
31	14000	---	e20400	e26000	---	24800	---	28900	---	27700	29500	---
TOTAL	484700	596200	670000	761800	747400	824900	812400	820800	897900	893800	883400	739700
MEAN	15640	19870	21610	24570	26690	26610	27080	26480	29930	28830	28500	24660
MAX	20200	23000	23600	26600	27300	33000	30000	29800	30500	30300	30400	26300
MIN	14000	13700	19700	20900	25800	23400	24700	24800	29100	27700	26700	23200
AC-FT	961400	1183000	1329000	1511000	1482000	1636000	1611000	1628000	1781000	1773000	1752000	1467000

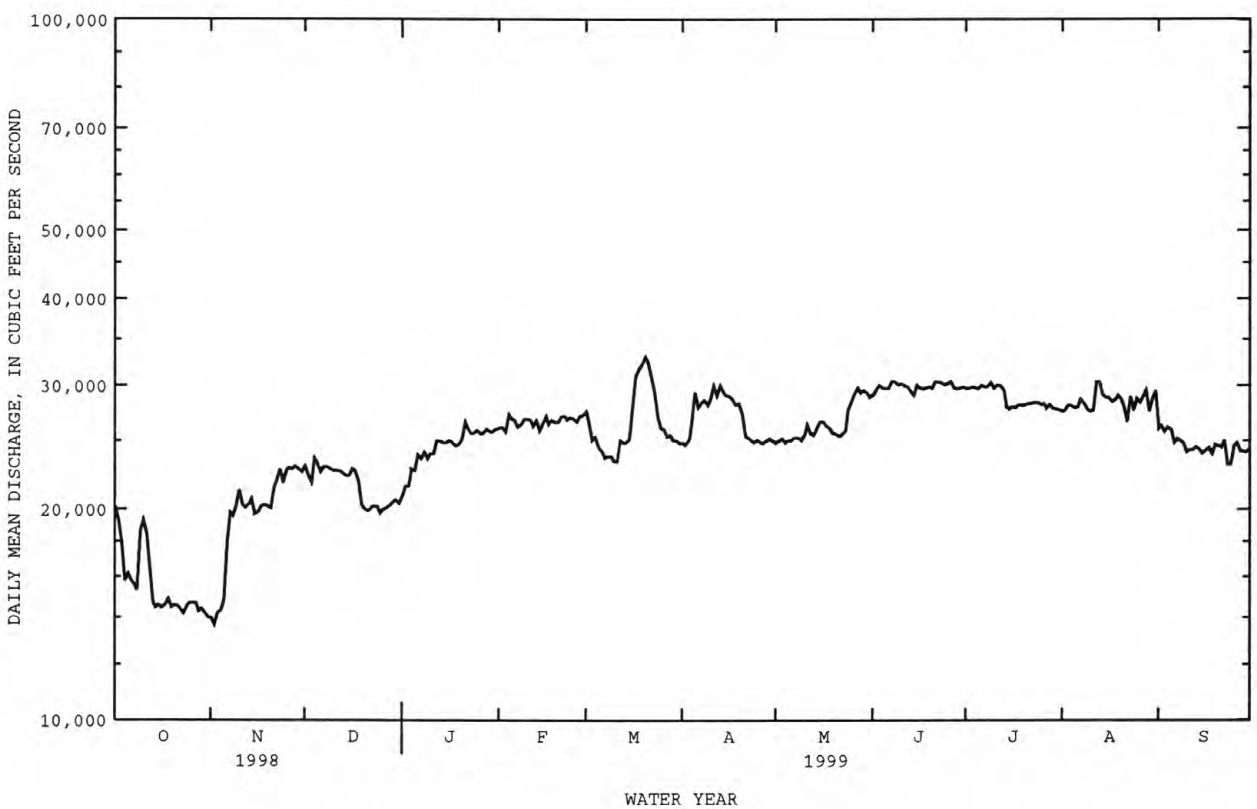
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1999, BY WATER YEAR (WY)

MEAN	21690	21600	20900	23060	25210	22900	21670	23220	24590	25640	25420	22590
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

e Estimated

06342500 MISSOURI RIVER AT BISMARCK, ND--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1954 - 1999	
ANNUAL TOTAL	8106800		9133000			
ANNUAL MEAN	22210		25020		23200	
HIGHEST ANNUAL MEAN					35630	1975
LOWEST ANNUAL MEAN					14320	1960
HIGHEST DAILY MEAN	27100	Feb 13	33000	Mar 20	68800	Jul 13 1975
LOWEST DAILY MEAN	13700	Nov 2	13700	Nov 2	4000	Mar 25 1955
ANNUAL SEVEN-DAY MINIMUM	14100	Oct 28	14100	Oct 28	4860	Mar 21 1955
INSTANTANEOUS PEAK FLOW			33600	Mar 20	68900	Jul 13 1975
INSTANTANEOUS PEAK STAGE			12.22	Jan 16	14.80	Jan 13 1983
ANNUAL RUNOFF (AC-FT)	16080000		18120000		16810000	
10 PERCENT EXCEEDS	26100		29800		34300	
50 PERCENT EXCEEDS	22700		25600		22100	
90 PERCENT EXCEEDS	18100		19500		12000	



06354882 OAK CREEK NEAR WAKPALA, SD

LOCATION.--Lat 45°42'43", long 100°33'32", in SW¼ SE¼ NW¼ 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 mi^2, 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 sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

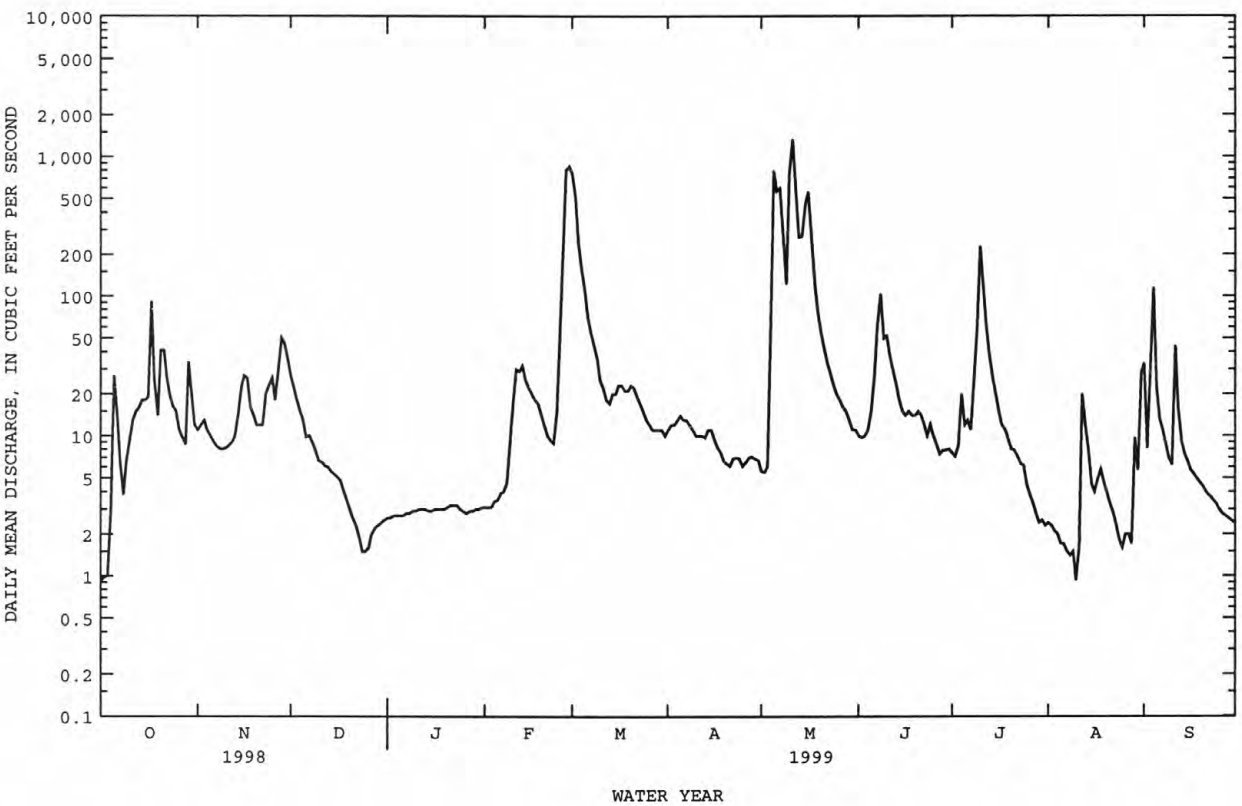
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.93	11	27	2.6	3.1	762	11	5.6	10	7.5	2.4	33
2	.98	12	22	e2.6	3.1	527	12	5.5	9.7	7.1	2.3	8.1
3	1.0	13	18	e2.7	3.1	243	12	6.1	10	8.5	2.1	37
4	2.9	11	15	e2.7	3.4	152	13	84	11	20	2.0	115
5	27	10	13	2.7	3.5	112	14	797	15	12	1.7	22
6	14	9.1	9.8	2.7	3.9	70	13	563	27	13	1.7	13
7	6.5	8.5	10	e2.8	e4.0	55	13	592	62	11	1.5	11
8	3.8	8.1	8.9	e2.8	e4.6	44	12	262	104	23	1.4	8.6
9	6.6	e8.0	7.8	e2.9	e8.0	36	11	122	50	58	1.5	6.8
10	9.2	e8.2	6.6	e2.9	e17	25	10	760	52	229	.93	6.2
11	13	e8.5	6.5	3.0	e30	22	10	1330	37	117	1.6	44
12	15	e9.0	6.1	3.0	e29	18	10	618	29	60	20	16
13	16	e10	6.0	e3.0	e32	17	9.7	264	23	37	12	9.0
14	18	14	5.6	e2.9	25	20	11	270	18	26	7.9	7.4
15	18	22	5.3	2.9	22	20	11	455	15	20	4.5	6.5
16	19	27	5.1	3.0	20	23	9.3	562	14	15	4.0	e5.7
17	92	26	4.8	3.0	e18	23	8.2	259	15	12	4.9	e5.3
18	25	16	e4.1	3.0	17	21	7.6	123	14	11	5.8	e4.9
19	14	14	3.5	e3.0	14	21	6.6	78	14	9.5	4.7	e4.6
20	41	12	e3.0	e3.1	12	23	6.3	55	15	8.0	3.9	e4.3
21	41	12	e2.6	e3.2	10	22	6.1	42	14	7.9	3.3	e3.9
22	26	12	2.3	3.2	9.3	19	6.9	33	12	7.1	2.8	e3.7
23	19	20	1.9	e3.2	8.8	17	7.0	28	10	6.3	2.3	e3.5
24	16	23	1.5	e3.0	15	15	6.9	23	12	6.2	1.8	e3.3
25	15	26	1.5	e2.9	e100	13	6.1	20	10	4.5	1.6	e3.0
26	11	18	1.6	e2.8	e300	12	6.5	18	8.6	3.8	2.0	e2.8
27	9.7	31	2.0	e2.9	e800	11	7.0	16	7.4	3.3	2.0	e2.7
28	8.7	50	2.2	e2.9	856	11	7.1	15	7.9	2.8	1.7	e2.6
29	34	46	2.3	e3.0	---	11	6.9	13	7.9	2.4	9.7	e2.5
30	19	36	2.4	e3.0	---	11	6.7	11	8.0	2.5	5.7	e2.4
31	12	---	2.5	e3.1	---	10	---	11	---	2.3	28	---
TOTAL	555.31	531.4	210.9	90.5	2371.8	2386	277.9	7441.2	642.5	753.7	147.73	398.8
MEAN	17.9	17.7	6.80	2.92	84.7	77.0	9.26	240	21.4	24.3	4.77	13.3
MAX	92	50	27	3.2	856	762	14	1330	104	229	28	115
MIN	.93	8.0	1.5	2.6	3.1	10	6.1	5.5	7.4	2.3	.93	2.4
AC-FT	1100	1050	418	180	4700	4730	551	14760	1270	1490	293	791
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1999, BY WATER YEAR (WY)												
MEAN	5.68	2.92	1.68	1.49	24.9	188	80.3	53.4	12.8	12.7	3.11	1.49
MAX	33.5	17.7	6.80	5.53	149	820	511	240	49.0	106	20.3	13.3
(WY)	1997	1999	1999	1996	1995	1997	1997	1999	1995	1993	1998	1999
MIN	.000	.000	.000	.000	.000	1.81	.79	.096	.000	.000	.000	.000
(WY)	1985	1989	1989	1989	1985	1992	1992	1992	1992	1985	1987	1987

e Estimated

06354882 OAK CREEK NEAR WAKPALA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1985 - 1999	
ANNUAL TOTAL	4335.16		15807.74			
ANNUAL MEAN	11.9		43.3		32.5a	
HIGHEST ANNUAL MEAN					126	1997
LOWEST ANNUAL MEAN					.65	1992
HIGHEST DAILY MEAN	414	Aug 27	1330	May 11	6800	Mar 28 1997
LOWEST DAILY MEAN	.00	Aug 5	.93	Oct 1	.00	Oct 1 1984b
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 5	1.5	Aug 5	.00	Oct 1 1984
INSTANTANEOUS PEAK FLOW			1420	May 11	7500	Mar 27 1997
INSTANTANEOUS PEAK STAGE			12.48	May 11	19.83	Mar 27 1997c
ANNUAL RUNOFF (AC-FT)	8600		31350		23540	
10 PERCENT EXCEEDS	24		53		32	
50 PERCENT EXCEEDS	3.6		10		1.3	
90 PERCENT EXCEEDS	.55		2.6		.00	

a Median of annual mean discharges, 22 ft^3/s.
b No flow for many days in most years.
c Backwater from ice.



06355500 NORTH FORK GRAND RIVER NEAR WHITE BUTTE, SD

LOCATION.--Lat 45°48'08", long 102°21'43", in SW¼ NW¼ NW¼ 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 mi^2, 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 sea level, 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 good 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 ft^3/s, Apr. 16, 1950, gage height, 20.0 ft, from floodmarks, from rating curve extended above 19,000 ft^3/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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	7.3	25	e5.9	26	452	56	53	57	25	5.9	15
2	5.3	7.3	26	e5.7	25	635	54	50	53	24	6.2	15
3	6.4	8.3	24	e4.7	28	705	54	47	53	22	7.0	17
4	9.9	7.8	23	e5.2	32	544	54	45	49	26	6.9	16
5	17	7.4	22	e5.5	44	471	56	44	43	22	7.8	15
6	15	8.3	e17	e4.9	53	370	58	49	60	20	6.6	14
7	13	9.9	e16	e5.6	66	309	67	42	51	22	11	14
8	18	12	e15	e6.5	154	277	77	40	48	43	14	13
9	20	15	e16	e7.0	255	271	84	49	47	57	12	12
10	16	e15	e16	e7.0	358	267	104	50	46	42	11	11
11	18	e16	e18	e7.1	387	221	114	44	49	26	13	9.9
12	17	17	e17	e7.3	402	190	106	43	44	21	24	9.4
13	13	16	e17	e7.8	412	180	100	46	42	20	33	8.8
14	13	15	e17	e7.9	309	174	96	55	41	19	39	8.6
15	14	15	e17	e8.0	314	170	91	80	39	19	28	8.6
16	15	17	e15	e8.3	292	169	85	103	39	20	23	8.4
17	19	18	e14	e9.4	217	150	79	116	38	16	23	8.9
18	17	e19	e12	e12	180	109	75	128	36	15	31	9.2
19	16	e21	e9.0	e14	146	104	68	156	33	17	31	8.3
20	14	e22	e7.0	e13	109	92	61	168	31	19	32	8.0
21	13	24	e6.0	e15	81	84	58	164	29	20	33	8.2
22	12	28	e5.5	e19	57	80	58	155	28	16	34	7.8
23	12	26	e6.0	e20	49	75	55	140	26	13	33	8.3
24	13	25	e6.0	e19	56	69	54	127	23	11	33	8.0
25	12	21	e4.7	e21	63	64	53	115	22	12	32	8.8
26	11	20	e5.9	e21	95	61	55	103	22	11	33	8.9
27	12	18	e6.0	e21	203	58	60	92	24	8.5	33	8.6
28	11	18	e6.5	e22	328	56	62	81	26	7.4	33	8.6
29	11	18	e6.0	e24	---	53	60	72	25	8.7	28	9.1
30	11	24	e5.8	e25	---	51	58	65	23	7.9	21	9.2
31	8.5	---	e5.6	25	---	47	---	60	---	5.7	18	---
TOTAL	408.3	496.3	407.0	384.8	4741	6558	2112	2582	1147	616.2	696.4	315.6
MEAN	13.2	16.5	13.1	12.4	169	212	70.4	83.3	38.2	19.9	22.5	10.5
MAX	20	28	26	25	412	705	114	168	60	57	39	17
MIN	5.2	7.3	4.7	4.7	25	47	53	40	22	5.7	5.9	7.8
AC-FT	810	984	807	763	9400	13010	4190	5120	2280	1220	1380	626

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1999, BY WATER YEAR (WY)*

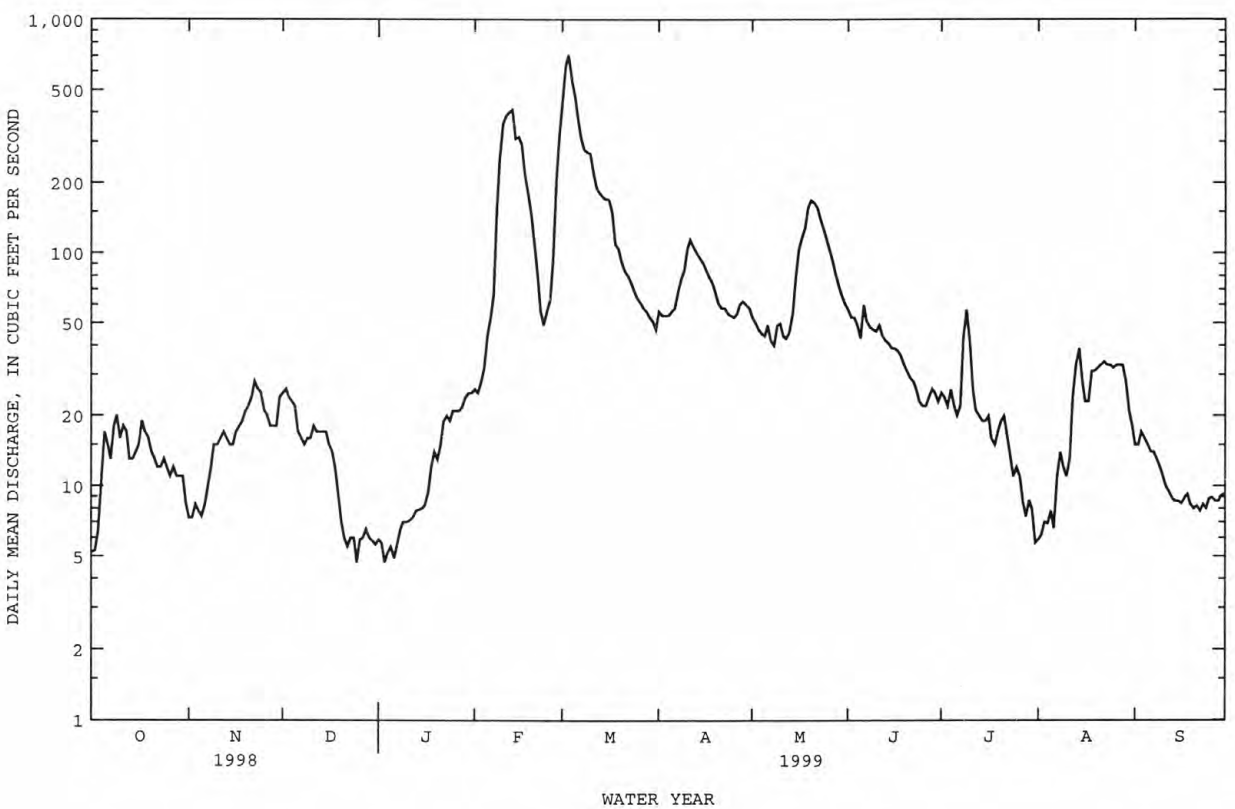
MEAN	7.77	7.53	4.57	6.76	17.8	173	134	96.8	58.7	26.5	9.48	3.76
MAX	72.1	56.9	21.2	61.1	169	964	895	414	230	154	65.9	27.1
(WY)	1983	1983	1983	1973	1999	1978	1997	1982	1982	1993	1993	1979
MIN	.000	.000	.000	.000	.000	2.22	.007	.071	.032	.000	.000	.000
(WY)	1969	1989	1989	1991	1969	1975	1981	1981	1981	1980	1968	1968

e Estimated

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

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1967 - 1999*	
ANNUAL TOTAL	9388.27		20464.6			
ANNUAL MEAN	25.7		56.1		45.7a	
HIGHEST ANNUAL MEAN					160	1978
LOWEST ANNUAL MEAN					2.72	1981
HIGHEST DAILY MEAN	238	Mar 28	705	Mar 3	6030	Mar 28 1978
LOWEST DAILY MEAN	.06	Sep 10	4.7	Dec 25, Jan 3	.00	Aug 3 1967b
ANNUAL SEVEN-DAY MINIMUM	.88	Sep 6	5.4	Dec 31	.00	Aug 3 1967
INSTANTANEOUS PEAK FLOW			770	Mar 2	6710	Mar 28 1978c
INSTANTANEOUS PEAK STAGE			4.73	Mar 2	12.08	Mar 23 1978d
ANNUAL RUNOFF (AC-FT)	18620		40590		33120	
10 PERCENT EXCEEDS	80		133		93	
50 PERCENT EXCEEDS	12		23		5.6	
90 PERCENT EXCEEDS	2.7		7.4		.00	

* Regulated period only (1967-99). See REMARKS.
a Median of annual mean discharges, 37 ft^3/s.
b No flow at times in most years.
c Gage height, 11.63 ft.
d Backwater from ice.



06356500 SOUTH FORK GRAND RIVER NEAR CASH, SD

LOCATION.--Lat 45°38'56", long 102°38'27", in SE¼ NE¼ SE¼ SE¼ sec.33, T.20 N., R.12 E., Perkins County, Hydrologic Unit 10130302, on left bank at downstream side of highway bridge, 1.0 mi upstream from Little Nasty Creek, 4.0 mi north of Cash, 10 mi south of Lodgepole, 12 mi northwest of Bison, and 16 mi downstream from Big Nasty Creek.

DRAINAGE AREA.--1,350 mi^2, approximately.

PERIOD OF RECORD.--October 1945 to current year, seasonal records only beginning October 1995. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,422.75 ft above sea level. Prior to Oct. 25, 1946, nonrecording gage, and Oct. 25, 1946, to May 16, 1966, water-stage recorder, at site 500 ft upstream. May 17, 1966, to May 2, 1968, nonrecording gage, at present site, all 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.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 ft^3/s, Apr. 15, 1950, gage height, 15.40 ft, from rating curve extended above 14,000 ft^3/s, on basis of slope-area measurement of peak flow; no flow at times in most years.

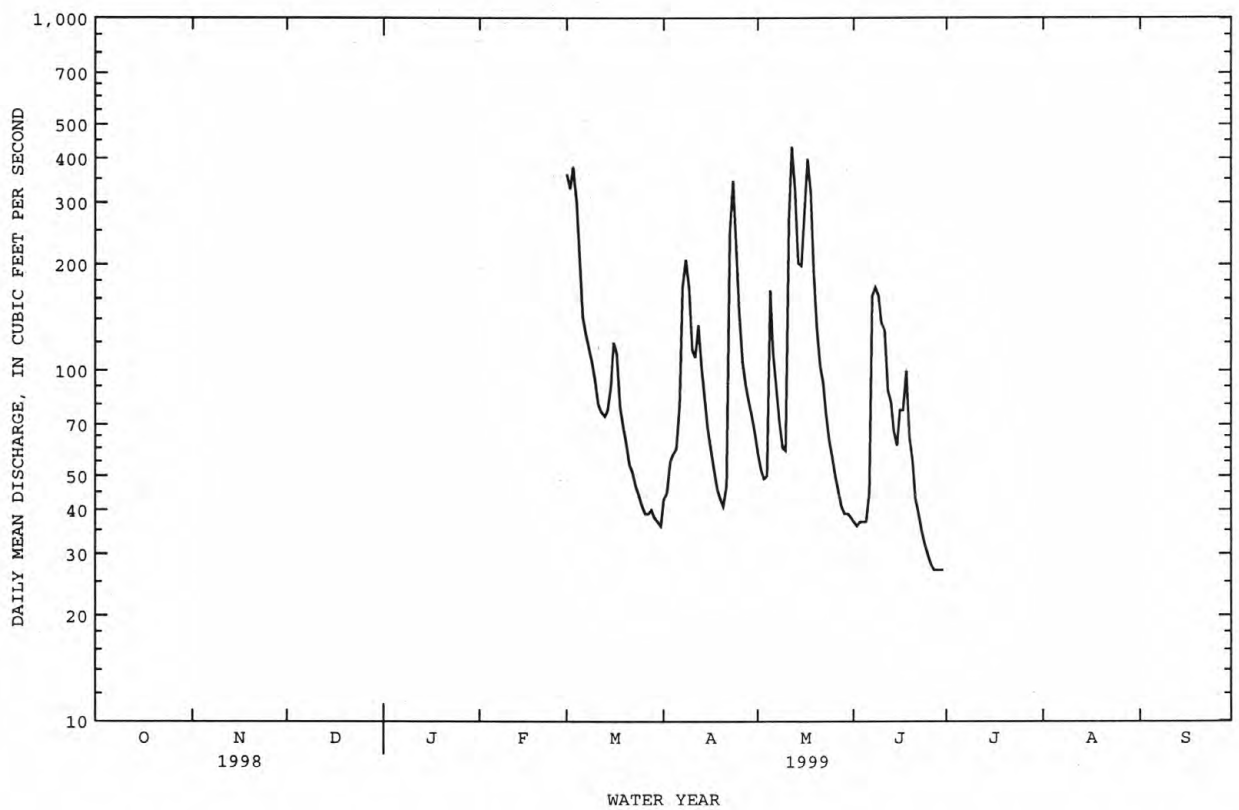
EXTREMES FOR CURRENT YEAR.--Maximum discharge during period March through June, 513 ft^3/s, May 11, gage height, 3.71 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	361	43	58	37	---	---	---
2	---	---	---	---	---	328	45	52	36	---	---	---
3	---	---	---	---	---	379	55	49	37	---	---	---
4	---	---	---	---	---	300	58	50	37	---	---	---
5	---	---	---	---	---	217	60	169	37	---	---	---
6	---	---	---	---	---	143	80	112	45	---	---	---
7	---	---	---	---	---	128	173	91	163	---	---	---
8	---	---	---	---	---	116	207	71	172	---	---	---
9	---	---	---	---	---	e105	172	60	163	---	---	---
10	---	---	---	---	---	e94	114	59	136	---	---	---
11	---	---	---	---	---	80	109	268	130	---	---	---
12	---	---	---	---	---	76	135	432	88	---	---	---
13	---	---	---	---	---	74	101	327	81	---	---	---
14	---	---	---	---	---	77	84	202	67	---	---	---
15	---	---	---	---	---	90	68	199	61	---	---	---
16	---	---	---	---	---	120	59	290	77	---	---	---
17	---	---	---	---	---	112	52	399	77	---	---	---
18	---	---	---	---	---	79	46	321	100	---	---	---
19	---	---	---	---	---	69	43	192	64	---	---	---
20	---	---	---	---	---	62	41	133	56	---	---	---
21	---	---	---	---	---	54	47	104	43	---	---	---
22	---	---	---	---	---	51	245	92	39	---	---	---
23	---	---	---	---	---	47	346	75	35	---	---	---
24	---	---	---	---	---	44	241	63	32	---	---	---
25	---	---	---	---	---	41	146	57	30	---	---	---
26	---	---	---	---	---	39	106	50	28	---	---	---
27	---	---	---	---	---	39	92	45	27	---	---	---
28	---	---	---	---	---	40	82	41	27	---	---	---
29	---	---	---	---	---	38	75	39	27	---	---	---
30	---	---	---	---	---	37	66	39	27	---	---	---
31	---	---	---	---	---	36	---	38	---	---	---	---
TOTAL	---	---	---	---	---	3476	3191	4177	1979	---	---	---
MEAN	---	---	---	---	---	112	106	135	66.0	---	---	---
MAX	---	---	---	---	---	379	346	432	172	---	---	---
MIN	---	---	---	---	---	36	41	38	27	---	---	---
AC-FT	---	---	---	---	---	6890	6330	8290	3930	---	---	---

e Estimated

06356500 SOUTH FORK GRAND RIVER NEAR CASH, SD--Continued



06357000 SHADEHILL RESERVOIR AT SHADEHILL, SD

LOCATION.--Lat 45°45'12", long 102°12'12", in E$^1/_2$ 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 mi^2, approximately.

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

GAGE.--Water-stage recorder. Datum of gage is sea level. 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, 65,400 acre-ft, May 19, elevation, 2,272.69 ft; minimum, 41,100 acre-ft, Feb. 1, elevation, 2,267.59 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,267.96	42,800	--
Oct. 31	2,268.38	44,700	+1,900
Nov. 30	2,268.48	45,100	+400
Dec. 31	2,268.11	43,400	-1,700
CAL YR 1998	--	--	+2,200
Jan. 31	2,267.60	41,200	-2,200
Feb. 28	2,270.66	55,300	+14,000
Mar. 31	2,272.13	62,600	+7,300
Apr. 30	2,272.32	63,600	+1,000
May 31	2,272.32	63,600	0
June 30	2,271.99	61,900	-1,700
July 31	2,271.38	58,900	-2,000
Aug. 31	2,270.97	56,800	-2,100
Sept. 30	2,269.17	48,300	-8.500
WTR YR 1999	--	--	+5,500

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06357800 GRAND RIVER AT LITTLE EAGLE, SD

LOCATION.--Lat 45°39'28", long 100°49'04", in NE¼ NE¼ 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 mi^2, 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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	102	125	e76	e58	2680	206	206	325	189	92	206
2	87	104	113	e75	e62	2230	206	195	374	170	90	198
3	90	94	106	e75	e70	1340	212	188	286	201	91	201
4	102	87	99	e74	e68	834	210	439	245	229	91	241
5	193	84	94	e75	e65	641	214	477	335	180	91	220
6	581	83	e74	e74	e62	496	238	1030	1820	183	91	221
7	918	e81	e70	e73	e63	324	366	1150	2620	203	90	212
8	414	e78	e60	e72	e80	262	525	799	3160	219	92	195
9	241	e83	e70	e72	e160	274	471	598	3280	221	111	186
10	162	e95	e85	e71	e2000	277	384	1250	2240	746	121	177
11	157	e90	e100	e71	e2500	313	327	4550	1380	496	125	192
12	141	e88	e115	e70	e4500	294	333	2920	885	326	280	172
13	136	e85	e112	e70	e3000	336	379	1500	690	249	3030	178
14	135	e120	e111	e69	e2500	423	340	975	582	216	3120	177
15	123	e150	e110	e70	e2700	388	300	1250	512	200	1650	175
16	122	158	e107	e71	e3000	392	283	3230	466	183	861	173
17	260	245	e112	e71	e2600	430	251	1830	422	176	586	170
18	968	220	e100	e70	e2200	382	232	1030	397	176	460	168
19	1460	e160	e60	e70	e1700	365	213	732	368	173	358	167
20	752	e142	e70	e69	e1500	347	200	609	344	167	302	165
21	361	e138	e75	e68	e1300	328	199	558	312	153	267	162
22	227	e144	e80	e67	e1100	309	201	523	289	144	255	161
23	171	e175	e78	e66	e800	293	196	471	267	137	236	161
24	139	e150	e77	e64	e1100	277	209	437	249	125	225	157
25	122	140	e77	e62	e1500	261	217	407	224	116	215	156
26	113	140	e79	e61	e2800	241	213	381	203	108	206	160
27	108	170	e78	e60	e3000	234	227	365	185	101	202	162
28	103	171	e78	e59	3290	226	229	349	188	97	195	160
29	110	156	e77	e58	---	219	227	316	192	94	215	158
30	104	139	e77	e57	---	209	220	296	205	95	215	161
31	99	---	e76	e57	---	207	---	278	---	98	215	---
TOTAL	8784	3872	2745	2117	43778	15832	8028	29339	23045	6171	14178	5392
MEAN	283	129	88.5	68.3	1564	511	268	946	768	199	457	180
MAX	1460	245	125	76	4500	2680	525	4550	3280	746	3120	241
MIN	85	78	60	57	58	207	196	188	185	94	90	156
AC-FT	17420	7680	5440	4200	86830	31400	15920	58190	45710	12240	28120	10700

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1999, BY WATER YEAR (WY)

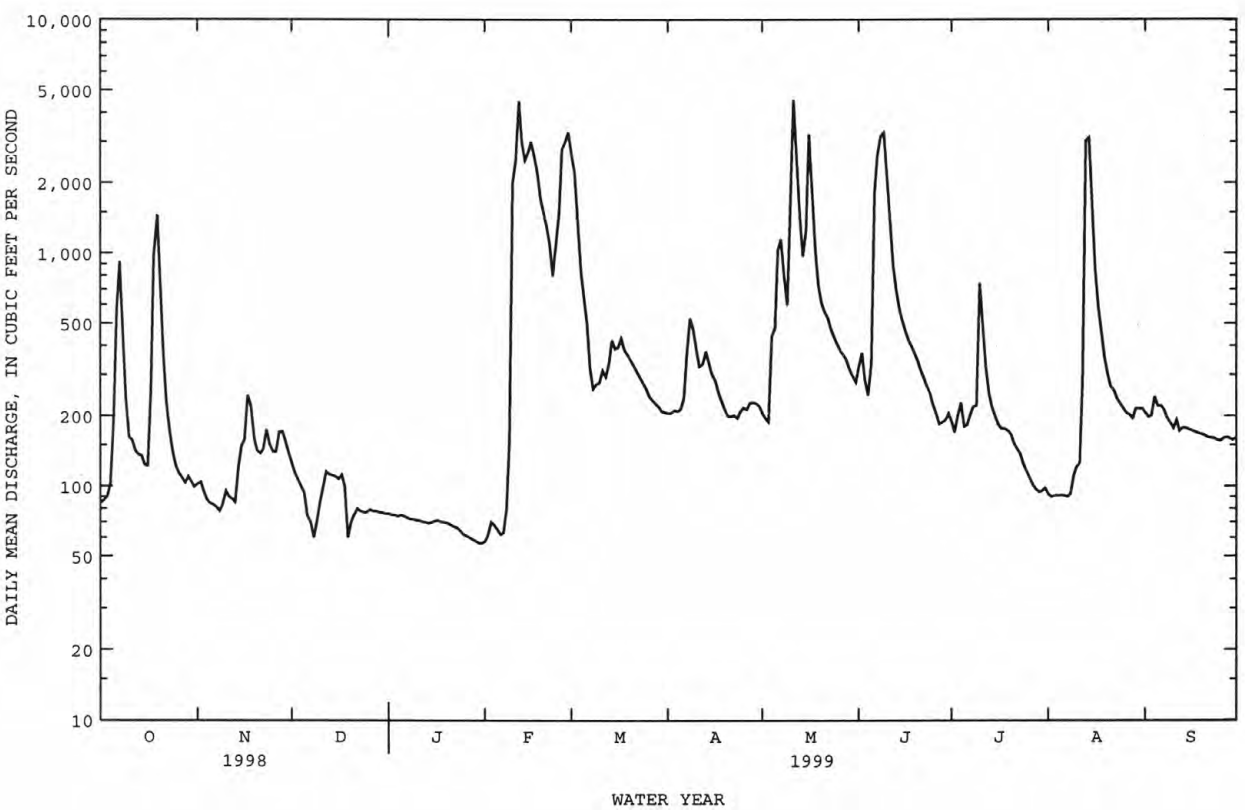
MEAN	94.2	58.5	36.1	48.8	161	883	608	517	343	208	114	91.6
MAX	317	204	103	867	1564	3866	4919	2292	1045	2298	554	318
(WY)	1995	1961	1983	1973	1999	1987	1997	1986	1967	1993	1993	1996
MIN	2.92	2.14	.000	.000	.000	18.2	10.3	5.45	20.5	10.8	.000	2.29
(WY)	1959	1960	1960	1959	1959	1981	1981	1981	1989	1991	1959	1960

e Estimated

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1959 - 1999	
ANNUAL TOTAL	55980		163281			
ANNUAL MEAN	153		447		264a	
HIGHEST ANNUAL MEAN					1007	1997
LOWEST ANNUAL MEAN					46.3	1992
HIGHEST DAILY MEAN	1500	Jul 12	4550	May 11	26500	Mar 23 1987
LOWEST DAILY MEAN	16	Jan 14	57	Jan 30	.00	Oct 2 1958b
ANNUAL SEVEN-DAY MINIMUM	18	Jan 12	59	Jan 26	.00	Oct 2 1958
INSTANTANEOUS PEAK FLOW			5040	May 11c	31000	Mar 23 1987d
INSTANTANEOUS PEAK STAGE			17.17	Feb 27f	21.76	Mar 18 1966g
ANNUAL RUNOFF (AC-FT)	111000		323900		191500	
10 PERCENT EXCEEDS	243		1190		500	
50 PERCENT EXCEEDS	111		199		70	
90 PERCENT EXCEEDS	36		73		4.5	

a Median of annual mean discharges, 210 ft^3/s.
b No flow at times in most years.
c Gage height, 12.25 ft.
d Gage height, 19.16 ft, datum then in use.
f From floodmarks, backwater from ice.
g From floodmarks, ice jam, site and datum then in use.



06359500 MOREAU RIVER NEAR FAITH, SD

LOCATION.--Lat 45°11'52", long 102°09'22", in NW¼ NW¼ 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 mi^2, 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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	59	81	e19	e65	e150	43	136	59	82	26	17
2	14	68	74	e15	e1700	e140	44	113	53	108	24	16
3	17	175	68	e14	e1500	e130	46	102	62	93	23	18
4	32	114	63	e14	e1200	e110	49	92	60	82	21	20
5	165	86	58	e15	e1000	e100	63	82	72	81	20	21
6	372	70	54	e16	e900	e90	79	74	163	76	21	20
7	424	64	116	e17	e1200	e80	134	98	761	63	21	18
8	332	59	95	e18	e1500	e75	210	107	1200	53	20	17
9	207	69	82	e18	e1300	e70	416	133	1060	47	19	16
10	223	115	73	e19	e1100	e63	545	154	743	43	17	17
11	179	129	64	e19	e900	e62	405	132	605	41	15	16
12	122	84	55	e19	e760	e62	346	260	588	45	41	16
13	90	88	53	e19	e700	e61	271	514	1430	42	171	15
14	106	74	49	e19	e670	e60	208	676	1160	36	179	15
15	95	74	47	e20	e590	e58	165	563	689	36	77	14
16	93	138	46	e20	e490	62	150	355	473	33	163	14
17	638	150	e38	e20	e400	55	123	301	690	31	111	13
18	770	e450	e31	e19	e330	249	97	965	897	33	75	13
19	492	e390	e23	e19	e280	635	79	930	575	34	56	13
20	469	315	e18	e18	e240	334	69	579	395	37	43	13
21	351	239	e14	e17	e210	198	117	367	320	32	36	13
22	189	191	e10	e16	e190	134	236	256	353	31	29	14
23	126	149	e12	e14	e180	106	343	276	622	40	24	13
24	92	137	e13	e13	e180	87	1230	268	391	140	21	12
25	82	134	e14	e13	e180	72	1020	184	249	92	19	12
26	72	126	e17	e14	e170	61	598	161	183	68	17	13
27	59	119	e20	e14	e165	53	386	144	143	53	16	12
28	50	108	e24	e15	e160	52	289	104	132	43	15	14
29	46	99	e28	e16	---	47	221	83	110	37	22	14
30	69	90	e26	e18	---	43	169	72	92	35	19	14
31	74	---	e22	e21	---	37	---	65	---	28	17	---
TOTAL	6063	4163	1388	528	18260	3536	8151	8346	14330	1695	1378	453
MEAN	196	139	44.8	17.0	652	114	272	269	478	54.7	44.5	15.1
MAX	770	450	116	21	1700	635	1230	965	1430	140	179	21
MIN	13	59	10	13	65	37	43	65	53	28	15	12
AC-FT	12030	8260	2750	1050	36220	7010	16170	16550	28420	3360	2730	899

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1999, BY WATER YEAR (WY)

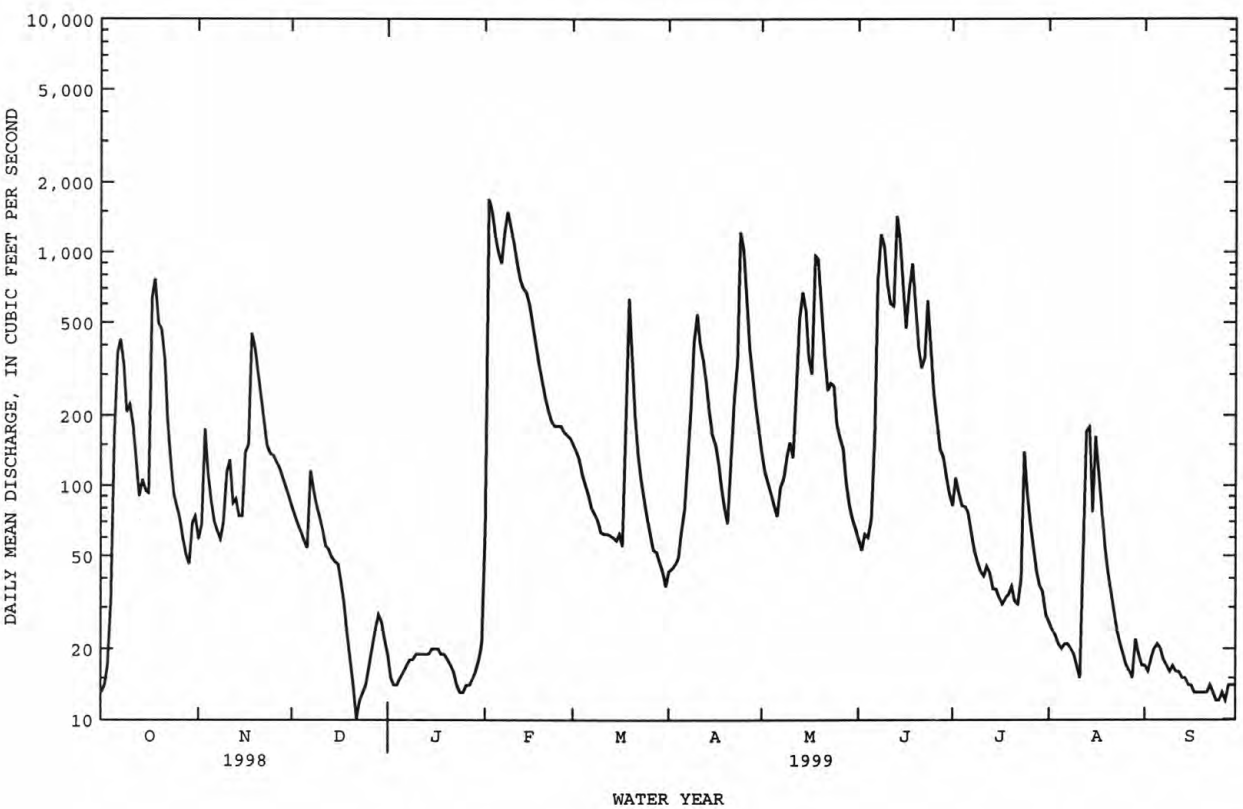
MEAN	34.8	15.2	7.42	7.26	77.0	410	399	320	295	120	34.7	16.7
MAX	463	139	44.8	99.0	1045	2757	4355	2203	1850	1530	258	262
(WY)	1983	1999	1999	1973	1996	1978	1952	1982	1944	1993	1993	1986
MIN	.000	1.10	.000	.000	.000	.19	5.27	4.60	12.6	.36	.000	.003
(WY)	1959	1946	1956	1944	1944	1944	1981	1980	1989	1955	1949	1958

e Estimated

06359500 MOREAU RIVER NEAR FAITH, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1944 - 1999	
ANNUAL TOTAL	54132.0		68291			
ANNUAL MEAN	148		187		145a	
HIGHEST ANNUAL MEAN					496	1997
LOWEST ANNUAL MEAN					7.60	1961
HIGHEST DAILY MEAN	6090	Jun 21	1700	Feb 2	25300	Apr 8 1944
LOWEST DAILY MEAN	8.0	Jan 12	10	Dec 22	.00	Dec 15 1943b
ANNUAL SEVEN-DAY MINIMUM	13	Jan 8	13	Sep 21	.00	Dec 15 1943
INSTANTANEOUS PEAK FLOW			2000	Feb 2	26000	Apr 9 1944c
INSTANTANEOUS PEAK STAGE			13.49	Feb 2d	20.90	Apr 9 1944f
ANNUAL RUNOFF (AC-FT)	107400		135500		104900	
10 PERCENT EXCEEDS	272		577		200	
50 PERCENT EXCEEDS	46		74		12	
90 PERCENT EXCEEDS	18		15		.19	

a Median of annual mean discharges, 97 ft^3/s.
b No flow at times in most years.
c From rating curve extended above 12,000 ft^3/s on basis of slope-area measurement of peak flow.
d By observer, backwater from ice.
f From floodmarks at site and datum then in use.



06360500 MOREAU RIVER NEAR WHITEHORSE, SD

LOCATION.--Lat 45°15'21", long 100°50'33", in SW¼ SE¼ 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 mi^2, 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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

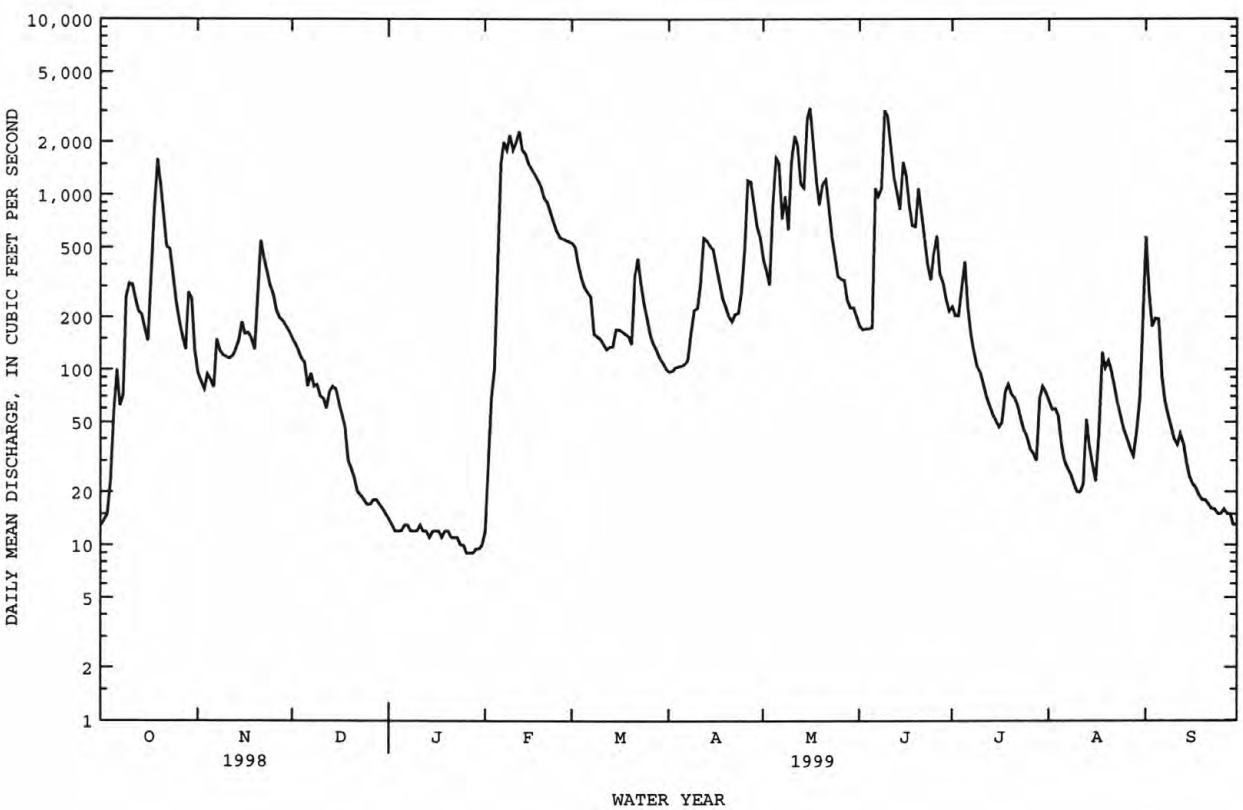
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	95	150	e14	e12	e530	97	427	177	229	66	576
2	14	85	139	e13	e30	e500	98	365	169	204	59	267
3	15	77	128	e12	e70	e400	103	306	171	202	60	176
4	23	94	e115	e12	e100	e330	104	870	171	285	54	196
5	57	87	e110	e12	e500	e295	105	1620	173	414	37	194
6	100	79	e80	e13	e1500	e275	108	1520	1090	229	30	92
7	62	149	e95	e13	e2000	e260	114	730	980	158	27	67
8	71	128	e80	e12	e1800	e160	163	982	1080	127	25	55
9	258	e121	e82	e12	e2200	e155	220	631	3030	104	22	47
10	312	e118	e70	e12	e1800	e150	226	1540	2810	96	20	40
11	306	e116	e68	e13	e2000	e140	309	2160	1840	82	20	37
12	252	e120	e60	e12	e2300	e130	568	1930	1270	70	22	43
13	215	e130	e75	e12	e1800	e135	547	1150	1020	62	52	37
14	206	146	e80	e11	e1700	e135	512	1090	822	55	36	29
15	169	187	e77	e12	e1500	e170	487	2710	1540	51	28	24
16	145	160	e65	e12	e1400	e170	387	3130	1310	47	23	22
17	347	162	e55	e12	e1300	e165	312	1900	886	50	44	21
18	790	e150	e47	e11	e1200	e160	257	1190	666	75	126	19
19	1600	e130	e30	e12	e1100	e155	228	878	657	82	102	18
20	1160	e260	e27	e12	e950	e140	203	1150	1090	72	112	18
21	757	549	e24	e11	e900	339	188	1230	765	69	98	17
22	505	443	e20	e11	e800	435	207	835	539	62	77	16
23	489	363	e19	e11	e700	316	211	579	400	52	63	16
24	344	301	e18	e10	e620	240	278	435	326	45	53	15
25	246	267	e17	e10	e570	192	484	342	457	41	45	15
26	190	218	e17	e9.0	e560	156	1210	329	585	35	40	16
27	154	197	e18	e9.0	e550	140	1190	325	352	33	35	15
28	130	189	e18	e9.0	e540	129	888	250	313	30	32	15
29	276	177	e17	e9.5	---	117	665	226	256	68	44	13
30	253	165	e16	e9.5	---	110	560	226	216	80	68	13
31	129	---	e15	e10	---	101	---	198	---	74	216	---
TOTAL	9588	5463	1832	353.0	30502	6830	11029	31254	25161	3283	1736	2129
MEAN	309	182	59.1	11.4	1089	220	368	1008	839	106	56.0	71.0
MAX	1600	549	150	14	2300	530	1210	3130	3030	414	216	576
MIN	13	77	15	9.0	12	101	97	198	169	30	20	13
AC-FT	19020	10840	3630	700	60500	13550	21880	61990	49910	6510	3440	4220
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1999, BY WATER YEAR (WY)												
MEAN	57.3	16.6	6.75	8.13	107	1000	505	675	417	200	58.6	29.3
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	.000	.000	.000	.000	.000	2.28	.000	.000	12.0	.084	.000	.000
(WY)	1957	1959	1956	1956	1955	1964	1981	1981	1989	1955	1955	1958

e Estimated

06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1955 - 1999	
ANNUAL TOTAL	71429.3		129160.0			
ANNUAL MEAN	196		354		258a	
HIGHEST ANNUAL MEAN					1428	1997
LOWEST ANNUAL MEAN					8.39	1980
HIGHEST DAILY MEAN	4980	Jun 23	3130	May 16	28100	Mar 23 1997
LOWEST DAILY MEAN	4.9	Sep 21	9.0	Jan 26	.00	Jan 12 1955b
ANNUAL SEVEN-DAY MINIMUM	7.7	Sep 16	9.4	Jan 24	.00	Jan 12 1955
INSTANTANEOUS PEAK FLOW			4320	Jun 9c	29700	Mar 23 1997d
INSTANTANEOUS PEAK STAGE			14.94	Feb 9f	27.68	Mar 21 1997f
ANNUAL RUNOFF (AC-FT)	141700		256200		186900	
10 PERCENT EXCEEDS	458		1090		488	
50 PERCENT EXCEEDS	71		140		12	
90 PERCENT EXCEEDS	17		15		.00	

a Median of annual mean discharges, 140 ft^3/s.
b No flow at times in most years.
c Gage height, 14.94 ft.
d Gage height, 26.93 ft.
f Backwater from ice.



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

LOCATION.--Lat 44°05'06", long 104°03'36", in SE¼ NE¼ NE¼ 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 mi^2.

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 sea level, from topographic map. October 1974 to September 1982, at site 50 ft upstream and datum 3.11 ft lower.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	1.9	2.5	3.0	3.0	3.0	2.5	3.3	2.3	3.1	2.5	4.0
2	2.9	2.0	2.5	3.0	3.0	3.0	2.0	3.3	3.4	4.4	3.6	1.6
3	3.0	1.9	2.5	3.0	3.0	2.8	1.8	3.4	4.1	3.5	2.9	2.4
4	2.9	2.7	2.5	3.0	3.0	3.3	1.7	3.4	2.9	3.2	3.1	4.0
5	2.7	2.6	2.5	3.0	3.0	3.3	1.5	3.2	2.7	2.7	3.4	3.2
6	2.5	2.6	e2.1	3.0	3.0	3.2	2.7	2.7	3.0	2.9	3.2	3.1
7	2.5	2.6	e2.2	3.0	3.1	3.2	5.3	1.8	3.6	3.8	2.6	3.4
8	2.5	2.6	e2.5	3.0	3.1	3.2	7.8	2.9	2.7	2.8	2.7	3.3
9	3.3	2.6	e3.1	3.0	3.0	3.0	8.2	3.2	3.1	2.9	2.6	2.9
10	3.0	2.7	2.9	3.0	2.9	3.2	4.8	2.8	3.9	2.9	3.7	3.2
11	2.7	e2.6	3.3	3.0	2.6	3.2	3.8	3.0	4.2	3.0	2.8	1.8
12	2.4	e2.5	2.6	2.9	2.4	3.2	3.4	2.7	4.3	3.4	2.1	2.3
13	2.4	2.5	2.6	2.9	2.7	3.2	3.3	2.3	4.4	3.0	2.3	2.3
14	3.1	2.5	2.6	2.9	2.8	3.1	3.1	2.5	4.1	2.3	3.7	3.8
15	2.7	2.5	2.6	2.9	2.8	3.2	3.0	3.5	4.8	2.2	2.8	3.5
16	2.6	2.5	2.6	2.9	2.8	3.2	2.9	3.3	4.4	4.1	2.4	2.9
17	2.8	2.5	2.6	2.9	2.8	3.2	2.7	3.3	4.3	3.8	2.3	2.9
18	2.5	2.5	2.5	2.9	2.9	3.2	2.7	3.0	5.2	2.9	3.4	2.9
19	2.3	2.5	e2.0	2.9	2.9	3.1	2.5	3.2	4.2	2.4	3.4	2.2
20	2.3	2.5	e1.7	2.9	2.9	3.2	2.4	3.2	4.0	2.4	3.1	2.4
21	2.9	2.5	e2.0	2.9	2.9	3.2	5.2	2.7	4.1	2.4	3.0	4.4
22	2.8	2.5	e1.7	3.0	2.9	3.3	3.4	2.3	4.7	3.4	2.9	3.6
23	2.7	2.5	e2.5	3.0	2.8	3.3	2.8	2.2	4.2	2.7	3.8	3.0
24	2.6	2.5	e4.0	3.0	3.1	e13	2.5	3.0	4.2	2.2	3.0	2.7
25	2.5	2.5	e3.9	2.9	3.0	28	3.4	2.1	3.5	2.7	1.9	2.3
26	2.4	2.5	3.5	2.9	3.0	34	3.5	2.2	4.2	3.9	2.1	2.5
27	2.3	2.5	3.1	2.9	2.9	17	3.2	1.8	3.3	3.0	3.7	2.6
28	2.4	2.5	3.0	2.9	3.0	4.0	3.6	3.3	3.4	3.1	2.1	4.0
29	3.2	2.5	3.0	2.9	---	3.9	3.5	3.1	4.0	3.0	2.6	2.4
30	3.0	2.5	3.0	2.9	---	3.4	3.5	2.6	3.1	3.7	2.1	2.5
31	1.7	---	3.0	3.0	---	4.5	---	2.3	---	3.5	2.2	---
TOTAL	82.6	74.3	83.1	91.4	81.3	180.6	102.7	87.6	114.3	95.3	88.0	88.1
MEAN	2.66	2.48	2.68	2.95	2.90	5.83	3.42	2.83	3.81	3.07	2.84	2.94
MAX	3.3	2.7	4.0	3.0	3.1	34	8.2	3.5	5.2	4.4	3.8	4.4
MIN	1.7	1.9	1.7	2.9	2.4	2.8	1.5	1.8	2.3	2.2	1.9	1.6
AC-FT	164	147	165	181	161	358	204	174	227	189	175	175

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1999, BY WATER YEAR (WY)

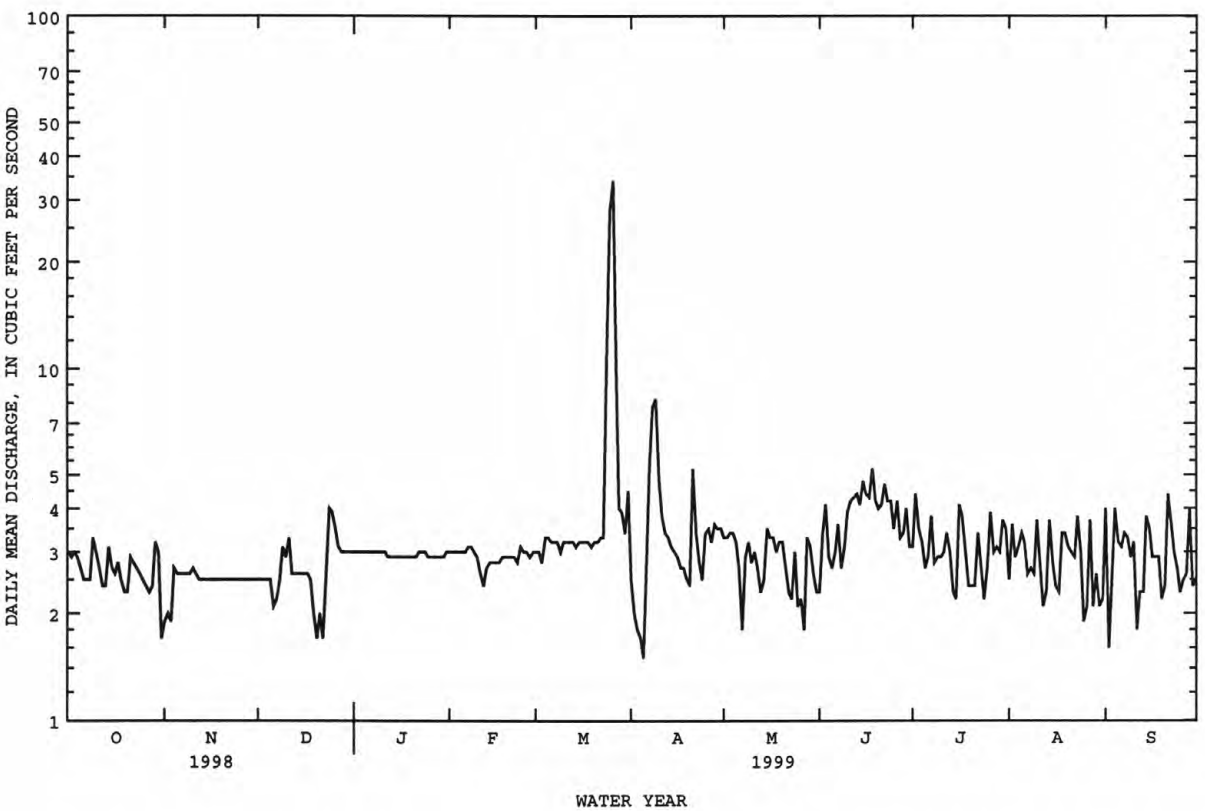
MEAN	1.82	1.71	1.63	1.57	1.75	2.06	2.31	2.20	2.41	2.13	1.95	1.89
MAX	2.66	2.48	2.68	2.95	2.90	5.83	4.07	3.44	4.05	3.09	2.89	2.94
(WY)	1999	1999	1999	1999	1999	1999	1994	1978	1980	1979	1978	1999
MIN	.31	.47	.44	.42	.46	.71	.88	.81	1.34	1.34	.75	.62
(WY)	1977	1977	1977	1993	1977	1977	1993	1993	1994	1993	1976	1976

e Estimated

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

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1975 - 1999	
ANNUAL TOTAL	847.59		1169.3		--	
ANNUAL MEAN	2.32		3.20		1.97	
HIGHEST ANNUAL MEAN	--		--		3.20	1999
LOWEST ANNUAL MEAN	--		--		.94	1977
HIGHEST DAILY MEAN	9.5	Jun 18	34	Mar 26	34	Mar 26 1999
LOWEST DAILY MEAN	.99	Jan 10	1.5	Apr 5	.10	Jan 20 1993
ANNUAL SEVEN-DAY MINIMUM	1.2	Jan 7	2.1	Dec 17	.12	Jan 17 1993
INSTANTANEOUS PEAK FLOW	--		87	Mar 25a	103	Apr 22 1994b
INSTANTANEOUS PEAK STAGE	--		2.88	Dec 25c	2.88	Dec 25 1998c
ANNUAL RUNOFF (AC-FT)	1680		2320		1420	
10 PERCENT EXCEEDS	2.9		3.9		2.8	
50 PERCENT EXCEEDS	2.3		2.9		1.9	
90 PERCENT EXCEEDS	1.7		2.3		1.1	

a Gage height, 2.05 ft.
b From rating curve extended above 85 ft^3/s.
c Backwater from ice.



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 sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--10 years, 26.12 in.

REMARKS.--Records fair except those for estimated periods, which are poor. Precipitation gage is located 0.2 mi south of streamflow gaging station.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.00	.00	.26	.00	.00	.06	.00	.00	.00	.00	.02
2	.20	.04	.00	.05	.00	.02	.14	.00	.94	.00	.00	.26
3	.36	.22	.00	.04	.00	.10	.22	.00	.00	.00	.27	.20
4	.95	.06	.00	.26	.00	.00	.00	.35	.03	.00	.00	.05
5	1.65	.01	.00	.45	.00	.00	.00	.23	.45	.00	.00	.00
6	.00	.20	.00	.42	.00	.17	.00	.00	.56	.00	.05	.00
7	.00	.00	.00	.10	.00	.00	.00	.00	.00	.00	.00	.01
8	.00	.02	.00	.07	.00	.00	.04	.00	.24	.18	.00	.00
9	.00	.24	.00	.31	.00	.00	.12	.00	e.26	.00	.00	.00
10	.00	.16	.00	.00	.11	.19	.45	.12	e1.97	.00	.00	.00
11	.10	.00	.00	.00	.00	.18	.00	.11	e.32	.00	.00	.15
12	.00	.00	.00	.00	.00	.00	.00	.49	e.32	.00	.09	.00
13	.00	.00	.00	.03	.00	.00	.00	.11	e.03	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.02	.00	e.35	.00	.00	.00
15	.00	.00	.00	.06	.09	.00	.28	.43	e.19	.00	.00	.00
16	.98	.00	.00	.02	.01	.00	.00	.32	e.02	.00	.00	.00
17	.26	.00	.03	.00	.22	.01	.00	.01	e.15	.90	.00	.00
18	.00	.00	.08	.05	.00	.00	.00	.18	.01	.00	.00	.13
19	.00	.05	.08	.05	.19	.00	.00	.00	.26	.11	.00	.07
20	.00	.00	.02	.25	.13	.00	.38	.00	.01	.00	.00	.01
21	.00	.00	.00	.01	.01	.00	.34	.00	.00	.00	.04	.00
22	.00	.04	.00	.00	.11	.05	.01	.19	.00	.09	.00	.00
23	.00	.01	.00	.15	.00	.00	.00	.02	.01	.00	.00	.00
24	.00	.01	.05	.06	.00	.01	.00	.00	.00	.00	.00	.00
25	.00	.00	.15	.00	.00	.00	.29	.00	.00	.02	.00	.01
26	.00	.00	.01	.05	.00	.01	.00	.20	.00	.00	.00	.07
27	.25	.00	.00	.02	.76	.00	.00	.00	.45	.00	.03	.00
28	.92	.00	.06	.00	.03	.50	.00	.00	.00	.00	.59	.00
29	.15	.00	.25	.00	---	.00	.00	.00	.00	.90	.01	.00
30	.04	.00	.15	.00	---	.00	.00	.00	.09	.00	.00	.00
31	.00	---	.03	.00	---	.21	---	.13	---	1.25	.00	---
TOTAL	5.93	1.06	0.91	2.71	1.66	1.45	2.35	2.89	6.66	3.45	1.08	0.98

CAL YR 1998 TOTAL 29.79
WTR YR 1999 TOTAL 31.13

e Estimated

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06392950 STOCKADE BEAVER CREEK NEAR NEWCASTLE, WY

LOCATION.--Lat 43°51'32", long 104°06'24", in SW¼ SE¼ sec.19, T.45 N., R.60 W., Weston County, Hydrologic Unit 10120107, on right bank 20 ft upstream of culvert 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 mi^2.

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 sea level, from topographic map. October 1974 to September 1982, at same site and datum.

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

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 50 ft^3/s, and maximum(*):

Date	Time	Discharge (ft^3/s)	Gage Height (ft)
Aug 29	0300	*137	*8.06

No other peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	17	16	17	17	16	15	15	16	19	21	22
2	18	17	16	17	16	15	15	15	16	19	19	23
3	18	18	16	14	16	15	15	16	18	18	18	25
4	21	18	16	15	16	15	15	16	17	18	18	24
5	20	18	16	17	16	15	15	16	16	17	19	23
6	19	18	16	17	16	15	15	16	19	17	19	22
7	18	18	16	17	17	15	15	16	18	18	20	21
8	18	18	16	17	19	15	14	16	17	18	20	20
9	18	19	16	17	20	15	15	16	16	18	19	20
10	18	e16	16	17	21	15	16	17	15	18	19	20
11	18	e15	16	17	16	14	16	17	18	18	19	19
12	18	e16	16	17	15	14	15	16	19	17	20	20
13	18	17	16	17	16	14	15	17	19	16	20	20
14	17	18	16	17	16	15	15	18	17	16	20	20
15	17	18	16	17	16	15	15	20	19	17	19	20
16	19	18	16	17	15	15	15	19	19	17	19	20
17	20	17	16	17	15	15	15	17	17	17	19	19
18	18	17	e15	17	15	15	15	17	19	18	19	19
19	18	17	e14	17	15	15	15	16	18	17	20	20
20	18	17	e13	17	15	15	15	19	19	17	20	20
21	18	17	e12	17	15	14	17	17	18	17	20	19
22	18	17	e13	17	15	14	16	19	18	16	21	19
23	18	17	e14	17	15	14	15	18	18	15	21	19
24	18	17	e15	17	15	14	15	17	18	16	20	18
25	18	17	e16	15	16	14	16	17	18	17	20	18
26	18	17	17	16	16	14	16	16	18	17	20	18
27	18	16	17	16	15	15	15	16	18	16	18	18
28	19	17	17	14	15	15	15	16	19	15	20	18
29	22	17	17	15	---	15	15	16	19	14	57	18
30	19	16	17	15	---	15	15	16	19	16	23	18
31	18	---	17	16	---	15	---	16	---	17	22	---
TOTAL	570	515	486	510	450	457	456	519	535	526	649	600
MEAN	18.4	17.2	15.7	16.5	16.1	14.7	15.2	16.7	17.8	17.0	20.9	20.0
MAX	22	19	17	17	21	16	17	20	19	19	57	25
MIN	17	15	12	14	15	14	14	15	15	14	18	18
AC-FT	1130	1020	964	1010	893	906	904	1030	1060	1040	1290	1190

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1999, BY WATER YEAR (WY)

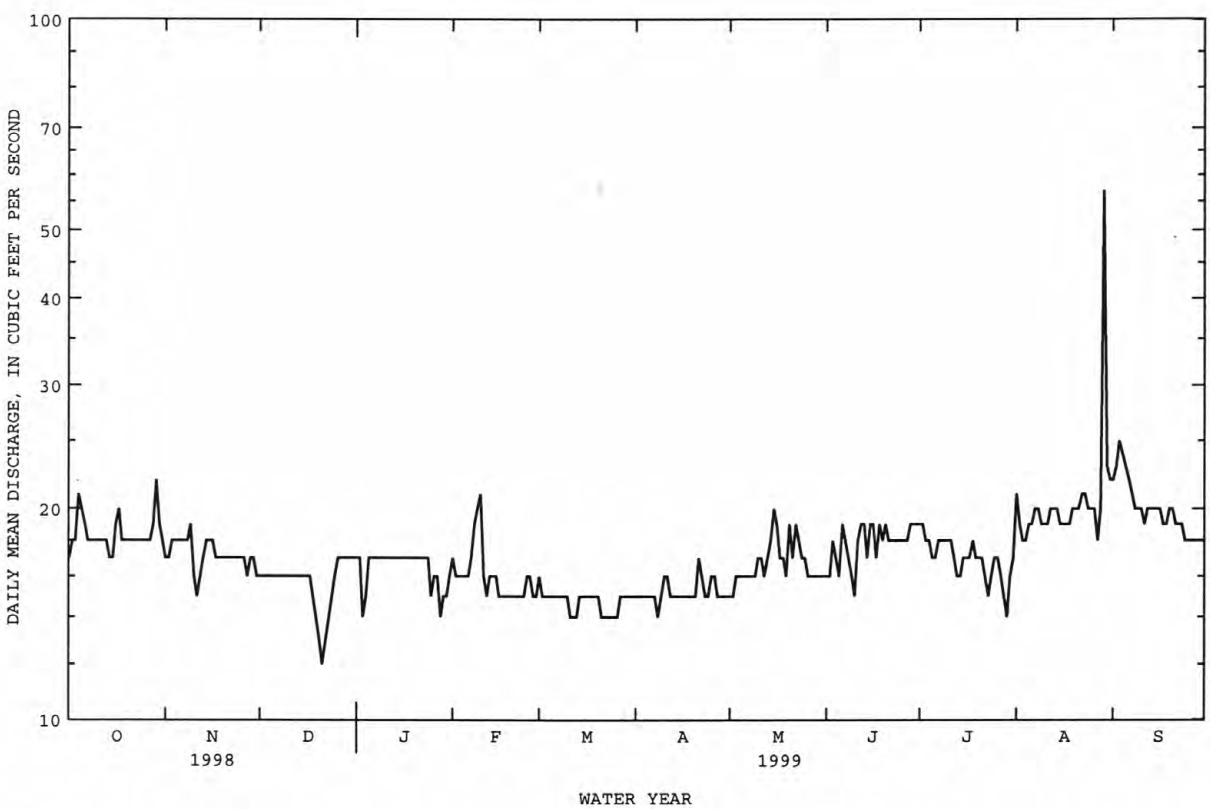
MEAN	12.8	12.8	12.8	12.5	12.9	14.3	13.2	10.6	11.4	11.4	11.9	12.6
MAX	18.4	17.2	15.7	16.5	16.1	21.3	17.8	16.8	17.8	17.0	20.9	20.0
(WY)	1999	1999	1999	1999	1999	1996	1996	1998	1999	1999	1999	1999
MIN	9.40	9.74	10.2	9.52	10.6	10.8	9.53	6.45	5.92	8.24	6.33	8.89
(WY)	1982	1994	1993	1980	1993	1993	1981	1992	1992	1981	1992	1991

e Estimated

06392950 STOCKADE BEAVER CREEK NEAR NEWCASTLE, WY--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1975 - 1999	
ANNUAL TOTAL	5966.8		6273		--	
ANNUAL MEAN	16.3		17.2		12.5	
HIGHEST ANNUAL MEAN	--		--		17.2	1999
LOWEST ANNUAL MEAN	--		--		9.80	1992
HIGHEST DAILY MEAN	32	Jun 18	57	Aug 29	143	Jul 16 1993
LOWEST DAILY MEAN	9.3	Jun 7	12	Dec 21	3.9	May 21 1992
ANNUAL SEVEN-DAY MINIMUM	12	Jun 1	14	Dec 18	4.6	Aug 2 1992
INSTANTANEOUS PEAK FLOW	--		137	Aug 29	776	Jul 16 1993a
INSTANTANEOUS PEAK STAGE	--		8.06	Aug 29	12.44	Jul 16 1993
ANNUAL RUNOFF (AC-FT)	11840		12440		9030	
10 PERCENT EXCEEDS	18		20		16	
50 PERCENT EXCEEDS	16		17		12	
90 PERCENT EXCEEDS	14		15		8.7	

a From rating curve extended above 18 ft^3/s on basis if culvert backwater computation.



06395000 CHEYENNE RIVER AT EDGEMONT, SD

LOCATION.--Lat 43°18'20", long 103°49'14", in SW¼ SE¼ SE¼ sec.36, T.8 S., R.2 E., Fall River County, Hydrologic Unit 10120106, on right bank at downstream side of bridge on 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 mi^2.

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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	902	78	e65	e30	e68	58	146	114	85	112	39
2	25	832	78	e55	e33	e69	61	140	137	81	97	32
3	24	568	74	e48	e35	e64	64	136	320	86	61	31
4	31	408	72	e40	e39	e74	65	131	441	84	50	43
5	48	370	71	e50	e36	e80	65	126	225	79	47	47
6	66	376	63	e68	e36	e68	66	110	226	68	41	57
7	87	444	50	e55	e40	e69	62	99	364	63	41	50
8	186	415	47	e45	e50	e66	64	97	274	60	39	40
9	318	408	55	e35	e55	e65	69	91	256	57	35	37
10	198	346	50	e35	e52	61	137	91	368	56	33	34
11	118	231	46	e35	e50	65	332	89	429	59	30	31
12	85	182	46	e35	e60	61	189	85	1230	60	28	29
13	68	180	42	e30	e80	62	133	80	2330	60	27	26
14	58	195	46	e30	e90	61	148	81	1940	61	26	26
15	50	184	48	e35	e110	60	236	80	2170	63	24	25
16	51	188	54	e35	e121	60	197	77	1550	60	23	25
17	112	180	53	e38	e120	61	152	79	1130	86	23	24
18	588	193	54	e35	e118	90	130	105	886	228	22	22
19	1480	184	e50	e33	e110	127	111	97	555	75	22	25
20	1000	160	e45	e31	e90	98	97	104	378	65	21	25
21	793	140	e40	e37	e90	80	91	247	470	64	20	24
22	484	127	e35	e40	e90	86	96	876	264	56	20	25
23	280	120	e30	e40	e95	79	98	326	169	47	19	25
24	192	111	e25	e35	e90	70	94	206	137	43	19	25
25	152	102	e25	e30	e84	64	141	156	111	39	19	26
26	117	97	e34	e25	e78	57	157	127	95	37	19	25
27	103	93	e30	e22	e69	56	149	118	84	36	20	25
28	109	89	e50	e20	e64	49	142	103	77	36	19	26
29	142	85	e50	e22	---	46	148	94	83	34	18	26
30	1140	82	e60	e25	---	47	147	88	94	31	22	26
31	881	---	e63	e28	---	50	---	82	---	32	31	---
TOTAL	9009	7992	1564	1157	2015	2113	3699	4467	16907	1991	1028	921
MEAN	291	266	50.5	37.3	72.0	68.2	123	144	564	64.2	33.2	30.7
MAX	1480	902	78	68	121	127	332	876	2330	228	112	57
MIN	23	82	25	20	30	46	58	77	77	31	18	22
AC-FT	17870	15850	3100	2290	4000	4190	7340	8860	33540	3950	2040	1830

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1999, BY WATER YEAR (WY)

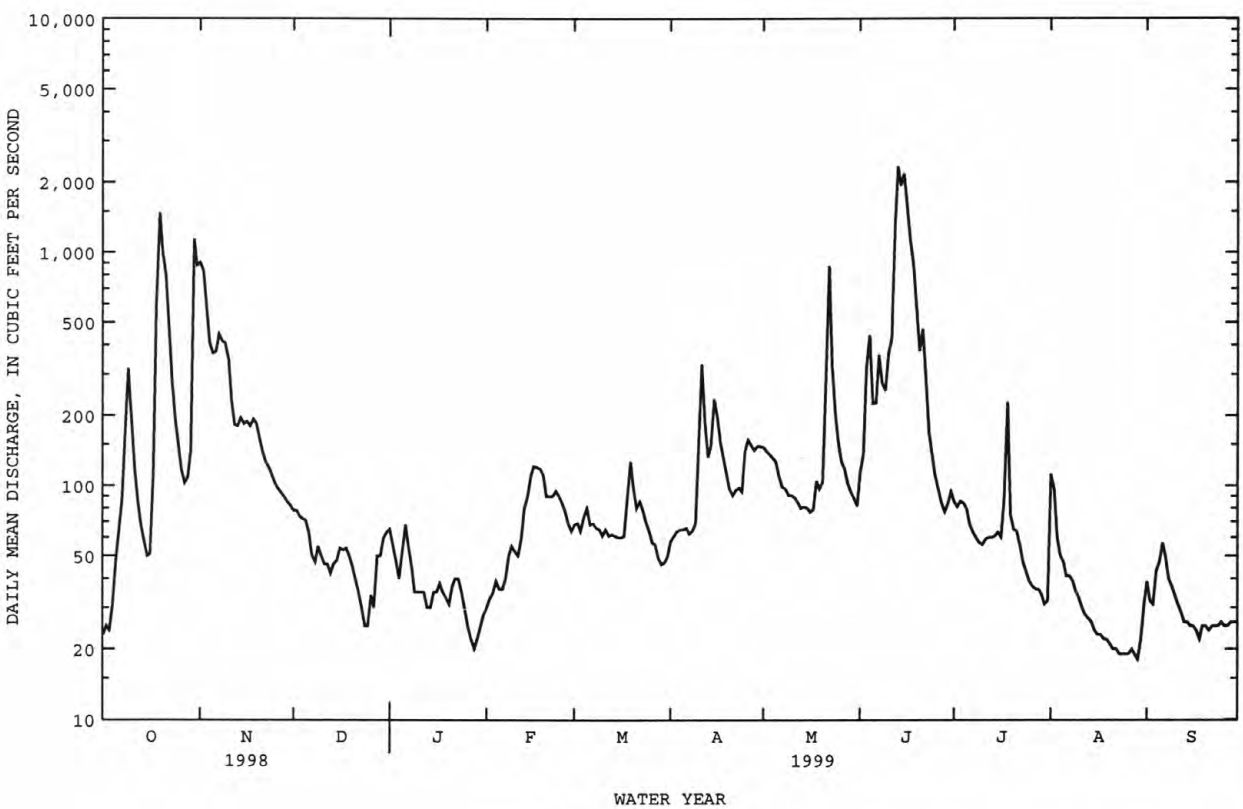
MEAN	22.0	16.5	8.65	8.41	42.2	123	65.6	220	259	126	68.9	27.3
MAX	291	266	50.5	37.3	302	506	558	2192	2084	806	388	275
(WY)	1999	1999	1999	1999	1997	1994	1955	1978	1962	1958	1955	1973
MIN	.000	.023	.000	.000	.000	3.39	.22	.27	1.76	.15	.000	.000
(WY)	1961	1962	1960	1950	1960	1961	1961	1960	1966	1985	1960	1956

e Estimated

06395000 CHEYENNE RIVER AT EDGEMONT, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1929-1932, 1947-1999	
ANNUAL TOTAL	43464.0		52863			
ANNUAL MEAN	119		145		82.5a	
HIGHEST ANNUAL MEAN					434	1962
LOWEST ANNUAL MEAN					12.0	1988
HIGHEST DAILY MEAN	1480	Oct 19	2330	Jun 13	24000	May 20 1978
LOWEST DAILY MEAN	9.0	Jan 15	18	Aug 29	.00	Jan 5 1947b
ANNUAL SEVEN-DAY MINIMUM	15	Jan 13	19	Aug 23	.00	Aug 31 1947c
INSTANTANEOUS PEAK FLOW			3110	Jun 13	28000	May 20 1978
INSTANTANEOUS PEAK STAGE			7.60	Jun 13	13.65	May 20 1978
ANNUAL RUNOFF (AC-FT)	86210		104900		59770	
10 PERCENT EXCEEDS	226		295		158c	
50 PERCENT EXCEEDS	67		66		12c	
90 PERCENT EXCEEDS	23		25		.10c	

a Median of annual mean discharges, 72 ft^3/s.
b No flow at times in most years.
c Reflects water years 1947-99 only.



06400000 HAT CREEK NEAR EDGEMONT, SD

LOCATION.--Lat 43°14'24", long 103°35'16", in SW¼ SE¼ NE¼ 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 mi^2.

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. Datum of gage is 3,295.71 ft above sea level. 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 good 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 1999 are given herewith:

Oct. 13	0	Feb. 16	0	June 11	0
Nov. 17	0	Apr. 15	9.1	July 15	0
Jan. 11	0	June 2	0	Aug. 30	0

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.41	34	e47	e8.0	e8.0	15	8.2	123	24	29	16	.86
2	.49	51	e45	e7.9	e7.0	14	8.0	101	20	38	9.4	1.3
3	.63	61	e40	e7.0	e6.0	12	10	77	30	35	17	2.8
4	12	45	e40	e5.6	e5.5	11	8.3	69	46	32	7.4	6.5
5	29	47	e35	e5.3	e5.5	12	7.5	57	113	31	24	9.5
6	34	49	e29	e3.8	e5.3	12	8.4	47	141	27	20	12
7	28	77	e24	e2.9	e4.0	11	14	40	127	23	8.4	16
8	7.9	87	e19	e2.6	e4.8	15	25	37	85	20	5.8	20
9	23	91	e18	e2.9	e7.0	15	23	34	56	17	4.5	11
10	15	72	e16	e3.8	e7.0	15	148	30	41	14	3.8	7.0
11	12	61	e14	e4.8	e5.5	14	267	24	115	12	3.3	4.4
12	8.8	57	e12	e4.2	e8.5	15	361	26	167	11	2.9	3.1
13	7.6	55	e10	e4.0	e10	18	362	28	345	9.8	2.7	2.5
14	6.9	58	e9.5	e3.8	e12	20	348	26	276	8.8	2.5	1.9
15	5.8	89	e8.5	e3.7	e11	18	210	27	367	8.3	2.1	1.7
16	10	111	e7.5	e4.0	e11	15	136	23	358	7.7	1.8	1.2
17	94	e107	e6.5	e4.4	e10	11	90	24	486	7.6	1.7	1.3
18	17	e98	e5.5	e5.0	e9.0	8.9	77	20	492	8.0	1.7	1.3
19	49	e90	e4.8	e6.0	e8.5	9.0	61	20	357	7.6	e1.5	.68
20	20	e88	e3.8	e5.5	e9.5	9.9	48	21	247	7.7	e1.4	.13
21	39	e80	e3.2	e4.8	e9.0	8.5	e41	26	170	6.6	e1.4	.39
22	38	e76	e3.1	e4.2	e9.5	7.0	e33	28	95	6.1	e1.2	.35
23	28	e75	e3.1	e4.0	e8.0	9.0	e32	22	63	11	e1.2	.08
24	23	e72	e3.3	e4.0	e8.0	9.6	35	31	48	8.4	1.1	.05
25	18	e65	e3.7	e4.0	e7.0	10	65	29	37	6.1	1.6	.06
26	12	e60	e4.5	e4.0	e6.5	11	105	23	30	5.3	1.8	.08
27	9.5	e55	e5.6	e4.0	e6.0	10	162	21	27	4.6	1.4	.18
28	13	e52	e6.8	e4.6	8.5	10	161	19	28	4.0	1.2	.26
29	21	e50	e8.0	e5.5	---	7.8	185	18	32	3.4	1.1	.28
30	10	e49	e8.0	e7.8	---	6.5	171	17	26	3.0	1.0	.32
31	20	---	e8.0	e7.0	---	7.7	---	23	---	3.2	.91	---
TOTAL	613.03	2062	452.4	149.1	217.6	367.9	3210.4	1111	4449	416.2	151.81	107.22
MEAN	19.8	68.7	14.6	4.81	7.77	11.9	107	35.8	148	13.4	4.90	3.57
MAX	94	111	47	8.0	12	20	362	123	492	38	24	20
MIN	.41	34	3.1	2.6	4.0	6.5	7.5	17	20	3.0	.91	.05
AC-FT	1220	4090	897	296	432	730	6370	2200	8820	826	301	213

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1999, BY WATER YEAR (WY)

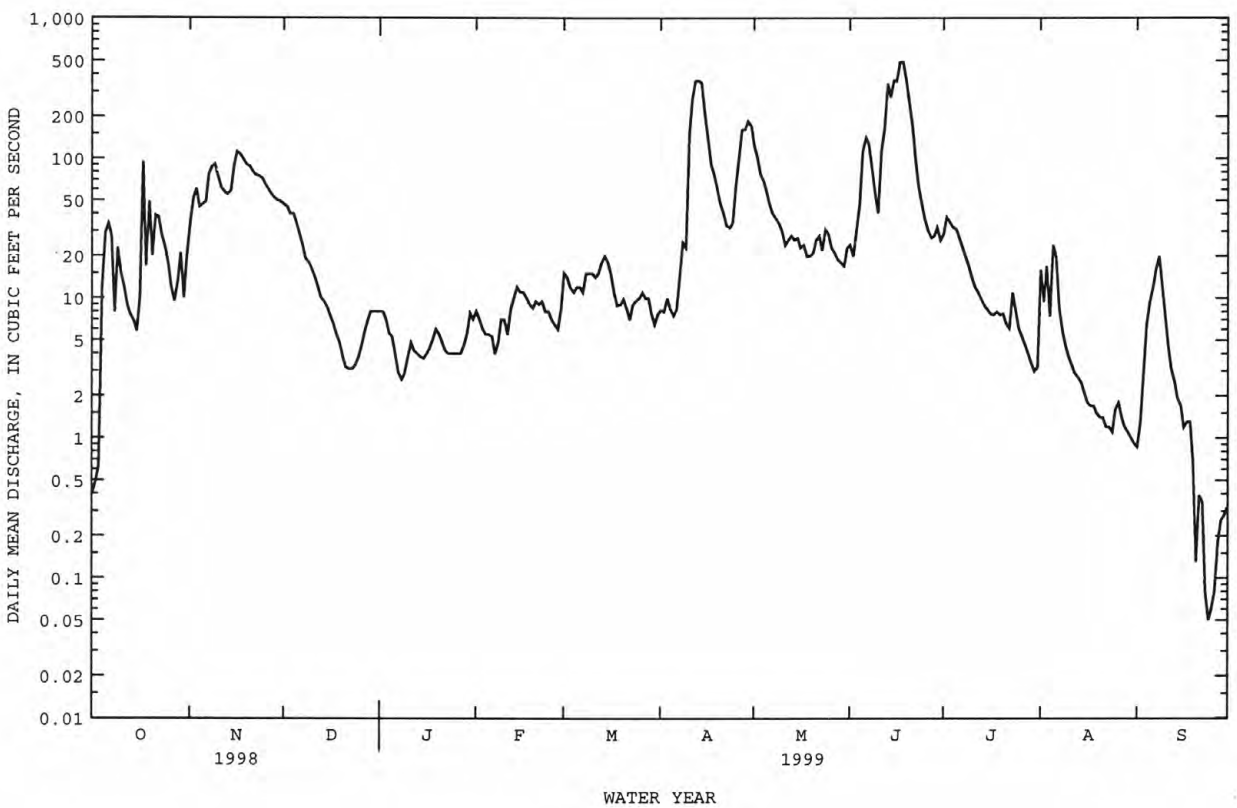
MEAN	1.64	2.53	1.53	2.20	5.29	22.8	21.1	46.3	72.5	19.0	6.45	2.86
MAX	19.8	68.7	16.0	25.5	52.6	150	141	444	1223	174	68.4	70.1
(WY)	1999	1999	1956	1974	1980	1993	1968	1957	1967	1951	1955	1955
MIN	.000	.000	.000	.000	.000	.097	.040	.20	.062	.000	.000	.000
(WY)	1954	1951	1954	1954	1954	1981	1981	1989	1980	1953	1960	1954

e Estimated

06400000 HAT CREEK NEAR EDGEMONT, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1951 - 1999	
ANNUAL TOTAL	4389.08		13307.66			
ANNUAL MEAN	12.0		36.5		17.0a	
HIGHEST ANNUAL MEAN					112	1967
LOWEST ANNUAL MEAN					.16	1989
HIGHEST DAILY MEAN	111	Nov 16	492	Jun 18	8350	Jun 16 1967
LOWEST DAILY MEAN	.34	Apr 14	.05	Sep 24	.00	Nov 1 1950b
ANNUAL SEVEN-DAY MINIMUM	.39	Apr 11	.14	Sep 23	.00	Nov 1 1950
INSTANTANEOUS PEAK FLOW			511	Jun 18	13300	Jun 16 1967c
INSTANTANEOUS PEAK STAGE			11.54	Jun 18	14.94	Jul 16 1993
ANNUAL RUNOFF (AC-FT)	8710		26400		12330	
10 PERCENT EXCEEDS	39		89		20	
50 PERCENT EXCEEDS	5.0		11		.48	
90 PERCENT EXCEEDS	.62		1.8		.00	

a Median of annual mean discharges, 12 ft^3/s.
b No flow for many days in most years.
c Gage height, 13.35 ft at different site, same datum.



06400875 HORSEHEAD CREEK AT OELRICHS, SD

LOCATION.--Lat 43°11'17", long 103°13'34", in SW¼ SW¼ SW¼ SW¼ 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 mi^2.

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

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

GAGE.--Water-stage recorder. Elevation of gage is 3,320 ft above sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.25	.41	e.23	1.0	.25	e.25	29	2.0	3.2	.62	.00
2	.00	.26	.31	e.18	1.5	.27	e.24	21	1.6	2.5	1.5	.00
3	.00	.41	e.20	e.14	.81	.23	e.23	18	1.9	1.9	1.4	.00
4	.00	.84	e.18	e.10	3.4	.23	e.22	16	2.0	1.9	.83	.13
5	.06	1.5	e.17	e.08	13	.25	.21	15	2.4	1.3	.57	.10
6	.08	1.8	e.16	e.07	8.3	.26	.21	7.9	4.1	1.0	.46	.59
7	.04	2.2	e.16	e.06	7.0	.26	.19	5.2	48	.79	.42	.42
8	.03	2.6	e.15	e.06	5.4	.35	.28	4.1	67	.61	.32	.20
9	.14	2.5	e.15	e.05	4.3	.31	.36	3.6	39	.49	.22	.12
10	.14	2.0	e.15	e.05	3.7	.48	1.2	3.4	22	.43	.18	.08
11	.09	e1.7	e.14	e.07	3.2	.46	125	5.1	36	.39	.16	.07
12	.06	e2.0	e.14	e.10	2.8	.43	233	5.0	82	.39	.14	.06
13	.04	3.8	e.14	e.20	2.3	.40	113	5.3	174	.37	.12	.06
14	.03	5.8	e.15	e.36	1.9	.38	63	5.2	229	.37	.11	.05
15	.03	11	e.16	e.47	1.7	.33	38	5.2	237	.41	.10	.04
16	.07	5.8	e.18	.59	1.5	.36	26	5.1	369	.45	.09	.03
17	.13	3.8	e.20	.55	1.4	.35	21	4.6	227	.47	.08	.02
18	.14	3.9	e.25	.42	1.1	.41	5.5	4.3	144	.53	.07	.02
19	.15	14	e.30	.38	.85	.35	6.8	5.2	97	.61	.06	.01
20	.16	23	e.19	.39	.66	.24	10	7.0	64	.90	.04	.03
21	.15	27	e.14	.39	.56	.21	11	29	44	.74	.03	.04
22	.13	22	e.08	.40	.52	.20	8.0	67	29	.61	.08	.02
23	.12	12	e.06	.44	.43	.23	3.1	43	23	.50	.06	.02
24	.11	6.6	e.05	.44	.38	.26	1.6	32	18	.42	.04	.00
25	.11	4.9	e.05	e.39	.37	.31	2.1	28	15	.34	.02	.00
26	.13	3.5	e.05	e.39	.34	.25	6.5	19	11	.28	.01	.00
27	.17	2.0	e.06	e.38	.30	.30	44	8.5	7.8	.27	.00	.00
28	.20	1.2	e.08	e.38	.26	.32	62	6.0	4.5	.26	.00	.00
29	.23	.77	e.12	e.38	---	.30	53	4.7	3.1	.21	.00	.00
30	.22	.52	e.19	.39	---	e.29	36	3.1	3.0	.17	.00	.00
31	.24	---	e.22	.59	---	e.28	---	2.4	---	.21	.00	---
TOTAL	3.20	169.65	4.99	9.12	68.98	9.55	871.99	417.9	2007.4	23.02	7.73	2.11
MEAN	.10	5.65	.16	.29	2.46	.31	29.1	13.5	66.9	.74	.25	.070
MAX	.24	27	.41	.59	13	.48	233	67	369	3.2	1.5	.59
MIN	.00	.25	.05	.05	.26	.20	.19	2.4	1.6	.17	.00	.00
AC-FT	6.3	337	9.9	18	137	19	1730	829	3980	46	15	4.2

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1999, BY WATER YEAR (WY)

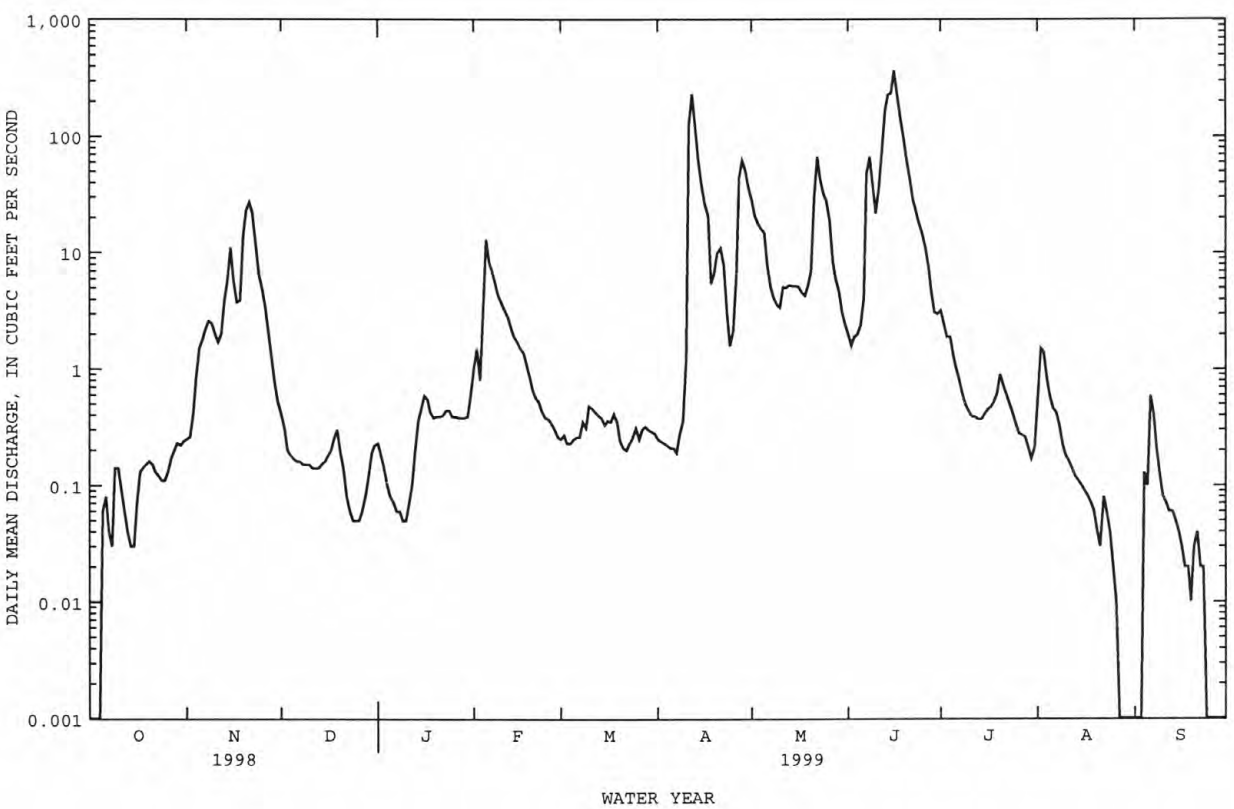
MEAN	.031	.40	.22	.48	1.65	7.98	15.1	23.1	31.0	3.31	.14	.006
MAX	.18	5.66	2.72	6.39	11.6	58.9	83.3	246	187	31.4	.74	.070
(WY)	1998	1999	1997	1997	1994	1986	1986	1991	1986	1993	1986	1999
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1984	1984	1984	1985	1989	1989	1989	1985	1985	1985	1985	1984

e Estimated

06400875 HORSEHEAD CREEK AT OELRICHS, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1984 - 1999	
ANNUAL TOTAL	236.12		3595.64			
ANNUAL MEAN	.65		9.85		6.94	
HIGHEST ANNUAL MEAN					29.3	1986
LOWEST ANNUAL MEAN					.000	1990
HIGHEST DAILY MEAN	27	Nov 21	369	Jun 16	4080	May 11 1991
LOWEST DAILY MEAN	.00	Jan 13	.00	Oct 1	.00	Oct 1 1983a
ANNUAL SEVEN-DAY MINIMUM	.00	Apr 24	.00	Aug 27	.00	Oct 1 1983
INSTANTANEOUS PEAK FLOW			400	Jun 16	8270	May 11 1991
INSTANTANEOUS PEAK STAGE			8.61	Jun 16	18.57	May 11 1991
ANNUAL RUNOFF (AC-FT)	468		7130		5030	
10 PERCENT EXCEEDS	.91		21		4.1	
50 PERCENT EXCEEDS	.11		.39		.00	
90 PERCENT EXCEEDS	.00		.04		.00	

a No flow for many days in most years.



06401000 ANGOSTURA RESERVOIR NEAR HOT SPRINGS, SD

LOCATION.--Lat 43°20'35", long 103°26'16", in $SW^1/_4$ $NW^1/_4$ 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 mi^2, approximately.

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

GAGE.--Water-stage recorder. Datum of gage is sea level. 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, 122,100 acre-ft, June 13, elevation, 3,187.18 ft; minimum, 99,200 acre-ft, Sept. 24, elevation, 3,181.87 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,183.59	106,300	--
Oct. 31	3,186.34	118,200	+11,900
Nov. 30	3,183.57	106,200	-12,000
Dec. 31	3,184.71	111,100	+4,900
CAL YR 1998	--	--	-1,700
Jan. 31	3,185.85	116,100	+5,000
Feb. 28	3,186.93	120,900	+4,800
Mar. 31	3,186.87	120,700	-200
Apr. 30	3,186.97	121,100	+400
May 31	3,186.96	121,100	0
June 30	3,186.95	121,000	-100
July 31	3,184.66	110,800	-10,200
Aug. 31	3,182.43	101,500	-9,300
Sept. 30	3,181.88	99,200	-2,300
WTR YR 1999	--	--	-7,100

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06401500 CHEYENNE RIVER BELOW ANGOSTURA DAM, SD

LOCATION.--Lat 43°20'42", long 103°26'12", in NE¼ NW¼ NW¼ 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 mi^2, 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 sea level (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.--No estimated daily discharges. 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 ft^3/s, May 20, 1978, gage height, 15.97 ft, from rating curve extended above 12,000 ft^3/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, 3,370 ft^3/s, June 14, gage height, 8.74 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	6.9	100	97	484	108	233	---	---
2	---	---	---	---	6.9	132	97	388	88	207	---	---
3	---	---	---	---	6.9	144	126	344	404	288	---	---
4	---	---	---	---	6.7	142	143	346	325	287	---	---
5	---	---	---	---	6.4	143	105	349	519	288	---	---
6	---	---	---	---	6.3	142	95	163	471	287	---	---
7	---	---	---	---	5.8	109	106	53	342	287	---	---
8	---	---	---	---	5.5	121	187	60	485	287	---	---
9	---	---	---	---	5.4	138	290	117	396	117	---	---
10	---	---	---	---	4.5	138	376	348	205	11	---	---
11	---	---	---	---	3.3	137	634	290	568	12	---	---
12	---	---	---	---	2.5	136	765	156	626	13	---	---
13	---	---	---	---	2.5	135	855	136	1420	14	---	---
14	---	---	---	---	2.5	132	596	140	2910	16	---	---
15	---	---	---	---	2.6	113	525	139	3000	16	---	---
16	---	---	---	---	6.8	126	516	197	3070	17	---	---
17	---	---	---	---	9.6	133	384	156	2440	20	---	---
18	---	---	---	---	7.8	120	265	112	2120	15	---	---
19	---	---	---	---	8.2	106	134	130	1580	13	---	---
20	---	---	---	---	16	102	206	193	988	13	---	---
21	---	---	---	---	79	134	253	150	854	13	---	---
22	---	---	---	---	121	182	196	239	721	13	---	---
23	---	---	---	---	110	165	217	615	319	13	---	---
24	---	---	---	---	107	145	175	376	403	12	---	---
25	---	---	---	---	106	115	283	273	384	12	---	---
26	---	---	---	---	108	105	413	254	198	11	---	---
27	---	---	---	---	106	96	366	184	125	10	---	---
28	---	---	---	---	102	95	367	118	178	8.9	---	---
29	---	---	---	---	---	94	383	59	192	7.8	---	---
30	---	---	---	---	---	93	449	59	229	7.6	---	---
31	---	---	---	---	---	95	---	64	---	9.1	---	---
TOTAL	---	---	---	---	962.1	3868	9604	6692	25668	2558.4	---	---
MEAN	---	---	---	---	34.4	125	320	216	856	82.5	---	---
MAX	---	---	---	---	121	182	855	615	3070	288	---	---
MIN	---	---	---	---	2.5	93	95	53	88	7.6	---	---
AC-FT	---	---	---	---	1910	7670	19050	13270	50910	5070	---	---

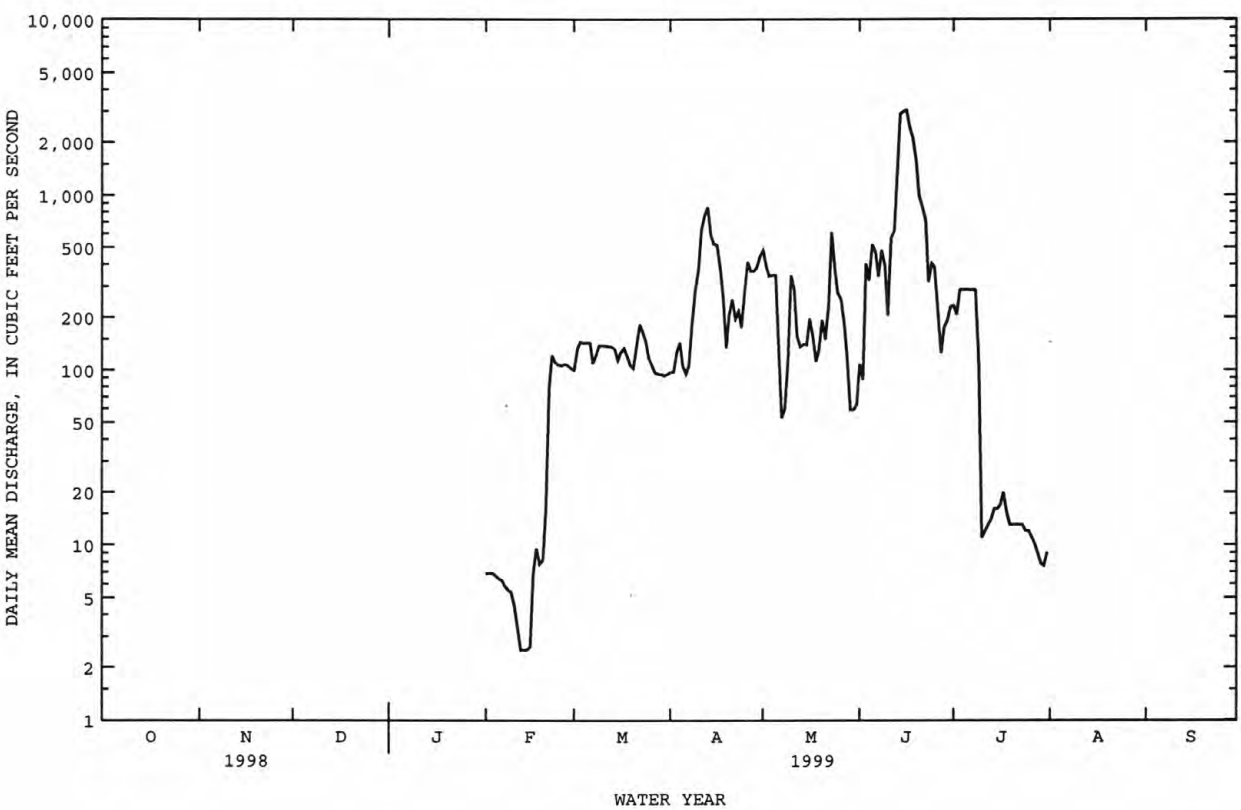
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1978, BY WATER YEAR (WY)

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	.81	.79	.75	.84	.66	.82	.87	.42	.78	.89	.70	.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	.83		1961
HIGHEST DAILY MEAN	20600	Jun 18	1962
LOWEST DAILY MEAN	.00	Apr 28	1951
ANNUAL SEVEN-DAY MINIMUM	.20	Apr 26	1951
INSTANTANEOUS PEAK FLOW	30300	May 20	1978
INSTANTANEOUS PEAK STAGE	15.97	May 20	1978
ANNUAL RUNOFF (AC-FT)	48630		
10 PERCENT EXCEEDS	107		
50 PERCENT EXCEEDS	1.4		
90 PERCENT EXCEEDS	.91		

* Period reflects regulated and complete water years.



06402000 FALL RIVER AT HOT SPRINGS, SD

LOCATION.--Lat 43°25'50", long 103°28'33", in NW¼ NW¼ 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 mi^2.

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

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

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

REMARKS.--Records good except those for estimated daily discharges, which are fair. 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. Maximum discharge prior to Oct. 1, 1969, 13,100 ft^3/s, Sept. 4, 1938, gage height, 18.4 ft, site and datum then in use, from rating curve extended above 51 ft^3/s on basis of weir formula and slope-area measurement of peak flow; minimum, 4.0 ft^3/s, Sept. 23, 1940. Some diversion 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

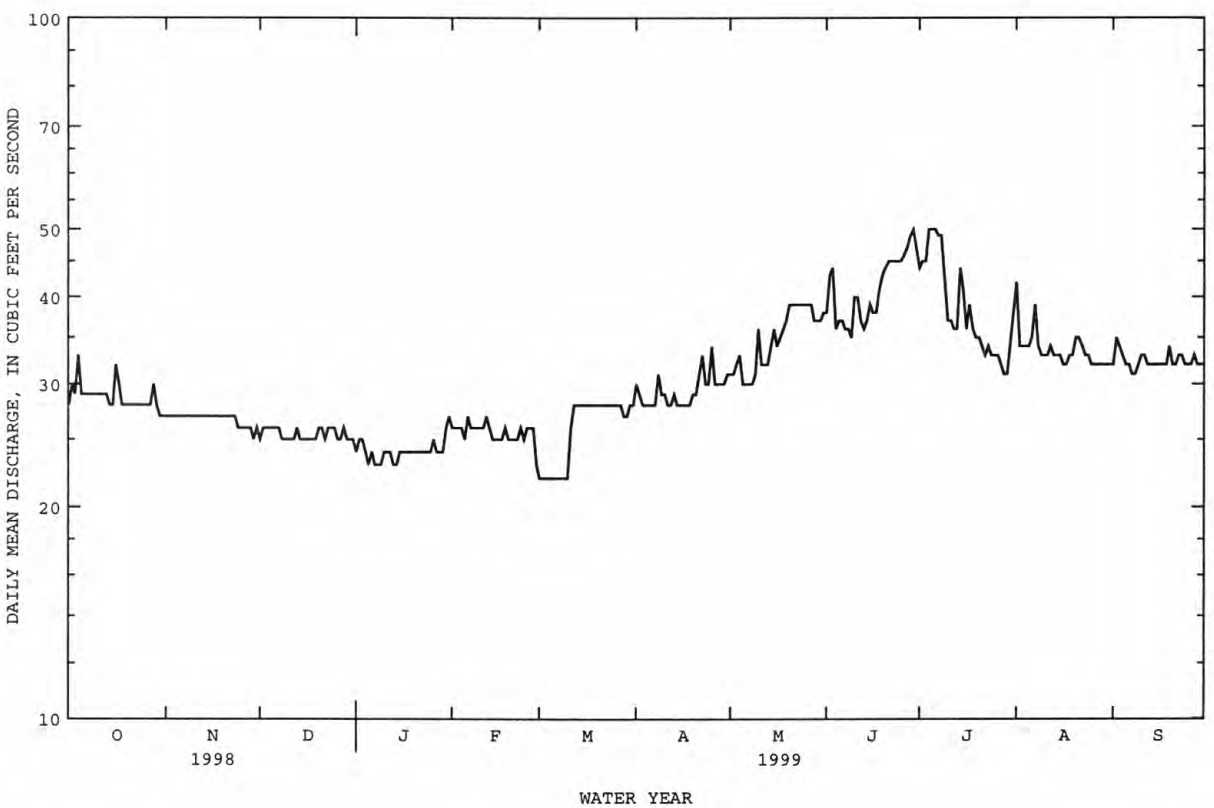
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	e27	25	24	26	22	30	31	38	44	42	32
2	30	27	26	25	26	22	29	31	43	45	34	35
3	29	27	26	25	26	22	28	32	44	45	34	34
4	33	27	26	24	26	22	28	33	36	50	34	33
5	29	27	26	23	25	22	28	30	37	50	34	32
6	29	27	26	24	27	22	28	30	37	50	35	32
7	29	27	26	23	26	22	28	30	36	49	39	31
8	29	27	25	23	26	22	31	30	36	49	34	31
9	29	27	25	23	26	22	29	31	35	43	33	32
10	29	27	25	24	26	22	29	36	40	37	33	33
11	29	27	25	24	26	26	28	32	40	37	33	33
12	29	27	25	24	27	28	28	32	37	36	34	32
13	29	27	26	23	26	28	29	32	36	36	33	32
14	28	27	25	23	25	28	28	34	37	44	33	32
15	28	27	25	24	25	28	28	36	39	41	33	32
16	32	27	25	24	25	28	28	34	38	36	32	32
17	30	27	25	24	25	28	28	35	38	39	32	32
18	28	27	25	24	26	28	28	36	41	36	33	32
19	28	27	25	24	25	28	29	37	43	35	33	34
20	28	27	26	24	25	28	29	39	44	35	35	32
21	28	27	26	24	25	28	31	39	45	34	35	32
22	28	27	25	24	25	28	33	39	45	33	34	33
23	28	27	26	24	26	28	30	39	45	34	33	33
24	28	26	26	24	25	28	30	39	45	33	33	32
25	28	26	26	24	26	28	34	39	45	33	32	32
26	28	26	25	25	26	28	30	39	46	33	32	32
27	28	26	25	24	26	28	30	39	47	32	32	33
28	30	26	26	24	23	27	30	37	49	31	32	32
29	28	25	25	24	---	27	30	37	50	31	32	32
30	27	26	25	26	---	28	31	37	47	34	32	32
31	e27	---	25	27	---	28	---	38	---	38	32	---
TOTAL	891	802	788	746	717	804	880	1083	1239	1203	1042	971
MEAN	28.7	26.7	25.4	24.1	25.6	25.9	29.3	34.9	41.3	38.8	33.6	32.4
MAX	33	27	26	27	27	28	34	39	50	50	42	35
MIN	27	25	25	23	23	22	28	30	35	31	32	31
AC-FT	1770	1590	1560	1480	1420	1590	1750	2150	2460	2390	2070	1930
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1999, BY WATER YEAR (WY)*												
MEAN	22.4	22.2	22.7	22.3	22.6	23.0	22.4	22.6	22.5	21.6	21.7	22.2
MAX	28.7	27.8	28.4	28.1	27.0	27.3	29.3	34.9	41.3	38.8	33.6	32.4
(WY)	1999	1998	1998	1998	1998	1998	1999	1999	1999	1999	1999	1999
MIN	18.8	18.3	19.0	19.4	19.8	20.0	19.5	19.0	17.9	18.0	18.6	17.7
(WY)	1973	1987	1987	1984	1977	1982	1970	1976	1981	1980	1972	1983

e Estimated

06402000 FALL RIVER AT HOT SPRINGS, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1970 - 1999*	
ANNUAL TOTAL	9510		11166			
ANNUAL MEAN	26.1		30.6		22.4	
HIGHEST ANNUAL MEAN					30.6	1999
LOWEST ANNUAL MEAN					20.9	1981
HIGHEST DAILY MEAN	46	Aug 20	50	Jun 29	75	Mar 19 1978
LOWEST DAILY MEAN	21	Jun 27	22	Mar 1a	14	May 2 1982b
ANNUAL SEVEN-DAY MINIMUM	22	Aug 6	22	Mar 1	15	Sep 23 1983
INSTANTANEOUS PEAK FLOW			360	Jun 3	1170	Jul 19 1997
INSTANTANEOUS PEAK STAGE			3.52	Jun 3	4.62	Jul 17 1988
ANNUAL RUNOFF (AC-FT)	18860		22150		16200	
10 PERCENT EXCEEDS	28		39		26	
50 PERCENT EXCEEDS	27		29		22	
90 PERCENT EXCEEDS	22		24		19	

* Regulated period only (1970-99). See REMARKS.
a Also Mar. 2-10.
b For some days in 1982, 1983, and 1985.



06402430 BEAVER CREEK NEAR PRINGLE, SD

LOCATION.--Lat 43°34'53", long 103°28'34", in NE¼ SW¼ SW¼ 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 mi^2.

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 sea level, from topographic map.

REMARKS.--Records good except those for May 11 to Aug. 12, which are fair, and those for estimated daily discharges, which are poor. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

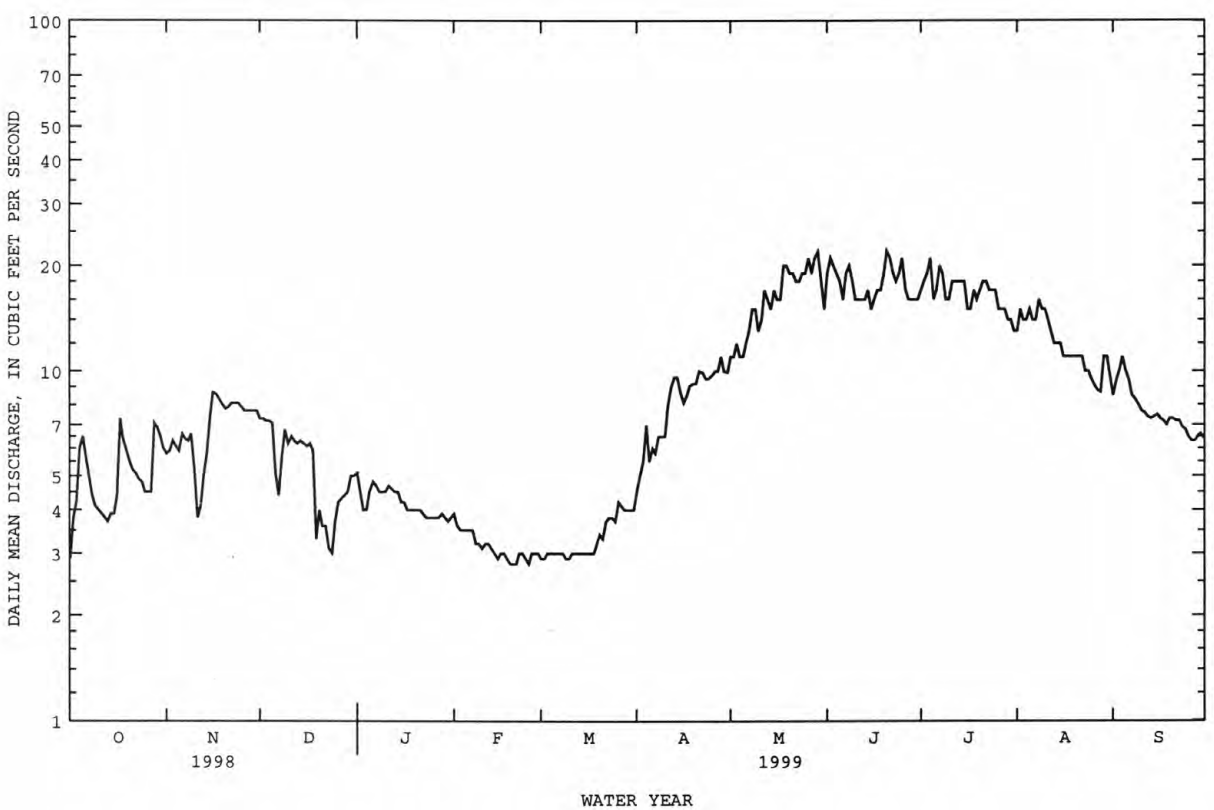
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	5.8	7.3	5.1	e3.9	e2.9	e4.5	11	19	17	13	8.5
2	3.8	5.9	7.3	4.5	e3.6	e2.9	e5.0	11	21	18	15	9.4
3	4.2	6.3	7.2	4.0	e3.5	e3.0	e5.5	12	20	19	14	10
4	6.0	6.1	7.2	4.0	e3.5	e3.0	e7.0	11	19	21	14	11
5	6.5	5.9	7.1	4.5	e3.5	e3.0	e5.5	11	18	16	15	10
6	5.6	6.6	5.1	4.8	e3.5	e3.0	e6.0	12	16	17	14	9.4
7	5.0	6.4	4.4	4.7	e3.5	e3.0	e5.8	13	19	20	14	8.5
8	4.4	6.3	5.7	4.5	e3.2	e3.0	e6.5	15	20	19	16	8.3
9	4.1	6.6	6.8	4.5	e3.2	e2.9	e6.5	15	18	16	15	8.0
10	4.0	5.1	6.2	4.5	e3.1	e2.9	e6.5	13	16	16	15	7.7
11	3.9	3.8	6.5	4.7	e3.2	e3.0	e8.0	14	16	18	14	7.6
12	3.8	4.1	6.3	4.6	e3.2	e3.0	e9.0	17	16	18	13	7.4
13	3.7	5.0	6.2	4.5	e3.1	e3.0	9.6	16	16	18	12	7.3
14	3.9	5.8	6.3	4.5	e3.0	e3.0	9.6	15	17	18	12	7.4
15	3.9	7.4	6.2	e4.2	e2.9	e3.0	8.7	17	15	18	12	7.5
16	4.4	8.7	6.1	e4.2	e3.0	e3.0	8.1	16	16	15	11	7.3
17	7.3	8.6	6.2	e4.0	e3.0	e3.0	8.5	16	17	15	11	7.2
18	6.4	8.3	5.9	e4.0	e2.9	e3.0	9.1	20	17	17	11	7.0
19	5.9	8.0	3.3	e4.0	e2.8	e3.2	9.2	20	19	16	11	7.3
20	5.5	7.8	4.0	e4.0	e2.8	e3.4	9.2	19	22	17	11	7.3
21	5.2	7.9	3.6	e4.0	e2.8	e3.3	10	19	21	18	11	7.2
22	5.1	8.1	3.6	e3.9	e3.0	e3.7	9.9	18	19	18	11	7.2
23	4.9	8.1	3.1	e3.8	e3.0	e3.8	9.5	18	18	17	10	6.9
24	4.8	8.1	3.0	e3.8	e2.9	e3.8	9.5	19	19	17	10	6.8
25	4.5	7.9	3.7	e3.8	e2.8	e3.7	9.7	19	21	17	9.5	6.5
26	4.5	7.7	4.2	e3.8	e3.0	e4.2	10	21	17	15	9.1	6.3
27	4.5	7.7	4.3	e3.8	e3.0	e4.1	10	19	16	15	8.8	6.3
28	7.1	7.7	4.4	e3.9	e3.0	e4.0	11	21	16	15	8.7	6.5
29	6.9	7.7	4.5	e3.8	---	e4.0	10	22	16	14	11	6.6
30	6.5	7.7	5.0	e3.7	---	e4.0	9.9	18	16	14	11	6.4
31	6.0	---	5.0	e3.8	---	e4.0	---	15	---	13	9.6	---
TOTAL	155.2	207.1	165.7	129.9	87.9	102.8	247.3	503	536	522	372.7	230.8
MEAN	5.01	6.90	5.35	4.19	3.14	3.32	8.24	16.2	17.9	16.8	12.0	7.69
MAX	7.3	8.7	7.3	5.1	3.9	4.2	11	22	22	21	16	11
MIN	2.9	3.8	3.0	3.7	2.8	2.9	4.5	11	15	13	8.7	6.3
AC-FT	308	411	329	258	174	204	491	998	1060	1040	739	458
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1999, BY WATER YEAR (WY)												
MEAN	2.28	2.64	2.14	1.87	1.93	3.06	3.49	6.03	10.1	6.35	4.21	3.22
MAX	5.01	6.90	5.35	4.19	3.81	4.72	8.24	16.2	35.8	16.8	12.0	7.69
(WY)	1999	1999	1999	1999	1997	1997	1999	1999	1995	1999	1999	1999
MIN	.095	.20	.22	.14	.25	.45	.39	.54	.59	.55	.23	.18
(WY)	1992	1992	1993	1992	1992	1992	1992	1992	1992	1992	1992	1992

e Estimated

06402430 BEAVER CREEK NEAR PRINGLE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1992 - 1999	
ANNUAL TOTAL	1679.2		3260.4			
ANNUAL MEAN	4.60		8.93		3.95	
HIGHEST ANNUAL MEAN					8.93	1999
LOWEST ANNUAL MEAN					.32	1992
HIGHEST DAILY MEAN	15	Jun 19	22	May 29	85	Jun 10 1995
LOWEST DAILY MEAN	1.7	Feb 28	2.8	Feb 19-21,25	.06	Oct 1 1991
ANNUAL SEVEN-DAY MINIMUM	1.9	Feb 27	2.9	Feb 19	.07	Oct 1 1991
INSTANTANEOUS PEAK FLOW			28	Jun 20a	90	Jun 10 1995
INSTANTANEOUS PEAK STAGE			8.66	Jun 20a	9.17	Jun 10 1995
ANNUAL RUNOFF (AC-FT)	3330		6470		2860	
10 PERCENT EXCEEDS	7.2		18		8.2	
50 PERCENT EXCEEDS	4.5		7.2		2.7	
90 PERCENT EXCEEDS	2.2		3.1		.25	

a Also on May 26, 29, and June 25.



06402500 BEAVER CREEK NEAR BUFFALO GAP, SD

LOCATION.--Lat 43°28'00", long 103°18'20", in NE¼ SE¼ 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 mi^2, 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 sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	14	19	19	18	13	16	17	26	47	29	14
2	14	15	19	19	17	14	15	17	26	45	29	15
3	12	20	20	e19	17	13	16	18	32	44	27	18
4	25	20	20	e19	17	13	16	19	28	42	24	19
5	34	20	20	19	16	14	15	19	28	40	23	18
6	17	20	20	19	16	13	15	18	32	39	22	18
7	14	20	19	19	18	13	13	18	29	38	26	15
8	13	20	19	19	17	16	17	18	28	38	26	15
9	12	21	19	18	17	14	21	18	26	36	26	15
10	12	20	19	17	16	18	21	21	27	33	26	17
11	12	20	19	19	15	14	20	26	56	33	23	19
12	13	19	19	20	15	15	16	21	34	34	24	19
13	12	20	19	19	17	16	14	21	35	34	24	19
14	13	32	20	19	16	18	14	21	32	32	24	19
15	12	24	19	20	15	16	14	22	42	31	24	19
16	14	22	19	19	15	15	13	22	38	30	23	18
17	21	20	19	19	16	14	14	22	34	32	22	19
18	19	20	19	18	15	14	13	22	38	33	22	18
19	15	20	19	18	13	14	14	22	101	33	22	19
20	13	19	e17	19	13	14	14	22	74	32	22	18
21	13	20	e19	19	13	14	17	23	64	31	22	17
22	14	19	e19	19	13	14	17	26	59	31	22	15
23	14	19	e19	18	13	13	18	23	56	30	17	14
24	13	19	e19	18	13	13	16	23	53	29	18	9.2
25	13	19	e19	17	13	13	19	24	51	28	18	9.1
26	12	19	20	18	14	13	26	24	50	28	18	11
27	12	19	20	17	13	13	18	25	50	25	18	12
28	43	19	20	17	13	13	17	25	53	24	18	10
29	22	19	20	16	---	13	16	25	51	23	18	6.6
30	16	19	20	16	---	13	17	25	49	14	18	7.4
31	15	---	19	17	---	13	---	26	---	16	16	---
TOTAL	497	597	597	569	424	436	492	673	1302	1005	691	462.3
MEAN	16.0	19.9	19.3	18.4	15.1	14.1	16.4	21.7	43.4	32.4	22.3	15.4
MAX	43	32	20	20	18	18	26	26	101	47	29	19
MIN	12	14	17	16	13	13	13	17	26	14	16	6.6
AC-FT	986	1180	1180	1130	841	865	976	1330	2580	1990	1370	917

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1999, BY WATER YEAR (WY)

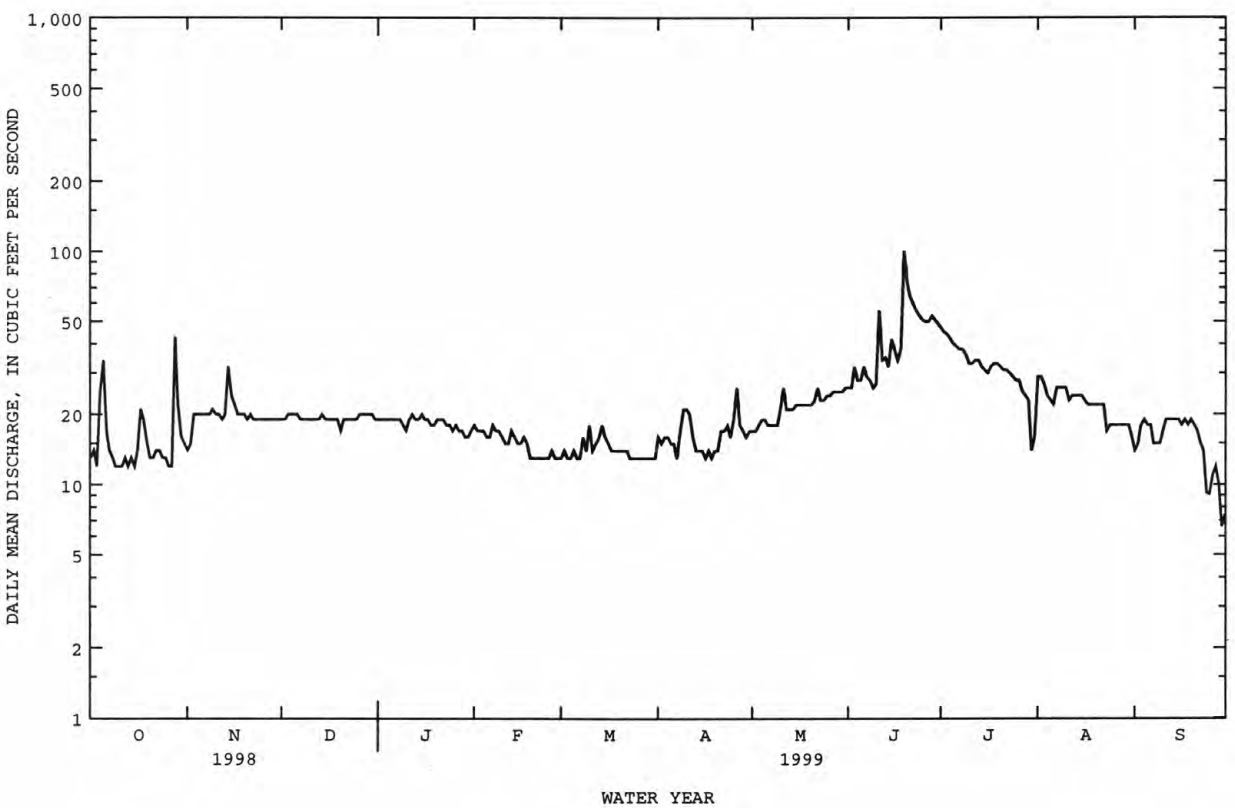
MEAN	7.19	8.96	9.69	9.95	9.94	9.23	6.62	4.99	7.79	5.68	4.28	5.55
MAX	16.0	19.9	19.3	18.4	15.1	16.1	16.9	21.7	43.4	32.4	22.3	15.4
(WY)	1999	1999	1999	1999	1999	1978	1941	1999	1999	1999	1999	1999
MIN	.67	3.40	5.96	7.10	7.00	4.34	.79	.61	.39	.24	.25	.37
(WY)	1961	1950	1991	1985	1942	1961	1967	1960	1974	1953	1961	1960

e Estimated

06402500 BEAVER CREEK NEAR BUFFALO GAP, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1939 - 1999	
ANNUAL TOTAL	4648.1		7745.3			
ANNUAL MEAN	12.7		21.2		7.47	
HIGHEST ANNUAL MEAN					21.2	1999
LOWEST ANNUAL MEAN					3.78	1961
HIGHEST DAILY MEAN	43	Oct 28	101	Jun 19	313	Aug 10 1955
LOWEST DAILY MEAN	3.5	May 9	6.6	Sep 29	.00	Jul 29 1952a
ANNUAL SEVEN-DAY MINIMUM	5.2	May 8	9.3	Sep 24	.06	Jul 28 1952
INSTANTANEOUS PEAK FLOW			115	Jun 19	11700	Sep 4 1938b
INSTANTANEOUS PEAK STAGE			6.41	Jun 19	16.46	Sep 4 1938c
ANNUAL RUNOFF (AC-FT)	9220		15360		5410	
10 PERCENT EXCEEDS	19		32		12	
50 PERCENT EXCEEDS	11		19		8.0	
90 PERCENT EXCEEDS	8.8		13		.70	

a No flow at times in some years.
b From rating curve extended above 11 ft^3/s on basis of slope-area measurement.
c Site and datum then in use.



06403300 FRENCH CREEK ABOVE FAIRBURN, SD

LOCATION.--Lat 43°43'02", long 103°22'03", in SW¼ SW¼ NE¼ 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 mi^2, approximately.

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

GAGE.--Water-stage recorder. Elevation of gage is 3,850 ft above sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	42	37	e17	e12	e22	22	68	47	44	103	17
2	11	40	35	e15	e12	e21	22	67	46	41	86	17
3	16	42	34	e15	e14	e20	20	63	53	38	43	21
4	22	42	34	e13	e15	e20	19	63	55	36	32	28
5	36	38	33	e13	e16	e20	19	59	48	33	28	27
6	28	40	32	e16	e17	e19	23	51	59	31	28	22
7	22	41	e30	e16	e18	e19	30	48	67	31	29	19
8	19	e50	e30	e16	e18	e18	34	45	54	30	251	17
9	18	e55	e29	e14	e18	e18	46	44	46	28	66	17
10	16	e60	e28	e14	e19	e17	49	51	44	26	37	17
11	15	e60	e27	e14	e20	e17	44	60	76	26	30	17
12	15	e60	26	e17	e18	12	42	53	87	27	26	16
13	14	e60	26	e16	e17	12	42	48	75	26	24	16
14	14	e55	26	e15	e17	13	42	49	73	24	23	16
15	13	e50	26	e18	e18	39	43	57	86	23	21	16
16	14	e50	25	e18	e19	40	38	55	87	28	20	17
17	25	e50	25	e17	e20	34	36	54	76	40	19	16
18	32	e48	e20	e17	e19	25	37	48	74	56	18	16
19	28	e45	e18	e16	e19	20	39	44	92	43	18	17
20	27	e45	e17	e15	e18	20	38	51	78	41	18	17
21	24	42	e16	e14	e17	22	47	60	65	42	17	17
22	21	42	e15	e13	e16	21	67	61	60	34	18	16
23	19	45	e14	e13	e17	19	68	72	55	26	18	15
24	19	43	e14	e14	e17	18	61	60	54	23	17	15
25	18	41	e18	e14	e18	20	62	54	50	21	16	15
26	17	40	e20	e15	e20	23	83	51	48	19	16	14
27	16	39	e21	e15	e24	20	80	48	48	18	16	14
28	51	39	e22	e15	e24	20	73	46	49	18	16	16
29	85	39	e23	e14	---	17	69	44	47	17	18	16
30	57	38	e21	e14	---	17	68	42	44	16	22	16
31	47	---	e19	e13	---	18	---	43	---	19	19	---
TOTAL	768.5	1381	761	466	497	641	1363	1659	1843	925	1113	520
MEAN	24.8	46.0	24.5	15.0	17.8	20.7	45.4	53.5	61.4	29.8	35.9	17.3
MAX	85	60	37	18	24	40	83	72	92	56	251	28
MIN	9.5	38	14	13	12	12	19	42	44	16	16	14
AC-FT	1520	2740	1510	924	986	1270	2700	3290	3660	1830	2210	1030

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1999, BY WATER YEAR (WY)

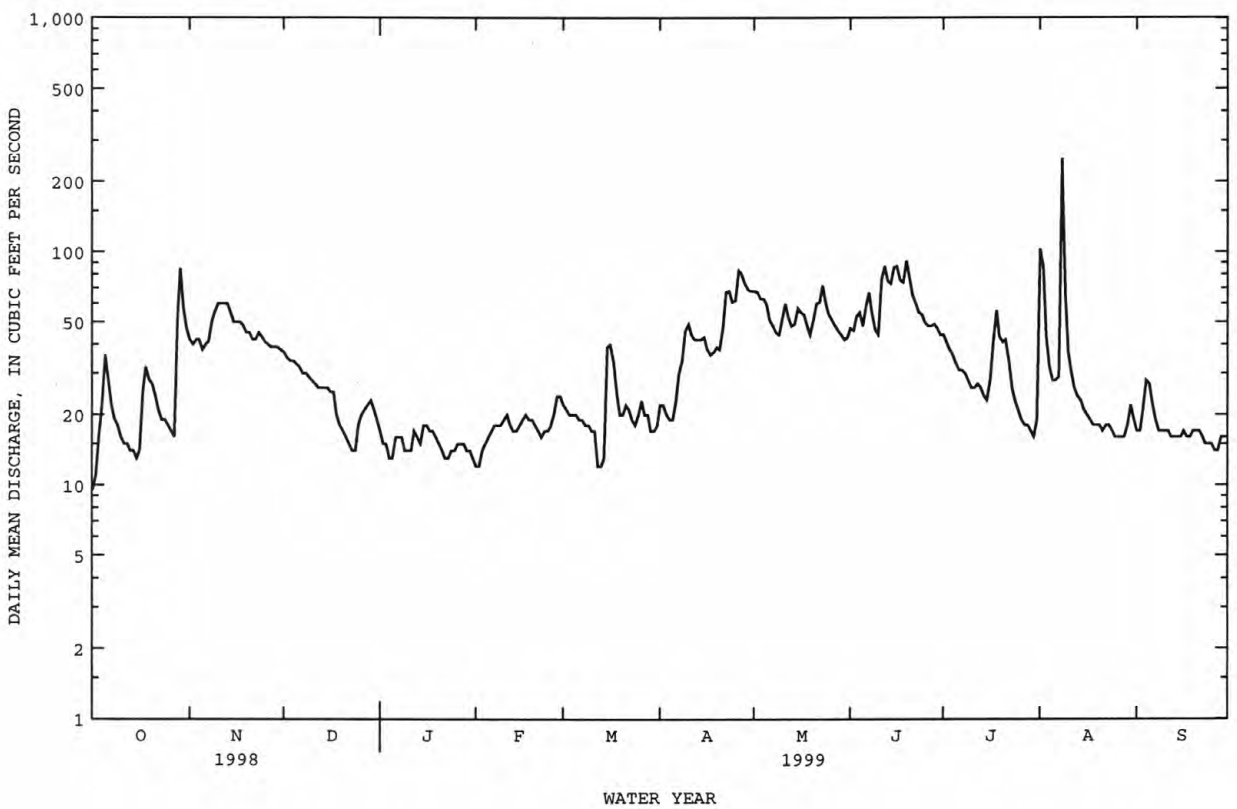
MEAN	7.19	7.67	4.25	3.73	4.50	11.2	12.4	30.1	33.8	14.5	11.0	6.11
MAX	24.8	46.0	24.5	15.0	17.8	24.8	45.4	147	143	46.4	42.7	17.3
(WY)	1999	1999	1999	1999	1999	1987	1999	1995	1995	1995	1997	1999
MIN	.84	1.07	.69	.39	.19	1.59	1.63	1.00	.46	.44	.53	.65
(WY)	1988	1986	1990	1989	1989	1988	1989	1989	1989	1985	1985	1987

e Estimated

06403300 FRENCH CREEK ABOVE FAIRBURN, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1983 - 1999	
ANNUAL TOTAL	9090.1		11937.5			
ANNUAL MEAN	24.9		32.7		12.2a	
HIGHEST ANNUAL MEAN					34.7	1995
LOWEST ANNUAL MEAN					1.01	1989
HIGHEST DAILY MEAN	242	Jun 19	251	Aug 8	536	May 8 1995
LOWEST DAILY MEAN	5.0	Jan 12	9.5	Oct 1	.02	Feb 3 1989b
ANNUAL SEVEN-DAY MINIMUM	5.9	Jan 31	13	Jan 28	.03	Feb 2 1989
INSTANTANEOUS PEAK FLOW			572	Aug 8	1060	May 8 1995c
INSTANTANEOUS PEAK STAGE			3.35	Aug 8	4.08	May 8 1995d
ANNUAL RUNOFF (AC-FT)	18030		23680		8860	
10 PERCENT EXCEEDS	45		60		28	
50 PERCENT EXCEEDS	20		24		5.1	
90 PERCENT EXCEEDS	7.9		15		.80	

a Median of annual mean discharges, 7.6 ft^3/s.
b Also Feb. 4, 5, 1989.
c Peak flow determined from slope-area measurement.
d From floodmarks.



06403700 CHEYENNE RIVER AT REDSHIRT, SD

LOCATION.--Lat 43°40'23", long 102°53'36", in SW¼ SE¼ NW¼ sec.26, T.4 S., R.10 E., Custer County, Hydrologic Unit 10120109, 0.75 mi northeast of Redshirt, approximately 22 mi southeast of Hermosa on State Highway 40 East, on right stream bank.

DRAINAGE AREA.--1,120 mi^2, approximately.

PERIOD OF RECORD.--October 1998 to September 1999.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,670 ft above sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	504	363	e142	e108	199	194	719	272	657	565	126
2	109	500	222	e145	e127	200	201	739	275	523	410	124
3	124	1100	193	e142	e123	216	208	643	457	461	315	148
4	236	1900	182	e140	e123	234	226	594	600	498	242	192
5	528	1560	177	e139	e121	238	250	596	535	484	201	165
6	608	1340	170	e139	129	237	211	561	815	470	177	153
7	305	1360	159	e136	137	236	198	403	847	456	207	142
8	216	1330	155	e131	141	222	438	262	609	442	227	139
9	173	1340	157	e126	134	215	696	237	671	434	296	135
10	154	1300	146	e127	128	244	703	329	626	324	249	135
11	146	1250	160	e131	122	240	807	618	625	202	195	132
12	132	1210	150	e138	113	242	943	554	1160	178	169	137
13	126	1210	150	e149	111	252	982	391	1140	169	160	133
14	124	970	152	e133	113	256	1040	349	1620	158	153	128
15	121	833	150	e119	115	251	806	371	4600	157	144	127
16	126	710	148	e121	112	233	725	415	4660	169	134	130
17	270	839	147	e109	110	233	701	397	3830	162	125	127
18	185	957	148	e103	116	249	569	359	3130	217	123	130
19	158	929	e103	e101	116	243	441	291	3010	212	121	133
20	146	901	e95	e100	114	224	301	297	2260	202	120	137
21	138	876	e90	e99	112	215	392	333	1530	186	118	126
22	138	860	e88	e100	145	228	465	336	1290	173	129	122
23	244	843	e88	e103	195	278	423	370	1150	169	131	122
24	351	661	e84	e106	202	269	447	672	737	159	123	119
25	413	499	e84	e89	204	248	470	495	745	142	122	116
26	419	418	e105	e73	205	228	986	431	701	136	121	108
27	419	404	e123	e86	204	211	1040	412	548	131	120	110
28	515	399	e139	e91	202	206	773	379	559	115	123	117
29	735	397	e150	e90	---	197	690	342	552	109	140	118
30	577	390	e144	e87	---	198	678	285	779	108	139	114
31	536	---	e143	e91	---	194	---	262	---	115	133	---
TOTAL	8574	27790	4565	3586	3882	7136	17004	13442	40333	8118	5732	3945
MEAN	277	926	147	116	139	230	567	434	1344	262	185	132
MAX	735	1900	363	149	205	278	1040	739	4660	657	565	192
MIN	102	390	84	73	108	194	194	237	272	108	118	108
AC-FT	17010	55120	9050	7110	7700	14150	33730	26660	80000	16100	11370	7820

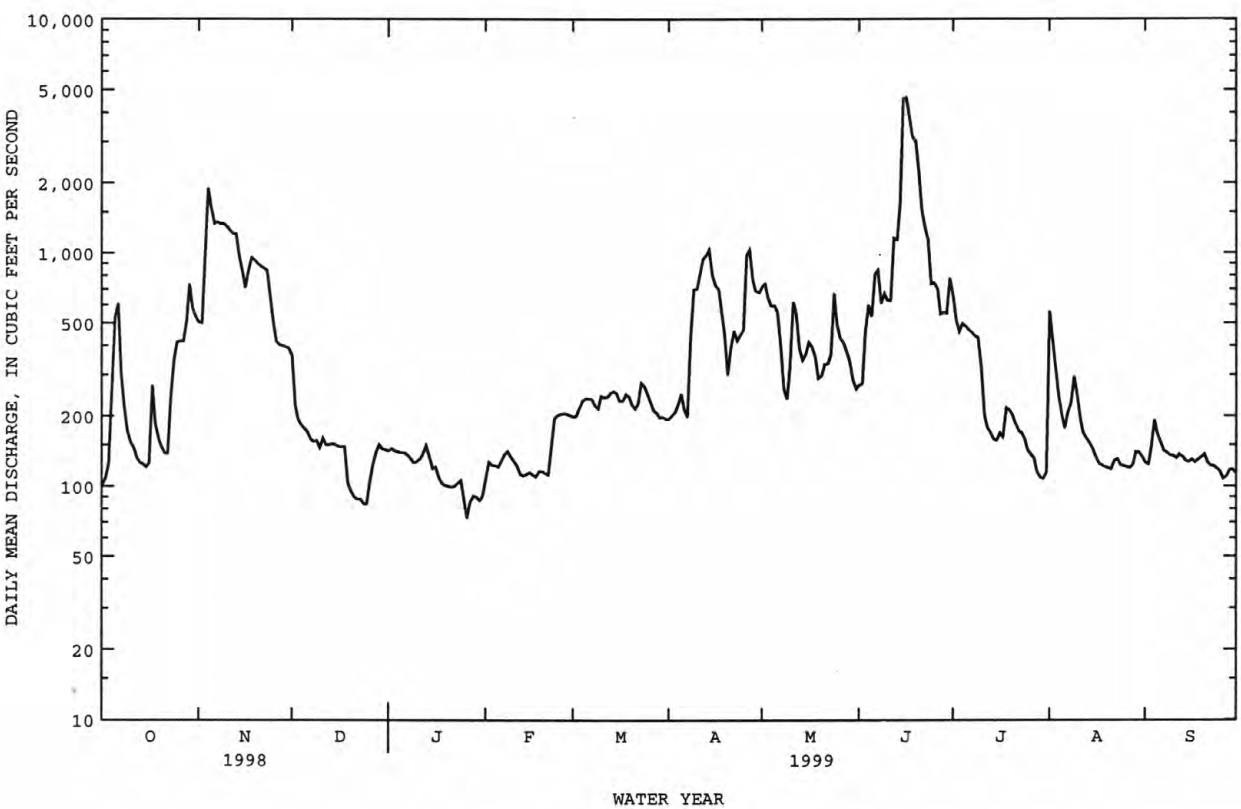
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 1999, BY WATER YEAR (WY)

MEAN	277	926	147	116	139	230	567	434	1344	262	185	132
MAX	277	926	147	116	139	230	567	434	1344	262	185	132
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	277	926	147	116	139	230	567	434	1344	262	185	132
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

e Estimated

06403700 CHEYENNE RIVER AT REDSHIRT, SD--Continued

SUMMARY STATISTICS	FOR 1999 WATER YEAR	
ANNUAL TOTAL	144107	
ANNUAL MEAN	395	
HIGHEST DAILY MEAN	4660	Jun 16
LOWEST DAILY MEAN	73	Jan 26
ANNUAL SEVEN-DAY MINIMUM	87	Jan 25
INSTANTANEOUS PEAK FLOW	5610	Jun 15
INSTANTANEOUS PEAK STAGE	17.18	Jun 15
ANNUAL RUNOFF (AC-FT)	285800	
10 PERCENT EXCEEDS	841	
50 PERCENT EXCEEDS	204	
90 PERCENT EXCEEDS	114	



06404000 BATTLE CREEK NEAR KEYSTONE, SD

LOCATION.--Lat 43°52'21", long 103°20'10", in SW¼ SW¼ 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 mi^2.

WATER-DISCHARGE RECORDS

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 sea level, 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 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

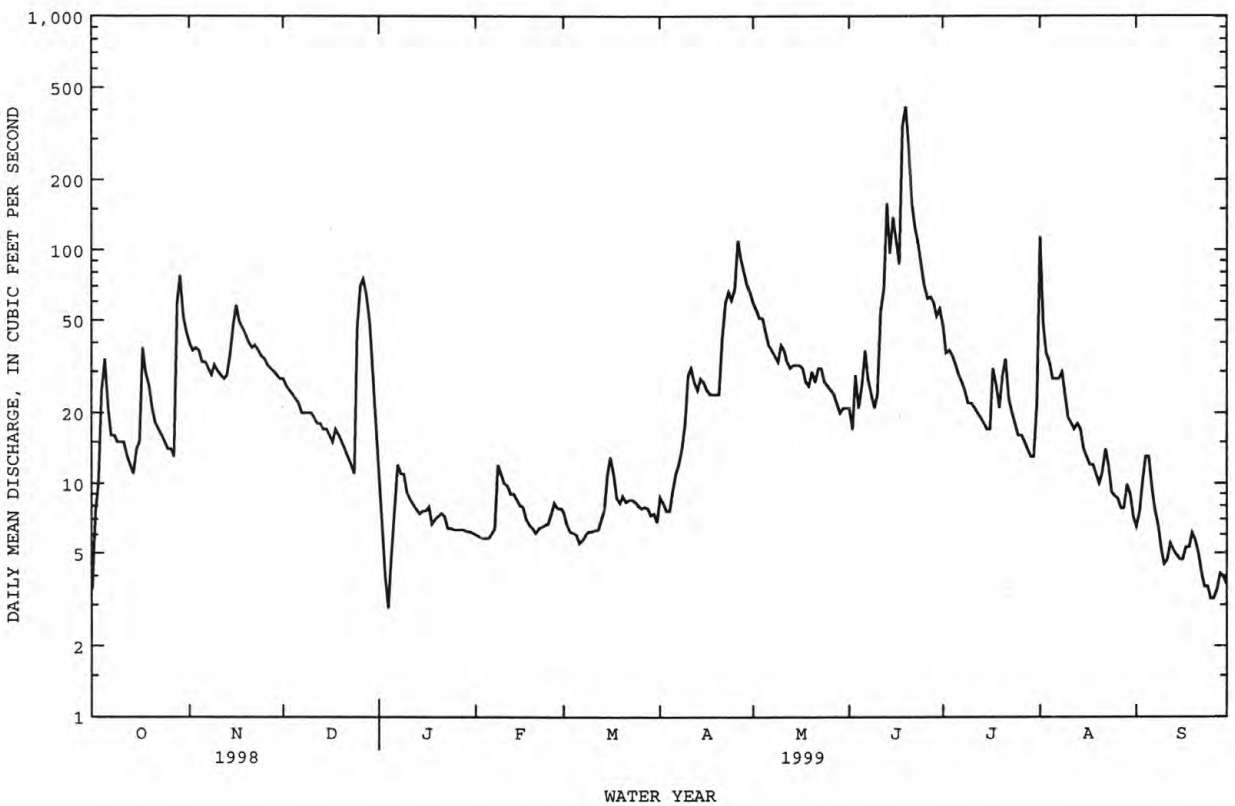
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	40	28	12	e6.0	7.5	8.7	59	21	47	114	6.5
2	7.5	37	26	e6.5	e5.9	6.6	8.2	55	17	36	48	7.5
3	10	38	25	e4.0	e5.8	e6.2	7.6	51	29	37	36	10
4	25	37	24	e2.9	e5.8	e6.1	7.6	51	21	35	33	13
5	34	33	23	e4.8	e5.8	e6.0	9.2	44	26	32	28	13
6	21	33	22	e7.5	e6.1	e5.5	11	39	37	29	28	9.5
7	16	31	e20	12	e6.4	e5.7	12	37	28	27	28	7.7
8	16	29	e20	11	e12	e6.0	14	35	24	25	30	6.6
9	15	32	e20	11	e11	e6.2	18	33	21	22	24	5.2
10	15	30	e20	9.1	e10	e6.2	29	39	24	22	19	4.5
11	15	e29	19	8.5	e9.8	e6.3	31	37	55	21	18	4.7
12	13	e28	18	8.1	e9.0	e6.3	27	33	68	20	17	5.5
13	12	29	18	7.7	e9.0	e7.0	25	31	158	19	18	5.1
14	11	36	17	7.4	e8.5	7.7	28	32	97	18	17	4.9
15	14	48	17	7.6	e8.0	11	27	32	139	17	14	4.7
16	15	58	16	7.6	e7.9	13	25	32	111	17	13	4.7
17	38	49	15	7.9	e7.0	11	24	31	87	31	12	5.3
18	30	46	e17	e6.7	e6.6	8.6	24	27	339	26	12	5.3
19	26	43	e16	7.0	e6.4	8.2	24	26	414	21	11	6.1
20	21	40	e15	7.2	e6.1	8.8	24	30	287	29	10	5.7
21	18	38	e14	7.4	e6.4	8.3	42	27	160	34	11	5.0
22	17	39	e13	7.2	e6.5	8.5	59	31	124	23	14	4.1
23	16	37	e12	e6.4	e6.6	8.5	66	31	108	20	12	3.6
24	15	35	e11	e6.4	e6.7	8.3	61	27	87	18	9.1	3.6
25	14	34	46	e6.3	7.4	8.0	68	26	71	16	8.8	3.2
26	14	32	70	e6.3	8.2	7.8	110	25	62	16	8.6	3.2
27	13	31	75	e6.3	7.8	7.9	92	24	63	15	7.8	3.5
28	59	30	64	e6.3	7.8	7.8	80	22	59	14	7.8	4.1
29	78	29	49	e6.2	---	7.3	71	20	52	13	9.9	4.0
30	52	28	30	e6.2	---	7.4	65	21	56	13	9.0	3.7
31	45	---	19	e6.1	---	6.8	---	21	---	22	7.1	---
TOTAL	699.0	1079	799	227.6	210.5	236.5	1098.3	1029	2845	735	635.1	173.5
MEAN	22.5	36.0	25.8	7.34	7.52	7.63	36.6	33.2	94.8	23.7	20.5	5.78
MAX	78	58	75	12	12	13	110	59	414	47	114	13
MIN	3.5	28	11	2.9	5.8	5.5	7.6	20	17	13	7.1	3.2
AC-FT	1390	2140	1580	451	418	469	2180	2040	5640	1460	1260	344
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1999, BY WATER YEAR (WY)												
MEAN	3.15	3.52	2.53	1.81	2.04	3.90	9.73	30.4	40.6	12.6	5.29	2.37
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	.000	.000	.000	.000	.000	.46	1.49	1.24	.22	.039	.000	.000
(WY)	1962	1989	1989	1962	1989	1962	1981	1985	1985	1989	1989	1975

e Estimated

06404000 BATTLE CREEK NEAR KEYSTONE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1962 - 1999	
ANNUAL TOTAL	6964.0		9767.5			
ANNUAL MEAN	19.1		26.8		9.84a	
HIGHEST ANNUAL MEAN					27.7	1995
LOWEST ANNUAL MEAN					.69	1988
HIGHEST DAILY MEAN	458	Jun 18	414	Jun 19	2400	Jun 10 1972
LOWEST DAILY MEAN	2.5	Jan 13	2.9	Jan 4	.00	Oct 1 1961b
ANNUAL SEVEN-DAY MINIMUM	2.9	Mar 5	3.6	Sep 23	.00	Oct 1 1961
INSTANTANEOUS PEAK FLOW			2000	Jun 18	26200	Jun 9 1972c
INSTANTANEOUS PEAK STAGE			7.46	Jun 18	14.50	Jun 9 1972c
ANNUAL RUNOFF (AC-FT)	13810		19370		7130	
10 PERCENT EXCEEDS	37		55		19	
50 PERCENT EXCEEDS	13		17		2.6	
90 PERCENT EXCEEDS	3.5		6.1		.30	

a Median of annual mean discharges, 7.9 ft^3/s.
b No flow at times in some years.
c From floodmarks, site then in use, from rating curve extended above 5.5 ft^3/s on basis of slope-area measurement of peak flow.



06404000 BATTLE CREEK NEAR KEYSTONE, SD-Continued

PRECIPITATION RECORDS

PERIOD OF RECORD.--October 1988 to current year. Water years 1990, 1993-97, and 1999 are partial years.

INSTRUMENTATION.--Non-shielded tipping bucket precipitation recorder. Prior to Mar. 20, 1999, gage located 0.1 mi east of streamflow gaging station and read daily by observer.

REMARKS.--Records fair.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	---	---	---	.07	.01	.00	.00	.50	.05
2	.82	.00	.00	---	---	---	.00	.00	.28	.00	.00	.18
3	.00	.62	.00	---	---	---	.00	.25	.34	.00	.00	.29
4	1.82	.00	.00	---	---	---	.45	.00	.14	.00	.00	.22
5	.00	.00	.00	---	---	---	.14	.00	1.54	.00	.15	.00
6	.00	.00	.00	---	---	---	.01	.00	.03	.00	.19	.00
7	.00	.08	.00	---	---	---	.00	.00	.02	.00	.00	.20
8	.00	.00	.00	---	---	---	.30	.00	.01	.00	.00	.00
9	.00	.00	.00	---	---	---	.12	.00	.00	.00	.00	.00
10	.00	.00	.00	---	---	---	.37	.56	.77	.00	.00	.00
11	.18	.00	.00	---	---	---	.00	.00	.38	.00	.00	.08
12	.00	.00	.00	---	---	---	.00	.00	.55	.00	.03	.01
13	.00	.00	.00	---	---	---	.04	.04	.00	.00	.00	.00
14	.00	.00	.00	---	---	---	.27	.25	.40	.00	.00	.00
15	.00	.00	.00	---	---	---	.00	.10	.15	.03	.00	.00
16	.00	.00	.00	---	---	---	.00	.20	.00	.00	.00	.00
17	2.00	.00	.00	---	---	---	.00	.00	.04	.84	.00	.00
18	.00	.00	.00	---	---	---	.00	.00	1.64	.00	.00	.14
19	.00	.00	.00	---	---	---	.00	.07	.28	.11	.00	.12
20	.00	.00	.00	---	---	.00	.22	.04	.00	.02	.00	.00
21	.00	.00	.00	---	---	.00	.58	.24	.00	.00	.75	.00
22	.00	.00	.00	---	---	.05	.89	.13	.21	.00	.00	.00
23	.00	.00	.00	---	---	.00	.00	.00	.02	.00	.00	.00
24	.10	.00	.00	---	---	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	---	---	.00	.59	.00	.00	.00	.00	.00
26	.00	.00	.00	---	---	.00	.00	.02	.13	.00	.00	.00
27	.00	.00	.00	---	---	.04	.02	.00	.09	.00	.00	.23
28	1.10	.00	.00	---	---	.00	.00	.00	.01	.00	.00	.00
29	.00	.00	.00	---	---	.00	.00	.00	.00	.00	.18	.00
30	.00	.00	.03	---	---	.00	.01	.00	.19	.35	.00	.00
31	.00	---	.00	---	---	.07	---	.02	---	2.06	.00	---
TOTAL	6.02	0.70	0.03	---	---	---	4.08	1.93	7.22	3.41	1.80	1.52

CAL YR 1998 TOTAL 23.91

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06404998 GRACE COOLIDGE CREEK NEAR GAME LODGE, NEAR CUSTER, SD

LOCATION.--Lat 43°45'40", long 103°21'49", in SW¼ NE¼ 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 mi^2.

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 sea level, 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 ft^3/s from slope-area measurement of peak flow. Flood of June 15, 1976, reached a stage of 10.90 ft, from floodmarks, discharge, 980 ft^3/s on basis of slope-area measurement of 10.35 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	25	19	8.9	e7.1	5.9	7.6	44	14	16	40	7.8
2	8.4	24	18	8.3	7.1	5.9	6.9	39	13	15	21	8.6
3	9.4	24	18	e8.3	6.9	5.6	6.6	37	18	14	16	9.5
4	16	22	17	e8.5	7.0	5.7	6.4	36	14	13	15	11
5	18	21	17	9.2	6.9	5.8	7.3	31	14	12	14	9.3
6	13	22	15	9.1	6.9	e5.7	8.3	27	16	12	13	8.1
7	12	21	e15	8.9	7.0	5.7	9.2	25	13	12	22	7.5
8	11	21	e15	8.6	7.2	5.9	11	24	12	12	23	7.2
9	10	22	14	8.5	6.9	6.2	12	24	11	11	18	7.0
10	9.5	21	14	8.4	7.2	6.4	19	30	13	11	16	7.0
11	9.7	21	13	8.5	6.5	6.1	19	27	24	11	15	6.9
12	9.0	20	13	8.6	e6.6	5.9	20	23	20	11	14	6.9
13	8.8	21	13	8.2	6.6	6.2	19	22	21	10	14	6.6
14	8.6	24	13	8.0	6.5	6.8	22	23	21	9.9	13	6.6
15	8.4	31	12	8.3	6.4	8.0	20	23	26	9.9	12	6.6
16	9.3	38	12	8.1	6.2	8.4	19	22	25	12	11	6.4
17	19	38	12	7.9	6.2	7.8	18	21	24	17	11	6.2
18	16	36	12	7.7	6.2	7.0	18	20	29	14	11	5.9
19	15	33	e10	7.8	6.0	7.0	17	19	33	12	10	6.4
20	14	30	e8.9	8.4	6.0	6.9	18	22	29	11	10	6.1
21	14	29	e7.4	8.2	5.8	6.6	26	20	26	11	10	6.0
22	13	29	e7.0	7.8	6.0	6.8	34	24	24	9.7	11	5.7
23	13	27	e6.9	7.6	5.7	6.7	41	22	24	9.0	9.4	5.4
24	13	26	e6.8	7.6	5.9	6.6	43	21	21	8.5	9.0	5.3
25	12	24	e6.7	e7.6	6.0	6.5	50	21	19	8.0	8.8	5.2
26	12	22	e7.5	7.6	6.1	6.4	e67	20	18	7.8	8.5	5.4
27	11	22	e8.4	7.6	5.8	6.4	e63	22	19	7.7	8.3	5.7
28	37	21	9.4	e7.8	5.7	6.3	56	17	18	7.4	8.1	6.3
29	40	21	9.2	e7.6	---	5.9	50	15	17	7.2	9.1	5.7
30	32	20	9.2	7.3	---	5.8	46	15	16	7.2	8.5	5.4
31	28	---	8.9	e7.1	---	5.7	---	15	---	12	7.7	---
TOTAL	455.4	756	368.3	252.0	180.4	198.6	760.3	751	592	341.3	417.4	203.7
MEAN	14.7	25.2	11.9	8.13	6.44	6.41	25.3	24.2	19.7	11.0	13.5	6.79
MAX	40	38	19	9.2	7.2	8.4	67	44	33	17	40	11
MIN	5.3	20	6.7	7.1	5.7	5.6	6.4	15	11	7.2	7.7	5.2
AC-FT	903	1500	731	500	358	394	1510	1490	1170	677	828	404

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1999, BY WATER YEAR (WY)

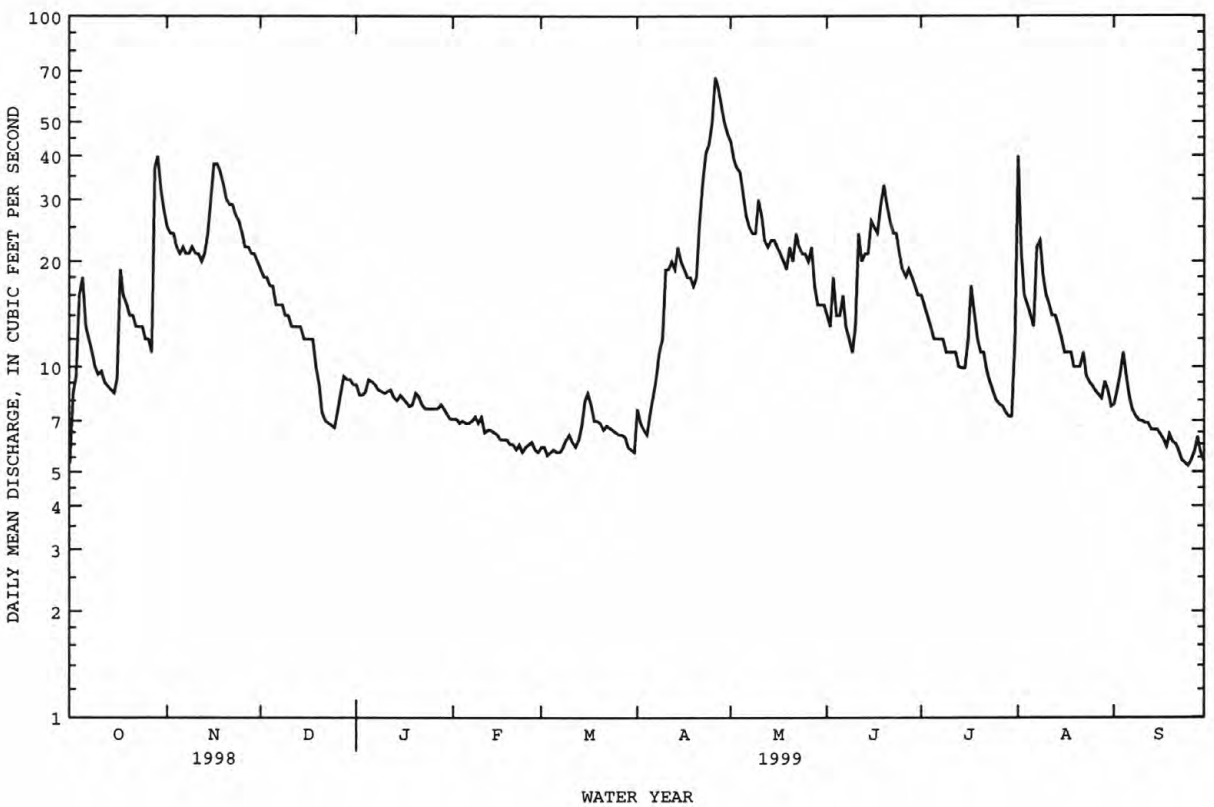
MEAN	3.31	3.45	2.22	1.85	1.71	2.46	4.34	18.2	14.5	6.09	4.41	2.87
MAX	14.7	25.2	11.9	8.13	6.44	6.41	25.3	115	66.8	22.3	14.3	7.51
(WY)	1999	1999	1999	1999	1999	1999	1999	1995	1995	1979	1997	1997
MIN	.36	.41	.32	.45	.004	.61	.63	.67	.25	.097	.26	.13
(WY)	1989	1986	1986	1988	1989	1981	1981	1977	1988	1988	1985	1988

e Estimated

06404998 GRACE COOLIDGE CREEK NEAR GAME LODGE, NEAR CUSTER, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1977 - 1999	
ANNUAL TOTAL	4213.7		5276.4			
ANNUAL MEAN	11.5		14.5		5.47	
HIGHEST ANNUAL MEAN					19.1	1995
LOWEST ANNUAL MEAN					.61	1988
HIGHEST DAILY MEAN	93	Jun 18	67	Apr 26	505	May 8 1995
LOWEST DAILY MEAN	1.9	Mar 11	5.2	Sep 25	.00	Jun 5 1977a
ANNUAL SEVEN-DAY MINIMUM	2.1	Mar 6	5.5	Sep 21	.00	Sep 1 1988
INSTANTANEOUS PEAK FLOW			70	Apr 26	1030	Sep 7 1989b
INSTANTANEOUS PEAK STAGE			8.06	Apr 26	12.76	Feb 9 1979c
ANNUAL RUNOFF (AC-FT)	8360		10470		3970	
10 PERCENT EXCEEDS	22		26		11	
50 PERCENT EXCEEDS	9.3		11		2.0	
90 PERCENT EXCEEDS	3.0		6.2		.52	

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 ft^3/s on basis of slope-area measurement of peak flow.
c Backwater from ice.



06406000 BATTLE CREEK AT HERMOSA, SD

LOCATION.--Lat 43°49'41", long 103°11'44", in NE¼ SW¼ SW¼ 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 mi^2.

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 sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

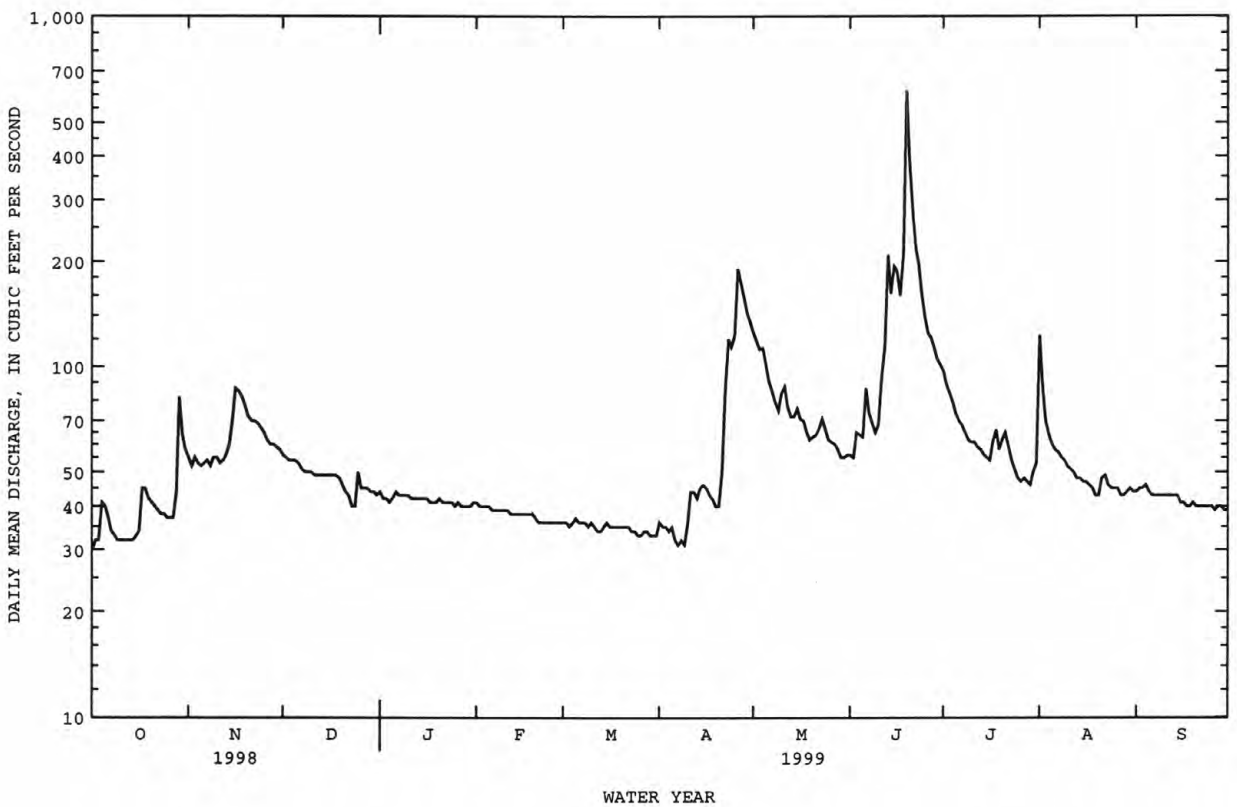
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	55	56	44	41	36	36	125	56	97	123	44
2	32	52	55	e42	40	36	35	118	55	89	87	45
3	32	55	54	e42	40	35	35	112	65	84	70	45
4	41	53	54	e41	40	36	34	113	64	79	64	46
5	40	52	54	e42	40	37	35	101	63	73	60	44
6	37	53	53	44	39	36	32	91	87	70	58	43
7	34	54	51	43	39	36	31	85	74	68	57	43
8	33	52	50	43	39	36	32	79	69	65	55	43
9	32	55	50	43	39	35	31	75	65	62	54	43
10	32	55	50	43	39	36	36	84	68	61	52	43
11	32	53	49	42	39	35	44	88	93	61	51	43
12	32	54	49	42	38	34	44	77	114	59	50	43
13	32	56	49	42	38	34	42	72	209	58	48	43
14	32	60	49	42	38	35	45	72	162	56	48	43
15	33	71	49	42	38	36	46	76	194	55	47	41
16	34	87	49	42	38	35	45	71	188	54	47	41
17	45	85	49	41	38	35	43	70	160	61	46	40
18	45	82	49	41	38	35	42	65	210	66	45	40
19	42	77	e48	41	38	35	40	62	617	58	43	41
20	41	72	e46	42	37	35	40	63	389	62	43	40
21	40	70	e44	41	36	35	50	64	279	65	48	40
22	39	70	e43	41	36	35	86	67	219	59	49	40
23	38	69	e40	41	36	34	120	71	197	54	46	40
24	38	67	e40	41	36	34	114	66	161	51	45	40
25	37	65	50	40	36	33	123	62	140	48	45	40
26	37	62	45	41	36	33	191	61	124	47	45	39
27	37	60	45	40	36	34	174	60	121	48	43	40
28	44	60	45	40	36	34	158	58	113	47	43	40
29	82	59	44	40	---	33	143	55	105	46	44	39
30	64	58	44	40	---	33	133	55	101	50	45	39
31	58	---	43	41	---	33	---	56	---	53	44	---
TOTAL	1225	1873	1496	1290	1064	1079	2060	2374	4562	1906	1645	1251
MEAN	39.5	62.4	48.3	41.6	38.0	34.8	68.7	76.6	152	61.5	53.1	41.7
MAX	82	87	56	44	41	37	191	125	617	97	123	46
MIN	30	52	40	40	36	33	31	55	55	46	43	39
AC-FT	2430	3720	2970	2560	2110	2140	4090	4710	9050	3780	3260	2480
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1999, BY WATER YEAR (WY)												
MEAN	6.56	7.27	6.11	5.48	5.16	5.64	8.18	33.0	44.3	16.3	9.01	6.75
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	.10	.10	.10	.19	.31	.41	.34	.74	.78	.23	.17	.050
(WY)	1956	1962	1962	1962	1962	1962	1962	1955	1954	1989	1961	1955

e Estimated

06406000 BATTLE CREEK AT HERMOSA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1950 - 1999	
ANNUAL TOTAL	14223		21825			
ANNUAL MEAN	39.0		59.8		12.8a	
HIGHEST ANNUAL MEAN					59.8	1999
LOWEST ANNUAL MEAN					.99	1955
HIGHEST DAILY MEAN	378	Jun 19	617	Jun 19	1750	Jun 10 1972
LOWEST DAILY MEAN	21	Mar 11	30	Oct 1	.00	Oct 6 1954b
ANNUAL SEVEN-DAY MINIMUM	22	Feb 10	32	Oct 8	.00	Oct 9 1954
INSTANTANEOUS PEAK FLOW			1190	Jun 19	21400	Jun 10 1972c
INSTANTANEOUS PEAK STAGE			10.51	Jun 19	17.72	Jun 10 1972c
ANNUAL RUNOFF (AC-FT)	28210		43290		9300	
10 PERCENT EXCEEDS	55		90		28	
50 PERCENT EXCEEDS	33		45		4.0	
90 PERCENT EXCEEDS	23		35		1.1	

a Median of annual mean discharges, 6.8 ft^3/s.
b No flow at times in 1954-57, 1959, and 1989.
c From floodmarks, from rating curve extended above 2,800 ft^3/s on basis of contracted-opening and flow-over-railroad embankment measurement of peak flow.



06406500 BATTLE CREEK BELOW HERMOSA, SD

LOCATION.--Lat 43°43'30", long 102°54'15", in NE¼ SW¼ SE¼ 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 mi^2.

PERIOD OF RECORD.--October 1950 to September 1953, October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,810 ft above sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	55	51	e32	e31	38	42	133	59	129	73	45
2	30	51	50	e32	e29	38	46	127	60	120	142	48
3	31	51	49	e31	e29	38	44	120	66	110	103	51
4	33	52	48	e32	e30	38	43	116	67	102	82	52
5	38	51	47	e33	40	40	45	115	69	95	73	51
6	45	51	46	e33	39	41	50	101	67	89	69	49
7	40	52	e45	e32	39	39	56	92	93	85	64	47
8	36	53	e44	e32	40	40	55	86	83	81	61	46
9	31	53	e42	e32	40	40	53	82	74	77	57	46
10	29	54	e42	e32	39	41	54	84	70	72	55	45
11	29	53	e41	e32	39	41	58	93	75	71	56	45
12	29	49	40	e32	e36	40	65	98	106	70	55	45
13	28	51	40	e31	e40	41	62	85	157	68	52	44
14	29	53	39	e31	38	41	60	81	245	66	49	44
15	28	58	40	e31	38	44	60	81	198	63	51	44
16	31	77	39	e31	38	47	62	85	245	60	49	43
17	35	87	38	e31	38	50	60	81	221	62	49	43
18	50	81	38	e31	38	47	59	79	199	67	48	43
19	50	78	e38	e31	38	45	58	74	410	73	47	43
20	41	73	e36	e32	38	43	57	70	612	64	42	43
21	38	69	e34	e31	38	42	59	70	398	66	43	43
22	37	66	e33	e30	37	43	74	71	294	69	47	43
23	37	65	e30	e30	38	42	e136	73	244	64	54	42
24	36	64	e30	e30	38	42	e137	78	226	57	49	41
25	34	62	e40	e30	38	41	e118	73	197	53	47	41
26	33	60	e35	e30	38	41	e169	69	174	51	46	39
27	33	58	e34	e30	37	41	e162	68	156	50	46	40
28	35	57	e34	e30	37	41	e146	66	151	48	45	42
29	37	55	e33	e30	---	41	e141	64	141	49	46	42
30	70	53	e33	e30	---	40	e135	61	136	49	48	41
31	62	---	e33	e30	---	41	---	59	---	55	47	---
TOTAL	1142	1792	1222	965	1038	1287	2366	2635	5293	2235	1795	1331
MEAN	36.8	59.7	39.4	31.1	37.1	41.5	78.9	85.0	176	72.1	57.9	44.4
MAX	70	87	51	33	40	50	169	133	612	129	142	52
MIN	27	49	30	30	29	38	42	59	59	48	42	39
AC-FT	2270	3550	2420	1910	2060	2550	4690	5230	10500	4430	3560	2640

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1953, 1989 - 1999, BY WATER YEAR (WY)

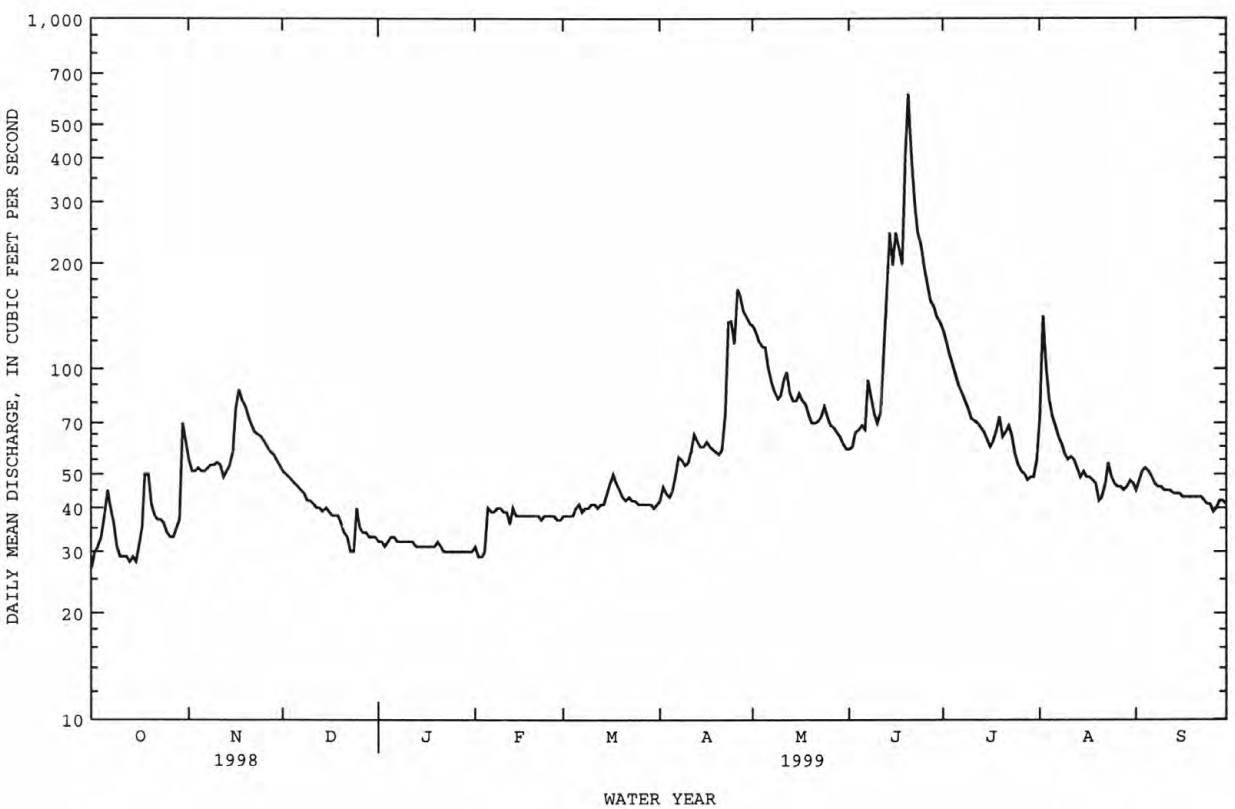
MEAN	11.3	14.3	11.2	10.9	13.8	12.5	15.4	71.6	83.1	24.9	17.8	13.4
MAX	36.8	59.7	39.4	37.4	68.9	41.5	78.9	233	266	72.1	57.9	44.4
(WY)	1999	1999	1999	1997	1997	1999	1999	1995	1995	1999	1999	1999
MIN	.000	.000	.000	.000	.000	.44	.59	.71	.032	.000	.000	.000
(WY)	1953	1989	1989	1989	1989	1990	1990	1989	1989	1989	1989	1952

e Estimated

06406500 BATTLE CREEK BELOW HERMOSA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1951-1953, 1989-1999	
ANNUAL TOTAL	14410		23101			
ANNUAL MEAN	39.5		63.3		25.0a	
HIGHEST ANNUAL MEAN					63.3	1999
LOWEST ANNUAL MEAN					.40	1989
HIGHEST DAILY MEAN	288	Jun 19	612	Jun 20	1760	May 23 1952
LOWEST DAILY MEAN	20	Feb 28	27	Oct 1	.00	Oct 1 1950b
ANNUAL SEVEN-DAY MINIMUM	21	Mar 6	29	Oct 9	.00	Oct 1 1950
INSTANTANEOUS PEAK FLOW			954	Jun 20	2060	May 23 1952c
INSTANTANEOUS PEAK STAGE			8.59	Jun 20	9.30	May 9 1995
ANNUAL RUNOFF (AC-FT)	28580		45820		18130	
10 PERCENT EXCEEDS	57		104		51	
50 PERCENT EXCEEDS	34		47		7.0	
90 PERCENT EXCEEDS	25		32		.00	

a Median of annual mean discharges, 21 ft^3/s.
b No flow for many days in most years.
c From rating curve extended above 110 ft^3/s, gage height, 8.13 ft, different datum.



06406920 SPRING CREEK ABOVE SHERIDAN LAKE, NEAR KEYSTONE, SD

LOCATION.--Lat 43°57'39", long 103°29'18", in SE¼ NE¼ SW¼ 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 mi^2.

REVISED RECORDS.--WDR SD-93-1: Drainage area.

PERIOD OF RECORD.--August 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,650 ft above sea level, from topographic map.

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

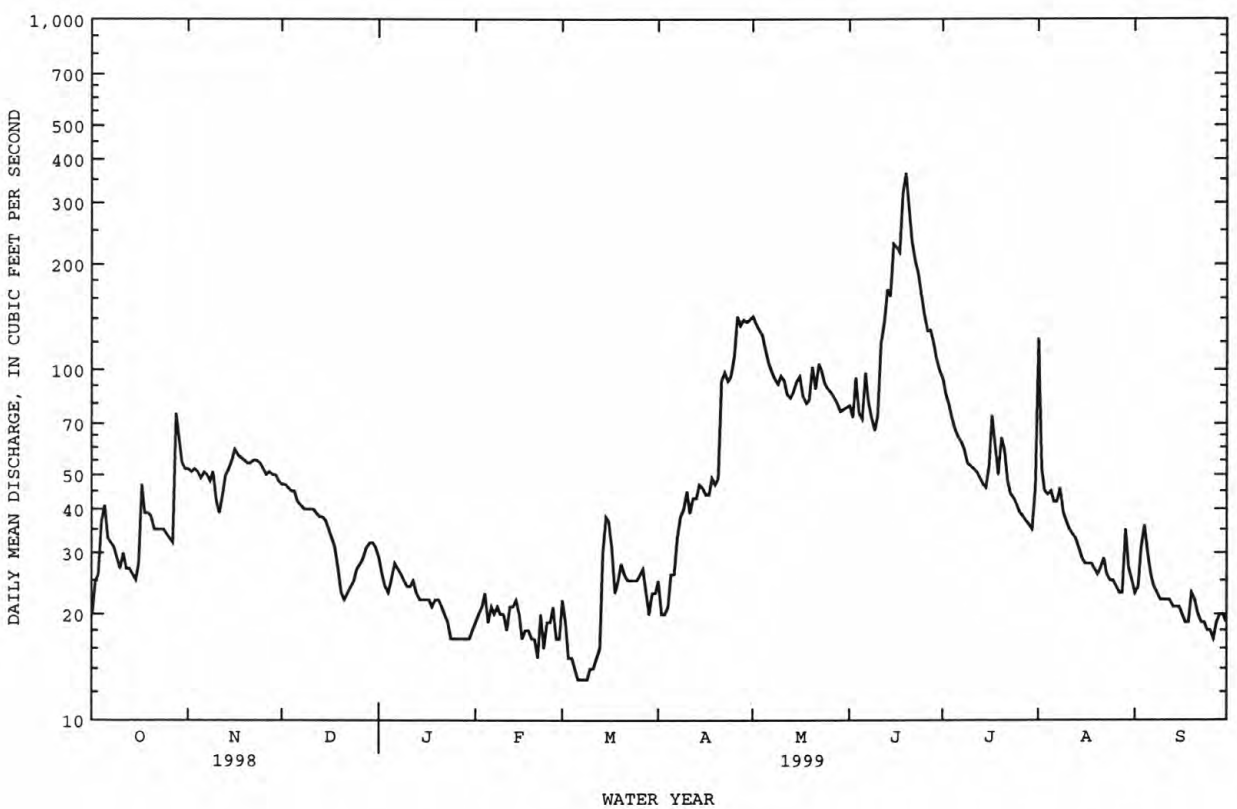
DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	52	47	e29	e19	22	25	142	79	94	123	23
2	25	51	47	e26	e20	19	20	135	73	85	52	24
3	26	52	46	e24	e21	e15	20	130	95	79	45	31
4	37	51	45	e23	e23	e15	21	126	75	72	44	36
5	41	49	e45	e25	e19	e14	26	114	72	67	45	30
6	33	51	e42	e28	e21	e13	26	105	98	64	42	26
7	32	50	e41	e27	20	e13	33	99	81	62	42	24
8	31	48	e40	e26	21	e13	38	94	73	59	46	23
9	29	51	e40	e25	20	e13	40	91	67	54	39	22
10	27	42	e40	e24	e20	e14	45	96	74	53	37	22
11	30	39	e40	e24	18	e14	39	93	119	52	35	22
12	27	44	e39	e25	e21	e15	43	85	136	51	34	22
13	27	50	e38	e23	e21	16	43	83	170	49	33	21
14	26	52	e38	e22	22	30	47	87	162	47	31	21
15	25	55	e37	e22	20	38	46	93	229	46	29	21
16	28	59	e35	e22	17	37	44	96	224	53	28	20
17	47	57	e33	e22	18	31	44	84	216	74	28	19
18	39	56	e31	e21	18	23	49	80	320	60	28	19
19	39	55	e27	e22	17	25	47	82	366	50	27	23
20	38	54	e23	e22	17	28	49	102	289	64	26	22
21	35	54	e22	e21	15	26	93	88	232	59	27	20
22	35	55	e23	e20	20	25	98	104	204	48	29	19
23	35	55	e24	e19	16	25	93	99	189	44	26	19
24	35	54	e25	e17	19	25	96	91	164	43	25	18
25	34	52	e27	e17	19	25	109	88	145	41	25	18
26	33	50	e28	e17	21	26	142	86	129	39	24	17
27	32	51	e29	e17	17	27	134	83	130	38	23	19
28	75	50	e31	e17	17	23	139	80	119	37	23	20
29	64	50	e32	e17	---	20	137	76	107	36	35	20
30	54	48	e32	e17	---	23	139	77	99	35	27	19
31	52	---	e31	e18	---	23	---	78	---	46	25	---
TOTAL	1111	1537	1078	679	537	676	1925	2967	4536	1701	1103	660
MEAN	35.8	51.2	34.8	21.9	19.2	21.8	64.2	95.7	151	54.9	35.6	22.0
MAX	75	59	47	29	23	38	142	142	366	94	123	36
MIN	20	39	22	17	15	13	20	76	67	35	23	17
AC-FT	2200	3050	2140	1350	1070	1340	3820	5890	9000	3370	2190	1310
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1999, BY WATER YEAR (WY)												
MEAN	13.0	14.1	10.4	7.24	7.46	13.8	24.3	74.4	104	38.8	23.9	14.4
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	5.56	7.20	5.64	8.14	5.75	2.78	1.54
(WY)	1991	1993	1993	1993	1991	1991	1992	1992	1992	1994	1994	1994

e Estimated

06406920 SPRING CREEK ABOVE SHERIDAN LAKE, NEAR KEYSTONE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1991 - 1999	
ANNUAL TOTAL	13524.2		18510			
ANNUAL MEAN	37.1		50.7		28.9	
HIGHEST ANNUAL MEAN					50.7	1999
LOWEST ANNUAL MEAN					6.06	1992
HIGHEST DAILY MEAN	344	Jun 19	366	Jun 19	525	May 8 1995
LOWEST DAILY MEAN	3.6	Jan 14	13	Mar 6	1.1	Aug 28 1994
ANNUAL SEVEN-DAY MINIMUM	3.8	Jan 12	13	Mar 5	1.2	Sep 25 1994
INSTANTANEOUS PEAK FLOW			809	Jun 18	809	Jun 18 1999
INSTANTANEOUS PEAK STAGE			12.58	Jun 18	12.58	Jun 18 1999
ANNUAL RUNOFF (AC-FT)	26830		36710		20930	
10 PERCENT EXCEEDS	57		99		68	
50 PERCENT EXCEEDS	32		35		14	
90 PERCENT EXCEEDS	6.5		19		2.8	



06407500 SPRING CREEK NEAR KEYSTONE, SD
(Formerly published as Spring Creek near Rockerville)

LOCATION.--Lat 43°58'45", long 103°20'25", in SW¼ NE¼ 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 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1945 to July 1947, October 1986 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,885 ft above sea level, from topographic map. Prior to October 1986, nonrecording gage 0.2 mi downstream at different datum.

REMARKS.--Records good except those for Apr. 22 to July 9, which are fair, and those for estimated daily discharges, which are poor. Flow regulated by Sheridan Lake, capacity, 12,657 acre-ft, 11.2 mi upstream from station. Recording precipitation gage 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.

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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

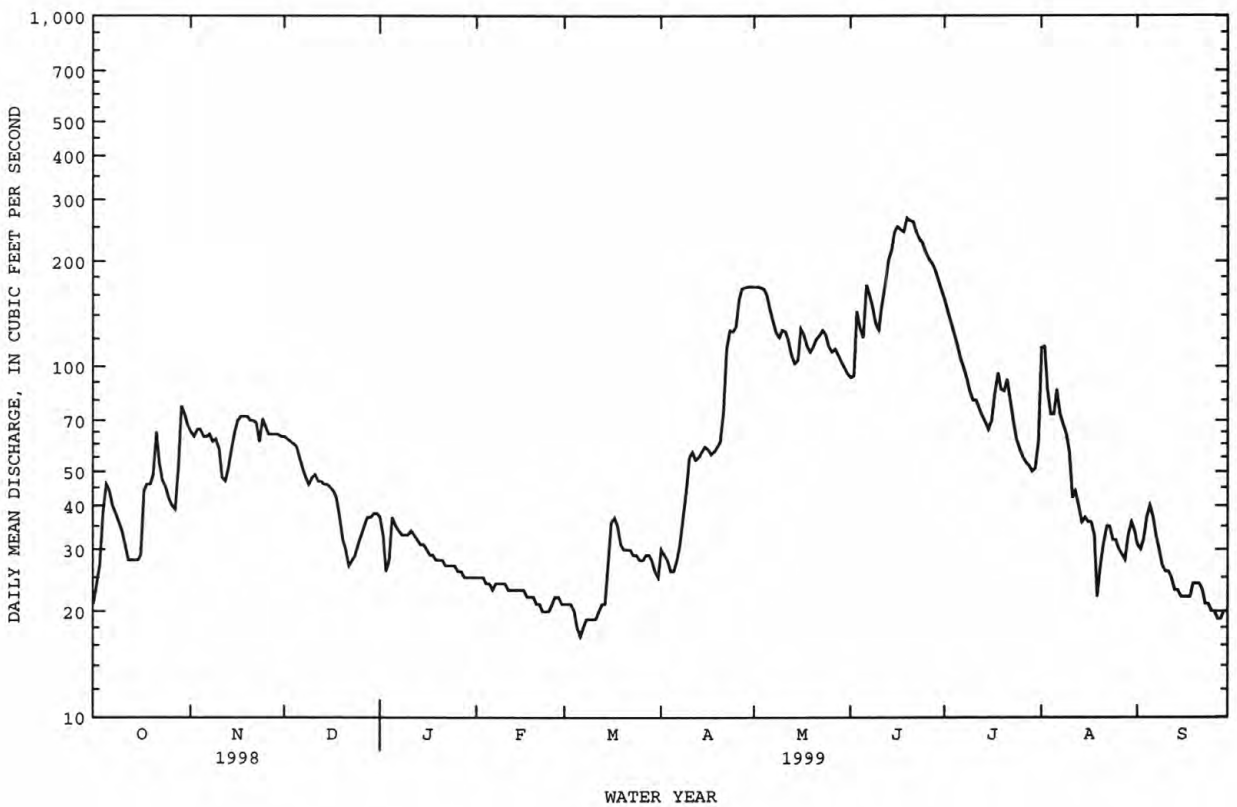
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	65	63	e37	e25	e21	30	169	93	155	113	31
2	24	63	62	e33	25	e21	29	169	94	144	114	30
3	27	66	61	e26	25	e21	28	168	144	134	86	32
4	38	66	60	e28	24	e20	26	167	129	124	73	37
5	46	63	59	e37	24	e18	26	160	121	115	73	40
6	44	63	55	e35	23	e17	28	147	171	106	86	37
7	40	64	51	e34	24	e18	31	135	161	99	73	33
8	38	61	48	e33	24	e19	37	125	148	93	68	30
9	36	62	46	e33	24	e19	44	121	132	85	64	27
10	34	58	48	e33	e24	e19	55	127	127	80	57	26
11	31	48	49	e34	e23	e19	57	126	151	80	42	26
12	28	47	47	e33	e23	e20	54	119	172	76	44	25
13	28	51	47	e32	e23	e21	55	108	201	72	40	23
14	28	58	46	e31	23	21	57	102	214	69	36	23
15	28	65	46	e31	23	28	59	104	243	66	37	22
16	29	70	45	e30	23	36	58	128	251	70	36	22
17	44	72	44	e29	22	37	56	123	246	83	36	22
18	46	72	42	e29	22	35	57	114	243	96	33	22
19	46	72	e37	e28	22	31	59	110	266	86	22	24
20	49	70	e32	e28	21	30	61	114	261	85	27	24
21	65	70	e30	e28	21	30	74	120	259	92	31	24
22	53	69	e27	e27	20	30	113	123	241	80	35	23
23	47	61	e28	e27	20	29	127	127	231	69	35	21
24	45	71	e29	e27	20	29	126	123	225	62	32	21
25	42	67	e31	e27	21	28	130	114	212	58	32	20
26	40	64	e33	e26	22	28	156	110	202	55	30	20
27	39	64	e35	e26	22	29	167	112	197	53	29	19
28	52	64	e37	e25	21	29	168	108	188	52	28	19
29	77	64	e37	e25	---	28	169	103	177	50	33	20
30	73	63	e38	e25	---	26	169	99	166	51	36	20
31	68	---	e38	e25	---	25	---	95	---	61	34	---
TOTAL	1306	1913	1351	922	634	782	2306	3870	5666	2601	1515	763
MEAN	42.1	63.8	43.6	29.7	22.6	25.2	76.9	125	189	83.9	48.9	25.4
MAX	77	72	63	37	25	37	169	169	266	155	114	40
MIN	21	47	27	25	20	17	26	95	93	50	22	19
AC-FT	2590	3790	2680	1830	1260	1550	4570	7680	11240	5160	3010	1510
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1999, BY WATER YEAR (WY)*												
MEAN	12.4	12.8	9.01	6.96	6.69	14.1	23.6	73.6	104	39.8	22.2	11.7
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	.000	.006	.076	.10	.010	.74	3.47	5.11	1.58	.047	.001	.000
(WY)	1989	1989	1989	1989	1989	1989	1989	1989	1988	1988	1989	1988

e Estimated

06407500 SPRING CREEK NEAR KEYSTONE, SD--Continued
(Formerly published as Spring Creek near Rockerville)

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1987 - 1999*	
ANNUAL TOTAL	15732.9		23629			
ANNUAL MEAN	43.1		64.7		28.1a	
HIGHEST ANNUAL MEAN					64.7	1999
LOWEST ANNUAL MEAN					.98	1989
HIGHEST DAILY MEAN	263	Jun 20	266	Jun 19	771	May 9 1995
LOWEST DAILY MEAN	4.8	Jan 14	17	Mar 6	.00	Jul 27 1988b
ANNUAL SEVEN-DAY MINIMUM	5.0	Jan 12	18	Mar 5	.00	Jul 27 1988
INSTANTANEOUS PEAK FLOW			306	Jun 19	913	May 9 1995
INSTANTANEOUS PEAK STAGE			6.96	Jun 19	7.96	May 9 1995
ANNUAL RUNOFF (AC-FT)	31210		46870		20350	
10 PERCENT EXCEEDS	70		144		69	
50 PERCENT EXCEEDS	38		44		9.6	
90 PERCENT EXCEEDS	7.1		22		.33	

* Period using present site and datum only. See GAGE.
a Median of annual mean discharges, 28 ft^3/s.
b No flow for many days in 1988-89.



06407500 SPRING CREEK NEAR KEYSTONE, SD-Continued
(Formerly published as Spring Creek near Rockerville)

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Precipitation recorder.

REMARKS.--Records poor.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.07	.00	.00	.27	.00	.00	.00	.20	.01
2	.47	.05	.00	.00	.00	.00	.11	.00	1.03	.00	.00	.17
3	.07	.43	.00	.00	.00	.00	.20	.26	.30	.00	.00	.17
4	1.14	.00	.00	---	.00	.00	.00	.00	.10	.00	.00	.03
5	.00	.00	.00	---	.00	.60	.00	.00	1.00	.00	.00	.00
6	.00	.42	.00	---	.00	.00	.00	.00	.00	.00	.10	.00
7	.25	.00	.00	---	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	---	.00	.07	.17	.00	.00	.00	.00	.00
9	.00	.31	.00	---	.00	.02	.19	.00	.00	.00	.00	.00
10	.08	.00	.00	---	.00	.31	.29	.42	.30	.00	.00	.00
11	.00	.00	.00	---	.00	.00	.00	.00	.10	.00	.30	.18
12	.00	.00	.00	---	.00	.00	.00	.00	.50	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.02	.01	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.04	.17	.80	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.03	.20	.10	.00	.00
16	.51	.00	.00	.00	.00	.00	.00	.11	.00	.10	.00	.00
17	.47	.00	.00	.00	.00	.00	.00	.00	.00	.70	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
19	.00	.00	.00	.00	.00	.00	.00	.07	.00	.20	.00	.07
20	.00	.00	.00	.00	.00	.00	.14	.02	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.01	.43	.48	.00	.00	.50	.00
22	.00	.00	.00	.00	.00	.04	.94	.09	.20	.00	.00	.00
23	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.44	.00	.00	.10	.00	.00
26	.00	.00	.00	.13	.00	.00	.05	.10	.10	.00	.00	.00
27	.00	.00	.00	.00	.00	.04	.02	.00	.00	.00	.00	.08
28	.38	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.10	.00
30	.00	.00	.00	.00	---	.00	.00	.01	.10	.50	.00	.00
31	.00	---	.00	.00	---	.17	---	.01	---	1.70	.09	---
TOTAL	3.37	1.21	0.00	---	0.00	1.26	3.31	1.78	4.73	3.40	1.29	0.85

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06408500 SPRING CREEK NEAR HERMOSA, SD

LOCATION.--Lat 43°56'31", long 103°09'32", in SE¼ SE¼ SE¼ 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 Chicago and North Western Transportation Company bridge, and 7.5 mi north of Hermosa.

DRAINAGE AREA.--199 mi^2.

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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	46	48	e11	e8.1	5.2	12	135	91	122	68	20
2	10	45	47	e10	e8.1	5.3	12	138	88	110	80	18
3	9.4	47	46	e9.4	e8.1	5.2	12	136	109	102	68	18
4	13	47	46	e9.0	e8.0	e5.2	11	135	114	93	58	21
5	23	46	45	e9.1	e8.3	e4.9	12	129	106	86	53	23
6	23	46	44	e9.4	8.1	e4.8	15	120	137	80	60	24
7	20	47	40	e9.6	8.1	e4.8	15	112	143	75	56	21
8	19	47	36	e10	7.9	e4.7	15	106	131	72	51	19
9	18	47	37	e11	7.6	e4.8	18	100	117	67	49	17
10	17	48	36	e12	8.0	e4.9	31	105	109	63	45	16
11	16	45	36	e12	7.5	e5.0	36	103	121	64	40	15
12	14	39	35	e12	e8.0	e5.1	35	99	143	61	36	14
13	13	39	34	e12	7.5	5.1	35	95	187	58	35	13
14	13	42	34	e12	7.1	5.4	36	94	221	55	30	13
15	13	47	33	e12	7.0	6.1	37	95	315	54	29	12
16	14	52	33	e12	6.8	7.3	38	101	356	55	27	12
17	34	54	32	e12	6.8	7.4	37	102	344	64	26	11
18	30	54	e30	e12	6.5	8.4	36	97	336	69	25	11
19	29	54	e27	e11	6.6	9.6	37	93	393	67	21	11
20	28	53	e23	e11	6.6	9.7	39	93	439	66	17	10
21	35	53	e18	e10	6.4	9.7	48	99	361	67	17	10
22	37	52	e16	e9.8	6.4	10	85	104	306	65	20	10
23	35	50	e15	e9.2	6.2	10	103	105	280	59	20	10
24	32	50	e14	e9.0	6.0	10	101	104	249	52	20	9.8
25	30	52	e14	e8.6	5.9	9.8	106	100	225	49	19	9.5
26	29	49	e14	e8.4	5.9	9.7	123	97	197	46	18	9.5
27	27	49	e13	e8.4	5.8	10	131	99	180	45	17	9.7
28	32	49	e13	e8.2	5.4	10	132	96	163	44	16	9.7
29	43	49	e12	e8.1	---	10	135	94	148	42	17	9.5
30	49	48	e12	e8.1	---	10	136	92	137	41	20	9.1
31	48	---	e12	e8.1	---	9.7	---	91	---	45	21	---
TOTAL	763.0	1446	895	314.4	198.7	227.8	1619	3269	6246	2038	1079	415.8
MEAN	24.6	48.2	28.9	10.1	7.10	7.35	54.0	105	208	65.7	34.8	13.9
MAX	49	54	48	12	8.3	10	136	138	439	122	80	24
MIN	9.4	39	12	8.1	5.4	4.7	11	91	88	41	16	9.1
AC-FT	1510	2870	1780	624	394	452	3210	6480	12390	4040	2140	825

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1999, BY WATER YEAR (WY)

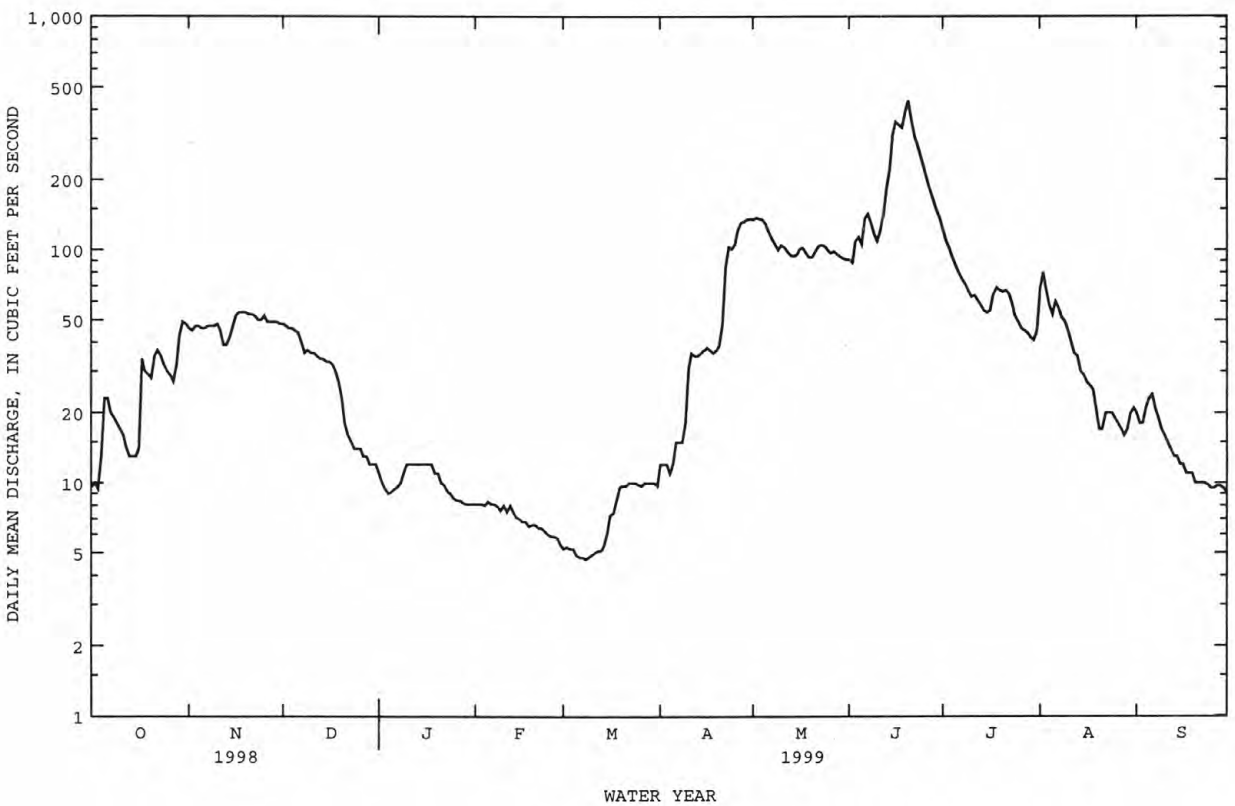
MEAN	1.82	2.46	1.82	1.32	1.76	1.33	2.70	19.5	43.9	13.2	4.63	1.86
MAX	24.6	48.2	28.9	10.1	20.8	7.35	54.0	166	271	73.2	53.8	17.0
(WY)	1999	1999	1999	1999	1971	1999	1999	1997	1972	1962	1997	1997
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1956	1956	1957	1957	1957	1957	1961	1960	1956	1954	1951	1954

e Estimated

06408500 SPRING CREEK NEAR HERMOSA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1950 - 1999	
ANNUAL TOTAL	9981.9		18511.7			
ANNUAL MEAN	27.3		50.7		8.02a	
HIGHEST ANNUAL MEAN					50.7	1999
LOWEST ANNUAL MEAN					.000	1990
HIGHEST DAILY MEAN	284	Jun 20	439	Jun 20	3300	Jun 10 1972
LOWEST DAILY MEAN	3.5	Mar 6	4.7	Mar 8	.00	Jan 26 1951b
ANNUAL SEVEN-DAY MINIMUM	3.6	Apr 16	4.8	Mar 5	.00	Jan 26 1951
INSTANTANEOUS PEAK FLOW			457	Jun 20	13400	Jun 10 1972c
INSTANTANEOUS PEAK STAGE			5.45	Jun 20	13.12	Jun 10 1972d
ANNUAL RUNOFF (AC-FT)	19800		36720		5810	
10 PERCENT EXCEEDS	54		115		8.5	
50 PERCENT EXCEEDS	15		30		.75	
90 PERCENT EXCEEDS	3.9		8.0		.00	

a Median of annual mean discharges, 1.6 ft^3/s.
b No flow for many days in most years.
c From rating curve extended above 350 ft^3/s on basis of contracted-opening measurement of peak flow.
d From floodmarks, site and datum then in use.



06408700 RHOADS FORK NEAR ROCHFORD, SD

LOCATION.--Lat 44°08'12", long 103°51'29", in NW¼ SE¼ NE¼ 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 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,965 ft above sea level, from topographic map. Prior to Oct. 1, 1992, at site 35 ft downstream at datum 1.82 ft lower.

REMARKS.--Records for 1998 water year are also published. Water-discharge records for water year 1998 are good with no estimated daily discharges. Water-discharge records for water year 1999 are 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	7.6	7.7	8.1	8.6	9.2	9.2	9.2	8.4	9.4	9.3	9.4
2	7.9	7.7	7.7	8.3	8.6	9.2	9.2	9.2	8.4	9.7	9.3	9.4
3	7.9	7.7	7.7	8.4	8.6	9.2	9.2	9.2	8.6	10	9.9	9.4
4	7.9	7.7	7.7	8.4	8.6	9.2	9.1	9.2	8.6	9.7	10	9.4
5	7.9	7.7	7.7	8.4	8.6	9.2	9.1	9.2	8.6	9.4	9.6	9.4
6	7.9	7.7	7.7	8.4	8.6	9.2	9.2	9.1	8.6	9.4	9.4	9.4
7	7.9	7.7	7.7	8.4	8.6	9.2	9.2	8.9	8.7	9.4	9.4	9.4
8	7.9	7.6	7.7	8.4	8.6	8.9	9.1	8.9	9.2	9.4	9.4	9.4
9	7.7	7.4	7.7	8.4	8.6	8.6	9.2	8.9	9.2	9.5	9.4	9.4
10	7.7	7.4	7.7	8.4	8.6	8.6	9.2	8.9	9.1	9.8	9.9	9.4
11	7.7	7.4	7.7	8.4	8.6	8.3	9.2	9.1	8.9	9.5	9.8	9.4
12	7.7	7.4	7.7	8.4	8.6	8.6	9.2	9.2	8.9	9.4	9.6	9.7
13	7.7	7.5	7.7	8.4	8.6	8.6	9.2	9.1	8.9	9.4	9.4	10
14	7.7	7.7	7.8	8.4	8.6	8.6	9.2	9.1	8.9	9.4	9.4	10
15	7.7	7.6	7.9	8.4	8.6	8.9	9.2	8.9	8.9	9.5	9.4	10
16	7.7	7.6	7.9	8.4	8.6	8.9	9.2	8.9	8.9	9.4	9.4	10
17	7.7	7.6	7.9	8.4	8.6	8.9	9.2	8.7	9.1	9.4	9.4	10
18	7.7	7.6	7.9	8.4	8.6	8.9	9.1	8.6	12	9.4	9.9	9.6
19	7.7	7.7	7.9	8.4	8.6	8.9	8.9	8.6	12	9.4	9.7	9.4
20	7.7	7.7	7.9	8.4	8.6	8.9	8.9	8.6	11	9.4	9.6	9.7
21	7.7	7.7	7.9	8.4	8.7	8.9	8.9	8.6	10	9.4	9.4	9.6
22	7.7	7.7	7.9	8.4	9.1	8.9	8.9	8.6	10	9.4	9.4	9.4
23	7.7	7.7	7.9	8.4	9.2	8.9	8.9	8.7	10	9.5	9.4	9.4
24	7.6	7.4	7.9	8.4	9.2	9.1	9.2	8.6	10	9.5	9.4	9.4
25	7.4	7.4	7.9	8.6	9.2	9.5	9.4	8.6	9.9	9.7	9.4	9.4
26	7.4	7.5	7.9	8.6	9.2	9.4	9.3	8.6	9.6	9.4	9.7	9.4
27	7.4	7.7	8.0	8.6	9.2	9.4	9.2	8.5	9.4	9.2	9.8	9.4
28	7.4	7.7	8.1	8.6	9.2	9.4	9.2	8.4	9.4	9.4	9.6	9.3
29	7.4	7.7	8.1	8.6	---	9.4	9.2	8.4	9.4	10	9.4	9.2
30	7.4	7.7	8.1	8.6	---	9.4	9.2	8.4	9.4	9.6	9.4	9.2
31	7.4	---	8.1	8.6	---	9.3	---	8.4	---	9.3	9.4	---
TOTAL	238.0	228.2	243.1	261.4	245.0	279.6	274.4	273.3	282.0	294.3	295.5	285.5
MEAN	7.68	7.61	7.84	8.43	8.75	9.02	9.15	8.82	9.40	9.49	9.53	9.52
MAX	7.9	7.7	8.1	8.6	9.2	9.5	9.4	9.2	12	10	10	10
MIN	7.4	7.4	7.7	8.1	8.6	8.3	8.9	8.4	8.4	9.2	9.3	9.2
AC-FT	472	453	482	518	486	555	544	542	559	584	586	566

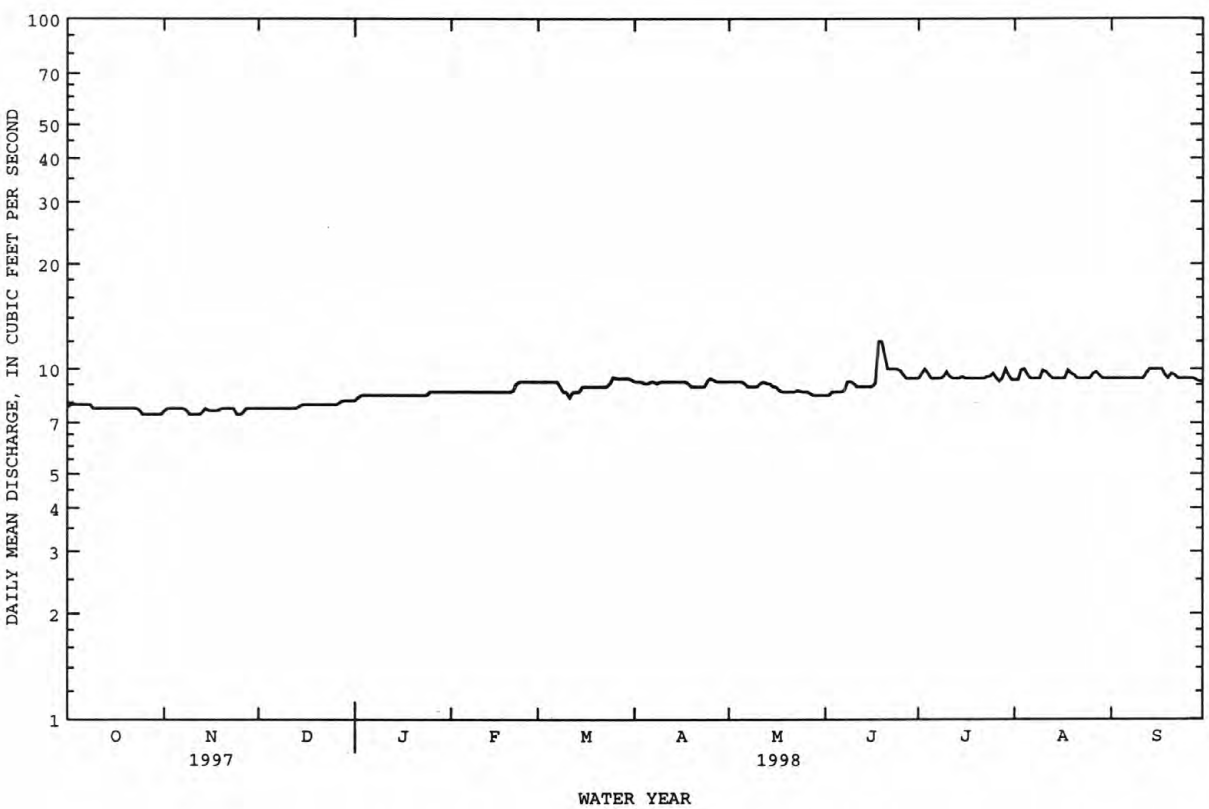
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1998, BY WATER YEAR (WY)

MEAN	5.43	5.38	5.25	5.22	5.28	5.37	5.43	5.59	5.69	5.73	5.63	5.61
MAX	7.74	7.61	7.84	8.43	8.75	9.02	9.15	8.82	9.40	9.49	9.53	9.52
(WY)	1984	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998
MIN	3.66	3.42	3.30	3.25	3.58	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 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1983 - 1998	
ANNUAL TOTAL	2779.8		3200.3			
ANNUAL MEAN	7.62		8.77		5.47	
HIGHEST ANNUAL MEAN					8.77	1998
LOWEST ANNUAL MEAN					3.69	1991
HIGHEST DAILY MEAN	8.5	Jul 24	12	Jun 18a	12	Jun 18 1998a
LOWEST DAILY MEAN	7.0	Apr 9	7.4	Oct 25	3.1	Jan 19 1991
ANNUAL SEVEN-DAY MINIMUM	7.0	Apr 9	7.4	Oct 25	3.1	Jan 18 1991
INSTANTANEOUS PEAK FLOW			14	Jun 18	14	Jun 18 1998
INSTANTANEOUS PEAK STAGE			4.04	Jun 18	4.04	Jun 18 1998
ANNUAL RUNOFF (AC-FT)	5510		6350		3960	
10 PERCENT EXCEEDS	8.0		9.6		7.5	
50 PERCENT EXCEEDS	7.6		8.9		5.2	
90 PERCENT EXCEEDS	7.2		7.7		3.8	

a Also June 19.



06408700 RHOADS FORK NEAR ROCHFORD, SD--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.9	e9.1	e8.6	e8.6	e8.5	e8.5	e8.6	e9.1	e9.3	9.4	9.9	10
2	9.1	e9.0	e8.6	e8.6	e8.5	e8.5	e8.6	e9.1	e9.3	9.5	9.6	10
3	9.2	e9.0	e8.6	e8.5	e8.5	e8.5	e8.6	e9.1	e9.2	9.5	9.6	10
4	9.4	e9.0	e8.6	e8.4	e8.5	e8.5	e8.6	e9.1	e9.2	9.5	9.6	10
5	9.2	e9.0	e8.6	e8.5	e8.5	e8.5	e8.7	e9.1	e9.2	9.5	9.6	10
6	9.2	e9.0	e8.6	e8.6	e8.5	e8.5	e8.7	e9.1	e9.2	9.4	9.8	10
7	e9.8	e9.0	e8.6	e8.6	e8.5	e8.5	e8.7	e9.1	e9.2	9.4	9.6	10
8	e9.5	e9.0	e8.6	e8.6	e8.5	e8.5	e8.7	e9.1	e9.2	9.4	9.4	10
9	e9.4	e8.9	e8.6	e8.6	e8.5	e8.5	e8.7	e9.1	e9.2	9.4	9.3	10
10	e9.4	e8.9	e8.6	e8.6	e8.5	e8.5	e8.7	e9.1	e11	9.4	9.3	10
11	e9.4	e8.9	e8.6	e8.6	e8.5	e8.5	e8.7	e9.2	e10	9.4	9.3	10
12	e9.4	e8.9	e8.6	e8.6	e8.5	e8.5	e8.7	e9.2	e9.8	9.4	9.3	10
13	e9.3	e8.9	e8.6	e8.6	e8.5	e8.5	e8.7	e9.2	e9.6	9.4	9.2	10
14	e9.3	e8.9	e8.6	e8.6	e8.5	e8.5	e8.7	e9.2	e9.5	9.5	9.3	10
15	e9.3	e8.9	e8.6	e8.6	e8.5	e8.5	e8.7	e9.2	e9.5	9.5	9.3	10
16	e9.3	e8.8	e8.6	e8.6	e8.5	e8.5	e8.8	e9.2	e9.5	9.5	9.3	10
17	e9.5	e8.8	e8.6	e8.6	e8.5	e8.5	e8.8	e9.2	e9.5	9.6	9.2	10
18	e9.4	e8.8	e8.6	e8.6	e8.5	e8.5	e8.8	e9.2	e9.5	9.5	9.2	10
19	e9.3	e8.8	e8.4	e8.6	e8.5	e8.5	e8.8	e9.2	e9.5	9.5	9.3	10
20	e9.2	e8.8	e8.2	e8.6	e8.5	e8.5	e8.8	e9.2	e9.5	9.5	9.3	10
21	e9.2	e8.8	e8.2	e8.6	e8.5	e8.5	e9.2	e9.2	e9.5	9.5	9.4	10
22	e9.2	e8.7	e8.3	e8.6	e8.5	e8.5	e9.0	e9.3	e9.5	9.5	9.4	10
23	e9.2	e8.7	e8.4	e8.6	e8.5	e8.5	e9.0	e9.3	e9.5	9.5	9.3	9.8
24	e9.2	e8.7	e8.5	e8.6	e8.5	e8.5	e9.0	e9.3	e9.5	9.5	9.4	9.8
25	e9.2	e8.7	e8.6	e8.6	e8.5	e8.5	e9.0	e9.3	e9.5	9.6	9.6	9.9
26	e9.1	e8.7	e8.6	e8.6	e8.5	e8.5	e9.0	e9.6	e9.5	9.6	9.7	10
27	e9.1	e8.7	e8.6	e8.6	e8.5	e8.5	e9.0	e9.4	e9.5	9.6	9.8	10
28	e9.1	e8.7	e8.6	e8.6	e8.5	e8.6	e9.0	e9.4	e9.5	9.5	9.8	9.8
29	e9.1	e8.6	e8.6	e8.5	---	e8.6	e9.0	e9.3	e9.5	9.5	10	9.8
30	e9.1	e8.6	e8.6	e8.5	---	e8.6	e9.0	e9.3	e9.5	9.6	9.9	9.6
31	e9.1	---	e8.6	e8.5	---	e8.6	---	e9.3	---	10	9.9	---
TOTAL	287.1	265.3	265.0	265.9	238.0	263.9	264.3	285.7	284.9	294.6	294.6	298.7
MEAN	9.26	8.84	8.55	8.58	8.50	8.51	8.81	9.22	9.50	9.50	9.50	9.96
MAX	9.8	9.1	8.6	8.6	8.5	8.6	9.2	9.6	11	10	10	10
MIN	8.9	8.6	8.2	8.4	8.5	8.5	8.6	9.1	9.2	9.4	9.2	9.6
AC-FT	569	526	526	527	472	523	524	567	565	584	584	592

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1999, BY WATER YEAR (WY)

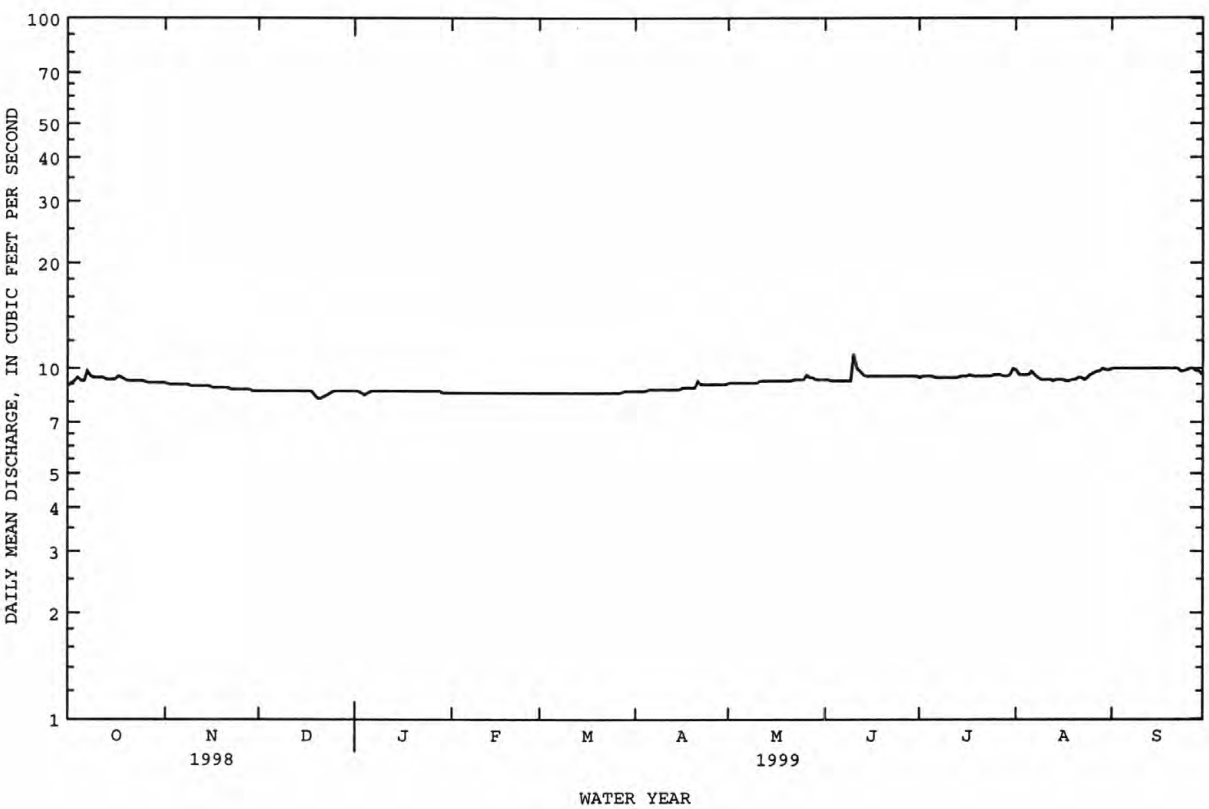
MEAN	5.66	5.58	5.45	5.41	5.46	5.56	5.63	5.81	5.92	5.95	5.86	5.87
MAX	9.26	8.84	8.55	8.58	8.75	9.02	9.15	9.22	9.50	9.50	9.53	9.96
(WY)	1999	1999	1999	1999	1998	1998	1998	1999	1999	1999	1998	1999
MIN	3.66	3.42	3.30	3.25	3.58	3.60	3.77	3.92	3.79	3.82	3.74	3.78
(WY)	1991	1991	1991	1991	1993	1993	1993	1992	1992	1992	1992	1992

e Estimated

06408700 RHOADS FORK NEAR ROCHFORD, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1983 - 1999	
ANNUAL TOTAL	3308.4		3308.0			
ANNUAL MEAN	9.06		9.06		5.68	
HIGHEST ANNUAL MEAN					9.06	1999
LOWEST ANNUAL MEAN					3.69	1991
HIGHEST DAILY MEAN	12	Jun 18	11	Jun 10	12	Jun 18 1998a
LOWEST DAILY MEAN	8.1	Jan 1	8.2	Dec 20	3.1	Jan 19 1991
ANNUAL SEVEN-DAY MINIMUM	8.3	Jan 1	8.4	Dec 18	3.1	Jan 18 1991
INSTANTANEOUS PEAK FLOW			11	Jun 10b	14	Jun 18 1998
INSTANTANEOUS PEAK STAGE					4.04	Jun 18 1998
ANNUAL RUNOFF (AC-FT)	6560		6560		4120	
10 PERCENT EXCEEDS	9.6		9.8		8.4	
50 PERCENT EXCEEDS	9.1		9.1		5.3	
90 PERCENT EXCEEDS	8.5		8.5		3.8	

a Also June 19, 1998.
b Estimated maximum daily mean.



PRECIPITATION RECORDS

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

INSTRUMENTATION.--Precipitation recorder with shielded 8.0-in. orifice and 12-in. capacity.

REMARKS.--Records fair except those for estimated periods, which are poor.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.31	.03	.00	.55	.02	.03	.03	.04	.00
2	.32	.02	.00	.07	.00	.13	.13	.00	.15	.02	.00	.13
3	.18	.32	.00	.04	.11	.02	.32	.14	.73	.00	.22	.22
4	.75	.15	.00	.20	.04	.00	.01	.16	.00	.00	.01	.10
5	.05	.02	.00	.28	.00	.24	.00	.00	.27	.00	.00	.01
6	.21	.19	.00	.27	.00	.07	.00	.00	.55	.00	.16	.00
7	1.19	.20	.00	.07	.00	.02	.00	.00	.00	.07	.01	.01
8	.00	.00	.00	.05	.02	.00	.10	.14	.00	.02	.00	.01
9	.00	.13	.00	.26	.00	.00	.05	.00	.24	.00	.00	.00
10	.24	.10	.00	.06	.02	.25	.53	.24	1.83	.00	.00	.00
11	.07	.00	.00	.00	.09	.03	.02	.18	.30	.00	.00	.19
12	.00	.00	.01	.00	.00	.00	.01	.00	.30	.00	.08	.05
13	.00	.00	.00	.03	.00	.02	.00	.15	.03	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.07	.31	.33	.00	.00	.00
15	.00	.00	.00	.01	.00	.00	.21	.24	.18	.06	.00	.00
16	.51	.00	.00	.03	.04	.00	.01	.02	.02	.04	.00	.00
17	.61	.00	.00	.03	.00	.04	.00	.00	.14	.50	.00	.00
18	.00	.00	.05	.00	.10	.00	.00	.00	.03	.00	.00	.03
19	.00	.00	.03	.01	.01	.00	.00	.07	.02	.00	.00	.10
20	.00	.02	.04	.00	.12	.00	.00	.02	.01	.00	.00	.05
21	.00	.00	.00	.12	.00	.00	1.00	.11	.00	.00	.01	.00
22	.00	.00	.00	.01	.07	.05	.06	.28	.00	.00	.01	.00
23	.00	.02	.00	.01	.00	.00	.01	.01	.05	.00	.00	.00
24	.00	.03	.00	.15	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.14	.01	.00	.01	.13	.00	.00	.00	.00	.00
26	.00	.00	.00	.02	.01	.00	.25	1.31	.00	.00	.00	.08
27	.00	.00	.00	.03	.46	.33	.01	.02	.00	.00	.28	.10
28	.74	.00	.16	.00	.00	.09	.03	.02	.04	.00	.12	.03
29	.23	.00	.01	.00	---	.01	.00	.03	.00	.24	.30	.00
30	.04	.00	.46	.00	---	.00	.00	.00	.06	.06	.00	.00
31	.00	---	.00	.01	---	.05	---	.03	---	1.30	.00	---
TOTAL	5.14	1.20	0.90	2.08	1.12	1.36	3.50	3.50	5.31	2.34	1.24	1.11

CAL YR 1998 TOTAL 35.97
WTR YR 1999 TOTAL 28.80

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06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD
(Hydrologic bench-mark station)

LOCATION.--Lat 44°00'49", long 103°49'48", in NE¼ SW¼ SW¼ 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 mi^2.

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 sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	26	26	22	21	24	31	40	36	50	45	32
2	22	26	26	20	22	23	30	39	35	49	38	33
3	22	26	26	e19	21	e22	29	39	46	47	37	34
4	29	26	25	e20	21	23	30	40	36	46	38	35
5	25	26	25	22	21	23	29	38	37	45	37	33
6	24	26	e24	23	21	23	32	37	46	45	36	33
7	26	26	e23	23	21	23	34	36	39	46	36	33
8	26	26	e22	23	21	23	40	36	37	47	35	32
9	25	25	e23	23	21	23	39	37	37	44	34	32
10	24	26	e23	23	21	23	37	37	47	44	34	32
11	26	e25	e24	23	26	23	34	37	52	43	34	32
12	24	e23	24	23	e25	23	35	36	56	42	35	33
13	24	e24	25	23	22	23	35	38	55	42	34	32
14	24	28	24	23	22	26	36	38	54	41	33	31
15	23	28	24	22	22	31	33	40	60	41	32	31
16	27	27	24	23	21	35	33	40	56	42	32	30
17	29	26	24	23	21	30	34	38	58	48	32	30
18	27	26	25	22	22	30	34	37	74	41	32	30
19	27	26	e20	22	22	37	36	36	62	41	32	32
20	26	26	e19	22	22	38	36	39	59	40	32	31
21	26	26	e18	22	21	36	48	38	56	39	32	30
22	26	26	e18	22	20	36	40	44	55	39	33	29
23	26	26	e18	22	24	44	39	40	54	38	32	29
24	25	26	e19	22	23	65	38	38	52	37	32	29
25	25	25	e20	21	23	90	41	38	52	37	32	29
26	25	25	e20	22	22	84	41	40	52	37	32	28
27	25	25	22	21	19	56	40	40	53	36	32	28
28	34	25	22	20	26	35	41	38	54	36	33	28
29	28	26	22	20	---	33	40	37	52	36	35	27
30	27	25	22	21	---	35	40	37	52	36	33	27
31	27	---	22	21	---	35	---	37	---	48	32	---
TOTAL	794	773	699	678	614	1075	1085	1185	1514	1303	1056	925
MEAN	25.6	25.8	22.5	21.9	21.9	34.7	36.2	38.2	50.5	42.0	34.1	30.8
MAX	34	28	26	23	26	90	48	44	74	50	45	35
MIN	20	23	18	19	19	22	29	36	35	36	32	27
AC-FT	1570	1530	1390	1340	1220	2130	2150	2350	3000	2580	2090	1830

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1999, BY WATER YEAR (WY)

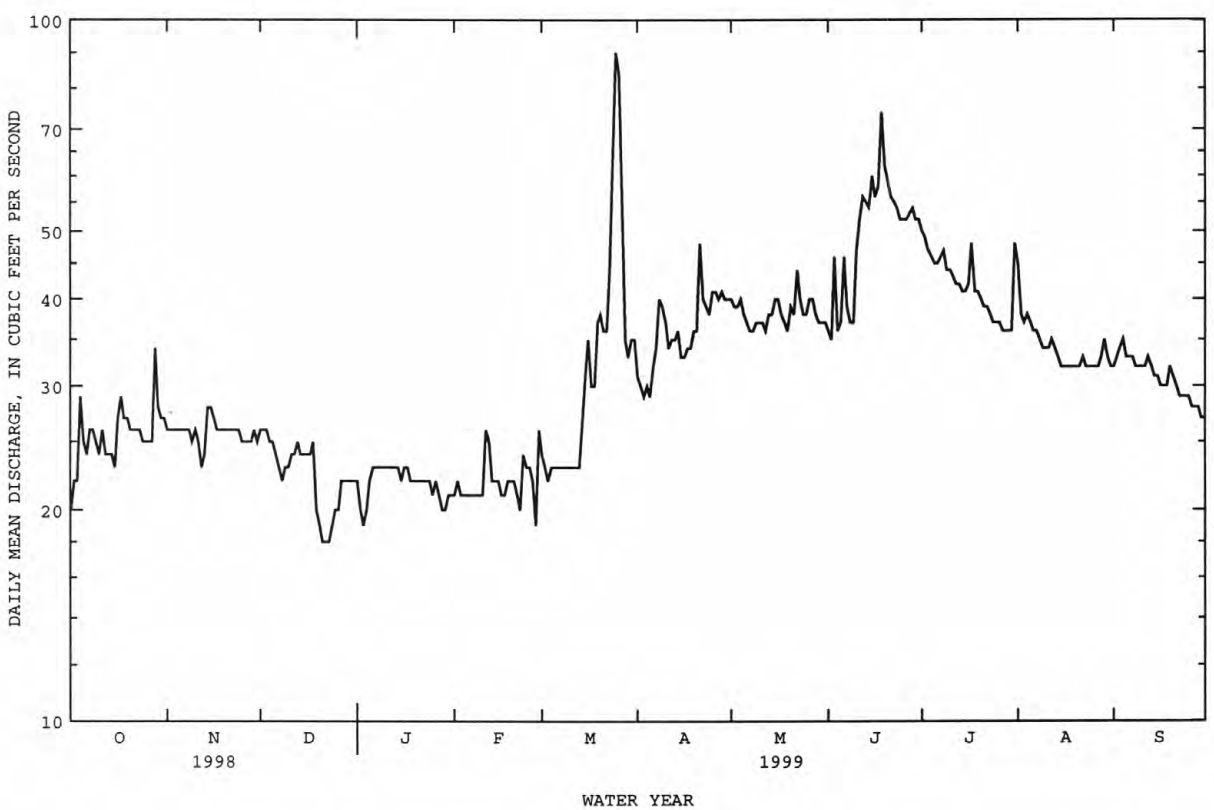
MEAN	10.7	10.1	9.43	9.04	9.12	11.5	16.2	18.1	16.4	12.9	11.3	10.7
MAX	26.5	25.8	22.5	21.9	21.9	34.7	36.2	45.2	50.5	42.0	34.1	30.8
(WY)	1998	1999	1999	1999	1999	1999	1999	1997	1999	1999	1999	1999
MIN	3.93	3.85	2.74	3.98	5.06	5.81	6.83	6.56	4.69	4.05	4.63	4.36
(WY)	1961	1962	1962	1962	1962	1961	1961	1961	1961	1961	1960	1961

e Estimated

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued
(Hydrologic bench-mark station)

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1949 - 1999	
ANNUAL TOTAL	9435		11701			
ANNUAL MEAN	25.8		32.1		12.1	
HIGHEST ANNUAL MEAN					32.1	1999
LOWEST ANNUAL MEAN					5.13	1961
HIGHEST DAILY MEAN	105	Jun 18	90	Mar 25	232	May 22 1952
LOWEST DAILY MEAN	10	Mar 11	18	Dec 21-23	2.0	Dec 10 1961
ANNUAL SEVEN-DAY MINIMUM	12	Mar 6	19	Dec 19	2.2	Dec 15 1961
INSTANTANEOUS PEAK FLOW			198	Mar 25a	1120	May 22 1952b
INSTANTANEOUS PEAK STAGE			5.43	Dec 23c	5.81	May 22 1952
ANNUAL RUNOFF (AC-FT)	18710		23210		8790	
10 PERCENT EXCEEDS	32		45		20	
50 PERCENT EXCEEDS	25		30		10	
90 PERCENT EXCEEDS	20		22		6.1	

a Gage height, 3.98 ft.
b From rating curve extended on basis of slope-area measurement.
c Backwater due to ice.



06409500 DEERFIELD RESERVOIR NEAR HILL CITY, SD

LOCATION.--Lat 44°01'41", long 103°47'09", in NE$^1/_4$ SW$^1/_4$ 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 mi^2, 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. Datum of gage is sea level (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, 15,600 acre-ft, June 21, elevation, 5,908.23 ft; minimum, 14,000 acre-ft, Sept. 9, elevation, 5,904.38 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	5,905.22	14,400	--
Oct. 31	5,906.08	14,700	+300
Nov. 30	5,906.31	14,800	+100
Dec. 31	5,905.17	14,300	-500
CAL YR 1998	--	--	-1,000
Jan. 31	5,905.78	14,600	+300
Feb. 28	5,906.32	14,800	+200
Mar. 31	5,907.62	15,400	+600
Apr. 30	5,907.67	15,400	0
May 31	5,907.38	15,300	-100
June 30	5,907.85	15,400	+100
July 31	5,907.12	15,100	-300
Aug. 31	5,905.13	14,300	-800
Sept. 30	5,904.93	14,200	-100
WTR YR 1999	--	--	-200

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06410000 CASTLE CREEK BELOW DEERFIELD DAM, SD

LOCATION.--Lat 44°01'45", long 103°46'53", in NW¼ SE¼ 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 mi^2, 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 sea level (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.--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 ft^3/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 PERIOD.--Maximum discharge, 72 ft^3/s, June 21, gage height, 4.86 ft; minimum daily discharge, 19 ft^3/s, Mar. 1-9, 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	19	53	49	48	61	45	53
2	---	---	---	---	---	19	53	49	49	61	44	53
3	---	---	---	---	---	19	53	49	49	61	44	53
4	---	---	---	---	---	19	53	49	49	61	44	53
5	---	---	---	---	---	19	53	49	49	61	44	53
6	---	---	---	---	---	19	53	48	49	57	44	53
7	---	---	---	---	---	19	52	48	49	53	44	43
8	---	---	---	---	---	19	53	48	49	52	44	34
9	---	---	---	---	---	19	53	47	49	51	44	34
10	---	---	---	---	---	20	53	47	50	51	44	27
11	---	---	---	---	---	19	53	48	50	52	44	21
12	---	---	---	---	---	20	53	48	50	48	44	22
13	---	---	---	---	---	20	46	e48	51	44	44	22
14	---	---	---	---	---	20	40	e48	51	44	44	22
15	---	---	---	---	---	20	40	48	55	45	44	22
16	---	---	---	---	---	20	40	48	59	45	44	22
17	---	---	---	---	---	20	40	48	59	45	44	23
18	---	---	---	---	---	20	40	48	65	45	44	23
19	---	---	---	---	---	20	40	48	70	45	45	23
20	---	---	---	---	---	20	40	48	71	45	46	23
21	---	---	---	---	---	20	41	48	71	44	46	24
22	---	---	---	---	---	25	41	48	71	44	46	23
23	---	---	---	---	---	30	41	48	71	44	46	23
24	---	---	---	---	---	29	41	48	70	44	47	22
25	---	---	---	---	---	35	41	48	69	43	49	22
26	---	---	---	---	---	46	41	48	69	43	51	22
27	---	---	---	---	---	53	41	48	69	43	52	22
28	---	---	---	---	---	53	41	48	69	43	52	23
29	---	---	---	---	---	53	45	48	69	43	52	23
30	---	---	---	---	---	53	49	48	66	44	52	22
31	---	---	---	---	---	53	---	48	---	45	52	---
TOTAL	---	---	---	---	---	840	1383	1491	1765	1507	1429	905
MEAN	---	---	---	---	---	27.1	46.1	48.1	58.8	48.6	46.1	30.2
MAX	---	---	---	---	---	53	53	49	71	61	52	53
MIN	---	---	---	---	---	19	40	47	48	43	44	21
AC-FT	---	---	---	---	---	1670	2740	2960	3500	2990	2830	1800

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1983, BY WATER YEAR (WY)

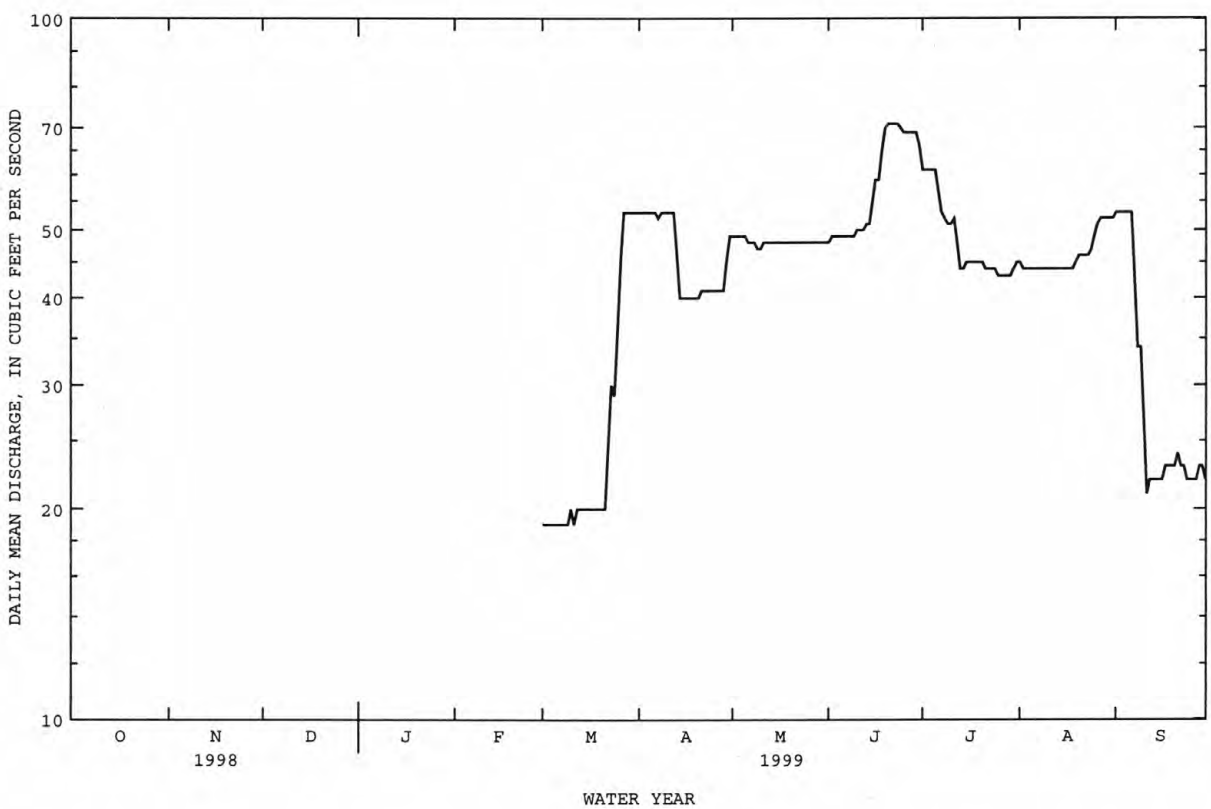
MEAN	11.2	2.43	2.08	2.22	2.85	5.25	14.1	19.0	16.9	16.7	18.8	21.1
MAX	40.0	7.69	2.72	3.48	12.6	15.5	44.1	46.8	50.0	81.1	72.7	64.2
(WY)	1966	1949	1948	1978	1979	1979	1982	1978	1965	1982	1982	1959
MIN	.20	.017	.22	1.53	1.26	1.56	1.59	1.59	2.39	2.13	3.78	4.05
(WY)	1947	1960	1947	1983	1971	1960	1960	1960	1962	1962	1962	1983

e Estimated

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	.00	Sep 9 1948
ANNUAL SEVEN-DAY MINIMUM	.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 SW¼ SE¼ 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 mi^2.

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,620.00 ft above sea level (Bureau of Reclamation bench mark).

REMARKS.--Records fair 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	133	117	e99	e59	e67	132	282	182	248	194	97
2	105	131	114	e98	e61	e65	128	279	176	234	139	101
3	99	133	113	e97	e61	e63	131	272	208	220	132	116
4	130	133	113	e96	e61	e62	128	265	176	208	128	119
5	126	130	e105	e95	e62	e61	129	258	173	202	124	108
6	120	130	e90	e94	e63	e62	134	243	228	201	123	100
7	139	127	e100	e93	e65	e62	155	229	203	189	128	96
8	143	e120	e120	e94	e66	e62	168	218	197	185	121	82
9	145	e105	e130	e95	e65	e61	169	220	203	174	114	80
10	142	e90	e130	e96	e61	e61	190	221	238	172	108	79
11	153	e110	e130	e96	e68	e61	182	212	334	170	105	73
12	131	e120	e125	e97	e81	e62	193	206	393	164	107	74
13	125	e130	e120	e100	e100	64	199	200	506	152	106	73
14	122	136	e115	e101	98	76	196	209	504	145	101	71
15	118	139	e110	e102	76	95	188	214	547	143	96	71
16	123	143	e105	e102	70	101	183	215	523	154	96	69
17	164	139	e95	e97	69	95	182	194	489	175	95	68
18	146	141	e80	e92	64	83	188	189	487	157	93	68
19	149	131	e63	e90	62	89	190	183	455	146	94	71
20	150	124	e69	e83	63	95	196	193	434	150	95	70
21	138	133	e76	e78	67	92	276	184	398	147	100	68
22	137	137	e83	e72	72	94	273	199	374	137	101	67
23	138	137	e88	e69	68	102	268	188	361	132	94	67
24	134	137	e91	e63	72	105	270	174	340	132	92	67
25	131	138	e95	e57	66	109	283	174	318	129	91	66
26	128	133	e97	e56	e65	123	288	186	304	129	94	64
27	124	132	e100	e56	e63	136	287	210	302	128	93	66
28	156	126	e105	e56	e68	126	288	185	291	122	97	67
29	153	126	e105	e56	---	124	283	182	277	120	119	65
30	139	121	e103	e57	---	131	286	186	265	127	105	63
31	135	---	e100	e58	---	132	---	184	---	141	98	---
TOTAL	4144	3865	3187	2595	1916	2721	6163	6554	9886	5033	3383	2346
MEAN	134	129	103	83.7	68.4	87.8	205	211	330	162	109	78.2
MAX	164	143	130	102	100	136	288	282	547	248	194	119
MIN	99	90	63	56	59	61	128	174	173	120	91	63
AC-FT	8220	7670	6320	5150	3800	5400	12220	13000	19610	9980	6710	4650

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1999, BY WATER YEAR (WY)

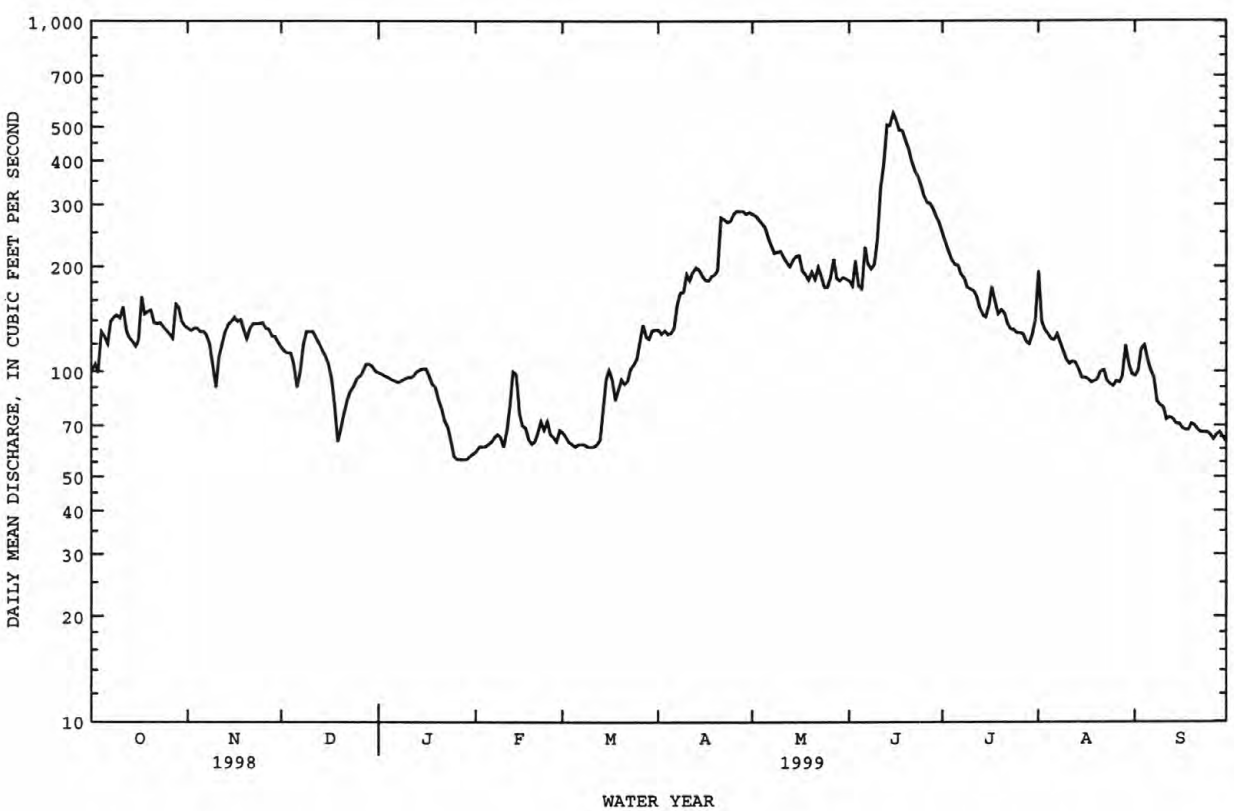
MEAN	33.0	23.7	18.9	17.9	20.2	36.0	68.6	98.6	106	60.7	49.4	41.4
MAX	134	129	103	83.7	68.4	118	232	322	330	230	205	117
(WY)	1999	1999	1999	1999	1999	1996	1997	1997	1999	1998	1997	1998
MIN	10.2	10.3	7.77	8.61	8.34	12.1	16.5	14.5	14.7	15.2	11.5	10.5
(WY)	1962	1962	1962	1962	1993	1962	1961	1961	1961	1961	1961	1961

e Estimated

06410500 RAPID CREEK ABOVE PACTOLA RESERVOIR, AT SILVER CITY, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1954 - 1999	
ANNUAL TOTAL	49392		51793			
ANNUAL MEAN	135		142		47.9	
HIGHEST ANNUAL MEAN					142	1999
LOWEST ANNUAL MEAN					15.1	1961
HIGHEST DAILY MEAN	1020	Jun 19	547	Jun 15	1330	May 15 1965
LOWEST DAILY MEAN	33	Feb 26	56	Jan 26-29	2.5	Dec 2 1985
ANNUAL SEVEN-DAY MINIMUM	39	Jan 4	57	Jan 25	3.6	Nov 27 1985
INSTANTANEOUS PEAK FLOW			603	Jun 15	2060	May 15 1965a
INSTANTANEOUS PEAK STAGE			7.19	Jun 15	10.44	May 15 1965
ANNUAL RUNOFF (AC-FT)	97970		102700		34730	
10 PERCENT EXCEEDS	218		245		98	
50 PERCENT EXCEEDS	120		124		30	
90 PERCENT EXCEEDS	55		65		12	

a From rating curve extended above 1,000 ft^3/s on basis of slope-area measurement of peak flow.



06411000 PACTOLA RESERVOIR NEAR SILVER CITY, SD

LOCATION.--Lat 44°04'20", long 103°29'17", in $NE^1/_4$ $SW^1/_4$ 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 mi^2.

PERIOD OF RECORD.--August 1956 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is sea level (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, 58,700 acre-ft, June 21, elevation, 4,584.48 ft; minimum, 51,000 acre-ft, Dec. 24, elevation, 4,575.48 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	4,577.72	52,900	--
Oct. 31	4,578.81	53,800	+900
Nov. 30	4,578.31	53,300	-500
Dec. 31	4,576.07	51,500	-1,800
CAL YR 1998	--	--	-800
Jan. 31	4,576.58	51,900	+400
Feb. 28	4,576.70	52,000	+100
Mar. 31	4,579.06	54,000	+2,000
Apr. 30	4,581.02	55,700	+1,700
May 31	4,580.09	54,900	-800
June 30	4,582.80	57,200	+2,300
July 31	4,578.72	53,700	-3,500
Aug. 31	4,576.72	52,000	-1,700
Sept. 30	4,577.05	52,300	+300
WTR YR 1999	--	--	-600

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06411500 RAPID CREEK BELOW PACTOLA DAM, SD

LOCATION.--Lat 44°04'36", long 103°28'54", in SW¼ NE¼ 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 mi^2, 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 sea level (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 ft^3/s, May 22, 1952, gage height, 6.74 ft, site and datum then in use; minimum daily discharge, 0.0 ft^3/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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	66	195	72	69	52	95	265	183	421	132	151
2	117	66	196	72	69	52	95	265	209	421	132	134
3	116	70	187	72	69	52	95	267	221	420	132	124
4	117	82	166	72	69	52	95	281	220	419	133	124
5	129	103	197	70	69	52	104	280	221	418	133	123
6	141	131	196	69	69	52	118	281	221	392	133	123
7	143	144	196	68	69	53	119	281	221	340	134	112
8	171	144	196	68	69	53	119	283	221	284	133	104
9	193	143	173	68	69	52	120	307	220	261	133	90
10	193	143	155	68	69	53	137	305	221	232	133	61
11	193	143	156	69	69	53	148	311	244	214	134	52
12	193	143	155	69	69	53	147	301	268	176	135	52
13	193	143	156	69	69	53	161	293	268	159	134	52
14	192	143	155	69	69	51	193	291	295	141	134	52
15	192	144	146	69	68	51	193	290	327	131	133	52
16	193	143	131	69	67	51	192	288	377	131	134	55
17	193	143	132	69	67	51	192	285	416	131	134	52
18	193	144	116	69	67	51	193	272	420	132	133	49
19	172	143	106	69	67	51	193	242	423	138	134	49
20	129	165	105	69	67	51	194	232	424	157	134	49
21	79	196	87	69	67	51	204	225	423	158	134	49
22	49	196	72	69	60	51	240	221	423	158	134	49
23	50	196	72	69	53	51	264	221	423	186	134	49
24	50	196	72	69	53	62	263	212	421	263	148	48
25	50	196	72	69	52	69	264	182	421	184	154	48
26	51	196	72	69	52	75	266	166	421	143	151	49
27	60	196	72	69	52	94	266	166	420	130	151	49
28	66	196	72	69	52	94	266	166	421	130	152	49
29	66	196	72	69	---	94	267	165	420	130	152	43
30	66	196	72	69	---	94	267	165	421	131	152	39
31	66	---	72	69	---	94	---	165	---	132	151	---
TOTAL	3934	4506	4022	2148	1810	1868	5470	7674	9834	6863	4280	2132
MEAN	127	150	130	69.3	64.6	60.3	182	248	328	221	138	71.1
MAX	193	196	197	72	69	94	267	311	424	421	154	151
MIN	49	66	72	68	52	51	95	165	183	130	132	39
AC-FT	7800	8940	7980	4260	3590	3710	10850	15220	19510	13610	8490	4230

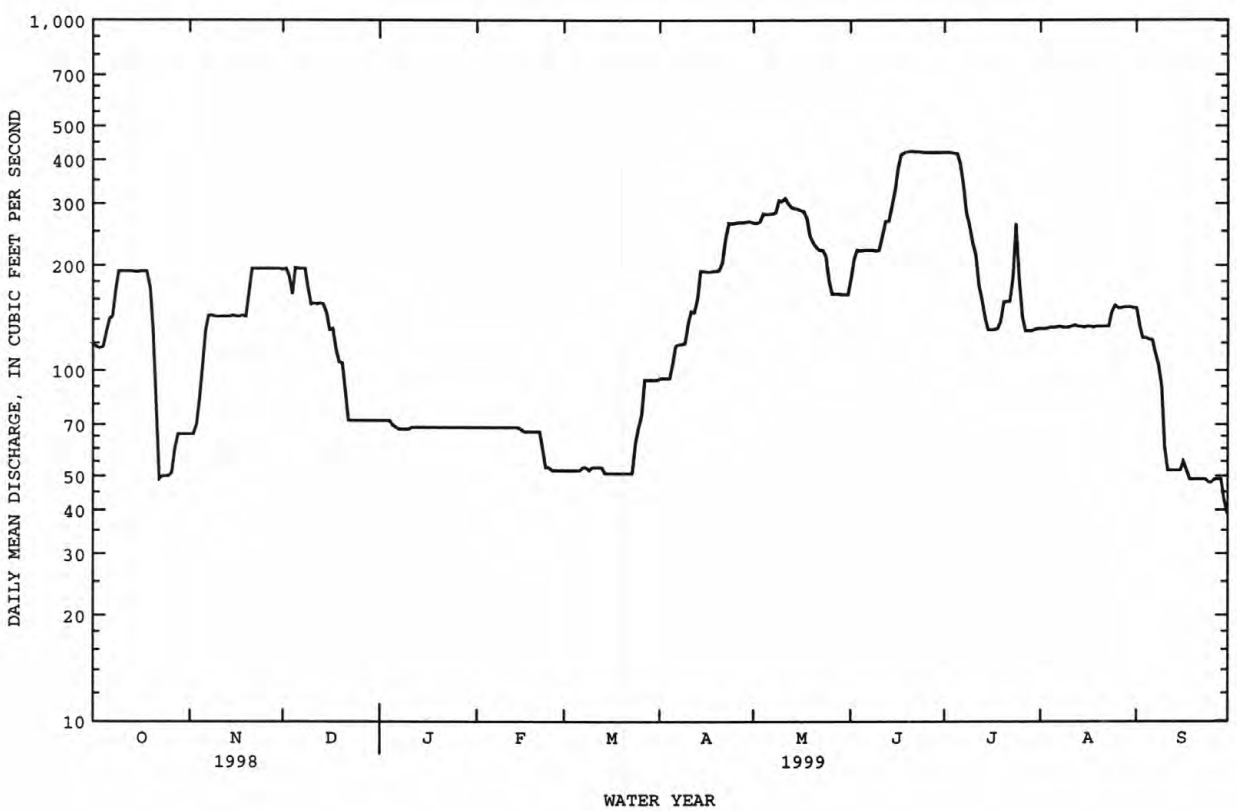
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)*

MEAN	29.4	25.0	23.6	21.7	22.0	31.7	54.8	104	122	94.1	72.6	48.9
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 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1964 - 1999*	
ANNUAL TOTAL	47697		54541			
ANNUAL MEAN	131		149		54.3	
HIGHEST ANNUAL MEAN					149	1999
LOWEST ANNUAL MEAN					20.7	1991
HIGHEST DAILY MEAN	421	Jun 25	424	Jun 20	515	May 20 1965a
LOWEST DAILY MEAN	44	Jan 1	39	Sep 30	1.4	Oct 9 1971
ANNUAL SEVEN-DAY MINIMUM	44	Jan 1	46	Sep 24	6.7	Oct 6 1971
INSTANTANEOUS PEAK FLOW			444	Jun 21	547	May 19 1965
INSTANTANEOUS PEAK STAGE			8.80	Jun 21	9.00	May 19 1965
ANNUAL RUNOFF (AC-FT)	94610		108200		39330	
10 PERCENT EXCEEDS	228		281		113	
50 PERCENT EXCEEDS	109		133		31	
90 PERCENT EXCEEDS	44		52		14	

* Regulated period only (1964-99). 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 NW¼ NW¼ NW¼ 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 mi^2.

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 sea level. 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 except those for estimated daily discharges, which are fair. 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 ft^3/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, recording precipitation gage, and National Weather Service telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	67	e192	75	74	52	103	302	195	557	169	158
2	125	67	e190	67	74	52	101	301	224	555	158	152
3	123	69	e185	62	74	52	101	301	418	552	154	133
4	140	79	e180	71	73	52	100	318	304	549	152	133
5	145	94	e185	86	73	53	102	322	289	546	151	132
6	161	127	e190	75	73	52	125	326	337	534	155	131
7	159	151	e190	71	74	53	128	320	306	473	152	125
8	167	151	e190	70	74	53	130	317	291	336	149	109
9	194	153	e185	76	73	52	130	316	280	298	148	104
10	194	150	e170	80	74	54	144	320	280	268	146	78
11	195	e150	e170	78	70	52	162	314	295	246	150	59
12	193	150	e170	78	72	53	165	309	356	214	151	57
13	193	e150	e170	75	70	53	167	301	481	185	146	57
14	193	e152	e175	75	69	53	202	301	498	174	145	56
15	193	e154	e165	75	69	55	202	310	622	156	144	56
16	196	e162	143	75	67	56	202	319	625	156	143	56
17	213	162	142	75	67	54	200	314	629	167	142	57
18	205	161	135	75	67	54	201	308	621	158	140	55
19	195	159	106	75	67	54	201	278	606	160	140	55
20	164	162	104	75	67	54	201	260	596	180	139	54
21	109	195	95	75	66	54	214	254	588	181	146	54
22	65	196	73	75	66	56	258	249	586	179	146	54
23	57	196	70	75	55	54	305	245	581	182	142	53
24	56	197	70	73	54	56	303	239	574	282	147	53
25	53	197	80	69	53	69	307	218	569	224	160	53
26	53	196	85	80	53	70	310	197	566	175	159	53
27	54	196	79	76	52	93	310	195	564	148	158	54
28	70	196	79	71	52	98	307	192	565	145	159	54
29	68	196	74	74	---	98	306	190	561	146	166	53
30	67	195	76	75	---	98	303	190	561	149	160	45
31	67	---	74	74	---	99	---	190	---	158	158	---
TOTAL	4183	4630	4192	2306	1872	1908	5990	8516	13968	8433	4675	2343
MEAN	135	154	135	74.4	66.9	61.5	200	275	466	272	151	78.1
MAX	213	197	192	86	74	99	310	326	629	557	169	158
MIN	53	67	70	62	52	52	100	190	195	145	139	45
AC-FT	8300	9180	8310	4570	3710	3780	11880	16890	27710	16730	9270	4650

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)*

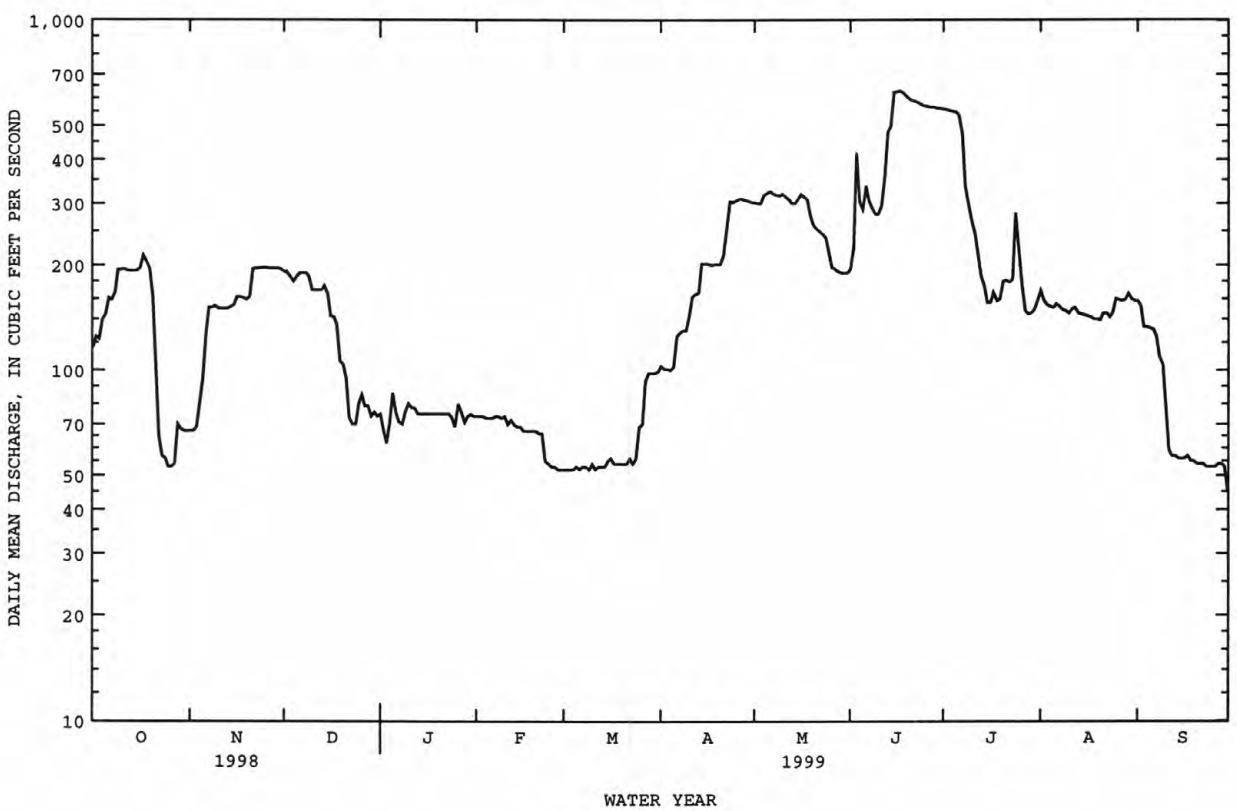
MEAN	25.9	20.5	17.7	16.4	17.3	28.0	53.9	114	148	98.6	70.3	43.6
MAX	135	154	135	80.4	84.1	133	217	449	466	275	239	123
(WY)	1999	1999	1999	1997	1997	1996	1997	1997	1999	1998	1997	1997
MIN	1.38	.71	.12	.094	.094	.29	3.55	22.0	20.8	23.2	27.0	14.1
(WY)	1991	1982	1991	1991	1991	1991	1991	1986	1990	1992	1966	1989

e Estimated

06412500 RAPID CREEK ABOVE CANYON LAKE, NEAR RAPID CITY, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1964 - 1999*	
ANNUAL TOTAL	52393		63016			
ANNUAL MEAN	144		173		54.7	
HIGHEST ANNUAL MEAN					173	1997
LOWEST ANNUAL MEAN					17.5	1991
HIGHEST DAILY MEAN	562	Jun 24	629	Jun 17	2600	Jun 10 1972
LOWEST DAILY MEAN	24	Jan 10	45	Sep 30	.00	Dec 12 1990a
ANNUAL SEVEN-DAY MINIMUM	33	Jan 7	52	Feb 26	.00	Dec 20 1990
INSTANTANEOUS PEAK FLOW			642	Jun 16	31200	Jun 9 1972
INSTANTANEOUS PEAK STAGE			4.40	Jun 16	17.77	Jun 9 1972
ANNUAL RUNOFF (AC-FT)	103900		125000		39630	
10 PERCENT EXCEEDS	256		316		119	
50 PERCENT EXCEEDS	118		148		28	
90 PERCENT EXCEEDS	46		54		6.5	

* Regulated period only (1964-99). See REMARKS.
a No flow for many days in 1991 water year.



06412810 CLEGHORN SPRINGS AT RAPID CITY, SD

LOCATION.--Lat 44°03'32", long 103°17'49", in SE¼ NW¼ SE¼ 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 sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	14	14	13	e13	e12	e13	14	13	15	13	12
2	14	14	14	14	e13	e12	e13	14	13	15	13	12
3	14	14	14	13	e13	e12	e13	14	14	15	13	12
4	14	14	14	13	e12	e12	e13	14	14	15	12	13
5	14	14	14	14	e13	e12	e13	14	14	15	12	13
6	14	14	14	14	e12	e12	e13	14	14	15	12	13
7	14	14	14	13	e13	e12	e13	14	14	e15	13	13
8	14	14	14	13	e13	e12	e13	14	14	e15	13	12
9	14	14	14	13	e12	e12	e13	14	13	e15	12	12
10	15	14	14	13	e12	e12	e13	14	13	e14	12	12
11	15	14	14	13	e12	e12	e13	14	14	e14	12	12
12	15	14	14	13	e12	e12	e13	14	15	e14	12	12
13	14	14	14	13	e12	e13	e13	14	15	e14	13	12
14	14	14	14	13	e12	e12	e13	14	16	e14	13	12
15	14	14	14	13	e12	e13	13	14	16	e14	12	12
16	14	14	14	13	e12	e12	13	14	16	e13	13	11
17	15	14	14	13	e12	e13	13	14	16	e13	12	11
18	15	14	14	13	e12	e13	13	14	17	13	12	11
19	15	14	14	13	e12	e13	13	14	16	13	12	12
20	14	14	14	13	e12	e13	13	14	16	13	12	12
21	14	14	14	13	e12	e13	14	13	16	13	12	12
22	14	14	14	13	e12	e13	14	13	16	13	12	11
23	14	14	14	13	e12	e13	14	14	16	13	12	11
24	14	14	14	13	e12	e13	14	13	16	13	12	11
25	14	14	14	13	e12	e13	14	13	16	13	12	11
26	14	14	14	13	e12	e13	14	13	15	13	12	11
27	13	14	14	13	e12	e13	14	13	15	13	12	11
28	14	14	14	13	e12	e13	14	13	15	12	12	12
29	14	14	14	e13	---	e13	14	13	15	12	12	12
30	14	14	13	e13	---	e13	14	13	15	12	12	12
31	14	---	13	e13	---	e13	---	13	---	13	12	---
TOTAL	439	420	432	406	342	389	400	424	448	424	380	355
MEAN	14.2	14.0	13.9	13.1	12.2	12.5	13.3	13.7	14.9	13.7	12.3	11.8
MAX	15	14	14	14	13	13	14	14	17	15	13	13
MIN	13	14	13	13	12	12	13	13	13	12	12	11
AC-FT	871	833	857	805	678	772	793	841	889	841	754	704

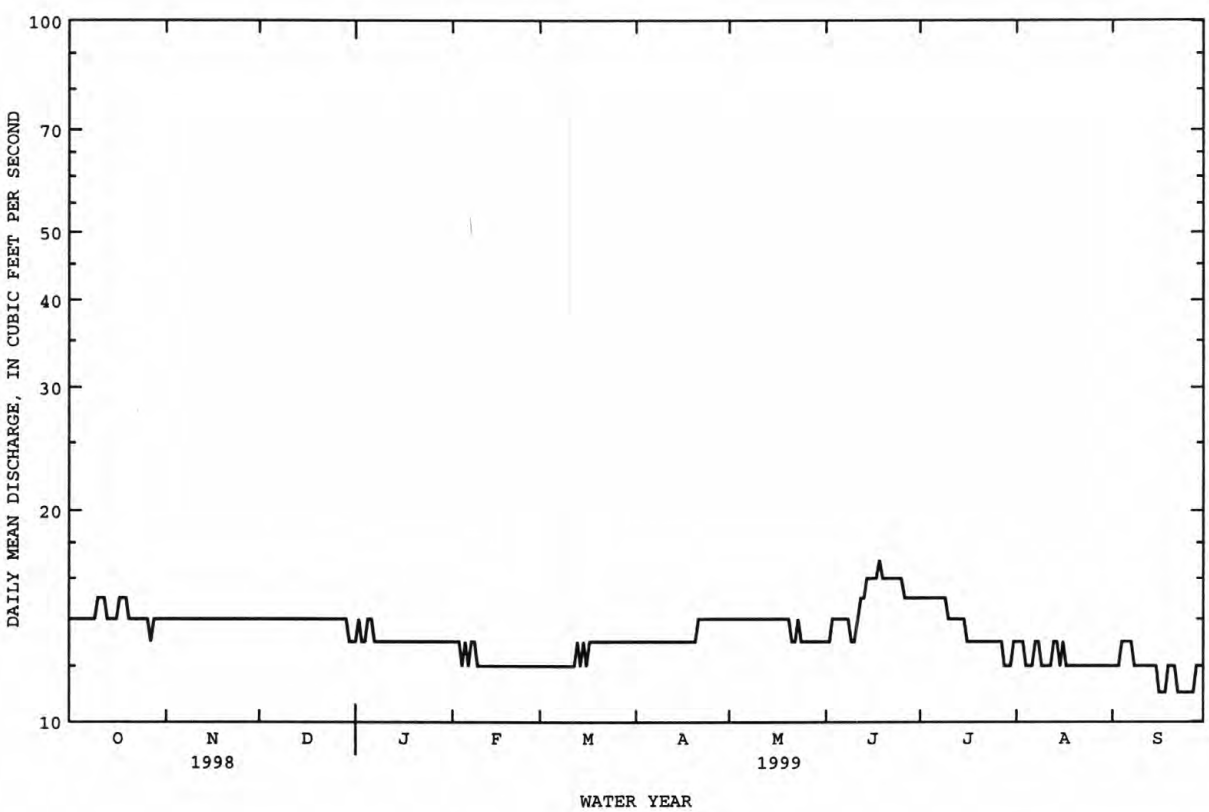
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1999, BY WATER YEAR (WY)

MEAN	11.9	11.9	11.9	11.9	11.6	11.9	12.6	13.4	13.7	12.3	11.7	11.6
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	10.8	9.81	9.89	10.3	10.4	10.2	11.3	11.1	10.5	10.0	9.92	9.90
(WY)	1993	1993	1993	1993	1993	1993	1993	1993	1994	1994	1994	1994

e Estimated

06412810 CLEGHORN SPRINGS AT RAPID CITY, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1993 - 1999	
ANNUAL TOTAL	4898		4859			
ANNUAL MEAN	13.4		13.3		12.2	
HIGHEST ANNUAL MEAN					13.3	1999
LOWEST ANNUAL MEAN					11.1	1993
HIGHEST DAILY MEAN	15	Apr 14	17	Jun 18	17	Jun 2 1997
LOWEST DAILY MEAN	12	Jan 12	11	Sep 16	8.8	Sep 7 1994
ANNUAL SEVEN-DAY MINIMUM	12	Feb 14	11	Sep 21	9.4	Sep 3 1994
ANNUAL RUNOFF (AC-FT)	9720		9640		8840	
10 PERCENT EXCEEDS	14		14		14	
50 PERCENT EXCEEDS	13		13		12	
90 PERCENT EXCEEDS	13		12		10	



06413650 LIME CREEK AT MOUTH, AT RAPID CITY, SD

LOCATION.--Lat 44°04'30", long 103°16'00", in SE¼ SW¼ NW¼ 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 mi^2, approximately.

PERIOD OF RECORD.--April 24, 1981, to July 21, 1982 (seasonal records only), October 1987 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,286 ft above sea level, from topographic map. Prior to June 22, 1993, gage located about 1,000 ft downstream, at different datum.

REMARKS.--No estimated daily discharges. Records good except those for May 15, June 2, 3, 5, 12, and July 17, which are fair. Water temperature and specific conductance measured during the water 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 ft^3/s was measured July 22, 1982.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	4.5	4.7	3.7	3.0	2.9	4.9	6.6	5.9	7.8	9.5	4.3
2	4.1	4.5	4.7	3.5	2.9	3.1	3.6	6.6	33	7.4	5.9	4.7
3	3.2	5.5	4.7	3.6	2.9	3.0	3.6	6.9	23	7.3	5.7	5.0
4	12	4.6	4.7	3.5	2.8	2.9	3.4	6.8	8.9	7.2	5.6	4.7
5	6.3	4.7	4.7	3.8	2.8	3.0	3.7	6.3	13	6.9	5.5	4.2
6	4.6	4.9	4.7	3.5	2.9	2.7	3.7	6.1	10	6.8	6.4	4.1
7	4.3	5.0	4.7	3.5	2.9	2.6	3.6	6.0	9.3	6.8	5.6	4.0
8	4.3	4.8	4.6	3.4	2.8	2.7	4.2	6.0	9.1	6.5	5.4	4.3
9	4.3	5.0	4.5	3.4	2.8	2.6	4.1	6.0	9.1	6.2	5.2	4.0
10	4.3	4.9	4.5	3.4	2.9	2.7	6.5	8.2	11	6.1	5.1	4.0
11	4.8	4.7	4.5	3.8	2.8	2.6	4.4	6.1	11	6.0	6.1	4.0
12	4.3	4.7	4.3	3.5	2.7	2.6	4.3	5.9	14	5.8	5.9	4.2
13	4.3	4.8	4.3	3.4	2.8	2.8	4.3	5.8	11	5.6	5.4	4.0
14	4.2	5.1	4.2	3.4	2.8	3.0	4.4	6.4	13	5.4	5.3	3.9
15	4.4	5.2	4.2	3.4	2.8	3.2	4.4	13	13	7.1	5.0	3.8
16	6.8	5.1	4.3	3.3	2.8	3.3	4.5	7.6	12	5.8	4.9	3.8
17	15	5.2	4.4	3.3	2.8	3.3	4.4	7.1	12	13	4.8	3.7
18	5.9	5.3	4.3	3.3	2.8	3.2	4.5	6.9	11	6.5	4.7	3.9
19	5.5	5.1	4.2	3.3	2.8	2.9	4.4	6.8	11	7.4	4.7	4.3
20	5.2	5.1	4.3	3.3	2.8	2.9	4.6	6.6	10	6.3	4.7	3.9
21	5.1	5.2	6.7	3.3	2.8	2.9	6.9	6.6	9.5	6.0	5.8	3.8
22	5.1	5.2	4.1	3.3	2.9	3.6	14	7.1	10	5.8	5.0	3.8
23	5.2	5.1	3.9	3.2	3.1	3.0	6.6	6.6	9.2	5.7	4.6	3.7
24	5.1	5.0	4.0	3.0	3.2	2.9	6.2	6.5	8.8	5.6	4.6	3.6
25	4.9	4.9	4.1	3.0	3.1	3.0	8.3	6.4	8.6	5.5	4.6	3.5
26	4.8	4.9	4.1	3.1	3.2	3.5	7.0	6.7	8.4	5.5	4.4	3.5
27	4.8	4.9	4.0	3.0	3.2	4.1	6.7	6.3	8.5	4.8	4.4	4.8
28	6.6	4.9	3.9	3.0	3.0	3.7	6.6	6.2	8.6	4.7	4.4	3.8
29	4.9	4.9	3.9	3.0	---	3.6	6.6	6.1	8.0	4.7	7.2	3.7
30	4.9	4.8	3.8	3.0	---	3.5	6.6	6.0	11	6.5	4.6	3.6
31	4.7	---	3.7	3.4	---	3.8	---	6.1	---	11	4.4	---
TOTAL	166.7	148.5	135.7	103.6	81.1	95.6	161.0	208.3	340.9	203.7	165.4	120.6
MEAN	5.38	4.95	4.38	3.34	2.90	3.08	5.37	6.72	11.4	6.57	5.34	4.02
MAX	15	5.5	6.7	3.8	3.2	4.1	14	13	33	13	9.5	5.0
MIN	2.8	4.5	3.7	3.0	2.7	2.6	3.4	5.8	5.9	4.7	4.4	3.5
AC-FT	331	295	269	205	161	190	319	413	676	404	328	239

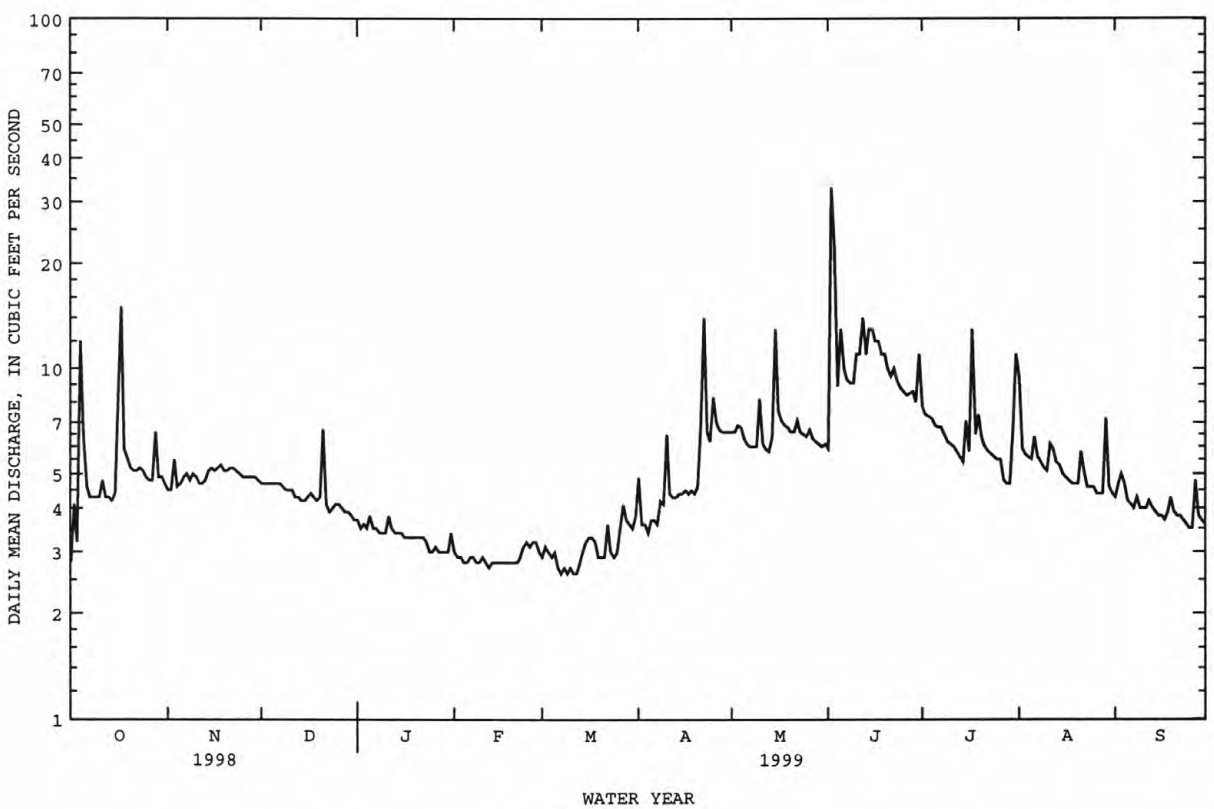
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)*

MEAN	1.95	1.97	1.81	1.72	1.76	1.92	2.30	3.48	4.04	2.90	2.44	1.89
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	.19	.23	.25	.23	.25	.40	.63	.74	.71	.80	.31	.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 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1988 - 1999*	
ANNUAL TOTAL	1448.8		1931.1			
ANNUAL MEAN	3.97		5.29		2.35	
HIGHEST ANNUAL MEAN					5.29	1999
LOWEST ANNUAL MEAN					.62	1992
HIGHEST DAILY MEAN	26	Sep 13	33	Jun 2	33	Jun 2 1999
LOWEST DAILY MEAN	2.1	Sep 2	2.6	Mar 7a	.10	Jan 15 1991
ANNUAL SEVEN-DAY MINIMUM	2.2	Sep 1	2.6	Mar 6	.13	Jan 11 1991
INSTANTANEOUS PEAK FLOW			505	Jun 2	505	Jun 2 1999
INSTANTANEOUS PEAK STAGE			5.71	Jun 2	5.71	Jun 2 1999
ANNUAL RUNOFF (AC-FT)	2870		3830		1700	
10 PERCENT EXCEEDS	5.1		8.2		4.7	
50 PERCENT EXCEEDS	3.5		4.7		1.7	
90 PERCENT EXCEEDS	2.9		3.0		.46	

* Period reflects only complete years.
a Also Mar. 9, 11, 12.



06414000 RAPID CREEK AT RAPID CITY, SD

LOCATION.--Lat 44°05'09", long 103°14'31", in NE¼ SE¼ SW¼ 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 mi^2, 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 sea level. 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.--Records good except those for estimated daily discharges, which are fair. 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 ft^3/s, July 13, 1962, gage height, 8.37 ft, datum then in use; minimum daily discharge, 2.0 ft^3/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. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142	110	221	116	104	86	149	337	231	548	244	191
2	162	110	220	110	103	87	142	336	288	538	192	190
3	158	120	220	101	103	84	145	338	501	531	186	177
4	215	126	197	110	104	84	145	360	371	525	183	178
5	192	139	219	128	105	89	141	359	357	518	179	173
6	191	177	222	117	104	88	158	357	407	500	186	169
7	186	201	221	110	105	85	159	357	369	458	183	164
8	187	197	221	112	104	86	161	356	348	381	179	146
9	211	198	216	113	104	84	160	357	329	331	173	142
10	211	195	192	116	106	89	180	379	346	305	175	117
11	214	192	191	115	100	85	187	364	371	277	186	90
12	212	190	191	115	103	84	187	357	440	242	188	89
13	212	190	191	110	106	84	187	348	484	213	182	87
14	212	192	191	110	104	85	217	354	510	200	181	86
15	212	195	190	110	104	88	220	383	599	199	178	85
16	229	198	175	109	102	91	219	390	632	210	177	82
17	301	196	174	108	100	86	218	376	670	267	176	86
18	231	195	171	108	99	85	217	370	665	207	175	83
19	221	193	e150	109	98	87	217	333	651	211	175	88
20	194	193	e135	108	98	85	219	306	630	222	174	84
21	154	224	e125	106	97	85	247	298	627	221	182	83
22	110	228	e110	106	97	88	333	293	649	213	186	80
23	95	230	e105	106	85	84	339	285	627	210	180	78
24	94	229	e100	106	82	83	334	273	608	299	182	78
25	93	227	e110	98	81	102	351	251	583	251	194	79
26	91	225	e120	115	84	103	347	231	587	204	192	80
27	91	226	e122	112	85	125	346	227	582	174	188	89
28	125	228	120	107	86	134	341	224	569	169	191	85
29	113	224	117	108	---	132	340	225	548	163	215	82
30	111	222	118	109	---	131	339	225	563	174	197	73
31	110	---	115	108	---	136	---	228	---	225	190	---
TOTAL	5280	5770	5170	3416	2753	2925	6945	9877	15142	9186	5769	3314
MEAN	170	192	167	110	98.3	94.4	232	319	505	296	186	110
MAX	301	230	222	128	106	136	351	390	670	548	244	191
MIN	91	110	100	98	81	83	141	224	231	163	173	73
AC-FT	10470	11440	10250	6780	5460	5800	13780	19590	30030	18220	11440	6570

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)*

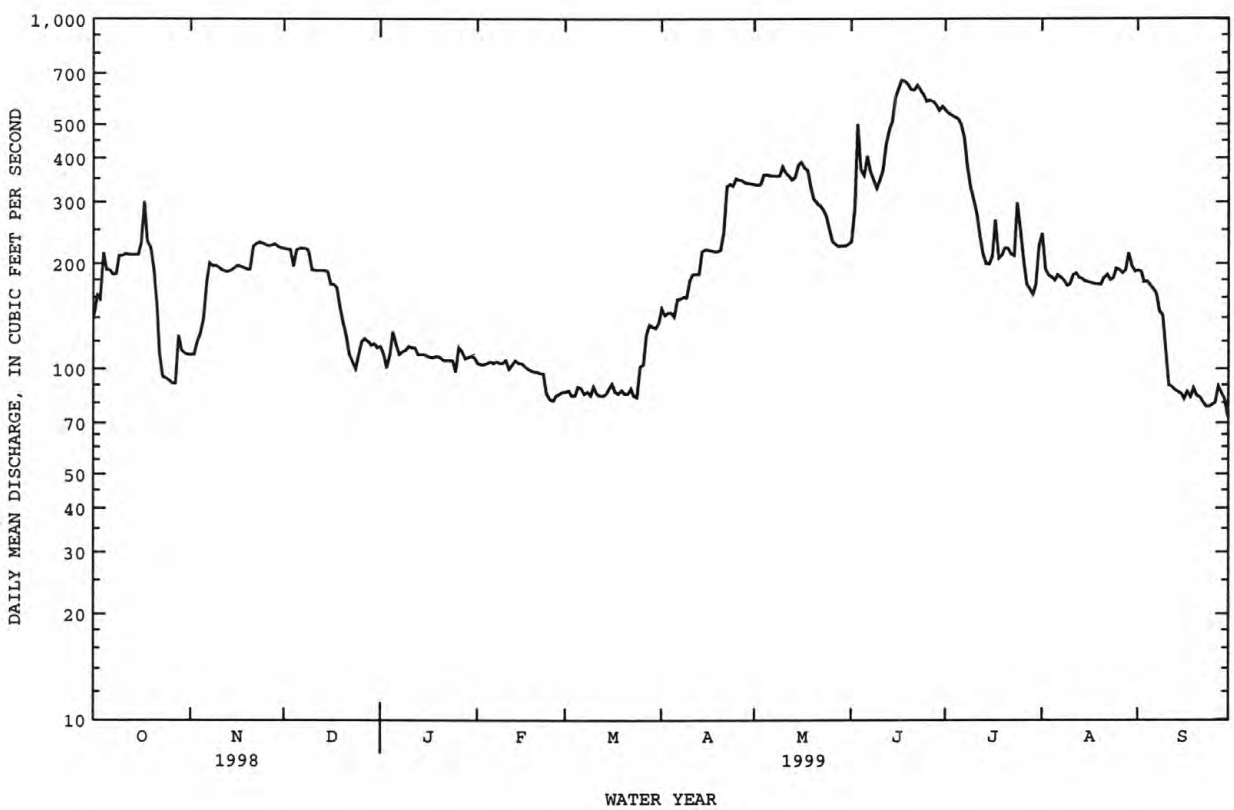
MEAN	45.0	40.7	37.4	35.1	36.0	46.2	72.6	134	168	108	82.0	59.6
MAX	170	192	167	112	111	152	232	490	505	296	263	158
(WY)	1999	1999	1999	1997	1997	1996	1999	1997	1999	1999	1998	1997
MIN	15.4	20.8	20.1	15.9	15.9	18.3	17.6	42.7	28.0	45.8	39.5	26.5
(WY)	1989	1982	1991	1978	1978	1991	1981	1986	1990	1986	1981	1989

e Estimated

06414000 RAPID CREEK AT RAPID CITY, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1964 - 1999*	
ANNUAL TOTAL	61855		75547			
ANNUAL MEAN	169		207		72.2	
HIGHEST ANNUAL MEAN					207	1999
LOWEST ANNUAL MEAN					31.5	1990
HIGHEST DAILY MEAN	508	Jun 23	670	Jun 17	5600	Jun 10 1972
LOWEST DAILY MEAN	48	Jan 10	73	Sep 30	6.7	Apr 17 1981
ANNUAL SEVEN-DAY MINIMUM	59	Jan 7	80	Sep 20	8.6	Jan 24 1978
INSTANTANEOUS PEAK FLOW			708	Jun 17a	50000	Jun 9 1972b
INSTANTANEOUS PEAK STAGE			5.84	Jun 2c	19.66	Jun 9 1972d
ANNUAL RUNOFF (AC-FT)	122700		149800		52280	
10 PERCENT EXCEEDS	281		369		142	
50 PERCENT EXCEEDS	152		182		44	
90 PERCENT EXCEEDS	73		86		23	

* Regulated period only (1964-99). See REMARKS.
a Gage height, 5.68 ft.
b On basis of slope-area measurement of peak flow.
c Discharge, 703 ft^3/s.
d From floodmarks.



06418900 RAPID CREEK BELOW SEWAGE TREATMENT PLANT, NEAR RAPID CITY, SD

LOCATION.--Lat 44°01'24", long 103°05'43", in NW¼ NE¼ NE¼ 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 mi^2, approximately.

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,000 ft above sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

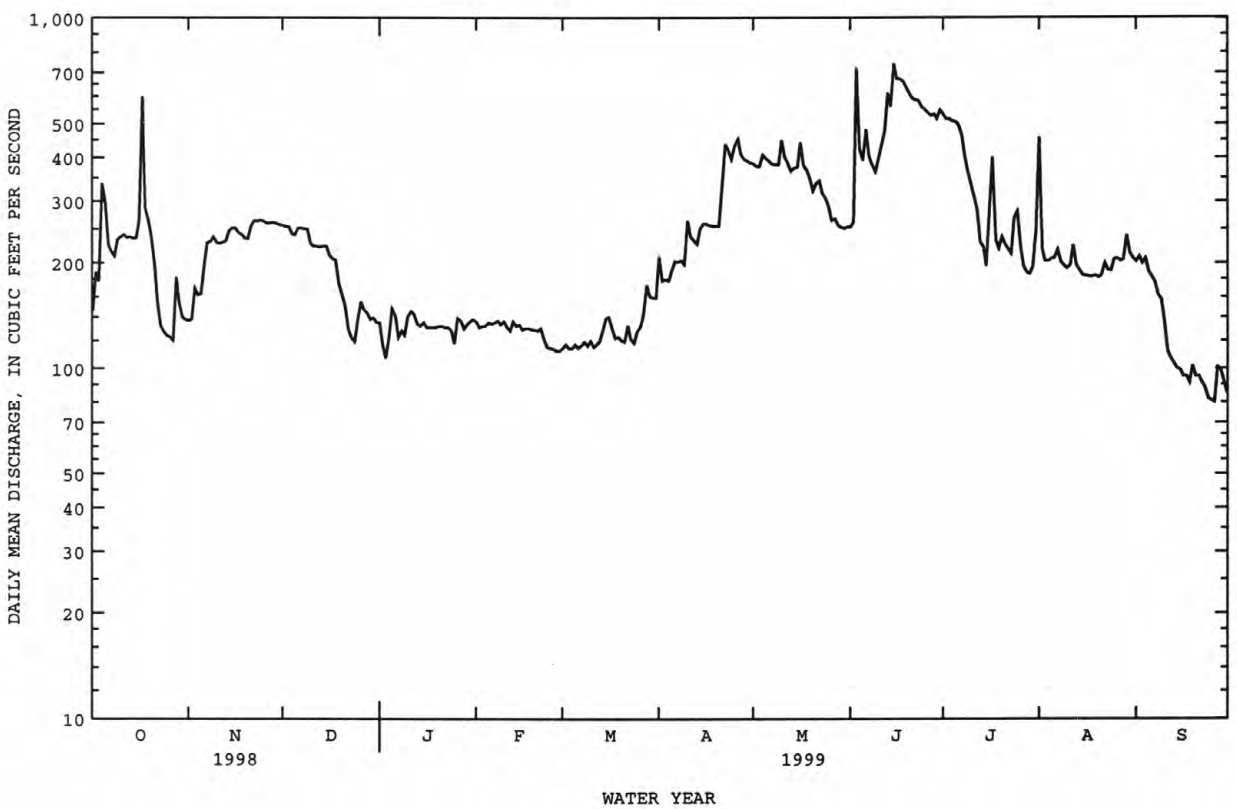
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	146	137	256	135	136	114	209	384	253	532	458	202
2	188	138	254	116	131	117	178	377	263	516	219	209
3	177	169	254	107	132	114	179	377	721	517	203	200
4	338	162	242	123	132	114	178	407	424	509	203	207
5	298	163	240	148	135	117	190	398	393	506	206	188
6	224	198	252	141	134	114	202	391	482	495	207	182
7	215	228	251	123	135	116	201	383	404	464	218	176
8	209	230	250	128	137	119	203	382	381	406	201	162
9	233	238	250	124	133	116	198	382	363	364	196	157
10	237	228	227	141	136	120	265	450	393	336	193	137
11	241	227	223	146	131	115	238	400	431	308	197	112
12	236	229	223	143	128	117	231	385	476	285	225	107
13	237	231	222	134	136	120	226	365	613	229	197	103
14	235	247	223	132	132	128	251	373	560	222	190	100
15	236	252	223	135	133	139	259	376	743	196	184	99
16	265	252	210	131	129	140	258	442	672	290	184	95
17	597	244	205	131	130	130	256	378	671	401	183	95
18	287	241	204	131	130	122	255	368	662	232	183	91
19	263	235	174	131	129	123	255	349	634	220	184	102
20	236	234	162	132	129	120	255	321	612	237	182	95
21	197	256	151	132	128	119	330	338	591	227	184	95
22	154	264	130	131	130	133	438	344	585	219	200	91
23	132	263	122	131	121	121	417	316	583	212	191	88
24	127	265	119	128	115	118	395	306	559	270	190	82
25	124	263	137	118	114	128	434	291	550	282	205	81
26	123	260	155	139	114	132	453	265	537	223	206	80
27	120	260	147	137	112	143	409	268	528	195	203	101
28	182	261	144	130	112	173	396	257	534	188	205	99
29	154	259	138	133	---	161	392	253	516	186	240	92
30	140	257	139	136	---	159	386	251	547	195	213	85
31	138	---	135	138	---	159	---	254	---	248	206	---
TOTAL	6689	6891	6062	4085	3594	3961	8537	10831	15681	9710	6456	3713
MEAN	216	230	196	132	128	128	285	349	523	313	208	124
MAX	597	265	256	148	137	173	453	450	743	532	458	209
MIN	120	137	119	107	112	114	178	251	253	186	182	80
AC-FT	13270	13670	12020	8100	7130	7860	16930	21480	31100	19260	12810	7360

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1999, BY WATER YEAR (WY)

MEAN	61.5	63.4	60.2	58.7	60.9	74.6	105	159	189	114	94.6	64.9
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 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1982 - 1999	
ANNUAL TOTAL	69273		86210			
ANNUAL MEAN	190		236		92.3	
HIGHEST ANNUAL MEAN					239	1997
LOWEST ANNUAL MEAN					35.5	1989
HIGHEST DAILY MEAN	611	Jun 25	743	Jun 15	1270	Jun 3 1997
LOWEST DAILY MEAN	63	Jan 11	80	Sep 26	11	Sep 26 1992
ANNUAL SEVEN-DAY MINIMUM	71	May 4	87	Sep 20	13	Oct 4 1990
INSTANTANEOUS PEAK FLOW			1310	Jun 3	2260	Jun 3 1997
INSTANTANEOUS PEAK STAGE			8.04	Jun 3	10.05	Jun 3 1997
ANNUAL RUNOFF (AC-FT)	137400		171000		66830	
10 PERCENT EXCEEDS	299		427		202	
50 PERCENT EXCEEDS	169		203		53	
90 PERCENT EXCEEDS	87		117		26	



06421500 RAPID CREEK NEAR FARMINGDALE, SD

LOCATION.--Lat 43°56'31", long 102°51'12", in SW¼ SW¼ SW¼ 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 mi^2.

PERIOD OF RECORD.--July 1946 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,700 ft above sea level, 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 ft^3/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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

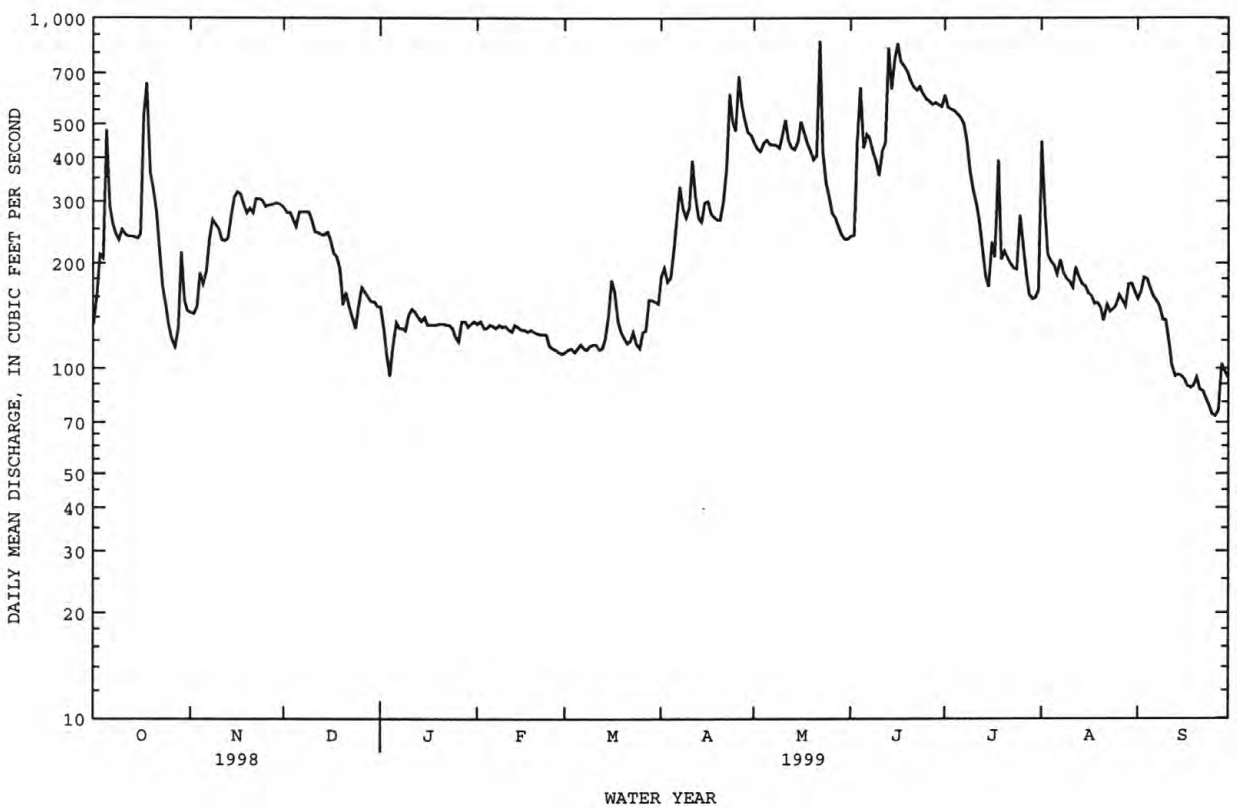
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	144	287	e150	e134	111	183	441	239	606	447	158
2	162	143	278	e130	e136	113	194	424	240	559	282	166
3	211	150	279	e110	e130	114	177	417	442	552	211	182
4	206	187	266	e95	e130	111	182	441	638	546	202	180
5	481	174	254	e115	e133	114	216	451	427	534	197	169
6	292	190	280	e135	e132	117	274	438	467	522	186	160
7	259	233	280	e130	e130	114	332	436	455	500	205	156
8	242	266	280	e130	133	113	286	435	416	450	187	150
9	232	258	280	e128	131	116	270	427	390	367	180	138
10	249	249	265	e142	132	117	288	463	357	323	177	137
11	241	233	245	e148	129	117	394	515	419	295	170	119
12	238	231	244	e145	127	113	310	449	442	263	195	102
13	238	235	241	e140	133	114	269	428	826	219	183	95
14	237	273	240	e136	131	122	262	423	629	183	174	96
15	235	309	245	e140	129	142	298	447	768	171	172	95
16	243	320	233	e133	129	179	301	509	852	230	164	93
17	535	315	213	e133	127	165	277	472	751	208	161	89
18	657	293	209	e133	129	137	271	440	732	394	153	88
19	363	278	e193	e133	127	127	266	420	706	205	154	89
20	327	287	e152	e134	126	122	266	396	668	216	149	94
21	280	278	e165	e134	125	118	300	406	639	207	137	87
22	224	305	e150	e133	125	120	373	864	625	199	152	86
23	171	305	e140	e133	125	127	611	415	640	193	145	82
24	152	302	e130	e130	116	117	507	339	610	192	148	78
25	133	290	e150	e123	114	114	478	311	592	274	152	74
26	121	293	e170	e119	113	127	687	278	582	226	162	73
27	115	293	e165	e136	111	128	570	269	569	184	156	76
28	130	296	e160	e136	110	157	512	255	578	162	150	103
29	215	296	e155	e131	---	157	475	241	568	158	174	98
30	156	293	e155	e134	---	155	464	234	562	159	175	94
31	146	---	e150	e136	---	153	---	234	---	167	165	---
TOTAL	7625	7719	6654	4085	3547	3951	10293	12718	16829	9464	5665	3407
MEAN	246	257	215	132	127	127	343	410	561	305	183	114
MAX	657	320	287	150	136	179	687	864	852	606	447	182
MIN	115	143	130	95	110	111	177	234	239	158	137	73
AC-FT	15120	15310	13200	8100	7040	7840	20420	25230	33380	18770	11240	6760
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)*												
MEAN	55.5	58.0	52.2	48.9	55.4	78.6	102	153	184	83.4	57.6	48.2
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
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

e Estimated

06421500 RAPID CREEK NEAR FARMINGDALE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1964 - 1999*	
ANNUAL TOTAL	71295		91957			
ANNUAL MEAN	195		252		81.4	
HIGHEST ANNUAL MEAN					269	1997
LOWEST ANNUAL MEAN					24.8	1989
HIGHEST DAILY MEAN	657	Oct 18	864	May 22	2860	Jun 10 1972
LOWEST DAILY MEAN	62	Jan 10	73	Sep 26	.00	May 30 1969a
ANNUAL SEVEN-DAY MINIMUM	67	Feb 22	79	Sep 21	.00	Jun 1 1969
INSTANTANEOUS PEAK FLOW			1410	May 22	7320	Jun 10 1972b
INSTANTANEOUS PEAK STAGE			9.61	May 22	11.85	Jun 10 1972
ANNUAL RUNOFF (AC-FT)	141400		182400		58980	
10 PERCENT EXCEEDS	307		489		172	
50 PERCENT EXCEEDS	163		192		48	
90 PERCENT EXCEEDS	77		115		18	

* Regulated period only (1964-99). See REMARKS.
a No flow at times in 1969-71.
b From floodmarks, from rating curve extended above 400 ft^3/s on basis of contracted-opening and flow-over-road measurement of peak flow.



06422500 BOXELDER CREEK NEAR NEMO, SD

LOCATION.--Lat 44°08'38", long 103°27'16", in SE¼ SE¼ 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 mi^2, approximately.

WATER-DISCHARGE RECORDS

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 sea level. 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 estimated daily discharges, which are fair. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. Recording precipitation gage and 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	73	53	e28	20	21	23	140	50	102	75	26
2	20	71	51	e22	28	14	17	132	48	98	49	27
3	24	70	51	e24	17	13	21	129	82	94	44	32
4	43	69	50	e30	24	15	27	136	55	89	41	34
5	45	68	49	e32	17	11	24	124	56	83	42	30
6	40	68	38	e28	18	18	28	106	98	80	42	27
7	51	66	50	e28	17	27	47	99	82	78	53	25
8	63	64	51	e28	20	14	64	95	75	75	43	23
9	70	64	49	e30	19	19	56	97	72	71	38	23
10	73	e50	e48	e32	e18	14	67	103	95	69	35	22
11	81	e61	e47	38	e16	18	59	93	143	68	39	22
12	66	e63	45	30	e18	11	74	85	138	65	50	22
13	63	64	45	24	e20	15	76	81	238	62	41	21
14	62	70	42	27	e18	24	78	82	232	59	37	20
15	60	72	42	24	17	72	73	87	296	58	34	20
16	62	72	39	24	17	41	68	92	253	61	33	20
17	102	68	39	e22	16	30	68	78	241	75	32	19
18	78	67	36	e22	14	20	69	74	241	70	30	19
19	92	64	e28	23	13	22	67	71	204	61	30	21
20	95	64	e20	21	13	26	68	69	186	59	28	20
21	94	64	e15	21	13	23	140	63	162	62	35	19
22	98	65	e18	23	14	24	130	68	176	54	44	18
23	104	64	e25	31	19	25	127	63	185	51	31	17
24	95	62	e25	30	15	23	134	57	148	49	29	17
25	90	59	e28	e28	16	23	144	55	136	46	29	16
26	85	58	e30	28	19	25	163	56	125	45	27	16
27	80	57	e34	24	13	26	163	70	121	44	26	18
28	103	56	e34	e22	15	21	157	55	119	41	28	19
29	96	55	e28	27	---	20	151	52	111	41	42	18
30	79	54	e28	24	---	24	147	50	106	42	34	17
31	74	---	e32	23	---	23	---	51	---	50	28	---
TOTAL	2203	1922	1170	818	484	702	2530	2613	4274	2002	1169	648
MEAN	71.1	64.1	37.7	26.4	17.3	22.6	84.3	84.3	142	64.6	37.7	21.6
MAX	104	73	53	38	28	72	163	140	296	102	75	34
MIN	15	50	15	21	13	11	17	50	48	41	26	16
AC-FT	4370	3810	2320	1620	960	1390	5020	5180	8480	3970	2320	1290

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1999, BY WATER YEAR (WY)

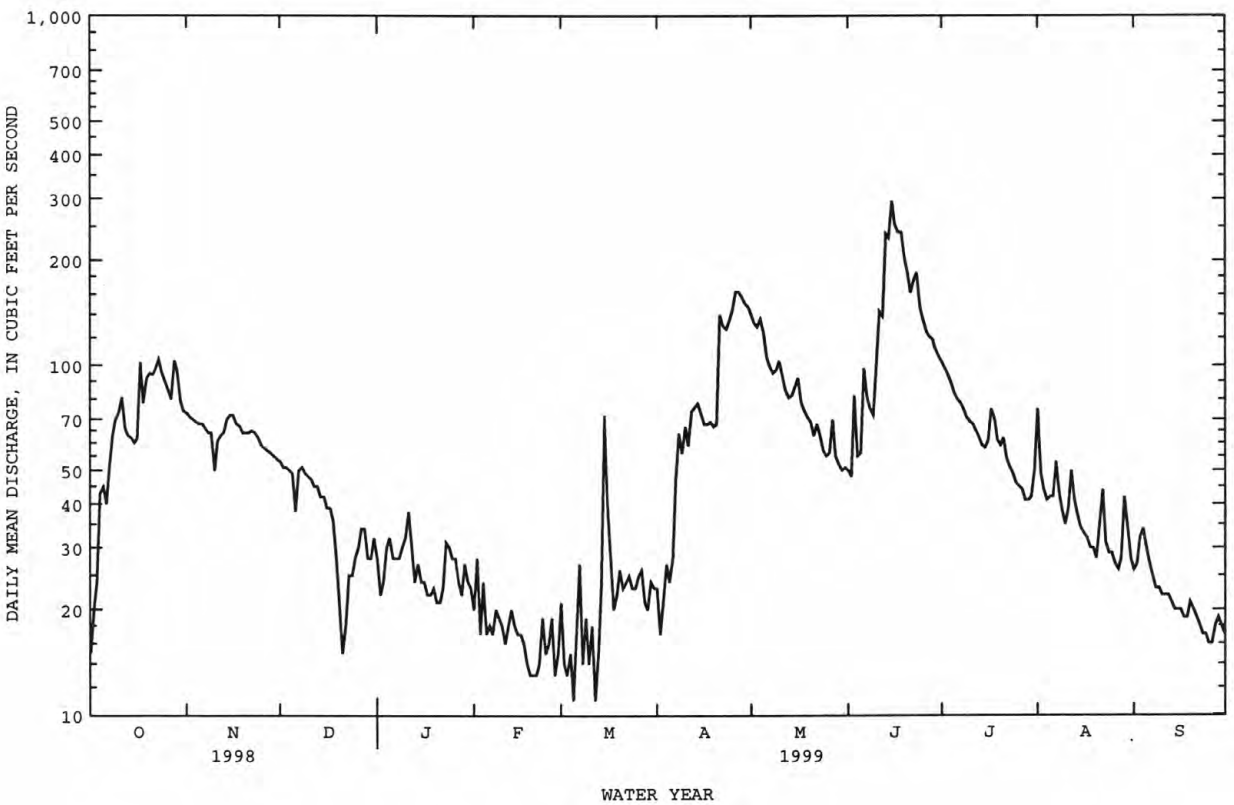
MEAN	10.6	9.72	6.80	5.78	6.09	12.7	31.1	53.3	64.7	23.0	14.1	9.46
MAX	71.1	64.1	37.7	26.4	18.2	44.5	149	275	489	64.6	57.0	40.0
(WY)	1999	1999	1999	1999	1997	1997	1997	1995	1972	1999	1998	1997
MIN	1.85	1.66	1.65	1.42	1.36	2.66	3.03	6.20	3.92	1.70	.76	1.17
(WY)	1989	1989	1989	1982	1989	1981	1981	1974	1988	1988	1989	1988

e Estimated

06422500 BOXELDER CREEK NEAR NEMO, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1946, 1967 - 1999	
ANNUAL TOTAL	15901.6		20535			
ANNUAL MEAN	43.6		56.3		20.6	
HIGHEST ANNUAL MEAN					63.1	1997
LOWEST ANNUAL MEAN					3.81	1989
HIGHEST DAILY MEAN	324	Jun 19	296	Jun 15	6700	Jun 10 1972
LOWEST DAILY MEAN	3.2	Mar 9	11	Mar 5	.10	Aug 8 1989
ANNUAL SEVEN-DAY MINIMUM	3.4	Mar 5	14	Feb 16	.14	Aug 4 1989a
INSTANTANEOUS PEAK FLOW			327	Jun 15	30100	Jun 9 1972b
INSTANTANEOUS PEAK STAGE			4.02	Jun 15	20.40	Jun 9 1972c
ANNUAL RUNOFF (AC-FT)	31540		40730		14950	
10 PERCENT EXCEEDS	79		105		47a	
50 PERCENT EXCEEDS	36		45		8.4a	
90 PERCENT EXCEEDS	8.1		18		2.5a	

a Reflects water years 1967-99 only.
b From rating curve extended above 600 ft^3/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).



PRECIPITATION RECORDS

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

REVISED RECORDS.--WDR-98-1: 1997 daily precipitation for June 23, 1997.

INSTRUMENTATION.--Precipitation recorder.

REMARKS.--Records poor.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.04	.00	.05	.04	.00	.00	.00	.05	.00
2	.28	.02	.00	.00	.00	.00	.06	.00	1.08	.00	.00	.19
3	.04	.25	.00	.00	.00	.00	.08	.09	.37	.00	.00	.18
4	1.26	.02	.00	.00	.00	.00	.00	.03	.00	.00	.00	.10
5	.37	.00	.00	.01	.00	.27	.00	.00	.76	.00	.00	.00
6	.00	.25	.00	.03	.00	.00	.00	.00	.16	.00	.27	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.01	.00
8	.00	.00	.00	.00	.00	.01	.11	.01	.00	.00	.00	.00
9	.00	.13	.00	.00	.00	.00	.11	.01	.00	.00	.00	.00
10	.15	.00	.00	.00	.00	.24	.16	.18	.46	.00	.00	.00
11	.03	.00	.00	.00	.00	.00	.00	.00	.02	.00	.61	.08
12	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.12	.00
13	.00	.00	.00	.00	.00	.00	.02	.02	---	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.02	.10	---	.01	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.34	.17	.33	.00	.00
16	.75	.00	.00	.00	.00	.00	.00	.01	.00	.02	.00	.00
17	.50	.00	.00	.00	.00	.00	.00	.00	.42	.77	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.02	.02	.00	.11
19	.00	.00	.00	.00	.00	.00	.00	.02	.14	.08	.06	.04
20	.00	.00	.00	.00	.00	.00	.26	.00	.00	.05	.00	.00
21	.00	.00	.00	.00	.00	.01	.51	.00	.00	.00	.66	.00
22	.00	.00	.00	.00	.00	.09	.61	.11	.97	.00	.01	.00
23	.07	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00
24	.02	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.17	.00	.01	.02	.00	.00
26	.00	.00	.00	.05	.01	.00	.03	.19	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.07	.00	.00	.19	.00	.01	.53
28	.24	.00	.02	.00	.00	.00	.00	.00	.01	.00	.33	.01
29	.00	.00	.00	.00	---	.00	.00	.01	.00	.00	.41	.00
30	.00	.00	.04	.00	---	.00	.00	.01	.10	.21	.00	.00
31	.00	---	.00	.00	---	.21	---	.01	---	1.52	.00	---
TOTAL	3.71	0.67	0.06	0.16	0.01	0.95	2.18	1.14	---	3.16	2.54	1.24

CAL YR 1998 TOTAL 22.61

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06423010 BOXELDER CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°07'54", long 103°17'54", in NW¼ SE¼ 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 mi^2.

PERIOD OF RECORD.--May 1978 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,450 ft above sea level, from topographic map.

REMARKS.--Records fair. Considerable loss to sinkholes in reach above gage. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. METWARN satellite data-collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	46	30	10	6.6	4.4	6.5	107	36	94	38	9.2
2	12	e43	30	11	6.6	4.4	6.2	102	44	87	34	9.4
3	12	e43	28	10	6.5	4.2	6.4	99	65	80	25	9.3
4	14	e42	27	10	6.2	4.3	6.2	102	55	74	21	9.2
5	14	e40	26	10	5.9	4.5	6.4	96	43	67	20	8.5
6	14	e40	24	10	5.9	4.1	6.4	80	73	62	20	8.5
7	13	e39	17	10	6.0	4.1	6.4	71	82	60	21	8.6
8	19	e37	15	9.9	5.6	4.0	12	65	62	56	22	8.2
9	24	e38	16	9.9	5.2	3.8	21	64	58	51	19	8.3
10	29	e33	19	10	5.4	4.0	26	72	61	49	16	8.3
11	34	21	17	10	5.0	3.8	28	68	141	49	16	7.9
12	34	27	19	9.8	5.0	3.8	32	59	141	46	18	8.1
13	29	38	19	9.6	5.0	3.8	38	54	214	45	20	8.2
14	28	38	19	9.2	5.0	3.9	40	54	231	42	18	7.8
15	27	44	19	9.1	5.0	4.1	43	61	267	41	16	7.7
16	26	45	19	8.7	4.8	4.1	39	67	254	41	13	7.9
17	53	41	20	8.6	4.9	4.1	37	55	234	46	12	7.8
18	51	41	20	8.8	4.9	4.1	39	50	238	55	11	7.6
19	50	40	20	8.8	4.8	4.5	38	48	197	46	10	7.5
20	55	38	20	9.2	4.8	4.5	39	46	184	42	10	7.5
21	57	39	20	8.9	4.7	4.9	72	43	165	39	10	7.5
22	58	39	16	8.6	4.8	5.4	105	42	154	38	10	7.4
23	62	38	11	8.4	4.7	5.3	92	45	193	33	12	7.4
24	62	38	11	8.3	4.6	5.3	95	41	154	30	11	7.4
25	60	37	11	8.3	4.7	5.3	104	39	139	29	11	6.9
26	60	35	10	8.1	4.8	5.6	122	37	124	27	10	6.8
27	57	35	11	7.4	4.7	5.7	123	44	119	24	9.8	7.0
28	59	34	11	7.1	4.5	5.8	118	42	112	21	9.5	6.8
29	69	33	10	6.8	---	5.7	112	38	106	20	10	6.6
30	58	32	10	6.7	---	6.0	110	36	102	20	9.4	6.5
31	49	---	10	6.7	---	6.1	---	36	---	21	9.4	---
TOTAL	1201	1134	555	277.9	146.6	143.6	1529.5	1863	4048	1435	492.1	235.8
MEAN	38.7	37.8	17.9	8.96	5.24	4.63	51.0	60.1	135	46.3	15.9	7.86
MAX	69	46	30	11	6.6	6.1	123	107	267	94	38	9.4
MIN	12	21	10	6.7	4.5	3.8	6.2	36	36	20	9.4	6.5
AC-FT	2380	2250	1100	551	291	285	3030	3700	8030	2850	976	468

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1999, BY WATER YEAR (WY)

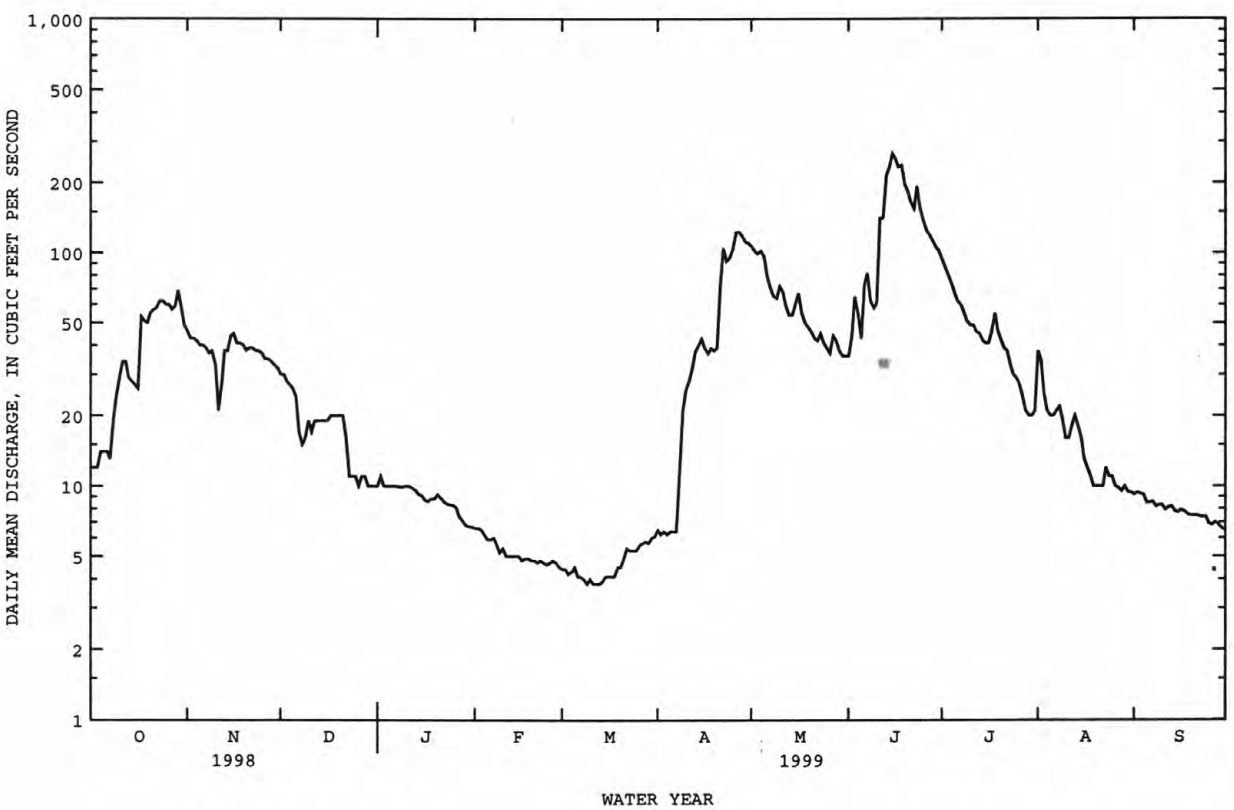
MEAN	2.21	2.12	1.06	.59	.38	1.62	8.85	28.1	30.6	6.36	3.87	1.73
MAX	38.7	37.8	17.9	8.96	5.24	21.7	98.7	200	143	46.3	31.6	13.8
(WY)	1999	1999	1999	1999	1999	1997	1997	1995	1997	1999	1997	1997
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1979	1979	1979	1979	1979	1979	1979	1979	1979	1979	1979	1979

e Estimated

06423010 BOXELDER CREEK NEAR RAPID CITY, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1979 - 1999	
ANNUAL TOTAL	6090.06		13061.5			
ANNUAL MEAN	16.7		35.8		7.30	
HIGHEST ANNUAL MEAN					42.3	1997
LOWEST ANNUAL MEAN					.000	1979a
HIGHEST DAILY MEAN	122	Jun 19	267	Jun 15	879	May 9 1995
LOWEST DAILY MEAN	.80	Mar 20	3.8	Mar 9,11-13	.00	Oct 1 1978b
ANNUAL SEVEN-DAY MINIMUM	.83	Mar 17	3.9	Mar 8	.00	Oct 1 1978
INSTANTANEOUS PEAK FLOW			286	Jun 15	1080	May 10 1995c
INSTANTANEOUS PEAK STAGE			31.73	Jun 15	33.46	May 31 1996
ANNUAL RUNOFF (AC-FT)	12080		25910		5290	
10 PERCENT EXCEEDS	39		84		12	
50 PERCENT EXCEEDS	12		20		.00	
90 PERCENT EXCEEDS	1.1		5.0		.00	

a Also 1980, 1981, 1985-90, 1992.
b For most months in most years.
c Gage height, 33.09 ft.



06423500 CHEYENNE RIVER NEAR WASTA, SD

LOCATION.--Lat 44°04'52", long 102°24'03", in NE¼ NE¼ NW¼ 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 mi^2, 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 sea level. 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 fair 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 ft^3/s, May 6, 1932, gage height, 13.28 ft, present datum, from rating curve extended above 11,000 ft^3/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 ft^3/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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	312	894	980	e310	e320	380	434	1640	789	2320	3550	384
2	327	879	938	e290	e300	384	464	1650	749	1960	2160	383
3	369	916	815	e270	e300	379	493	1630	2550	1690	1070	713
4	620	2040	778	e250	e300	391	501	1500	1720	1650	873	1150
5	5380	2730	756	e220	e330	411	626	1450	1550	1620	748	697
6	1630	2040	721	e240	e370	418	e688	1400	2680	1500	655	509
7	968	2050	702	e270	e400	407	e743	1310	2020	1450	654	457
8	657	2360	680	e300	e450	416	e2110	1120	1530	1350	672	418
9	559	2220	683	e290	e500	404	e3590	1020	1230	1220	622	404
10	521	2100	689	e280	e550	407	e1660	1130	1230	1110	634	384
11	519	1810	658	e295	e600	426	e2750	2310	1490	966	570	376
12	516	1740	637	e310	e550	420	e1630	1670	1730	824	518	352
13	504	1750	632	e330	e500	426	e1600	1360	4790	733	515	330
14	508	1970	640	e370	e600	542	1540	1240	3310	658	487	317
15	504	1830	633	e360	e700	776	1540	1710	6800	615	466	304
16	527	1670	615	e340	e590	1010	1310	1320	8140	583	e456	300
17	3140	1540	589	e350	e480	940	1290	1240	6900	658	e423	301
18	3260	1650	588	e370	373	704	1280	1170	5710	722	e399	294
19	1420	1640	e500	e360	363	586	1020	1050	5060	825	383	304
20	820	1590	e450	e350	361	540	904	978	4990	746	380	302
21	673	1550	e380	e330	348	494	849	1000	4160	696	369	311
22	608	1530	e300	e315	348	470	1200	2500	3400	629	372	296
23	559	1520	e250	e305	353	482	1400	1880	3190	585	402	290
24	591	1500	e200	e300	394	522	1420	1280	2800	559	381	279
25	659	1280	e230	e300	395	492	1430	1300	2300	528	373	267
26	692	1160	e270	e300	397	445	2820	1100	2320	554	371	258
27	691	1060	e300	e300	395	435	2730	1030	1980	494	374	250
28	708	1030	e350	e300	381	422	2220	972	2210	444	371	256
29	1430	1020	e400	e310	---	435	1880	911	1950	399	381	285
30	1090	1000	e370	e330	---	422	1740	867	2020	371	527	284
31	953	---	e340	e350	---	418	---	826	---	377	416	---
TOTAL	31715	48069	17074	9595	11948	15404	43862	41564	91298	28836	20572	11455
MEAN	1023	1602	551	310	427	497	1462	1341	3043	930	664	382
MAX	5380	2730	980	370	700	1010	3590	2500	8140	2320	3550	1150
MIN	312	879	200	220	300	379	434	826	749	371	369	250
AC-FT	62910	95340	33870	19030	23700	30550	87000	82440	181100	57200	40800	22720

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)*

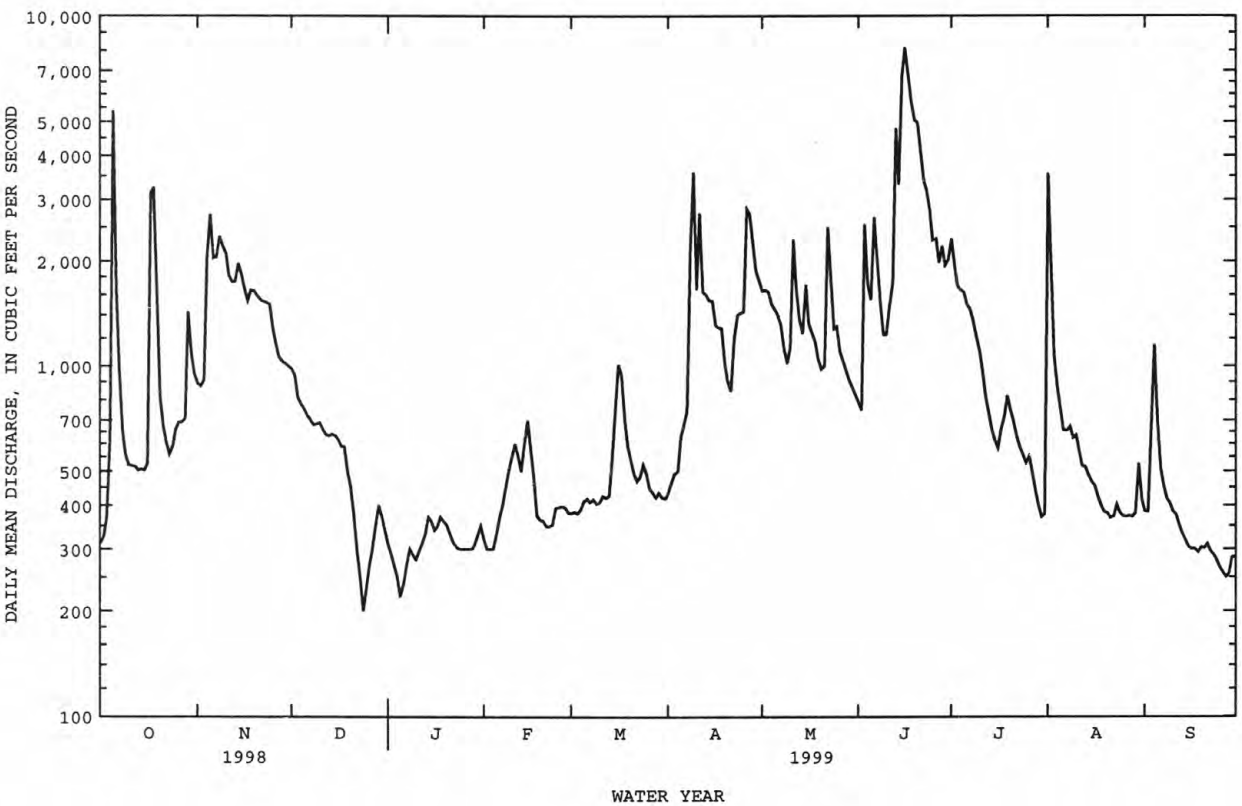
MEAN	196	184	128	124	236	422	474	841	1033	372	212	158
MAX	1023	1602	551	683	2024	1247	1595	2555	5270	1528	1280	390
(WY)	1999	1999	1999	1997	1997	1994	1970	1997	1967	1969	1997	1997
MIN	58.6	81.4	38.4	5.04	25.1	90.8	68.4	65.8	36.9	34.9	25.4	49.0
(WY)	1991	1989	1991	1991	1991	1981	1981	1989	1989	1989	1989	1975

e Estimated

06423500 CHEYENNE RIVER NEAR WASTA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1964 - 1999*	
ANNUAL TOTAL	275522		371392			
ANNUAL MEAN	755		1018		365a	
HIGHEST ANNUAL MEAN					1143	1997
LOWEST ANNUAL MEAN					81.0	1989
HIGHEST DAILY MEAN	5380	Oct 5	8140	Jun 16	19200	Jun 16 1967
LOWEST DAILY MEAN	100	Jan 7	200	Dec 24	3.0	Dec 23 1990
ANNUAL SEVEN-DAY MINIMUM	105	Jan 7	263	Jan 2	4.0	Jan 21 1991
INSTANTANEOUS PEAK FLOW			8770	Aug 1	26900	May 25 1957b
INSTANTANEOUS PEAK STAGE			7.42	Aug 1	16.25	Mar 5 1982c
ANNUAL RUNOFF (AC-FT)	546500		736700		264400	
10 PERCENT EXCEEDS	1660		2040		754	
50 PERCENT EXCEEDS	524		632		130	
90 PERCENT EXCEEDS	216		302		55	

* Regulated period only (1964-99). See REMARKS.
a Median of annual mean discharges, 290 ft^3/s.
b Gage height, 12.82 ft.
c Backwater from ice.



06424000 ELK CREEK NEAR ROUBAIX, SD

LOCATION.--Lat 44°17'41", long 103°35'47", in SE¼ NE¼ 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 mi^2.

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 sea level, 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 fair. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

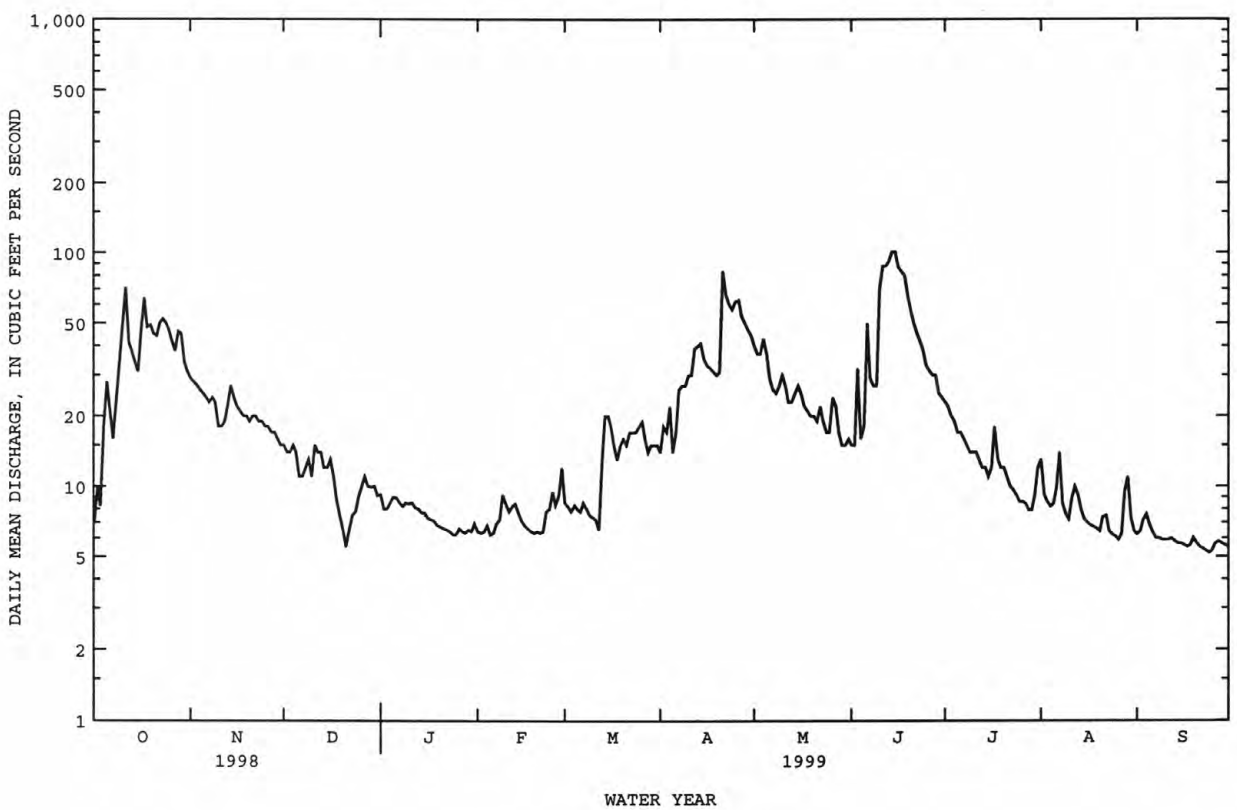
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	29	15	9.2	6.4	8.5	14	40	15	23	13	6.2
2	10	28	14	e8.0	6.3	e8.2	18	37	15	22	9.2	6.4
3	8.2	27	14	e8.0	6.4	e7.8	17	37	32	20	8.6	7.2
4	18	26	15	e8.5	6.8	8.3	22	43	16	19	8.2	7.6
5	28	25	14	9.0	6.2	e8.0	14	37	18	17	8.4	6.8
6	21	24	e11	8.9	6.3	e7.8	17	29	50	17	9.8	6.3
7	16	23	e11	e8.5	6.9	8.5	26	26	29	16	14	6.0
8	23	24	e12	8.2	7.2	e8.0	27	25	27	15	8.4	6.0
9	32	23	e13	8.5	9.2	e7.5	27	27	27	14	7.6	5.9
10	48	e18	e11	8.4	8.4	7.4	30	30	70	14	7.2	5.9
11	71	e18	15	8.5	e7.8	e7.2	30	27	88	14	8.9	5.9
12	41	e19	14	8.1	8.2	6.5	39	23	88	13	10	6.0
13	38	e22	14	8.0	8.4	e13	40	23	93	12	9.2	5.8
14	34	27	12	7.7	7.7	20	41	25	101	12	7.9	5.7
15	31	24	12	7.7	7.1	20	35	27	101	11	7.2	5.7
16	46	22	13	7.3	e6.8	18	33	25	87	12	7.0	5.6
17	64	21	11	7.2	e6.6	15	32	22	83	18	6.8	5.5
18	48	20	e8.8	7.1	6.4	13	31	21	80	13	6.7	5.6
19	49	20	e7.5	6.8	6.3	15	30	20	65	12	6.6	6.0
20	45	19	e6.5	6.7	6.4	16	31	20	57	12	6.4	5.7
21	44	20	e5.5	6.6	e6.3	15	84	19	50	11	7.4	5.5
22	50	20	e6.5	6.5	6.4	17	66	22	45	10	7.5	5.4
23	52	19	e7.5	6.4	e7.8	17	60	19	42	9.6	6.4	5.3
24	50	19	e7.8	6.2	8.0	17	57	17	38	9.2	6.2	5.2
25	47	18	e9.0	e6.2	9.5	18	62	17	33	8.6	6.1	5.3
26	42	18	e10	6.6	8.3	19	63	24	31	8.6	5.9	5.7
27	38	17	11	6.4	9.1	16	54	22	30	8.4	6.3	5.8
28	46	17	10	e6.3	12	14	50	17	30	7.9	9.5	5.7
29	45	16	9.9	6.5	---	15	47	15	25	7.9	11	5.6
30	34	15	10	6.4	---	15	44	15	24	9.1	7.3	5.5
31	31	---	9.1	6.9	---	15	---	16	---	12	6.4	---
TOTAL	1157.1	638	340.1	231.3	209.2	401.7	1141	767	1490	408.3	251.1	176.8
MEAN	37.3	21.3	11.0	7.46	7.47	13.0	38.0	24.7	49.7	13.2	8.10	5.89
MAX	71	29	15	9.2	12	20	84	43	101	23	14	7.6
MIN	6.9	15	5.5	6.2	6.2	6.5	14	15	15	7.9	5.9	5.2
AC-FT	2300	1270	675	459	415	797	2260	1520	2960	810	498	351
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1999, BY WATER YEAR (WY)												
MEAN	8.73	6.28	4.35	3.95	4.13	13.5	32.2	41.3	30.7	11.1	8.75	5.12
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	.96	.90	3.45	4.79	4.78	5.04	3.74	2.00	1.40
(WY)	1993	1993	1993	1993	1993	1992	1992	1992	1992	1992	1992	1992

e Estimated

06424000 ELK CREEK NEAR ROUBAIX, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1992 - 1999	
ANNUAL TOTAL	6628.8		7211.6			
ANNUAL MEAN	18.2		19.8		14.2	
HIGHEST ANNUAL MEAN					22.5	1997
LOWEST ANNUAL MEAN					2.99	1992
HIGHEST DAILY MEAN	134	Jun 19	101	Jun 14	500	May 8 1995
LOWEST DAILY MEAN	2.9	Jan 11	5.2	Sep 24	.43	Feb 25 1993
ANNUAL SEVEN-DAY MINIMUM	3.1	Jan 7	5.4	Sep 20	.69	Feb 21 1993
INSTANTANEOUS PEAK FLOW			133	Apr 21a	515	May 8 1995
INSTANTANEOUS PEAK STAGE			8.00	Jun 12b	12.32	May 8 1995
ANNUAL RUNOFF (AC-FT)	13150		14300		10290	
10 PERCENT EXCEEDS	39		44		37	
50 PERCENT EXCEEDS	14		14		5.9	
90 PERCENT EXCEEDS	4.7		6.3		2.0	

a Gage height, 7.76 ft.
b Discharge, 131 ft^3/s.



06425100 ELK CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°14'25", long 103°09'03", in NE¼ NE¼ sec.9, T.3 N., R.8 E., Meade County, Hydrologic Unit 10120111 (revised), 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 mi^2.

PERIOD OF RECORD.--November 1978 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,950 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Some flow is pumped from stream for irrigation. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

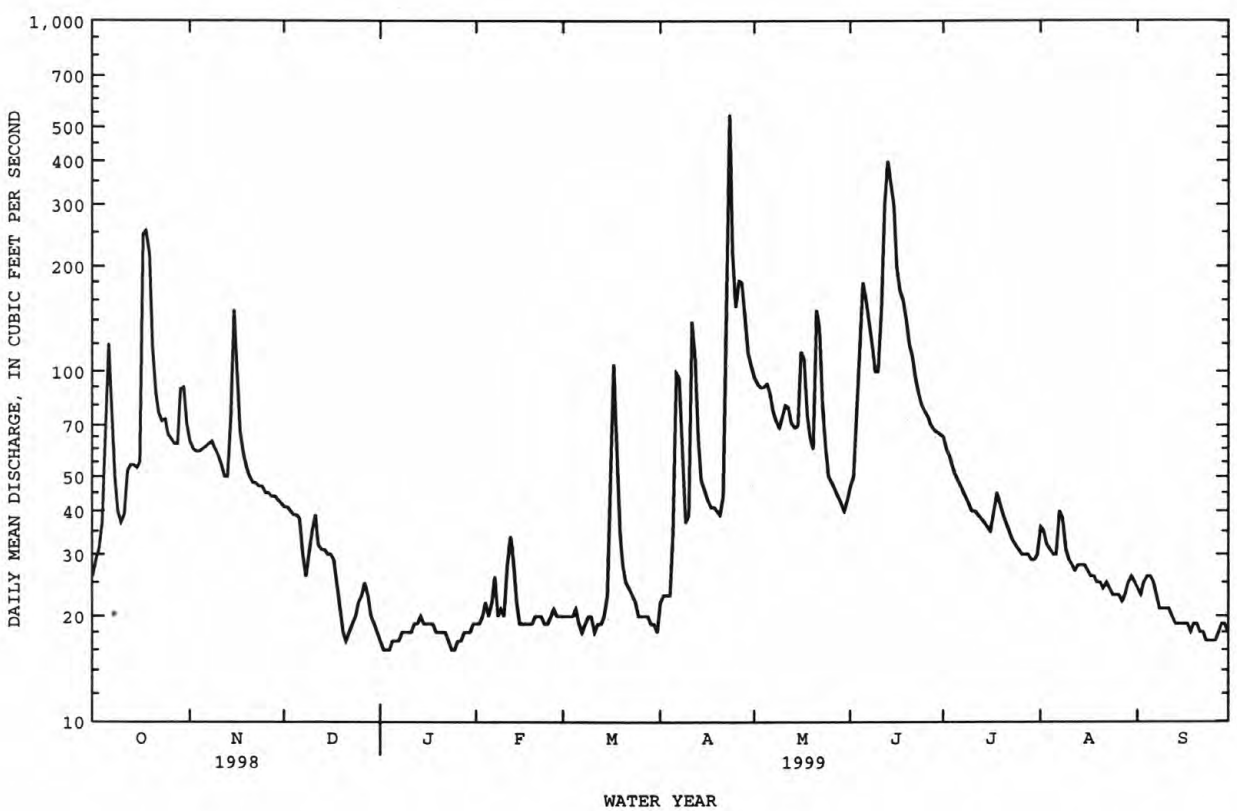
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	63	41	e17	e19	20	22	96	e47	e65	36	24
2	29	60	41	e16	e19	20	23	92	e50	e60	35	23
3	31	59	40	e16	e20	20	23	90	e75	e57	32	25
4	37	59	39	e16	e22	20	23	90	e120	e53	31	26
5	60	60	39	e17	e20	21	35	92	e180	e50	30	26
6	120	61	38	e17	e22	e19	99	87	e160	e48	30	25
7	85	62	e30	e17	e26	e18	96	77	e140	e46	40	23
8	50	63	e26	e18	e20	e19	61	72	e120	e44	38	21
9	40	e60	e30	e18	e21	e20	37	69	e100	42	31	21
10	37	e57	e35	e18	e20	e20	39	74	e100	40	29	21
11	39	e54	39	e18	e28	e18	139	80	e150	40	28	21
12	52	e50	32	e19	e34	19	110	79	e300	39	27	20
13	54	e50	31	e19	e29	19	64	71	e400	38	28	19
14	54	73	31	e20	e22	20	49	69	e350	37	28	19
15	53	150	30	e19	19	23	46	70	e300	36	28	19
16	55	99	30	e19	19	48	43	114	e200	35	27	19
17	247	67	29	e19	19	105	41	108	e170	39	26	19
18	253	58	e25	e19	19	63	41	75	e160	45	26	18
19	216	53	e21	e18	19	35	40	e65	e140	42	25	19
20	118	50	e18	e18	20	28	39	e60	e120	39	25	19
21	87	48	e17	e18	20	25	44	e150	e110	37	24	18
22	76	48	e18	e18	20	24	185	e130	e95	35	25	18
23	72	47	e19	e17	19	23	543	e80	e87	33	24	17
24	73	47	e20	e16	19	22	218	e60	e80	32	23	17
25	66	45	e22	e16	20	20	153	e50	e77	31	23	17
26	64	45	e23	e17	21	20	182	e48	e74	30	23	17
27	62	44	e25	e17	20	20	180	e46	e70	30	22	18
28	62	44	e23	e18	20	20	142	e44	e68	30	23	19
29	89	43	e20	e18	---	19	113	e42	e67	29	25	19
30	90	42	e19	e18	---	19	103	e40	e66	29	26	18
31	71	---	e18	e19	---	18	---	e43	---	30	25	---
TOTAL	2468	1761	869	550	596	805	2933	2363	4176	1241	863	605
MEAN	79.6	58.7	28.0	17.7	21.3	26.0	97.8	76.2	139	40.0	27.8	20.2
MAX	253	150	41	20	34	105	543	150	400	65	40	26
MIN	26	42	17	16	19	18	22	40	47	29	22	17
AC-FT	4900	3490	1720	1090	1180	1600	5820	4690	8280	2460	1710	1200
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1999, BY WATER YEAR (WY)												
MEAN	9.58	6.66	3.98	9.79	14.8	10.6	17.8	57.9	36.8	10.4	6.94	4.49
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	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1980	1981	1981	1981	1981	1981	1981	1981	1981	1988	1980	1980

e Estimated

06425100 ELK CREEK NEAR RAPID CITY, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1980 - 1999	
ANNUAL TOTAL	11670.9		19230			
ANNUAL MEAN	32.0		52.7		15.8	
HIGHEST ANNUAL MEAN					77.1	1997
LOWEST ANNUAL MEAN					.000	1992
HIGHEST DAILY MEAN	300	Jun 19	543	Apr 23	2360	May 9 1995
LOWEST DAILY MEAN	7.0	Jan 11	16	Jan 2-4,24,25	.00	Oct 1 1979a
ANNUAL SEVEN-DAY MINIMUM	8.7	Jan 9	17	Jan 1	.00	Oct 1 1979
INSTANTANEOUS PEAK FLOW			985	Apr 22	3120	May 27 1996
INSTANTANEOUS PEAK STAGE			9.88	Apr 22	12.77	May 27 1996
ANNUAL RUNOFF (AC-FT)	23150		38140		11460	
10 PERCENT EXCEEDS	60		106		30	
50 PERCENT EXCEEDS	21		35		.98	
90 PERCENT EXCEEDS	12		18		.00	

a No flow for many days in most years.



06425500 ELK CREEK NEAR ELM SPRINGS, SD

LOCATION.--Lat 44°14'54", long 102°30'10", in SW¼ NW¼ 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 mi^2, approximately.

PERIOD OF RECORD.--July 1949 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,304.49 ft above sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e15	93	38	e23	e100	38	46	155	68	115	68	21
2	e16	67	36	e22	e150	38	53	138	67	107	80	20
3	e24	59	35	e22	e120	38	61	131	84	101	55	21
4	e60	e54	32	e21	e90	38	76	131	76	94	46	21
5	e90	e50	29	e21	e74	e36	131	118	97	88	40	21
6	e74	e47	e27	e20	e60	e35	288	109	191	81	36	21
7	52	e50	e26	e21	e50	e36	575	106	188	75	34	21
8	97	e55	e25	e21	e45	e37	392	100	151	70	37	21
9	74	e60	e26	e21	e50	e38	220	92	155	66	36	20
10	47	e54	e28	e22	e40	e39	236	113	144	64	36	19
11	34	e49	e30	e22	e30	e40	762	156	146	62	34	19
12	28	e45	e37	e22	e37	45	575	125	158	60	32	19
13	25	e80	e31	e22	e48	44	319	115	481	58	32	19
14	29	153	e31	e23	48	46	209	115	675	54	30	18
15	36	226	e27	e24	44	54	152	120	773	52	28	19
16	e54	286	e22	e30	38	87	119	109	622	51	27	19
17	e3000	234	e18	e40	40	206	99	204	433	63	27	18
18	e2050	171	e16	e50	40	339	88	207	338	80	28	17
19	1530	133	e12	e46	38	198	82	158	281	76	28	18
20	e542	102	e10	e42	40	129	78	112	238	156	27	17
21	e251	83	e11	e38	41	98	79	90	208	102	27	17
22	e185	69	e12	e35	39	82	96	277	184	70	27	17
23	e151	61	e14	e32	40	77	111	233	169	58	25	16
24	e125	57	e16	e30	41	67	432	136	156	51	24	17
25	e101	54	e17	e30	41	59	315	107	153	46	25	16
26	e88	51	e18	e30	39	53	308	84	144	43	25	15
27	e79	48	e20	e30	39	50	298	75	132	39	25	15
28	e70	45	e21	e30	39	51	274	69	124	37	25	15
29	e63	41	e22	e32	---	48	221	67	115	36	20	15
30	61	40	e23	e35	---	45	183	74	112	32	20	16
31	99	---	e24	e60	---	43	---	72	---	31	20	---
TOTAL	9150	2617	734	917	1501	2234	6878	3898	6863	2118	1024	548
MEAN	295	87.2	23.7	29.6	53.6	72.1	229	126	229	68.3	33.0	18.3
MAX	3000	286	38	60	150	339	762	277	773	156	80	21
MIN	15	40	10	20	30	35	46	67	67	31	20	15
AC-FT	18150	5190	1460	1820	2980	4430	13640	7730	13610	4200	2030	1090

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1999, BY WATER YEAR (WY)

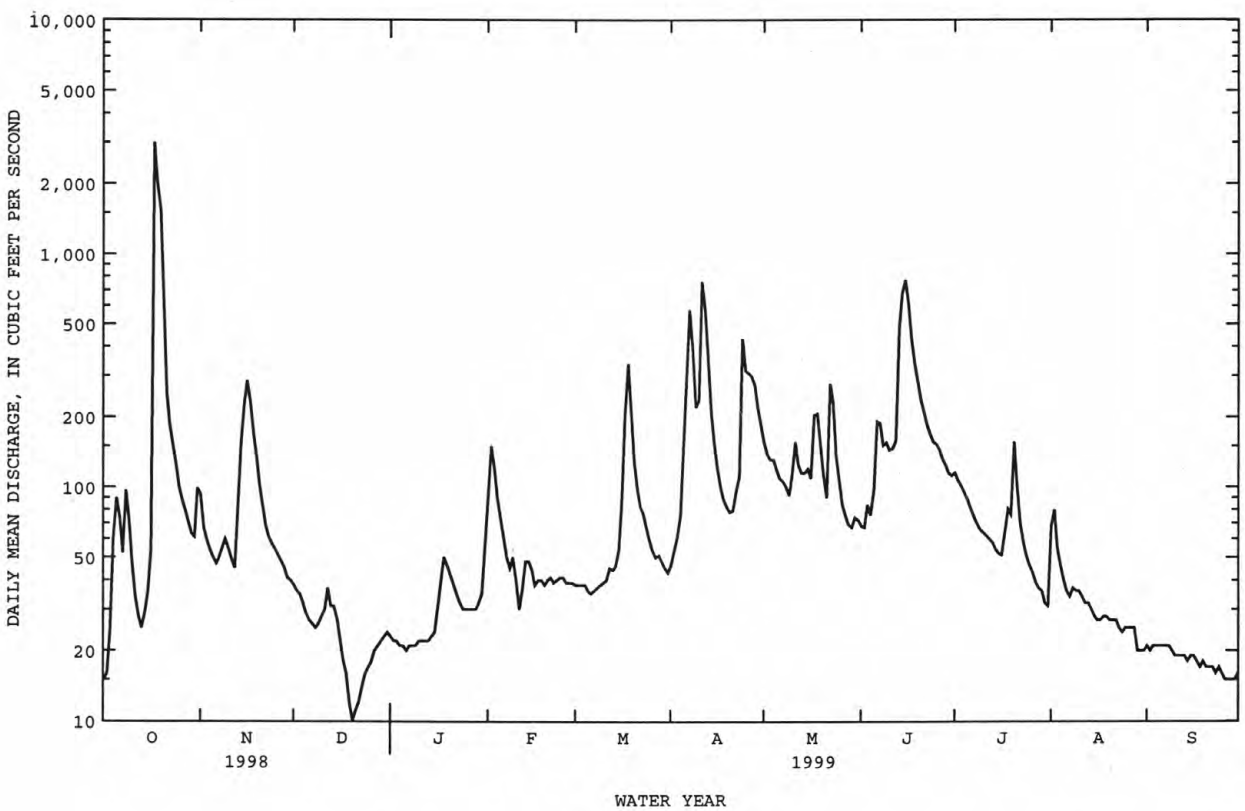
MEAN	10.3	4.40	2.39	4.24	17.5	41.2	54.1	104	72.4	13.2	4.54	2.20
MAX	295	87.2	23.7	103	334	327	332	519	708	88.8	40.4	26.8
(WY)	1999	1999	1999	1997	1997	1978	1997	1995	1967	1996	1997	1951
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1950	1950	1950	1950	1950	1957	1959	1955	1955	1950	1952	1950

e Estimated

06425500 ELK CREEK NEAR ELM SPRINGS, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1950 - 1999	
ANNUAL TOTAL	21380.2		38482			
ANNUAL MEAN	58.6		105		27.6	
HIGHEST ANNUAL MEAN					135	1997
LOWEST ANNUAL MEAN					.000	1961
HIGHEST DAILY MEAN	3000	Oct 17	3000	Oct 17	5010	May 28 1996
LOWEST DAILY MEAN	3.5	Mar 11	10	Dec 20	.00	Oct 1 1949a
ANNUAL SEVEN-DAY MINIMUM	3.9	Mar 9	13	Dec 18	.00	Oct 1 1949
INSTANTANEOUS PEAK FLOW			5150	Oct 17	8540	Mar 29 1952b
INSTANTANEOUS PEAK STAGE			13.70	Oct 17	16.22	Feb 18 1997c
ANNUAL RUNOFF (AC-FT)	42410		76330		19980	
10 PERCENT EXCEEDS	89		206		39	
50 PERCENT EXCEEDS	20		50		.00	
90 PERCENT EXCEEDS	12		20		.00	

a No flow for long periods in most years.
b Gage height, 10.61 ft, from floodmarks, site and datum then in use, from rating curve extended above 5,100 ft^3/s.
c Floodmark from ice jam.



06427000 KEYHOLE RESERVOIR NEAR MOORCROFT, WY

LOCATION.--Lat 44°22'55", long 104°46'45", in $NW^1/_4$ $NW^1/_4$ 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 mi^2, approximately.

PERIOD OF RECORD.--March 1952 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is sea level (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, 183,800 acre-ft, June 14, elevation, 4,099.06 ft; minimum, 171,700 acre-ft, Sept. 30, elevation, 4,097.20 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	4,097.61	177,600	--
Oct. 31	4,098.34	184,100	+6,500
Nov. 30	4,097.53	176,900	-7,200
Dec. 31	4,097.44	176,100	-800
CAL YR 1998	--	--	+3,800
Jan. 31	4,097.50	176,600	+500
Feb. 28	4,097.64	177,900	+1,300
Mar. 31	4,098.04	181,400	+3,500
Apr. 30	4,098.45	185,000	+3,600
May 31	4,097.79	179,200	-5,800
June 30	4,098.49	185,500	+6,300
July 31	4,097.79	179,200	-6,300
Aug. 31	4,097.49	176,500	-2,700
Sept. 30	4,097.20	174,000	-2,500
WTR YR 1999	--	--	-3,600

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06428500 BELLE FOURCHE RIVER AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°44'59", long 104°02'49", in NE¼ NW¼ NW¼ 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 mi^2, 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 sea level.

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 ft^3/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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	518	83	e31	e102	e90	165	539	148	351	76	80
2	22	362	78	e31	e105	e88	167	518	145	350	75	66
3	22	284	75	e30	e110	e87	163	514	175	334	76	62
4	30	259	e70	e30	e120	e85	156	517	170	271	81	58
5	226	251	e60	e29	e130	e83	158	548	162	240	78	55
6	226	253	e48	e29	e135	e81	236	579	561	226	80	53
7	122	264	e30	e29	e150	e80	447	562	530	217	127	54
8	100	336	28	e29	e150	e80	364	525	423	212	84	53
9	144	354	60	e31	e155	e78	376	505	500	188	78	48
10	96	350	69	e33	e150	e63	315	512	533	173	79	46
11	86	348	71	e50	e145	52	387	568	768	166	72	45
12	79	344	74	e78	e140	88	315	553	808	161	72	43
13	68	343	73	e82	e135	111	295	469	908	153	71	42
14	62	438	63	e90	e130	103	314	450	932	148	69	43
15	58	381	75	e105	e120	235	288	373	953	145	67	44
16	84	360	69	e110	e115	548	268	472	1150	145	76	44
17	461	355	63	e108	e110	617	242	373	730	155	68	43
18	249	353	61	e105	e105	558	223	333	640	219	62	42
19	227	278	59	e104	e103	410	206	290	562	209	57	41
20	176	258	e50	e102	e102	362	199	257	556	224	55	40
21	143	251	e28	e100	e101	282	257	233	490	199	53	40
22	119	203	e25	e98	e101	229	462	218	443	179	51	40
23	102	186	e27	e94	e100	211	677	210	415	161	49	39
24	86	178	e29	e90	e100	206	692	200	396	134	48	39
25	74	170	e31	e80	e98	199	627	191	378	114	46	39
26	68	164	e33	e75	e95	191	664	182	362	102	44	40
27	63	159	e35	e78	e90	195	651	174	351	95	43	42
28	65	132	e34	e80	e90	202	622	166	456	90	43	44
29	210	100	e33	e88	---	200	561	157	381	86	42	43
30	264	89	e32	e92	---	179	553	151	351	81	42	41
31	388	---	e31	e100	---	160	---	149	---	77	44	---
TOTAL	4141	8321	1597	2211	3287	6153	11050	11488	15377	5605	2008	1409
MEAN	134	277	51.5	71.3	117	198	368	371	513	181	64.8	47.0
MAX	461	518	83	110	155	617	692	579	1150	351	127	80
MIN	21	89	25	29	90	52	156	149	145	77	42	39
AC-FT	8210	16500	3170	4390	6520	12200	21920	22790	30500	11120	3980	2790

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1999, BY WATER YEAR (WY)*

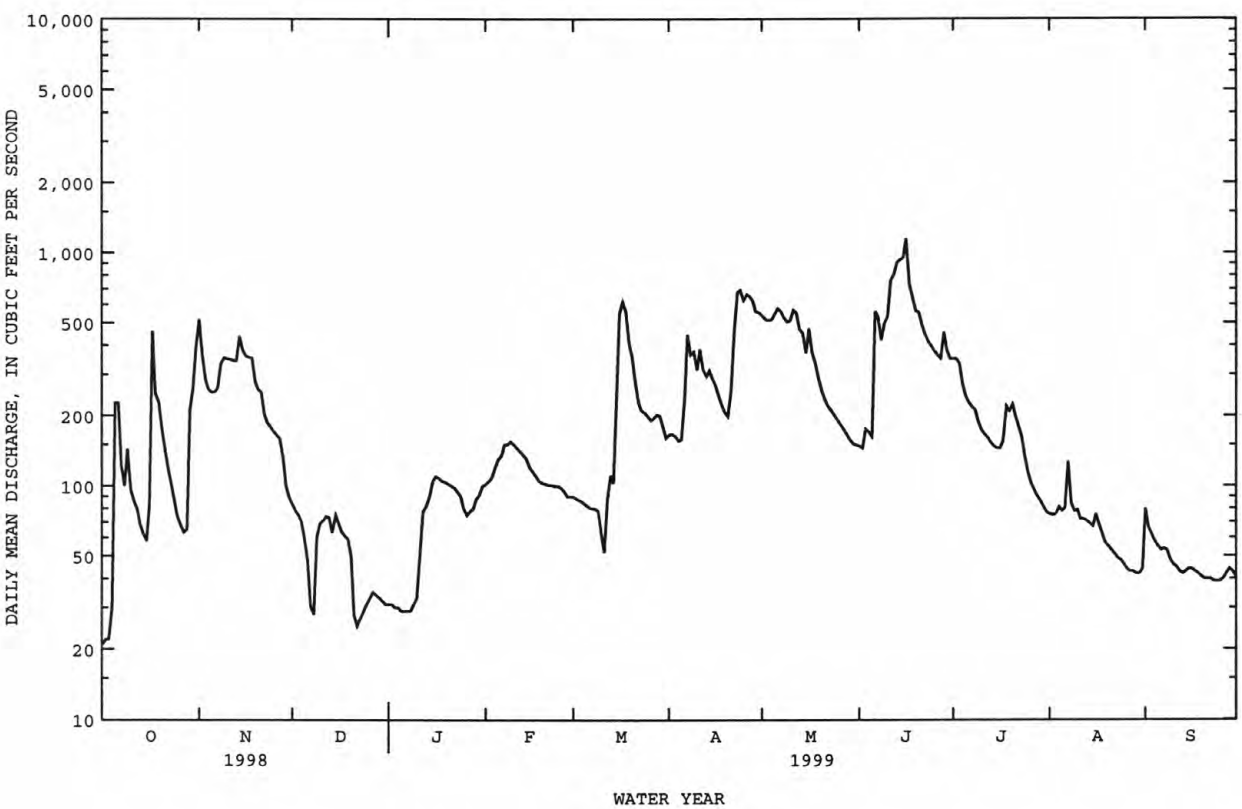
MEAN	28.9	27.3	17.6	21.3	45.6	160	167	229	190	96.7	73.1	34.0
MAX	134	277	51.5	247	459	931	823	1104	812	303	271	109
(WY)	1999	1999	1999	1997	1996	1972	1971	1978	1984	1981	1980	1955
MIN	.000	.000	.000	.000	.20	15.7	15.1	3.10	11.9	2.94	.10	.000
(WY)	1955	1961	1961	1961	1959	1981	1992	1961	1961	1960	1961	1954

e Estimated

06428500 BELLE FOURCHE RIVER AT WYOMING-SOUTH DAKOTA STATE LINE--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1954 - 1999*	
ANNUAL TOTAL	39472		72647			
ANNUAL MEAN	108		199		91.0	
HIGHEST ANNUAL MEAN					229	1978
LOWEST ANNUAL MEAN					7.69	1961
HIGHEST DAILY MEAN	518	Nov 1	1150	Jun 16	4760	May 9 1995
LOWEST DAILY MEAN	16	Sep 11	21	Oct 1	.00	Jul 30 1954a
ANNUAL SEVEN-DAY MINIMUM	20	Sep 6	30	Jan 2	.00	Jul 30 1954
INSTANTANEOUS PEAK FLOW			1260	Jun 16	6320	May 10 1995b
INSTANTANEOUS PEAK STAGE			10.01	Jun 16	16.33	May 10 1995
ANNUAL RUNOFF (AC-FT)	78290		144100		65930	
10 PERCENT EXCEEDS	296		508		202	
50 PERCENT EXCEEDS	68		122		37	
90 PERCENT EXCEEDS	25		42		5.0	

* Regulated period only (1954-99). See REMARKS.
a No flow at times in some years.
b Based on slope-area measurement of peak flow.



06429500 COLD SPRINGS CREEK AT BUCKHORN, WY

LOCATION.--Lat 44°09'15", long 104°04'37", in NW¼ NW¼ SW¼ 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 mi^2.

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 sea level, from topographic map. October 1974 to September 1982, 200 ft upstream at different datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	6.6	7.0	e6.3	6.3	6.6	7.3	7.4	7.2	7.9	7.9	7.2
2	6.8	6.6	7.0	e5.0	6.3	6.4	7.2	7.4	7.2	7.9	7.5	7.2
3	6.8	6.6	7.0	e5.5	6.2	e6.3	7.1	7.4	7.5	7.8	7.2	7.2
4	6.9	6.6	7.0	e6.5	6.2	6.3	7.0	7.4	7.2	7.7	7.2	7.4
5	4.1	6.6	7.0	6.6	6.3	6.3	7.0	7.4	7.2	7.7	7.2	7.2
6	4.8	6.6	e6.0	6.6	6.3	6.3	7.1	7.4	7.6	7.7	7.2	7.2
7	6.8	6.6	e5.4	6.6	6.3	6.3	7.7	7.4	7.4	7.7	7.4	7.2
8	6.8	6.6	e5.8	6.6	6.3	6.3	7.6	7.2	7.4	7.7	7.4	7.2
9	6.8	6.5	e6.8	6.6	6.4	e6.3	7.7	7.2	7.8	7.7	7.4	7.2
10	6.8	4.2	e6.6	6.6	6.5	6.3	8.0	7.2	8.0	7.7	7.4	7.2
11	6.8	e5.0	6.9	6.6	e5.8	e6.3	7.4	7.2	8.0	7.4	7.4	7.2
12	6.6	e6.0	6.8	6.6	e6.4	6.3	7.4	7.2	7.9	7.4	7.4	7.2
13	6.6	7.2	e6.8	6.6	6.6	6.3	7.4	7.3	7.9	7.4	7.4	7.2
14	6.6	7.0	6.8	6.6	6.6	6.4	7.4	7.4	7.9	7.4	7.4	7.2
15	6.6	6.8	6.8	6.6	6.6	6.4	7.4	7.4	7.9	7.4	7.2	7.2
16	6.6	6.8	6.8	6.5	6.5	e6.5	e7.3	7.2	7.9	7.4	7.2	7.2
17	6.7	6.8	6.8	6.6	6.6	6.3	e7.2	7.2	7.9	7.9	7.2	7.2
18	6.6	6.8	e6.6	6.6	6.6	e6.3	7.5	7.2	8.1	7.7	7.2	7.2
19	6.6	6.8	e6.0	6.6	6.6	6.6	7.5	7.2	8.1	7.7	7.2	7.2
20	6.6	e6.8	e5.0	6.6	6.6	7.0	7.5	7.2	7.9	7.6	7.2	7.2
21	6.6	6.8	e4.0	6.6	e6.3	7.2	7.8	7.3	7.9	7.4	7.2	7.1
22	6.6	6.8	e4.5	6.6	6.3	7.9	7.7	7.4	7.9	7.4	7.2	7.0
23	6.6	6.8	e5.0	6.6	e6.2	8.2	7.6	7.3	7.9	7.4	7.2	7.0
24	6.6	6.8	e5.6	6.6	6.4	12	7.4	7.2	7.9	7.4	7.2	7.0
25	6.6	6.8	e6.4	e6.4	6.3	19	7.5	7.2	7.9	7.4	7.2	7.0
26	6.6	6.8	6.7	6.8	4.9	22	7.6	7.5	7.9	7.4	7.2	7.0
27	6.6	6.9	6.6	6.7	e3.8	14	7.4	7.4	7.9	7.4	7.2	7.0
28	6.6	7.0	6.6	e6.4	e6.2	e8.0	7.4	7.2	7.9	7.4	7.0	7.0
29	6.8	7.0	6.6	e6.4	---	e7.5	7.4	7.2	7.9	7.6	7.2	7.0
30	6.8	7.0	6.6	6.6	---	7.8	7.4	7.2	7.9	7.7	7.2	7.0
31	6.6	---	6.6	6.3	---	7.6	---	7.2	---	7.8	7.2	---
TOTAL	202.7	198.2	196.1	200.8	174.4	249.0	222.9	226.0	233.0	235.1	225.6	214.3
MEAN	6.54	6.61	6.33	6.48	6.23	8.03	7.43	7.29	7.77	7.58	7.28	7.14
MAX	6.9	7.2	7.0	6.8	6.6	22	8.0	7.5	8.1	7.9	7.9	7.4
MIN	4.1	4.2	4.0	5.0	3.8	6.3	7.0	7.2	7.2	7.4	7.0	7.0
AC-FT	402	393	389	398	346	494	442	448	462	466	447	425

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1999, BY WATER YEAR (WY)

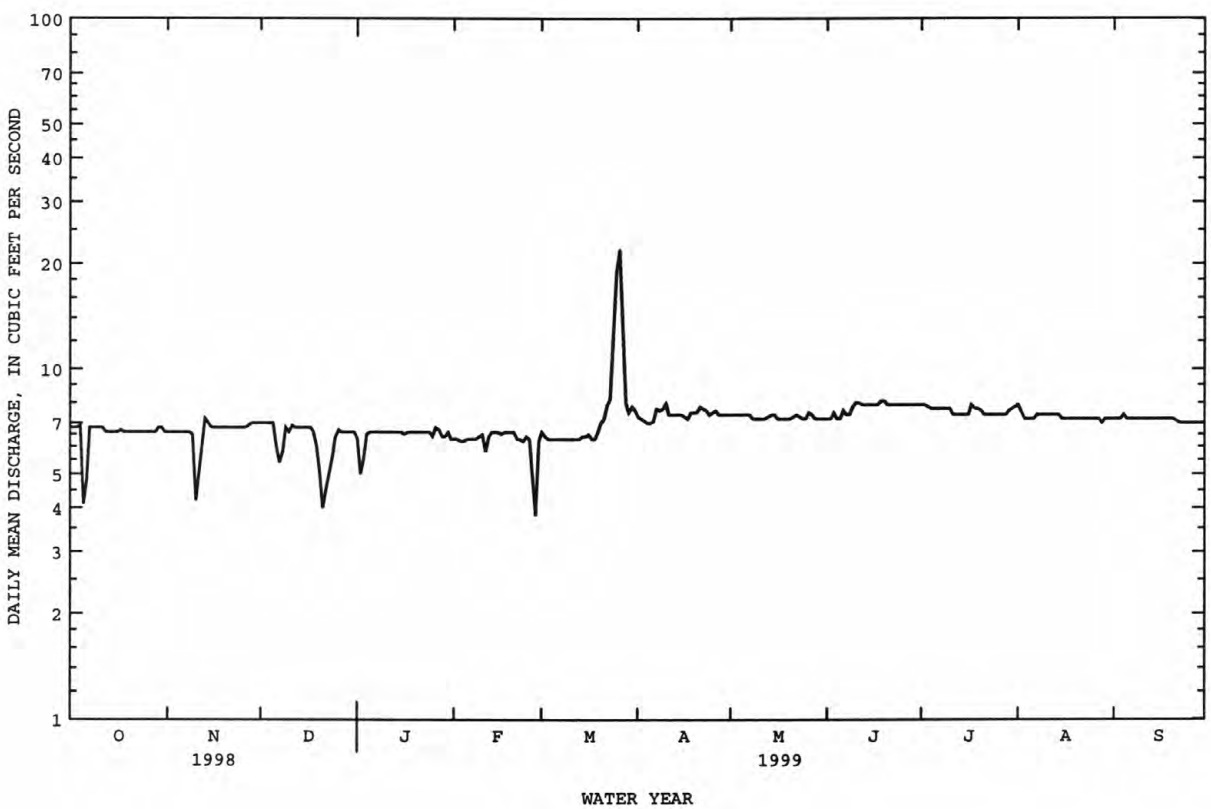
MEAN	4.31	4.16	4.05	4.02	4.19	4.58	4.90	4.71	4.79	4.65	4.71	4.65
MAX	6.54	6.61	6.33	6.48	6.23	8.03	7.43	7.29	7.77	7.58	7.28	7.14
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	2.53	2.09	2.06	2.50	2.61	2.91	3.07	3.10	3.19	2.62	2.71	2.92
(WY)	1975	1993	1993	1994	1993	1993	1993	1993	1994	1995	1995	1994

e Estimated

06429500 COLD SPRINGS CREEK AT BUCKHORN, WY--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1975 - 1999	
ANNUAL TOTAL	2310.6		2578.1		--	
ANNUAL MEAN	6.33		7.06		4.50	
HIGHEST ANNUAL MEAN	--		--		7.06	1999
LOWEST ANNUAL MEAN	--		--		2.92	1993
HIGHEST DAILY MEAN	8.0	Mar 4	22	Mar 26	22	Mar 26 1999
LOWEST DAILY MEAN	1.4	Feb 26	3.8	Feb 27	.30	Dec 20 1996
ANNUAL SEVEN-DAY MINIMUM	3.1	Feb 25	5.2	Dec 19	.75	Dec 18 1996
INSTANTANEOUS PEAK FLOW	--		42	Mar 26a	42	Mar 26 1999a
INSTANTANEOUS PEAK STAGE	--		3.42	Dec 8b	8.61	Jan 12 1978c
ANNUAL RUNOFF (AC-FT)	4580		5110		3260	
10 PERCENT EXCEEDS	7.0		7.8		6.3	
50 PERCENT EXCEEDS	6.6		7.1		4.4	
90 PERCENT EXCEEDS	5.2		6.3		2.8	

a Gage height, 3.33 ft.
b Backwater from ice.
c Backwater from ice, site and datum then in use.



06429905 SAND CREEK NEAR RANCH A, NEAR BEULAH, WY

LOCATION.--Lat 44°31'07", long 104°04'57", in SE¼ SE¼ SW¼ 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 mi^2.

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 sea level, from topographic map. October 1976 to September 1983, at site 500 ft downstream at different datum.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	25	28	26	25	24	29	33	39	42	37	32
2	22	25	28	26	25	24	28	34	39	42	36	32
3	22	25	28	26	26	24	29	35	40	42	36	33
4	25	25	28	26	25	25	29	36	38	41	36	33
5	28	25	29	26	25	24	29	35	39	41	36	32
6	23	25	29	26	25	24	29	34	42	40	37	32
7	21	27	28	26	25	24	30	34	39	41	37	32
8	20	27	28	26	25	25	31	35	39	41	36	31
9	20	27	28	e26	25	25	31	35	39	40	36	31
10	20	27	27	e26	25	26	32	36	42	39	35	31
11	20	27	27	e26	25	25	31	35	40	40	35	32
12	20	27	27	e26	25	25	30	35	40	40	37	31
13	20	27	27	e26	25	25	30	35	40	40	35	30
14	20	27	27	e27	25	25	30	36	40	40	35	30
15	20	27	27	e27	25	26	30	36	41	40	35	30
16	22	27	27	e27	25	26	30	36	40	39	34	30
17	30	27	27	e27	25	25	30	35	41	40	34	30
18	23	28	28	e27	25	25	31	36	42	41	34	30
19	22	28	28	27	25	25	31	36	41	45	34	31
20	22	28	27	27	25	25	32	36	41	41	34	30
21	22	28	27	27	25	25	33	37	41	40	34	30
22	22	28	26	27	25	26	33	37	42	39	34	30
23	22	28	26	27	25	26	32	37	41	39	33	30
24	22	28	26	27	24	25	31	37	41	38	33	30
25	22	28	26	27	24	25	32	37	41	38	33	30
26	22	28	26	27	24	26	33	38	41	38	32	30
27	22	28	26	27	24	26	33	37	41	38	32	30
28	23	28	26	26	24	27	32	38	41	37	32	30
29	25	28	26	26	---	27	32	38	42	37	34	30
30	25	28	26	26	---	27	32	38	42	37	32	30
31	25	---	26	25	---	27	---	38	---	38	31	---
TOTAL	693	811	840	819	696	784	925	1115	1215	1234	1069	923
MEAN	22.4	27.0	27.1	26.4	24.9	25.3	30.8	36.0	40.5	39.8	34.5	30.8
MAX	30	28	29	27	26	27	33	38	42	45	37	33
MIN	20	25	26	25	24	24	28	33	38	37	31	30
AC-FT	1370	1610	1670	1620	1380	1560	1830	2210	2410	2450	2120	1830

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1999, BY WATER YEAR (WY)

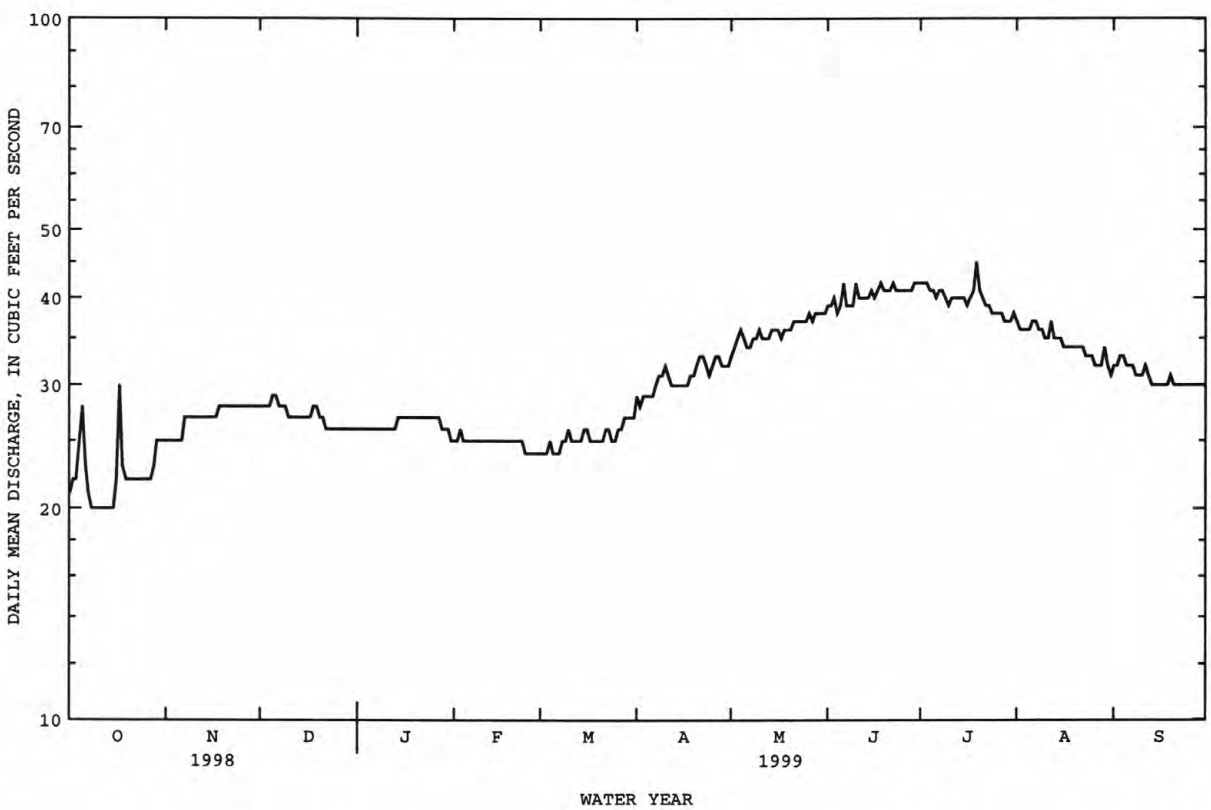
MEAN	21.2	21.5	21.0	20.4	19.5	20.4	21.7	31.3	27.1	25.3	22.8	21.7
MAX	28.5	28.2	27.1	26.4	25.0	29.7	30.8	64.8	40.5	39.8	34.5	30.8
(WY)	1978	1978	1999	1999	1977	1996	1978	1995	1999	1999	1999	1999
MIN	15.3	16.0	15.7	15.6	14.9	14.7	15.3	15.5	15.5	15.2	14.4	15.1
(WY)	1993	1993	1993	1993	1993	1992	1992	1992	1992	1992	1992	1992

e Estimated

06429905 SAND CREEK NEAR RANCH A, NEAR BEULAH, WY--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1977 - 1999	
ANNUAL TOTAL	9137		11124		--	
ANNUAL MEAN	25.0		30.5		23.1	
HIGHEST ANNUAL MEAN	--		--		30.5	1999
LOWEST ANNUAL MEAN	--		--		15.7	1992
HIGHEST DAILY MEAN	79	Jun 19	45	Jul 19	455	May 9 1995
LOWEST DAILY MEAN	19	Mar 11	20	Oct 8	12	Mar 10 1992
ANNUAL SEVEN-DAY MINIMUM	20	Oct 8	20	Oct 8	13	Mar 8 1992
INSTANTANEOUS PEAK FLOW	--		62	Jul 19	1230	May 8 1995
INSTANTANEOUS PEAK STAGE	--		1.96	Jul 19	3.80	May 8 1995a
ANNUAL RUNOFF (AC-FT)	18120		22060		16740	
10 PERCENT EXCEEDS	29		40		30	
50 PERCENT EXCEEDS	25		29		22	
90 PERCENT EXCEEDS	22		25		16	

a From floodmarks, present site and datum.



06429997 MURRAY DITCH ABOVE HEADGATE AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'35", long 104°03'20", in SW¼ SW¼ 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 sea level, from topographic map. Prior to Apr. 23, 1987, published as 06430000 (below diversion at site 15 ft downstream).

REMARKS.--Records good except those for Sept. 9-27, which are fair, and 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 only. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	e.00	.00	.00	.00	.00	.00	.00	.00	3.0	6.5	9.4
2	e3.5	e.00	.00	.00	.00	.00	.00	.00	.00	2.6	6.5	9.5
3	e4.0	e.00	.00	.00	.00	.00	.00	.00	.00	2.0	6.5	9.9
4	e4.0	e.00	.00	.00	.00	.00	.00	.00	.00	1.7	8.2	7.1
5	e5.0	e.00	.00	.00	.00	.00	.00	.00	.00	1.8	10	3.1
6	e3.0	e.00	.00	.00	.00	.00	.00	.00	.00	2.1	11	3.7
7	e3.0	e.00	.00	.00	.00	.00	.00	.00	.00	4.7	11	3.8
8	e3.5	.00	.00	.00	.00	.00	.00	.00	.00	4.7	11	22
9	e4.0	.00	.00	.00	.00	.00	.00	.00	.00	3.8	11	28
10	e3.5	.00	.00	.00	.00	.00	.00	.00	.00	4.4	11	15
11	e3.0	.00	.00	.00	.00	.00	.00	.00	.00	3.3	11	15
12	e2.0	.00	.00	.00	.00	.00	.00	.00	.00	4.3	13	15
13	e.00	.00	.00	.00	.00	.00	.00	.00	.00	6.5	13	15
14	e.00	.00	.00	.00	.00	.00	.00	.00	.00	6.2	13	14
15	e.00	.00	.00	.00	.00	.00	.00	.00	.00	7.3	9.6	14
16	e.00	.00	.00	.00	.00	.00	.00	.00	.00	7.5	.13	13
17	e.00	.00	.00	.00	.00	.00	.00	.00	.00	7.8	.00	13
18	e.00	.00	.00	.00	.00	.00	.00	.00	.00	5.5	.00	12
19	e.00	.00	.00	.00	.00	.00	.00	.00	.00	3.8	.00	11
20	e.00	.00	.00	.00	.00	.00	.00	.00	.00	1.1	.00	11
21	e.00	.00	.00	.00	.00	.00	.00	.00	.00	e1.0	.00	9.9
22	e.00	.00	.00	.00	.00	.00	.00	.00	.00	e1.0	.00	9.2
23	e.00	.00	.00	.00	.00	.00	.00	.00	.00	e4.0	.00	8.4
24	e.00	.00	.00	.00	.00	.00	.00	.00	3.4	e5.0	.00	8.0
25	e.00	.00	.00	.00	.00	.00	.00	.00	5.1	e5.0	.00	7.8
26	e.00	.00	.00	.00	.00	.00	.00	.00	3.9	e5.1	.00	7.1
27	e.00	.00	.00	.00	.00	.00	.00	.00	5.4	e5.0	.00	6.8
28	e.00	.00	.00	.00	.00	.00	.00	.00	3.7	e7.5	.00	6.5
29	e.00	.00	.00	.00	---	.00	.00	.00	3.6	e7.0	.00	6.8
30	e.00	.00	.00	.00	---	.00	.00	.00	3.5	6.6	4.2	7.4
31	e.00	---	.00	.00	---	.00	---	.00	---	6.5	7.0	---
TOTAL	38.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.60	137.8	163.63	322.4
MEAN	1.24	.000	.000	.000	.000	.000	.000	.000	.95	4.45	5.28	10.7
MAX	5.0	.00	.00	.00	.00	.00	.00	.00	5.4	7.8	13	28
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.0	.00	3.1
AC-FT	76	.00	.00	.00	.00	.00	.00	.00	57	273	325	639

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

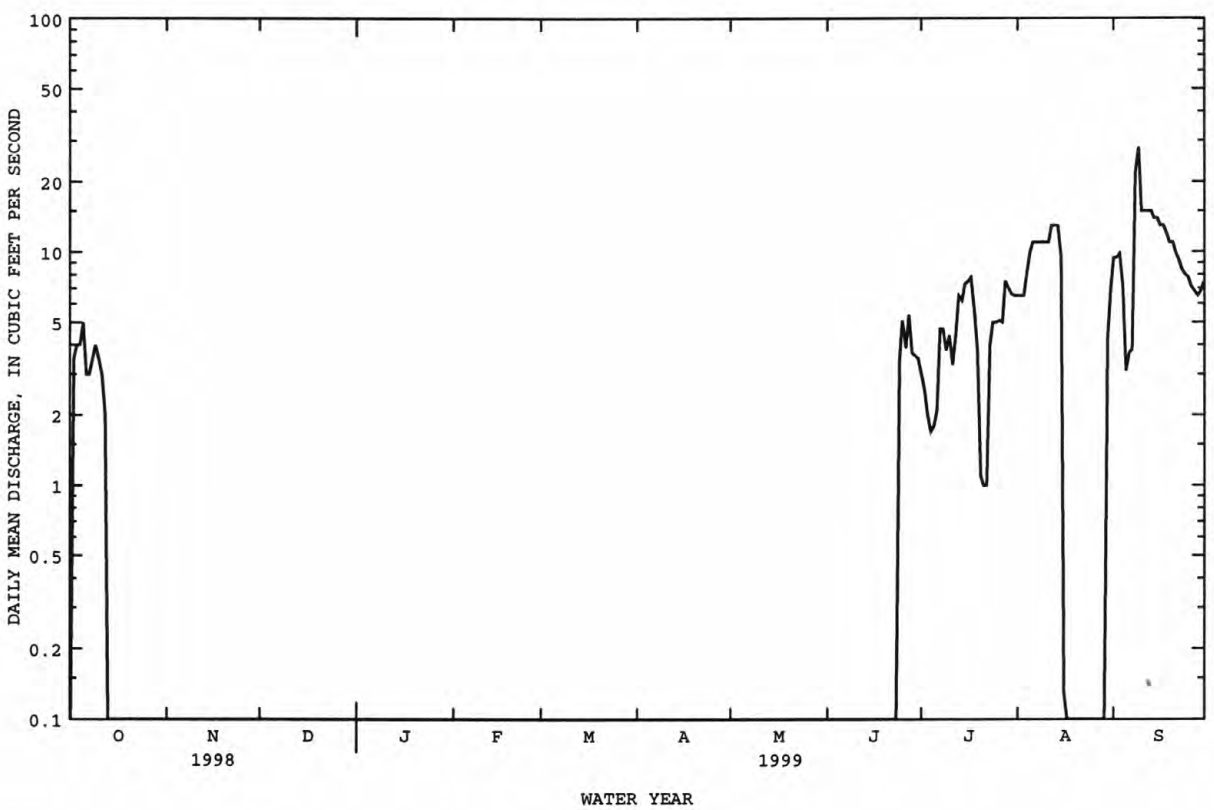
MEAN	5.52	.14	.000	.000	.000	.000	.012	1.32	4.87	9.90	8.26	8.78
MAX	20.6	.94	.000	.000	.000	.000	.085	6.30	13.9	16.4	18.2	18.8
(WY)	1991	1994	1988	1988	1988	1988	1997	1992	1988	1991	1991	1994
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.84	2.24	.80
(WY)	1988	1988	1988	1988	1988	1988	1988	1990	1991	1993	1998	1993

e Estimated

06429997 MURRAY DITCH ABOVE HEADGATE AT WYOMING-SOUTH DAKOTA STATE LINE--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1988 - 1999	
ANNUAL TOTAL	766.42		690.93			
ANNUAL MEAN	2.10		1.89		3.26	
HIGHEST ANNUAL MEAN					5.32	1994
LOWEST ANNUAL MEAN					.92	1993
HIGHEST DAILY MEAN	28	Jul 23	28	Sep 9	46	Oct 8 1990
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Oct 1 1987a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 13	.00	Oct 1 1987
ANNUAL RUNOFF (AC-FT)	1520		1370		2360	
10 PERCENT EXCEEDS	9.3		7.4		12	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

a No flow for many days in each year.



06430500 REDWATER CREEK AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'26", long 104°02'54", in NW¼ NW¼ 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 mi^2.

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 sea level, 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 except those for Oct. 31 to Dec. 25, Feb. 5 to Mar. 29, May 27 to June 4, which are fair, and those for estimated daily discharges, which are poor. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	52	45	50	45	48	57	61	65	49	52	43
2	26	50	47	47	46	49	54	61	72	49	52	43
3	27	51	49	47	46	47	54	62	75	47	51	44
4	34	48	47	45	47	45	52	64	70	47	47	49
5	41	47	49	51	48	49	52	70	68	46	43	54
6	39	48	50	48	53	47	54	73	73	46	45	54
7	35	50	45	44	50	47	58	61	89	43	46	54
8	33	48	44	46	52	47	68	59	82	43	46	46
9	32	47	45	46	50	47	68	60	77	41	46	42
10	33	44	47	48	51	47	68	62	86	40	45	46
11	34	42	47	51	50	47	65	68	140	41	46	46
12	35	41	56	53	50	46	61	75	117	37	48	46
13	37	42	50	51	47	46	66	73	110	35	47	44
14	37	45	48	51	50	46	69	70	104	35	47	44
15	36	50	47	53	47	50	64	73	95	35	52	45
16	39	50	44	51	52	50	61	80	88	35	60	44
17	64	51	47	49	48	50	59	82	81	36	59	43
18	71	50	47	46	51	47	57	73	78	42	58	44
19	50	47	46	47	50	43	57	69	74	68	59	44
20	44	50	e44	47	50	42	58	66	70	95	59	44
21	41	49	e42	49	48	44	64	65	67	55	60	44
22	40	46	e42	50	48	44	104	65	64	50	60	44
23	38	44	e44	51	50	45	101	65	62	45	58	44
24	38	45	e48	47	50	44	82	64	56	43	60	44
25	39	45	e50	48	47	46	73	63	54	44	59	42
26	39	44	54	48	49	49	72	63	54	45	57	40
27	39	44	55	50	48	52	71	66	57	46	57	40
28	38	44	60	47	47	52	67	66	54	47	58	39
29	40	43	55	46	---	51	64	68	52	47	61	38
30	72	43	49	49	---	53	62	68	51	49	51	40
31	57	---	46	46	---	53	---	66	---	51	48	---
TOTAL	1259	1400	1489	1502	1370	1473	1962	2081	2285	1432	1637	1334
MEAN	40.6	46.7	48.0	48.5	48.9	47.5	65.4	67.1	76.2	46.2	52.8	44.5
MAX	72	52	60	53	53	53	104	82	140	95	61	54
MIN	26	41	42	44	45	42	52	59	51	35	43	38
AC-FT	2500	2780	2950	2980	2720	2920	3890	4130	4530	2840	3250	2650

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1999, BY WATER YEAR (WY)*

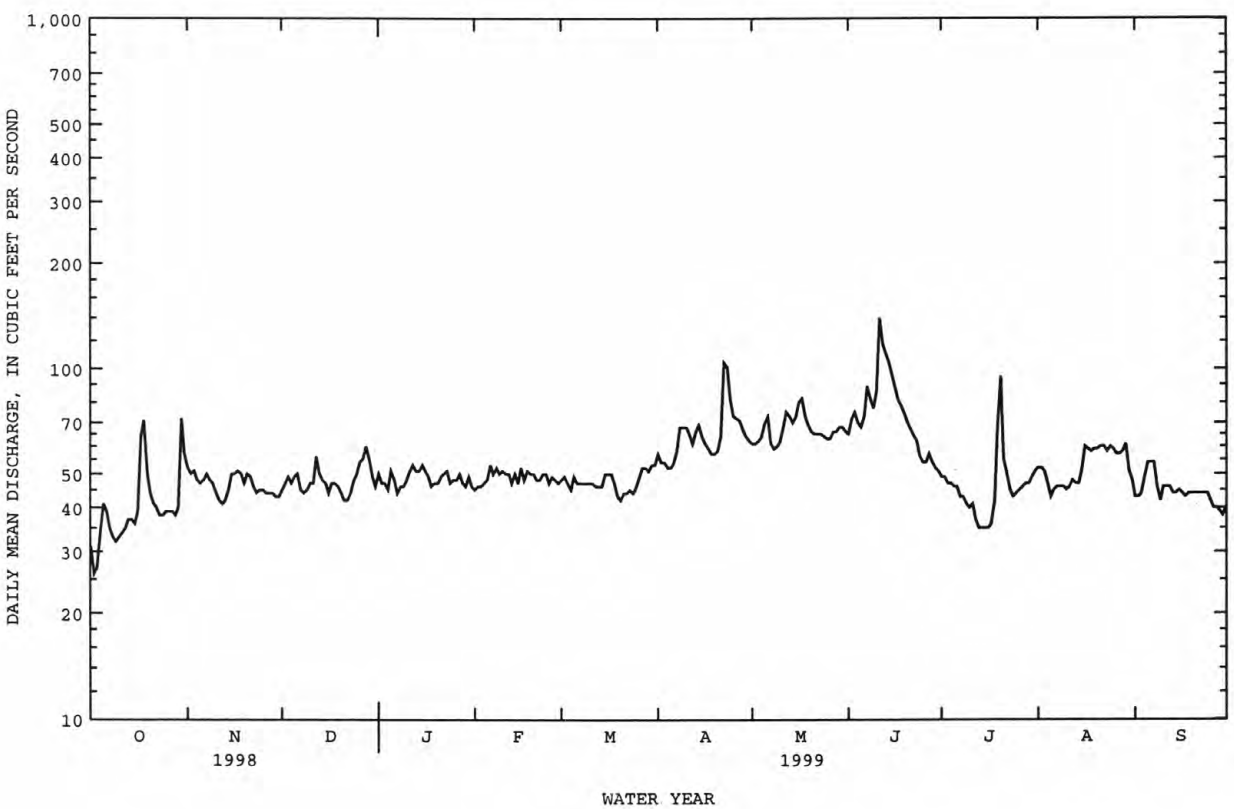
MEAN	28.5	32.5	32.2	31.6	32.8	34.4	37.6	54.2	46.8	23.4	23.2	25.4
MAX	45.0	47.9	48.0	48.5	57.8	66.0	65.4	168	128	54.9	58.9	50.4
(WY)	1973	1974	1999	1999	1971	1996	1999	1995	1976	1976	1973	1973
MIN	14.2	20.8	21.5	20.7	21.2	22.1	18.8	7.44	6.29	7.62	6.78	11.8
(WY)	1991	1961	1993	1993	1993	1962	1981	1985	1961	1990	1985	1985

e Estimated

06430500 REDWATER CREEK AT WYOMING-SOUTH DAKOTA STATE LINE--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1955 - 1999*	
ANNUAL TOTAL	14230		19224			
ANNUAL MEAN	39.0		52.7		33.5	
HIGHEST ANNUAL MEAN					56.0	1973
LOWEST ANNUAL MEAN					17.9	1961
HIGHEST DAILY MEAN	100	Jun 19	140	Jun 11	1330	May 9 1995
LOWEST DAILY MEAN	17	Jul 21	26	Oct 2	1.3	May 22 1985a
ANNUAL SEVEN-DAY MINIMUM	19	Jul 21	33	Oct 1	1.9	May 21 1985
INSTANTANEOUS PEAK FLOW			200	Jul 20	2440	Aug 22 1973b
INSTANTANEOUS PEAK STAGE			4.95	Jul 20	12.19	Aug 22 1973
ANNUAL RUNOFF (AC-FT)	28230		38130		24290	
10 PERCENT EXCEEDS	49		69		48	
50 PERCENT EXCEEDS	40		49		30	
90 PERCENT EXCEEDS	26		41		16	

* Period using present site and datum only. See GAGE.
a No flow Aug. 13-15, 1929, during partial year.
b From rating curve extended above 1,000 ft^3/s on basis of slope-area measurement.



06430528 MCNENNY STATE FISH HATCHERY VIEWING POND OUTLET NEAR BEULAH, WY

PRECIPITATION RECORDS

LOCATION.--Lat 44°33'31", long 104°00'36", in SW¼ NW¼ NW¼, T.7 N., R.1 E., Lawrence County, Hydrologic Unit 10120203, 0.75 mi north of Interstate 90, 1.8 mi northeast of Beulah, and 3.6 mi northwest of Spearfish, SD.

PERIOD OF RECORD.--May 1992 to current year (seasonal record).

INSTRUMENTATION.--Non-shielded, 4.0-in. diameter plastic gage with 11-in. capacity. Elevation of gage is 3,395 ft above sea level, from topographic map.

REMARKS.--Records fair. Precipitation gage is read daily by observer at approximately 0800 hours. Daily precipitation is for the previous 24 hours.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	---	---	---	---	---	.00	.00	.00	.12	.00	.00
2	.00	---	---	---	---	---	.00	.10	.44	.00	.00	.08
3	.00	---	---	---	---	---	.00	.00	.00	.03	.00	.00
4	2.63	---	---	---	---	---	.00	.50	.05	.00	.00	.12
5	.63	---	---	---	---	---	.00	.00	1.05	.00	.03	.00
6	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
7	.00	---	---	---	---	---	.00	.00	.12	.00	.00	.00
8	.00	---	---	---	---	---	.00	.00	.00	.00	.38	.00
9	.00	---	---	---	---	---	.00	.40	.00	.00	.00	.00
10	.00	---	---	---	---	---	.00	.00	1.40	.00	.00	.00
11	.10	---	---	---	---	---	.56	.08	.14	.00	.00	.19
12	.00	---	---	---	---	---	.00	.00	.28	.00	.35	.18
13	.00	---	---	---	---	---	.00	.00	.30	.00	.20	.00
14	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
15	.00	---	---	---	---	---	.00	.30	.44	.05	.00	.00
16	2.90	---	---	---	---	---	.00	.16	.00	.00	.00	.00
17	.00	---	---	---	---	---	.00	.00	.23	.20	.00	.00
18	.00	---	---	---	---	---	.00	.00	.00	.67	.00	.04
19	.00	---	---	---	---	---	.00	.00	.00	1.87	.00	.00
20	.00	---	---	---	---	---	.00	.00	.00	.02	.00	.00
21	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
22	.00	---	---	---	---	---	.86	.14	.00	.00	.00	.00
23	.00	---	---	---	---	---	.07	.00	.00	.00	.00	.00
24	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
25	.00	---	---	---	---	---	.09	.00	.00	.00	.00	.00
26	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.09
27	.00	---	---	---	---	---	.00	.00	.96	.00	.00	.00
28	.00	---	---	---	---	---	.00	.00	.00	.00	.13	.00
29	.33	---	---	---	---	---	.00	.00	.00	.00	.03	.00
30	.00	---	---	---	---	---	.00	.04	.10	.51	.00	.00
31	.23	---	---	---	---	---	---	.00	---	.00	.00	---
TOTAL	6.82	---	---	---	---	---	1.58	1.72	5.51	3.47	1.12	0.70

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06430532 CROW CREEK NEAR BEULAH, WY

LOCATION.--Lat 44°34'14", long 104°00'19", in NW¼ SE¼ NW¼ 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 mi^2.

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 sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good except those for July 2 to Sept. 30, which are fair. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	57	40	50	34	40	45	54	37	39	48	40
2	39	54	40	49	33	40	42	53	36	38	46	40
3	39	53	40	43	35	40	42	56	39	38	45	41
4	44	53	38	45	35	39	41	60	38	38	44	42
5	52	52	38	45	35	41	41	64	37	38	42	44
6	45	50	38	45	36	41	44	58	42	37	43	42
7	41	50	40	46	36	41	51	53	46	38	44	41
8	39	49	40	46	36	40	52	50	45	39	43	41
9	38	49	40	46	36	40	52	49	43	37	42	40
10	38	47	39	46	37	42	56	52	54	37	41	40
11	38	46	40	47	36	41	54	54	79	38	41	42
12	38	46	41	47	34	41	53	55	70	38	44	41
13	38	47	40	46	35	41	54	53	66	37	44	40
14	38	46	41	43	37	42	59	51	60	37	43	40
15	37	46	41	43	38	45	57	56	61	37	42	39
16	40	46	41	42	39	46	54	56	56	38	42	38
17	82	46	41	42	41	45	53	55	52	40	43	38
18	70	46	42	41	41	45	53	50	50	44	42	39
19	62	45	42	41	41	42	54	46	46	58	42	39
20	58	44	45	40	41	41	55	44	43	64	41	39
21	56	44	42	40	41	41	64	42	41	53	41	37
22	55	44	46	39	43	41	74	43	39	51	41	36
23	58	43	51	38	42	41	71	43	39	50	39	36
24	60	44	51	38	41	41	65	40	37	49	38	35
25	58	44	53	38	41	41	61	39	36	48	38	35
26	56	43	53	37	39	40	61	38	36	49	38	35
27	53	43	53	37	40	41	60	37	39	48	38	41
28	52	42	52	36	40	42	58	37	42	47	39	42
29	58	42	54	35	---	39	57	36	38	46	41	42
30	67	41	53	34	---	38	56	37	39	46	41	41
31	61	---	51	34	---	39	---	37	---	46	40	---
TOTAL	1550	1402	1366	1299	1063	1277	1639	1498	1386	1343	1296	1186
MEAN	50.0	46.7	44.1	41.9	38.0	41.2	54.6	48.3	46.2	43.3	41.8	39.5
MAX	82	57	54	50	43	46	74	64	79	64	48	44
MIN	37	41	38	34	33	38	41	36	36	37	38	35
AC-FT	3070	2780	2710	2580	2110	2530	3250	2970	2750	2660	2570	2350

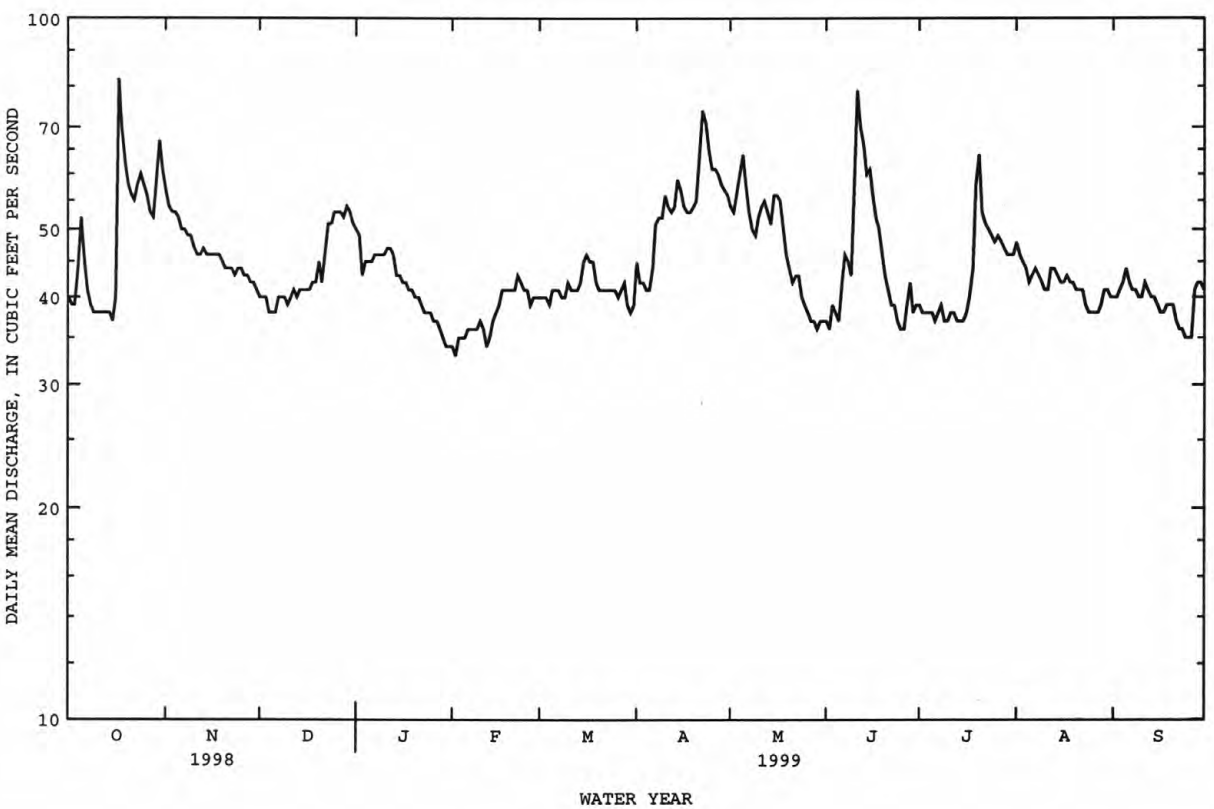
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1999, BY WATER YEAR (WY)

MEAN	40.0	39.3	37.6	37.5	36.5	38.4	47.7	59.8	45.6	36.9	36.8	38.8
MAX	50.0	46.7	48.3	44.8	41.7	42.7	60.3	118	54.9	43.3	41.8	42.8
(WY)	1999	1999	1996	1996	1996	1996	1994	1995	1993	1999	1999	1996
MIN	35.8	34.0	31.9	31.2	33.2	33.7	33.9	33.6	33.5	31.9	34.5	35.3
(WY)	1993	1994	1995	1995	1995	1995	1995	1998	1994	1998	1994	1993

06430532 CROW CREEK NEAR BEULAH, WY--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1993 - 1999	
ANNUAL TOTAL	14476		16305			
ANNUAL MEAN	39.7		44.7		41.3	
HIGHEST ANNUAL MEAN					44.7	1999
LOWEST ANNUAL MEAN					37.4	1993
HIGHEST DAILY MEAN	152	Jun 18	82	Oct 17	502	May 9 1995
LOWEST DAILY MEAN	21	Jul 1	33	Feb 2	21	Jul 1 1998
ANNUAL SEVEN-DAY MINIMUM	22	Jun 28	34	Jan 29	22	Jun 28 1998
INSTANTANEOUS PEAK FLOW			99	Oct 17a	530	May 9 1995
INSTANTANEOUS PEAK STAGE			7.11	Jul 19b	10.17	May 9 1995
ANNUAL RUNOFF (AC-FT)	28710		32340		29890	
10 PERCENT EXCEEDS	49		56		51	
50 PERCENT EXCEEDS	38		42		38	
90 PERCENT EXCEEDS	32		37		33	

a Gage height, 6.65 ft.
b Discharge, 89 ft^3/s, with backwater due to heavy moss.



06430770 SPEARFISH CREEK NEAR LEAD, SD

LOCATION.--Lat 44°17'56", long 103°52'02", in NE¼ NW¼ 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 mi^2.

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 5,310 ft above sea level, 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 ft^3/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 ft^3/s, May 14, 1965, from contracted-opening measurement of peak flow 2.0 mi downstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

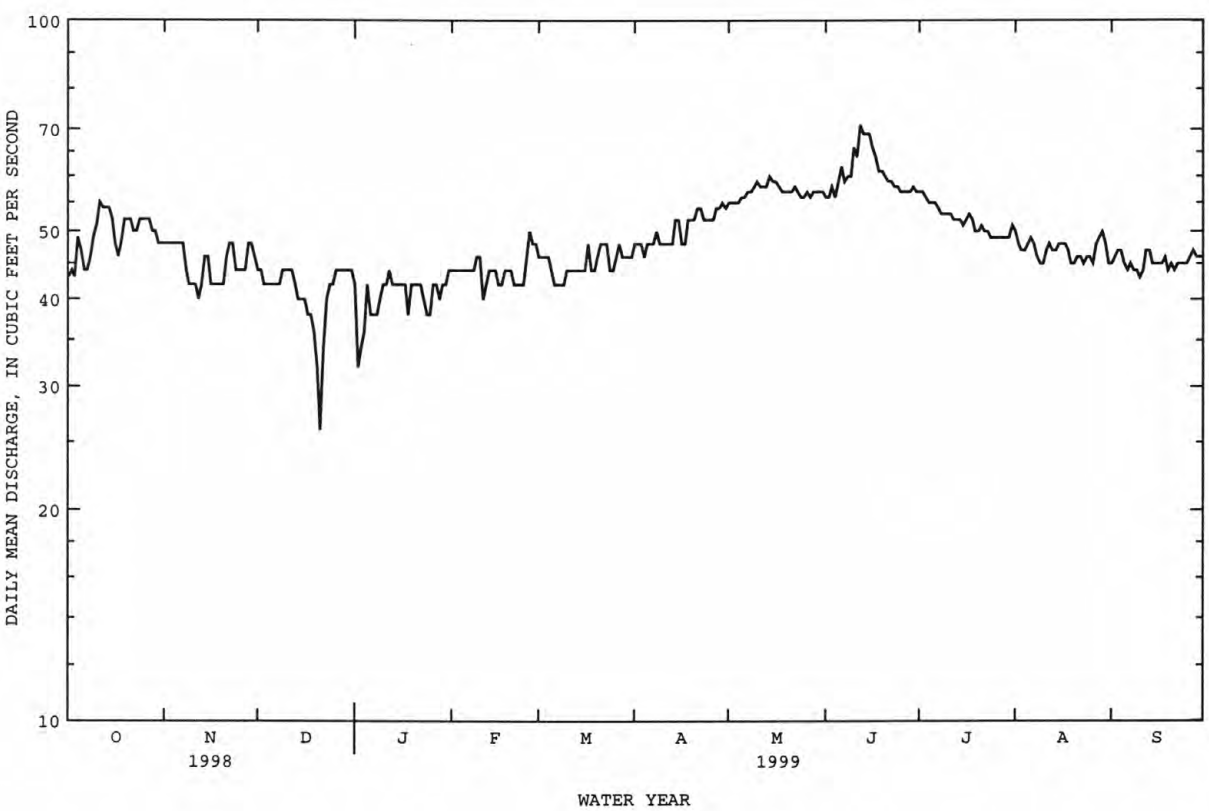
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	e48	e44	e42	e44	e46	e48	e55	56	57	50	45
2	44	e48	e44	e32	e44	e46	e48	e55	56	57	48	46
3	43	e48	e42	e34	e44	e46	e48	e55	58	56	47	47
4	49	e48	e42	e36	e44	e46	e46	e55	56	55	47	47
5	47	e48	e42	e42	e44	e44	e48	e56	59	55	48	45
6	44	e48	e42	e38	e44	e42	e48	e56	62	55	49	44
7	44	e48	e42	e38	e44	e42	e48	e57	59	54	48	45
8	46	e44	e42	e38	e44	e42	e50	e57	60	53	46	44
9	49	e42	e44	e40	e46	e42	e48	e58	60	53	45	44
10	51	e42	e44	e42	e46	e44	e48	e59	66	53	45	43
11	e55	e42	e44	e42	e40	e44	e48	e58	64	53	47	44
12	e54	e40	e44	e44	e42	e44	e48	e58	71	52	48	47
13	e54	e42	e42	e42	e44	e44	e48	e58	69	52	47	47
14	e54	e46	e40	e42	e44	e44	e52	60	69	52	47	45
15	e52	e46	e40	e42	e44	e44	e52	59	69	51	48	45
16	e48	e42	e40	e42	e42	e44	e48	59	66	52	48	45
17	e46	e42	e38	e42	e42	e48	e48	58	64	53	48	45
18	e48	e42	e38	e38	e44	e44	e52	57	61	52	47	46
19	e52	e42	e36	e42	e44	e44	e52	57	61	50	45	44
20	e52	e42	e32	e42	e44	e46	e52	57	60	50	45	45
21	e52	e46	e26	e42	e42	e48	e54	57	59	51	46	44
22	e50	e48	e34	e42	e42	e48	e54	58	59	50	46	45
23	e50	e48	e40	e40	e42	e48	e52	57	58	50	45	45
24	e52	e44	e42	e38	e42	e44	e52	56	58	49	46	45
25	e52	e44	e42	e38	e46	e44	e52	56	57	49	46	45
26	e52	e44	e44	e42	e50	e46	e52	57	57	49	45	46
27	e52	e44	e44	e42	e48	e48	e54	56	57	49	48	47
28	e50	e48	e44	e40	e48	e46	e54	57	57	49	49	46
29	e50	e48	e44	e42	---	e46	e55	57	58	49	50	46
30	e48	e46	e44	e42	---	e46	e54	57	57	49	48	46
31	e48	---	e44	e44	---	e46	---	57	---	51	45	---
TOTAL	1531	1350	1270	1252	1234	1396	1513	1769	1823	1610	1457	1358
MEAN	49.4	45.0	41.0	40.4	44.1	45.0	50.4	57.1	60.8	51.9	47.0	45.3
MAX	55	48	44	44	50	48	55	60	71	57	50	47
MIN	43	40	26	32	40	42	46	55	56	49	45	43
AC-FT	3040	2680	2520	2480	2450	2770	3000	3510	3620	3190	2890	2690
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)												
MEAN	24.3	24.2	22.7	22.3	22.4	24.0	29.6	39.2	35.0	30.1	28.6	27.2
MAX	49.4	45.0	41.0	40.4	44.1	45.0	50.4	67.4	60.8	52.2	59.3	51.5
(WY)	1999	1999	1999	1999	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

e Estimated

06430770 SPEARFISH CREEK NEAR LEAD, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1989 - 1999	
ANNUAL TOTAL	17125		17563			
ANNUAL MEAN	46.9		48.1		27.5a	
HIGHEST ANNUAL MEAN					48.1	1999
LOWEST ANNUAL MEAN					14.2	1990
HIGHEST DAILY MEAN	80	Jun 18	71	Jun 12	108	May 10 1995
LOWEST DAILY MEAN	26	Dec 21	26	Dec 21	7.5	Dec 22 1990
ANNUAL SEVEN-DAY MINIMUM	35	Dec 16	35	Dec 16	9.5	Aug 24 1990
INSTANTANEOUS PEAK FLOW			132	Jun 12	181	Aug 20 1998
INSTANTANEOUS PEAK STAGE			8.23	Jun 12	8.39	Aug 20 1998
ANNUAL RUNOFF (AC-FT)	33970		34840		19920	
10 PERCENT EXCEEDS	56		57		49	
50 PERCENT EXCEEDS	45		47		22	
90 PERCENT EXCEEDS	39		42		13	

a Median of annual mean discharges, 23 ft^3/s.



06430800 ANNIE CREEK NEAR LEAD, SD

LOCATION.--Lat 44°19'37", long 103°53'38", in NW¼ NW¼ NW¼ 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 mi^2.

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder and V-notch weir. Elevation of gage is 5,125 ft above sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	3.4	2.0	1.3	.89	1.4	4.0	5.2	2.7	2.6	2.2	.73
2	1.6	3.5	2.1	1.3	.81	1.4	3.8	5.4	2.3	2.8	2.1	.73
3	1.5	3.7	2.0	1.4	.86	1.4	3.9	5.0	2.3	3.1	2.3	.72
4	1.8	3.3	1.7	1.2	.86	1.7	3.7	5.2	1.6	2.8	2.1	.76
5	3.4	2.6	1.2	1.1	.85	1.6	3.6	4.9	1.7	1.5	2.1	.70
6	2.1	2.1	1.1	1.1	.79	1.5	3.8	4.5	1.9	1.6	2.6	.69
7	1.8	2.1	1.1	1.2	.80	1.8	4.1	4.2	2.1	1.8	1.8	.72
8	1.9	2.1	.63	1.1	.90	1.9	4.8	3.9	1.9	1.7	1.5	.65
9	2.3	2.0	.84	1.1	.94	1.8	5.3	4.2	2.1	1.7	1.5	.66
10	3.4	1.6	.94	1.1	1.1	1.9	5.5	4.1	6.1	1.6	1.6	.66
11	5.6	1.5	.67	1.1	.75	2.0	5.5	3.8	12	1.6	1.6	.67
12	5.4	1.4	.85	1.0	.82	2.1	4.8	3.8	5.9	1.4	.94	.65
13	4.9	1.4	1.0	.99	1.0	2.1	5.1	4.2	4.4	1.2	.97	.64
14	4.7	1.6	1.2	.92	1.0	2.4	6.5	4.5	5.1	1.4	.94	.63
15	4.9	1.7	1.1	.86	1.0	2.7	5.9	4.4	6.0	1.4	.98	.61
16	5.0	1.7	1.4	.79	1.0	3.2	5.1	4.2	4.6	1.4	.77	.60
17	5.8	1.8	1.5	.72	1.1	3.4	5.8	3.7	4.5	1.6	.79	.58
18	5.1	1.9	1.8	.74	1.1	3.5	5.2	4.5	4.6	1.8	.69	.58
19	4.9	1.7	e1.5	.62	1.1	3.8	4.6	4.7	4.4	1.7	.59	.60
20	5.2	2.1	e1.0	.68	1.2	4.2	4.9	3.7	5.4	1.8	.61	.59
21	5.0	2.1	e.60	.68	1.1	4.4	7.3	3.7	4.8	2.2	.62	.58
22	5.3	2.2	e.70	.66	1.2	4.5	7.7	3.0	4.6	2.5	.64	.65
23	6.7	2.0	e.70	.57	1.2	4.3	7.1	2.3	2.9	2.6	.76	.73
24	7.4	1.9	e.75	.62	1.1	4.5	6.1	2.4	2.4	2.5	.77	.67
25	6.5	1.8	e.80	.54	1.2	4.5	5.9	2.6	2.1	2.5	.76	.61
26	5.7	1.8	e.90	.53	1.4	4.9	6.0	3.1	2.3	2.4	.70	.58
27	4.9	1.7	1.0	.60	1.3	4.8	6.1	2.7	3.3	2.6	.81	.58
28	5.2	1.7	1.4	.59	1.2	4.2	5.9	2.8	3.0	2.6	1.0	.58
29	5.1	1.5	1.5	.54	---	4.0	6.5	3.2	2.9	2.6	.92	.57
30	4.3	1.7	1.6	.69	---	4.0	5.3	2.9	2.8	1.6	.75	.58
31	3.9	---	1.5	.91	---	4.0	---	3.0	---	1.9	.71	---
TOTAL	132.5	61.6	37.08	27.25	28.57	93.9	159.8	119.8	112.7	62.5	37.12	19.30
MEAN	4.27	2.05	1.20	.88	1.02	3.03	5.33	3.86	3.76	2.02	1.20	.64
MAX	7.4	3.7	2.1	1.4	1.4	4.9	7.7	5.4	12	3.1	2.6	.76
MIN	1.2	1.4	.60	.53	.75	1.4	3.6	2.3	1.6	1.2	.59	.57
AC-FT	263	122	74	54	57	186	317	238	224	124	74	38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)

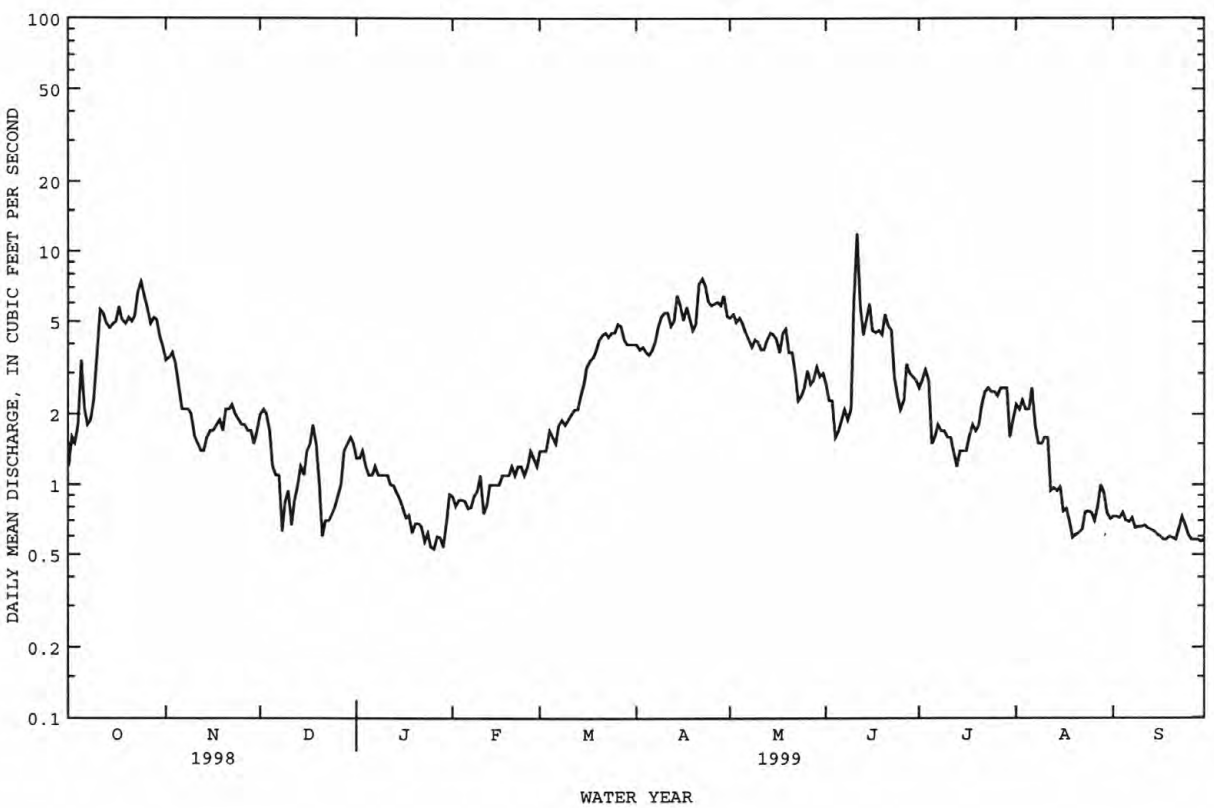
MEAN	.81	.53	.39	.36	.38	1.18	4.23	7.80	3.23	1.15	.75	.46
MAX	4.27	2.05	1.20	.91	1.02	3.03	9.79	28.5	8.54	2.31	2.43	1.51
(WY)	1999	1999	1999	1997	1999	1999	1997	1995	1998	1995	1998	1998
MIN	.052	.10	.045	.010	.000	.082	.75	1.63	.60	.27	.10	.061
(WY)	1993	1993	1989	1993	1993	1991	1991	1992	1992	1992	1992	1992

e Estimated

06430800 ANNIE CREEK NEAR LEAD, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1989 - 1999	
ANNUAL TOTAL	886.05		892.12			
ANNUAL MEAN	2.43		2.44		1.78a	
HIGHEST ANNUAL MEAN					4.04	1995
LOWEST ANNUAL MEAN					.38	1992
HIGHEST DAILY MEAN	75	Jun 18	12	Jun 11	188	May 8 1995
LOWEST DAILY MEAN	.29	Mar 9	.53	Jan 26	.00	Mar 2 1989b
ANNUAL SEVEN-DAY MINIMUM	.31	Mar 7	.57	Jan 23	.00	Jan 6 1993
INSTANTANEOUS PEAK FLOW			18	Jun 11	270	May 8 1995
INSTANTANEOUS PEAK STAGE			4.81	Jun 11	6.12	May 8 1995
ANNUAL RUNOFF (AC-FT)	1760		1770		1290	
10 PERCENT EXCEEDS	3.9		5.1		4.5	
50 PERCENT EXCEEDS	1.7		1.8		.59	
90 PERCENT EXCEEDS	.44		.67		.10	

a Median of annual mean discharges, 1.8 ft^3/s.
b Also Mar. 3-7, 1989, and Jan. 6 to Mar. 16, 1993.



06431500 SPEARFISH CREEK AT SPEARFISH, SD

LOCATION.--Lat 44°28'57", long 103°51'40", in SE¼ NW¼ 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 mi^2.

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 sea level, 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 ft^3/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 mi^2; discharge about 5,000 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	124	111	97	92	90	114	112	114	126	121	95
2	73	120	107	96	86	91	103	112	112	126	122	93
3	69	119	104	88	83	90	94	113	114	125	119	95
4	86	115	104	97	83	89	76	114	109	124	121	103
5	73	112	104	100	84	90	77	114	108	124	121	97
6	54	111	104	95	84	88	78	114	113	123	122	109
7	53	110	105	93	84	88	83	114	114	123	121	111
8	70	109	103	94	86	89	95	114	114	121	120	105
9	68	109	102	93	93	89	117	113	114	121	119	99
10	72	107	100	93	94	89	118	114	119	120	119	101
11	72	102	97	93	92	87	114	114	161	119	120	105
12	73	101	98	93	92	87	115	114	166	118	114	99
13	73	99	98	93	92	87	116	114	176	118	117	100
14	73	99	97	93	91	88	116	114	174	117	110	99
15	72	100	96	93	91	93	116	114	174	116	104	98
16	77	99	96	94	91	98	116	114	164	117	103	96
17	139	99	96	93	91	101	116	114	154	115	102	92
18	126	111	96	93	91	101	115	114	145	115	99	90
19	123	120	87	93	91	101	115	114	140	e115	100	89
20	121	119	81	94	91	105	115	114	137	e115	99	88
21	121	117	76	94	90	106	e115	114	134	e114	96	92
22	120	117	88	93	91	109	e115	114	133	e114	95	97
23	131	115	103	93	91	112	e115	114	132	e114	94	95
24	137	114	102	93	90	113	e114	113	131	e113	94	94
25	136	114	108	91	90	114	e114	114	129	e113	96	95
26	130	113	108	92	90	115	e114	113	127	e112	94	96
27	124	111	103	92	90	116	114	114	128	116	93	97
28	124	111	98	92	89	116	114	113	128	119	99	96
29	137	111	99	92	---	114	114	114	127	117	100	93
30	132	111	99	92	---	114	113	114	127	118	98	94
31	127	---	98	92	---	114	---	114	---	118	95	---
TOTAL	3055	3319	3068	2894	2503	3084	3251	3525	4018	3666	3327	2913
MEAN	98.5	111	99.0	93.4	89.4	99.5	108	114	134	118	107	97.1
MAX	139	124	111	100	94	116	118	114	176	126	122	111
MIN	53	99	76	88	83	87	76	112	108	112	93	88
AC-FT	6060	6580	6090	5740	4960	6120	6450	6990	7970	7270	6600	5780

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1999, BY WATER YEAR (WY)

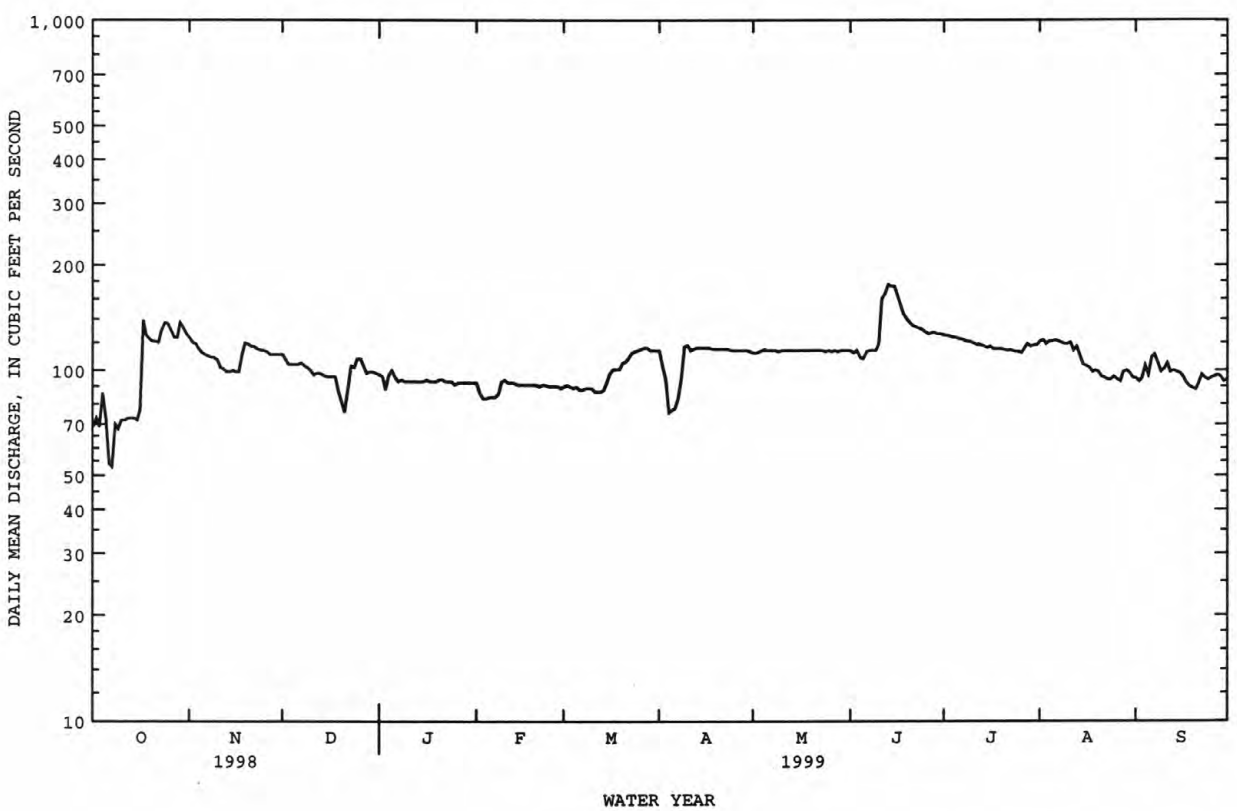
MEAN	46.6	46.2	43.3	42.3	42.7	45.9	65.0	102	78.0	53.0	47.2	45.2
MAX	98.5	111	99.0	93.4	89.4	99.5	139	505	185	118	107	97.1
(WY)	1999	1999	1999	1999	1999	1999	1997	1982	1976	1999	1999	1999
MIN	25.1	24.4	24.1	22.7	26.5	25.2	31.1	28.9	29.1	24.6	23.6	24.1
(WY)	1962	1962	1982	1962	1962	1962	1961	1961	1961	1961	1961	1961

e Estimated

06431500 SPEARFISH CREEK AT SPEARFISH, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1947 - 1999	
ANNUAL TOTAL	33916		38623			
ANNUAL MEAN	92.9		106		54.8	
HIGHEST ANNUAL MEAN					106	1999
LOWEST ANNUAL MEAN					27.1	1961
HIGHEST DAILY MEAN	390	Jun 18	176	Jun 13	1880	May 15 1965
LOWEST DAILY MEAN	52	Sep 27	53	Oct 7	9.0	Dec 2 1959a
ANNUAL SEVEN-DAY MINIMUM	60	Sep 13	66	Oct 5	18	Dec 18 1981
INSTANTANEOUS PEAK FLOW			187	Jun 13	4240	May 15 1965b
INSTANTANEOUS PEAK STAGE			7.12	Jun 13	10.54	Jun 15 1976
ANNUAL RUNOFF (AC-FT)	67270		76610		39730	
10 PERCENT EXCEEDS	114		124		85	
50 PERCENT EXCEEDS	86		107		46	
90 PERCENT EXCEEDS	70		88		32	

a No flow for part of Oct. 18, 1970.
b From rating curve extended above 520 ft^3/s on basis of slope-area measurement of peak flow, gage height, 10.53 ft.



06433000 REDWATER RIVER ABOVE BELLE FOURCHE, SD

LOCATION.--Lat 44°40'02", long 103°50'20", in NW¼ SE¼ sec.11, T.8 N., R.2 E., Butte County, Hydrologic Unit 10120203, on right bank near downstream end (revised) 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 mi^2.

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 sea level, from topographic map. Prior to Dec. 13, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except those for Mar. 29 to May 7, which are fair, and those for estimated daily discharges, which are poor. Diversions for irrigation of about 13,000 acres 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	196	312	242	223	216	212	357	276	238	290	183	132
2	212	300	238	e220	213	212	322	280	230	282	180	134
3	227	297	237	e215	207	209	298	303	241	279	173	143
4	287	294	237	e220	205	209	263	327	229	283	167	152
5	392	287	237	e235	204	211	272	308	239	280	168	160
6	361	282	236	234	204	210	360	294	293	281	165	165
7	266	284	234	e225	205	212	454	312	283	263	159	167
8	222	271	232	e220	203	210	406	315	287	238	163	163
9	202	271	231	e225	211	210	384	309	278	235	161	162
10	196	264	230	228	220	e210	385	321	316	237	155	167
11	187	253	229	239	218	213	505	327	595	231	148	172
12	194	248	229	255	212	213	352	313	815	210	160	176
13	193	251	229	241	215	212	322	304	782	191	165	181
14	193	277	229	236	214	214	294	296	649	173	162	181
15	193	286	228	236	212	230	285	309	583	163	163	179
16	232	266	228	239	212	270	280	396	537	154	159	186
17	1040	262	227	236	208	255	289	323	425	155	166	186
18	699	259	229	233	211	239	285	304	381	181	165	185
19	492	285	e220	233	208	232	280	293	352	201	166	189
20	377	278	e210	236	209	229	276	284	336	288	165	191
21	311	272	e205	236	208	231	272	276	320	250	157	189
22	295	268	e210	235	208	232	342	274	311	217	147	186
23	293	261	e220	234	208	234	434	267	305	207	142	185
24	305	250	e225	235	208	234	347	262	297	195	138	184
25	305	246	e230	e230	209	235	312	252	279	187	135	190
26	295	247	e230	225	209	243	308	245	271	185	127	192
27	285	247	e240	224	210	257	285	248	287	171	118	196
28	282	245	e245	220	210	273	276	244	373	163	116	202
29	308	243	e240	220	---	267	272	238	297	163	134	199
30	325	244	229	219	---	263	276	233	291	159	141	195
31	338	---	224	220	---	272	---	238	---	159	130	---
TOTAL	9703	8050	7110	7127	5877	7153	9793	8971	11120	6671	4778	5289
MEAN	313	268	229	230	210	231	326	289	371	215	154	176
MAX	1040	312	245	255	220	273	505	396	815	290	183	202
MIN	187	243	205	215	203	209	263	233	229	154	116	132
AC-FT	19250	15970	14100	14140	11660	14190	19420	17790	22060	13230	9480	10490

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1999, BY WATER YEAR (WY)

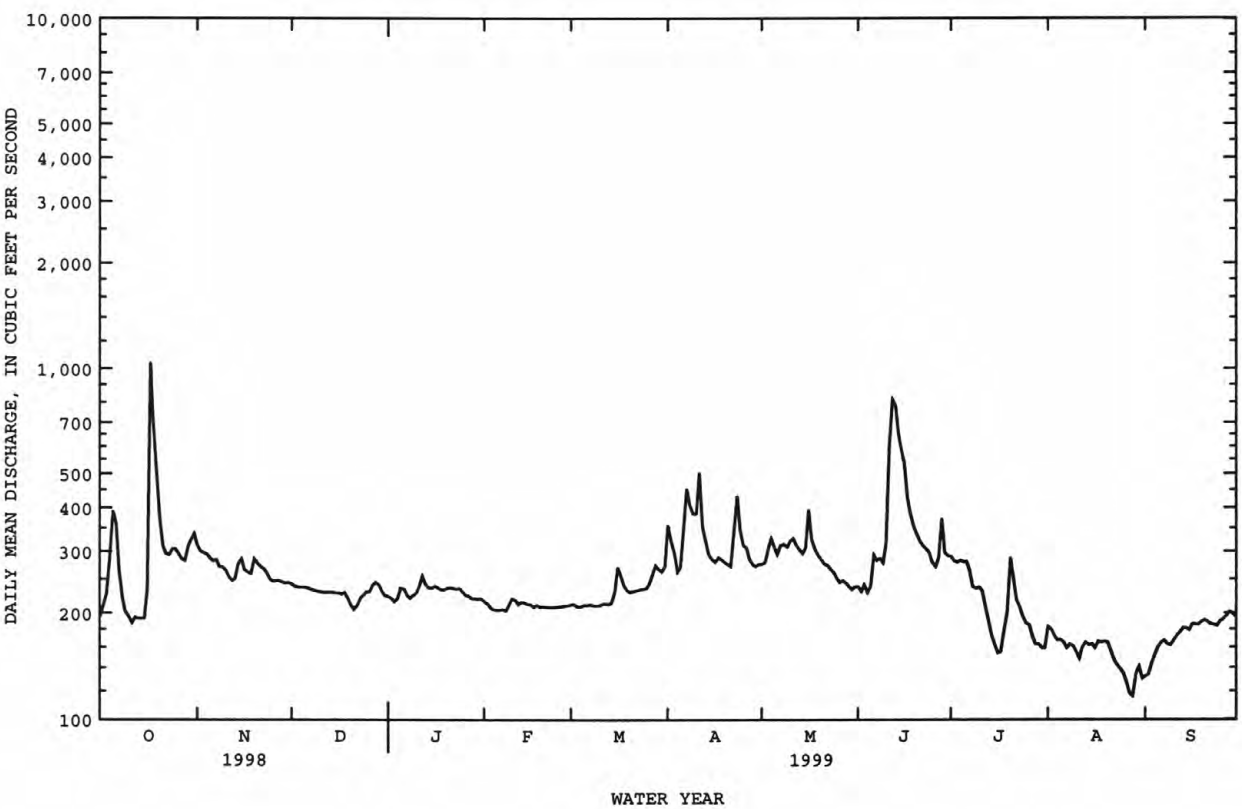
MEAN	134	145	141	136	146	158	180	245	195	62.7	47.7	89.2
MAX	313	268	229	246	278	276	359	988	834	263	178	192
(WY)	1999	1999	1999	1997	1996	1996	1997	1995	1946	1946	1998	1946
MIN	50.6	82.7	69.9	83.5	91.7	105	62.9	20.0	4.07	2.13	2.72	19.3
(WY)	1961	1961	1962	1957	1993	1961	1981	1992	1988	1960	1959	1959

e Estimated

06433000 REDWATER RIVER ABOVE BELLE FOURCHE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1946 - 1999	
ANNUAL TOTAL	73247		91642			
ANNUAL MEAN	201		251		140	
HIGHEST ANNUAL MEAN					251	1999
LOWEST ANNUAL MEAN					57.1	1961
HIGHEST DAILY MEAN	1100	Jun 19	1040	Oct 17	5790	May 20 1982
LOWEST DAILY MEAN	27	May 29	116	Aug 28	.00	May 1 1981a
ANNUAL SEVEN-DAY MINIMUM	32	May 26	128	Aug 26	.56	Jul 30 1960
INSTANTANEOUS PEAK FLOW			1430	Oct 17	16400	Jun 16 1962b
INSTANTANEOUS PEAK STAGE			5.28	Oct 17	11.69	Jun 16 1962
ANNUAL RUNOFF (AC-FT)	145300		181800		101300	
10 PERCENT EXCEEDS	278		321		220	
50 PERCENT EXCEEDS	194		234		130	
90 PERCENT EXCEEDS	96		165		22	

a No flow at times in 1960, 1968-69, 1981-82, 1988.
b From rating curve extended above 6,000 ft^3/s on basis of slope-area measurement of peak flow.



06434505 INLET CANAL ABOVE BELLE FOURCHE RESERVOIR, SD

LOCATION.--Lat 44°42'05", long 103°44'00", in NW¼ SE¼ NE¼ 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 sea level 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 fair. Records show actual diversions to Belle Fourche Reservoir (see station 06435000), from Belle Fourche River and Crow Creek. 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.

COOPERATION.--Records of diversion from the canal provided by the Belle Fourche Irrigation District.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	202	9.2	1.8	e2.1	e2.8	e2.4	418	1.1	412	331	228	143
2	256	6.6	1.7	e1.3	e3.4	e2.4	202	1.2	407	310	230	175
3	234	e3.7	1.7	e1.4	e4.0	e2.2	1.9	1.3	452	312	232	180
4	282	1.9	1.9	e1.7	e2.4	e2.6	1.2	1.7	434	276	231	184
5	785	1.7	1.8	e1.7	e2.6	e2.6	1.2	1.6	429	228	231	189
6	1110	1.8	1.5	e1.7	e2.2	e2.6	6.1	.98	178	259	228	197
7	620	1.7	1.6	e1.6	e2.4	e2.4	5.9	1.1	4.1	311	245	200
8	435	1.8	1.7	e1.6	e3.0	e.20	1.9	1.3	3.3	346	250	193
9	377	1.9	1.7	e1.7	e3.6	e2.1	1.2	1.5	2.6	430	228	182
10	366	1.6	1.6	e1.8	e3.2	e1.9	2.3	2.3	8.7	397	221	189
11	327	1.7	1.7	e2.0	e3.0	e1.9	2.9	2.2	11	377	205	192
12	325	1.7	1.8	e2.2	e2.4	2.1	1.3	1.6	12	328	213	195
13	313	2.3	1.8	e2.3	e2.2	2.1	1.1	1.6	10	284	215	198
14	306	4.8	1.8	2.3	e1.6	2.5	1.0	1.8	6.0	257	207	204
15	299	3.0	1.7	2.3	e1.6	19	.92	2.0	8.5	234	207	210
16	330	2.3	1.3	e2.2	e1.6	35	.91	2.2	5.5	222	187	213
17	1300	2.2	1.5	e1.8	e2.0	26	.82	1.5	3.6	230	199	220
18	1100	e2.0	1.4	e2.7	e2.0	111	.88	1.5	2.9	305	184	221
19	810	e1.8	1.1	e4.0	e2.0	240	.89	1.5	2.5	462	182	233
20	598	1.8	.82	e3.2	e2.0	480	.87	1.4	2.3	533	175	226
21	494	1.8	.50	e2.4	e2.2	465	1.7	1.4	2.1	517	171	222
22	443	1.8	1.6	e1.5	e2.6	419	2.4	1.5	2.2	406	162	218
23	410	1.7	1.4	e1.2	e2.6	404	3.3	1.5	2.3	359	153	205
24	397	1.8	1.3	e1.0	e2.6	445	1.6	1.3	2.2	324	151	211
25	391	1.7	1.4	e1.2	e2.4	428	1.5	102	2.1	289	150	209
26	371	1.7	2.0	e1.8	e3.0	422	1.6	332	143	273	137	218
27	359	1.8	2.4	e2.0	e3.0	428	1.4	365	347	246	125	215
28	352	1.8	2.7	e2.0	e2.8	452	1.3	414	233	233	121	223
29	386	1.7	2.7	e2.0	---	432	1.3	409	426	222	130	223
30	340	1.6	2.5	e2.4	---	417	1.2	398	339	219	141	217
31	13	---	e2.4	e3.4	---	398	---	406	---	200	133	---
TOTAL	14331	72.9	52.82	62.5	71.2	5651.00	670.59	2463.08	3893.9	9720	5872	6105
MEAN	462	2.43	1.70	2.02	2.54	182	22.4	79.5	130	314	189	204
MAX	1300	9.2	2.7	4.0	4.0	480	418	414	452	533	250	233
MIN	13	1.6	.50	1.0	1.6	.20	.82	.98	2.1	200	121	143
AC-FT	28430	145	105	124	141	11210	1330	4890	7720	19280	11650	12110

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 1999, BY WATER YEAR (WY)

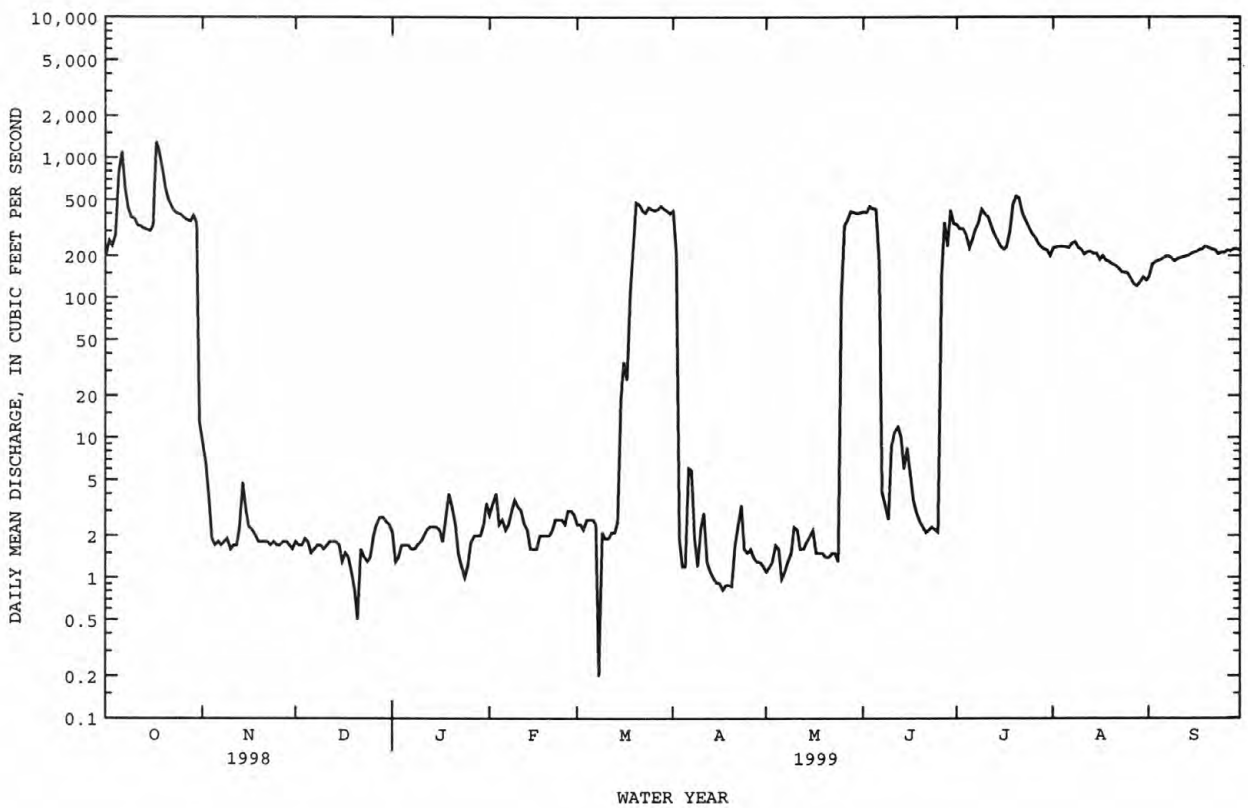
MEAN	282	135	107	185	103	97.7	63.8	136	207	187	150	163
MAX	462	248	220	372	193	302	204	162	274	314	240	204
(WY)	1999	1998	1998	1997	1997	1995	1995	1998	1998	1999	1998	1999
MIN	225	.040	1.70	2.02	2.54	.95	4.88	79.5	130	109	70.9	124
(WY)	1997	1997	1999	1999	1999	1996	1997	1999	1999	1996	1995	1995

e Estimated

06434505 INLET CANAL ABOVE BELLE FOURCHE RESERVOIR, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1995 - 1999	
ANNUAL TOTAL	52727.39		48965.99			
ANNUAL MEAN	144		134		152	
HIGHEST ANNUAL MEAN					177	1995
LOWEST ANNUAL MEAN					132	1996
HIGHEST DAILY MEAN	1300	Oct 17	1300	Oct 17	1300	Oct 17 1998
LOWEST DAILY MEAN	.00	Feb 26	.20	Mar 8	.00	Dec 31 1995a
ANNUAL SEVEN-DAY MINIMUM	.00	Feb 26	.90	Apr 14	.00	Nov 16 1996
INSTANTANEOUS PEAK FLOW			1630	Oct 17	1630	Oct 17 1998
INSTANTANEOUS PEAK STAGE			9.00	Oct 17	9.00	Oct 17 1998
ANNUAL RUNOFF (AC-FT)	104600		97120		110000	
10 PERCENT EXCEEDS	328		405		313	
50 PERCENT EXCEEDS	89		3.2		155	
90 PERCENT EXCEEDS	1.0		1.4		.67	

a No flow at times in most years.



06435000 BELLE FOURCHE RESERVOIR NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°44'12", long 103°40'27", in SW$^1/_4$ SE$^1/_4$ 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. Datum of gage is sea level, 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, 185,200 acre-ft, June 12, elevation, 2,974.99 ft; minimum, 127,500 acre-ft, Oct. 1, elevation, 2,967.21 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	2,967.26	127,900	--
Oct. 31	2,971.79	160,300	+32,400
Nov. 30	2,971.82	160,500	+200
Dec. 31	2,971.74	160,000	-500
CAL YR 1998	--	--	+2,700
Jan. 31	2,971.79	160,300	+300
Feb. 28	2,971.84	160,600	+300
Mar. 31	2,973.43	172,800	+12,000
Apr. 30	2,973.87	176,300	+3,500
May 31	2,974.34	189,000	+12,700
June 30	2,974.46	181,000	-8,000
July 31	2,973.69	174,900	-6,100
Aug. 31	2,970.68	152,000	-22,900
Sept.30	2,969.44	143,000	-9,000
WTR YR 1999	--	--	+15,100

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06436000 BELLE FOURCHE RIVER NEAR FRUITDALE, SD

LOCATION.--Lat 44°41'27", long 103°44'14", in NW¼ NE¼ 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 mi^2, 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 sea level, 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 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 ft^3/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 06434500), 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

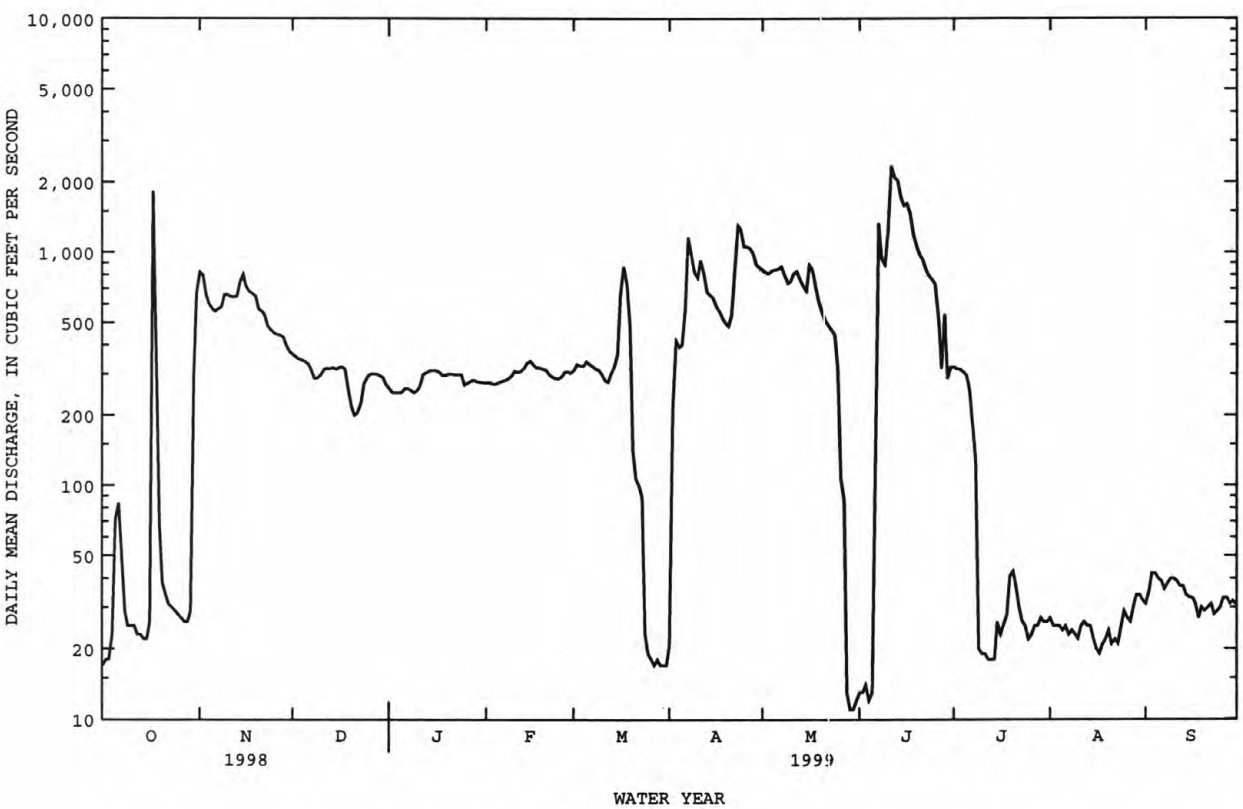
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	820	365	e260	275	312	21	842	13	323	27	31
2	18	799	356	e250	276	331	216	818	13	316	25	35
3	18	655	349	e250	271	326	418	811	14	315	25	42
4	23	599	345	e250	272	325	393	835	12	307	25	42
5	72	574	340	e250	276	341	401	842	13	296	24	40
6	84	560	332	e260	279	331	580	847	447	258	25	39
7	47	574	312	e260	282	325	1160	869	1330	176	23	36
8	29	585	287	e255	287	316	985	798	936	130	24	38
9	25	659	287	e250	294	313	817	741	882	20	23	40
10	25	660	296	e255	309	300	778	754	1220	19	22	40
11	25	644	314	e270	305	281	928	813	2340	19	25	39
12	23	644	317	e300	308	277	816	830	2090	18	26	37
13	23	648	316	e305	317	304	676	766	2020	18	25	37
14	22	746	320	e311	335	324	661	717	1730	18	25	34
15	22	802	315	e311	342	364	638	682	1580	26	22	33
16	26	712	320	311	e330	661	589	880	1620	23	20	33
17	1830	679	322	306	e320	869	560	839	1460	25	19	31
18	646	665	314	296	e320	739	524	703	1190	28	21	27
19	67	648	257	296	315	482	499	613	1060	41	22	30
20	38	573	217	300	314	142	483	553	978	43	24	29
21	34	560	e200	299	300	106	540	510	926	37	21	30
22	31	538	e205	298	293	99	802	487	838	30	22	31
23	30	482	e225	298	288	89	1300	465	791	26	21	28
24	29	465	e275	298	287	23	1250	445	763	25	25	29
25	28	451	e290	e270	292	19	1060	319	730	22	29	30
26	27	445	e300	e275	306	18	1060	107	513	23	27	33
27	26	440	e300	e280	308	17	1040	87	317	25	26	33
28	26	433	e300	283	303	18	979	13	546	25	30	31
29	29	398	e295	278	---	17	887	11	287	27	34	32
30	295	374	e290	276	---	17	858	11	321	26	34	31
31	667	---	e270	276	---	17	---	12	---	26	32	---
TOTAL	4302	17832	9231	8677	8404	8103	21919	18020	26980	2711	773	1021
MEAN	139	594	298	280	300	261	731	581	899	87.5	24.9	34.0
MAX	1830	820	365	311	342	869	1300	880	2340	323	34	42
MIN	17	374	200	250	271	17	21	11	12	18	19	27
AC-FT	8530	35370	18310	17210	16670	16070	43480	35740	53510	5380	1530	2030
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1999, BY WATER YEAR (WY)*												
MEAN	15.1	29.7	18.9	17.7	49.7	116	159	340	230	43.6	14.5	11.1
MAX	139	594	298	280	535	1125	984	2256	1149	525	88.0	54.4
(WY)	1999	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	.33	.22	.30	2.24
(WY)	1961	1979	1968	1957	1955	1977	1981	1985	1961	1960	1960	1959

e Estimated

06436000 BELLE FOURCHE RIVER NEAR FRUITDALE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1954 - 1999*	
ANNUAL TOTAL	75712.1		127973			
ANNUAL MEAN	207		351		87.1	
HIGHEST ANNUAL MEAN					351a	1999
LOWEST ANNUAL MEAN					3.00	1961
HIGHEST DAILY MEAN	1830	Oct 17	2340	Jun 11	11100	May 10 1995
LOWEST DAILY MEAN	8.1	May 20	11	May 29,30	.00	Sep 10 1959b
ANNUAL SEVEN-DAY MINIMUM	11	May 15	12	May 29	.00	Jun 4 1961
INSTANTANEOUS PEAK FLOW			3520	Oct 17	12700	May 20 1982
INSTANTANEOUS PEAK STAGE			8.76	Oct 17	14.32	May 20 1982
ANNUAL RUNOFF (AC-FT)	150200		253800		63100	
10 PERCENT EXCEEDS	598		832		252	
50 PERCENT EXCEEDS	41		293		6.1	
90 PERCENT EXCEEDS	14		22		3.0	

* Regulated period only (1954-99). See REMARKS.
a Median of annual mean discharges, 58 ft^3/s.
b No flow at times in 1959-62, 1977.



06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD

LOCATION.--Lat 44°26'32", long 103°37'44", in SE¼ SE¼ NE¼ NE¼ 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 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 3,680 ft above sea level, 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 ft^3/s, by contracted-opening measurement, 1.8 mi downstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	81	34	e18	e18	21	51	78	38	52	29	20
2	26	78	33	e16	17	20	46	76	37	49	23	20
3	23	77	32	e17	17	22	47	75	57	46	22	23
4	44	73	32	e18	18	20	50	76	38	44	22	26
5	44	69	31	e19	18	e19	45	71	41	41	21	22
6	47	65	e29	e19	18	e18	52	64	92	40	51	20
7	46	63	e28	e18	19	e18	68	64	88	38	38	19
8	60	59	e27	e17	19	19	77	60	94	37	26	19
9	70	56	e27	e19	19	19	81	61	87	34	22	18
10	83	e51	e27	e20	21	e18	92	64	149	34	21	18
11	122	e49	e26	e24	e17	e18	89	63	190	32	19	18
12	102	e50	25	e22	e18	18	92	57	191	31	31	18
13	91	50	25	e21	e19	20	102	57	192	29	25	18
14	85	52	24	e20	e19	23	109	61	187	28	22	18
15	78	50	23	e20	19	28	102	62	172	30	19	17
16	101	51	23	e19	19	31	94	61	149	29	20	16
17	157	50	24	e16	17	32	86	60	139	39	19	16
18	139	47	24	e16	17	28	83	57	125	37	18	17
19	135	46	16	e17	17	31	82	56	115	31	18	17
20	128	46	e13	e17	17	34	84	56	103	30	18	17
21	120	46	e12	e15	e17	35	112	54	92	29	20	16
22	116	45	e15	e14	17	38	123	60	84	27	20	15
23	121	44	e16	e15	18	39	111	55	79	25	19	15
24	123	42	e16	e13	18	41	104	51	72	24	18	15
25	117	41	e17	e12	20	43	102	50	66	23	18	15
26	108	39	e18	e13	21	47	100	65	61	22	18	16
27	97	38	e19	e14	19	52	94	50	68	21	22	17
28	96	37	e20	e16	20	50	90	42	67	21	46	16
29	109	36	e20	e18	---	47	86	41	56	21	40	16
30	91	35	e20	e20	---	47	81	40	55	20	25	16
31	85	---	e20	e20	---	46	---	40	---	27	21	---
TOTAL	2785	1566	716	543	513	942	2535	1827	2984	991	751	534
MEAN	89.8	52.2	23.1	17.5	18.3	30.4	84.5	58.9	99.5	32.0	24.2	17.8
MAX	157	81	34	24	21	52	123	78	192	52	51	26
MIN	21	35	12	12	17	18	45	40	37	20	18	15
AC-FT	5520	3110	1420	1080	1020	1870	5030	3620	5920	1970	1490	1060

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1999, BY WATER YEAR (WY)

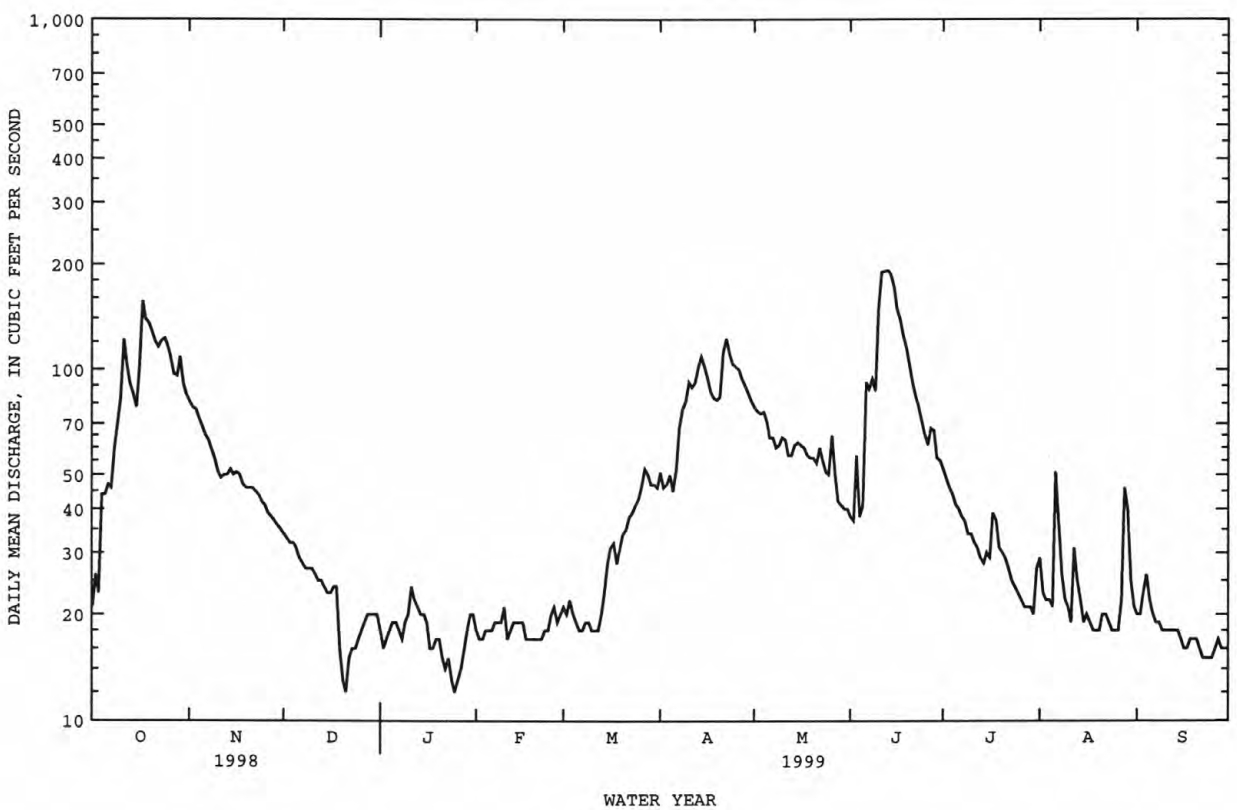
MEAN	22.1	19.5	13.6	13.0	15.3	26.3	59.5	91.7	51.7	24.4	18.6	15.0
MAX	89.8	52.2	23.1	18.4	28.7	49.5	140	384	101	48.7	45.3	22.7
(WY)	1999	1999	1999	1996	1996	1994	1997	1995	1984	1997	1998	1998
MIN	11.3	9.85	7.63	7.77	8.57	15.5	22.2	15.0	13.4	10.6	9.45	10.9
(WY)	1993	1986	1991	1993	1993	1992	1985	1985	1985	1985	1985	1990

e Estimated

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1983 - 1999	
ANNUAL TOTAL	15360.6		16687			
ANNUAL MEAN	42.1		45.7		30.1	
HIGHEST ANNUAL MEAN					59.5	1995
LOWEST ANNUAL MEAN					13.8	1985
HIGHEST DAILY MEAN	710	Jun 18	192	Jun 13	2370	May 9 1995
LOWEST DAILY MEAN	6.3	Jan 11	12	Dec 21a	5.0	Dec 1 1985b
ANNUAL SEVEN-DAY MINIMUM	7.7	Jan 8	14	Jan 21	5.5	Dec 22 1990
INSTANTANEOUS PEAK FLOW			306	May 26c	3800	May 8 1995d
INSTANTANEOUS PEAK STAGE			3.46	Jan 18f	9.06	May 8 1995
ANNUAL RUNOFF (AC-FT)	30470		33100		21840	
10 PERCENT EXCEEDS	79		95		61	
50 PERCENT EXCEEDS	31		32		18	
90 PERCENT EXCEEDS	13		17		11	

a Also Jan. 25.
b For many days.
c Gage height, 3.25 ft.
d On basis of slope-area measurement of peak flow.
f Backwater from ice.



WATER-QUALITY RECORDS

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

REMARKS.--On Sept. 13, 1999, 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 this field blank is presented in a table following the water-quality results.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)
DEC											
16...	1000	22	866	7.9	4.0	.5	674	13.9	99	400	162
MAY											
05...	0830	74	546	8.4	6.0	5.5	659	11.8	109	230	128
JUN											
03...	1030	63	645	8.2	19.5	15.0	664	9.3	106	270	135
SEP											
13...	0815	17	1130	8.3	8.5	8.0	671	10.5	101	500	168

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)	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)
DEC											
16...	84	46	31	.7	270	9.3	16	<1.0	16	14	62
MAY											
05...	54	23	19	.5	130	11	22	<1.0	17	11	61
JUN											
03...	62	27	24	.6	170	10	21	<1.0	63	14	64
SEP											
13...	100	59	53	1	390	8.6	16	<1.0	24	23	67

DATE	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)	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)
DEC											
16...	<1.0	<1	<1.0	<1	<1.0	3.8	<10	3.1	<.05	240	39
MAY											
05...	<1.0	<1	<1.0	<1	<1.0	2.1	<10	2.4	<.01	970	E6.6
JUN											
03...	<1.0	<1	<1.0	5	<1.0	3.0	14	3.5	.02	6200	11
SEP											
13...	<1.0	<1	<1.0	<1	<1.0	6.4	<20	5.7	.11	130	43

DATE	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)	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)
DEC										
16...	<1	<1.0	14	80	59	<.10	<.1	21	4	5.2
MAY										
05...	<1	<1.0	11	40	21	<.10	<.1	3.1	3	2.9
JUN										
03...	18	<1.0	13	270	29	<.10	<.1	3.1	9	2.5
SEP										
13...	<1	<1.0	20	39	41	<.10	<.1	10	2	3.0

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	SELE-NIUM, TOTAL (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)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
DEC 16...	2	2	<1	<1.0	355	<1	<10	3.2	2.5	4
MAY 05...	<1	1	<1	<1.0	217	<1	<40	2.0	1.4	19
JUN 03...	<1	<1	<1	<1.0	258	<1	60	1.7	1.7	184
SEP 13...	1	1	<1	<1.0	448	<1	<30	3.5	3.3	2

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)	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)
SEP a13...	0816	3	1.9	<.020	E.008	<.090	<.31	E.055	<1.0	<1.0	<1

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 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)	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)
SEP a13...	<1	<1.0	<1.0	<1	<1.0	<1	<1.0	<1.0	<20	<1.0	<.10

DATE	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)	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)
SEP a13...	<20	<10	<1	<1.0	E4	<3	<1.0	<.10	<.1	<1.0	<1

DATE	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (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)
SEP a13...	<1.0	<1	<1	<1	<1.0	<1.0	1	<30	<1.0	<1.0

a Field blank sample collected for quality-control purposes.

06436190 WHITEWOOD CREEK NEAR WHITEWOOD, SD

LOCATION.--Lat 44°32'30", long 103°34'16", in SE¼ NW¼ SE¼ NE¼ 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 mi^2, 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 sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	84	e40	e18	21	23	54	87	51	57	37	25
2	27	80	e39	e16	19	22	49	81	48	53	26	25
3	27	78	e39	e15	20	19	47	79	74	49	25	26
4	48	73	e38	e17	19	22	44	83	50	46	24	34
5	64	69	e33	e21	21	21	46	81	52	43	24	26
6	61	67	e33	e19	20	19	61	72	108	41	51	23
7	55	65	e33	e22	21	21	78	68	81	37	67	22
8	62	63	e33	e20	23	21	89	64	100	35	31	21
9	74	62	e32	e22	21	18	94	66	85	33	26	21
10	85	55	e32	e26	24	e16	121	74	214	33	24	20
11	113	54	e32	e29	17	17	115	74	262	32	22	20
12	99	54	e31	26	15	20	110	65	264	29	36	21
13	90	54	e31	22	23	18	122	62	239	27	35	20
14	85	61	e31	20	24	22	127	65	207	27	29	19
15	80	57	e30	20	21	31	117	69	224	28	25	19
16	105	54	e30	21	20	37	106	68	192	28	26	18
17	287	52	e29	20	21	37	99	66	179	39	25	17
18	174	52	e28	18	20	29	93	65	163	42	25	17
19	165	50	e18	21	20	30	93	63	141	33	24	18
20	153	49	e13	21	20	33	93	62	123	31	24	18
21	139	49	e13	21	18	33	121	60	107	31	26	17
22	132	48	e15	21	20	36	163	68	93	28	28	16
23	143	49	e16	20	18	38	124	64	87	26	25	15
24	145	48	e18	e16	20	39	110	58	79	24	25	15
25	137	47	e20	13	20	40	104	56	71	23	24	15
26	121	47	e22	17	23	45	104	68	65	23	23	17
27	108	46	e23	20	20	51	96	68	82	22	28	18
28	104	41	e24	18	21	52	93	55	106	21	63	17
29	120	39	e24	16	---	48	93	52	65	20	59	17
30	99	40	e21	18	---	48	90	52	61	21	36	16
31	89	---	e21	20	---	48	---	54	---	25	27	---
TOTAL	3214	1687	842	614	570	954	2856	2069	3673	1007	970	593
MEAN	104	56.2	27.2	19.8	20.4	30.8	95.2	66.7	122	32.5	31.3	19.8
MAX	287	84	40	29	24	52	163	87	264	57	67	34
MIN	23	39	13	13	15	16	44	52	48	20	22	15
AC-FT	6370	3350	1670	1220	1130	1890	5660	4100	7290	2000	1920	1180

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1999, BY WATER YEAR (WY)

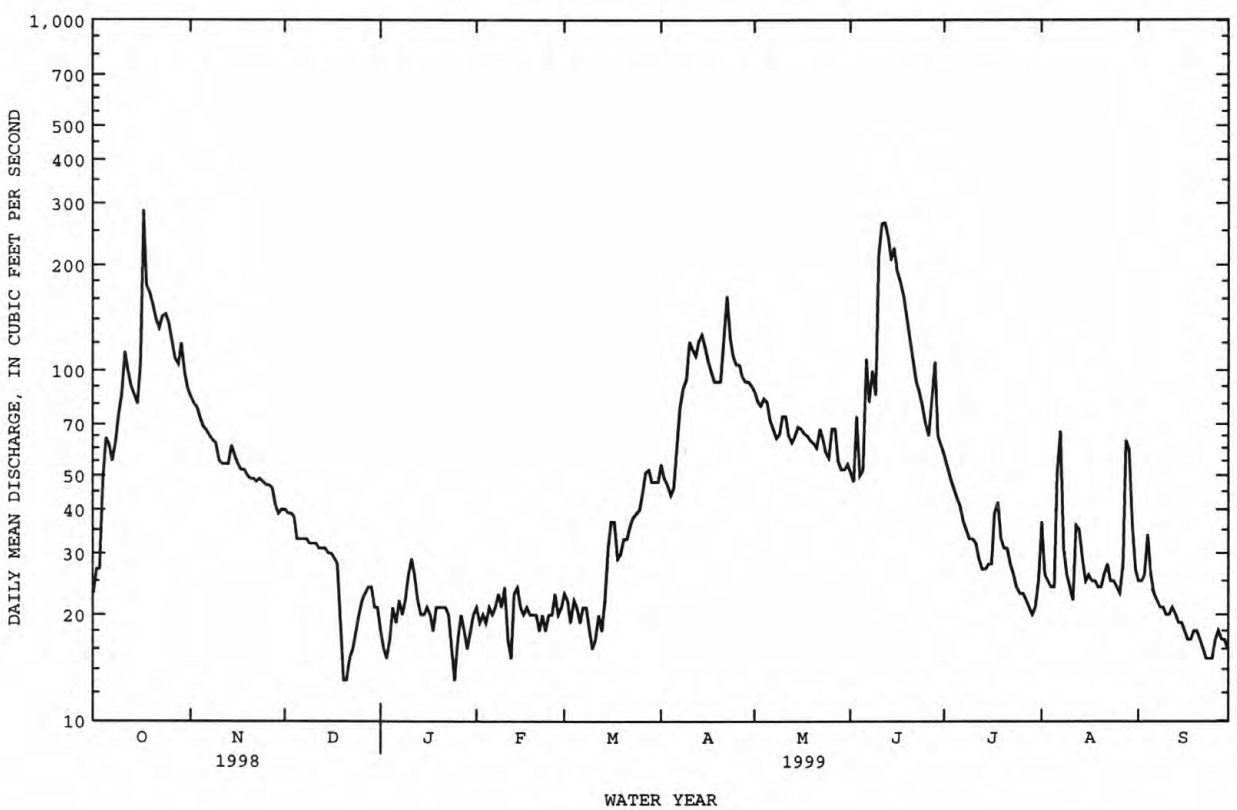
MEAN	24.7	20.2	14.3	14.5	17.1	27.4	63.2	106	55.5	23.2	16.6	14.4
MAX	104	56.2	27.2	23.9	26.5	53.2	165	404	122	40.5	42.0	24.5
(WY)	1999	1999	1999	1983	1996	1997	1997	1995	1999	1997	1998	1986
MIN	9.03	10.6	6.57	5.95	11.4	16.2	21.9	18.7	11.1	4.24	4.74	6.70
(WY)	1993	1993	1991	1991	1993	1991	1985	1985	1985	1985	1985	1990

e Estimated

06436190 WHITEWOOD CREEK NEAR WHITEWOOD, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1982 - 1999	
ANNUAL TOTAL	17198		19049			
ANNUAL MEAN	47.1		52.2		33.2a	
HIGHEST ANNUAL MEAN					62.8	1995
LOWEST ANNUAL MEAN					14.1	1985
HIGHEST DAILY MEAN	898	Jun 18	287	Oct 17	2060	May 9 1995
LOWEST DAILY MEAN	10	Jan 9	13	Dec 20b	2.9	Jul 12 1985
ANNUAL SEVEN-DAY MINIMUM	11	Jan 8	16	Dec 19	3.3	Jul 8 1985
INSTANTANEOUS PEAK FLOW			477	Oct 17	3930	May 8 1995
INSTANTANEOUS PEAK STAGE			2.56	Oct 17	6.01	May 8 1995
ANNUAL RUNOFF (AC-FT)	34110		37780		24020	
10 PERCENT EXCEEDS	74		106		66	
50 PERCENT EXCEEDS	33		35		19	
90 PERCENT EXCEEDS	17		18		9.2	

a Median of annual mean discharges, 32 ft^3/s.
b Also Jan. 25.



06436198 WHITEWOOD CREEK ABOVE VALE, SD

LOCATION.--Lat 44°37'04", long 103°28'52", in SE¼ NW¼ NE¼ NW¼ 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 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 2,840 ft above sea level, from topographic map.

REMARKS.--Records good except those for Apr. 7-26, which are fair, and 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 Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

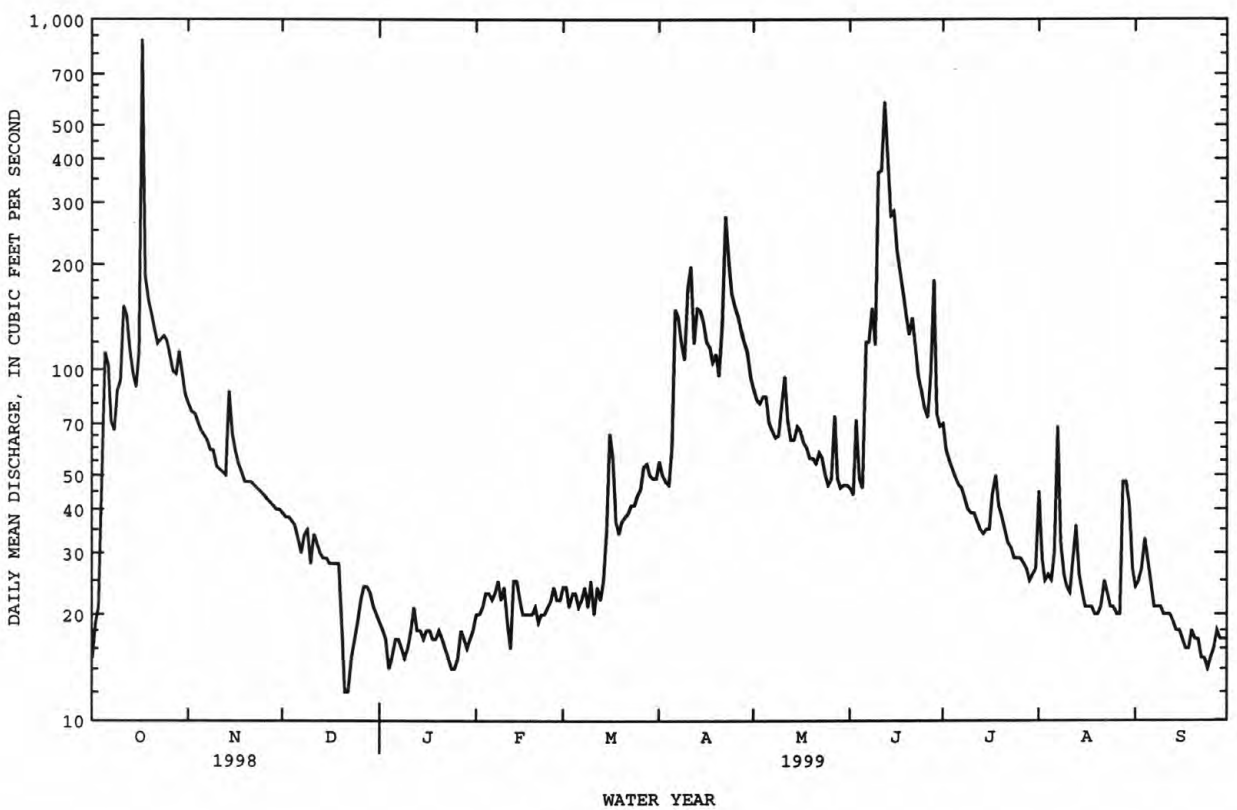
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	80	39	e19	e20	24	55	88	46	70	45	24
2	19	76	38	e18	e20	24	50	82	44	59	29	25
3	21	75	38	e17	e21	21	48	80	72	55	25	27
4	40	71	37	e14	23	23	47	84	49	52	26	33
5	112	67	36	e15	23	23	60	84	46	49	25	28
6	103	65	33	e17	22	21	149	71	120	47	30	24
7	71	63	30	e17	23	22	142	67	120	46	69	21
8	67	59	34	e16	25	24	120	64	150	43	32	21
9	87	59	35	e15	22	21	107	65	118	40	26	21
10	93	53	28	e16	24	25	173	77	367	39	24	20
11	152	52	34	e18	19	20	198	96	371	39	23	20
12	142	51	32	e21	16	24	119	72	584	37	28	20
13	115	50	30	e18	25	22	150	63	387	35	36	19
14	98	87	29	e18	25	25	148	63	276	34	26	18
15	89	66	29	e17	22	35	137	69	284	35	23	18
16	113	59	28	e18	20	66	120	67	221	35	21	17
17	877	54	28	e18	20	56	116	62	190	44	21	16
18	186	51	28	e17	20	37	105	60	166	50	21	16
19	157	48	28	e17	20	34	111	56	142	41	20	18
20	145	48	17	e18	21	37	96	56	126	38	20	17
21	130	48	e12	e17	19	38	137	54	141	35	21	17
22	119	47	e12	e16	20	39	275	58	115	32	25	15
23	122	46	e15	e15	20	41	205	56	96	31	23	15
24	125	45	e17	e14	21	41	166	50	87	29	21	14
25	121	44	e19	e14	22	44	152	47	78	29	21	15
26	110	43	e22	e15	24	46	142	49	73	29	20	16
27	99	42	e24	e18	22	53	130	74	97	28	20	18
28	97	41	e24	e17	22	54	120	49	181	27	48	17
29	113	40	e23	e16	---	50	113	46	75	25	48	17
30	98	40	e21	e17	---	49	95	47	69	26	41	17
31	85	---	e20	e18	---	49	---	47	---	27	27	---
TOTAL	3921	1670	840	521	601	1088	3786	2003	4891	1206	885	584
MEAN	126	55.7	27.1	16.8	21.5	35.1	126	64.6	163	38.9	28.5	19.5
MAX	877	87	39	21	25	66	275	96	584	70	69	33
MIN	15	40	12	14	16	20	47	46	44	25	20	14
AC-FT	7780	3310	1670	1030	1190	2160	7510	3970	9700	2390	1760	1160
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1999, BY WATER YEAR (WY)												
MEAN	24.3	19.0	14.0	14.3	20.6	30.9	65.3	102	65.6	23.3	15.5	13.1
MAX	126	55.7	27.1	44.3	60.1	59.7	173	435	163	47.5	52.1	38.9
(WY)	1999	1999	1999	1997	1997	1997	1997	1995	1999	1997	1998	1986
MIN	9.25	9.86	8.01	8.15	10.0	15.4	21.0	15.9	8.64	2.12	1.77	4.09
(WY)	1993	1986	1991	1991	1992	1992	1985	1985	1985	1985	1985	1992

e Estimated

06436198 WHITEWOOD CREEK ABOVE VALE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1984 - 1999	
ANNUAL TOTAL	17705.5		21996			
ANNUAL MEAN	48.5		60.3		34.0a	
HIGHEST ANNUAL MEAN					64.1	1995
LOWEST ANNUAL MEAN					11.8	1985
HIGHEST DAILY MEAN	1200	Jun 18	877	Oct 17	2920	May 9 1995
LOWEST DAILY MEAN	2.3	Feb 28	12	Dec 21	.00	Jul 21 1985b
ANNUAL SEVEN-DAY MINIMUM	5.6	Jan 7	16	Jan 20	.79	Aug 15 1985
INSTANTANEOUS PEAK FLOW			2100	Oct 17	4250	May 8 1995
INSTANTANEOUS PEAK STAGE			4.27	Oct 17	5.72	May 8 1995
ANNUAL RUNOFF (AC-FT)	35120		43630		24620	
10 PERCENT EXCEEDS	87		123		71	
50 PERCENT EXCEEDS	30		38		18	
90 PERCENT EXCEEDS	11		17		7.4	

a Median of annual mean discharges, 31 ft^3/s.
b Also July 22 and Aug. 19, 1985.



06436198 WHITEWOOD CREEK ABOVE VALE--Continued

WATER-QUALITY RECORDS

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)
DEC											
16...	1415	28	1180	8.2	6.0	3.0	696	13.6	99	580	179
MAY											
05...	1045	90	812	8.4	10.0	7.5	679	15.0	141	360	153
JUN											
03...	1400	87	964	8.2	24.0	22.5	686	7.5	97	420	165
SEP											
13...	1225	20	1410	7.9	14.5	13.5	692	8.8	94	690	186

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)	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)
DEC											
16...	130	61	39	.7	440	7.0	2.8	<1.0	38	29	39
MAY											
05...	84	36	26	.6	250	8.9	8.7	<1.0	63	25	45
JUN											
03...	98	43	34	.7	330	9.2	14	<1.0	420	29	60
SEP											
13...	150	75	52	.9	570	7.5	2.1	<1.0	50	33	38

DATE	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)	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)
DEC											
16...	<1.0	<1	<1.0	<1	<1.0	3.1	<10	2.6	.02	300	110
MAY											
05...	<1.0	<1	<1.0	1	<1.0	1.9	<10	2.3	<.01	1900	E5.5
JUN											
03...	<1.0	<1	<1.0	12	<1.0	3.5	35	3.6	.01	17000	E9.4
SEP											
13...	<1.0	<1	<1.0	<1	<1.0	3.6	<20	3.7	<.10	420	68

DATE	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)	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)
DEC										
16...	<1	<1.0	23	180	163	<.10	<.1	8.0	3	5.1
MAY										
05...	1	<1.0	19	110	63	<.10	<.1	3.0	4	1.4
JUN										
03...	45	<1.0	18	770	61	<.10	<.1	4.1	26	3.2
SEP										
13...	<1	<1.0	30	100	99	<.10	<.1	6.6	2	2.9

06436198 WHITEWOOD CREEK ABOVE VALE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DISSOLVED (UG/L AS U) (22703)	SEDIMENT, SUSPENDED (MG/L) (80154)
DEC										
16...	10	3	<1	<1.0	748	<1	<10	3.3	3.1	17
MAY										
05...	1	2	<1	<1.0	446	<1	<40	1.6	2.1	53
JUN										
03...	2	<1	<1	<1.0	530	<1	130	2.2	2.4	658
SEP										
13...	2	1	<1	<1.0	924	<1	<30	2.5	3.8	4

06436760 HORSE CREEK ABOVE VALE, SD

LOCATION.--Lat 44°39'08", long 103°21'59", in SE¼ NE¼ SE¼ 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 mi^2.

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,710 ft above sea level, 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	14	14	e4.0	7.2	9.0	11	25	25	35	42	51
2	30	13	12	e3.8	6.3	9.8	12	20	24	26	43	53
3	38	13	11	e3.5	6.1	8.5	11	17	41	25	38	51
4	44	14	10	e3.6	6.1	8.4	11	18	38	23	34	40
5	82	15	9.6	e3.8	6.2	8.7	15	16	33	25	38	36
6	84	16	8.6	e4.0	6.0	7.6	26	14	46	24	39	35
7	119	18	8.1	e3.8	6.3	7.2	35	23	110	23	46	30
8	79	17	7.7	e3.7	7.3	7.4	83	19	347	19	41	30
9	66	e16	7.7	e3.7	7.3	6.7	203	21	260	13	38	28
10	41	e15	7.0	e4.0	8.2	7.1	106	24	184	12	38	27
11	30	e14	7.0	e4.5	6.3	7.0	75	30	318	12	36	36
12	23	e14	6.8	e5.0	8.0	6.6	54	59	686	12	43	36
13	17	15	6.7	e4.8	9.4	6.8	47	105	541	12	44	22
14	16	20	6.5	e4.6	8.9	7.3	40	128	362	8.7	43	23
15	15	35	6.6	e4.3	9.6	11	33	70	298	8.3	40	29
16	17	51	6.5	4.1	11	23	25	61	369	13	39	27
17	97	109	6.5	4.1	10	69	20	186	266	19	44	25
18	239	87	5.0	3.8	10	337	17	326	223	34	38	28
19	251	48	5.7	3.8	9.9	181	14	193	198	53	35	31
20	91	35	5.4	4.5	9.6	78	12	94	170	138	30	32
21	52	31	e3.3	5.6	8.7	48	16	60	327	158	30	30
22	37	33	e3.4	5.9	8.4	35	27	48	321	115	29	28
23	30	29	e3.5	5.6	7.7	27	149	40	174	68	35	29
24	25	25	e3.6	4.8	8.5	22	341	32	128	48	43	34
25	20	23	e3.7	e3.6	8.3	18	164	28	97	64	47	38
26	16	21	e3.8	e3.6	9.2	15	96	23	81	60	53	43
27	15	19	e3.9	e3.9	9.9	13	69	26	77	43	50	48
28	14	17	e4.0	e4.0	8.8	11	49	20	76	29	54	50
29	19	15	e4.3	e4.0	---	9.2	37	12	58	29	63	57
30	19	14	e4.0	4.8	---	8.2	30	27	48	30	60	58
31	16	---	e3.6	6.5	---	7.3	---	26	---	35	58	---
TOTAL	1670	806	199.5	133.7	229.2	1020.8	1828	1791	5926	1214.0	1311	1085
MEAN	53.9	26.9	6.44	4.31	8.19	32.9	60.9	57.8	198	39.2	42.3	36.2
MAX	251	109	14	6.5	11	337	341	326	686	158	63	58
MIN	14	13	3.3	3.5	6.0	6.6	11	12	24	8.3	29	22
AC-FT	3310	1600	396	265	455	2020	3630	3550	11750	2410	2600	2150

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1999, BY WATER YEAR (WY)

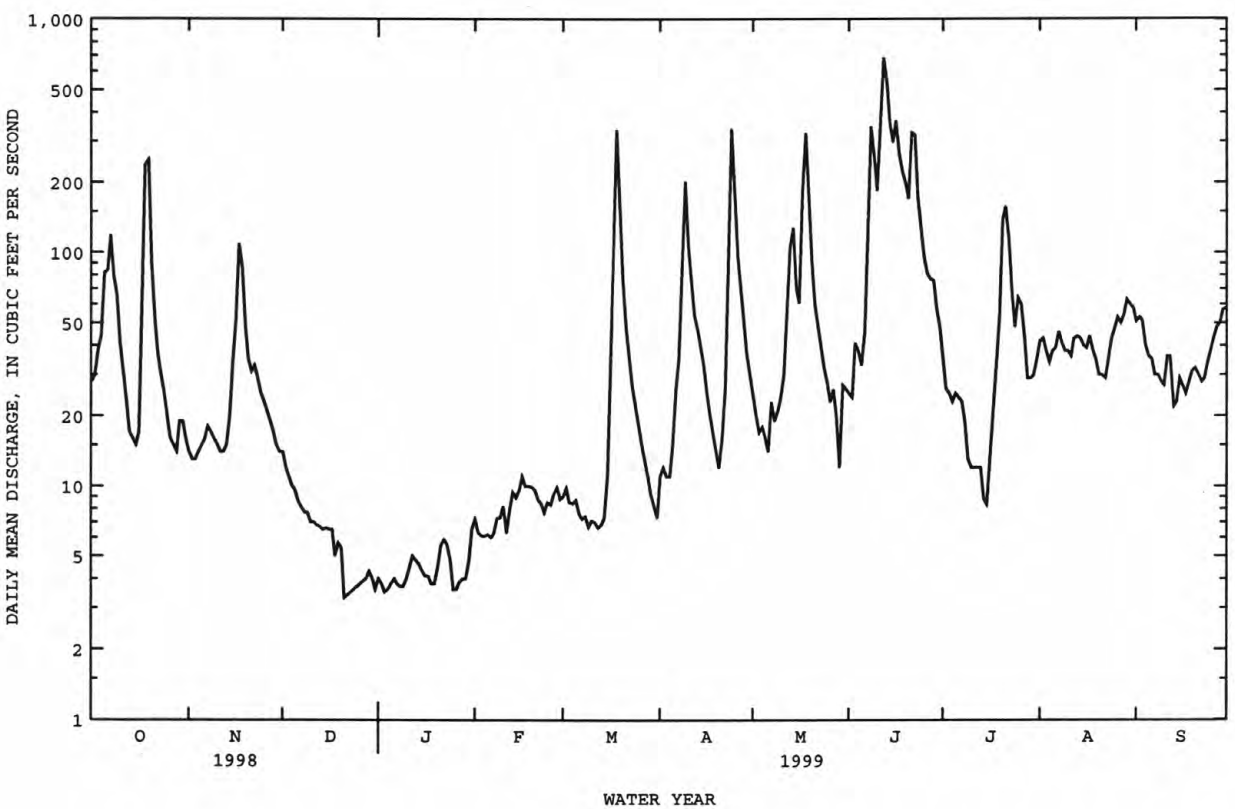
MEAN	20.0	5.35	3.15	4.53	48.1	75.7	52.4	181	83.7	77.2	50.4	53.1
MAX	169	26.9	8.50	31.7	424	251	229	901	272	464	82.6	311
(WY)	1983	1999	1983	1983	1997	1986	1987	1982	1998	1993	1987	1986
MIN	1.46	1.82	1.15	.96	1.24	1.30	.75	6.48	11.3	35.8	25.7	11.3
(WY)	1992	1991	1993	1992	1992	1992	1992	1981	1991	1991	1992	1992

e Estimated

06436760 HORSE CREEK ABOVE VALE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1981 - 1999	
ANNUAL TOTAL	16433.2		17214.2			
ANNUAL MEAN	45.0		47.2		54.6a	
HIGHEST ANNUAL MEAN					131	1996
LOWEST ANNUAL MEAN					10.4	1992
HIGHEST DAILY MEAN	1420	Jun 24	686	Jun 12	14000	May 21 1982
LOWEST DAILY MEAN	1.0	Jan 12	3.3	Dec 21	.07	Nov 7 1985
ANNUAL SEVEN-DAY MINIMUM	1.6	Jan 10	3.6	Dec 21	.28	Dec 25 1990
INSTANTANEOUS PEAK FLOW			759	Jun 12	17700	May 21 1982
INSTANTANEOUS PEAK STAGE			7.16	Jun 12	24.80	May 21 1982
ANNUAL RUNOFF (AC-FT)	32600		34140		39580	
10 PERCENT EXCEEDS	56		105		77	
50 PERCENT EXCEEDS	22		24		10	
90 PERCENT EXCEEDS	2.5		4.8		1.8	

a Median of annual mean discharges, 44 ft^3/s.



BELLE FOURCHE RIVER BASIN

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD

LOCATION.--Lat 44°30'47", long 103°08'11", in SE¼ NW¼ 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.

DRAINAGE AREA.--5,870 mi^2, approximately.

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

GAGE.--Water-stage recorder. Datum of gage is 2,526.13 ft above sea level. Prior to Oct. 31, 1946, 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, 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 ft^3/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 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	195	852	503	e310	e330	431	128	1100	232	762	335	404
2	200	1020	486	e300	e340	446	154	1070	229	753	399	373
3	221	958	475	e295	e350	454	250	1030	292	710	371	384
4	268	860	465	e290	e370	451	604	1050	369	676	378	366
5	544	793	455	e290	e390	452	703	1080	350	655	362	357
6	790	781	442	e300	e400	462	957	1050	674	677	330	356
7	680	771	445	e300	e400	453	1650	1040	1690	576	356	310
8	447	765	430	e305	e410	446	1740	1050	2240	465	384	256
9	304	800	415	e320	e420	439	1420	997	1820	420	354	265
10	242	831	419	e330	e440	439	1300	1020	1900	323	360	290
11	211	850	418	e340	e460	415	1710	1290	4320	252	330	264
12	224	823	445	e340	e470	397	1560	1400	5500	247	273	266
13	200	812	441	e340	e480	384	1230	1200	5010	253	293	259
14	179	930	436	e350	e485	417	1010	1210	3580	216	326	333
15	161	1480	399	e350	e490	494	977	1080	3400	209	355	258
16	156	1460	397	e350	e490	789	918	1140	4080	251	312	269
17	2830	1220	397	e345	e470	1150	845	1430	2990	270	285	271
18	5220	1100	418	e340	e465	1400	808	1410	2430	299	282	289
19	1580	928	336	e340	e450	1180	756	1240	2180	393	278	272
20	766	836	199	e340	e435	799	729	979	1820	1150	287	256
21	442	739	e175	e340	e415	380	766	851	2200	1100	293	239
22	341	721	e205	e340	403	279	1100	776	1860	646	280	229
23	299	687	e260	e325	398	248	1980	739	1500	466	282	219
24	285	631	e305	e320	392	222	2000	691	1310	399	279	213
25	271	615	e340	e305	395	187	1730	654	1220	383	293	228
26	257	589	e350	e300	423	155	1450	550	1140	359	300	263
27	237	567	e350	e295	437	139	1400	308	908	300	314	296
28	218	557	e345	e290	427	145	1310	307	1150	286	330	279
29	271	547	e340	e295	---	131	1250	283	1160	281	394	263
30	336	516	e325	e300	---	122	1140	233	780	310	485	261
31	434	---	e320	e315	---	110	---	234	---	287	465	---
TOTAL	18809	25039	11736	9900	11835	14016	33575	28492	58334	14374	10365	8588
MEAN	607	835	379	319	423	452	1119	919	1944	464	334	286
MAX	5220	1480	503	350	490	1400	2000	1430	5500	1150	485	404
MIN	156	516	175	290	330	110	128	233	229	209	273	213
AC-FT	37310	49660	23280	19640	23470	27800	66600	56510	115700	28510	20560	17030

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1999, BY WATER YEAR (WY)*

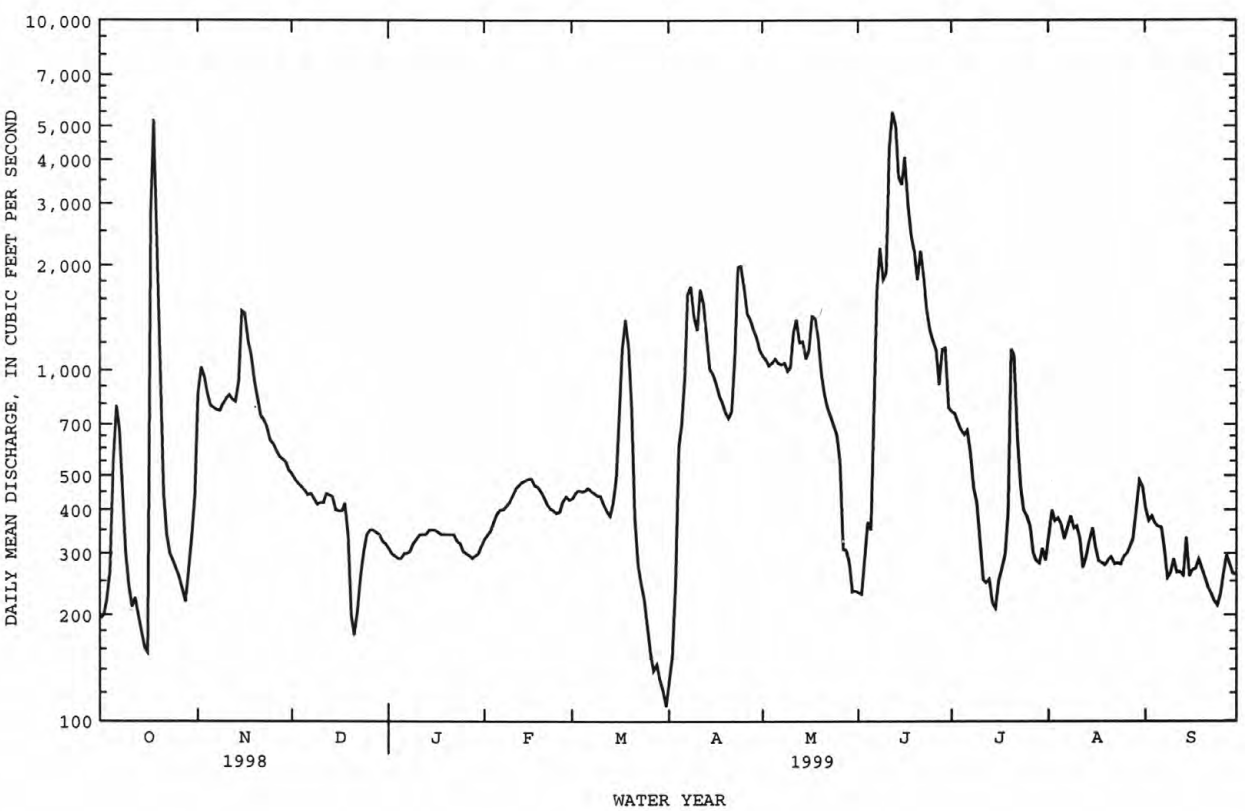
MEAN	112	82.8	52.6	40.9	137	339	347	743	635	341	284	229
MAX	607	835	379	319	1311	1731	1787	3805	2499	1473	625	723
(WY)	1999	1999	1999	1999	1996	1996	1997	1995	1976	1993	1976	1986
MIN	16.2	20.1	11.5	4.71	6.62	30.3	21.2	15.8	80.7	52.4	2.39	10.2
(WY)	1962	1960	1962	1979	1979	1961	1981	1961	1961	1960	1961	1961

e Estimated

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1954 - 1999*	
ANNUAL TOTAL	177431		245063			
ANNUAL MEAN	486		671		279a	
HIGHEST ANNUAL MEAN					773	1996
LOWEST ANNUAL MEAN					27.4	1961
HIGHEST DAILY MEAN	10600	Jun 19	5500	Jun 12	29700	May 21 1982
LOWEST DAILY MEAN	45	Jan 13	110	Mar 31	.00	Aug 9 1961
ANNUAL SEVEN-DAY MINIMUM	46	Jan 10	133	Mar 27	.56	Aug 8 1961
INSTANTANEOUS PEAK FLOW			7380	Oct 18	36400	May 21 1982
INSTANTANEOUS PEAK STAGE			10.44	Oct 18	19.10	May 21 1982
ANNUAL RUNOFF (AC-FT)	351900		486100		202200	
10 PERCENT EXCEEDS	929		1350		550	
50 PERCENT EXCEEDS	300		410		100	
90 PERCENT EXCEEDS	96		245		25	

* Regulated period only (1954-99). See REMARKS.
a Median of annual mean discharges, 250 ft^3/s.



06437020 BEAR BUTTE CREEK NEAR DEADWOOD, SD

LOCATION.--Lat 44°20'08", long 103°38'06", in NE¼ SE¼ 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 mi^2.

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,750 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are fair. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	28	9.7	5.9	3.1	e3.0	11	27	13	14	7.6	4.8
2	6.7	23	9.4	5.5	2.7	e1.7	10	25	14	13	5.4	4.9
3	5.9	23	9.1	5.6	2.5	e2.2	11	26	24	12	5.1	5.6
4	12	22	8.4	5.6	e1.5	2.6	12	28	17	12	4.8	5.7
5	11	22	7.3	6.1	2.5	e2.6	11	25	19	11	5.3	5.0
6	14	21	e4.5	4.4	2.6	e3.5	13	24	44	10	8.1	4.6
7	14	20	e5.0	2.8	2.6	3.1	19	23	44	9.8	8.3	4.3
8	21	19	e5.5	3.3	2.6	e1.8	24	22	40	9.0	5.4	4.2
9	28	17	e5.5	2.9	3.2	e2.8	27	23	41	8.4	4.9	4.1
10	34	15	e6.0	2.9	3.0	2.6	30	25	65	8.3	4.6	4.0
11	57	19	e6.5	2.9	e1.8	e2.8	30	23	80	7.9	5.7	4.0
12	43	17	e7.0	3.0	e2.1	e1.8	33	21	88	7.4	7.2	3.9
13	39	14	7.4	2.7	3.1	e3.3	37	21	70	7.0	6.2	3.6
14	38	17	6.2	2.7	2.8	5.8	38	21	65	6.7	5.1	3.6
15	35	14	5.7	2.9	2.6	8.8	36	22	62	6.4	4.5	3.5
16	46	14	6.0	2.8	e2.3	9.0	32	22	51	6.6	4.3	3.4
17	62	14	6.0	2.7	e2.0	6.1	30	18	47	9.7	4.2	3.3
18	53	13	e5.0	2.8	2.6	6.7	29	17	42	7.3	4.0	3.3
19	55	13	e3.8	2.7	2.5	7.0	28	17	37	6.4	3.9	3.4
20	54	13	e4.5	2.7	2.5	7.3	28	16	33	6.4	3.8	3.3
21	52	12	e3.5	2.7	e1.9	7.5	43	16	31	6.1	4.7	3.2
22	48	13	e5.0	2.7	e1.4	8.6	40	17	27	5.6	4.5	3.1
23	57	13	6.8	2.8	e1.9	9.0	37	16	25	5.3	3.8	3.0
24	56	e12	6.1	e2.5	e1.9	9.7	34	15	23	5.0	3.6	3.0
25	49	12	7.1	e2.5	e1.9	10	39	15	21	4.7	3.5	3.0
26	49	12	9.0	e2.5	2.8	11	47	18	19	4.7	3.5	3.3
27	43	11	8.7	e3.0	2.7	11	40	16	19	4.5	4.2	3.2
28	49	11	7.6	3.8	e2.3	10	39	14	19	4.6	12	3.2
29	56	11	7.2	3.1	---	10	33	13	16	4.5	13	3.2
30	44	10	6.9	3.0	---	11	29	13	15	5.5	6.6	3.1
31	27	---	5.9	3.1	---	11	---	14	---	7.5	5.2	---
TOTAL	1163.8	475	202.3	104.6	67.4	193.3	870	613	1111	237.3	173.0	113.8
MEAN	37.5	15.8	6.53	3.37	2.41	6.24	29.0	19.8	37.0	7.65	5.58	3.79
MAX	62	28	9.7	6.1	3.2	11	47	28	88	14	13	5.7
MIN	5.2	10	3.5	2.5	1.4	1.7	10	13	13	4.5	3.5	3.0
AC-FT	2310	942	401	207	134	383	1730	1220	2200	471	343	226

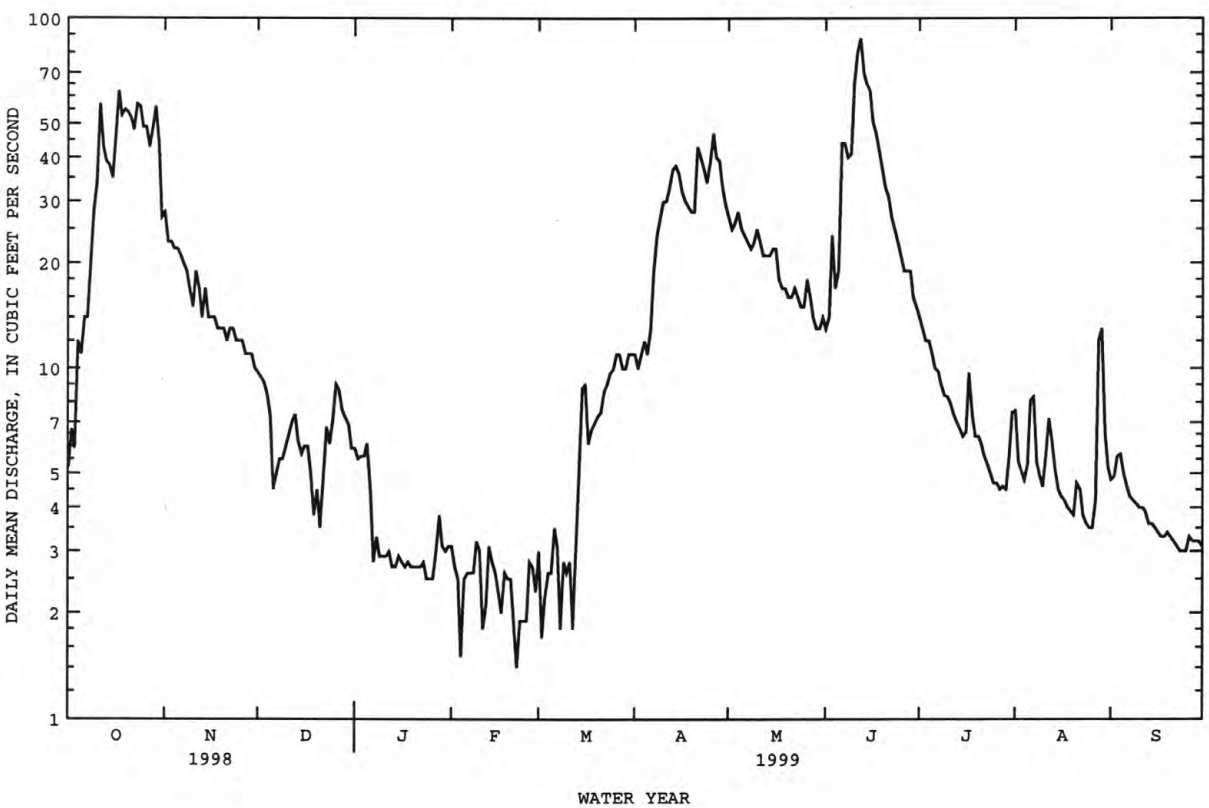
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)

MEAN	6.03	3.58	2.28	1.92	2.17	7.80	21.8	28.9	20.9	5.36	3.70	2.36
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	.69	.82	.28	.30	.45	2.48	4.38	6.09	3.20	1.43	.66	.31
(WY)	1993	1993	1991	1991	1991	1990	1989	1992	1989	1989	1992	1990

e Estimated

06437020 BEAR BUTTE CREEK NEAR DEADWOOD, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1989 - 1999	
ANNUAL TOTAL	4631.1		5324.5			
ANNUAL MEAN	12.7		14.6		8.92	
HIGHEST ANNUAL MEAN					17.1	1997
LOWEST ANNUAL MEAN					2.29	1992
HIGHEST DAILY MEAN	125	Jun 18	88	Jun 12	543	May 8 1995
LOWEST DAILY MEAN	1.0	Mar 7	1.4	Feb 22	.00	Sep 1 1990
ANNUAL SEVEN-DAY MINIMUM	1.0	Mar 5	2.0	Feb 19	.05	Aug 29 1990
INSTANTANEOUS PEAK FLOW			135	Jun 12	1590	May 8 1995
INSTANTANEOUS PEAK STAGE			5.47	Jun 12	8.34	May 8 1995
ANNUAL RUNOFF (AC-FT)	9190		10560		6460	
10 PERCENT EXCEEDS	30		39		23	
50 PERCENT EXCEEDS	7.5		7.9		3.1	
90 PERCENT EXCEEDS	1.7		2.7		.80	



06437400 BEAR BUTTE CREEK AT STURGIS, SD

LOCATION.--Lat 44°24'44", long 103°29'10", in NW¼SW¼NW¼ 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 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 3,320 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. Additional water samples and field parameters collected as part of the Bear Butte Creek monthly sampling program.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

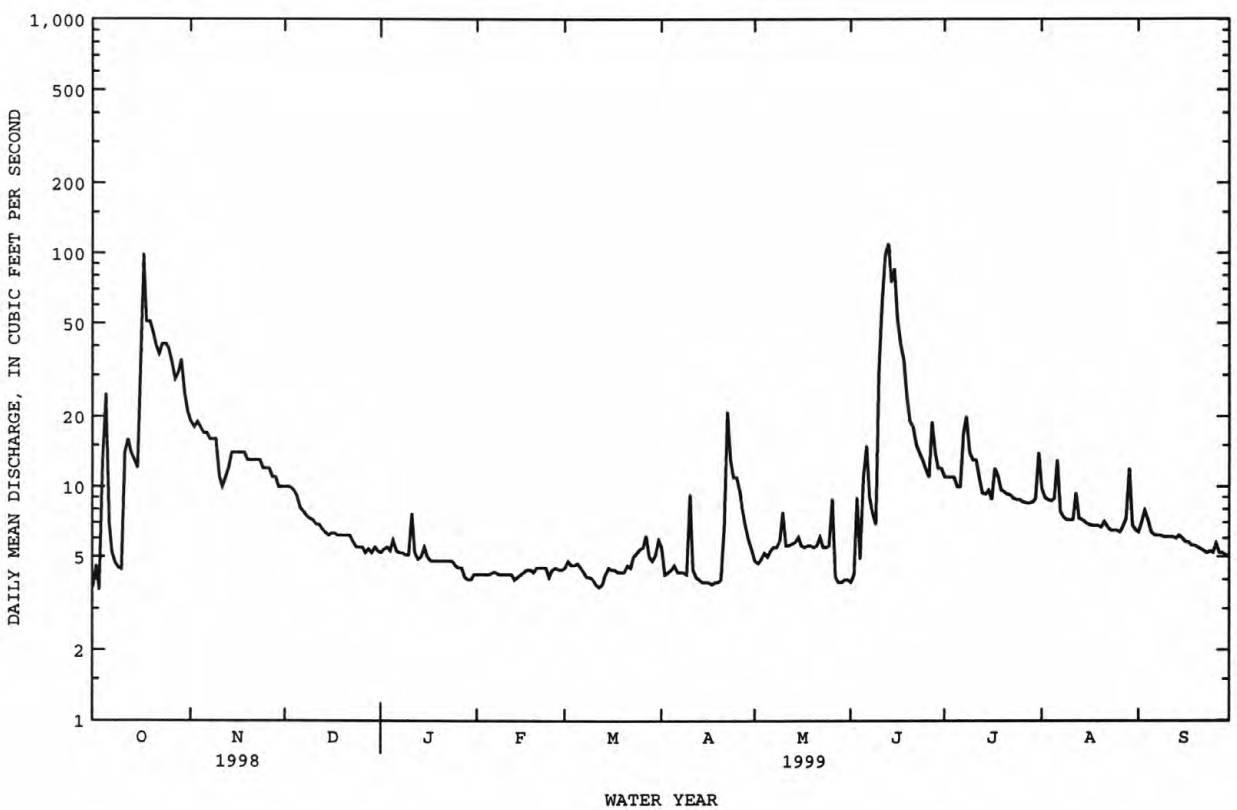
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	19	10	5.2	4.2	4.5	5.5	4.8	3.9	11	9.8	6.4
2	4.6	18	10	5.4	4.2	4.8	4.2	4.7	4.2	11	9.0	7.1
3	3.6	19	9.9	5.5	4.2	4.6	4.3	4.9	9.0	11	8.8	7.9
4	13	18	9.6	5.3	4.2	4.6	4.4	5.2	4.9	11	8.7	7.2
5	25	17	9.1	5.9	4.2	4.7	4.6	5.0	11	10	8.9	6.4
6	7.0	17	8.1	5.3	4.3	4.5	4.3	5.3	15	10	13	6.2
7	5.2	16	7.8	5.2	4.3	4.3	4.3	5.5	9.1	17	7.8	6.2
8	4.7	16	7.5	5.2	4.2	4.1	4.3	5.5	7.7	20	7.4	6.2
9	4.5	16	7.3	5.1	4.2	4.1	4.2	5.9	6.9	14	7.2	6.1
10	4.4	11	7.2	5.1	4.2	4.0	9.3	7.8	31	13	7.2	6.1
11	14	10	6.9	7.7	4.2	3.8	4.4	5.6	62	13	7.2	6.1
12	16	11	6.9	5.2	4.2	3.7	4.1	5.6	99	11	9.4	6.1
13	14	12	6.6	4.9	4.0	3.8	4.0	5.7	110	9.4	7.3	6.0
14	13	14	6.4	5.0	4.1	4.2	3.9	5.8	75	9.3	7.2	6.2
15	12	14	6.2	5.5	4.2	4.5	3.9	6.1	86	9.7	7.0	6.0
16	25	14	6.3	5.0	4.3	4.4	3.9	5.6	53	8.8	6.9	5.8
17	99	14	6.3	4.8	4.4	4.4	3.8	5.5	41	12	6.8	5.8
18	51	14	6.2	4.8	4.4	4.3	3.9	5.6	35	11	6.8	5.6
19	51	13	6.2	4.8	4.3	4.3	3.9	5.6	24	9.7	6.8	5.6
20	46	13	6.2	4.8	4.5	4.3	4.0	5.5	19	9.5	6.7	5.5
21	40	13	6.2	4.8	4.5	4.6	6.7	5.6	18	9.3	7.1	5.4
22	37	13	6.2	4.8	4.5	4.5	21	6.1	15	9.2	6.7	5.3
23	41	13	5.8	4.8	4.5	5.0	13	5.5	14	8.9	6.5	5.2
24	41	12	5.5	4.8	4.1	5.2	11	5.5	13	8.8	6.5	5.3
25	39	12	5.5	4.6	4.4	5.4	11	5.6	12	8.8	6.5	5.2
26	34	12	5.5	4.5	4.5	5.5	9.6	8.9	11	8.6	6.4	5.7
27	29	11	5.2	4.5	4.4	6.2	7.9	4.1	19	8.5	6.8	5.2
28	31	11	5.4	4.1	4.4	5.0	6.7	3.9	14	8.5	7.3	5.2
29	35	10	5.2	4.0	---	4.8	5.9	3.9	12	8.6	12	5.1
30	25	10	5.5	4.0	---	5.1	5.3	4.0	12	8.9	6.8	5.0
31	21	---	5.3	4.2	---	5.9	---	4.0	---	14	6.5	---
TOTAL	789.7	413	212.0	154.8	120.1	143.1	187.3	168.3	846.7	333.5	239.0	177.1
MEAN	25.5	13.8	6.84	4.99	4.29	4.62	6.24	5.43	28.2	10.8	7.71	5.90
MAX	99	19	10	7.7	4.5	6.2	21	8.9	110	20	13	7.9
MIN	3.6	10	5.2	4.0	4.0	3.7	3.8	3.9	3.9	8.5	6.4	5.0
AC-FT	1570	819	421	307	238	284	372	334	1680	661	474	351

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

MEAN	25.5	13.8	6.84	4.99	4.29	4.62	6.24	5.43	28.2	10.8	7.71	5.90
MAX	25.5	13.8	6.84	4.99	4.29	4.62	6.24	5.43	28.2	10.8	7.71	5.90
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	25.5	13.8	6.84	4.99	4.29	4.62	6.24	5.43	28.2	10.8	7.71	5.90
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

06437400 BEAR BUTTE CREEK AT STURGIS, SD--Continued

SUMMARY STATISTICS	FOR 1999 WATER YEAR	
ANNUAL TOTAL	3784.6	
ANNUAL MEAN	10.4	
HIGHEST DAILY MEAN	110	Jun 13
LOWEST DAILY MEAN	3.6	Oct 3
ANNUAL SEVEN-DAY MINIMUM	3.9	Apr 13
INSTANTANEOUS PEAK FLOW	654	Jun 12
INSTANTANEOUS PEAK STAGE	16.34	Jun 12
ANNUAL RUNOFF (AC-FT)	7510	
10 PERCENT EXCEEDS	17	
50 PERCENT EXCEEDS	6.2	
90 PERCENT EXCEEDS	4.2	



06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD

LOCATION.--Lat 44°22'11", long 102°33'56", in NE¼ NE¼ 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 mi^2, 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. Datum of gage is 2,171.60 ft above sea level. Prior to July 27, 1939, nonrecording gage at same site and datum.

REMARKS.--Records 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 ft^3/s, June 10, 1941, gage height, 14.30 ft; no flow for many days in 1936-37, 1939-40. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	204	766	639	e420	e510	e520	e300	e1380	e380	e1300	e405	e400
2	215	989	592	e410	e540	e550	e313	e1250	e390	e1200	e450	e417
3	220	1080	579	e400	e580	e550	e339	e1160	e400	e1100	481	386
4	270	1040	567	e405	e600	e580	e399	e1140	e500	e950	433	391
5	379	1010	552	e410	e620	e550	e670	e1130	e600	e850	424	373
6	711	992	516	e420	e650	e550	e1980	e1120	e900	e777	414	365
7	969	1050	510	e430	e700	e520	e2620	e1090	e7100	e700	374	358
8	713	1020	511	e410	e710	e520	e2470	e1100	e4000	e610	390	312
9	462	1100	497	e400	e730	e500	e2200	e1200	e2900	e530	414	265
10	349	1040	505	e400	e760	e470	e2000	e1400	e2850	e470	381	270
11	294	1000	473	e410	e790	e440	e2300	e1600	e2780	e420	380	293
12	251	1030	471	e410	e800	e420	e2500	e2000	e7200	e390	367	259
13	256	1000	521	e410	e800	e411	e2500	e1700	e9200	e340	316	252
14	242	1180	534	e415	e840	e412	e2400	e1360	e5930	e300	330	252
15	221	1720	513	e430	e880	e443	e2300	e1500	e4050	e280	345	307
16	230	2230	511	e500	e900	e654	e2200	e1600	e6000	e300	366	248
17	10400	1960	501	e500	e950	e898	e2150	e1760	e5000	e400	e314	250
18	13400	1560	505	e500	e800	e856	e2100	e1720	e4000	e500	e310	245
19	4100	1250	e446	e500	e700	e865	e2060	e1500	e3000	e880	e305	259
20	1750	1090	e400	e500	e620	e688	e2020	e1300	e2500	e980	e300	249
21	1080	1020	e350	e500	e550	e543	e2000	e1100	e2130	e1100	e300	240
22	791	949	e300	e480	e500	e420	e2300	e1000	e2000	e1200	e300	229
23	629	928	e320	e450	e450	e377	e2800	e950	e1900	e900	e295	217
24	527	859	e360	e420	e430	e358	e3200	e915	e1770	e650	e300	206
25	480	835	e400	e400	e470	e342	e3400	e850	e1750	e570	e305	199
26	444	835	e450	e410	e500	e328	e2280	e800	e1720	e500	e315	206
27	403	769	e450	e420	e520	e306	e2000	e750	e1700	e440	e330	238
28	385	737	e480	e440	e520	e309	e1690	e700	e1690	e420	e360	266
29	410	711	e500	e460	---	e306	e1610	e600	e1500	e400	e400	260
30	679	677	e470	e480	---	e300	e1500	e500	e1400	e400	e407	249
31	738	---	e440	e500	---	e293	---	e420	---	e420	e425	---
TOTAL	42202	32427	14863	13640	18420	15279	58601	36595	87240	20277	11236	8461
MEAN	1361	1081	479	440	658	493	1953	1180	2908	654	362	282
MAX	13400	2230	639	500	950	898	3400	2000	9200	1300	481	417
MIN	204	677	300	400	430	293	300	420	380	280	295	199
AC-FT	83710	64320	29480	27050	36540	30310	116200	72590	173000	40220	22290	16780

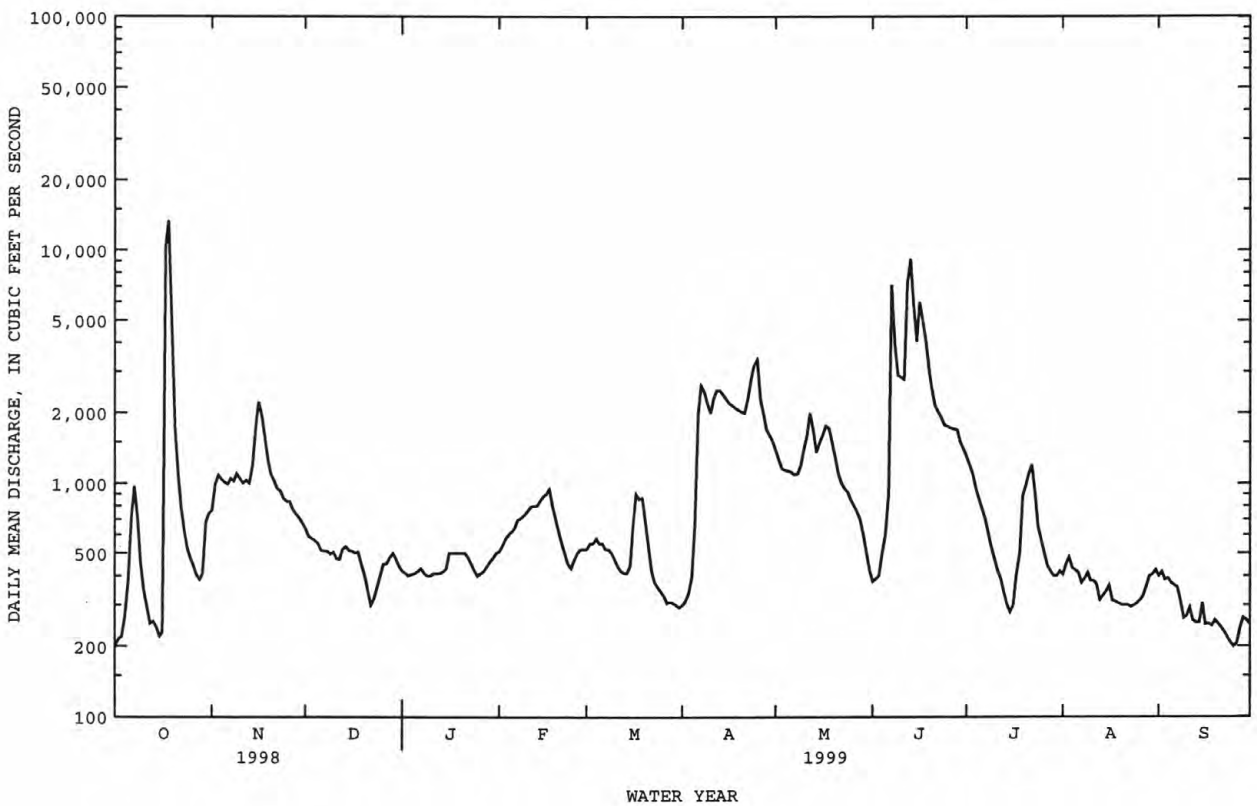
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1999, BY WATER YEAR (WY)*

MEAN	140	87.1	56.0	46.1	192	487	499	1073	870	369	280	229
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	.016	.45	29.7	13.4	13.6	76.1	34.0	.77	2.65
(WY)	1962	1960	1962	1991	1991	1981	1981	1961	1961	1960	1961	1961

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1954 - 1999*	
ANNUAL TOTAL	235170		359241			
ANNUAL MEAN	644		984		361a	
HIGHEST ANNUAL MEAN					1036	1996
LOWEST ANNUAL MEAN					28.4	1961
HIGHEST DAILY MEAN	19300	Jun 19	13400	Oct 18	35700	May 28 1996
LOWEST DAILY MEAN	36	Jan 14	199	Sep 25	.00	Jun 5 1961b
ANNUAL SEVEN-DAY MINIMUM	40	Jan 12	219	Sep 21	.00	Aug 9 1961
INSTANTANEOUS PEAK FLOW			19700	Oct 17	45100	Jun 8 1964c
INSTANTANEOUS PEAK STAGE			12.27	Oct 17	18.22	May 21 1982
ANNUAL RUNOFF (AC-FT)	466500		712600		261600	
10 PERCENT EXCEEDS	1040		2040		700	
50 PERCENT EXCEEDS	339		520		108	
90 PERCENT EXCEEDS	112		300		20	

* Regulated period only (1954-99). See REMARKS.
a Median of annual mean discharges, 340 ft^3/s.
b No flow for many days in 1961-62, 1981, 1991.
c Gage height, 15.90 ft.



06438500 CHEYENNE RIVER NEAR PLAINVIEW, SD

LOCATION.--Lat 44°31'51", long 101°55'43", in NW¼ NW¼ NE¼ 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.

DRAINAGE AREA.--21,640 mi^2, approximately.

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 sea level, from topographic map. Prior to October 1994 at site 3 mi upstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flows regulated by: Angostura Dam, 167 mi upstream on the Cheyenne River (see station 06401000) since October 1949 significantly affect peak flows; Pactola Reservoir, 25.4 mi upstream from Rapid City (see station 06411000) since June 1963; Keyhole Reservoir (see station 06427000) near Moorcroft, WY, since Oct. 25, 1952; and Belle Fourche Reservoir near Belle Fourche (see station 06435000) since May 1910. Flow also affected by diversions for irrigation of about 70,000 acres and return flow from irrigated areas. 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 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	514	1880	1550	e800	e1100	882	523	3550	1060	3510	923	888
2	533	2040	1490	e700	e1200	866	527	3320	1020	3570	4570	832
3	547	2160	1410	e610	e1230	844	592	3240	1110	3040	2110	843
4	620	2500	1250	e540	e1220	849	661	3170	3160	2700	1520	1180
5	3190	4150	1190	e550	e1110	862	904	2900	2230	2550	1280	1600
6	3560	3960	1140	e560	e1100	886	1830	2800	2770	2400	1170	1010
7	2120	3480	1040	e580	e1100	886	3560	2720	7560	2300	1080	848
8	1690	3780	1020	e590	e1130	861	3940	2650	7730	2180	1050	789
9	1280	3930	975	e580	e1200	877	5490	2440	6320	1960	1110	716
10	1000	3860	1000	e590	e1500	888	3750	2380	4970	1780	1040	672
11	870	3280	940	e600	e2000	852	5820	3230	4800	1650	1030	662
12	809	3110	927	e620	e2600	877	6430	3960	9930	1400	955	672
13	768	3050	918	e620	e2800	857	4880	3940	12500	1200	890	629
14	748	3180	965	e620	e2900	854	3670	3340	13500	1100	879	612
15	722	4020	940	e630	e2700	1010	2990	3260	11100	1030	837	606
16	728	4820	896	e630	e2400	1550	2600	3900	15900	975	824	639
17	4280	4740	895	e630	e1900	2520	2270	3730	14900	1030	812	592
18	24800	4020	858	e630	1480	2950	2120	3690	11400	1280	760	586
19	14200	3670	e725	e670	1300	2690	2030	3460	9640	1360	723	579
20	6260	3110	e625	e710	1320	2310	1800	3050	9260	1880	707	592
21	3730	2840	e525	e720	1140	1770	1720	2540	8220	2310	697	584
22	2540	2620	e450	e710	1100	1240	1830	2710	7980	2520	692	583
23	1940	2530	e400	e690	1030	959	2880	4070	6610	1660	685	562
24	1610	2460	e490	e640	991	849	4730	3000	5780	1360	698	547
25	1490	2330	e570	e610	998	807	4760	2510	4950	1140	683	528
26	1490	2030	e640	e640	930	732	4950	2400	4400	1040	671	511
27	1440	e1860	e740	e700	906	651	5500	2040	4170	1050	676	510
28	1400	1740	e830	e750	888	611	5140	1670	3890	958	711	539
29	1650	1690	e910	e800	---	572	4390	1490	4240	855	703	567
30	2140	1630	e915	e900	---	564	3880	1330	3890	793	775	580
31	2060	---	e880	e990	---	532	---	1190	---	759	942	---
TOTAL	90729	90470	28104	20610	41273	34458	96167	89680	204990	53340	32203	21058
MEAN	2927	3016	907	665	1474	1112	3206	2893	6833	1721	1039	702
MAX	24800	4820	1550	990	2900	2950	6430	4070	15900	3570	4570	1600
MIN	514	1630	400	540	888	532	523	1190	1020	759	671	510
AC-FT	180000	179400	55740	40880	81860	68350	190700	177900	406600	105800	63870	41770

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1981, 1995 - 1999, BY WATER YEAR (WY)

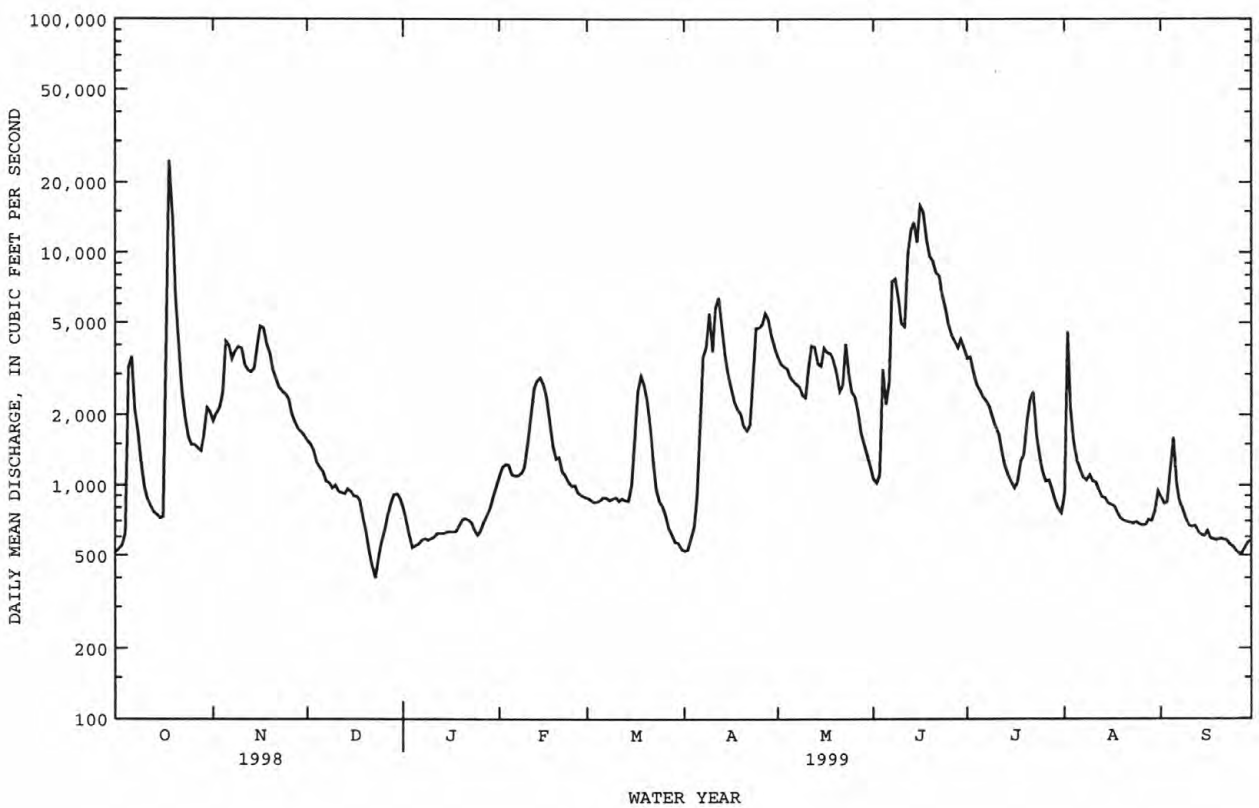
MEAN	334	269	172	153	479	1008	1050	1927	2172	781	522	385
MAX	2927	3016	907	954	4980	4359	4788	8471	8981	2585	1949	1110
(WY)	1999	1999	1999	1997	1997	1978	1997	1995	1967	1962	1997	1955
MIN	39.2	93.8	28.6	10.0	42.1	124	71.3	83.3	172	61.8	48.0	16.2
(WY)	1962	1960	1962	1962	1979	1981	1961	1961	1961	1960	1961	1961

e Estimated

06438500 CHEYENNE RIVER NEAR PLAINVIEW, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1951-1981, 1995-1999	
ANNUAL TOTAL	544883		803082			
ANNUAL MEAN	1493		2200		771a	
HIGHEST ANNUAL MEAN					2417	1997
LOWEST ANNUAL MEAN					97.2	1961
HIGHEST DAILY MEAN	24800	Oct 18	24800	Oct 18	61200	May 28 1996
LOWEST DAILY MEAN	170	Jan 12	400	Dec 23	.00	Dec 14 1961b
ANNUAL SEVEN-DAY MINIMUM	186	Jan 8	529	Dec 20	1.0	Jan 17 1962
INSTANTANEOUS PEAK FLOW			27500	Oct 18	69700	May 28 1996
INSTANTANEOUS PEAK STAGE			17.27	Oct 18	22.10	May 28 1996
ANNUAL RUNOFF (AC-FT)	1081000		1593000		558600	
10 PERCENT EXCEEDS	3180		4320		1580	
50 PERCENT EXCEEDS	874		1200		282	
90 PERCENT EXCEEDS	376		604		78	

a Median of annual mean discharges, 650 ft^3/s.
b Also Dec. 19-21, 1961.



06439000 CHERRY CREEK NEAR PLAINVIEW, SD

LOCATION.--Lat 44°44'35", long 102°03'11", in SW¼ NE¼ 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 mi^2, 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. Datum of gage is 2,157.91 ft above sea level. 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 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

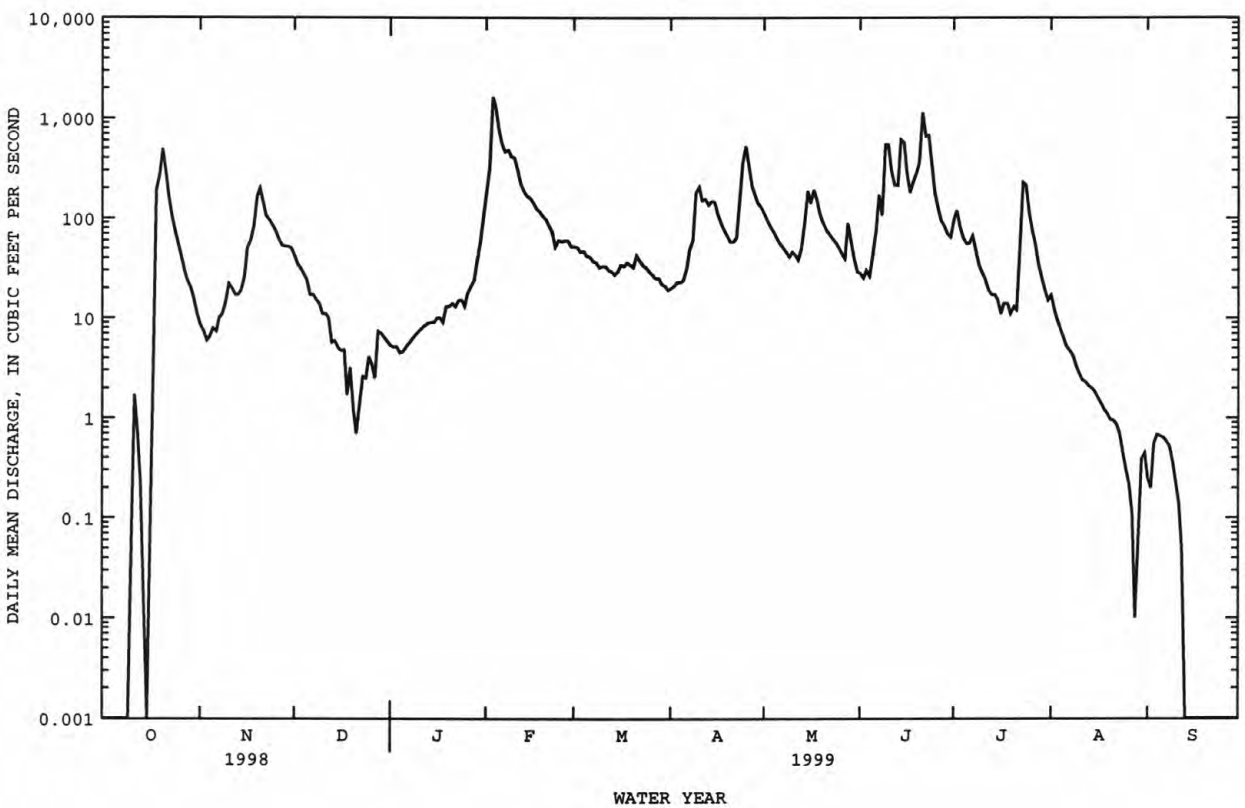
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	8.5	42	e5.3	e185	e52	20	110	28	96	17	.25
2	.00	7.4	34	e5.1	e320	e51	21	94	25	119	12	.20
3	.00	6.0	31	e5.2	e1620	e46	23	82	30	81	9.4	.55
4	.00	6.5	27	e4.5	e1270	e47	23	73	26	63	7.7	.68
5	.00	7.9	24	e4.6	754	e42	24	63	45	55	6.3	.66
6	.00	7.3	17	e5.2	539	e41	31	56	75	56	5.2	.63
7	.00	10	e17	e5.6	463	e37	49	51	172	66	4.7	.58
8	.00	11	e15	e6.2	483	e36	60	46	107	48	4.2	.52
9	.00	14	e14	e6.7	e413	e32	182	41	547	34	3.3	.36
10	.02	22	e11	e7.2	e402	e33	207	46	545	28	2.8	.23
11	1.7	20	e11	e7.8	e299	e33	151	43	297	24	2.4	.14
12	.72	17	e10	e8.3	e216	e30	155	38	216	19	2.3	.05
13	.22	17	e5.7	e8.8	e186	e29	136	50	212	17	2.1	.00
14	.03	19	e5.9	e9.0	e166	e27	147	90	613	17	2.0	.00
15	.00	26	e5.0	e9.0	e157	29	145	189	572	15	1.8	.00
16	.27	51	e4.7	e10	e142	34	109	141	281	11	1.6	.00
17	17	60	e4.8	e10	e125	33	89	192	180	14	1.4	.00
18	190	83	e1.7	e9.0	e115	36	76	149	229	14	1.2	.00
19	279	163	e3.2	e13	e104	34	66	109	283	11	1.1	.00
20	492	199	e1.2	e13	e97	32	58	88	361	13	.96	.00
21	291	141	e.70	e14	e83	43	58	75	1140	12	.94	.00
22	164	104	e1.4	e13	e73	37	64	68	657	46	.85	.00
23	104	95	e2.6	e15	e52	34	164	62	675	227	.69	.00
24	73	84	e2.5	e15	e60	32	360	57	338	216	.46	.00
25	55	73	e4.1	e13	e58	29	527	51	179	112	.31	.00
26	41	61	e3.4	e18	e59	27	320	44	122	74	.22	.00
27	29	53	e2.5	e21	e59	25	211	39	93	52	.11	.00
28	23	52	e7.4	e24	e52	25	167	89	82	34	.01	.00
29	20	52	e7.0	e37	---	22	140	58	69	25	.09	.00
30	15	50	e6.3	e57	---	21	126	39	64	19	.39	.00
31	11	---	e5.8	e101	---	19	---	29	---	15	.45	---
TOTAL	1806.96	1520.6	328.90	481.5	8552	1048	3909	2362	8263	1633	93.98	4.85
MEAN	58.3	50.7	10.6	15.5	305	33.8	130	76.2	275	52.7	3.03	.16
MAX	492	199	42	101	1620	52	527	192	1140	227	17	.68
MIN	.00	6.0	.70	4.5	52	19	20	29	25	11	.01	.00
AC-FT	3580	3020	652	955	16960	2080	7750	4690	16390	3240	186	9.6
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1999, BY WATER YEAR (WY)												
MEAN	5.17	1.99	.92	1.19	31.4	172	151	139	118	29.3	8.66	.84
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	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1946	1946	1946	1946	1946	1957	1957	1955	1955	1949	1946	1946

e Estimated

06439000 CHERRY CREEK NEAR PLAINVIEW, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1946 - 1999	
ANNUAL TOTAL	13762.84		30003.79			
ANNUAL MEAN	37.7		82.2		55.0a	
HIGHEST ANNUAL MEAN					269	1997
LOWEST ANNUAL MEAN					.000	1961
HIGHEST DAILY MEAN	916	Jun 22	1620	Feb 3	13800	Apr 2 1952
LOWEST DAILY MEAN	.00	Aug 31	.00	Oct 1	.00	Oct 1 1945b
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 31	.00	Oct 1	.00	Oct 1 1945
INSTANTANEOUS PEAK FLOW			1900	Feb 3	17500	Apr 1 1952
INSTANTANEOUS PEAK STAGE			12.80	Feb 3c	22.63	Apr 1 1952
ANNUAL RUNOFF (AC-FT)	27300		59510		39870	
10 PERCENT EXCEEDS	103		202		62	
50 PERCENT EXCEEDS	11		28		.00	
90 PERCENT EXCEEDS	.00		.21		.00	

a Median of annual mean discharges, 29 ft^3/s.
b No flow for long periods in most years.
c Backwater from ice.



06439430 COTTONWOOD CREEK NEAR CHERRY CREEK, SD

LOCATION.--Lat 44°40'28", long 101°24'16", in NW¼ NW¼ NE¼ sec.12, T.8 N., R.22 E., Ziebach County, Hydrologic Unit 10120112, on right bank at upstream side of highway bridge, 2.1 mi upstream from mouth, and 6.7 mi northeast of Cherry Creek.

DRAINAGE AREA.--120 mi^2, approximately.

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,810 ft above sea level, 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 4,200 ft^3/s, May 18, 1982, gage height, 13.03 ft, from slope-area measurement of peak flow.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.00	.00	.00	e.00	e.15	e2.0	.14	1.7	.03	.00	.00	.00
2	e.00	.00	.00	e.00	e.30	2.1	.14	1.2	.01	.01	.00	.00
3	e.00	.00	.00	e.00	e.90	1.8	.15	.90	.00	.00	.00	.60
4	e.00	.00	.00	e.00	e2.2	1.1	.16	1.2	.00	.01	.00	.87
5	e.00	.00	.00	e.00	e5.6	.96	.14	1.6	6.0	.00	.00	.00
6	e.00	.00	.00	e.00	e17	.61	.14	1.6	42	.00	.00	.00
7	e.00	.00	.00	e.00	e30	.46	.14	5.8	41	.00	.00	.00
8	e.00	.00	.00	e.00	e105	.42	.14	4.0	19	.00	.00	.00
9	e.00	.04	.00	e.00	e80	.54	.14	3.7	10	.00	.00	.00
10	e.00	.04	e.00	e.00	e50	.33	2.3	41	5.4	.00	.00	.00
11	e.00	.00	e.00	e.00	e20	.28	2.9	73	3.3	.00	.00	.00
12	e.00	.00	e.00	e.00	e23	.34	2.1	25	1.7	.00	.00	.00
13	e.00	.00	e.00	e.00	e34	.36	.95	17	.74	.00	.00	.00
14	e.00	.00	e.00	e.00	e28	.50	.74	19	.38	.00	.00	.00
15	.00	.00	e.00	e.00	e11	.61	.67	78	.21	.00	.00	.00
16	.01	.00	e.00	e.00	e12	.57	.47	66	.12	.00	.00	.00
17	.23	.00	e.00	e.00	12	.91	.33	25	.06	5.8	.00	.00
18	.02	.00	e.00	e.00	9.5	.78	.34	14	.05	1.6	.00	.00
19	.01	.00	e.00	e.00	e8.0	.73	.24	9.7	.03	.09	.00	.00
20	.00	.00	e.00	e.00	e7.0	.50	.17	5.9	.01	.01	.00	.00
21	.00	.00	e.00	e.00	e5.0	.39	.67	3.5	.00	.00	.00	.00
22	.00	.00	e.00	e.00	e2.7	.32	5.5	2.2	.00	.00	.00	.00
23	.00	.00	e.00	e.00	e3.2	.28	4.5	1.3	.00	.00	.00	.00
24	.00	.00	e.00	e.00	e1.8	.24	3.9	.79	.00	.00	.00	.00
25	.00	.00	e.00	e.00	e1.5	.20	5.3	.52	.00	.00	.00	.00
26	.00	.00	e.00	e.00	e2.4	.19	8.4	.37	.00	.00	.00	.00
27	.00	.00	e.00	e.00	4.3	.25	10	.27	.00	.00	.00	.00
28	.00	.00	e.00	e.00	e3.0	.24	6.6	.15	.00	.00	.00	.00
29	.04	.00	e.00	e.00	---	.16	4.5	.11	.00	.00	1.1	.00
30	.00	.00	e.00	e.00	---	.14	2.9	.07	.00	.00	.06	.00
31	.00	---	e.00	e.00	---	.14	---	.05	---	.00	.00	---
TOTAL	0.31	0.08	0.00	0.00	479.55	18.45	64.77	404.63	130.04	7.52	1.16	1.47
MEAN	.010	.003	.000	.000	17.1	.60	2.16	13.1	4.33	.24	.037	.049
MAX	.23	.04	.00	.00	105	2.1	10	78	42	5.8	1.1	.87
MIN	.00	.00	.00	.00	.15	.14	.14	.05	.00	.00	.00	.00
AC-FT	.6	.2	.00	.00	951	37	128	803	258	15	2.3	2.9

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1999, BY WATER YEAR (WY)

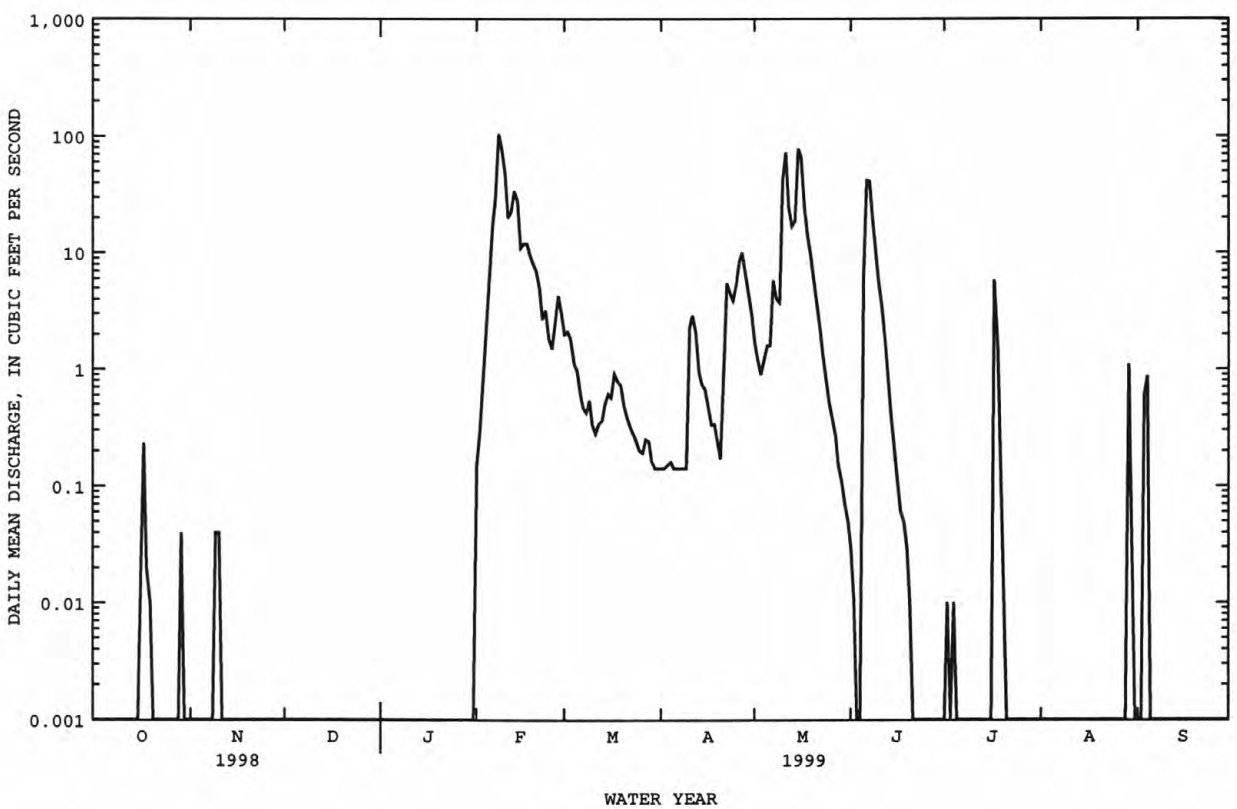
MEAN	.60	.048	.019	.29	13.2	61.3	21.7	20.5	9.14	2.31	1.28	.18
MAX	6.79	.67	.23	4.63	95.8	362	133	113	65.5	20.5	17.1	2.91
(WY)	1997	1997	1997	1995	1997	1987	1997	1986	1984	1993	1987	1996
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1984	1983	1983	1983	1983	1988	1983	1985	1985	1983	1983	1983

e Estimated

06439430 COTTONWOOD CREEK NEAR CHERRY CREEK, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1983 - 1999	
ANNUAL TOTAL	215.22		1107.98			
ANNUAL MEAN	.59		3.04		10.9a	
HIGHEST ANNUAL MEAN					46.3	1997
LOWEST ANNUAL MEAN					.000	1988
HIGHEST DAILY MEAN	13	Mar 22	105	Feb 8	2450	Mar 21 1987
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Oct 1 1982b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Oct 1 1982
INSTANTANEOUS PEAK FLOW			243	May 10	3640	Mar 30 1987
INSTANTANEOUS PEAK STAGE			5.12	May 10	12.58	Mar 30 1987
ANNUAL RUNOFF (AC-FT)	427		2200		7890	
10 PERCENT EXCEEDS	1.9		5.7		7.2	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

a Median of annual mean discharges, 3.3 ft^3/s.
b No flow for long periods in each year.



06439980 LAKE OAHE NEAR PIERRE, SD

LOCATION.--Lat 44°27'30", long 100°23'29", in $NE^1/_4$ 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 mi^2, 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. Datum of gage is above sea level. 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 ft^3/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, 22,149,000 acre-ft, July 11; minimum contents, 18,411,000 acre-ft, Jan. 23.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,610.57	19,732,000	--
Oct. 31	1,609.53	19,532,000	-200,000
Nov. 30	1,609.29	19,402,000	-130,000
Dec. 31	1,607.43	18,782,000	-620,000
CAL YR 1998	--	--	-766,000
Jan. 31	1,606.36	18,484,000	-298,000
Feb. 28	1,607.92	18,964,000	+480,000
Mar. 31	1,609.20	19,275,000	+311,000
Apr. 30	1,611.08	20,000,000	+725,000
May 31	1,615.58	21,538,000	+1,538,000
June 30	1,616.97	22,035,000	+497,000
July 31	1,616.94	22,042,000	+7,000
Aug. 31	1,616.96	21,863,000	-179,000
Sept. 30	1,614.67	21,114,000	-749,000
WTR YR 1999	--	--	+1,382,000

Note.--Lake frozen over Jan. 25 to Mar. 30.

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06440000 MISSOURI RIVER AT PIERRE, SD
(National stream-quality accounting network station)

LOCATION.--Lat 44°22'23", long 100°22'03" in NW¼ SW¼ 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.

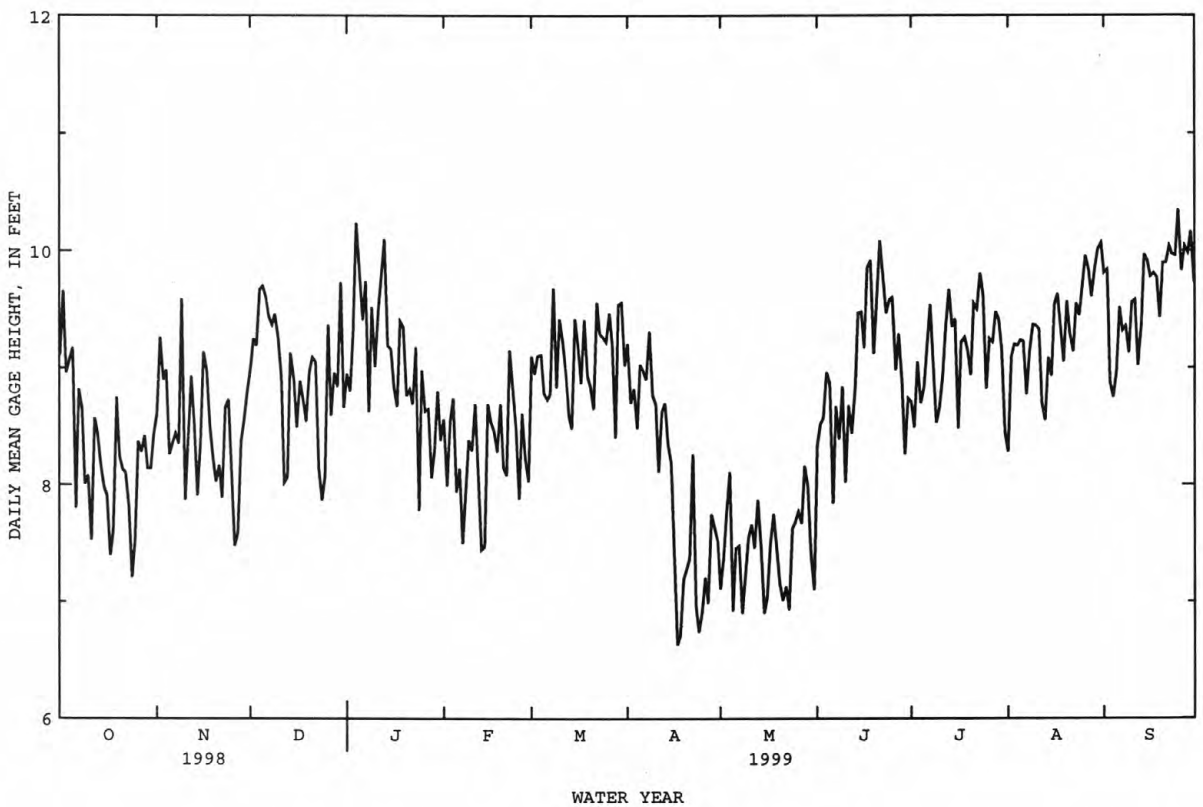
GAGE.--Water-stage recorder. Datum of gage is 1,414.26 ft above sea level. Prior to Mar. 11, 1932, chain gage at same site at datum 2.00 ft higher.

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. Records of daily discharge for 1999 water year provided from U.S. Army Corps of Engineers' files of Oahe Dam (06439980) power and spillway flows.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.11	8.61	8.99	8.95	8.56	9.10	9.21	7.11	8.33	8.71	8.28	9.81
2	9.66	9.26	9.25	8.80	7.99	8.95	8.70	7.37	8.52	8.49	9.09	9.84
3	8.96	8.90	9.19	9.29	8.55	9.10	8.82	7.77	8.57	9.05	9.20	8.88
4	9.07	8.98	9.67	10.24	8.74	9.11	8.48	8.11	8.96	8.70	9.19	8.75
5	9.17	8.26	9.70	9.91	7.94	8.78	9.03	6.92	8.86	8.83	9.24	8.96
6	7.80	8.36	9.61	9.41	8.14	8.73	8.97	7.46	7.84	9.18	9.23	9.52
7	8.82	8.44	9.44	9.74	7.50	8.78	8.90	7.48	8.67	9.54	8.77	9.32
8	8.66	8.35	9.37	8.62	8.02	9.68	9.31	6.90	8.39	9.04	9.15	9.36
9	8.01	9.59	9.46	9.52	8.38	8.83	8.76	7.22	8.84	8.53	9.37	9.13
10	8.08	7.87	9.26	9.01	8.29	9.42	8.69	7.55	8.02	8.66	9.36	9.56
11	7.53	8.44	8.92	9.49	8.69	9.23	8.11	7.66	8.68	8.94	9.33	9.58
12	8.57	8.93	8.02	9.80	8.00	8.96	8.62	7.46	8.44	9.34	8.70	9.02
13	8.44	8.53	8.07	10.10	7.44	8.59	8.70	7.87	8.83	9.67	8.55	9.37
14	8.17	7.91	9.13	9.19	7.47	8.48	8.35	7.46	9.47	9.35	9.09	9.97
15	7.98	8.38	8.90	9.16	8.69	9.42	8.19	6.90	9.48	9.42	8.93	9.91
16	7.91	9.14	8.49	8.84	8.54	9.20	7.53	7.04	9.17	8.48	9.54	9.78
17	7.40	8.98	8.89	8.67	8.46	8.87	6.63	7.50	9.86	9.22	9.63	9.81
18	7.60	8.50	8.74	9.40	8.28	9.41	6.71	7.75	9.92	9.26	9.32	9.77
19	8.75	8.22	8.54	9.35	8.69	8.93	7.19	7.45	9.12	9.15	9.05	9.43
20	8.25	8.03	8.97	8.76	8.15	8.84	7.27	7.16	9.58	8.94	9.57	9.90
21	8.13	8.17	9.09	8.82	8.08	8.65	7.37	7.01	10.09	9.55	9.30	9.90
22	8.10	7.89	9.05	8.69	9.15	9.56	8.26	7.13	9.77	9.50	9.14	10.04
23	7.82	8.66	8.14	9.18	8.83	9.29	6.96	6.93	9.47	9.81	9.55	9.97
24	7.21	8.73	7.87	7.78	8.49	9.26	6.74	7.63	9.58	9.63	9.45	9.96
25	7.52	8.02	8.07	8.98	7.88	9.22	6.91	7.68	9.60	8.82	9.71	10.35
26	8.37	7.48	9.37	8.63	8.61	9.47	7.21	7.77	8.98	9.25	9.96	9.83
27	8.28	7.59	8.59	8.65	8.22	9.20	6.99	7.67	9.29	9.22	9.84	10.04
28	8.42	8.37	8.96	8.06	8.03	8.40	7.75	8.16	8.88	9.48	9.61	9.98
29	8.14	8.55	8.84	8.29	---	9.54	7.65	7.99	8.26	9.41	9.84	10.17
30	8.14	8.79	9.73	8.80	---	9.56	7.52	7.40	8.74	9.16	10.02	9.73
31	8.43	---	8.66	8.38	---	9.02	---	7.10	---	8.45	10.07	---
MEAN	8.27	8.46	8.93	9.05	8.28	9.08	7.98	7.44	9.01	9.12	9.33	9.65
MAX	9.66	9.59	9.73	10.24	9.15	9.68	9.31	8.16	10.09	9.81	10.07	10.35
MIN	7.21	7.48	7.87	7.78	7.44	8.40	6.63	6.90	7.84	8.45	8.28	8.75

06440000 MISSOURI RIVER AT PIERRE, SD--Continued
(National stream-quality accounting network station)



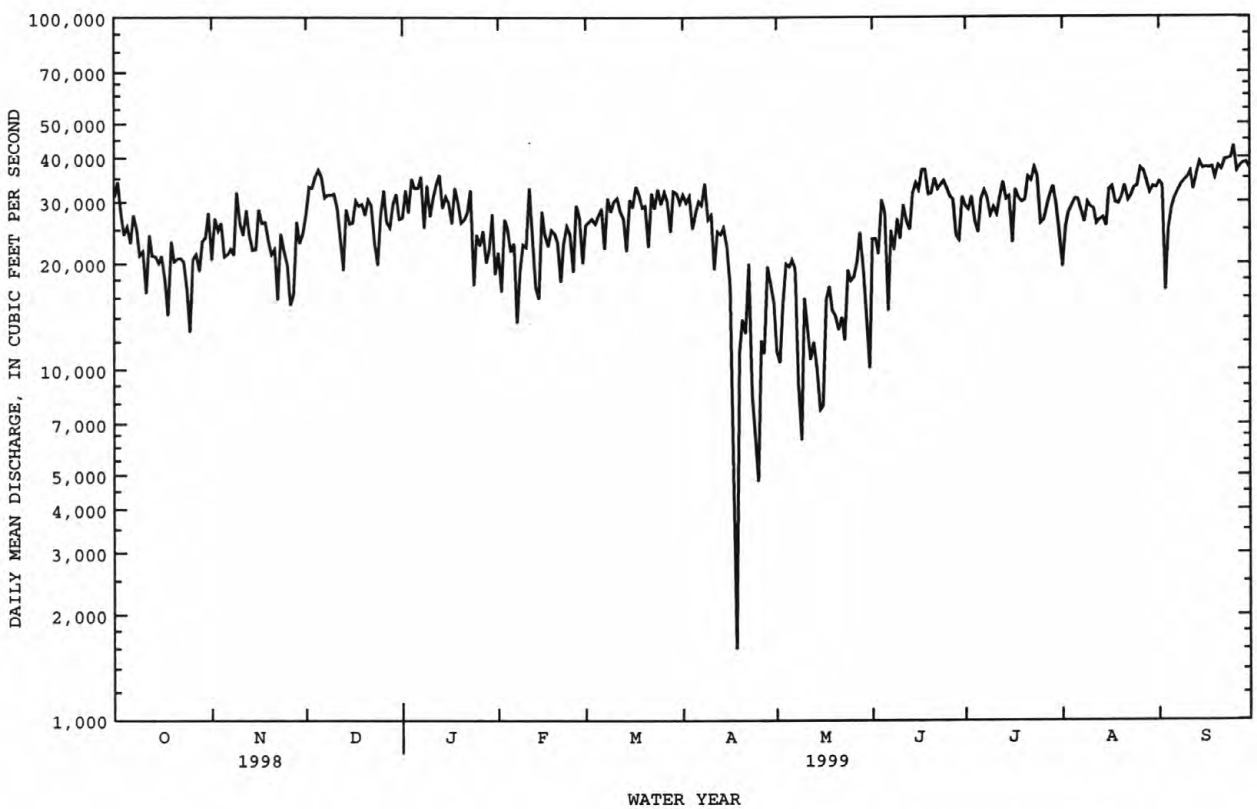
06440000 MISSOURI RIVER AT PIERRE, SD--Continued
(National stream-quality accounting network station)

WATER-DISCHARGE RECORDS

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31100	20500	27800	27100	21600	25800	31500	11300	23500	29200	19600	34100
2	34300	27000	33200	32500	16700	26400	29900	10500	23600	28500	25600	33300
3	28200	24900	32900	28000	26800	26900	31300	15400	21300	31100	28100	16800
4	24200	26200	35500	35000	25200	26000	25200	20000	30400	26400	29400	25200
5	25600	21000	37100	32800	21700	27500	27800	19600	27900	24600	30600	28900
6	22900	21300	35300	32900	22900	28800	30100	20500	14700	30500	30500	30900
7	27600	22100	30800	35500	13600	22100	29400	19400	24900	32300	28300	32200
8	25100	21200	31500	25400	19300	30800	33900	9100	21900	30800	26300	33600
9	21200	32000	31400	33600	22700	28200	26800	6300	26900	27500	29900	34300
10	21800	25900	31700	27400	22300	30100	27700	16000	23600	29000	29000	35000
11	16500	24200	28700	31100	32900	30800	19300	13100	29500	27600	28700	36600
12	24200	28500	23600	33700	22600	28200	24800	10700	26400	30900	26000	32500
13	21100	24300	19200	35900	17200	26900	24300	12000	25000	34200	26700	36100
14	21000	21900	28700	28900	15900	21800	25400	10100	31700	30500	27100	38800
15	20100	22000	26000	31100	28300	30500	22500	7700	33900	31100	25600	37200
16	21100	28600	26200	29800	24300	29000	17200	7900	32400	22900	32500	37500
17	18000	26100	30300	26100	22500	33200	3800	15800	37100	32500	33100	37300
18	14300	26300	29300	33000	25000	31400	1600	17300	37000	30600	29800	37600
19	23200	23200	29700	29900	24400	29000	11200	14700	31500	30000	29600	35100
20	20300	21300	27600	26200	23100	29400	13900	14200	31700	30400	31000	37900
21	20700	22100	30500	26800	17800	22400	12700	13000	35000	35300	33400	36900
22	20800	15800	29400	28000	22900	31900	20000	14100	32600	34400	30300	39300
23	20300	24400	23000	32500	25600	28800	8500	12100	33600	37500	31200	39600
24	16900	21800	19900	17400	24300	32700	6300	19200	34400	35400	32900	39800
25	12800	19900	27400	24300	19000	29600	4800	17900	32900	26000	33300	43200
26	20700	15300	32400	22600	29400	32000	12100	18400	31000	26600	37400	36600
27	21400	16400	26300	24900	27100	30200	11100	20300	30500	29100	36700	37800
28	19100	26400	25400	20200	20100	24700	19700	24600	24000	31300	34300	38500
29	23200	22900	29700	21900	---	32200	17800	19600	23300	33200	31900	38800
30	23800	24400	31700	27800	---	31800	15500	13500	31000	29700	33100	37300
31	28000	---	26900	18700	---	29800	---	10100	---	24600	32800	---
TOTAL	689500	697900	899100	881000	635200	888900	586100	454400	863200	933700	934700	1058700
MEAN	22240	23260	29000	28420	22690	28670	19540	14660	28770	30120	30150	35290
MAX	34300	32000	37100	35900	32900	33200	33900	24600	37100	37500	37400	43200
MIN	12800	15300	19200	17400	13600	21800	1600	6300	14700	22900	19600	16800
AC-FT	1368000	1384000	1783000	1747000	1260000	1763000	1163000	901300	1712000	1852000	1854000	2100000

06440000 MISSOURI RIVER AT PIERRE, SD--Continued
(National stream-quality accounting network station)



06440000 MISSOURI RIVER AT PIERRE, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1953 to April 1958, April to September 1964, July 1971 to August 1986, January 1997 to current year.

REMARKS.--Water-quality samples are collected about 0.25 mi below Oahe Dam, about 5.55 mi upstream from the stage-gaging station for this site. 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 1999, field duplicate samples were collected for suspended-sediment analyses for quality-control purposes. On June 9, 1999, in addition to the primary sample (time 1140), a field duplicate sample (time 1150) 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. 28, 1999, 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 Dec. 1, 1998, and Feb. 2, 1999, 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 1998 TO SEPTEMBER 1999

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 (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)
DEC												
01...	1310	18000	680	8.1	20.0	8.5	.55	724	10.9	98	210	63
a01...	1320	--	--	--	--	--	--	--	--	--	--	--
FEB												
02...	1030	26400	730	8.1	5.0	1.0	.52	724	14.7	109	230	73
a02...	1040	--	--	--	--	--	--	--	--	--	--	--
MAR												
24...	1040	39000	744	8.3	4.0	2.0	1.0	730	14.5	110	220	68
a24...	1050	--	--	--	--	--	--	--	--	--	--	--
APR												
28...	1000	31300	714	8.4	12.0	4.5	1.8	736	11.4	91	220	61
a28...	1010	--	--	--	--	--	--	--	--	--	--	--
JUN												
09...	1140	40200	730	8.3	20.0	14.5	1.5	724	10.3	107	230	66
a09...	1150	--	--	--	--	--	--	--	--	--	--	--
b09...	1150	--	--	--	--	--	1.5	--	--	--	230	--
AUG												
17...	1040	43100	774	8.4	28.0	21.0	.32	736	8.0	93	240	85
a17...	1050	--	--	--	--	--	--	--	--	--	--	--

DATE	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ALKA-LINITY WAT.DIS FET LAB CACO3 (MG/L) (29801)	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)
DEC											
01...	150	160	51	21	62	38	2	4.3	183	0	190
a01...	--	--	--	--	--	--	--	--	--	--	--
FEB											
02...	154	160	55	21	66	38	2	4.4	188	0	210
a02...	--	--	--	--	--	--	--	--	--	--	--
MAR											
24...	152	160	53	21	64	38	2	4.5	182	2	210
a24...	--	--	--	--	--	--	--	--	--	--	--
APR											
28...	158	160	52	21	63	38	2	4.4	193	0	210
a28...	--	--	--	--	--	--	--	--	--	--	--
JUN											
09...	161	160	55	22	66	38	2	4.2	182	7	200
a09...	--	--	--	--	--	--	--	--	--	--	--
b09...	--	160	55	22	66	38	2	4.3	--	--	200
AUG											
17...	158	160	59	23	73	39	2	4.2	178	7	220
a17...	--	--	--	--	--	--	--	--	--	--	--

a Field duplicate suspended sediment sample collected for quality-control purposes.
b Field duplicate inorganic and organic constituents sample collected for quality-control purposes.

06440000 MISSOURI RIVER AT PIERRE, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)
DEC											
01...	9.0	.38	6.3	430	476	23100	.005	.25	.15	.001	.071
a01...	--	--	--	--	--	--	--	--	--	--	--
FEB											
02...	10	.51	6.3	465	481	34300	.013	.18	.19	.001	.063
a02...	--	--	--	--	--	--	--	--	--	--	--
MAR											
24...	11	.47	5.8	461	492	51800	.004	.21	.25	.002	.071
a24...	--	--	--	--	--	--	--	--	--	--	--
APR											
28...	10	.47	5.6	459	482	40700	.013	.20	E.10	.002	.052
a28...	--	--	--	--	--	--	--	--	--	--	--
JUN											
09...	10	.49	5.1	462	481	52200	.013	.50	.31	.002	.045
a09...	--	--	--	--	--	--	--	--	--	--	--
b09...	10	.47	5.1	--	490	--	.010	.21	.22	.002	.045
AUG											
17...	10	.48	5.1	495	509	59200	.010	.27	.19	.001	.014
a17...	--	--	--	--	--	--	--	--	--	--	--

DATE	NITROGEN, NITRATE DISSOLVED (MG/L AS N) (00618)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ANTIMONY, DISSOLVED (UG/L AS SB) (01095)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM DISSOLVED (UG/L AS CD) (01025)
DEC											
01...	.070	<.050	<.050	.004	<1.0	<1.0	2	36	<1.0	105	<1.0
a01...	--	--	--	--	--	--	--	--	--	--	--
FEB											
02...	.062	--	.004	.003	--	--	2	--	--	109	--
a02...	--	--	--	--	--	--	--	--	--	--	--
MAR											
24...	.069	--	<.004	.001	--	--	2	--	--	109	--
a24...	--	--	--	--	--	--	--	--	--	--	--
APR											
28...	.050	.012	<.004	.001	--	--	2	--	--	110	--
a28...	--	--	--	--	--	--	--	--	--	--	--
JUN											
09...	.043	.006	<.004	.001	--	--	2	--	--	105	--
a09...	--	--	--	--	--	--	--	--	--	--	--
b09...	.043	.005	<.004	.001	--	--	2	--	--	112	--
AUG											
17...	.013	.004	<.004	<.001	--	--	1	--	--	117	--
a17...	--	--	--	--	--	--	--	--	--	--	--

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, DISSOLVED (UG/L AS AG) (01075)
DEC											
01...	<1.0	<1.0	1.5	<10	<1.0	45	3.8	2.6	2.2	<1	<1.0
a01...	--	--	--	--	--	--	--	--	--	--	--
FEB											
02...	--	--	--	<10	--	43	--	--	--	<1	--
a02...	--	--	--	--	--	--	--	--	--	--	--
MAR											
24...	--	--	--	<10	--	45	--	--	--	<1	--
a24...	--	--	--	--	--	--	--	--	--	--	--
APR											
28...	--	--	--	<10	--	43	--	--	--	<1	--
a28...	--	--	--	--	--	--	--	--	--	--	--
JUN											
09...	--	--	--	<10	--	45	--	--	--	<1	--
a09...	--	--	--	--	--	--	--	--	--	--	--
b09...	--	--	--	<10	--	44	--	--	--	<1	--
AUG											
17...	--	--	--	<10	--	53	--	--	--	1	--
a17...	--	--	--	--	--	--	--	--	--	--	--

a Field duplicate suspended sediment sample collected for quality-control purposes.
b Field duplicate inorganic and organic constituents sample collected for quality-control purposes.

06440000 MISSOURI RIVER AT PIERRE, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	URANIUM NATURAL DISSOLVED (UG/L AS U) (22703)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	ACETOCHLOR, WATER FLTRD REC (UG/L) (49260)	ALACHLOR, WATER, DISS, REC, (UG/L) (46342)	2,6-DIETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ATRAZINE, WATER, DISS, REC (UG/L) (39632)	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L) (04040)
DEC											
01...	498	3.3	<10	<1.0	3.3	<.20	<.0020	<.002	<.0030	.008	E.0025
a01...	--	--	--	--	--	--	--	--	--	--	--
FEB											
02...	532	--	<10	--	3.2	<.20	<.0020	<.002	<.0030	.009	<.0020
a02...	--	--	--	--	--	--	--	--	--	--	--
MAR											
24...	521	--	<10	--	3.3	<.20	<.0020	<.002	<.0030	.006	E.0015
a24...	--	--	--	--	--	--	--	--	--	--	--
APR											
28...	525	--	<10	--	3.4	<.20	<.0020	<.002	<.0030	.008	E.0017
a28...	--	--	--	--	--	--	--	--	--	--	--
JUN											
09...	530	--	<10	--	3.3	.30	<.0020	E.003	<.0030	.015	E.0033
a09...	--	--	--	--	--	--	--	--	--	--	--
b09...	535	--	<10	--	3.3	<.20	<.0020	E.003	<.0030	.016	<.0020
AUG											
17...	563	--	<10	--	3.3	<.20	<.0020	<.002	<.0030	.020	E.0040
a17...	--	--	--	--	--	--	--	--	--	--	--

DATE	METHYL AZINPHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	BENFLURALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	ALPHA BHC DISSOLVED (UG/L) (34253)	BUTYLATE, WATER, DISS, REC (UG/L) (04028)	CARBARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBOFURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CYANAZINE, WATER, DISS, REC (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	P,P' DDE DISSOLV (UG/L) (34653)	DIAZINON, DISSOLVED (UG/L) (39572)	DIELDRIN DISSOLVED (UG/L) (39381)
DEC											
01...	<.0010	<.0020	<.0020	<.0020	<.0030	<.0030	.0042	<.0020	<.0060	<.002	<.001
a01...	--	--	--	--	--	--	--	--	--	--	--
FEB											
02...	<.0010	<.0020	<.0020	<.0020	<.0030	<.0030	E.0037	<.0020	<.0060	<.002	<.001
a02...	--	--	--	--	--	--	--	--	--	--	--
MAR											
24...	<.0010	<.0020	<.0020	<.0020	<.0030	<.0030	E.0033	<.0020	<.0060	<.002	<.001
a24...	--	--	--	--	--	--	--	--	--	--	--
APR											
28...	<.0010	<.0020	<.0020	<.0020	<.0030	<.0030	.0056	<.0020	<.0060	<.002	<.001
a28...	--	--	--	--	--	--	--	--	--	--	--
JUN											
09...	<.0010	<.0020	<.0020	<.0020	<.0030	<.0030	<.0040	<.0020	<.0060	<.002	<.001
a09...	--	--	--	--	--	--	--	--	--	--	--
b09...	<.0010	<.0020	<.0020	<.0020	<.0030	<.0030	.0083	<.0020	<.0060	<.002	<.001
AUG											
17...	<.0010	<.0020	<.0020	<.0020	<.0030	<.0030	.0045	<.0020	<.0060	<.002	<.001
a17...	--	--	--	--	--	--	--	--	--	--	--

DATE	DISULFOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHALFLURALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHOPROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	LINDANE DISSOLVED (UG/L) (39341)	LINURON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALATHION, DISSOLVED (UG/L) (39532)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOLINATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)
DEC											
01...	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005	E.002	<.004	<.0040
a01...	--	--	--	--	--	--	--	--	--	--	--
FEB											
02...	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005	.004	<.004	<.0040
a02...	--	--	--	--	--	--	--	--	--	--	--
MAR											
24...	<.0170	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005	E.003	<.004	<.0040
a24...	--	--	--	--	--	--	--	--	--	--	--
APR											
28...	<.0170	.0047	<.0040	<.0030	<.0030	<.004	<.0020	<.005	.004	<.004	<.0040
a28...	--	--	--	--	--	--	--	--	--	--	--
JUN											
09...	<.0170	E.0033	<.0040	<.0030	<.0030	<.004	<.0020	<.005	.005	<.004	<.0040
a09...	--	--	--	--	--	--	--	--	--	--	--
b09...	<.0170	E.0027	<.0040	<.0030	<.0030	<.004	<.0020	<.005	.005	<.004	<.0040
AUG											
17...	<.0170	E.0017	<.0040	<.0030	<.0030	<.004	<.0020	<.005	E.002	<.004	<.0040
a17...	--	--	--	--	--	--	--	--	--	--	--

a Field duplicate suspended sediment sample collected for quality-control purposes.
b Field duplicate inorganic and organic constituents sample collected for quality-control purposes.

06440000 MISSOURI RIVER AT PIERRE, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	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)	PROP-CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO-PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)
DEC											
01...	<.004	<.0060	<.0030	<.0040	<.0040	<.0050	<.0020	<.0180	<.0030	<.0070	<.0040
a01...	--	--	--	--	--	--	--	--	--	--	--
FEB											
02...	<.004	<.0060	<.0030	<.0040	<.0040	<.0050	<.0020	<.0180	<.0030	<.0070	<.0040
a02...	--	--	--	--	--	--	--	--	--	--	--
MAR											
24...	<.004	<.0060	<.0030	<.0040	<.0040	<.0050	<.0020	E.0018	<.0030	<.0070	<.0040
a24...	--	--	--	--	--	--	--	--	--	--	--
APR											
28...	<.004	<.0060	<.0030	<.0040	<.0040	<.0050	<.0020	E.0024	<.0030	<.0070	<.0040
a28...	--	--	--	--	--	--	--	--	--	--	--
JUN											
09...	<.004	<.0060	<.0030	<.0040	<.0040	<.0050	<.0020	E.0039	<.0030	<.0070	<.0040
a09...	--	--	--	--	--	--	--	--	--	--	--
b09...	<.004	<.0060	<.0030	<.0040	<.0040	<.0050	<.0020	E.0042	<.0030	<.0070	<.0040
AUG											
17...	<.004	<.0060	<.0030	<.0040	<.0040	<.0050	<.0020	<.0180	<.0030	<.0070	<.0040
a17...	--	--	--	--	--	--	--	--	--	--	--

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)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
DEC										
01...	<.0130	<.0050	<.0100	<.0070	<.0130	<.0020	<.0010	<.0020	1	92
a01...	--	--	--	--	--	--	--	--	1	96
FEB										
02...	<.0130	<.0050	<.0100	<.0070	<.0130	<.0020	<.0010	<.0020	<1	100
a02...	--	--	--	--	--	--	--	--	<1	94
MAR										
24...	<.0130	<.0050	<.0100	<.0070	<.0130	<.0020	<.0010	<.0020	1	93
a24...	--	--	--	--	--	--	--	--	1	85
APR										
28...	<.0130	<.0050	<.0100	<.0070	<.0130	<.0020	<.0010	<.0020	1	100
a28...	--	--	--	--	--	--	--	--	1	81
JUN										
09...	<.0130	<.0050	<.0100	<.0070	<.0130	<.0020	<.0010	E.0022	3	82
a09...	--	--	--	--	--	--	--	--	1	90
b09...	<.0130	<.0050	<.0100	<.0070	<.0130	<.0020	<.0010	<.0020	--	--
AUG										
17...	--	<.0050	<.0100	<.0070	<.0130	<.0020	<.0010	<.0020	1	88
a17...	--	--	--	--	--	--	--	--	1	73

a Field duplicate suspended sediment sample collected for quality-control purposes.
b Field duplicate inorganic and organic constituents sample collected for quality-control purposes.

06440000 MISSOURI RIVER AT PIERRE, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)	PHOS-PHORUS ORTHO, 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)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
DEC												
c01...	1318	.002	<.001	<.025	<.020	.002	<.001	<.005	.002	<.30	<.20	<.20
FEB												
c02...	1038	--	--	--	--	--	--	--	--	--	--	--

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)	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)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)
DEC												
c01...	<.20	<2.0	<.30	<.20	<.20	<.20	<3.0	<.30	<.10	<.20	<.50	<.20
FEB												
c02...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	THAL-LIUM, DIS-SOLVED (UG/L AS TL) (01057)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	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 SUS-PENDED 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)
DEC												
c01...	<.10	<.10	.74	<.20	--	--	--	--	--	--	--	--
FEB												
c02...	--	--	--	--	.10	<.20	<.0020	<.002	<.0030	<.001	<.0020	<.0010

DATE	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-PYRIFOS 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)
DEC												
c01...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
c02...	<.0020	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020	<.0060	<.002	<.001	<.0170

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)
DEC												
c01...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
c02...	<.0020	<.0040	<.0030	<.0030	<.004	<.0020	<.005	<.002	<.004	<.0040	<.004	<.0060

DATE	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)	PROP-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)
DEC										
c01...	--	--	--	--	--	--	--	--	--	--
FEB										
c02...	<.0030	<.0040	<.0040	<.0050	<.0020	<.0180	<.0030	<.0070	<.0040	<.0130

c Field blank sample collected for quality-control purposes.

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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 NE¼ SW¼ SE¼ 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 mi^2.

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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	11	1.7	e.30	e1.0	1.2	1.3	11	1.8	5.6	.23	17
2	.17	6.2	1.7	e.25	e2.0	.99	1.3	7.4	1.7	3.0	39	4.8
3	.17	3.9	1.6	e.20	e3.0	.75	1.3	5.4	1.7	2.2	103	12
4	.88	3.4	1.3	e.20	e5.0	.64	1.3	4.2	39	1.9	10	130
5	40	14	1.1	e.25	7.7	e.56	1.4	3.1	212	1.7	3.8	136
6	430	64	.99	e.20	6.3	e.50	1.3	2.5	1380	1.9	2.4	45
7	116	48	.94	e.20	5.0	e.59	2.8	2.1	755	1.3	1.4	12
8	24	33	.78	e.20	4.8	e.65	4.0	1.8	188	.79	.74	5.7
9	9.6	77	.68	e.22	3.5	e.75	2.4	1.5	69	.67	32	2.5
10	4.6	145	.61	e.24	4.0	e.80	13	1.9	38	.40	6.7	1.2
11	2.5	46	.69	e.26	3.7	e.92	127	2.2	28	.36	2.9	.62
12	1.3	30	.69	e.28	3.6	1.1	421	67	22	.29	1.0	.36
13	.69	31	.66	e.26	1.9	1.1	122	28	21	.25	.47	.22
14	.38	38	.63	e.24	1.6	1.3	52	30	17	.22	.23	.14
15	1.7	123	.68	e.26	1.5	2.6	25	387	22	.16	.11	.16
16	2.2	82	.65	e.28	1.5	44	15	688	56	.10	.06	.16
17	4.1	42	.60	e.30	1.5	204	11	192	35	.17	.04	.15
18	282	23	.55	e.30	1.4	75	8.4	78	19	.39	.01	.18
19	144	14	e.50	e.32	1.4	26	6.2	37	11	48	.00	.19
20	34	9.2	e.40	e.34	1.3	15	4.7	22	7.4	8.5	.01	.18
21	14	6.3	e.35	e.32	1.2	10	4.5	15	4.8	3.3	.01	.16
22	7.8	4.9	e.30	e.30	1.1	7.4	4.9	14	3.5	1.6	.02	.10
23	4.2	3.6	e.25	e.26	.97	5.8	46	164	2.9	.95	.00	.09
24	3.0	3.7	e.20	e.24	1.0	4.4	53	78	2.3	.52	.00	.09
25	2.2	3.1	e.25	e.22	1.0	3.5	18	32	1.9	.36	.00	.07
26	1.7	3.1	e.30	e.20	1.2	2.9	17	16	1.4	.26	.00	.06
27	1.5	3.2	e.40	e.18	1.5	2.4	140	10	1.4	.19	.00	.05
28	1.6	2.6	e.45	e.16	1.6	2.3	92	6.9	1.9	.07	.01	.04
29	3.0	2.3	e.50	e.18	---	1.7	38	4.4	1.6	.06	.03	.03
30	75	1.7	e.40	e.20	---	1.5	19	2.8	5.3	.06	5.5	.04
31	24	---	e.35	e.50	---	1.2	---	2.1	---	.07	17	---
TOTAL	1236.38	878.2	21.20	7.86	71.27	421.55	1254.8	1917.3	2951.6	85.34	226.67	369.29
MEAN	39.9	29.3	.68	.25	2.55	13.6	41.8	61.8	98.4	2.75	7.31	12.3
MAX	430	145	1.7	.50	7.7	204	421	688	1380	48	103	136
MIN	.09	1.7	.20	.16	.97	.50	1.3	1.5	1.4	.06	.00	.03
AC-FT	2450	1740	42	16	141	836	2490	3800	5850	169	450	732

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)

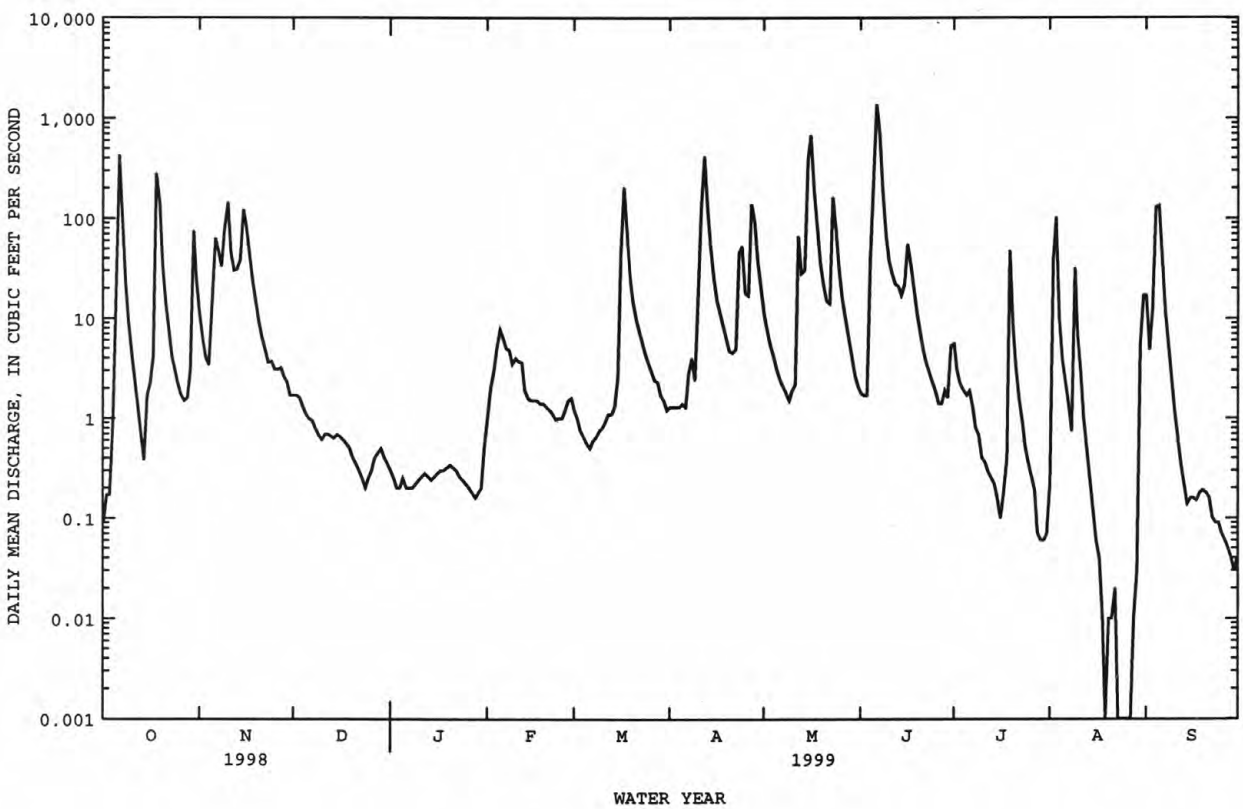
MEAN	7.59	3.99	.59	1.08	55.2	30.8	18.4	97.3	81.1	17.2	13.5	4.33
MAX	39.9	29.3	3.50	4.46	555	105	51.3	324	347	99.5	72.6	12.3
(WY)	1999	1999	1994	1994	1997	1993	1995	1995	1991	1997	1997	1999
MIN	.000	.000	.000	.000	.000	.64	.017	1.39	.015	.21	.000	.013
(WY)	1991	1990	1991	1989	1989	1991	1990	1989	1989	1989	1989	1990

e Estimated

06440200 SOUTH FORK BAD RIVER NEAR COTTONWOOD, SD--Continued
(Formerly published as Buffalo Creek near Cottonwood)

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1989 - 1999	
ANNUAL TOTAL	8479.36		9441.46			
ANNUAL MEAN	23.2		25.9		27.4a	
HIGHEST ANNUAL MEAN					94.5	1997
LOWEST ANNUAL MEAN					1.98	1989
HIGHEST DAILY MEAN	539	Jun 15	1380	Jun 6	3990	May 31 1991
LOWEST DAILY MEAN	.05	Jan 12	.00	Aug 19b	.00	Oct 2 1988c
ANNUAL SEVEN-DAY MINIMUM	.05	Sep 7	.00	Aug 21	.00	Oct 2 1988
INSTANTANEOUS PEAK FLOW			2120	Jun 6	15200	May 31 1991
INSTANTANEOUS PEAK STAGE			12.35	Jun 6	17.89	May 31 1991
ANNUAL RUNOFF (AC-FT)	16820		18730		19840	
10 PERCENT EXCEEDS	56		48		31	
50 PERCENT EXCEEDS	1.4		1.7		.24	
90 PERCENT EXCEEDS	.08		.16		.00	

a Median of annual mean discharges, 18 ft^3/s.
b Also Aug. 23-27.
c No flow for many days in most years.



06441000 BAD RIVER NEAR MIDLAND, SD

LOCATION.--Lat 44°04'01", long 101°09'36", in NE¼ NW¼ 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 mi^2, 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 sea level. 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 fair except those for estimated daily discharges, which are poor. Only daily discharges above 100 ft^3/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 ft^3/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 ft^3/s; no flow for many days in each year.

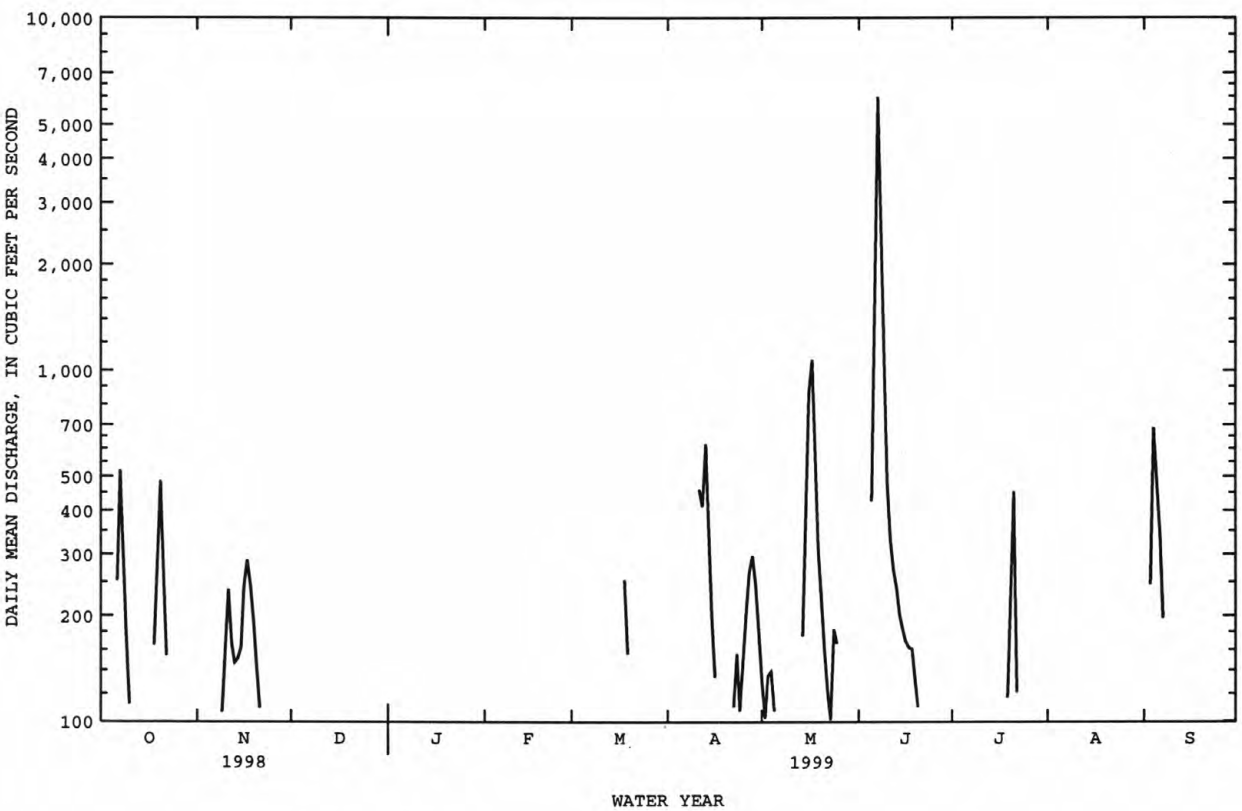
EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,100 ft^3/s, June 7, gage height, 22.63 ft, from floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	e105	---	---	---	---	---	130	---	---	---	---
2	---	---	---	---	---	---	---	102	---	---	---	---
3	---	---	---	---	---	---	---	135	---	---	---	e246
4	---	---	---	---	---	---	---	139	---	---	---	687
5	---	---	---	---	---	---	---	107	426	---	---	476
6	252	---	---	---	---	---	---	---	2030	---	---	337
7	520	---	---	---	---	---	---	---	5980	---	---	e197
8	316	---	---	---	---	---	---	---	2470	---	---	---
9	176	e106	---	---	---	---	---	---	902	---	---	---
10	e112	173	---	---	---	---	---	---	481	---	---	---
11	---	238	---	---	---	---	459	---	331	---	---	---
12	---	167	---	---	---	---	411	---	271	---	---	---
13	---	147	---	---	---	---	618	---	239	---	---	---
14	---	151	---	---	---	---	324	175	202	---	---	---
15	---	162	---	---	---	---	199	400	183	---	---	---
16	---	242	---	---	---	---	134	865	169	---	---	---
17	---	289	---	---	---	---	---	1070	162	---	---	---
18	165	246	---	---	---	254	---	578	161	---	---	---
19	288	192	---	---	---	156	---	311	130	e117	---	---
20	485	144	---	---	---	---	---	226	110	215	---	---
21	259	e109	---	---	---	---	---	158	---	453	---	---
22	154	---	---	---	---	---	110	120	---	e121	---	---
23	---	---	---	---	---	---	156	101	---	---	---	---
24	---	---	---	---	---	---	107	183	---	---	---	---
25	---	---	---	---	---	---	144	167	---	---	---	---
26	---	---	---	---	---	---	209	---	---	---	---	---
27	---	---	---	---	---	---	269	---	---	---	---	---
28	---	---	---	---	---	---	297	---	---	---	---	---
29	---	---	---	---	---	---	248	---	---	---	---	---
30	---	---	---	---	---	---	173	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---
AC-FT	---	---	---	---	---	---	---	---	---	---	---	---

e Estimated

06441000 BAD RIVER NEAR MIDLAND, SD--Continued



06441500 BAD RIVER NEAR FORT PIERRE, SD

LOCATION.--Lat 44°19'36", long 100°23'02", in NW¼ NW¼ 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 mi^2.

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 sea level. Prior to July 10, 1951, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. U.S. Weather Service gage-height telemeter and 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 ft^3/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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	243	94	e18	e18	112	45	362	80	48	25	322
2	15	226	91	e17	e20	108	42	291	69	68	23	408
3	13	164	86	e16	e25	98	41	259	71	58	20	11900
4	17	135	80	e15	e28	87	43	235	65	50	17	8390
5	30	115	78	e14	e30	85	49	2020	386	46	16	4730
6	23	100	73	e13	e40	79	56	3700	484	48	213	1980
7	118	94	e60	e12	e50	e67	62	2600	1050	58	60	979
8	293	92	e62	e11	e60	e65	69	1400	3410	46	42	536
9	470	149	e60	e10	e70	63	72	938	4000	38	31	350
10	232	233	e61	e9.0	e80	67	267	2160	1410	33	25	245
11	170	189	e62	e9.5	e85	65	456	1390	817	29	21	190
12	134	245	e62	e9.0	e80	65	556	926	544	27	16	152
13	107	321	e61	e9.5	e90	80	802	615	411	27	12	107
14	90	333	e60	e9.5	e100	92	738	729	332	27	9.5	85
15	78	272	e60	e10	e110	97	639	1080	286	26	8.7	70
16	92	286	e59	e10	e115	106	413	1020	251	25	13	57
17	168	286	e61	e11	e120	129	314	1100	225	20	10	47
18	95	363	e48	e11	e125	136	255	1230	199	19	8.2	39
19	190	322	e45	e12	e125	141	210	1000	186	17	6.7	34
20	236	282	e40	e12	e123	237	174	629	171	15	5.8	28
21	439	240	e35	e11	e122	178	186	446	148	49	5.4	24
22	357	204	e30	e11	e120	135	527	358	126	293	5.3	21
23	231	182	e28	e10	e120	109	527	299	104	216	4.6	19
24	170	162	e27	e9.5	e122	93	371	263	88	123	4.0	18
25	134	151	e26	e9.0	e123	79	361	232	75	81	3.5	17
26	115	133	e25	e9.5	e122	71	592	279	62	53	3.0	17
27	97	121	e24	e9.5	121	64	493	237	54	41	2.4	15
28	87	112	e23	e10	118	60	477	193	55	38	2.2	14
29	124	107	e22	e11	---	54	451	152	53	34	11	13
30	107	101	e21	e11	---	49	450	118	50	49	1530	13
31	251	---	e20	e15	---	47	---	88	---	35	422	---
TOTAL	4694	5963	1584	355.0	2462	2918	9738	26349	15262	1737	2576.3	30820
MEAN	151	199	51.1	11.5	87.9	94.1	325	850	509	56.0	83.1	1027
MAX	470	363	94	18	125	237	802	3700	4000	293	1530	11900
MIN	11	92	20	9.0	18	47	41	88	50	15	2.2	13
AC-FT	9310	11830	3140	704	4880	5790	19320	52260	30270	3450	5110	61130

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1999, BY WATER YEAR (WY)

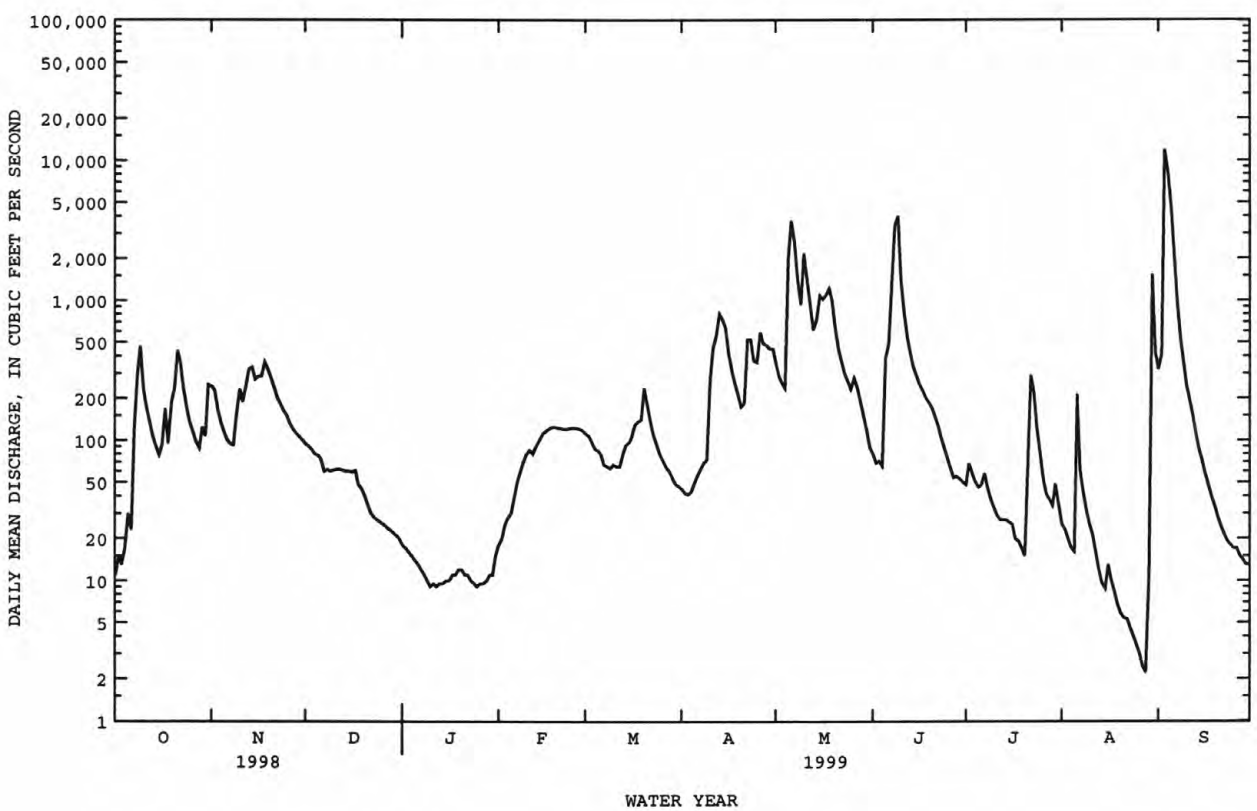
MEAN	19.7	5.74	2.27	12.2	138	524	426	424	377	83.2	50.9	38.5
MAX	295	199	51.1	434	3436	4480	7306	6663	2567	561	706	1027
(WY)	1983	1999	1999	1997	1997	1997	1952	1942	1967	1937	1930	1999
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1929	1929	1929	1929	1936	1934	1934	1980	1930	1930	1929	1929

e Estimated

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1929 - 1999	
ANNUAL TOTAL	85176.7		104458.3			
ANNUAL MEAN	233		286		175a	
HIGHEST ANNUAL MEAN					1203	1997
LOWEST ANNUAL MEAN					6.07	1980
HIGHEST DAILY MEAN	3080	Jun 18	11900	Sep 3	27200	May 1 1942
LOWEST DAILY MEAN	9.7	Sep 30	2.2	Aug 28	.00	Oct 1 1928b
ANNUAL SEVEN-DAY MINIMUM	11	Sep 25	3.6	Aug 22	.00	Oct 1 1928
INSTANTANEOUS PEAK FLOW			14700	Sep 3	43800	Jun 18 1967
INSTANTANEOUS PEAK STAGE			22.44	Sep 3	29.55	Jun 18 1967
ANNUAL RUNOFF (AC-FT)	168900		207200		126800	
10 PERCENT EXCEEDS	504		507		238	
50 PERCENT EXCEEDS	95		81		.76	
90 PERCENT EXCEEDS	21		11		.00	

a Median of annual mean discharges, 110 ft^3/s.
b No flow for long periods in most years.



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.--Records fair. 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 Dec. 7 to Feb. 26 and Mar. 7-8. 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, 37,300 mg/L, Aug. 30; minimum daily mean, 30 mg/L, Sept. 30.
SEDIMENT LOAD: Maximum daily, 541,000 tons, Sept. 3; minimum daily, 0.79 ton, Aug. 28.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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	11	e58	1.8	243	e1920	1260	94	133	34
2	15	74	2.9	226	e1820	1120	91	199	49
3	13	54	1.9	164	e1400	621	86	140	32
4	17	78	3.7	135	e1060	384	80	e106	23
5	30	91	7.4	115	e798	247	78	90	19
6	23	62	3.9	100	e603	164	73	111	22
7	118	272	123	94	e456	116	e60	167	27
8	293	799	856	92	e345	85	e62	148	25
9	470	e19800	24800	149	e870	429	e60	129	21
10	232	17100	10700	233	e1630	1030	e61	135	22
11	170	e12000	5550	189	1100	562	e62	e135	23
12	134	e8280	3010	245	1020	676	e62	e132	22
13	107	e5720	1660	321	e4190	3800	e61	e130	21
14	90	e3950	960	333	6740	6150	e60	133	22
15	78	e2730	572	272	3250	2390	e60	154	25
16	92	e4920	1510	286	2210	1700	e59	127	20
17	168	14500	6900	286	e1970	1530	e61	128	21
18	95	e3540	926	363	e2660	2600	e48	e126	16
19	190	4550	2520	322	e1850	1610	e45	e122	15
20	236	e5730	3690	282	1160	883	e40	e119	13
21	439	4480	5380	240	1030	669	e35	e115	11
22	357	e3850	3720	204	978	540	e30	e112	9.1
23	231	e3120	1950	182	711	351	e28	e109	8.2
24	170	e2530	1170	162	611	266	e27	e105	7.7
25	134	2050	745	151	641	262	e26	e102	7.2
26	115	e1660	513	133	e461	166	e25	e99	6.7
27	97	e1330	350	121	e309	101	e24	e96	6.2
28	87	e1100	259	112	215	65	e23	e93	5.8
29	124	1530	520	107	180	52	e22	e91	5.4
30	107	1160	345	101	150	41	e21	e88	5.0
31	251	2120	1470	---	---	---	e20	e85	4.6
TOTAL	4694	---	80220.6	5963	---	29870	1584	---	548.9

e Estimated

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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	e18	e83	4.0	e18	e87	4.2	112	e762	232
2	e17	e80	3.7	e20	e102	5.5	108	e729	212
3	e16	e78	3.4	e25	e119	8.0	98	e697	185
4	e15	e76	3.1	e28	e139	11	87	e667	156
5	e14	e74	2.8	e30	e163	13	85	e638	147
6	e13	e71	2.5	e40	e191	21	79	e610	130
7	e12	69	2.2	e50	e224	30	e67	e583	106
8	e11	e66	2.0	e60	e262	42	e65	e558	98
9	e10	e64	1.7	e70	e306	58	63	e533	91
10	e9.0	e61	1.5	e80	e358	77	67	e510	93
11	e9.5	e58	1.5	e85	e420	96	65	e488	85
12	e9.0	e56	1.4	e80	e491	106	65	e478	84
13	e9.5	e53	1.4	e90	e575	140	80	e508	110
14	e9.5	e51	1.3	e100	e673	182	92	e542	135
15	e10	e52	1.4	e110	e787	234	97	e579	152
16	e10	e58	1.6	e115	e921	286	106	e618	178
17	e11	e63	1.9	e120	e1080	349	129	e660	230
18	e11	e70	2.1	e125	1220	412	136	e682	251
19	e12	e76	2.5	e125	e1190	402	141	e651	256
20	e12	e78	2.5	e123	e1140	379	237	e924	592
21	e11	e74	2.2	e122	e1090	359	178	e778	374
22	e11	e70	2.1	e120	e1040	338	135	e648	236
23	e10	e67	1.8	e120	e997	323	109	e540	159
24	e9.5	e63	1.6	e122	e953	314	93	e450	114
25	e9.0	e60	1.5	e123	e912	303	79	e375	80
26	e9.5	e57	1.5	e122	e872	287	71	e313	60
27	e9.5	e54	1.4	121	e834	273	64	e260	45
28	e10	e51	1.4	118	e797	253	60	e217	35
29	e11	e54	1.6	---	---	---	54	e181	26
30	e11	e63	1.9	---	---	---	49	152	20
31	e15	e74	3.0	---	---	---	47	e144	18
TOTAL	355.0	---	64.5	2462	---	5305.7	2918	---	4690
		APRIL			MAY			JUNE	
1	45	e140	17	362	2570	2500	80	128	29
2	42	e137	16	291	e2490	1960	69	e114	23
3	41	e133	15	259	2290	1600	71	579	124
4	43	e133	16	235	e2200	1400	65	186	38
5	49	e152	20	2020	e17400	138000	386	7210	7670
6	56	e176	27	3700	29200	303000	484	e7280	10700
7	62	e204	34	2600	19300	146000	1050	9390	27500
8	69	e236	44	1400	11800	44900	3410	8510	77600
9	72	e273	53	938	7680	19600	4000	4900	55100
10	267	e3570	4230	2160	21900	132000	1410	5790	21800
11	456	e15600	19200	1390	11600	43700	817	5500	12100
12	556	e14300	23600	926	6020	15100	544	3780	5560
13	802	e19300	41800	615	3420	5700	411	2580	2860
14	738	e14900	29600	729	7930	16400	332	e1880	1680
15	639	e16600	28700	1080	12100	35700	286	e1380	1060
16	413	e11100	12400	1020	6600	18300	251	e1010	686
17	314	e7380	6290	1100	4310	12900	225	e744	452
18	255	e4920	3400	1230	7900	26200	199	e547	294
19	210	e3280	1870	1000	9290	25400	186	e402	202
20	174	e2180	1030	629	4780	8230	171	e295	136
21	186	e2080	1120	446	3140	3790	148	e217	87
22	527	e10500	17000	358	2240	2180	126	e159	54
23	527	e20200	28700	299	1530	1240	104	119	34
24	371	e15000	15200	263	924	658	88	e106	25
25	361	e13800	13500	232	621	391	75	e98	20
26	592	22800	36700	279	1100	843	62	e90	15
27	493	e16800	22800	237	500	324	54	e83	12
28	477	e7230	9200	193	e251	131	55	e111	17
29	451	3230	3950	152	160	68	53	188	27
30	450	2450	2970	118	e125	41	50	e184	25
31	---	---	---	88	109	27	---	---	---
TOTAL	9738	---	323502	26349	---	1008283	15262	---	225930

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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	48	162	21	25	e63	4.2	322	8690	8040
2	68	e371	71	23	52	3.2	408	4970	9060
3	58	e319	50	20	e47	2.5	11900	16200	541000
4	50	e206	28	17	e44	2.0	8390	13500	307000
5	46	136	17	16	e41	1.8	4730	7620	102000
6	48	e124	16	213	14700	10900	1980	5080	27600
7	58	e141	22	60	e3720	633	979	3590	9610
8	46	e124	15	42	496	60	536	2260	3340
9	38	109	11	31	e164	14	350	1210	1180
10	33	e112	9.9	25	e156	10	245	e815	563
11	29	e122	9.7	21	e149	8.3	190	e621	323
12	27	e132	9.8	16	e141	6.2	152	e474	193
13	27	142	10	12	e134	4.3	107	e362	106
14	27	e143	10	9.5	e128	3.3	85	e276	64
15	26	e143	10	8.7	e125	3.0	70	e210	40
16	25	e143	9.6	13	e140	4.9	57	e160	25
17	20	e143	7.7	10	e122	3.3	47	e122	16
18	19	144	7.4	8.2	e106	2.3	39	e93	9.9
19	17	e150	6.8	6.7	e91	1.7	34	e71	6.5
20	15	e158	6.2	5.8	82	1.3	28	55	4.2
21	49	190	34	5.4	e96	1.4	24	51	3.3
22	293	2380	2330	5.3	e116	1.7	21	e49	2.8
23	216	932	622	4.6	140	1.7	19	e46	2.3
24	123	e256	87	4.0	e146	1.6	18	e44	2.1
25	81	118	26	3.5	e143	1.3	17	e41	1.9
26	53	e86	12	3.0	e140	1.1	17	e39	1.7
27	41	e76	8.3	2.4	e137	.90	15	e37	1.5
28	38	e67	6.8	2.2	e135	.79	14	e35	1.3
29	34	e59	5.4	11	859	67	13	e33	1.2
30	49	75	10	1530	37300	190000	13	e30	1.1
31	35	e77	7.3	422	28200	31600	---	---	---
TOTAL	1737	---	3496.9	2576.3	---	233346.79	30820	---	1010199.8
YEAR	104458.3		2925458.19						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV								
24...	1400	161	2810	16.5	4.0	--	--	100
FEB								
18...	1020	124	3490	2.0	0.0	1060	355	100
MAR								
30...	0935	49	3380	19.0	10.0	--	--	100
APR								
26...	0910	572	3220	12.5	11.0	22500	34700	99
MAY								
07...	1210	2440	1920	15.5	9.5	17500	115000	99
18...	1400	1240	2960	28.0	17.5	7700	25800	98
JUN								
04...	0910	60	3380	26.5	24.0	160	26	99
08...	1405	3820	--	31.0	22.0	7010	72300	96
23...	1320	101	3080	29.5	26.5	108	29	96
JUL								
30...	0816	35	2620	27.0	27.5	--	--	100
SEP								
03...	1235	14200	--	18.5	17.0	13500	518000	99
08...	1500	498	1780	24.0	19.5	--	--	100
21...	0935	24	2350	13.5	15.0	53	3.5	97

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06441590 MISSOURI RIVER AT LA FRAMBOISE ISLAND, AT PIERRE, SD

LOCATION.--Lat 44°21'07", long 100°21'31", in NW¼ SW¼ NE¼ 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.

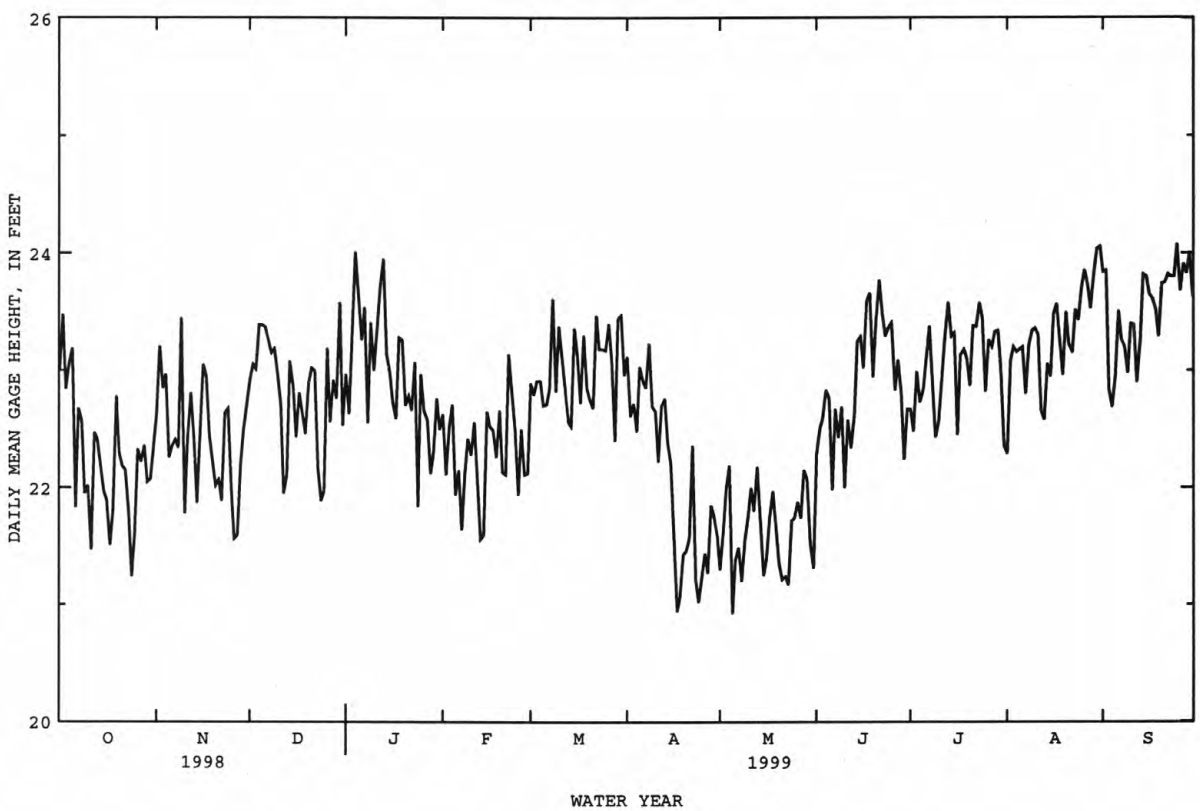
GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above sea level.

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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.00	22.62	22.92	22.97	22.63	22.89	23.12	21.30	22.28	22.67	22.29	23.84
2	23.48	23.21	23.05	22.63	22.11	22.79	22.61	21.62	22.50	22.48	23.08	23.85
3	22.84	22.85	23.01	23.14	22.53	22.91	22.72	21.99	22.59	22.99	23.20	22.84
4	23.06	22.97	23.39	24.01	22.71	22.91	22.48	22.19	22.83	22.73	23.16	22.69
5	23.19	22.26	23.39	23.70	21.94	22.70	23.03	20.92	22.76	22.83	23.18	22.95
6	21.83	22.36	23.37	23.26	22.15	22.71	22.91	21.38	21.98	23.09	23.20	23.51
7	22.68	22.41	23.26	23.54	21.64	22.84	22.85	21.49	22.67	23.38	22.80	23.26
8	22.57	22.34	23.15	22.55	22.13	23.61	23.23	21.20	22.43	22.91	23.22	23.20
9	21.95	23.45	23.19	23.41	22.42	22.82	22.69	21.56	22.69	22.43	23.34	22.98
10	22.02	21.78	22.97	23.00	22.28	23.38	22.65	21.74	22.00	22.56	23.36	23.40
11	21.47	22.42	22.71	23.41	22.56	23.13	22.22	22.00	22.58	22.92	23.30	23.39
12	22.47	22.81	21.95	23.71	21.98	22.87	22.70	21.80	22.34	23.28	22.66	22.90
13	22.41	22.45	22.11	23.95	21.56	22.56	22.76	22.18	22.62	23.58	22.58	23.26
14	22.19	21.87	23.08	23.14	21.60	22.52	22.39	21.74	23.25	23.29	23.06	23.82
15	21.97	22.39	22.86	22.98	22.65	23.36	22.21	21.25	23.29	23.32	22.95	23.80
16	21.89	23.05	22.43	22.73	22.52	23.14	21.64	21.39	23.02	22.45	23.48	23.65
17	21.51	22.95	22.81	22.59	22.49	22.72	20.94	21.75	23.59	23.13	23.57	23.61
18	21.79	22.44	22.64	23.28	22.26	23.30	21.07	21.97	23.66	23.18	23.26	23.52
19	22.78	22.23	22.46	23.26	22.66	22.85	21.43	21.66	22.94	23.10	22.96	23.29
20	22.30	22.02	22.89	22.70	22.13	22.75	21.46	21.35	23.41	22.87	23.50	23.74
21	22.18	22.07	23.02	22.78	22.11	22.68	21.57	21.21	23.77	23.38	23.22	23.75
22	22.15	21.89	23.00	22.66	23.14	23.47	22.36	21.24	23.48	23.37	23.15	23.82
23	21.81	22.64	22.17	23.07	22.81	23.18	21.21	21.17	23.29	23.58	23.52	23.80
24	21.24	22.68	21.89	21.84	22.49	23.18	21.02	21.72	23.37	23.45	23.43	23.80
25	21.59	21.99	21.97	22.97	21.94	23.17	21.23	21.74	23.41	22.82	23.69	24.08
26	22.33	21.56	23.19	22.65	22.50	23.40	21.44	21.88	22.83	23.26	23.86	23.68
27	22.22	21.59	22.56	22.58	22.11	23.08	21.27	21.74	23.09	23.20	23.73	23.91
28	22.36	22.19	22.92	22.12	22.12	22.40	21.85	22.15	22.81	23.33	23.53	23.83
29	22.05	22.49	22.76	22.30	---	23.44	21.76	22.07	22.24	23.34	23.82	24.01
30	22.07	22.70	23.58	22.76	---	23.47	21.59	21.52	22.67	23.00	24.04	23.63
31	22.33	---	22.53	22.50	---	22.96	---	21.31	---	22.35	24.06	---
MEAN	22.25	22.42	22.81	22.97	22.29	23.01	22.08	21.62	22.88	23.04	23.30	23.53
MAX	23.48	23.45	23.58	24.01	23.14	23.61	23.23	22.19	23.77	23.58	24.06	24.08
MIN	21.24	21.56	21.89	21.84	21.56	22.40	20.94	20.92	21.98	22.35	22.29	22.69

06441590 MISSOURI RIVER AT LA FRAMBOISE ISLAND, AT PIERRE, SD--Continued



06441592 MISSOURI RIVER BELOW LA FRAMBOISE ISLAND, AT PIERRE, SD

LOCATION.--Lat 44°20'46", long 100°19'12", in SE¼ SE¼ NW¼ 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 September 1999.

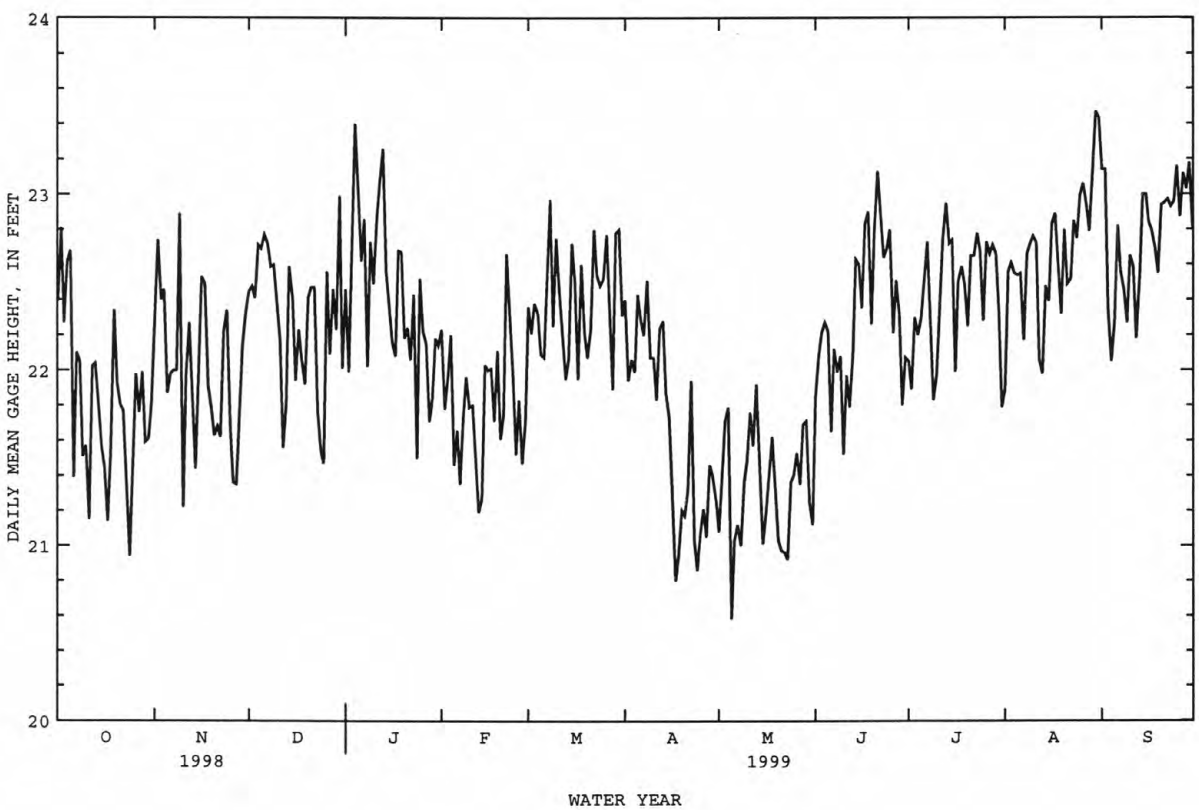
GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above sea level.

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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.39	22.25	22.45	22.46	22.23	22.36	22.40	21.08	21.85	22.05	21.89	23.14
2	22.81	22.74	22.48	21.99	21.78	22.21	21.94	21.41	22.08	21.89	22.56	23.14
3	22.27	22.40	22.41	22.64	21.96	22.38	22.06	21.71	22.21	22.30	22.61	22.35
4	22.62	22.46	22.71	23.40	22.20	22.32	21.99	21.79	22.27	22.20	22.55	22.05
5	22.68	21.87	22.69	23.07	21.46	22.09	22.43	20.58	22.22	22.30	22.54	22.27
6	21.39	21.98	22.77	22.62	21.66	22.07	22.28	21.03	21.65	22.50	22.55	22.82
7	22.10	22.00	22.72	22.86	21.35	22.42	22.20	21.12	22.12	22.73	22.17	22.56
8	22.05	22.00	22.59	22.02	21.73	22.97	22.51	21.00	21.99	22.27	22.66	22.46
9	21.51	22.89	22.60	22.73	21.96	22.25	22.07	21.36	22.08	21.83	22.72	22.27
10	21.57	21.22	22.38	22.49	21.79	22.75	22.07	21.49	21.52	21.97	22.76	22.65
11	21.15	21.97	22.17	22.86	21.80	22.45	21.83	21.76	21.97	22.40	22.72	22.59
12	22.02	22.27	21.56	23.07	21.46	22.22	22.24	21.57	21.79	22.74	22.06	22.18
13	22.04	21.93	21.81	23.26	21.19	21.95	22.28	21.92	22.09	22.95	21.98	22.54
14	21.82	21.44	22.59	22.56	21.27	22.06	21.87	21.49	22.63	22.72	22.48	23.00
15	21.56	22.02	22.41	22.34	22.03	22.72	21.73	21.01	22.60	22.74	22.39	23.00
16	21.45	22.53	21.94	22.16	22.00	22.51	21.27	21.17	22.35	21.99	22.83	22.84
17	21.14	22.49	22.23	22.08	22.01	21.95	20.80	21.41	22.83	22.50	22.89	22.79
18	21.53	21.91	22.06	22.68	21.71	22.60	20.94	21.62	22.90	22.59	22.60	22.69
19	22.34	21.78	21.92	22.67	22.11	22.21	21.20	21.35	22.26	22.49	22.32	22.55
20	21.93	21.63	22.41	22.18	21.61	22.07	21.17	21.03	22.79	22.25	22.80	22.94
21	21.80	21.68	22.47	22.24	21.75	22.23	21.32	20.97	23.13	22.65	22.49	22.95
22	21.77	21.62	22.47	22.06	22.66	22.80	21.94	20.96	22.86	22.65	22.52	22.97
23	21.41	22.22	21.77	22.43	22.28	22.54	21.03	20.92	22.64	22.78	22.85	22.93
24	20.94	22.34	21.54	21.50	21.98	22.48	20.86	21.36	22.69	22.68	22.75	22.96
25	21.41	21.69	21.47	22.52	21.52	22.52	21.07	21.40	22.80	22.28	22.99	23.16
26	21.98	21.36	22.56	22.22	21.83	22.77	21.21	21.53	22.21	22.73	23.06	22.87
27	21.76	21.35	22.09	22.15	21.47	22.40	21.05	21.35	22.51	22.66	22.94	23.12
28	21.99	21.75	22.46	21.71	21.71	21.89	21.46	21.69	22.32	22.71	22.79	23.03
29	21.59	22.14	22.23	21.83	---	22.78	21.40	21.71	21.80	22.66	23.18	23.18
30	21.61	22.33	22.99	22.18	---	22.80	21.26	21.25	22.07	22.35	23.47	22.81
31	21.81	---	22.01	22.14	---	22.31	---	21.12	---	21.79	23.43	---
MEAN	21.82	22.01	22.29	22.42	21.80	22.39	21.66	21.33	22.31	22.43	22.66	22.76
MAX	22.81	22.89	22.99	23.40	22.66	22.97	22.51	21.92	23.13	22.95	23.47	23.18
MIN	20.94	21.22	21.47	21.50	21.19	21.89	20.80	20.58	21.52	21.79	21.89	22.05

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 NW¼ SW¼ NE¼ 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.

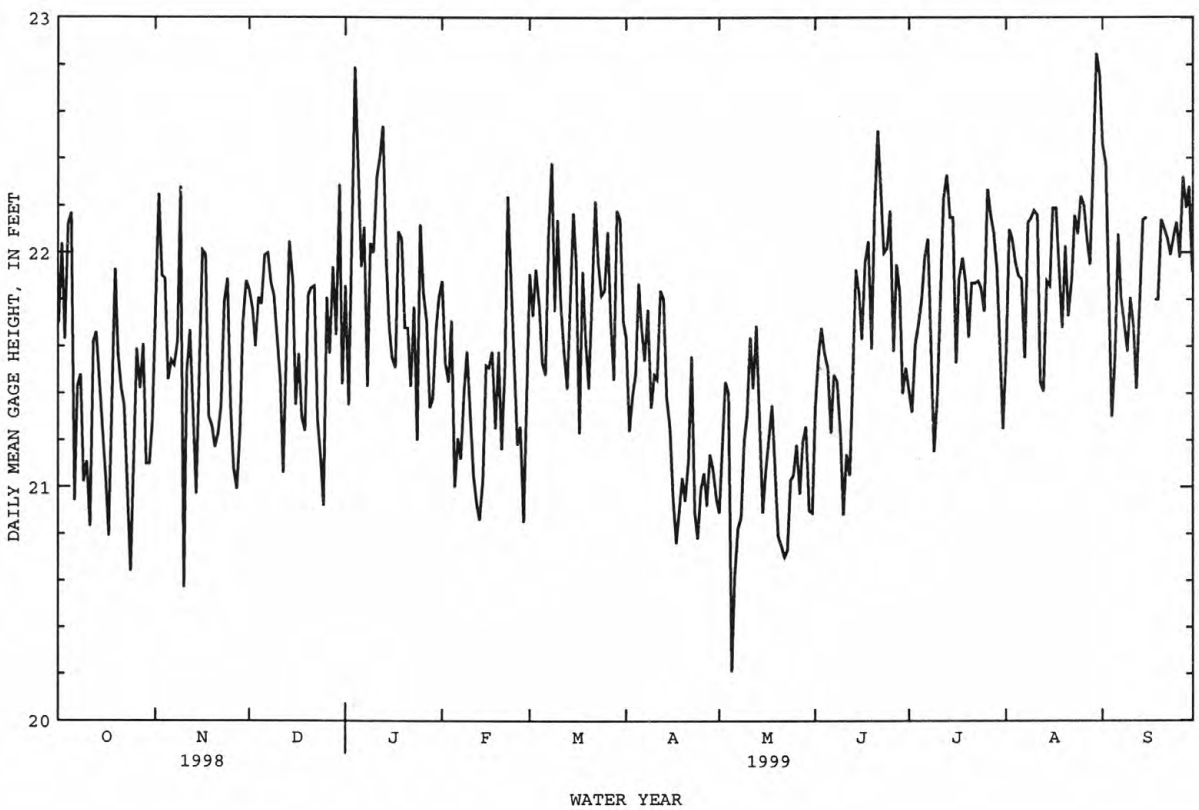
GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above sea level.

REMARKS.--Records fair. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.70	21.82	21.84	21.86	21.88	21.91	21.64	20.89	21.34	21.41	21.55	22.46
2	22.04	22.25	21.76	21.35	21.53	21.73	21.24	21.23	21.56	21.32	22.10	22.38
3	21.63	21.90	21.60	22.11	21.45	21.93	21.39	21.45	21.68	21.61	22.06	21.83
4	22.12	21.89	21.81	22.79	21.71	21.77	21.49	21.40	21.57	21.70	21.96	21.30
5	22.17	21.46	21.78	22.41	21.00	21.53	21.87	20.21	21.51	21.81	21.90	21.55
6	20.94	21.54	21.99	21.94	21.21	21.48	21.67	20.61	21.23	21.98	21.89	22.08
7	21.43	21.52	22.00	22.11	21.12	22.07	21.54	20.82	21.48	22.06	21.55	21.81
8	21.48	21.62	21.87	21.43	21.41	22.38	21.76	20.87	21.45	21.56	22.13	21.69
9	21.02	22.28	21.82	22.04	21.58	21.75	21.34	21.20	21.23	21.15	22.15	21.58
10	21.11	20.57	21.63	22.00	21.34	22.14	21.48	21.31	20.88	21.38	22.18	21.81
11	20.83	21.49	21.46	22.32	21.05	21.78	21.46	21.64	21.14	21.90	22.16	21.69
12	21.62	21.67	21.06	22.40	20.93	21.58	21.84	21.42	21.05	22.23	21.45	21.42
13	21.66	21.33	21.43	22.54	20.86	21.42	21.80	21.69	21.46	22.33	21.41	21.84
14	21.45	20.97	22.05	21.98	21.03	21.71	21.39	21.28	21.93	22.15	21.88	22.14
15	21.22	21.63	21.88	21.68	21.52	22.17	21.26	20.89	21.83	22.15	21.86	22.15
16	21.05	22.01	21.35	21.55	21.51	21.95	20.96	21.06	21.63	21.53	22.19	---
17	20.79	21.99	21.57	21.51	21.58	21.23	20.76	21.21	21.96	21.89	22.19	---
18	21.31	21.30	21.30	22.09	21.25	21.92	20.90	21.35	22.05	21.98	21.89	21.80
19	21.93	21.26	21.24	22.06	21.58	21.61	21.04	21.12	21.59	21.88	21.68	21.80
20	21.57	21.17	21.82	21.68	21.16	21.42	20.94	20.79	22.19	21.64	22.03	22.14
21	21.42	21.23	21.85	21.68	21.49	21.83	21.11	20.75	22.52	21.87	21.73	22.10
22	21.35	21.35	21.86	21.43	22.24	22.22	21.56	20.70	22.24	21.87	21.89	22.06
23	21.04	21.79	21.29	21.77	21.84	21.96	20.89	20.73	22.00	21.88	22.16	21.99
24	20.64	21.89	21.12	21.20	21.51	21.82	20.78	21.03	22.02	21.85	22.08	22.07
25	21.12	21.34	20.92	22.12	21.18	21.84	20.99	21.05	22.18	21.75	22.24	22.13
26	21.59	21.08	21.81	21.83	21.26	22.09	21.06	21.18	21.58	22.27	22.20	21.98
27	21.42	20.99	21.57	21.71	20.85	21.71	20.92	20.97	21.95	22.16	22.05	22.32
28	21.61	21.24	21.94	21.34	21.41	21.46	21.14	21.19	21.83	22.09	21.95	22.19
29	21.10	21.70	21.65	21.38	---	22.18	21.08	21.26	21.40	21.94	22.50	22.28
30	21.10	21.88	22.29	21.67	---	22.14	20.95	20.90	21.51	21.64	22.85	21.92
31	21.27	---	21.44	21.81	---	21.71	---	20.89	---	21.25	22.76	---
MEAN	21.38	21.54	21.65	21.86	21.37	21.82	21.27	21.07	21.67	21.81	22.02	---
MAX	22.17	22.28	22.29	22.79	22.24	22.38	21.87	21.69	22.52	22.33	22.85	---
MIN	20.64	20.57	20.92	21.20	20.85	21.23	20.76	20.21	20.88	21.15	21.41	---

06441595 MISSOURI RIVER AT FARM ISLAND, NEAR PIERRE, SD--Continued



06442700 LAKE SHARPE NEAR FORT THOMPSON, SD

LOCATION.--Lat 44°02'18", long 99°26'45", in SE$^1/_4$ 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 mi^2, approximately.

PERIOD OF RECORD.--July 1963 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is above sea level.

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 ft^3/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 ft^3/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, 1,775,000 acre-ft, May 10, June 14; minimum contents, 1,656,000 acre-ft, Apr. 8.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,420.24	1,702,000	--
Oct. 31	1,420.56	1,718,000	+16,000
Nov. 30	1,420.78	1,725,000	+7,000
Dec. 31	1,419.95	1,688,000	-37,000
CAL YR 1998	--	--	-10,000
Jan. 31	1,421.20	1,755,000	+67,000
Feb. 28	1,421.01	1,743,000	-12,000
Mar. 31	1,420.16	1,697,000	-46,000
Apr. 30	1,420.48	1,703,000	+6,000
May 31	1,420.75	1,730,000	+27,000
June 30	1,420.10	1,694,000	-36,000
July 31	1,420.61	1,720,000	+26,000
Aug. 31	1,421.45	1,768,000	+48,000
Sept. 30	1,420.06	1,692,000	-76,000
WTR YR 1999	--	--	-10,000

NOTE.--Lake frozen over Dec. 31 to Mar. 20.

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06442718 CAMPBELL CREEK NEAR LEE'S CORNER, SD

LOCATION.--Lat 44°04'39", long 99°22'51", in NW¼ NE¼ NW¼ sec.17, T.107 N., R.71 W., Buffalo County, Hydrologic Unit 10140101 (revised), 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 mi^2.

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 sea level.

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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	15	6.0	e.80	e.80	e6.0	1.4	2.9	.80	.30	.01	.80
2	.04	9.2	6.3	e.52	e.90	e4.8	1.4	3.5	.78	.51	.01	161
3	.06	5.4	4.6	e.50	e1.0	e4.5	1.4	7.0	2.4	.33	.01	35
4	3.8	4.0	e2.0	e.35	e.90	e4.0	1.2	525	1.2	.19	.01	135
5	.58	2.6	e1.2	e.50	e1.0	e2.9	1.6	1200	2.9	.12	.01	15
6	.23	1.9	e1.0	e.60	e1.1	e2.5	1.9	318	12	.08	.01	1.5
7	.15	2.1	e.90	e.42	e1.3	e2.0	1.6	155	1.1	.08	.01	.63
8	.08	2.2	e.90	e.36	e1.4	e1.7	2.0	72	.46	.09	.01	.34
9	.07	84	e1.0	e.40	e1.5	e1.5	2.8	56	.33	.07	.01	.22
10	.08	52	e1.2	e.45	e1.5	e1.3	131	1570	.31	.08	.01	.16
11	.21	33	e1.4	e.50	e1.3	e1.2	96	294	.34	.08	e.00	.12
12	.13	31	e1.1	e.45	e.90	e1.2	37	61	.36	.07	e.01	.11
13	.09	31	e1.0	e.40	e.80	e1.4	23	34	.33	.08	e.00	.09
14	.11	51	e1.5	e.45	e1.2	e1.6	14	29	.29	.08	e.00	.09
15	2.4	46	e1.3	e.50	e1.1	e2.1	8.1	28	.29	.07	e.00	.08
16	84	40	e1.1	e.60	e1.0	2.3	5.1	22	.72	.10	e.00	.08
17	224	e19	e1.0	e.60	e1.0	1.9	2.8	17	.39	.03	e.00	.08
18	56	e15	e.95	e.55	e1.1	1.4	2.1	10	2.5	.03	e.00	.08
19	23	e10	e.90	e.55	e1.0	1.2	1.5	4.7	.50	.03	e.00	.09
20	14	9.2	e.85	e.55	e.95	1.3	1.2	1.9	.33	.07	e.00	.08
21	8.0	7.5	e.75	e.50	e.90	1.2	23	1.2	.25	.02	e.00	.07
22	4.3	4.3	e.75	e.50	e.85	1.2	40	1.1	.21	.03	e.00	.08
23	2.5	7.2	e.80	e.45	e.80	1.1	14	.95	.21	.02	e.00	.07
24	2.0	6.6	e.84	e.35	e45	1.0	9.2	.80	.23	.02	e.00	.08
25	1.4	6.9	e.88	e.30	111	.93	6.4	.67	.18	.01	e.00	.10
26	1.1	3.8	e.90	e.35	41	.97	21	.63	.16	.01	e.00	.13
27	1.1	2.8	e.95	e.45	16	1.3	10	.59	.15	.01	e.00	.14
28	9.1	2.4	e1.0	e.50	e11	1.8	5.4	.59	.31	.01	e.00	.15
29	84	2.3	e.80	e.55	---	1.0	4.5	.58	.27	.01	.01	.16
30	26	4.4	e.70	e.60	---	1.2	3.2	.58	.56	.01	375	.17
31	32	---	e.75	e.70	---	1.3	---	.62	---	.02	7.5	---
TOTAL	580.53	511.8	45.32	15.30	248.30	59.80	473.8	4419.31	30.86	2.66	382.62	351.70
MEAN	18.7	17.1	1.46	.49	8.87	1.93	15.8	143	1.03	.086	12.3	11.7
MAX	224	84	6.3	.80	111	6.0	131	1570	12	.51	375	161
MIN	.00	1.9	.70	.30	.80	.93	1.2	.58	.15	.01	.00	.07
AC-FT	1150	1020	90	30	493	119	940	8770	61	5.3	759	698

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

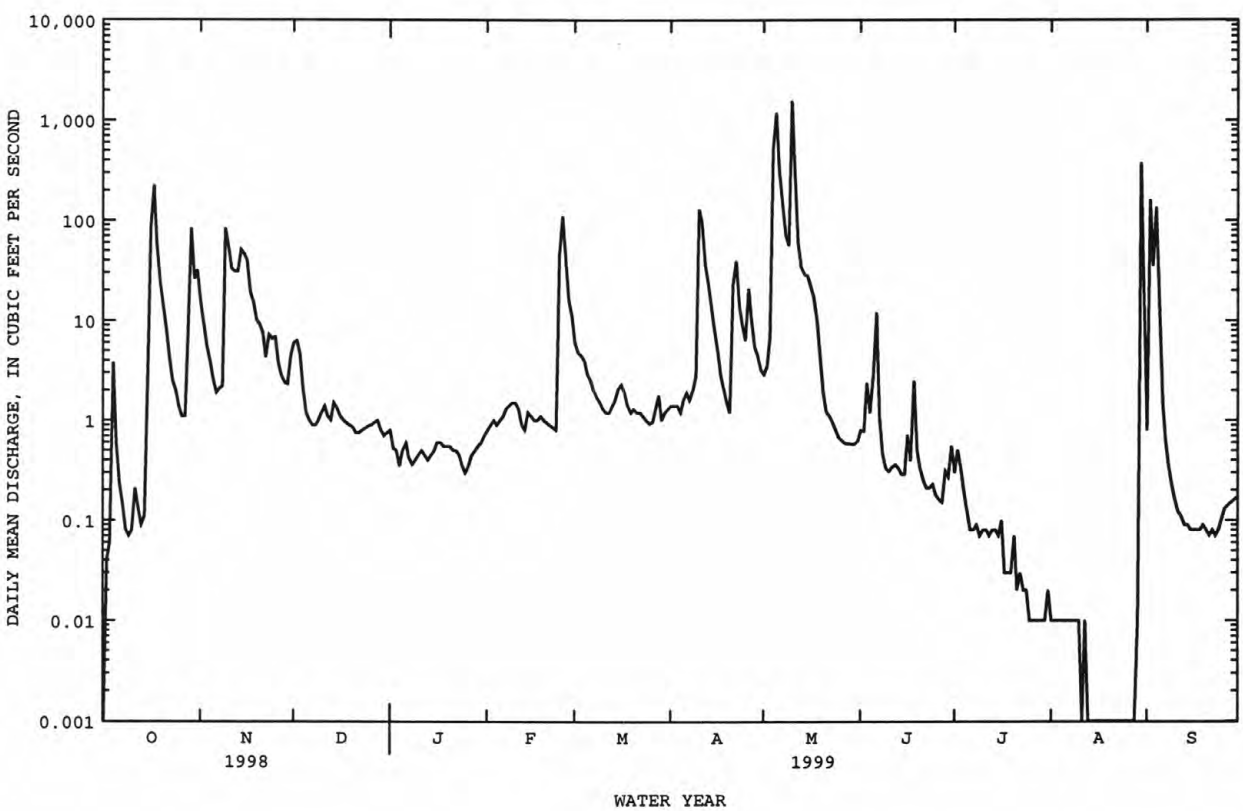
MEAN	3.22	1.71	.19	.15	4.46	22.2	13.3	30.2	14.8	6.67	1.32	1.67
MAX	18.7	17.1	1.46	.78	15.3	117	95.9	143	79.7	57.4	12.3	11.7
(WY)	1999	1999	1999	1992	1992	1997	1995	1999	1997	1993	1999	1999
MIN	.000	.000	.000	.000	.000	.18	.21	.11	.018	.012	.000	.000
(WY)	1988	1989	1988	1988	1989	1991	1992	1992	1989	1990	1988	1988

e Estimated

06442718 CAMPBELL CREEK NEAR LEE'S CORNER, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1988 - 1999	
ANNUAL TOTAL	3102.19		7122.00			
ANNUAL MEAN	8.50		19.5		8.36a	
HIGHEST ANNUAL MEAN					24.3	1997
LOWEST ANNUAL MEAN					.63	1990
HIGHEST DAILY MEAN	224	Oct 17	1570	May 10	1570	May 10 1999
LOWEST DAILY MEAN	.00	Aug 24	.00	Oct 1	.00	Oct 1 1987b
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 5	.00	Aug 13	.00	Oct 1 1987
INSTANTANEOUS PEAK FLOW			3280	May 10	3280	May 10 1999
INSTANTANEOUS PEAK STAGE			15.03	May 10	15.03	May 10 1999
ANNUAL RUNOFF (AC-FT)	6150		14130		6060	
10 PERCENT EXCEEDS	19		27		7.0	
50 PERCENT EXCEEDS	.60		.93		.10	
90 PERCENT EXCEEDS	.01		.02		.00	

a Median of annual mean discharges, 6.0 ft^3/s.
b No flow for long periods in most years.



06442900 ELM CREEK NEAR GANN VALLEY, SD

LOCATION.--Lat 44°04'38", long 99°09'03", in NW¼ NE¼ NE¼ sec.18, T.107 N., R.69 W., Buffalo County, Hydrologic Unit 10140105, on right bank at downstream side of bridge on State Highway 34.

DRAINAGE AREA.--381 mi^2.

PERIOD OF RECORD.--October 1987 to September 1999 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,600 ft above sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.85	101	31	e8.4	e5.3	78	18	25	e20	20	2.9	15
2	1.5	64	31	e7.0	e6.2	59	18	22	19	25	3.3	8.4
3	1.7	43	28	e6.0	e7.2	45	18	22	20	28	3.4	9.3
4	2.5	31	25	e5.5	e21	35	17	45	19	36	3.0	39
5	4.1	25	23	e6.0	e28	27	17	743	38	e28	2.5	44
6	4.2	20	e20	e6.0	e25	e24	17	1380	243	e15	2.2	25
7	5.4	18	e19	e5.0	e22	e21	17	1130	e80	e10	2.2	17
8	4.5	16	e18	e4.7	e24	e20	17	598	e52	e7.9	1.7	12
9	3.6	21	e16	e4.4	e35	e18	19	329	e40	e6.1	1.3	9.4
10	2.9	e27	e15	e4.7	e30	e16	32	500	e34	e5.4	1.1	7.4
11	3.1	e20	e14	e5.0	e40	e16	65	2060	e29	e4.8	1.1	6.1
12	4.1	e18	e13	e4.5	e50	e15	98	949	e26	e4.4	1.1	5.5
13	4.1	29	e12	e3.8	e40	e17	83	359	e23	4.0	.95	4.4
14	4.1	29	e11	e3.7	e30	18	62	217	e19	3.8	1.0	3.8
15	4.1	35	e12	e3.6	e26	20	47	174	16	3.6	1.0	3.4
16	5.2	60	e12	e3.6	e23	21	38	157	17	3.7	1.0	3.0
17	66	72	e13	e3.5	e21	23	29	143	16	3.1	1.0	2.7
18	214	80	e14	e3.4	e20	23	24	126	17	3.2	1.0	2.4
19	93	55	e13	e3.3	e18	21	21	105	17	3.3	.88	2.7
20	65	60	e12	e3.4	e17	19	19	88	18	4.0	.89	2.3
21	45	50	e11	e3.4	e16	18	18	75	17	3.8	.92	2.3
22	32	41	e10	e3.4	e16	17	23	66	16	3.4	.92	2.3
23	24	37	e10	e3.4	16	17	56	58	17	3.6	.90	2.2
24	18	36	e10	e3.5	17	15	60	50	22	3.5	.91	2.0
25	15	37	e11	e3.9	33	14	51	44	23	3.1	.94	2.1
26	13	40	e12	e3.8	87	14	43	39	18	2.7	1.0	1.8
27	12	39	e13	e3.7	114	13	38	36	16	2.4	.97	1.6
28	12	38	e12	e3.8	103	15	33	31	16	2.2	.95	1.6
29	71	35	e11	e4.0	---	16	30	28	17	2.0	1.2	1.7
30	56	33	e10	e4.2	---	17	28	e27	20	2.1	90	1.8
31	78	---	e10	e4.6	---	17	---	e23	---	2.5	57	---
TOTAL	869.95	1210	472	137.2	890.7	709	1056	9649	945	250.6	189.23	242.2
MEAN	28.1	40.3	15.2	4.43	31.8	22.9	35.2	311	31.5	8.08	6.10	8.07
MAX	214	101	31	8.4	114	78	98	2060	243	36	90	44
MIN	.85	16	10	3.3	5.3	13	17	22	16	2.0	.88	1.6
AC-FT	1730	2400	936	272	1770	1410	2090	19140	1870	497	375	480

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

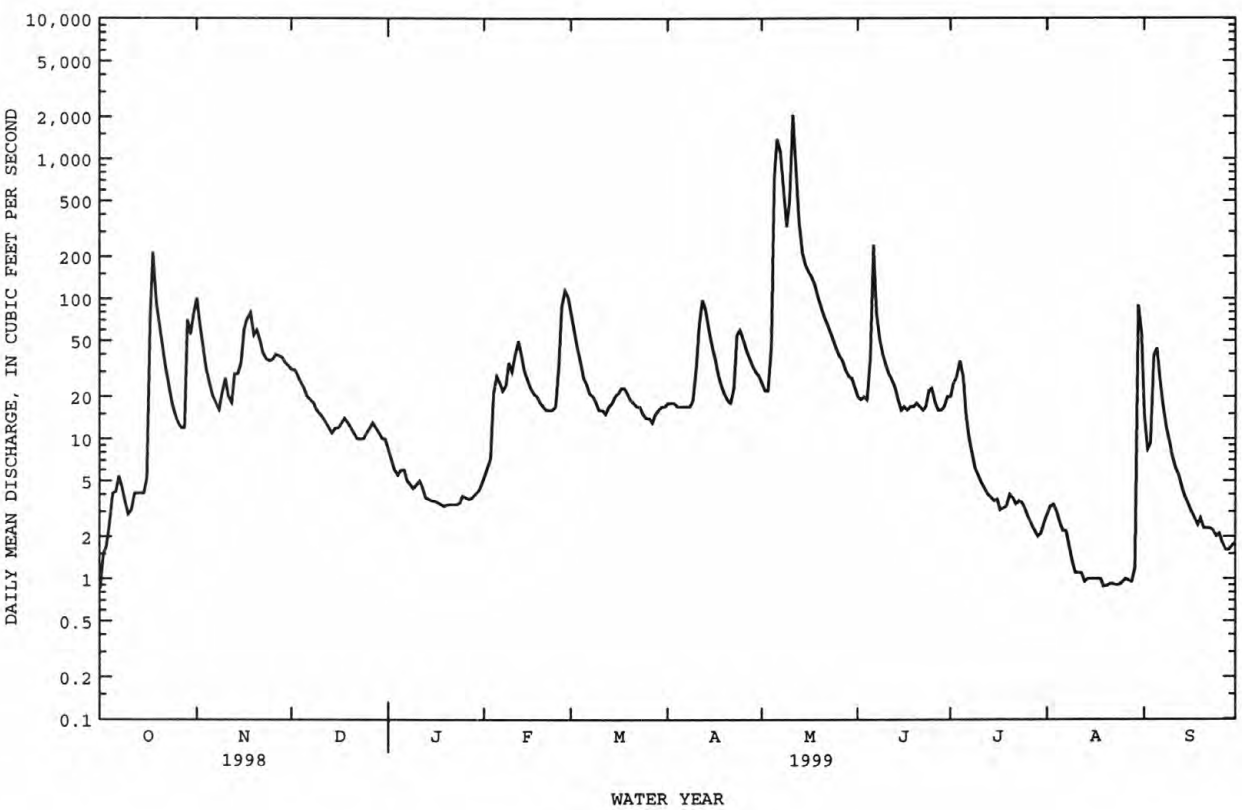
MEAN	5.30	5.84	2.33	1.29	34.8	105	54.0	73.2	34.8	19.1	2.87	1.52
MAX	28.1	40.3	15.2	4.43	175	695	351	311	143	161	10.2	8.07
(WY)	1999	1999	1999	1999	1996	1997	1997	1999	1997	1993	1993	1999
MIN	.000	.000	.000	.000	.000	.12	.086	.13	.007	.001	.000	.000
(WY)	1988	1988	1989	1989	1989	1991	1990	1992	1989	1988	1988	1988

e Estimated

06442900 ELM CREEK NEAR GANN VALLEY, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1988 - 1999	
ANNUAL TOTAL	10485.12		16620.88			
ANNUAL MEAN	28.7		45.5		28.3a	
HIGHEST ANNUAL MEAN					120	1997
LOWEST ANNUAL MEAN					2.06	1990
HIGHEST DAILY MEAN	764	May 13	2060	May 11	3160	Mar 28 1997
LOWEST DAILY MEAN	.41	Sep 10	.85	Oct 1	.00	Oct 1 1987b
ANNUAL SEVEN-DAY MINIMUM	.49	Sep 6	.91	Aug 19	.00	Oct 1 1987
INSTANTANEOUS PEAK FLOW			2520	May 11	(c)	
INSTANTANEOUS PEAK STAGE			14.05	May 11	17.24	Jul 25 1993
ANNUAL RUNOFF (AC-FT)	20800		32970		20510	
10 PERCENT EXCEEDS	70		65		38	
50 PERCENT EXCEEDS	12		17		.99	
90 PERCENT EXCEEDS	1.2		2.2		.00	

a Median of annual mean discharges, 19 ft^3/s.
b No flow at times in most years.
c Discharge not determined.



06442996 LAKE FRANCIS CASE (AMERICAN CREEK BAY) AT CHAMBERLAIN, SD

LOCATION.--Lat 43°48'52", long 099°19'24", in SE¼ NE¼ NW¼ sec.15, T.104 N., R.71 W., Brule County, Hydrologic Unit 10140101, on left bank at upstream end of American Creek Recreation Area, 0.5 mi upstream from intersection of I-90 and State Highway 50 Business Loop, 1.5 mi upstream from Lewis and Clark Memorial Bridge, and at mile 967.5.

PERIOD OF RECORD.--October 1988 to current year.

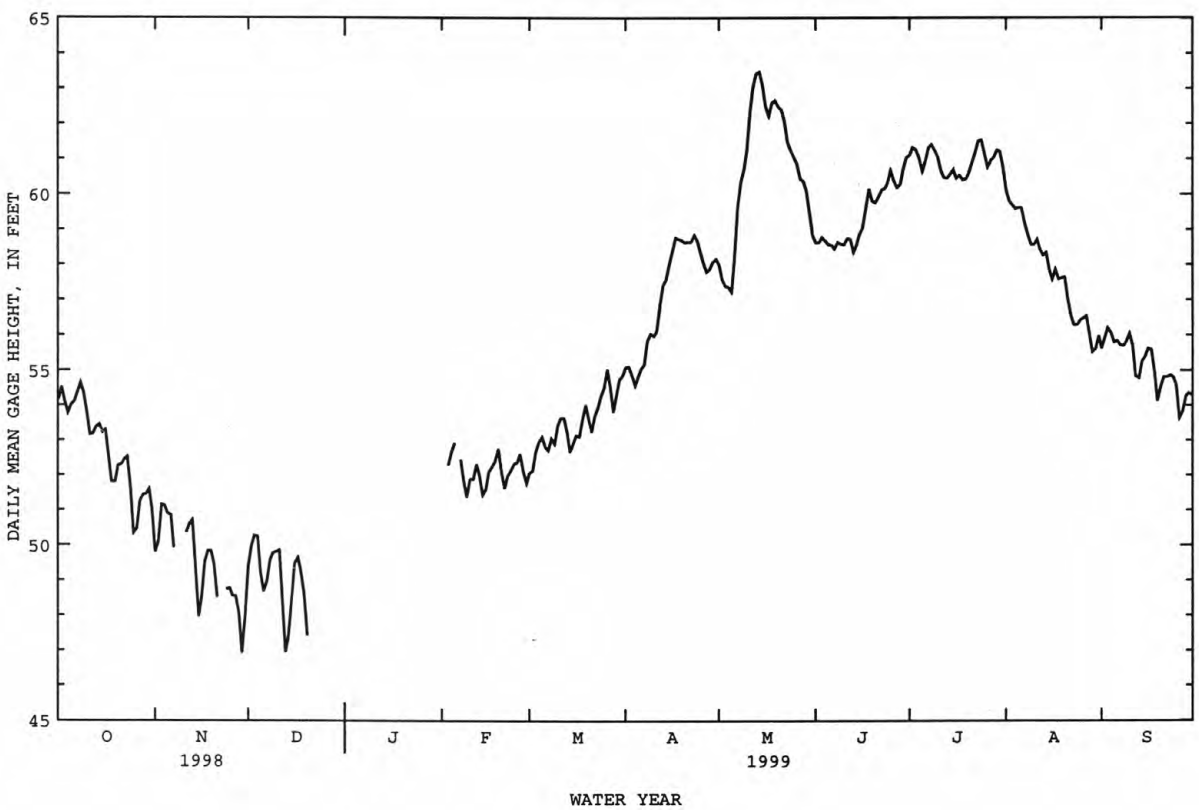
GAGE.--Water-stage recorder. Datum of gage is 1,300.00 ft above sea level. Prior to Oct. 1, 1993, at datum 0.24 ft higher.

REMARKS.--Records poor. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54.16	49.80	49.40	---	---	52.06	55.09	58.00	58.63	61.11	60.11	55.62
2	54.52	50.09	49.99	---	---	52.13	55.10	57.57	58.63	61.32	59.80	55.93
3	54.11	51.15	50.27	---	52.29	52.65	54.86	57.40	58.78	61.26	59.69	56.20
4	53.78	51.13	50.25	---	52.64	52.97	54.57	57.36	58.68	61.03	59.58	56.06
5	54.01	50.90	49.25	---	52.92	53.10	54.81	57.22	58.56	60.65	59.62	55.79
6	54.11	50.87	48.68	---	---	52.80	55.06	58.21	58.55	60.92	59.61	55.83
7	54.36	49.93	48.95	---	52.45	52.71	55.18	59.64	58.44	61.31	59.17	55.71
8	54.64	---	49.57	---	51.79	53.05	55.86	60.34	58.65	61.41	58.84	55.70
9	54.37	---	49.77	---	51.37	52.89	56.04	60.70	58.58	61.24	58.57	55.84
10	53.82	---	49.81	---	51.89	53.40	55.98	61.25	58.56	61.04	58.57	56.04
11	53.16	50.36	49.86	---	51.88	53.64	56.14	62.33	58.75	60.66	58.73	55.69
12	53.19	50.61	48.57	---	52.31	53.64	56.87	63.04	58.73	60.47	58.44	54.84
13	53.38	50.72	46.94	---	52.00	53.21	57.43	63.44	58.35	60.45	58.26	54.77
14	53.45	49.40	47.38	---	51.44	52.67	57.58	63.48	58.55	60.58	58.34	55.26
15	53.21	47.96	48.63	---	51.60	52.92	58.01	63.07	58.88	60.69	57.85	55.40
16	53.30	48.50	49.49	---	52.10	53.14	58.39	62.49	59.05	60.44	57.58	55.61
17	52.55	49.52	49.65	---	52.25	53.10	58.77	62.22	59.62	60.52	57.86	55.58
18	51.80	49.84	49.25	---	52.41	53.62	58.73	62.60	60.15	60.40	57.59	54.96
19	51.80	49.84	48.59	---	52.75	54.02	58.70	62.66	59.81	60.43	57.62	54.13
20	52.26	49.45	47.42	---	52.12	53.63	58.64	62.48	59.76	60.62	57.64	54.52
21	52.30	48.51	---	---	51.62	53.24	58.65	62.40	59.93	60.89	57.04	54.81
22	52.45	---	---	---	51.97	53.72	58.65	62.05	60.13	61.17	56.52	54.81
23	52.52	---	---	---	52.14	53.92	58.85	61.47	60.15	61.52	56.28	54.87
24	51.58	48.74	---	---	52.32	54.26	58.69	61.23	60.34	61.55	56.29	54.80
25	50.35	48.77	---	---	52.36	54.50	58.37	61.05	60.67	61.16	56.42	54.57
26	50.47	48.55	---	---	52.60	55.04	58.03	60.85	60.36	60.77	56.48	53.64
27	51.27	48.54	---	---	52.11	54.55	57.80	60.44	60.18	60.96	56.55	53.83
28	51.43	48.05	---	---	51.77	53.83	57.87	60.37	60.27	61.04	56.08	54.26
29	51.45	46.92	---	---	---	54.27	58.07	60.11	60.72	61.25	55.52	54.34
30	51.60	47.94	---	---	---	54.75	58.16	59.50	61.05	61.22	55.60	54.30
31	51.04	---	---	---	---	54.86	---	58.82	---	60.77	55.99	---
MEAN	52.79	---	---	---	---	53.49	57.16	60.77	59.38	60.93	57.81	55.12
MAX	54.64	---	---	---	---	55.04	58.85	63.48	61.05	61.55	60.11	56.20
MIN	50.35	---	---	---	---	52.06	54.57	57.22	58.35	60.40	55.52	53.64

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 NE¼ SW¼ NE¼ 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 mi^2, approximately.

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

GAGE.--Water-stage recorder. Elevation of gage is 3,030 ft above sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	11	15	e32	e41	33	42	93	45	55	30	14
2	7.7	e17	15	e20	e46	36	41	79	47	51	25	24
3	7.8	e36	e17	e18	e46	35	43	74	53	56	25	142
4	15	e46	e16	e19	e56	30	44	72	53	111	46	169
5	43	e38	e16	e26	e57	32	46	71	129	69	49	118
6	33	e42	e15	e22	e49	31	48	74	442	60	31	64
7	29	e80	e15	e20	e45	31	49	77	160	55	27	68
8	117	e60	e14	e18	e44	31	52	65	122	48	25	44
9	51	e44	15	e18	e43	40	65	58	94	43	21	28
10	29	e50	16	e19	e43	35	115	60	76	40	18	22
11	17	57	17	e20	e39	37	192	67	111	37	16	21
12	14	64	18	e24	e34	37	234	70	154	35	14	20
13	18	35	20	e20	e20	37	253	90	412	35	12	19
14	11	32	23	e18	e24	37	135	80	339	34	12	19
15	7.5	27	27	e21	e27	37	96	91	329	33	11	21
16	5.7	24	29	e29	e24	38	78	103	262	30	11	21
17	9.9	24	29	e38	e20	37	67	102	193	39	13	21
18	12	28	e20	e48	e25	36	63	147	141	55	12	20
19	10	22	e19	e46	e25	34	59	124	114	34	9.5	20
20	11	19	e17	e41	e24	33	58	95	95	51	9.9	20
21	44	18	e15	e42	e23	32	59	88	81	39	9.4	19
22	22	17	e13	e42	e24	31	57	70	70	40	11	19
23	14	16	e11	e36	e24	30	56	63	62	43	13	14
24	14	16	e10	e40	e24	28	58	64	57	40	11	13
25	12	15	e9.0	e39	e30	28	86	56	57	31	13	12
26	11	15	e9.0	e31	e35	29	204	50	57	29	13	9.3
27	11	15	e11	e28	37	28	166	47	58	28	14	7.6
28	11	14	e18	e21	33	31	174	47	52	27	13	7.6
29	12	15	e20	e20	---	37	143	47	49	25	12	7.5
30	13	15	e25	e23	---	39	107	45	51	26	11	8.6
31	12	---	e30	e30	---	41	---	45	---	25	14	---
TOTAL	631.1	912	544.0	869	962	1051	2890	2314	3965	1324	551.8	1012.6
MEAN	20.4	30.4	17.5	28.0	34.4	33.9	96.3	74.6	132	42.7	17.8	33.8
MAX	117	80	30	48	57	41	253	147	442	111	49	169
MIN	5.7	11	9.0	18	20	28	41	45	45	25	9.4	7.5
AC-FT	1250	1810	1080	1720	1910	2080	5730	4590	7860	2630	1090	2010

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

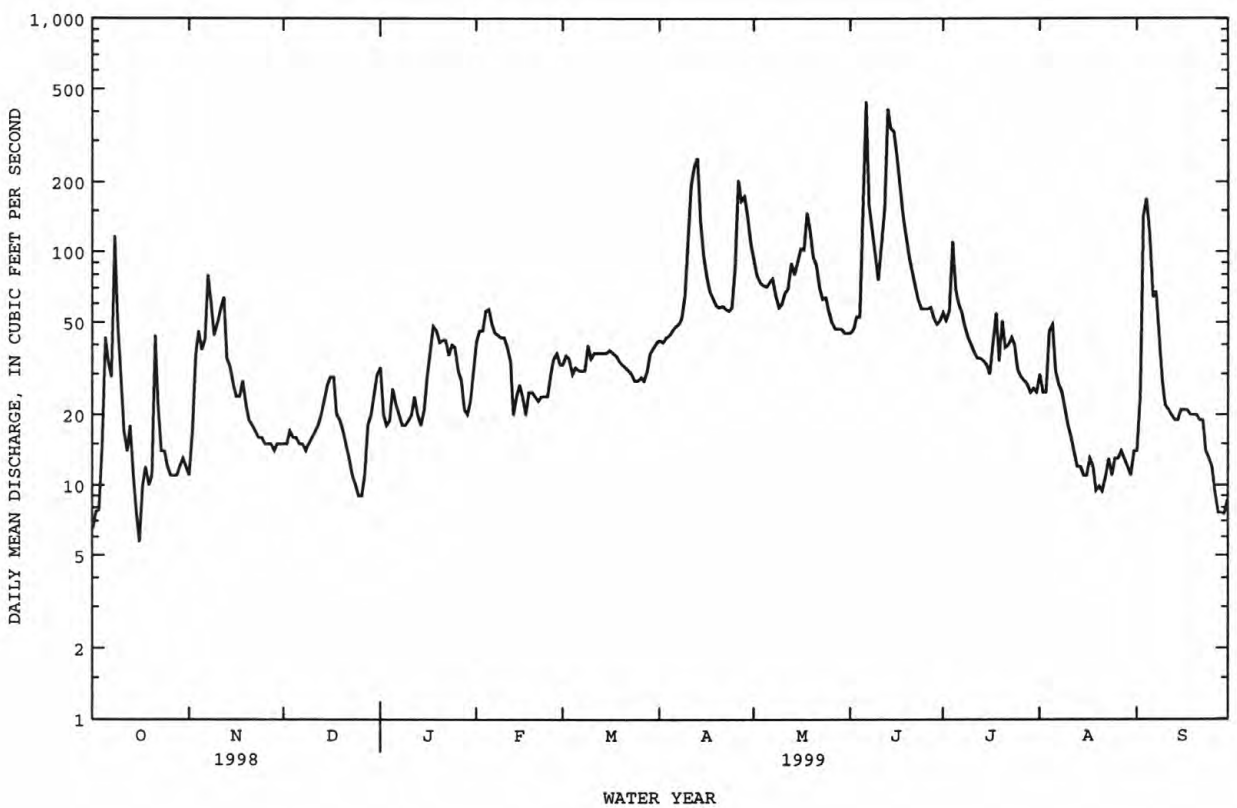
MEAN	12.0	15.5	19.2	30.0	61.6	73.7	61.9	111	115	30.0	15.1	12.7
MAX	29.4	45.1	54.9	96.1	186	297	114	514	360	72.0	42.9	33.8
(WY)	1994	1994	1994	1998	1997	1993	1997	1991	1997	1997	1997	1999
MIN	2.07	3.31	3.35	1.53	1.82	5.02	23.1	19.5	11.6	.98	1.61	2.08
(WY)	1991	1991	1991	1991	1991	1991	1992	1992	1989	1989	1989	1994

e Estimated

06445685 WHITE RIVER NEAR NEBRASKA-SOUTH DAKOTA STATE LINE--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1988 - 1999	
ANNUAL TOTAL	15548.2		17026.5			
ANNUAL MEAN	42.6		46.6		46.3a	
HIGHEST ANNUAL MEAN					92.9	1997
LOWEST ANNUAL MEAN					14.2	1989
HIGHEST DAILY MEAN	266	Mar 31	442	Jun 6	1910	May 12 1991
LOWEST DAILY MEAN	5.7	Oct 16	5.7	Oct 16	.00	Jul 13 1989b
ANNUAL SEVEN-DAY MINIMUM	7.1	Sep 5	9.4	Sep 24	.00	Aug 3 1989
INSTANTANEOUS PEAK FLOW			709	Jun 6	3820	May 12 1991
INSTANTANEOUS PEAK STAGE			10.37	Jun 6	19.07	May 12 1991
ANNUAL RUNOFF (AC-FT)	30840		33770		33570	
10 PERCENT EXCEEDS	107		93		94	
50 PERCENT EXCEEDS	24		32		18	
90 PERCENT EXCEEDS	9.7		12		3.7	

a Median of annual mean discharges, 45 ft^3/s.
b No flow at times in most years.



06445980 WHITE CLAY CREEK NEAR OGLALA, SD

LOCATION.--Lat 43°08'46", long 102°40'58", in NW¼ SE¼ SE¼ 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.

DRAINAGE AREA.--340 mi^2, approximately.

PERIOD OF RECORD.--August 1965 to September 1981, October 1987 to September 1999 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 3,001.54 ft above sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some storage and possible regulation 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	14	e16	e10	e13	e17	e14	e22	16	23	15	7.8
2	7.3	13	e16	e8.5	e11	e17	e14	e22	17	22	15	9.4
3	7.9	13	e16	e8.0	e9.0	e17	e17	e22	18	21	15	12
4	9.8	e13	e16	e9.0	e10	e17	e17	e22	22	30	15	17
5	e18	e14	e16	e10	e10	e16	e17	e21	29	40	14	16
6	e30	e13	e15	e13	e10	e17	e18	e20	30	26	13	15
7	e23	e13	e14	e10	e12	e14	e18	e19	33	23	13	13
8	e18	e14	e13	e8.5	e14	e16	e19	e19	31	20	13	11
9	14	e12	e12	e8.0	e13	e17	e21	e19	29	18	12	10
10	12	e14	e11	e8.5	e11	e15	e27	e20	26	17	12	9.6
11	12	e14	e16	e9.0	e9.0	e15	e29	e20	26	16	11	9.4
12	11	e15	e16	e11	e7.5	e17	e28	e20	27	15	11	9.3
13	11	e14	e17	e9.0	e10	e18	e26	e20	29	15	10	9.3
14	11	e15	e17	e8.0	e12	e18	e25	e20	30	14	10	9.1
15	11	e16	e16	e7.0	e14	e18	e28	e23	32	14	10	9.0
16	11	e16	e17	e6.9	e17	e18	e30	e23	42	16	9.7	9.0
17	12	e16	e17	e7.0	e17	e18	e27	e25	39	25	9.4	9.1
18	13	e16	e15	e9.0	e18	e17	e24	e25	38	34	9.2	8.9
19	13	e16	e14	e12	e18	e17	e21	e24	30	55	9.0	9.3
20	13	e15	e12	e12	e18	e16	e19	e23	30	24	8.9	9.7
21	12	e16	e11	e9.5	e17	e16	e30	e22	28	34	9.0	9.7
22	12	e16	e10	e12	e17	e16	e35	e21	26	27	9.2	9.4
23	12	e16	e9.5	e11	e16	e16	e40	e20	25	26	9.3	9.2
24	12	e15	e9.0	e9.0	e17	e16	e45	e19	24	21	9.1	9.1
25	12	e16	e9.0	e10	e17	e16	e50	e18	23	19	8.9	8.9
26	12	e16	e10	e9.0	e17	e16	e45	18	22	17	8.5	9.2
27	12	e16	e15	e8.0	e17	e16	e40	18	22	15	8.1	9.1
28	13	e16	e15	e9.5	e17	e15	e35	18	24	15	8.0	9.0
29	14	e16	e12	e11	---	e16	e35	17	24	14	8.0	9.2
30	15	e16	e10	e12	---	e16	e28	17	24	14	8.0	9.4
31	15	---	e13	e12	---	e15	---	16	---	14	7.9	---
TOTAL	405.8	445	425.5	297.4	388.5	509	822	633	816	684	329.2	305.1
MEAN	13.1	14.8	13.7	9.59	13.9	16.4	27.4	20.4	27.2	22.1	10.6	10.2
MAX	30	16	17	13	18	18	50	25	42	55	15	17
MIN	6.8	12	9.0	6.9	7.5	14	14	16	16	14	7.9	7.8
AC-FT	805	883	844	590	771	1010	1630	1260	1620	1360	653	605

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1999, BY WATER YEAR (WY)

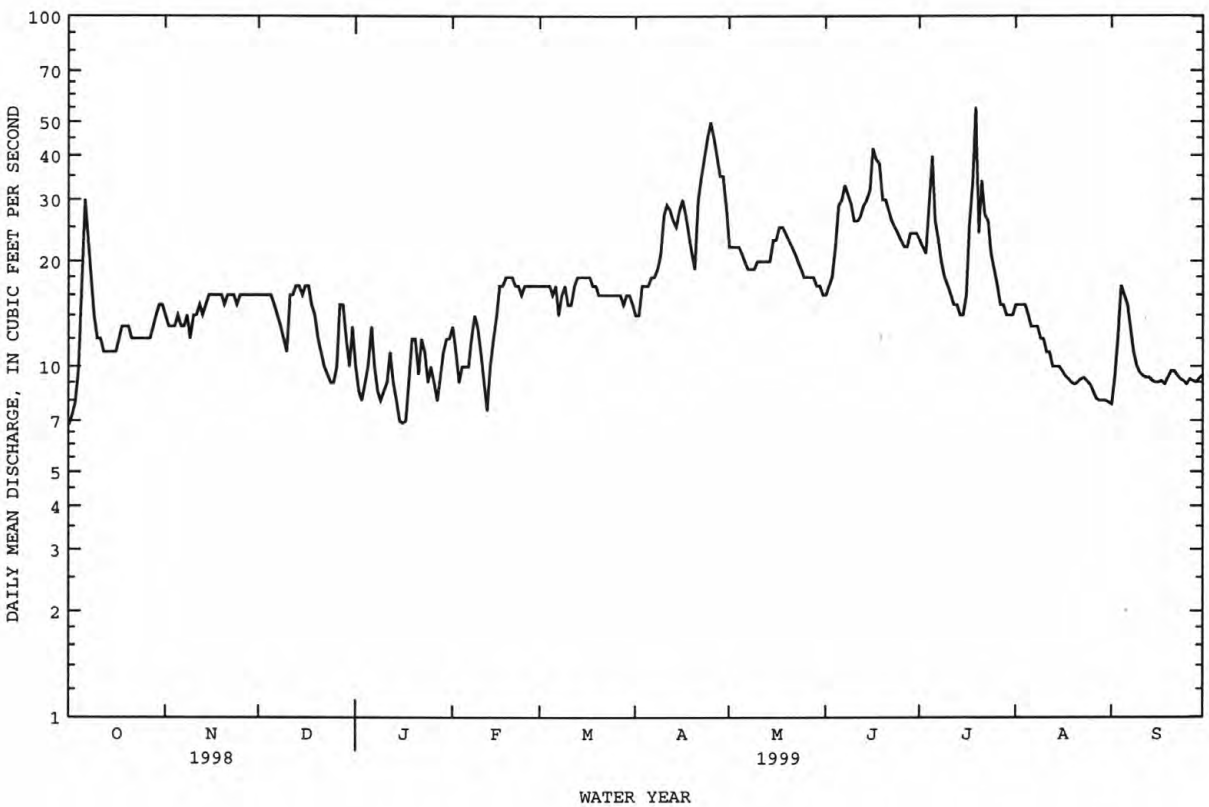
MEAN	6.36	7.64	8.03	6.77	10.9	21.5	15.5	15.4	20.2	10.2	7.08	4.18
MAX	15.8	18.5	23.7	21.3	31.0	112	27.4	34.2	109	39.8	19.8	10.2
(WY)	1966	1997	1994	1997	1997	1966	1999	1997	1967	1969	1981	1999
MIN	.36	1.92	1.72	.084	.095	6.32	5.13	7.57	3.62	1.62	.28	.000
(WY)	1975	1975	1989	1989	1989	1991	1992	1992	1974	1974	1970	1974

e Estimated

06445980 WHITE CLAY CREEK NEAR OGLALA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1966 - 1999	
ANNUAL TOTAL	5134.6		6060.5			
ANNUAL MEAN	14.1		16.6		11.1a	
HIGHEST ANNUAL MEAN					23.7	1997
LOWEST ANNUAL MEAN					4.31	1989
HIGHEST DAILY MEAN	32	Mar 16	55	Jul 19	554	Mar 12 1966
LOWEST DAILY MEAN	5.5	Sep 12	6.8	Oct 1	.00	Aug 20 1970b
ANNUAL SEVEN-DAY MINIMUM	5.7	Sep 6	8.0	Aug 26	.00	Aug 20 1970
INSTANTANEOUS PEAK FLOW			80	Apr 25	659	Jun 16 1967c
INSTANTANEOUS PEAK STAGE			8.49	Apr 25	15.02	Mar 11 1966d
ANNUAL RUNOFF (AC-FT)	10180		12020		8070	
10 PERCENT EXCEEDS	20		27		20	
50 PERCENT EXCEEDS	14		15		8.5	
90 PERCENT EXCEEDS	7.5		9.0		2.0	

a Median of annual mean discharges, 9.0 ft^3/s.
b No flow at times in some years.
c Gage height, 14.74 ft.
d Backwater from ice.



06446000 WHITE RIVER NEAR OGLALA, SD

LOCATION.--Lat 43°15'17", long 102°49'29", in SW¼ NE¼ 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 mi^2, approximately.

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

GAGE.--Water-stage recorder. Datum of gage is 2,853.54 ft above sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

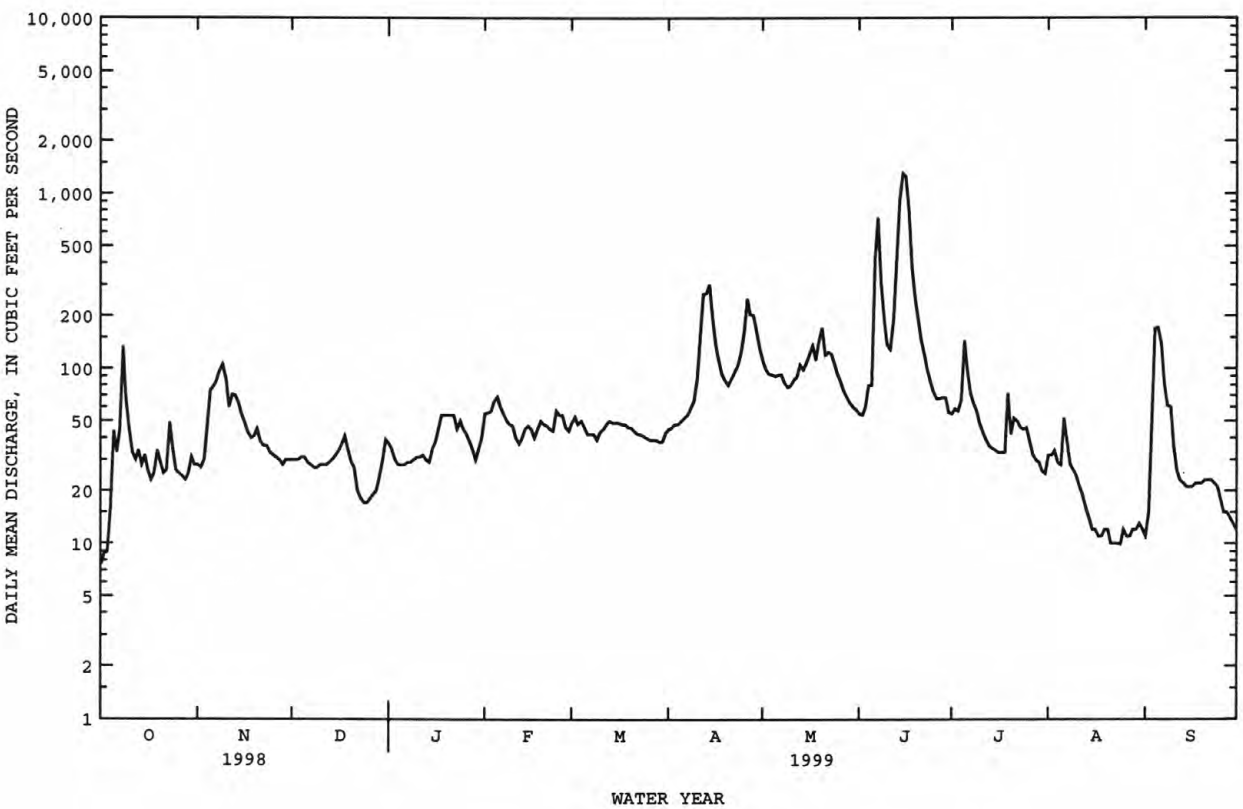
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e7.6	28	30	e37	e55	49	45	e111	55	55	32	11
2	e8.8	27	30	e34	e56	53	46	e98	54	59	32	15
3	e8.9	30	30	e30	e57	48	48	e93	60	57	34	45
4	e16	48	31	e28	e65	50	48	e92	80	66	29	169
5	e44	75	31	e28	e69	46	50	e90	80	144	28	171
6	e33	79	29	e28	e60	42	52	e92	425	98	52	136
7	e45	85	e28	e29	e55	42	54	e92	730	72	38	82
8	e133	97	e27	e29	e50	42	59	e83	309	63	28	61
9	e67	106	e27	e30	e48	39	65	e78	189	57	26	60
10	e45	86	e28	e31	e47	43	87	e80	136	48	24	36
11	e33	60	28	e31	e40	45	141	e86	128	43	21	26
12	e30	71	28	e32	e37	48	267	e89	191	39	19	23
13	e34	70	29	e30	e40	50	270	e105	385	36	16	22
14	e28	63	30	e29	e45	49	302	e98	919	35	14	21
15	32	54	32	e35	e47	49	191	e108	1310	34	12	21
16	26	49	34	e38	e45	49	134	e120	1260	33	12	21
17	23	43	37	e46	e40	48	108	135	803	33	11	22
18	25	40	41	e54	e45	48	92	112	371	33	11	22
19	34	41	e34	e54	e50	46	85	142	249	72	12	22
20	29	45	e29	e54	e48	46	80	171	195	42	12	23
21	25	38	e27	e54	e47	44	e88	120	144	52	10	23
22	26	36	e20	e54	e45	42	e96	124	119	50	10	23
23	49	36	e18	e45	e44	42	e105	121	98	46	10	22
24	34	33	e17	e50	57	41	e122	106	84	45	9.9	21
25	26	32	e17	e45	54	40	e161	93	74	46	12	18
26	25	31	e18	e42	54	39	e251	84	67	38	11	15
27	24	30	e19	e38	46	39	e203	74	67	32	11	15
28	23	28	e20	e34	44	39	e202	68	68	30	12	14
29	25	30	e24	e30	---	38	e165	63	68	29	12	13
30	31	30	e30	e35	---	38	e129	60	56	26	13	12
31	28	---	e39	e40	---	43	---	58	---	25	12	---
TOTAL	1018.3	1521	862	1174	1390	1377	3746	3046	8774	1538	585.9	1185
MEAN	32.8	50.7	27.8	37.9	49.6	44.4	125	98.3	292	49.6	18.9	39.5
MAX	133	106	41	54	69	53	302	171	1310	144	52	171
MIN	7.6	27	17	28	37	38	45	58	54	25	9.9	11
AC-FT	2020	3020	1710	2330	2760	2730	7430	6040	17400	3050	1160	2350
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1999, BY WATER YEAR (WY)												
MEAN	16.0	18.5	16.2	16.8	41.2	109	76.5	107	158	56.0	27.1	21.4
MAX	63.1	55.8	55.7	97.0	281	807	362	583	1037	314	130	181
(WY)	1968	1987	1947	1997	1997	1949	1987	1957	1967	1969	1979	1955
MIN	.000	.76	1.83	.64	1.21	13.5	12.3	13.4	4.88	.002	1.17	.000
(WY)	1965	1977	1965	1991	1991	1991	1962	1985	1981	1985	1964	1964

e Estimated

06446000 WHITE RIVER NEAR OGLALA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1944 - 1999	
ANNUAL TOTAL	20407.3		26217.2			
ANNUAL MEAN	55.9		71.8		55.3a	
HIGHEST ANNUAL MEAN					152	1997
LOWEST ANNUAL MEAN					13.0	1985
HIGHEST DAILY MEAN	424	Apr 1	1310	Jun 15	3870	Jun 23 1947
LOWEST DAILY MEAN	6.5	Sep 9	7.6	Oct 1	.00	Sep 25 1952b
ANNUAL SEVEN-DAY MINIMUM	7.2	Sep 5	11	Aug 21	.00	Sep 25 1952
INSTANTANEOUS PEAK FLOW			1520	Jun 15	5200	Jun 21 1947c
INSTANTANEOUS PEAK STAGE			18.23	Jun 15	23.61	Jun 16 1967
ANNUAL RUNOFF (AC-FT)	40480		52000		40070	
10 PERCENT EXCEEDS	106		126		100	
50 PERCENT EXCEEDS	39		44		22	
90 PERCENT EXCEEDS	12		19		4.0	

a Median of annual mean discharges, 50 ft^3/s.
b No flow at times in some years.
c Rating curve extended above 2,800 ft^3/s on basis of velocity-area studies, gage height, 23.50 ft.



06446700 BEAR IN THE LODGE CREEK NEAR WANBLEE, SD

Location.--Lat 43°32'05", long 101°47'30", in NE¼ SW¼ SW¼ 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 mi^2, approximately.

PERIOD OF RECORD.--June 1992 to May 1993 and May 1994 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,500 ft above sea level, from topographic map. In 1951 and 1954-57, operated as nonrecording gage at same site and 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

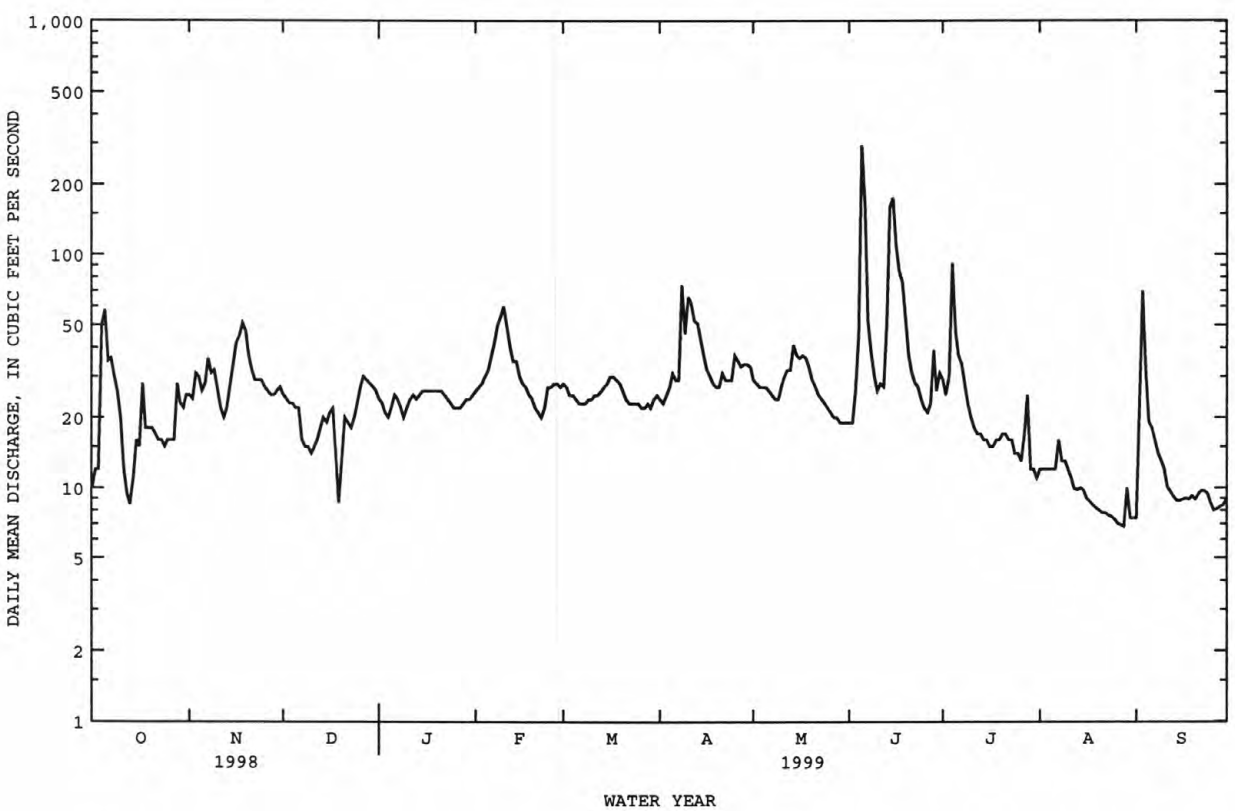
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	25	25	e24	e26	28	24	29	19	29	12	7.4
2	12	24	24	e23	e27	27	23	28	19	25	12	23
3	12	31	23	e21	e28	e25	25	27	26	30	12	70
4	50	30	23	e20	e30	e25	27	27	45	92	12	32
5	58	26	22	e22	e32	e24	31	27	295	47	12	19
6	35	28	22	e25	e37	e23	29	26	164	37	12	18
7	36	36	e16	e24	e42	e23	29	25	52	34	16	16
8	30	31	e15	e22	e50	e23	74	24	38	28	13	14
9	26	32	e15	e20	e54	e24	46	24	30	23	13	13
10	20	26	e14	e22	e60	e24	66	27	26	20	12	12
11	12	e22	e15	e24	e49	e25	62	30	28	18	11	10
12	9.4	e20	e16	e25	e40	e25	52	32	27	17	9.9	9.6
13	8.5	e22	e18	e24	e35	e26	51	32	53	17	9.8	9.1
14	11	e28	e20	e25	e35	e27	44	41	160	16	10	8.8
15	16	35	e19	e26	e30	28	37	37	175	16	9.7	8.8
16	15	42	e21	e26	e28	30	32	36	111	15	9.0	8.9
17	28	45	e22	e26	e27	30	30	37	85	15	8.7	9.0
18	18	51	e15	e26	e25	29	28	36	76	16	8.4	8.9
19	18	47	e8.6	e26	e24	28	27	33	51	16	8.2	9.2
20	18	37	e14	e26	e22	26	27	29	37	17	8.0	8.9
21	17	32	e20	e26	e21	24	31	27	31	17	7.8	9.4
22	16	29	e19	e25	e20	23	29	25	28	16	7.8	9.7
23	16	29	e18	e24	e22	23	29	24	27	16	7.6	9.7
24	15	29	e20	e23	27	23	29	23	24	14	7.5	9.4
25	16	27	e23	e22	27	23	37	22	22	14	7.3	8.6
26	16	26	e27	e22	28	22	35	21	21	13	7.0	8.0
27	16	25	e30	e22	28	22	33	20	23	17	6.9	8.1
28	28	25	e29	e23	27	23	34	20	39	25	6.8	8.3
29	23	26	e28	e24	---	22	34	19	26	12	10	8.4
30	22	27	e27	e24	---	24	33	19	31	12	7.4	8.9
31	25	---	e26	e25	---	25	---	19	---	11	7.4	---
TOTAL	652.9	913	634.6	737	901	774	1088	846	1789	695	302.2	404.1
MEAN	21.1	30.4	20.5	23.8	32.2	25.0	36.3	27.3	59.6	22.4	9.75	13.5
MAX	58	51	30	26	60	30	74	41	295	92	16	70
MIN	8.5	20	8.6	20	20	22	23	19	19	11	6.8	7.4
AC-FT	1300	1810	1260	1460	1790	1540	2160	1680	3550	1380	599	802
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 1999, BY WATER YEAR (WY)												
MEAN	14.9	17.0	14.4	18.0	56.8	37.1	37.7	47.1	94.5	48.3	15.5	11.2
MAX	21.1	30.4	20.5	29.8	156	58.2	59.2	74.6	306	153	27.7	13.5
(WY)	1999	1999	1999	1997	1997	1997	1997	1997	1997	1997	1997	1999
MIN	8.82	9.26	11.1	6.98	23.4	14.1	30.1	25.5	28.5	17.1	6.35	7.46
(WY)	1995	1995	1996	1996	1995	1995	1998	1998	1998	1996	1996	1995

e Estimated

06446700 BEAR IN THE LODGE CREEK NEAR WANBLEE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1995 - 1999	
ANNUAL TOTAL	9654.4		9736.8			
ANNUAL MEAN	26.5		26.7		34.1	
HIGHEST ANNUAL MEAN					75.2	1997
LOWEST ANNUAL MEAN					20.3	1995
HIGHEST DAILY MEAN	141	Mar 31	295	Jun 5	900	Jun 3 1997
LOWEST DAILY MEAN	5.1	Sep 12	6.8	Aug 28	2.9	Oct 1 1994
ANNUAL SEVEN-DAY MINIMUM	6.9	Sep 7	7.3	Aug 22	4.4	Aug 26 1996
INSTANTANEOUS PEAK FLOW			473	Jun 5	1100	Jun 3 1997
INSTANTANEOUS PEAK STAGE			7.24	Jun 5	9.11	Jun 3 1997a
ANNUAL RUNOFF (AC-FT)	19150		19310		24730	
10 PERCENT EXCEEDS	45		37		60	
50 PERCENT EXCEEDS	22		24		20	
90 PERCENT EXCEEDS	12		9.7		8.0	

a From floodmark.



06447000 WHITE RIVER NEAR KADOKA, SD

LOCATION.--Lat 43°45'09", long 101°31'28", in SE¼ SE¼ 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 mi^2, 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 sea level. 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 ft^3/s, from rating curve extended above 16,000 ft^3/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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	243	165	e48	e73	181	95	459	144	315	130	77
2	52	194	162	e46	e78	175	99	352	147	282	3270	190
3	60	219	158	e44	e80	178	112	322	161	324	1730	2680
4	433	388	157	e42	e84	170	167	279	1410	1470	673	3270
5	8380	909	156	e43	e89	e165	267	266	4200	549	395	1910
6	5480	907	157	e44	e91	e160	295	212	8300	477	307	988
7	2000	731	145	e44	e95	e160	229	181	3440	274	621	474
8	1070	1050	e65	e45	e100	e160	440	159	1290	218	423	323
9	600	1190	e70	e45	e102	e160	3130	147	1080	241	398	265
10	384	783	e80	e45	e300	e165	1370	158	956	203	240	206
11	279	665	e85	e45	e900	e170	3000	337	618	168	130	155
12	245	479	e92	e45	e700	e180	1700	885	470	150	89	122
13	349	487	e100	e45	e550	234	932	447	1570	139	74	114
14	230	484	e110	e48	e400	327	579	421	2450	130	67	94
15	156	432	e100	e50	e600	483	503	1120	4140	119	60	78
16	136	456	e90	e52	e440	602	445	1180	5020	113	55	68
17	456	370	e100	e54	325	425	438	578	3070	119	50	62
18	1070	320	e85	e56	230	253	346	353	2160	1040	46	58
19	736	283	e70	e60	234	176	257	277	1450	328	43	57
20	344	252	e58	e57	212	149	212	233	957	494	39	57
21	200	235	e48	e53	195	130	200	233	659	512	37	58
22	146	218	e40	e50	170	121	236	382	495	411	37	60
23	129	201	e42	e47	168	117	509	411	418	261	221	59
24	123	195	e45	e45	172	114	391	362	339	226	104	58
25	111	188	e48	e48	183	110	305	268	272	132	52	55
26	105	178	e50	e50	182	111	586	207	230	116	46	53
27	118	175	e55	e53	190	100	1410	188	202	102	43	50
28	168	172	e60	e56	186	99	1190	172	278	316	36	49
29	511	168	e57	e60	---	97	643	156	411	139	231	50
30	924	166	e54	e65	---	96	571	145	535	103	620	50
31	383	---	e50	e70	---	93	---	141	---	101	217	---
TOTAL	25428	12738	2754	1555	7129	5861	20657	11031	46872	9572	10484	11790
MEAN	820	425	88.8	50.2	255	189	689	356	1562	309	338	393
MAX	8380	1190	165	70	900	602	3130	1180	8300	1470	3270	3270
MIN	50	166	40	42	73	93	95	141	144	101	36	49
AC-FT	50440	25270	5460	3080	14140	11630	40970	21880	92970	18990	20800	23390

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1999, BY WATER YEAR (WY)

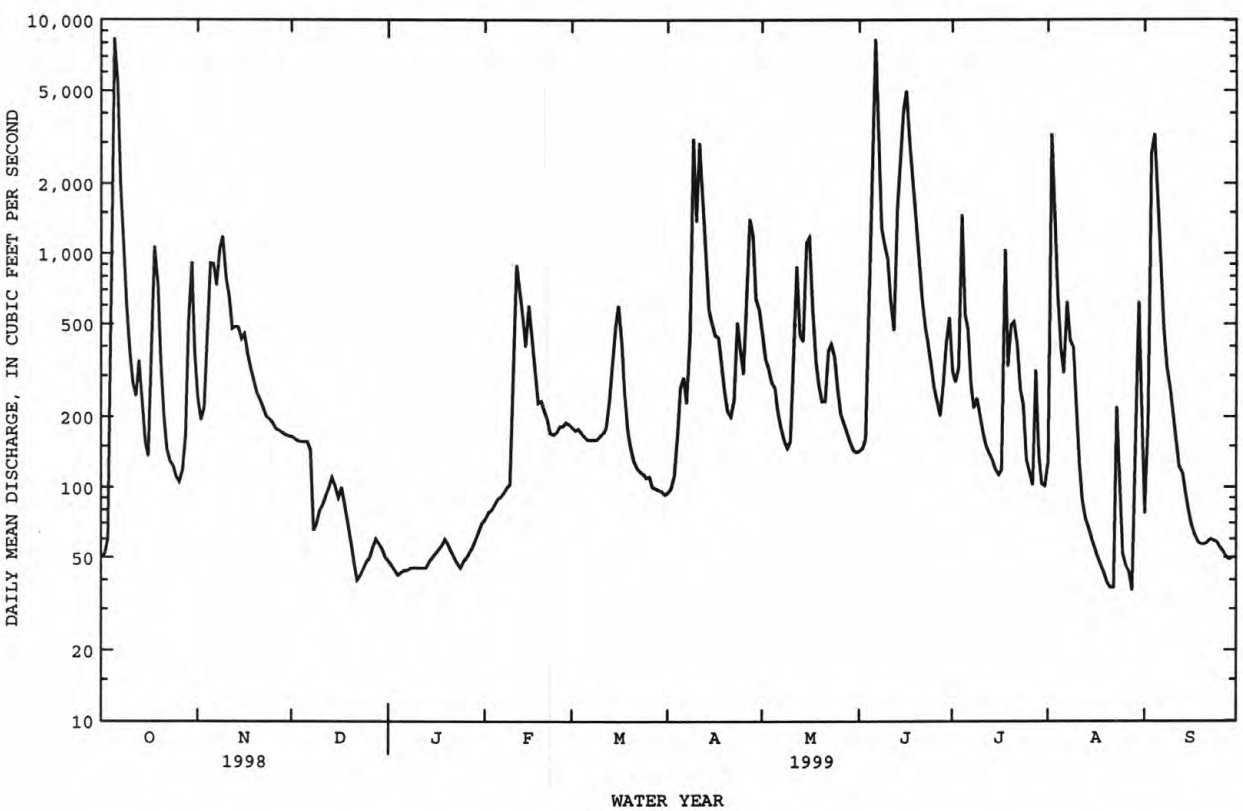
MEAN	111	65.5	38.9	39.2	171	554	397	610	749	297	182	119
MAX	820	425	283	380	945	2479	1555	2802	3984	986	873	1060
(WY)	1999	1999	1994	1997	1997	1944	1970	1982	1967	1969	1997	1955
MIN	.000	1.74	.000	.000	.000	33.8	22.8	23.2	7.29	23.3	2.60	.17
(WY)	1965	1977	1977	1977	1979	1981	1981	1985	1989	1980	1989	1975

e Estimated

06447000 WHITE RIVER NEAR KADOKA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1943 - 1999	
ANNUAL TOTAL	136091		165871			
ANNUAL MEAN	373		454		278	
HIGHEST ANNUAL MEAN					612	1997
LOWEST ANNUAL MEAN					90.0	1961
HIGHEST DAILY MEAN	8380	Oct 5	8380	Oct 5	16500	Jun 18 1962
LOWEST DAILY MEAN	29	Sep 11	36	Aug 28	.00	Oct 11 1943a
ANNUAL SEVEN-DAY MINIMUM	31	Sep 7	44	Jan 3	.00	Aug 3 1946
INSTANTANEOUS PEAK FLOW			15300	Jun 6	21700	Jun 7 1951b
INSTANTANEOUS PEAK STAGE			12.42	Jun 6	16.18	May 20 1982
ANNUAL RUNOFF (AC-FT)	269900		329000		201300	
10 PERCENT EXCEEDS	816		969		622	
50 PERCENT EXCEEDS	175		181		64	
90 PERCENT EXCEEDS	60		50		4.0	

a No flow for many days in most years.
b Gage height, 13.83 ft, site then in use, from rating table extended above 16,000 ft^3/s.



06447230 BLACK PIPE CREEK NEAR BELVIDERE, SD

LOCATION.--Lat 43°45'28", long 101°13'40", in NW¼ NW¼ 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 mi^2, approximately.

PERIOD OF RECORD.-- April 1992 to current year.

GAGE.--Water stage recorder. Elevation of gage is 2,060 ft above sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	42	18	e10	e5.0	18	15	25	11	8.9	7.9	38
2	7.1	22	17	e9.5	e5.8	17	17	30	10	47	7.0	227
3	33	17	16	e9.0	e6.4	14	18	115	11	10	6.8	499
4	223	21	16	e8.0	e7.0	14	19	43	13	256	6.4	383
5	454	35	16	e8.0	e8.0	e13	24	33	21	23	8.1	164
6	79	26	e15	e8.2	e9.0	e12	37	31	26	13	33	72
7	48	e21	e15	e8.4	e10	e12	25	24	13	12	149	39
8	43	e18	e14	e8.6	e10	e11	152	21	12	12	15	21
9	23	e16	e14	e8.6	e12	e11	279	23	12	10	6.5	13
10	13	e14	e14	e8.8	e14	e10	435	425	11	9.4	4.4	10
11	10	e10	e15	e9.0	e16	e10	295	302	12	8.6	3.3	8.6
12	9.0	e15	e16	e9.2	e18	e14	106	168	13	8.3	2.5	8.0
13	8.8	e20	e18	e9.4	e18	e20	50	147	97	7.7	2.2	7.2
14	7.6	e28	e22	e9.6	e17	54	31	843	30	7.7	1.7	6.6
15	7.2	e38	e20	e9.8	e17	56	26	273	198	7.4	1.9	5.9
16	7.6	55	e19	e10	e16	41	21	118	57	6.9	2.5	5.2
17	73	63	e20	e9.5	e15	29	19	86	28	9.6	2.0	5.0
18	49	52	e18	e9.0	e14	23	17	58	28	41	1.6	4.6
19	16	46	e16	e8.5	e12	18	16	43	19	7.1	1.5	5.4
20	14	36	e14	e8.0	e11	16	15	36	13	7.0	1.4	5.6
21	13	34	e12	e7.5	e10	14	20	30	10	6.4	1.5	5.6
22	13	28	e10	e6.5	e10	14	43	28	9.5	6.4	1.4	5.9
23	15	26	e10	e5.5	e12	14	34	21	8.2	7.0	1.3	6.3
24	15	23	e10	e4.8	e15	14	29	19	7.4	20	1.3	6.0
25	15	23	e10	e4.3	e19	13	46	18	6.7	9.8	1.4	5.4
26	14	23	e10	e4.0	23	13	172	16	6.1	8.3	1.3	5.0
27	14	23	e10	e4.1	26	14	60	14	6.3	7.9	1.1	4.7
28	21	22	e10	e4.3	21	13	51	13	24	43	1.2	4.4
29	275	21	e11	e4.5	---	13	38	11	12	13	26	4.7
30	87	20	e12	e4.7	---	13	29	11	7.6	9.0	31	5.1
31	67	---	e11	e4.9	---	14	---	11	---	7.8	17	---
TOTAL	1678.3	838	449	234.2	377.2	562	2139	3036	732.8	651.2	349.2	1581.2
MEAN	54.1	27.9	14.5	7.55	13.5	18.1	71.3	97.9	24.4	21.0	11.3	52.7
MAX	454	63	22	10	26	56	435	843	198	256	149	499
MIN	4.0	10	10	4.0	5.0	10	15	11	6.1	6.4	1.1	4.4
AC-FT	3330	1660	891	465	748	1110	4240	6020	1450	1290	693	3140

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1999, BY WATER YEAR (WY)

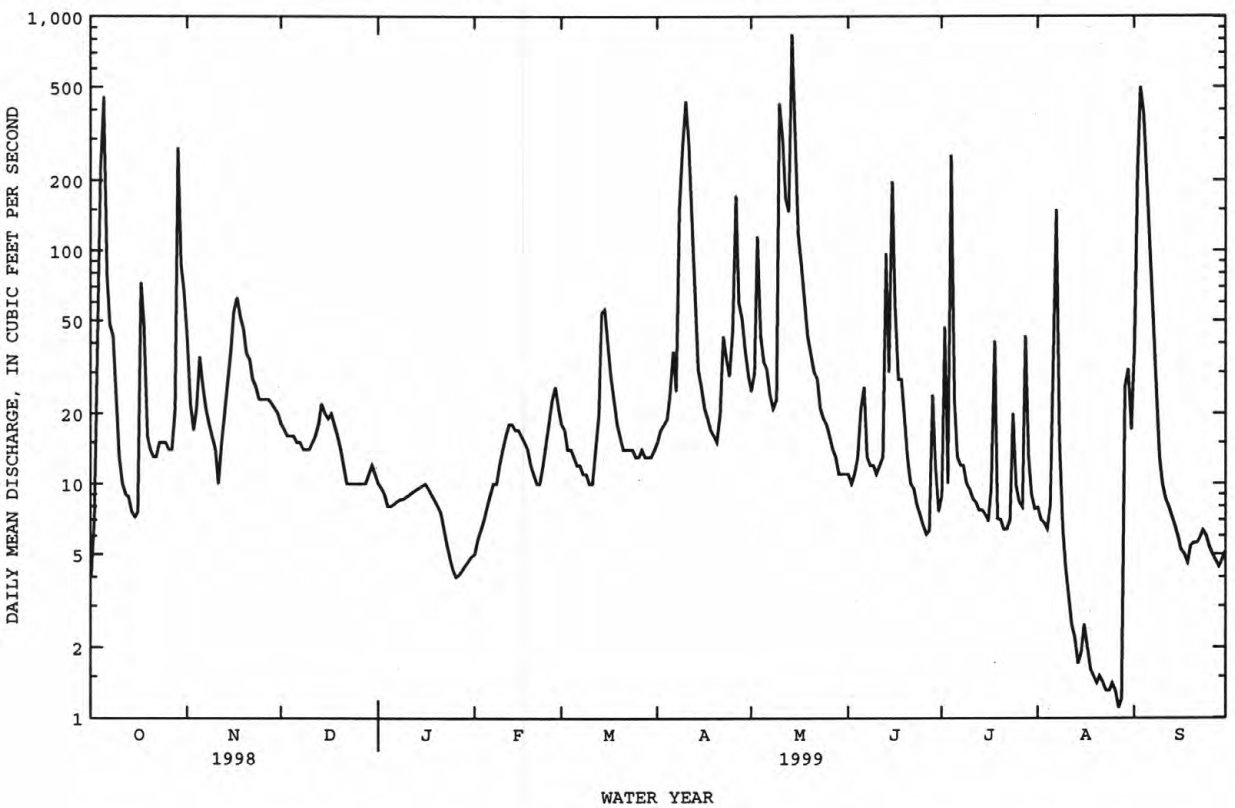
MEAN	18.1	9.13	8.31	26.5	61.5	52.9	65.3	97.5	117	41.2	13.0	15.0
MAX	54.1	27.9	27.2	154	218	116	166	197	346	121	29.5	52.7
(WY)	1999	1999	1998	1997	1997	1998	1995	1995	1997	1998	1997	1999
MIN	.000	1.13	.000	.085	.93	14.5	10.2	22.8	16.0	.68	1.77	2.65
(WY)	1993	1994	1993	1994	1993	1993	1994	1994	1996	1995	1995	1998

e Estimated

06447230 BLACK PIPE CREEK NEAR BELVIDERE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1993 - 1999	
ANNUAL TOTAL	18699.90		12628.1			
ANNUAL MEAN	51.2		34.6		43.6	
HIGHEST ANNUAL MEAN					97.2	1997
LOWEST ANNUAL MEAN					15.0	1994
HIGHEST DAILY MEAN	1130	Jul 3	843	May 14	3490	Jun 3 1997
LOWEST DAILY MEAN	.00	Jan 14	1.1	Aug 27	.00	Oct 1 1992a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 14	1.3	Aug 22	.00	Oct 1 1992
INSTANTANEOUS PEAK FLOW			2020	May 14	3580	Jun 3 1997b
INSTANTANEOUS PEAK STAGE			8.38	May 14	15.70	Feb 17 1997c
ANNUAL RUNOFF (AC-FT)	37090		25050		31580	
10 PERCENT EXCEEDS	147		55		104	
50 PERCENT EXCEEDS	16		14		9.0	
90 PERCENT EXCEEDS	2.1		5.2		.01	

a No flow at times in most years.
b Gage height, 10.93 ft.
c Backwater from ice.



06447500 LITTLE WHITE RIVER NEAR MARTIN, SD

LOCATION (REVISED).--Lat 43°10'00", long 101°37'47", in NW¼ SW¼ NW¼ 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 mi^2, approximately, of which about 230 mi^2 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 sea level, 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 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 May 5, 1932, reached a stage of 13.3 ft, from floodmarks.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	36	33	e16	35	43	29	46	28	31	15	9.8
2	22	34	32	e15	38	42	29	41	28	30	16	12
3	22	33	32	e15	36	42	29	38	28	30	16	16
4	24	33	31	e16	47	42	30	37	29	35	16	19
5	29	e32	31	e16	41	41	35	37	38	39	15	23
6	42	e31	30	e16	48	e40	41	36	52	36	14	23
7	52	e30	e30	e16	47	e38	47	33	39	34	15	20
8	54	e28	e28	e16	53	e36	49	32	36	31	18	16
9	61	e27	e26	e16	69	e34	47	31	31	28	15	14
10	62	e25	e25	e16	63	e31	53	32	31	26	13	12
11	43	e23	e24	e18	e50	e33	65	31	28	24	12	12
12	35	e20	e27	e20	e40	e35	77	32	27	23	12	11
13	32	e27	e29	e22	e40	e40	89	32	29	22	14	12
14	29	31	e30	30	e50	50	90	35	40	21	13	12
15	27	56	37	42	60	54	70	45	41	20	13	12
16	27	80	33	32	57	54	58	49	76	19	12	12
17	27	96	35	33	58	52	53	51	75	19	12	12
18	28	112	30	40	49	49	50	57	79	21	11	12
19	29	118	28	35	e44	43	45	66	89	29	11	13
20	30	104	e24	35	e40	38	40	66	77	34	10	14
21	28	72	e20	36	e39	35	39	56	54	51	10	14
22	28	54	e18	37	e39	33	40	45	38	61	11	15
23	27	46	e17	36	e40	32	43	37	33	62	11	15
24	27	43	e15	37	e40	32	42	34	32	54	11	14
25	27	40	e16	34	42	32	41	31	31	32	10	13
26	27	38	e17	30	46	31	46	31	31	23	11	13
27	26	36	e18	32	47	31	53	30	31	21	10	13
28	27	35	e19	31	45	30	56	29	36	19	9.7	13
29	64	34	e18	26	---	30	56	28	33	18	10	13
30	61	34	e17	30	---	30	53	28	31	17	9.9	13
31	42	---	e16	31	---	29	---	28	---	16	9.5	---
TOTAL	1080	1408	786	825	1303	1182	1495	1204	1251	926	386.1	422.8
MEAN	34.8	46.9	25.4	26.6	46.5	38.1	49.8	38.8	41.7	29.9	12.5	14.1
MAX	64	118	37	42	69	54	90	66	89	62	18	23
MIN	21	20	15	15	35	29	29	28	27	16	9.5	9.8
AC-FT	2140	2790	1560	1640	2580	2340	2970	2390	2480	1840	766	839

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 -1940, 1963 - 1999, BY WATER YEAR (WY)

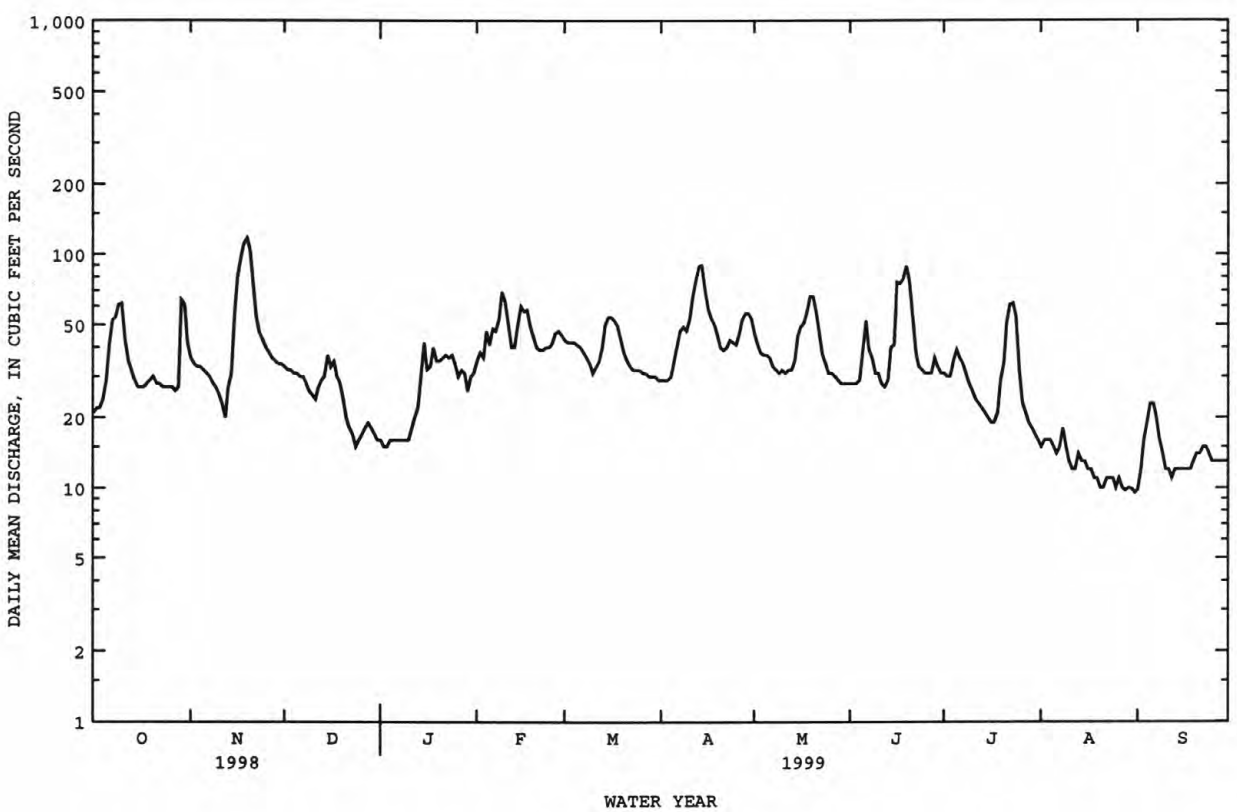
MEAN	13.8	16.8	12.9	11.6	24.0	44.1	37.1	30.7	31.8	15.9	12.5	9.85
MAX	34.8	46.9	28.8	34.9	199	157	104	66.4	162	44.5	102	19.9
(WY)	1999	1999	1994	1997	1997	1966	1977	1995	1997	1969	1983	1998
MIN	7.86	9.73	5.59	4.51	6.26	11.4	13.0	12.2	5.65	2.01	1.80	4.87
(WY)	1980	1965	1986	1982	1989	1977	1981	1940	1940	1940	1940	1939

e Estimated

06447500 LITTLE WHITE RIVER NEAR MARTIN, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1939-1940, 1963-1999	
ANNUAL TOTAL	11962		12268.9			
ANNUAL MEAN	32.8		33.6		21.7	
HIGHEST ANNUAL MEAN					53.7	1997
LOWEST ANNUAL MEAN					10.9	1940
HIGHEST DAILY MEAN	169	Apr 1	118	Nov 19	1110	Jun 4 1997
LOWEST DAILY MEAN	14	Mar 9	9.5	Aug 31	.60	Aug 14 1940a
ANNUAL SEVEN-DAY MINIMUM	15	Mar 6	10	Aug 26	.67	Aug 12 1940
INSTANTANEOUS PEAK FLOW			136	Nov 19	1300	Jun 4 1997
INSTANTANEOUS PEAK STAGE			4.51	Nov 19	13.48	Jun 4 1997
ANNUAL RUNOFF (AC-FT)	23730		24340		15730	
10 PERCENT EXCEEDS	54		54		40	
50 PERCENT EXCEEDS	26		31		14	
90 PERCENT EXCEEDS	18		13		6.4	

a Also Aug. 16, 18, 1940, and no flow part of each day Oct. 19, 20, 22, 1962 (regulation due to construction).



06448000 LAKE CREEK ABOVE REFUGE, NEAR TUTHILL, SD

LOCATION.--Lat 43°05'07", long 101°36'04", in NE¼ SW¼ NE¼ 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 mi^2, approximately, of which about 23 mi^2 probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to February 1979, Apr. 11, 1966, to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,090 ft above sea level, 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. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

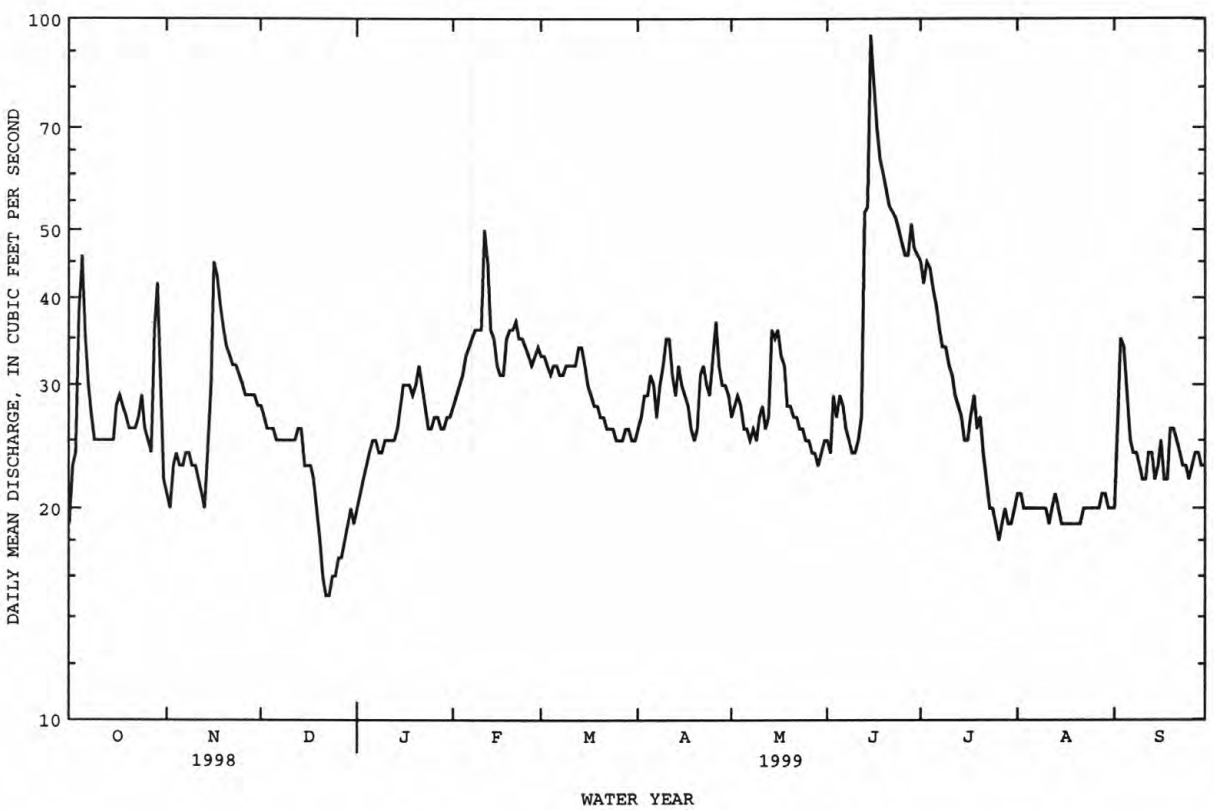
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	21	28	e20	e28	33	26	27	25	45	21	20
2	23	20	27	e21	e29	33	27	28	24	42	21	26
3	24	23	26	e22	e30	32	29	29	29	45	20	35
4	38	24	26	e23	e31	31	29	28	27	44	20	34
5	46	23	26	e24	e33	32	31	26	29	41	20	29
6	35	23	25	e25	e34	32	30	26	28	39	20	25
7	30	e24	25	e25	e35	31	27	25	26	36	20	24
8	27	e24	25	e24	e36	31	30	26	25	34	20	24
9	25	e23	25	e24	e36	32	32	25	24	34	20	23
10	25	e23	25	e25	e36	32	35	27	24	32	20	22
11	25	e22	25	e25	e50	32	35	28	25	31	19	22
12	25	e21	25	e25	e45	32	31	26	27	29	20	24
13	25	e20	26	e25	36	34	29	27	53	28	21	24
14	25	e24	26	e26	35	34	32	36	54	27	20	22
15	25	e30	23	e28	32	32	30	35	95	25	19	23
16	28	e45	23	e30	31	30	29	36	81	25	19	25
17	29	43	23	e30	31	29	28	33	70	27	19	22
18	28	39	e22	e30	35	28	26	32	63	29	19	22
19	27	36	e20	e29	36	28	25	28	60	26	19	26
20	26	34	e18	e30	36	27	26	28	57	27	19	26
21	26	33	e16	e32	37	27	31	27	54	24	19	25
22	26	32	e15	e30	35	26	32	27	53	22	20	24
23	27	32	e15	e28	35	26	30	26	52	20	20	23
24	29	31	e16	e26	34	26	29	26	50	20	20	23
25	26	30	e16	e26	33	25	33	25	48	19	20	22
26	25	29	e17	e27	32	25	37	25	46	18	20	23
27	24	29	e17	e27	33	25	32	24	46	19	20	24
28	36	29	e18	e26	34	26	30	24	51	20	21	24
29	42	29	e19	e26	---	26	30	23	47	19	21	23
30	29	28	e20	e27	---	25	29	24	46	19	20	23
31	22	---	e19	e27	---	25	---	25	---	20	20	---
TOTAL	867	844	677	813	968	907	900	852	1339	886	617	732
MEAN	28.0	28.1	21.8	26.2	34.6	29.3	30.0	27.5	44.6	28.6	19.9	24.4
MAX	46	45	28	32	50	34	37	36	95	45	21	35
MIN	19	20	15	20	28	25	25	23	24	18	19	20
AC-FT	1720	1670	1340	1610	1920	1800	1790	1690	2660	1760	1220	1450
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1940, 1963 - 1979, 1997 - 1999, BY WATER YEAR (WY)												
MEAN	19.1	20.7	19.7	19.5	23.0	28.1	26.7	22.8	20.9	16.5	15.5	16.6
MAX	28.0	28.1	26.6	28.7	34.6	38.1	37.3	36.4	44.6	28.6	23.5	24.4
(WY)	1999	1999	1998	1998	1999	1977	1977	1996	1999	1999	1997	1999
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

e Estimated

06448000 LAKE CREEK ABOVE REFUGE, NEAR TUTHILL, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1939-1940, 1963-1979, 1997-1999	
ANNUAL TOTAL	9682		10402			
ANNUAL MEAN	26.5		28.5		20.7	
HIGHEST ANNUAL MEAN					28.5	1999
LOWEST ANNUAL MEAN					13.8	1939
HIGHEST DAILY MEAN	76	May 22	95	Jun 15	115	May 27 1996
LOWEST DAILY MEAN	15	Dec 22	15	Dec 22, 23	.10	Jun 5 1939
ANNUAL SEVEN-DAY MINIMUM	16	Dec 21	16	Dec 21	1.0	Jun 3 1939
INSTANTANEOUS PEAK FLOW			101	Jun 15a	154	Mar 9 1966b
INSTANTANEOUS PEAK STAGE			1.97	Feb 11c	3.75	Feb 12 1971c
ANNUAL RUNOFF (AC-FT)	19200		20630		14970	
10 PERCENT EXCEEDS	36		36		29	
50 PERCENT EXCEEDS	25		26		20	
90 PERCENT EXCEEDS	18		20		13	

a Gage height, 1.45 ft.
b Gage height, 2.83 ft.
c Backwater from ice.



06449000 LAKE CREEK BELOW REFUGE, NEAR TUTHILL, SD

LOCATION.--Lat 43°08'46", long 101°30'38", in SW¼ sec.30, T.37 N., R.35 W., Bennett County, Hydrologic Unit 10140203, on left bank 400 ft downstream from east boundary of LaCreek game refuge, 1.2 mi southwest of Tuthill, and 5.5 mi upstream from mouth.

DRAINAGE AREA.--120 mi^2, approximately, of which about 60 mi^2 probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,055 ft above sea level, by barometer. Prior to Aug. 4, 1938, nonrecording gage at same site and datum.

REMARKS.--Records fair 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

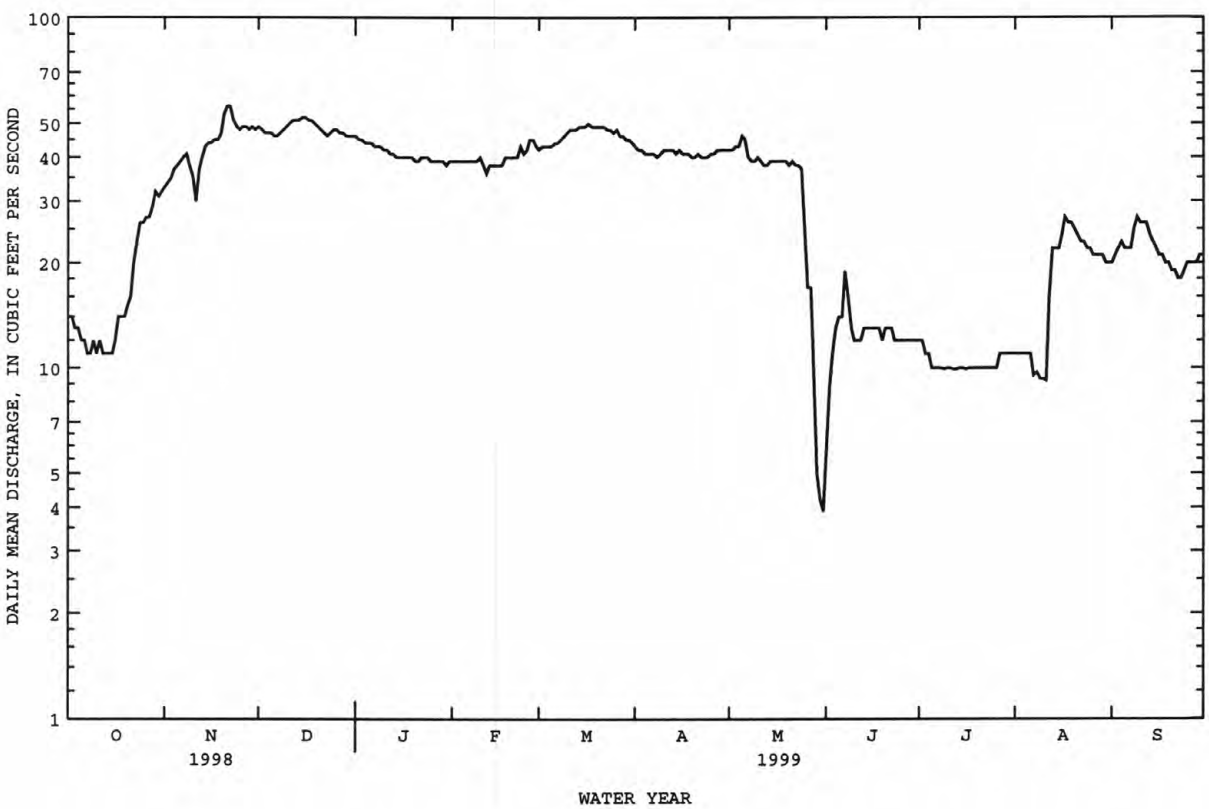
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e14	33	49	e46	39	42	43	42	6.0	12	11	20
2	e14	34	48	e45	39	43	42	42	8.9	12	11	21
3	e13	35	47	e45	39	43	42	43	11	11	11	22
4	e13	37	e47	e44	39	43	41	43	13	11	11	23
5	e12	38	e47	44	39	43	41	46	14	10	11	22
6	e12	39	e46	e44	39	44	41	45	14	10	11	22
7	e11	40	e46	e43	39	e44	41	40	19	10	9.5	22
8	e11	41	e47	43	39	e45	40	39	16	10	9.7	25
9	12	e38	e48	43	39	e46	41	39	13	9.9	9.3	27
10	11	e35	e49	42	40	47	42	40	12	10	9.3	26
11	12	e30	e50	42	e38	48	42	39	12	10	9.2	26
12	11	e37	e51	41	e36	48	42	38	12	9.9	16	26
13	11	e40	e51	41	38	48	42	38	13	9.9	22	24
14	11	e43	51	40	38	49	41	39	13	10	22	23
15	11	44	e52	40	38	49	42	39	13	10	22	22
16	12	44	e52	40	38	49	41	39	13	9.9	24	21
17	14	e45	e51	40	38	50	41	39	13	10	27	21
18	14	e45	e51	40	40	49	41	39	13	10	26	20
19	14	e47	e50	40	40	49	40	39	12	10	26	20
20	15	e53	e49	39	40	49	40	38	13	10	25	19
21	16	56	e48	39	40	49	41	39	13	10	24	19
22	20	56	e47	40	40	49	40	38	13	10	23	18
23	23	51	e46	40	43	48	40	38	12	10	23	18
24	26	49	e47	40	41	48	40	37	12	10	22	19
25	26	48	e48	39	42	47	41	26	12	10	22	20
26	27	49	e48	39	45	48	41	17	12	10	21	20
27	27	49	e47	39	45	46	42	17	12	11	21	20
28	29	48	e47	39	43	46	42	10	12	11	21	20
29	32	49	e46	39	---	45	42	5.0	12	11	21	21
30	31	48	e46	38	---	45	42	4.2	12	11	20	21
31	32	---	e46	39	---	44	---	3.9	---	11	20	---
TOTAL	537	1301	1498	1273	1114	1443	1237	1041.1	375.9	320.6	561.0	648
MEAN	17.3	43.4	48.3	41.1	39.8	46.5	41.2	33.6	12.5	10.3	18.1	21.6
MAX	32	56	52	46	45	50	43	46	19	12	27	27
MIN	11	30	46	38	36	42	40	3.9	6.0	9.9	9.2	18
AC-FT	1070	2580	2970	2520	2210	2860	2450	2070	746	636	1110	1290
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939, 1963 - 1999, BY WATER YEAR (WY)												
MEAN	5.93	10.4	16.0	18.2	22.0	31.6	35.7	31.1	30.1	16.6	11.2	8.60
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	.000	.000	.000	.000	.000	.058	.090	.029	.033	.24	.084	.11
(WY)	1940	1940	1940	1940	1940	1940	1965	1939	1939	1939	1939	1939

e Estimated

06449000 LAKE CREEK BELOW REFUGE, NEAR TUTHILL, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1939, 1963 - 1999	
ANNUAL TOTAL	13456		11349.6			
ANNUAL MEAN	36.9		31.1		19.8	
HIGHEST ANNUAL MEAN					41.9	1997
LOWEST ANNUAL MEAN					3.09	1940
HIGHEST DAILY MEAN	75	Apr 15	56	Nov 21	424	Mar 25 1987
LOWEST DAILY MEAN	11	Oct 7	3.9	May 31	.00	Mar 25 1939a
ANNUAL SEVEN-DAY MINIMUM	11	Oct 7	7.0	May 28	.00	Mar 25 1939
INSTANTANEOUS PEAK FLOW			69	Feb 23b	594	Mar 25 1987c
INSTANTANEOUS PEAK STAGE			4.47	Nov 10d	6.46	Mar 12 1988d
ANNUAL RUNOFF (AC-FT)	26690		22510		14320	
10 PERCENT EXCEEDS	56		48		47	
50 PERCENT EXCEEDS	35		38		14	
90 PERCENT EXCEEDS	20		11		.50	

a No flow at times in some years.
b Gage height, 3.25 ft.
c Gage height, 5.57 ft, from rating curve extended above 150 ft^3/s.
d Backwater from ice.



06449100 LITTLE WHITE RIVER NEAR VETAL, SD

LOCATION.--Lat 43°06'03", long 101°13'49", in NE¼ NW¼ 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 mi^2, approximately, of which about 415 mi^2 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. Datum of gage is 2,780.69 ft above sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	111	152	e90	113	126	116	131	65	80	57	44
2	61	114	150	e88	107	126	111	132	61	76	56	53
3	62	121	150	e86	98	122	110	133	61	80	53	66
4	71	127	148	e87	97	124	110	129	58	79	52	64
5	72	127	141	e90	100	125	113	122	63	73	52	55
6	74	128	124	e100	100	124	115	121	60	68	57	50
7	72	129	121	e105	102	123	114	119	59	67	56	50
8	73	132	125	e100	108	124	122	113	63	67	52	50
9	74	135	129	e97	118	99	132	108	70	66	47	52
10	76	110	122	e94	144	89	139	107	73	64	46	57
11	79	79	125	e90	137	97	142	106	76	63	45	57
12	86	103	127	e88	117	98	141	104	78	62	45	56
13	83	131	126	e88	e120	102	142	103	98	60	44	55
14	80	142	127	e88	148	111	145	121	91	58	53	55
15	79	156	124	e92	136	117	146	121	121	56	52	52
16	79	151	121	e96	132	123	150	115	111	54	51	51
17	79	148	120	e100	123	124	149	115	97	57	51	50
18	79	151	121	e96	122	126	148	116	102	55	54	50
19	78	151	e110	93	119	127	144	116	112	53	54	55
20	77	153	e90	98	119	130	142	119	114	55	49	51
21	76	192	e80	100	121	130	145	122	117	54	48	50
22	79	202	e70	96	120	130	142	126	122	55	50	49
23	81	192	e72	e94	116	128	135	126	116	59	47	49
24	86	187	e75	e92	127	129	130	124	109	63	45	48
25	88	178	e80	e85	129	126	132	120	103	67	45	48
26	90	173	e90	e90	129	124	140	108	94	70	45	48
27	91	167	e150	e95	129	124	135	92	90	70	44	49
28	96	162	e120	e100	128	123	131	87	100	67	46	49
29	106	159	e100	124	---	121	130	80	86	64	47	49
30	104	155	e96	130	---	120	131	70	82	62	46	50
31	106	---	e92	126	---	119	---	66	---	59	45	---
TOTAL	2493	4366	3578	2998	3359	3711	3982	3472	2652	1983	1534	1562
MEAN	80.4	146	115	96.7	120	120	133	112	88.4	64.0	49.5	52.1
MAX	106	202	152	130	148	130	150	133	122	80	57	66
MIN	56	79	70	85	97	89	110	66	58	53	44	44
AC-FT	4940	8660	7100	5950	6660	7360	7900	6890	5260	3930	3040	3100

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1999, BY WATER YEAR (WY)

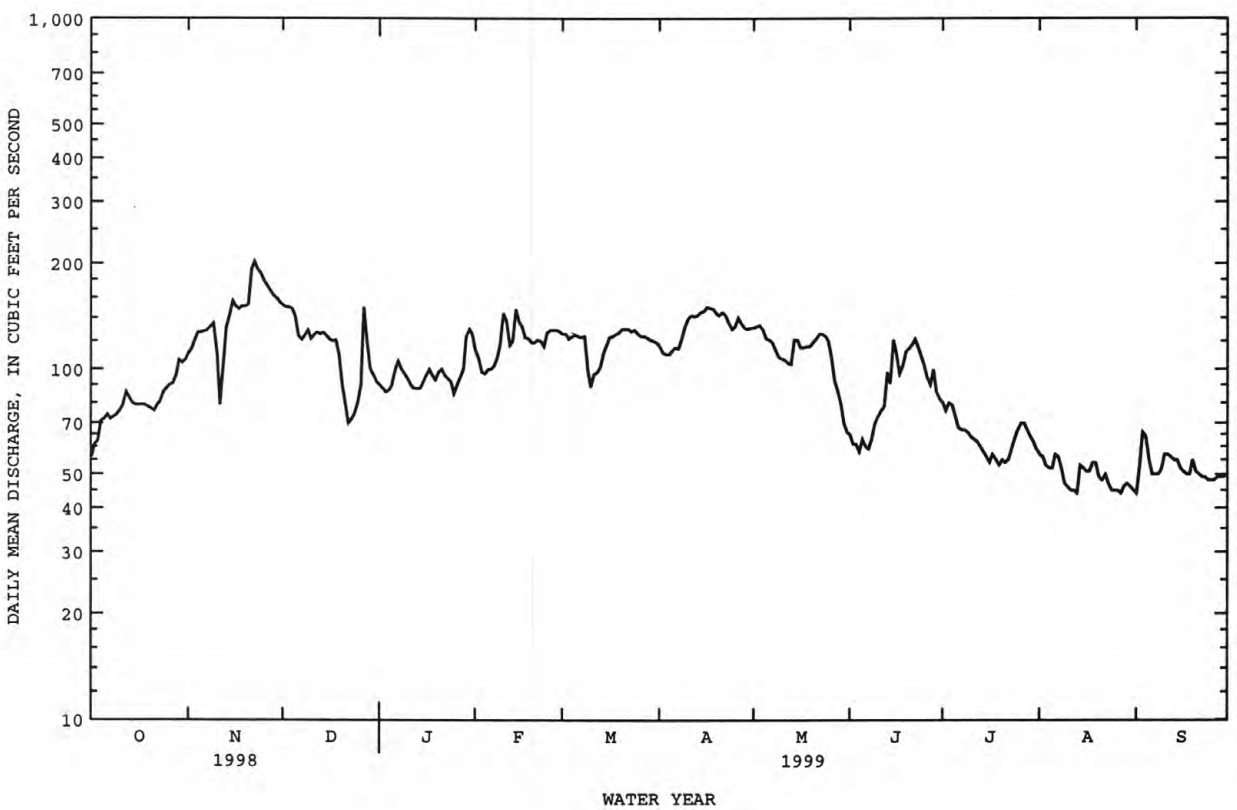
MEAN	34.5	42.8	41.7	39.3	57.6	96.8	100	90.1	88.7	52.5	40.7	33.3
MAX	80.4	146	115	96.7	188	205	273	185	272	156	137	89.0
(WY)	1999	1999	1999	1999	1997	1978	1977	1991	1997	1967	1983	1997
MIN	18.0	21.3	12.5	18.5	19.2	33.5	27.3	28.5	20.3	16.2	15.1	16.5
(WY)	1977	1977	1975	1981	1977	1981	1981	1992	1985	1974	1961	1975

e Estimated

06449100 LITTLE WHITE RIVER NEAR VETAL, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1960 - 1999	
ANNUAL TOTAL	37772		35690			
ANNUAL MEAN	103		97.8		59.8	
HIGHEST ANNUAL MEAN					117	1997
LOWEST ANNUAL MEAN					28.2	1981
HIGHEST DAILY MEAN	258	Apr 3	202	Nov 22	1200	May 16 1991
LOWEST DAILY MEAN	48	Sep 19	44	Aug 13a	9.0	Dec 24 1974
ANNUAL SEVEN-DAY MINIMUM	50	Sep 14	45	Aug 26	9.6	Dec 19 1974
INSTANTANEOUS PEAK FLOW			215	Nov 21b	3540	May 16 1991
INSTANTANEOUS PEAK STAGE			5.47	Dec 27c	12.53	May 16 1991
ANNUAL RUNOFF (AC-FT)	74920		70790		43330	
10 PERCENT EXCEEDS	153		141		115	
50 PERCENT EXCEEDS	97		100		44	
90 PERCENT EXCEEDS	66		51		21	

a Also Aug. 27 and Sept. 1.
b Gage height, 4.94 ft.
c Backwater from ice.



06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD

LOCATION.--Lat 43°15'47", long 100°55'02", in NW¼ SE¼ sec.18, T.38 N., R.30 W., Todd County, Hydrologic Unit 10140203, on right bank at downstream side of Lampert bridge on BIA highway in Crazy Horse Canyon, at Ghost Hawk Park, 3.1 mi upstream from Rosebud Creek, and 4.6 mi northwest of Rosebud.

DRAINAGE AREA.--890 mi^2, approximately, of which 630 mi^2 probably contributes directly to surface runoff.

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,416 ft above sea level, from topographic map. Prior to the 1992 water year, elevation of gage was 1.00 ft lower.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	164	205	e120	e300	245	174	177	149	161	100	84
2	113	169	205	e110	e250	242	165	189	165	156	96	131
3	94	183	205	e100	e200	235	163	191	172	164	96	165
4	104	186	202	e110	e170	229	163	201	172	160	93	122
5	111	185	198	e120	e131	232	169	175	178	152	117	105
6	112	188	186	e130	e140	231	168	170	153	138	99	101
7	116	188	167	e140	e160	226	168	162	148	132	114	95
8	141	186	162	e130	164	220	185	167	168	131	110	94
9	146	194	168	e125	173	209	191	166	169	124	100	91
10	148	194	163	e120	188	189	209	186	169	119	91	95
11	154	140	154	e120	187	179	206	158	144	118	88	103
12	142	156	161	e120	170	182	200	169	149	116	88	104
13	132	165	161	e115	169	186	195	175	193	113	83	95
14	149	193	158	e115	198	189	208	180	184	111	82	95
15	154	211	156	e120	204	195	194	174	200	110	90	95
16	135	220	154	e125	200	199	190	174	202	105	90	95
17	126	222	149	e125	203	196	190	167	196	107	87	94
18	125	224	149	e125	208	191	184	174	196	116	89	94
19	149	220	135	e120	211	192	186	202	218	107	92	107
20	145	215	e125	e120	214	190	204	198	225	113	93	100
21	119	222	e115	e120	217	191	202	182	222	106	84	97
22	131	270	e110	e115	225	192	199	189	217	114	92	96
23	136	263	e115	e115	220	185	182	183	208	125	91	95
24	161	247	e120	e120	221	187	178	188	201	135	84	95
25	175	239	e130	e122	245	184	181	183	198	125	80	95
26	181	224	e150	e127	251	183	188	194	178	124	82	92
27	163	226	e170	e130	250	178	194	190	172	127	82	89
28	170	223	e160	e135	245	178	188	184	165	127	82	95
29	180	214	e150	e140	---	174	184	181	157	118	92	91
30	163	210	e140	e160	---	173	178	170	151	110	92	90
31	159	---	e130	e200	---	174	---	156	---	106	86	---
TOTAL	4341	6141	4853	3894	5714	6156	5586	5555	5419	3870	2845	3000
MEAN	140	205	157	126	204	199	186	179	181	125	91.8	100
MAX	181	270	205	200	300	245	209	202	225	164	117	165
MIN	94	140	110	100	131	173	163	156	144	105	80	84
AC-FT	8610	12180	9630	7720	11330	12210	11080	11020	10750	7680	5640	5950

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1999, BY WATER YEAR (WY)

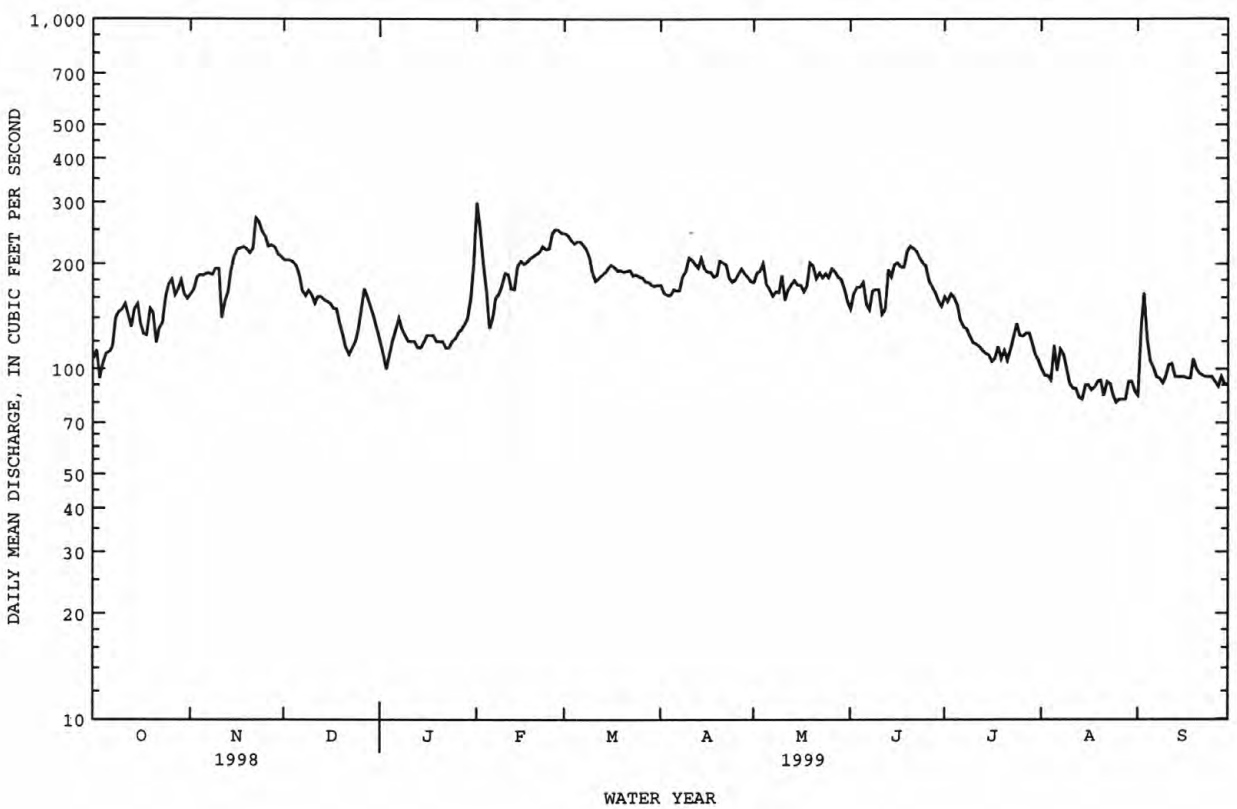
MEAN	86.0	92.6	86.5	88.7	136	175	164	166	170	105	91.5	81.5
MAX	140	205	157	130	301	388	244	268	423	186	168	119
(WY)	1999	1999	1999	1994	1997	1994	1998	1983	1997	1993	1993	1997
MIN	55.5	56.0	34.9	51.1	60.3	106	94.9	72.7	50.8	54.0	45.4	45.2
(WY)	1990	1986	1993	1982	1989	1990	1982	1992	1985	1985	1989	1984

e Estimated

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1982 - 1999	
ANNUAL TOTAL	59147		57374			
ANNUAL MEAN	162		157		120	
HIGHEST ANNUAL MEAN					188	1997
LOWEST ANNUAL MEAN					74.0	1985
HIGHEST DAILY MEAN	393	Apr 4	300	Feb 1	1300	Jun 6 1997
LOWEST DAILY MEAN	70	Jan 10	80	Aug 25	20	Feb 3 1989
ANNUAL SEVEN-DAY MINIMUM	83	Sep 8	85	Aug 22	27	Dec 3 1992
INSTANTANEOUS PEAK FLOW			400	Jan 31	2190	May 16 1991a
INSTANTANEOUS PEAK STAGE			3.98	Jan 31b	8.94	Feb 22 1997b
ANNUAL RUNOFF (AC-FT)	117300		113800		87030	
10 PERCENT EXCEEDS	246		214		200	
50 PERCENT EXCEEDS	152		163		101	
90 PERCENT EXCEEDS	100		95		57	

a Gage height, 8.18 ft, current datum.
b Backwater from ice.



06449500 LITTLE WHITE RIVER NEAR ROSEBUD, SD

LOCATION.--Lat 43°19'32", long 100°53'00", in SW¼ NW¼ sec.28, T.39 N., R.30 W., Todd County, Hydrologic Unit 10140203, on right bank (revised) 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 mi^2, approximately, of which about 760 mi^2 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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	176	232	e145	e350	224	199	213	141	154	125	95
2	111	184	231	e135	e300	227	195	218	130	149	122	145
3	114	201	228	e110	e230	222	191	231	130	160	118	194
4	140	208	229	e115	e225	219	190	223	137	154	117	188
5	168	206	226	e130	e220	225	201	219	161	148	143	143
6	146	207	215	e145	212	225	198	214	148	139	154	121
7	134	216	e200	e155	213	220	191	202	134	133	134	115
8	135	210	e200	e145	217	223	220	195	127	131	129	111
9	122	224	e195	e135	226	216	238	196	134	127	121	109
10	133	234	e195	e140	243	195	257	252	139	124	114	109
11	138	166	e200	e135	255	186	259	212	147	124	109	112
12	143	153	e195	e140	230	191	243	194	140	122	108	114
13	143	182	e195	e130	212	198	236	186	192	121	102	109
14	143	215	201	e130	231	204	244	208	184	119	99	106
15	147	230	202	e140	237	209	242	222	245	119	105	108
16	151	240	201	e155	227	213	236	214	237	117	107	109
17	156	243	198	e170	228	218	233	205	203	120	105	106
18	151	239	199	e180	231	212	223	199	184	129	104	107
19	143	237	e180	e170	231	212	218	201	188	123	104	116
20	142	233	e160	e165	229	211	217	210	192	130	105	111
21	139	239	e125	e160	227	212	240	204	187	126	102	104
22	140	294	e135	e155	e225	214	248	199	182	130	105	102
23	141	291	e145	e150	e215	213	230	199	184	151	104	103
24	144	283	e175	e145	217	211	217	194	174	206	96	105
25	148	275	e200	e140	235	210	222	192	165	140	95	103
26	148	262	e200	e145	239	207	239	186	155	138	93	102
27	149	254	e200	e165	237	204	232	175	164	141	94	100
28	167	247	e175	e150	229	207	223	162	185	141	95	104
29	214	240	e155	e160	---	202	220	154	169	135	103	104
30	187	235	e150	e200	---	199	216	147	162	130	107	104
31	179	---	e145	e270	---	198	---	141	---	128	99	---
TOTAL	4522	6824	5887	4710	6571	6527	6718	6167	5020	4209	3418	3459
MEAN	146	227	190	152	235	211	224	199	167	136	110	115
MAX	214	294	232	270	350	227	259	252	245	206	154	194
MIN	106	153	125	110	212	186	190	141	127	117	93	95
AC-FT	8970	13540	11680	9340	13030	12950	13330	12230	9960	8350	6780	6860

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1999, BY WATER YEAR (WY)

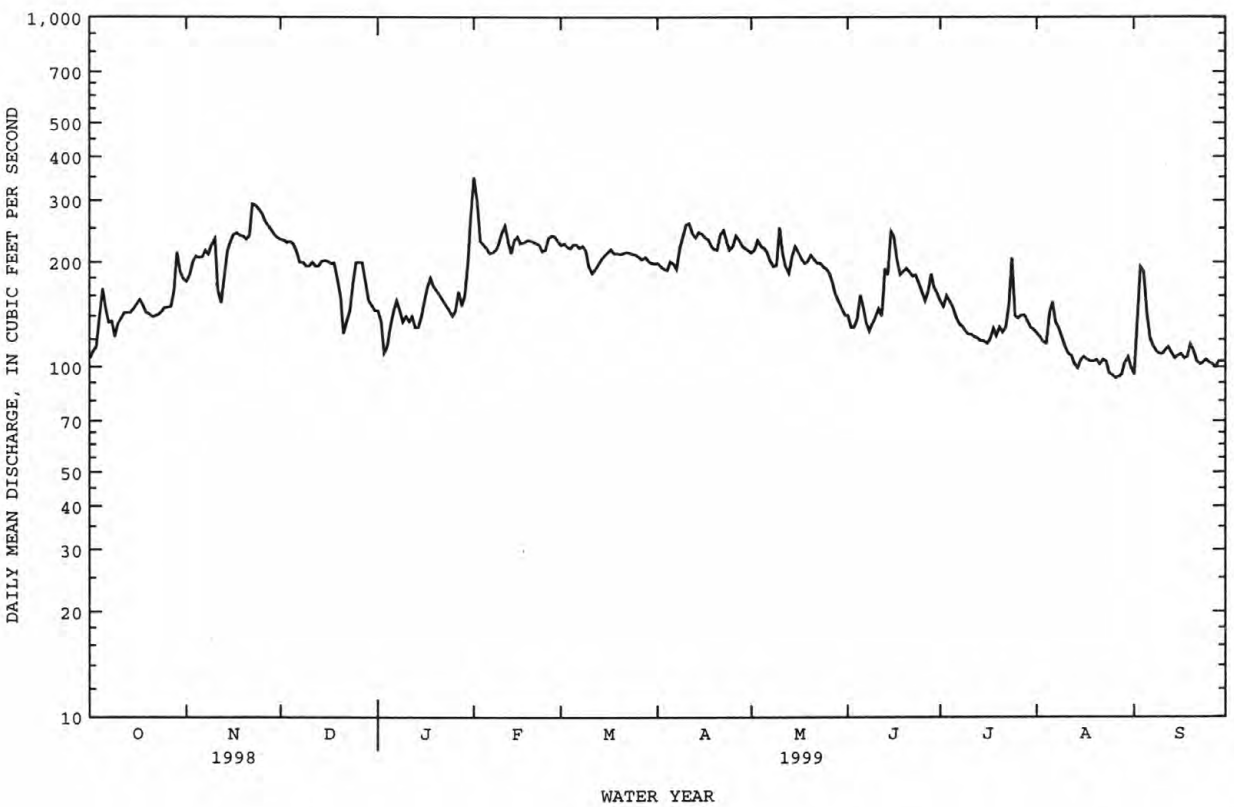
MEAN	81.8	91.3	85.4	81.9	115	194	185	163	156	101	80.3	74.0
MAX	146	227	190	152	348	396	401	302	511	228	164	120
(WY)	1999	1999	1999	1999	1997	1949	1977	1995	1997	1944	1983	1997
MIN	61.1	60.0	51.4	23.1	60.2	91.6	85.9	87.5	62.5	44.1	45.3	50.2
(WY)	1979	1979	1993	1962	1949	1981	1981	1992	1985	1974	1973	1975

e Estimated

06449500 LITTLE WHITE RIVER NEAR ROSEBUD, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1944 - 1999	
ANNUAL TOTAL	67097		64032			
ANNUAL MEAN	184		175		117a	
HIGHEST ANNUAL MEAN					207	1997
LOWEST ANNUAL MEAN					78.0	1976
HIGHEST DAILY MEAN	487	Apr 4	350	Feb 1	1810	May 17 1944
LOWEST DAILY MEAN	70	Mar 11	93	Aug 26	10	Jan 4 1949b
ANNUAL SEVEN-DAY MINIMUM	93	Sep 7	97	Aug 23	16	Jan 18 1962
INSTANTANEOUS PEAK FLOW			400	Jan 30	4640	Jun 11 1967c
INSTANTANEOUS PEAK STAGE			6.70	Jan 30d	14.09	Jun 11 1967
ANNUAL RUNOFF (AC-FT)	133100		127000		85010	
10 PERCENT EXCEEDS	285		235		202	
50 PERCENT EXCEEDS	165		180		94	
90 PERCENT EXCEEDS	110		109		58	

a Median of annual mean discharges, 120 ft^3/s.
b Also Feb. 20, 1955.
c From rating curve extended above 1,300 ft^3/s.
d Backwater from ice.



06450500 LITTLE WHITE RIVER BELOW WHITE RIVER, SD

LOCATION.--Lat 43°36'05", long 100°44'58", in SW¼ NW¼ 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 mi^2, approximately, of which about 1,310 mi^2 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 sea level. Prior to June 8, 1968, gage located at site 0.8 mi downstream at datum 4.50 ft lower.

REMARKS.--Records fair 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	199	e280	e180	e220	280	333	324	115	179	153	89
2	106	197	e275	e170	e250	275	320	305	141	224	144	118
3	116	218	e270	e160	e250	268	320	400	155	249	137	184
4	165	232	e265	e150	e240	263	343	415	165	282	131	217
5	248	234	e260	e140	e250	264	371	360	173	267	122	131
6	221	238	e250	e135	e260	264	380	373	155	253	175	88
7	131	249	e240	e130	e350	259	420	372	186	228	165	73
8	133	256	e242	e130	e500	257	579	330	164	217	152	57
9	126	298	e245	e135	e300	256	998	316	184	200	149	53
10	123	313	e248	e138	122	241	809	1220	186	187	129	53
11	131	249	e255	e140	166	226	907	888	186	193	120	58
12	138	175	e275	e142	189	226	602	485	203	183	113	55
13	140	217	e300	e145	197	232	462	375	246	178	107	51
14	142	267	e320	e145	215	252	409	591	234	177	104	58
15	147	297	e300	e150	251	270	384	621	317	174	97	58
16	166	309	e270	e160	253	271	340	397	343	163	105	75
17	171	311	e240	e180	249	273	324	322	239	161	99	86
18	178	e290	e210	e200	252	261	319	274	185	175	95	89
19	159	e290	e200	e220	250	257	306	244	173	164	92	92
20	146	e300	e190	e250	252	248	305	230	172	169	94	80
21	142	e310	e170	e250	255	249	360	216	177	177	102	88
22	140	e320	e160	e240	254	248	423	197	170	174	109	90
23	141	e315	e140	e220	259	256	402	187	192	217	102	102
24	142	e305	e140	e200	250	256	350	181	205	225	89	114
25	149	e300	e145	e190	275	279	350	171	241	229	80	115
26	150	e300	e150	e180	292	292	590	163	237	187	79	102
27	154	e295	e170	e180	290	280	498	157	244	201	93	83
28	161	e290	e180	e180	281	287	380	142	226	201	134	96
29	295	e285	e190	e180	---	300	343	135	205	212	181	73
30	296	e280	e200	e190	---	325	329	125	188	180	130	95
31	217	---	e190	e200	---	352	---	112	---	173	126	---
TOTAL	4967	8139	6970	5410	7172	8267	13256	10628	6007	6199	3708	2723
MEAN	160	271	225	175	256	267	442	343	200	200	120	90.8
MAX	296	320	320	250	500	352	998	1220	343	282	181	217
MIN	93	175	140	130	122	226	305	112	115	161	79	51
AC-FT	9850	16140	13820	10730	14230	16400	26290	21080	11910	12300	7350	5400

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1999, BY WATER YEAR (WY)

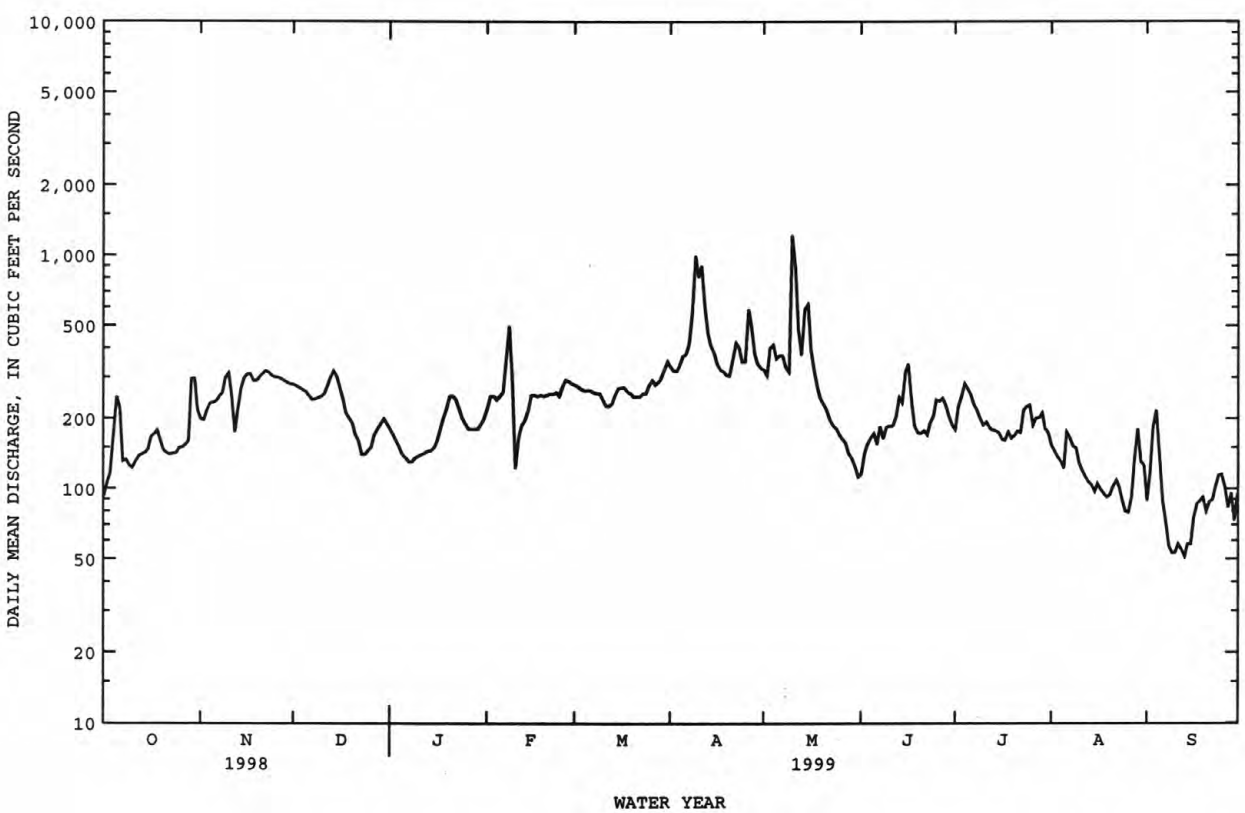
MEAN	83.0	91.3	89.4	87.5	132	252	233	217	220	116	80.1	73.2
MAX	160	271	225	175	590	815	613	614	988	574	182	140
(WY)	1999	1999	1999	1999	1997	1978	1977	1983	1997	1962	1998	1997
MIN	53.3	60.5	39.1	28.5	57.5	85.9	76.9	82.5	54.7	31.3	37.1	33.0
(WY)	1977	1976	1952	1962	1962	1981	1981	1985	1985	1974	1974	1952

e Estimated

06450500 LITTLE WHITE RIVER BELOW WHITE RIVER, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1950 - 1999	
ANNUAL TOTAL	83070		83446			
ANNUAL MEAN	228		229		139a	
HIGHEST ANNUAL MEAN					305	1997
LOWEST ANNUAL MEAN					79.0	1976
HIGHEST DAILY MEAN	1800	Jul 30	1220	May 10	7880	Jun 3 1997
LOWEST DAILY MEAN	55	Mar 12	51	Sep 13	7.0	Jul 31 1952b
ANNUAL SEVEN-DAY MINIMUM	73	Sep 14	55	Sep 8	11	Aug 31 1952
INSTANTANEOUS PEAK FLOW			1870	May 10c	13700	Jun 12 1967d
INSTANTANEOUS PEAK STAGE			5.69	Feb 7f	15.46	Jun 7 1968g
ANNUAL RUNOFF (AC-FT)	164800		165500		101000	
10 PERCENT EXCEEDS	364		343		236	
50 PERCENT EXCEEDS	190		205		95	
90 PERCENT EXCEEDS	111		103		53	

a Median of annual mean discharges, 130 ft^3/s.
b Also Aug. 31 and Sept. 1, 1952.
c Gage height, 5.05 ft.
d Gage height, 10.02 ft, site and datum then in use.
f Backwater from ice.
g From floodmarks; maximum gage height at site and datum then in use, 11.21 ft.



06452000 WHITE RIVER NEAR OACOMA, SD

LOCATION.--Lat 43°44'54", long 99°33'22", in SE¼ SW¼ 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 mi^2, approximately, of which about 9,940 mi^2 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 sea level. See WSP 1709, 1729, or 1917 for history of changes prior to Feb. 27, 1960.

REMARKS.--Records fair 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	255	1620	711	e245	e370	722	418	2500	649	506	295	1440
2	244	2380	695	e250	e375	717	408	1670	645	623	357	899
3	231	1500	677	e245	e395	699	409	1180	659	914	307	1700
4	260	967	661	e240	e420	643	409	1450	591	1140	261	2320
5	276	766	652	e240	e455	608	422	5520	626	939	1730	6250
6	356	682	e630	e235	e465	583	438	5960	724	731	1600	5250
7	6750	657	e610	e230	e480	574	439	6670	3980	1440	965	3310
8	4150	1030	e580	e230	e525	567	524	6520	5030	1310	699	2250
9	2960	2220	e560	e235	e1100	562	1010	5200	4430	671	553	1610
10	2290	2940	540	e245	1250	589	1720	33000	3100	574	460	993
11	1710	3090	542	e250	1170	592	7130	15200	1970	498	740	708
12	1160	2980	529	e250	e1050	588	6570	9600	1470	396	508	571
13	861	2180	494	e250	e960	607	7010	6260	1410	365	457	474
14	685	1830	e490	e260	e880	584	4540	3950	1300	373	404	418
15	579	1700	e490	e270	e800	597	3060	3450	1290	352	326	375
16	843	1620	e485	e270	744	619	2140	5960	2290	371	273	332
17	1300	1640	e480	e285	838	684	1540	4010	6130	318	234	294
18	1050	1650	e400	e280	771	842	1180	3510	5900	296	206	276
19	947	1470	e300	e290	738	993	1020	3270	3930	283	182	278
20	838	1400	e220	e300	e710	1080	930	2330	3130	285	159	259
21	1600	1220	e190	e325	e700	904	993	1680	2320	1010	147	e256
22	2040	1070	e225	e375	e700	687	1260	1430	1840	1330	e144	e253
23	1090	969	e250	e385	e695	607	1120	1270	1570	714	e144	e250
24	761	923	e300	e385	e695	556	1080	1150	1150	464	e126	232
25	586	909	e350	e415	e690	523	1100	1060	904	611	e108	218
26	502	861	e400	e425	e690	509	1290	1040	733	533	e101	205
27	451	811	e400	e425	e690	483	1560	1090	630	557	e101	197
28	466	777	e330	e395	717	481	1640	1070	592	519	e95	196
29	1020	754	e220	e375	---	469	2120	883	542	395	e181	199
30	697	734	e240	e370	---	458	3120	782	543	338	600	196
31	755	---	e255	e380	---	435	---	696	---	313	939	---
TOTAL	37713	43350	13906	9355	20073	19562	56600	139361	60078	19169	13402	32209
MEAN	1217	1445	449	302	717	631	1887	4496	2003	618	432	1074
MAX	6750	3090	711	425	1250	1080	7130	33000	6130	1440	1730	6250
MIN	231	657	190	230	370	435	408	696	542	283	95	196
AC-FT	74800	85980	27580	18560	39810	38800	112300	276400	119200	38020	26580	63890

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1999, BY WATER YEAR (WY)

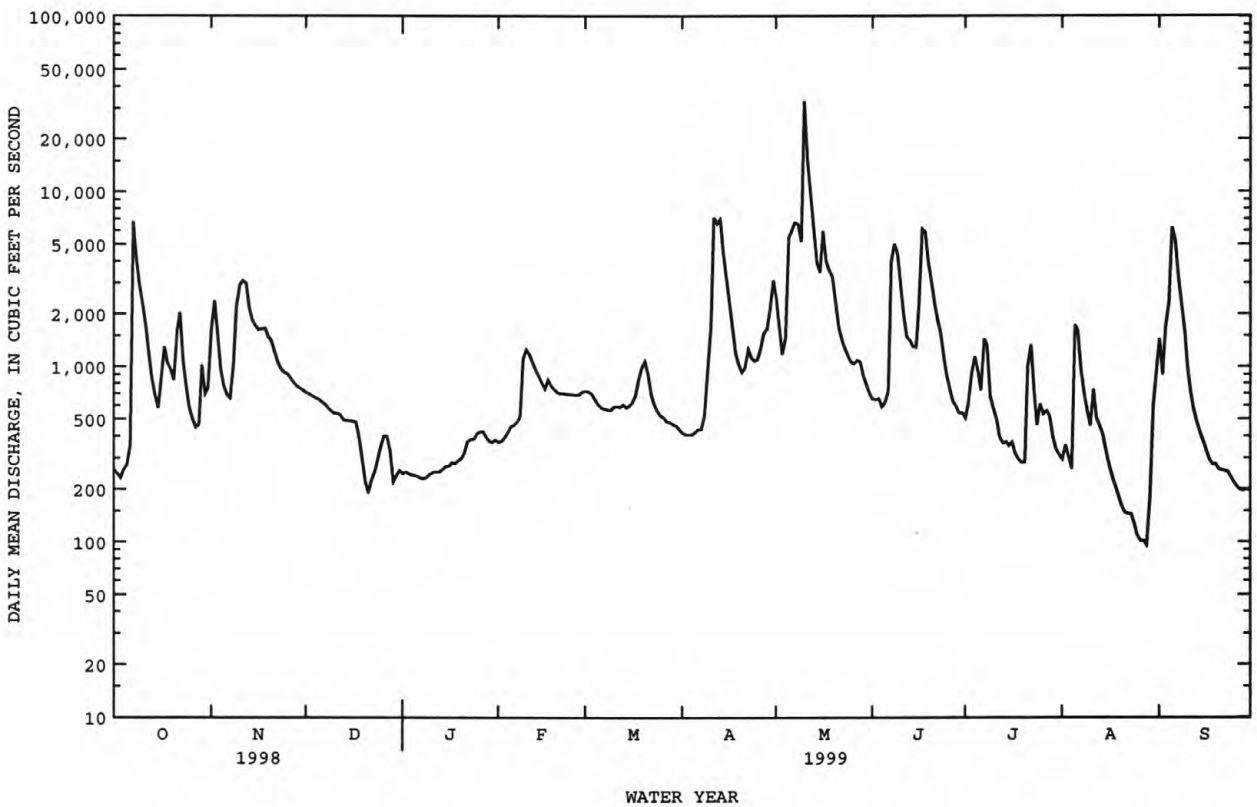
MEAN	198	164	88.1	79.1	333	1327	1024	1364	1343	513	319	201
MAX	1217	1445	449	592	3146	5856	4726	13630	5985	3553	1702	1074
(WY)	1999	1999	1999	1997	1997	1978	1952	1942	1967	1962	1997	1999
MIN	28.0	16.7	6.63	3.34	11.3	177	111	93.8	39.5	1.05	.75	15.1
(WY)	1938	1977	1976	1991	1950	1934	1981	1934	1989	1936	1936	1937

e Estimated

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1929 - 1999	
ANNUAL TOTAL	410374		464778			
ANNUAL MEAN	1124		1273		580a	
HIGHEST ANNUAL MEAN					1729	1942
LOWEST ANNUAL MEAN					151	1934
HIGHEST DAILY MEAN	9080	Aug 1	33000	May 10	44000	Mar 30 1952
LOWEST DAILY MEAN	139	Sep 19	95	Aug 28	.00	Aug 14 1971b
ANNUAL SEVEN-DAY MINIMUM	165	Sep 14	117	Aug 22	.00	Aug 14 1971
INSTANTANEOUS PEAK FLOW			42400	May 10	51900	Mar 30 1952c
INSTANTANEOUS PEAK STAGE			21.10	May 10	24.70	Mar 4 1994d
ANNUAL RUNOFF (AC-FT)	814000		921900		420300	
10 PERCENT EXCEEDS	2950		2970		1230	
50 PERCENT EXCEEDS	586		661		165	
90 PERCENT EXCEEDS	263		248		30	

a Median of annual mean discharges, 480 ft^3/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.



06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1945 to September 1953, October 1968 to September 1969, October 1971 to September 1995.

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. Observer collects samples on a daily basis during open water periods and one per week during winter ice period. Flow affected by ice Dec. 6-9, Dec. 14 to Feb. 9, Feb. 12-15 and 20-27. 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, 15 mg/L, Feb. 15, 1982.
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, 48,400 mg/L, Oct. 7; minimum daily mean, 50 mg/L, Jan. 27.
SEDIMENT LOAD: Maximum daily, 877,000 tons, Oct. 7; minimum daily, 53 tons, Dec. 21 and Jan. 5-6.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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	255	19500	13400	1620	e9980	48300	711	412	791
2	244	e14600	9610	2380	e14900	95400	695	417	782
3	231	10800	6740	1500	12700	51500	677	409	747
4	260	e7570	5270	967	10100	26500	661	361	644
5	276	5480	4080	766	8470	17500	652	367	647
6	356	5020	6380	682	e6440	11900	e630	e350	596
7	6750	48400	877000	657	5050	8970	e610	330	544
8	4150	46700	526000	1030	e5630	16500	e580	310	485
9	2960	35900	288000	2220	8050	49200	e560	e285	430
10	2290	28400	176000	2940	e9760	77300	540	e261	381
11	1710	e21800	101000	3090	e9640	80600	542	e239	350
12	1160	e16700	52600	2980	7560	61100	529	e219	313
13	861	12600	29500	2180	e6060	35800	494	e201	268
14	685	9030	16800	1830	4920	24200	e490	e184	244
15	579	6910	10800	1700	e4030	18500	e490	e169	223
16	843	9220	21500	1620	e3320	14500	e485	e155	202
17	1300	8560	30000	1640	2790	12400	e480	e142	184
18	1050	e4780	13700	1650	2490	11100	e400	e130	140
19	947	2610	6660	1470	1780	7070	e300	e119	96
20	838	2010	4550	1400	e1670	6300	e220	e109	65
21	1600	e6650	34800	1220	1600	5230	e190	e103	53
22	2040	e16200	89600	1070	e1330	3860	e225	e112	68
23	1090	13100	38400	969	1130	2960	e250	e126	85
24	761	11800	24300	923	1110	2760	e300	e142	115
25	586	e9660	15300	909	899	2210	e350	e159	150
26	502	7710	10500	861	e778	1810	e400	e178	193
27	451	5940	7240	811	e683	1500	e400	e195	210
28	466	e5110	6480	777	601	1260	e330	e181	161
29	1020	6580	18300	754	e536	1090	e220	e163	97
30	697	3790	7220	734	475	940	e240	e147	96
31	755	3790	7920	---	---	---	e255	e133	92
TOTAL	37713	---	2459650	43350	---	698260	13906	---	9452

e Estimated

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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	e245	e120	80	e370	e89	89	722	818	1590
2	e250	e109	73	e375	e100	101	717	711	1380
3	e245	e98	65	e395	e112	120	699	609	1160
4	e240	e89	58	e420	e126	143	643	567	982
5	e240	82	53	e455	e142	174	608	556	913
6	e235	e83	53	e465	e159	200	583	467	735
7	e230	87	54	e480	e178	231	574	e456	707
8	e230	e89	55	e525	e285	404	567	508	777
9	e235	e90	57	e1100	1930	5720	562	864	1310
10	e245	e92	61	1250	e3320	11200	589	1110	1770
11	e250	e94	63	1170	e2990	9460	592	1120	1780
12	e250	e95	64	e1050	e2460	6960	588	1020	1630
13	e250	96	65	e960	e1810	4680	607	899	1480
14	e260	e93	65	e880	e1330	3160	584	e653	1030
15	e270	e89	65	e800	e980	2120	597	538	868
16	e270	e85	62	744	744	1500	619	879	1480
17	e285	e81	62	838	701	1590	684	1110	2060
18	e280	e77	59	771	844	1750	842	1500	3430
19	e290	e74	58	738	768	1530	993	2070	5590
20	e300	71	57	e710	842	1610	1080	3650	10600
21	e325	e67	59	e700	e848	1600	904	e3980	9670
22	e375	e64	64	e700	e842	1590	687	4010	7430
23	e385	e60	63	e695	e836	1570	607	3800	6210
24	e385	e57	60	e695	e830	1560	556	3540	5320
25	e415	e54	61	e690	815	1520	523	2850	4020
26	e425	e52	59	e690	778	1450	509	2240	3080
27	e425	50	58	e690	830	1550	483	1660	2160
28	e395	e56	59	717	e838	1620	481	e1240	1600
29	e375	e62	63	---	---	---	469	923	1170
30	e370	e70	70	---	---	---	458	703	868
31	e380	e79	81	---	---	---	435	605	710
TOTAL	9355	---	1926	20073	---	65202	19562	---	83510
		APRIL			MAY			JUNE	
1	418	442	499	2500	e10800	72600	649	1550	2720
2	408	430	473	1670	e10700	48000	645	1240	2150
3	409	382	422	1180	10200	32600	659	1090	1940
4	409	e367	406	1450	8250	31800	591	1020	1630
5	422	362	413	5520	e6110	90000	626	884	1500
6	438	376	445	5960	4810	77600	724	e779	1520
7	439	381	452	6670	5200	93600	3980	8390	194000
8	524	826	1340	6520	4930	86800	5030	35700	478000
9	1010	6290	17600	5200	e4320	61400	4430	29300	350000
10	1720	6220	31400	33000	8260	750000	3100	27500	230000
11	7130	e17900	355000	15200	7530	310000	1970	22500	120000
12	6570	24200	429000	9600	e5730	149000	1470	17600	69700
13	7010	e23600	447000	6260	4410	74800	1410	e14200	54000
14	4540	21900	267000	3950	e3750	40000	1300	11000	38700
15	3060	17900	148000	3450	4820	47200	1290	6830	23700
16	2140	12900	75300	5960	e11200	180000	2290	6700	49600
17	1540	9320	38900	4010	11500	124000	6130	23800	411000
18	1180	e6780	21700	3510	9730	92200	5900	33500	530000
19	1020	4960	13700	3270	9670	85400	3930	30300	323000
20	930	3710	9340	2330	10800	67700	3130	e23000	195000
21	993	2970	7960	1680	9630	43800	2320	16700	105000
22	1260	2730	9340	1430	7410	28600	1840	10400	51800
23	1120	1810	5460	1270	e4960	17100	1570	6040	25800
24	1080	1540	4470	1150	3320	10300	1150	3840	12000
25	1100	e1620	4800	1060	2490	7140	904	2240	5500
26	1290	1790	6240	1040	2050	5720	733	1650	3270
27	1560	2170	9210	1090	1930	5680	630	e1380	2350
28	1640	2630	11700	1070	2070	5930	592	1160	1850
29	2120	4170	24400	883	3530	8400	542	933	1370
30	3120	9830	84800	782	e2880	6090	543	817	1200
31	---	---	---	696	e2100	3950	---	---	---
TOTAL	56600	---	2026770	139361	---	2657410	60078	---	3288300

e Estimated

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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	506	754	1030	295	e9150	7290	1440	10200	38100
2	623	1260	2280	357	7360	7060	899	8210	19900
3	914	2660	6470	307	5480	4540	1700	8180	37500
4	1140	e3400	10500	261	5400	3800	2320	13000	92200
5	939	e3340	8410	1730	16400	110000	6250	e23500	386000
6	731	2880	5700	1600	35300	150000	5250	e27900	393000
7	1440	10200	53200	965	32000	83600	3310	29600	264000
8	1310	19600	68600	699	e25800	48800	2250	27200	165000
9	671	16100	29500	553	20400	30400	1610	24000	105000
10	574	9690	15000	460	15900	19800	993	19400	52200
11	498	e7500	10100	740	16300	32600	708	16500	31600
12	396	e6080	6500	508	16200	22100	571	e13800	21300
13	365	5220	5140	457	16900	20800	474	11400	14600
14	373	5850	5900	404	14600	16000	418	9300	10500
15	352	5480	5200	326	e12000	10600	375	7760	7860
16	371	4120	4120	273	10000	7420	332	6290	5650
17	318	3530	3040	234	e9350	5890	294	4850	3860
18	296	e1940	1550	206	8560	4760	276	3260	2440
19	283	1050	802	182	e6740	3320	278	e2040	1540
20	285	788	607	159	5170	2220	259	1210	850
21	1010	6800	22500	147	3960	1580	e256	605	418
22	1330	10400	37400	e144	e3280	1280	e253	514	351
23	714	9550	18100	e144	2630	1020	e250	437	295
24	464	13100	16400	e126	e1670	568	232	390	244
25	611	e12900	21300	e108	1020	298	218	469	276
26	533	11800	17000	e101	660	180	205	e461	255
27	557	10300	15500	e101	572	156	197	424	226
28	519	11400	15900	e95	639	164	196	342	181
29	395	12100	12900	e181	e3040	1480	199	328	177
30	338	10400	9500	600	9420	16000	196	377	199
31	313	10800	9100	939	5040	14300	---	---	---
TOTAL	19169	---	439249	13402	---	628026	32209	---	1655722
YEAR	464778		14013477						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT								
07...	1100	7260	792	11.0	10.0	53800	1050000	90
NOV								
05...	1140	764	1070	3.0	4.5	8550	17600	99
JAN								
05...	1100	238	1380	-1.0	0.0	77	49	88
FEB								
16...	1135	718	1140	-1.0	1.0	--	--	96
MAR								
25...	1035	527	1120	6.5	4.5	2880	4100	99
APR								
27...	1225	1550	1710	15.5	13.0	--	--	92
MAY								
10...	1315	40200	896	13.0	13.5	8620	936000	90
11...	1430	14100	1030	16.0	13.5	6910	263000	82
13...	1105	6490	1200	17.5	14.5	4240	74300	85
JUN								
07...	1050	649	2320	22.0	20.5	709	1240	95
JUL								
14...	1355	373	1020	34.0	28.0	5780	5820	100
AUG								
13...	1115	471	660	19.5	18.0	17300	22000	99
SEP								
07...	1235	3150	881	23.0	20.0	29800	253000	95
23...	1135	248	1110	20.0	16.5	--	--	--

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06452320 PLATTE CREEK NEAR PLATTE, SD

LOCATION.--Lat 43°19'38", long 98°58'13", in NW¼ NW¼ NE¼ 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 mi^2.

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,370 ft above sea level, from topographic map.

REMARKS.--Records good except those for Apr. 11 to Aug. 16, which are fair, and 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	50	69	e7.0	6.6	12	9.5	106	155	232	86	13
2	5.5	47	67	e6.0	7.2	14	9.1	98	146	657	78	31
3	7.1	45	62	e5.0	7.9	14	8.3	107	139	1580	73	28
4	13	43	58	e4.5	8.7	14	8.0	121	127	1870	68	40
5	24	42	55	e4.5	9.0	15	9.0	696	127	1460	63	40
6	20	40	51	e5.0	e9.5	e15	16	1730	114	1100	59	46
7	24	39	48	e5.0	e10	e15	16	1940	104	859	60	47
8	24	37	44	e4.5	e11	e15	24	2200	120	709	54	34
9	22	39	40	e4.5	e11	e15	341	1830	122	600	48	23
10	20	e45	36	e5.0	11	e15	726	1690	162	502	44	17
11	19	44	33	e5.0	13	e15	1490	1730	185	422	39	14
12	19	50	31	e5.5	11	e15	1290	1560	164	357	39	12
13	17	71	32	5.5	13	e17	897	1390	148	304	32	11
14	17	92	31	5.6	13	18	681	1190	132	256	25	7.4
15	16	162	30	5.6	14	19	588	987	135	218	22	6.4
16	17	193	29	5.9	13	20	511	837	132	211	18	5.7
17	32	187	27	6.5	12	22	436	717	126	196	15	4.8
18	32	167	26	6.3	12	19	354	629	117	180	12	4.3
19	35	141	20	6.1	12	19	294	553	107	182	11	4.6
20	33	127	e17	6.4	12	20	243	484	96	255	8.6	5.0
21	33	123	e15	7.0	11	19	210	424	86	272	7.1	4.4
22	35	127	e12	7.4	11	18	206	390	85	251	6.9	4.0
23	37	119	e12	7.5	10	17	189	398	292	209	6.4	3.6
24	38	113	e13	7.5	10	16	169	358	228	176	5.5	3.2
25	38	106	e13	7.4	10	14	157	321	145	153	4.4	3.0
26	38	99	e14	7.2	12	13	152	284	107	139	3.9	2.7
27	39	92	15	7.0	13	11	146	256	92	128	4.7	2.9
28	40	84	13	6.7	14	12	140	229	97	118	4.7	2.8
29	56	79	11	6.5	---	11	127	203	107	109	6.7	2.3
30	47	74	e9.5	6.4	---	10	118	182	194	104	9.4	2.1
31	51	---	e8.5	6.4	---	9.0	---	163	---	97	9.9	---
TOTAL	852.9	2677	942.0	186.4	307.9	478.0	9564.9	23803	4091	13906	924.2	425.2
MEAN	27.5	89.2	30.4	6.01	11.0	15.4	319	768	136	449	29.8	14.2
MAX	56	193	69	7.5	14	22	1490	2200	292	1870	86	47
MIN	4.3	37	8.5	4.5	6.6	9.0	8.0	98	85	97	3.9	2.1
AC-FT	1690	5310	1870	370	611	948	18970	47210	8110	27580	1830	843

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)

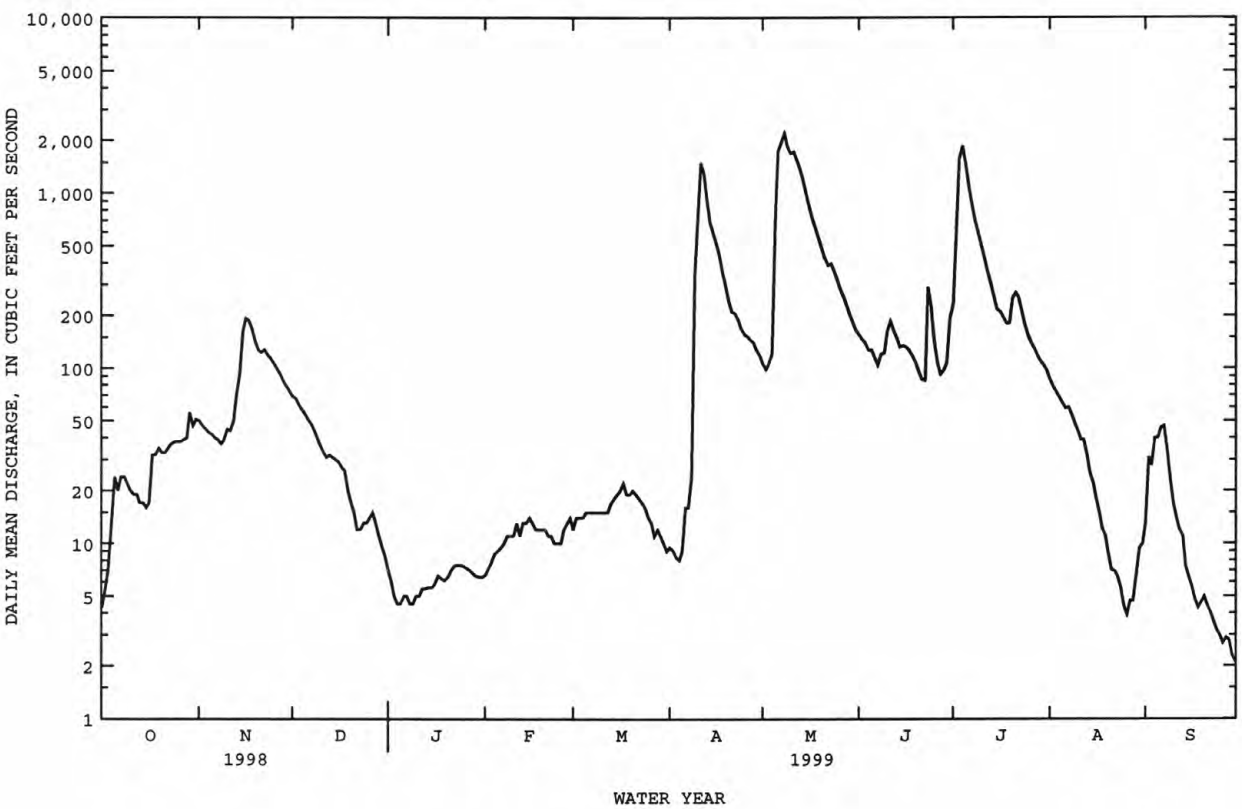
MEAN	12.4	14.5	5.88	2.30	32.1	43.2	69.4	175	82.1	78.6	17.6	9.44
MAX	82.1	89.2	30.4	6.99	223	290	319	796	268	449	103	34.1
(WY)	1996	1999	1999	1997	1997	1997	1999	1995	1995	1999	1998	1995
MIN	.000	.002	.003	.009	.021	.39	.26	.014	.011	.15	.000	.000
(WY)	1990	1991	1990	1992	1993	1992	1990	1992	1992	1990	1991	1989

e Estimated

06452320 PLATTE CREEK NEAR PLATTE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1989 - 1999	
ANNUAL TOTAL	12866.9		58158.5			
ANNUAL MEAN	35.3		159		45.3a	
HIGHEST ANNUAL MEAN					159	1999
LOWEST ANNUAL MEAN					.35	1992
HIGHEST DAILY MEAN	311	Aug 4	2200	May 8	2370	May 11 1995
LOWEST DAILY MEAN	2.5	Mar 10	2.1	Sep 30	.00	Jul 9 1989b
ANNUAL SEVEN-DAY MINIMUM	2.7	Mar 6	2.7	Sep 24	.00	Aug 21 1989
INSTANTANEOUS PEAK FLOW			2300	May 8	2600	May 11 1995c
INSTANTANEOUS PEAK STAGE			10.02	May 8	12.67	May 8 1997d
ANNUAL RUNOFF (AC-FT)	25520		115400		32810	
10 PERCENT EXCEEDS	92		393		106	
50 PERCENT EXCEEDS	17		33		3.2	
90 PERCENT EXCEEDS	3.3		6.0		.01	

a Median of annual mean discharges, 24 ft^3/s.
b No flow at times in most years.
c From rating curve extended above 975 ft^3/s, gage height, 11.29 ft.
d Backwater from Lake Francis Case.



06452380 ANDES CREEK NEAR ARMOUR, SD

LOCATION.--Lat 43°15'23", long 98°24'08", in SW¼ NW¼ 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.--Samples are collected when discharge exceeds about 2 ft^3/s at time of site visit. Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
08...	1450	4.1	2130	7.9	6.0	2.0	733	13.7	104	1000
MAR										
15...	1240	4.7	2460	8.0	13.5	7.0	717	13.3	117	1100
APR										
20...	0900	18	1610	8.0	14.5	12.5	718	6.7	67	770
AUG										
09...	1530	5.8	1410	8.1	32.0	29.5	719	7.9	111	590

DATE	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)	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)
DEC										
08...	740	266	291	220	113	149	24	2	26	325
MAR										
15...	870	272	275	250	128	157	23	2	19	332
APR										
20...	580	192	197	160	88	90	20	1	23	234
AUG										
09...	330	260	262	130	66	77	21	1	25	317

DATE	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)	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)
DEC										
08...	0	980	52	.22	25	1720	1860	20.4	.030	1.2
MAR										
15...	0	1100	52	.17	7.6	1900	2080	26.2	.021	.80
APR										
20...	0	740	35	.16	12	1260	1360	67.5	<.020	1.4
AUG										
09...	0	460	25	.15	18	960	1050	16.5	<.020	1.9

DATE	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 ORTHO, 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-PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
DEC									
08...	<.010	<.050	--	.354	.342	4	5	124	--
MAR									
15...	<.010	<.050	--	.179	.141	3	6	20	80
APR									
20...	<.010	.072	--	.392	.197	5	9	196	13
AUG									
09...	.017	.243	.226	1.05	.775	11	2	122	99

06452380 ANDES CREEK NEAR ARMOUR, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	CALCIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	MAGNE-SIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	SODIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	POTAS-SIUM , TOTAL IN BOTTOM MATERIAL (MG/G)	PHOS-PHORUS, TOTAL IN BOTTOM MATERIAL (MG/G)	ALUM-INUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ARSENIC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 20	0900	47	10.0	9.5	17	1.1	53000	6.4
Aug. 09	1530	64	11.0	11.0	14	1.6	43000	17

BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYL-LIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHRO-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G)
760	1	<10	<2	49	42	11	15
890	1	<10	<2	46	29	9	8

EURO-PIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTH-ANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
<2	4	<8	<4	23000	34	15	21
<2	<4	<8	<4	28000	25	7	14

MANGA-NESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYB-DENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODY-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCAN-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELE-NIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRON-TIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
4100	<2	24	28	5	7	1.6	<2	230
9000	<2	17	27	<4	5	1.5	<2	300

TAN-TALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANA-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTER-BIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
<40	7	<5	2100	<100	84	2	19	80
<40	4	<5	1300	<100	61	2	18	62

06452383 LAKE ANDES TRIBUTARY NO. 3 NEAR ARMOUR, SD

LOCATION.--Lat 43°15'23", long 98°25'58", in SW¼ NE¼ 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.--Samples are collected only when discharge exceeds 2 ft^3/s at time of site visit.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
MAR 15...	1440	1.4	4170	8.4	20.0	11.5	717	17.0	168	2200

DATE	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)	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)
MAR 15...	1900	269	277	370	313	282	22	3	22	296

DATE	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)	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)
MAR 15...	16	2400	84	.16	6.0	3630	4040	15.4	.030	1.6

DATE	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 ORTHO, 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-PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
MAR 15...	.021	2.04	2.01	.183	.078	5	75	26	58

06452386 LAKE ANDES TRIBUTARY NO. 2 NEAR LAKE ANDES, SD

LOCATION.--Lat 43°12'43", long 98°26'45", in SE¼ SE¼ SE¼ 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.--Water-quality samples are collected when discharge exceeds about 2 ft^3/s at time of site visit. Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
APR 20...	1115	1.2	2440	8.2	17.0	11.4	718	9.3	91	1300

DATE	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)	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)
APR 20...	1100	204	206	260	156	174	22	2	26	249

DATE	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)	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)
APR 20...	0	1300	59	.17	18	2160	2310	7.49	.040	2.0

DATE	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 ORTHO, 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-PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR 20...	.049	1.47	1.42	.722	.540	7	40	31	95

06452386 LAKE ANDES TRIBUTARY NO. 2 NEAR LAKE ANDES, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	CALCIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	MAGNE-SIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	SODIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	POTAS-SIUM , TOTAL IN BOTTOM MATERIAL (MG/G)	PHOS-PHORUS, TOTAL IN BOTTOM MATERIAL (MG/G)	ALUM-INUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ARSENIC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 20	1115	29	9.2	9.5	17	1.4	54000	13

BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYL-LIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHRO-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G)
830	1	<10	<2	57	48	14	17

EURO-PIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTH-ANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
<2	4	<8	<4	26000	36	13	21

MANGA-NESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYB-DENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODY-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCAN-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELE-NIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRON-TIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
3800	<2	26	44	5	7	1.9	<2	220

TAN-TALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANA-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTER-BIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
<40	8	<5	2300	<100	120	2	20	89

06452389 LAKE ANDES TRIBUTARY NO. 1 NEAR LAKE ANDES, SD

LOCATION.--Lat 43°11'25", long 98°27'57", in NE¼ NE¼ SE¼ 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.--Samples are collected when discharge exceeds about 2 ft^3/s at time of site visit. No water-quality samples were collected this year; discharge at times of site visits was less than 2 ft^3/s.

06452390 LAKE ANDES ABOVE RAVINIA, SD

LOCATION.--Lat 43°13'15", long 98°24'55", in SW¼ SW¼ NE¼ 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 Mar. 15 and Aug. 9, 1999, 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 June 14, 1999, 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 1998 TO SEPTEMBER 1999

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 OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)
DEC										
08...	1240	2.44	7.35	1770	9.0	4.0	3.2	13.8	734	19.9
MAR										
15...	1720	2.17	7.41	1880	9.2	15.5	4.4	16.8	723	18.2
APR										
19...	1300	--	8.18	1790	8.7	21.0	8.5	--	725	20.0
JUN										
14...	1300	2.13	8.20	2010	8.8	21.5	22.0	10.8	731	9.8
a14...	1302	2.13	8.20	2040	8.8	21.5	22.0	10.8	731	9.8
AUG										
09...	1300	2.44	8.20	1730	9.1	30.0	26.0	11.2	719	9.4

DATE	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)	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)
DEC										
08...	155	750	580	160	157	140	96	125	26	2
MAR										
15...	149	750	620	128	129	130	102	127	26	2
APR										
19...	181	800	660	142	149	150	101	121	24	2
JUN										
14...	118	890	710	177	185	170	109	129	23	2
a14...	118	850	680	175	185	160	108	130	24	2
AUG										
09...	124	730	530	192	195	150	88	108	--	2

DATE	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)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
DEC										
08...	36	127	34	820	53	.39	16	1390	1490	.033
MAR										
15...	34	95	30	840	56	.17	.24	1370	1480	<.020
APR										
19...	29	139	17	870	51	.15	7.8	1430	1560	.120
JUN										
14...	29	161	27	950	47	.19	14	1560	1730	.035
a14...	32	155	29	960	46	.19	14	1560	1730	<.020
AUG										
09...	<.10	136	48	750	37	.17	21	--	1390	<.020

a Field duplicate sample collected for quality-control purposes.

06452390 LAKE ANDES ABOVE RAVINIA, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, NITRATE DISSOLVED (MG/L AS N) (00618)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)
DEC								
08...	3.7	.011	.097	.086	.286	.011	8	4
MAR								
15...	3.6	<.010	<.050	--	.435	.012	10	6
APR								
19...	2.9	.075	.944	.869	.258	.038	6	14
JUN								
14...	--	<.010	<.050	--	--	.274	13	4
a14...	4.1	<.010	<.050	--	.663	.298	13	4
AUG								
09...	5.6	<.010	<.050	--	.891	.348	18	4

a Field duplicate sample collected for quality-control purposes.

DATE	TIME	DEPTH TO BOT. FROM SURFACE AT SAMP LOC. METERS (82903)	GAGE HEIGHT (FEET) (00065)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE AIR (DEG C) (00020)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
APR											
19...	1300	--	8.18	1790	8.7	21.0	8.5	--	725	20.0	181
JUN											
14...	1300	2.13	8.20	2010	8.8	21.5	22.0	10.8	731	9.8	118

DATE	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)	ALACHLOR TOTAL RECOVER (UG/L) (77825)	AMETRYNE TOTAL (UG/L) (82184)	ATRAZINE WATER UNFLTRD REC (UG/L) (39630)	DEETHYL ATRAZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	BROMACIL WATER WHLREC (UG/L) (30234)	BUTACHLOR WATER WHLREC (UG/L) (30235)
APR											
19...	800	660	142	149	<.100	<.100	.980	<.200	<.200	<.200	<.100
JUN											
14...	890	710	177	185	<.100	<.100	.540	E.152	<.200	<.200	<.100

DATE	BUTYLATE WATER WHLREC (UG/L) (30236)	CARBOXIN WATER WHOLE RECOVERABLE (UG/L) (30245)	CYANAZINE TOTAL (UG/L) (81757)	CYCLOATE WATER WHOLE RECOVERABLE (UG/L) (30254)	2,4-D, TOTAL (UG/L) (39730)	2,4-DP TOTAL (UG/L) (82183)	DIPHENAMID WATER WHOLE RECOVERABLE (UG/L) (30255)	HEXAZINONE WATER WHOLE RECOVERABLE (UG/L) (30264)	METOLACHLOR WATER WHOLE TOT.REC (UG/L) (82612)	METRIBUZIN WATER WHOLE TOT.REC (UG/L) (82611)	PROMETONE TOTAL (UG/L) (39056)
APR											
19...	<.100	<.200	<.200	<.100	.029	<.010	<.100	<.200	.970	<.100	<.200
JUN											
14...	<.100	<.200	<.200	<.100	.390	<.010	<.100	<.200	.220	<.100	<.200

DATE	PROMETRYNE TOTAL (UG/L) (39057)	PROPACHLOR WATER WHOLE RECOV. (UG/L) (30295)	PROPAZINE TOTAL (UG/L) (39024)	SILVEX, TOTAL (UG/L) (39760)	SIMAZINE TOTAL (UG/L) (39055)	SIMETRYNE TOTAL (UG/L) (39054)	2,4,5-T TOTAL (UG/L) (39740)	TERBACIL WATER WHOLE RECOV. (UG/L) (30311)	TRIFLURALIN TOTAL RECOVER (UG/L) (39030)	VERNOLATE WATER WHOLE RECOV. (UG/L) (30324)
APR										
19...	<.100	<.100	<.100	<.010	.100	<.100	<.010	<.200	<.100	<.100
JUN										
14...	<.100	<.100	<.100	<.010	E.070	<.100	<.010	<.200	<.100	<.100

06452390 LAKE ANDES ABOVE RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	CALCIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	MAGNE-SIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	SODIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	POTAS-SIUM , TOTAL IN BOTTOM MATERIAL (MG/G)	PHOS-PHORUS, TOTAL IN BOTTOM MATERIAL (MG/G)	ALUM-INUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ARSENIC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 19	1300	52	11.0	6.1	18	1.6	56000	9.6
Aug. 09	1300	44	11.0	5.7	18	1.3	57000	13

BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYL-LIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHRO-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G)
600	2	<10	<2	50	53	12	27
620	1	<10	<2	57	54	12	29

EURO-PIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTH-ANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
<2	9	<8	<4	30000	33	20	28
<2	11	<8	<4	30000	32	21	28

MANGA-NESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYB-DENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODY-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCAN-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELE-NIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRON-TIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
2200	<2	25	42	8	9	4.5	<2	290
1700	<2	27	44	7	8	4.7	<2	280

TAN-TALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANA-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTER-BIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
<40	8	<5	2400	<100	130	2	20	120
<40	9	<5	2300	<100	130	2	20	130

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
MAR											
b15...	1721	3	1.4	E.015	.005	E.030	<.10	<.10	<.10	<.10	.20
AUG											
b09...	1301	4	1.6	<.020	E.002	<.060	<.10	<.10	<.10	<.10	.60

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)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)
MAR									
b15...	<10	<.020	<.10	<.010	<.050	<.050	<.010	<1	<1
AUG									
b09...	<10	<.020	<.10	<.010	<.050	<.050	<.010	<1	<1

b Field blank sample collected for quality-control purposes.

06452391 LAKE ANDES NEAR RAVINIA, SD

LOCATION.--Lat 43°11'05", long 98°26'10", in SW¼ SW¼ SE¼ 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 1998 TO SEPTEMBER 1999

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 OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
DEC										
08...	1650	2.90	1760	8.4	7.0	3.6	13.8	734	13.2	104
MAR										
18...	1700	2.81	1760	9.7	14.0	6.0	14.4	736	14.2	119
APR										
19...	1645	--	1730	7.8	20.0	9.6	--	725	9.0	84
JUN										
14...	1540	2.81	1910	9.1	22.5	23.5	10.8	730	10.6	131
AUG										
09...	1730	3.05	1930	8.9	33.0	26.0	10.2	719	9.9	130

DATE	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)	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)
DEC									
08...	690	570	120	129	130	91	118	26	2
MAR									
18...	640	570	69	73	110	91	118	27	2
APR									
19...	690	590	97	99	120	95	118	26	2
JUN									
14...	750	640	115	124	140	96	125	25	2
AUG									
09...	760	610	144	140	140	98	124	25	2

DATE	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)
DEC									
08...	44	146	0	790	66	.35	20	1330	1460
MAR									
18...	44	43	20	790	68	.27	3.1	1260	1380
APR									
19...	42	118	0	820	69	.27	2.3	1320	1440
JUN									
14...	40	88	26	850	65	.28	8.4	1390	1530
AUG									
09...	46	128	24	840	62	.24	17	1420	1520

DATE	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)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)
DEC									
08...	.948	4.5	<.010	.060	--	.231	<.010	7	<1
MAR									
18...	<.020	4.1	<.010	<.050	--	.316	<.010	8	<1
APR									
19...	1.08	3.8	.020	.179	.159	.196	.036	7	3
JUN									
14...	.025	3.5	<.010	<.050	--	.335	.093	11	3
AUG									
09...	<.020	5.0	<.010	<.050	--	.464	.113	15	2

06452391 LAKE ANDES NEAR RAVINIA, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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 OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
APR											
19...	1645	--	8.18	1730	7.8	20.0	9.6	--	725	9.0	84
JUN											
14...	1540	2.81	8.20	1910	9.1	22.5	23.5	10.8	730	10.6	131

DATE	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)	ALA-CHLOR TOTAL RECOVER (UG/L) (77825)	AME-TRYNE TOTAL (UG/L) (82184)	ATRA-ZINE WATER UNFLTRD REC (UG/L) (39630)	DEETHYL ATRA-ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	BROM-ACIL WATER WHLREC (UG/L) (30234)	BUTA-CHLOR WATER WHLREC (UG/L) (30235)
APR											
19...	690	590	97	99	<.100	<.100	.280	<.200	<.200	<.200	<.100
JUN											
14...	750	640	115	124	<.100	<.100	.260	<.200	<.200	<.200	<.100

DATE	BUTYL-ATE WATER WHLREC (UG/L) (30236)	CARBOX-IN WATER WHOLE RECOV-ERABLE (UG/L) (30245)	CYAN-AZINE TOTAL (UG/L) (81757)	CYCLO-ATE WATER WHOLE RECOV-ERABLE (UG/L) (30254)	2,4-D, TOTAL (UG/L) (39730)	2,4-DP TOTAL (UG/L) (82183)	DIPHEN-AMID WATER WHOLE RECOV-ERABLE (UG/L) (30255)	HEXAZI-NONE WATER WHOLE RECOV-ERABLE (UG/L) (30264)	METOLA-CHLOR WATER WHOLE TOT.REC (UG/L) (82612)	METRI-BUZIN WATER WHOLE TOT.REC (UG/L) (82611)	PROME-TONE TOTAL (UG/L) (39056)
APR											
19...	<.100	<.200	<.200	<.100	.034	<.010	<.100	<.200	<.200	<.100	<.200
JUN											
14...	<.100	<.200	<.200	<.100	.073	<.010	<.100	<.200	<.200	<.100	<.200

DATE	PROME-TRYNE TOTAL (UG/L) (39057)	PROPA-CHLOR WATER WHOLE RECOV. (UG/L) (30295)	PRO-PAZINE TOTAL (UG/L) (39024)	SILVEX, TOTAL (UG/L) (39760)	SIMA-ZINE TOTAL (UG/L) (39055)	SIME-TRYNE TOTAL (UG/L) (39054)	2,4,5-T TOTAL (UG/L) (39740)	TER-BACIL WATER WHOLE RECOV. (UG/L) (30311)	TRI-FLURA-LIN TOTAL RECOVER (UG/L) (39030)	VER-NOLATE WATER WHOLE RECOV. (UG/L) (30324)
APR										
19...	<.100	<.100	<.100	<.010	E.080	<.100	<.010	<.200	<.100	<.100
JUN										
14...	<.100	<.100	<.100	<.010	<.100	<.100	<.010	<.200	<.100	<.100

06452391 LAKE ANDES NEAR RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	CALCIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	MAGNE-SIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	SODIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	POTAS-SIUM , TOTAL IN BOTTOM MATERIAL (MG/G)	PHOS-PHORUS, TOTAL IN BOTTOM MATERIAL (MG/G)	ALUM-INUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ARSENIC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 19	1645	68	11.0	5.5	17	1.7	52000	8.7
Aug. 09	1730	59	11.0	5.6	17	1.4	52000	11

BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYL-LIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHRO-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G)
560	1	<10	<2	46	49	13	28
600	1	<10	<2	52	49	12	29

EURO-PIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTH-ANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
<2	7	<8	<4	28000	31	21	28
<2	8	<8	<4	27000	29	20	28

MANGA-NESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYB-DENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODY-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCAN-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELE-NIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRON-TIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
2600	<2	23	46	5	8	3.2	<2	480
2300	3	24	44	5	8	3.1	<2	420

TAN-TALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANA-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTER-BIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
<40	6	<5	2200	<100	130	2	18	130
<40	9	<5	2000	<100	130	1	18	130

06452403 OWENS BAY NEAR RAVINIA, SD

LOCATION.--Lat 43°09'40", long 98°26'45", in NW¼ NW¼ SW¼ sec.5, T.96 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, about 0.7 mi southeast of the Lake Andes National Wildlife Refuge office and about 1.8 mi northwest 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 1998 TO SEPTEMBER 1999

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 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)
DEC												
09...	1000	--	3360	7.9	3.5	2.5	--	740	15.2	116	1600	1500
MAR												
17...	0900	--	2580	7.7	5.0	6.5	--	724	8.7	75	1200	1100
APR												
19...	1515	--	2280	8.8	17.5	18.9	--	725	13.1	149	1100	1100
JUN												
14...	1415	.46	2810	8.0	22.5	26.5	12.0	731	6.0	79	1300	1200
AUG												
10...	1645	--	2160	8.7	30.5	31.5	--	723	7.4	107	920	820

DATE	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)	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)
DEC												
09...	128	136	460	120	193	20	2	49	156	0	1700	250
MAR												
17...	119	122	350	85	136	19	2	32	145	0	1100	170
APR												
19...	76	83	310	87	132	20	2	31	63	12	1100	170
JUN												
14...	91	99	340	96	146	20	2	34	111	0	1300	190
AUG												
10...	94	98	240	78	117	21	2	42	91	12	940	140

DATE	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)	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)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)
DEC												
09...	2.3	1.9	2800	3060	.171	2.2	<.010	<.050	.105	.010	3	2
MAR												
17...	2.0	2.1	1990	2200	.022	2.6	<.010	<.050	.273	<.010	2	<1
APR												
19...	1.8	.36	1890	2050	<.020	2.2	<.010	.078	.255	<.010	2	4
JUN												
14...	2.0	22	2190	2460	1.39	3.9	.011	<.050	.337	.101	9	<1
AUG												
10...	1.7	5.6	1620	1730	<.020	2.9	<.010	<.050	.203	<.010	8	<1

06452403 OWENS BAY NEAR RAVINIA, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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 OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
APR											
19...	1515	--	8.18	2280	8.8	17.5	18.9	--	725	13.1	149
JUN											
14...	1415	.46	8.20	2810	8.0	22.5	26.5	12.0	731	6.0	79

DATE	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)	ALA-CHLOR TOTAL RECOVER (UG/L) (77825)	AME-TRYNE TOTAL (UG/L) (82184)	ATRA-ZINE WATER UNFLTRD REC (UG/L) (39630)	DEETHYL ATRA-ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	BROM-ACIL WATER WHLREC (UG/L) (30234)	BUTA-CHLOR WATER WHLREC (UG/L) (30235)
APR											
19...	1100	1100	76	83	<.100	<.100	<.100	<.200	<.200	<.200	<.100
JUN											
14...	1300	1200	91	99	<.100	<.100	.120	<.200	<.200	<.200	<.100

DATE	BUTYL-ATE WATER WHLREC (UG/L) (30236)	CARBOX-IN WATER WHOLE RECOV-ERABLE (UG/L) (30245)	CYAN-AZINE TOTAL (UG/L) (81757)	CYCLO-ATE WATER WHOLE RECOV-ERABLE (UG/L) (30254)	2,4-D, TOTAL (UG/L) (39730)	2,4-DP TOTAL (UG/L) (82183)	DIPHEN-AMID WATER WHOLE RECOV-ERABLE (UG/L) (30255)	HEXAZI-NONE WATER WHOLE RECOV-ERABLE (UG/L) (30264)	METOLA-CHLOR WATER WHOLE TOT.REC (UG/L) (82612)	METRI-BUZIN WATER WHOLE TOT.REC (UG/L) (82611)	PROME-TONE TOTAL (UG/L) (39056)
APR											
19...	<.100	<.200	<.200	<.100	<.010	<.010	<.100	<.200	<.200	<.100	<.200
JUN											
14...	<.100	<.200	<.200	<.100	<.010	<.010	<.100	<.200	<.200	<.100	<.200

DATE	PROME-TRYNE TOTAL (UG/L) (39057)	PROPA-CHLOR WATER WHOLE RECOV. (UG/L) (30295)	PRO-PAZINE TOTAL (UG/L) (39024)	SILVEX, TOTAL (UG/L) (39760)	SIMA-ZINE TOTAL (UG/L) (39055)	SIME-TRYNE TOTAL (UG/L) (39054)	2,4,5-T TOTAL (UG/L) (39740)	TER-BACIL WATER WHOLE RECOV. (UG/L) (30311)	TRI-FLURA-LIN TOTAL RECOVER (UG/L) (39030)	VER-NOLATE WATER WHOLE RECOV. (UG/L) (30324)
APR										
19...	<.100	<.100	<.100	<.010	<.100	<.100	<.010	<.200	<.100	<.100
JUN										
14...	<.100	<.100	<.100	<.010	<.100	<.100	<.010	<.200	<.100	<.100

06452403 OWENS BAY NEAR RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	CALCIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	MAGNESIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	SODIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	POTASSIUM , TOTAL IN BOTTOM MATERIAL (MG/G)	PHOSPHORUS, TOTAL IN BOTTOM MATERIAL (MG/G)	ALUMINUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ARSENIC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 19	1515	67	9.4	5.2	14	2.7	48000	9.6
Aug. 10	1645	59	9.7	5.5	15	2.7	49000	10

BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYLLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHROMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G)
530	1	<10	<2	40	44	11	31
550	1	<10	<2	54	47	10	34

EUROPIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTHANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
<2	8	<8	<4	27000	27	17	28
<2	9	<8	<4	26000	29	19	28

MANGANESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYBDENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODYMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCANDIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRONTIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
2000	<2	20	37	5	8	2	<2	660
1400	<2	25	36	5	7	2	<2	600

TANTALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITANIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URANIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANADIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTERBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
<40	6	<5	1900	<100	100	2	16	120
<40	8	<5	1900	<100	110	2	18	120

06452406 LAKE ANDES ABOVE LAKE ANDES, SD

LOCATION.--Lat 43°09'40", long 98°29'10", in NW¼ NW¼ SW¼ 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 1998 TO SEPTEMBER 1999

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 OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
DEC										
09...	0840	3.05	1960	8.3	1.5	3.6	13.6	739	12.1	95
MAR										
18...	1530	2.87	1990	9.0	9.0	6.0	15.6	746	11.7	97
APR										
20...	1300	--	1880	8.7	20.0	10.2	--	718	10.8	103
JUN										
14...	1630	3.05	2040	8.7	23.0	22.4	12.0	730	10.9	132
AUG										
11...	1415	3.20	2090	8.5	28.5	25.5	15.4	721	7.9	103

DATE	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)	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)
DEC									
09...	740	640	108	114	140	95	121	25	2
MAR									
18...	800	680	120	128	160	100	127	24	2
APR									
20...	820	700	125	132	160	103	129	24	2
JUN									
14...	810	690	122	125	160	100	129	24	2
AUG									
11...	850	710	137	138	170	105	134	24	2

DATE	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)
DEC									
09...	47	117	7	880	76	.56	21	1450	1580
MAR									
18...	48	123	12	870	79	.44	16	1470	1610
APR									
20...	46	138	7	890	80	.42	15	1500	1590
JUN									
14...	45	120	14	900	79	.41	16	1500	1650
AUG									
11...	50	146	10	910	75	.41	21	1550	815

DATE	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)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)
DEC									
09...	.813	5.0	<.010	.052	--	.217	.012	6	<1
MAR									
18...	.450	4.9	<.010	.058	--	.226	<.010	9	<1
APR									
20...	.767	4.1	.016	.143	.127	.164	.014	8	1
JUN									
14...	<.020	4.7	<.010	<.050	--	.344	.040	9	<1
AUG									
11...	<.020	3.2	<.010	<.050	--	.263	.046	13	<1

06452406 LAKE ANDES ABOVE LAKE ANDES, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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 OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
APR											
20...	1300	--	8.18	1880	8.7	20.0	10.2	--	718	10.8	103
JUN											
14...	1630	3.05	8.20	2040	8.7	23.0	22.4	12.0	730	10.9	132

DATE	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)	ALA-CHLOR TOTAL RECOVER (UG/L) (77825)	AME-TRYNE TOTAL (UG/L) (82184)	ATRA-ZINE WATER UNFLTRD REC (UG/L) (39630)	DEETHYL ATRA-ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	BROM-ACIL WATER WHLREC (UG/L) (30234)	BUTA-CHLOR WATER WHLREC (UG/L) (30235)
APR											
20...	820	700	125	132	<.100	<.100	.230	<.200	<.200	<.200	<.100
JUN											
14...	810	690	122	125	<.100	<.100	.200	<.200	<.200	<.200	<.100

DATE	BUTYL-ATE WATER WHLREC (UG/L) (30236)	CARBOX-IN WATER WHOLE RECOV-ERABLE (UG/L) (30245)	CYAN-AZINE TOTAL (UG/L) (81757)	CYCLO-ATE WATER WHOLE RECOV-ERABLE (UG/L) (30254)	2,4-D, TOTAL (UG/L) (39730)	2,4-DP TOTAL (UG/L) (82183)	DIPHEN-AMID WATER WHOLE RECOV-ERABLE (UG/L) (30255)	HEXAZI-NONE WATER WHOLE RECOV-ERABLE (UG/L) (30264)	METOLA-CHLOR WATER WHOLE TOT.REC (UG/L) (82612)	METRI-BUZIN WATER WHOLE TOT.REC (UG/L) (82611)	PROME-TONE TOTAL (UG/L) (39056)
APR											
20...	<.100	<.200	<.200	<.100	.035	<.010	<.100	<.200	<.200	<.100	<.200
JUN											
14...	<.100	<.200	<.200	<.100	--	--	<.100	<.200	<.200	<.100	<.200

DATE	PROME-TRYNE TOTAL (UG/L) (39057)	PROPA-CHLOR WATER WHOLE RECOV. (UG/L) (30295)	PRO-PAZINE TOTAL (UG/L) (39024)	SILVEX, TOTAL (UG/L) (39760)	SIMA-ZINE TOTAL (UG/L) (39055)	SIME-TRYNE TOTAL (UG/L) (39054)	2,4,5-T TOTAL (UG/L) (39740)	TER-BACIL WATER WHOLE RECOV. (UG/L) (30311)	TRI-FLURA-LIN TOTAL RECOVER (UG/L) (39030)	VER-NOLATE WATER WHOLE RECOV. (UG/L) (30324)
APR										
20...	<.100	<.100	<.100	<.010	<.100	<.100	<.010	<.200	<.100	<.100
JUN										
14...	<.100	<.100	<.100	--	<.100	<.100	--	<.200	<.100	<.100

06452406 LAKE ANDES ABOVE LAKE ANDES, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	CALCIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	MAGNESIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	SODIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	POTASSIUM , TOTAL IN BOTTOM MATERIAL (MG/G)	PHOSPHORUS, TOTAL IN BOTTOM MATERIAL (MG/G)	ALUMINUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ARSENIC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 20	1300	72	10.0	5.0	17	1.6	54000	8.5
Aug. 11	1415	76	11.0	5.1	18	1.4	54000	13

DATE	BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYLLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHROMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 20	560	1	<10	<2	46	50	12	28
Aug. 11	610	1	<10	<2	54	51	11	27

DATE	EUROPIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTHANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 20	<2	7	<8	<4	29000	31	19	32
Aug. 11	<2	8	<8	<4	28000	31	19	31

DATE	MANGANESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYBDENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODYMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCANDIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRONTIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 20	2600	<2	23	42	5	9	2	<2	570
Aug. 11	2600	<2	26	43	4	8	2.3	<2	590

DATE	TANTALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITANIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URANIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANADIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTERBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 20	<40	8	<5	2200	<100	130	2	18	130
Aug. 11	<40	10	<5	2100	<100	130	2	19	130

06452500 LAKE FRANCIS CASE AT PICKSTOWN, SD

LOCATION.--Lat 43°04'05", long 98°33'15", in $SE^1/_4$ 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 mi^2, 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. Datum of gage is above sea level. 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 ft^3/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 ft^3/s; maximum release through 4 other tunnels is 130,000 ft^3/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, 4,245,000 acre-ft, May 13; minimum contents, 2,250,000 acre-ft, Dec. 1.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,353.09	3,370,000	--
Oct. 31	1,348.19	2,983,000	-387,000
Nov. 30	1,336.67	2,253,000	-730,000
Dec. 31	1,341.61	2,545,000	+292,000
CAL YR 1998	--	--	-112,000
Jan. 31	1,349.79	3,108,000	+563,000
Feb. 28	1,351.27	3,228,000	+120,000
Mar. 31	1,354.25	3,461,000	+233,000
Apr. 30	1,357.84	3,768,000	+307,000
May 31	1,358.43	3,831,000	+63,000
June 30	1,360.78	4,023,000	+192,000
July 31	1,360.30	3,992,000	-31,000
Aug. 31	1,354.14	3,455,000	-537,000
Sept. 30	1,351.94	3,280,000	-175,000
WTR YR 1999	--	--	-90,000

NOTE.--Lake frozen over Jan. 4 to Mar. 4.

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06453020 MISSOURI RIVER BELOW GREENWOOD, SD

LOCATION.--Lat 42°54'19", long 98°20'58", in SE¼ NE¼ NE¼ sec.1, T.93 N., R.64 W., Charles Mix County, Hydrologic Unit 10170101, on left bank 2.05 mi downstream from Greenwood and 1.27 mi downstream from the mouth of Slaughter Creek.

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

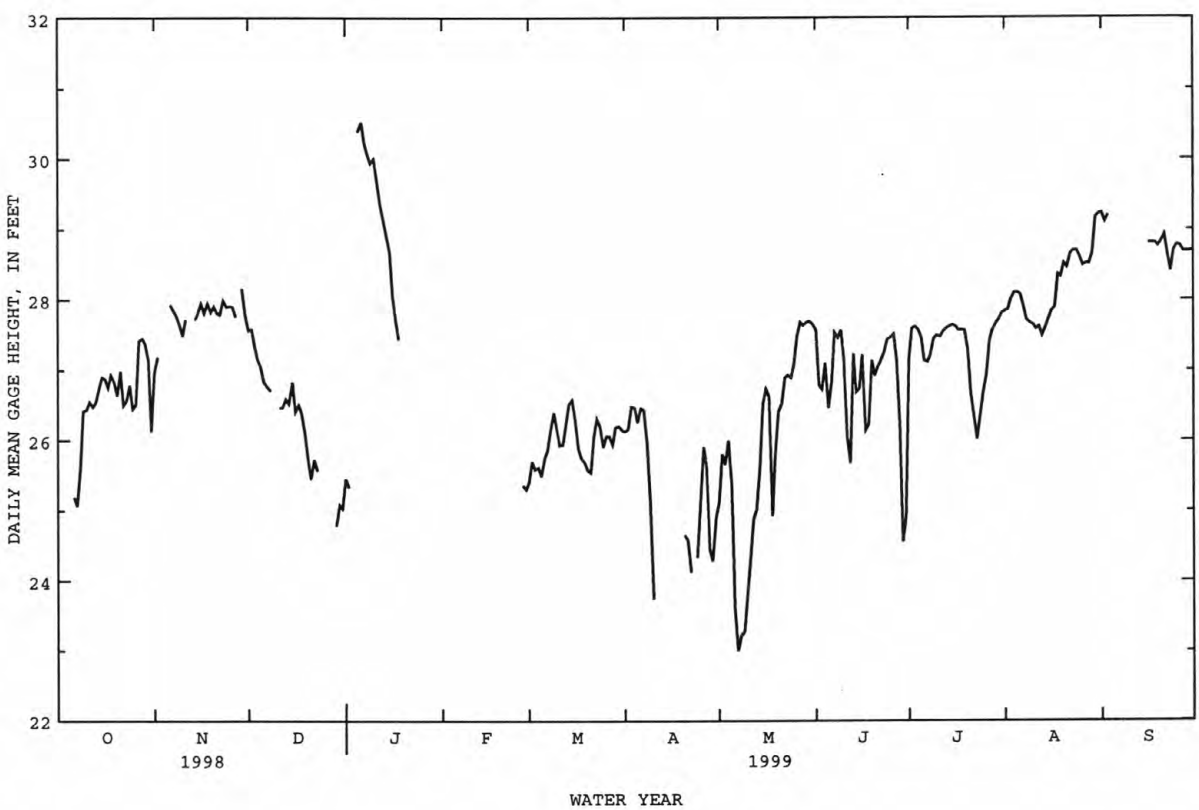
GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above sea level.

REMARKS.--Records poor. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.60	26.97	27.56	25.45	---	25.40	26.13	25.12	27.57	27.15	27.84	29.23
2	---	27.19	27.58	25.33	---	25.70	26.16	25.80	26.78	27.59	27.86	29.11
3	---	---	27.34	---	---	25.59	26.48	25.66	26.72	27.62	28.01	29.20
4	---	---	27.14	---	---	25.62	26.47	26.00	27.10	27.57	28.10	---
5	---	---	27.05	30.39	---	25.49	26.26	25.36	26.46	27.45	28.10	---
6	25.19	27.93	26.83	30.53	---	25.74	26.46	23.61	26.83	27.13	28.08	---
7	25.07	27.85	26.76	30.23	---	25.86	26.44	23.00	27.53	27.11	27.91	---
8	25.61	27.77	26.71	30.06	---	26.15	25.97	23.22	27.46	27.21	27.71	---
9	26.42	27.66	---	29.94	---	26.40	25.11	23.28	27.57	27.44	27.67	---
10	26.43	27.49	---	30.01	---	26.19	23.74	23.75	27.15	27.49	27.65	---
11	26.55	27.72	26.47	29.68	---	25.93	---	24.37	26.05	27.47	27.58	---
12	26.48	---	26.47	29.37	---	25.94	---	24.87	25.68	27.54	27.62	---
13	26.54	---	26.59	29.14	---	26.23	---	25.03	27.23	27.59	27.49	---
14	26.73	27.72	26.52	28.92	---	26.52	---	25.60	26.68	27.62	27.60	---
15	26.90	27.82	26.83	28.69	---	26.58	---	26.52	26.73	27.64	27.73	---
16	26.88	27.95	26.41	28.06	---	26.31	---	26.73	27.22	27.62	27.84	28.81
17	26.75	27.81	26.51	27.70	---	25.90	---	26.62	26.14	27.57	27.89	28.81
18	26.93	27.95	26.39	27.44	---	25.74	---	24.93	26.23	27.57	28.36	28.81
19	26.82	27.83	26.12	---	---	25.69	---	25.80	27.14	27.56	28.33	28.76
20	26.64	27.91	25.73	---	---	25.58	24.66	26.41	26.92	27.29	28.52	28.83
21	26.99	27.81	25.46	---	---	25.54	24.58	26.52	27.05	26.68	28.46	28.93
22	26.50	27.79	25.73	---	---	26.06	24.13	26.89	27.15	26.36	28.65	28.64
23	26.57	27.99	25.57	---	---	26.31	---	26.93	27.25	26.02	28.70	28.41
24	26.79	27.90	---	---	---	26.20	24.34	26.89	27.44	26.33	28.70	28.71
25	26.45	27.91	---	---	---	25.91	25.09	27.08	27.46	26.67	28.61	28.78
26	26.51	27.90	---	---	---	26.06	25.91	27.49	27.51	26.93	28.49	28.77
27	27.42	27.76	---	---	25.36	26.06	25.64	27.68	27.15	27.42	28.52	28.69
28	27.45	---	---	---	25.30	25.94	24.45	27.63	26.21	27.57	28.51	28.69
29	27.37	28.16	24.79	---	---	26.19	24.29	27.68	24.56	27.66	28.66	28.69
30	27.15	27.79	25.08	---	---	26.20	24.91	27.69	24.91	27.72	29.17	28.70
31	26.13	---	25.03	---	---	26.14	---	27.64	---	27.81	29.22	---
MEAN	---	---	---	---	---	25.97	---	25.86	26.80	27.30	28.18	---
MAX	---	---	---	---	---	26.58	---	27.69	27.57	27.81	29.22	---
MIN	---	---	---	---	---	25.40	---	23.00	24.56	26.02	27.49	---

06453020 MISSOURI RIVER BELOW GREENWOOD, SD--Continued



06453120 MISSOURI RIVER ABOVE CHOTEAU CREEK, NEAR VERDEL, NE

LOCATION.--Lat 42°50'40", long 98°11'50", in NE¼ SW¼ SE¼ 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 1998 TO SEPTEMBER 1999

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE AIR (DEG C) (00020)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT 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)
DEC												
10...	1100	754	8.3	2.0	5.5	91.2	750	11.6	94	220	71	155
MAR												
18...	1015	730	8.6	7.0	2.0	48.0	743	13.8	103	230	80	154
APR												
21...	1030	771	8.3	9.0	7.2	45.6	720	13.3	117	240	86	153
JUN												
16...	1030	909	8.4	15.0	15.2	69.6	737	8.9	92	280	130	150
AUG												
11...	1030	902	8.4	22.5	24.0	72.0	727	7.2	90	260	110	153

DATE	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (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 DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
DEC												
10...	157	53	21	69	40	2	5.1	179	0	220	10	.52
MAR												
18...	160	56	23	70	39	2	4.7	184	2	210	11	.49
APR												
21...	156	58	23	68	38	2	5.2	177	5	230	11	.46
JUN												
16...	157	73	25	80	37	2	6.6	171	6	290	12	.42
AUG												
11...	155	64	24	85	41	2	6.2	180	3	290	12	.44

DATE	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, NITRATE DISSOLVED (MG/L AS N) (00618)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)
DEC												
10...	7.6	478	512	.027	.26	<.010	.126	--	.053	.010	2	3
MAR												
18...	6.9	476	509	<.020	.22	<.010	.089	--	<.050	<.010	2	1
APR												
21...	6.2	494	516	.032	.24	<.010	.094	--	<.050	<.010	2	2
JUN												
16...	5.7	588	623	.061	.39	.019	.356	.337	<.050	.020	2	3
AUG												
11...	6.0	576	598	<.020	.27	<.010	.248	--	E.036	<.010	1	3

06453120 MISSOURI RIVER ABOVE CHOTEAU CREEK, NEAR VERDEL, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	CALCIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	MAGNE-SIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	SODIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	POTAS-SIUM , TOTAL IN BOTTOM MATERIAL (MG/G)	PHOS-PHORUS, TOTAL IN BOTTOM MATERIAL (MG/G)	ALUM-INUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ARSENIC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	1030	14	4.9	12.0	14	0.5	41000	6.4
Aug. 11	1030	12	2.9	11.0	16	0.4	37000	12

DATE	BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYL-LIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHRO-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	900	<1	<10	<2	55	28	8	2
Aug. 11	870	<1	<10	<2	36	14	7	3

DATE	EURO-PIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTH-ANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	<2	7	<8	<4	14000	34	11	12
Aug. 11	<2	6	<8	<4	14000	19	13	9

DATE	MANGA-NESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYB-DENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODY-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCAN-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELE-NIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRON-TIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	400	<2	24	18	8	4	0.18	<2	230
Aug. 11	740	<2	16	22	4	3	0.4	<2	200

DATE	TAN-TALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANA-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTER-BIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	<40	6	<5	2000	<100	40	1	11	31
Aug. 11	<40	<4	<5	800	<100	33	<1	11	34

06453200 CHOTEAU CREEK NEAR WAGNER, SD

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.

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC 09...	1140	20	2030	8.3	6.0	.5	742	15.7	113	1000
MAR 16...	1445	27	2600	8.5	23.5	12.5	714	9.2	93	1200
APR 21...	1600	131	1810	7.9	11.5	13.5	715	5.0	51	880
JUN 15...	0900	234	1460	7.5	11.5	20.0	730	2.2	25	620
AUG 10...	0900	17	1450	8.0	23.0	23.0	725	3.6	44	600

DATE	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)	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)
DEC 09...	750	253	273	210	116	134	22	2	19	284
MAR 16...	920	290	298	250	145	182	24	2	3.0	344
APR 21...	690	196	219	180	106	106	20	2	19	239
JUN 15...	430	195	202	140	68	82	22	1	20	238
AUG 10...	290	307	308	130	69	81	22	1	23	375

DATE	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)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
DEC 09...	12	980	36	.25	11	1650	1790	98.9	.027
MAR 16...	5	1200	62	.25	7.6	2050	2270	166	<.020
APR 21...	0	860	31	.17	3.0	1420	1560	552	<.020
JUN 15...	0	590	19	.18	23	1060	1160	730	<.020
AUG 10...	0	460	22	.18	15	980	1070	48.4	<.020

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)	PHOS-PHORUS ORTHO, 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-PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
DEC 09...	.83	<.010	<.050	.149	.111	4	7	72	24
MAR 16...	.98	<.010	<.050	.125	.064	4	9	26	48
APR 21...	1.4	<.010	<.050	.143	.069	4	8	14	94
JUN 15...	1.4	<.010	<.050	.558	.462	6	1	6	94
AUG 10...	1.9	<.010	<.050	.834	.603	10	<1	103	92

06453200 CHOTEAU CREEK NEAR WAGNER, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	CALCIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	MAGNE-SIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	SODIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	POTAS-SIUM , TOTAL IN BOTTOM MATERIAL (MG/G)	PHOS-PHORUS, TOTAL IN BOTTOM MATERIAL (MG/G)	ALUM-INUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ARSENIC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	1600	28	11.0	8.6	18	1.4	61000	14
Aug. 10	0900	42	8.6	11.0	14	0.8	40000	10

BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYL-LIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHRO-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G)
900	2	<10	<2	54	57	14	23
860	<1	<10	<2	37	24	8	8

EURO-PIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTH-ANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
<2	6	<8	<4	36000	36	17	28
<2	<4	<8	<4	17000	20	9	12

MANGA-NESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYB-DENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODY-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCAN-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELE-NIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRON-TIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
4100	<2	26	44	7	10	1.7	<2	210
4100	<2	15	26	<4	4	1.2	<2	250

TAN-TALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANA-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTER-BIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
<40	7	<5	2600	<100	140	3	21	120
<40	5	<5	1100	<100	59	1	13	52

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.

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

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)
DEC										
09...	1410	27	2160	8.4	6.0	1.0	742	16.6	121	1100
MAR										
16...	1330	31	2830	8.5	20.5	10.0	716	10.3	98	1400
APR										
21...	1500	175	1890	8.1	10.0	14.0	717	7.3	76	940
JUN										
15...	1300	262	1800	7.9	12.5	19.7	733	6.0	69	710
AUG										
10...	1130	16	1610	8.3	27.0	24.8	727	6.6	84	680

DATE	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)	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)
DEC										
09...	820	249	271	220	120	147	23	2	18	280
MAR										
16...	1100	280	285	290	161	191	23	2	17	311
APR										
21...	740	198	220	190	110	114	20	2	17	242
JUN										
15...	500	207	219	160	77	93	22	2	17	253
AUG										
10...	370	307	314	150	75	95	23	2	22	374

DATE	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)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
DEC									
09...	0	1100	41	.29	12	1760	1920	141	.030
MAR									
16...	15	1400	65	.22	5.4	2290	2470	207	<.020
APR									
21...	0	920	35	.18	6.5	1520	1660	784	.034
JUN									
15...	0	670	25	.21	23	1180	1320	931	<.020
AUG									
10...	0	570	31	.21	18	1140	1240	54.1	<.020

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)	PHOS-PHORUS ORTHO, 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-PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
DEC									
09...	.76	<.010	.064	.147	.094	3	8	126	33
MAR									
16...	1.1	<.010	<.050	.168	.056	4	17	28	93
APR									
21...	1.8	<.010	.053	.340	.058	3	11	391	99
JUN									
15...	1.6	<.010	<.050	.622	.465	7	3	59	89
AUG									
10...	2.0	<.010	<.050	.546	.308	10	2	344	100

06453252 CHOTEAU CREEK NEAR DANTE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	CALCIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	MAGNE-SIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	SODIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	POTAS-SIUM , TOTAL IN BOTTOM MATERIAL (MG/G)	PHOS-PHORUS, TOTAL IN BOTTOM MATERIAL (MG/G)	ALUM-INUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ARSENIC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	1500	44	8.5	10.0	15	1.2	48000	8.5
Aug. 10	1130	68	11.0	9.8	14	0.8	44000	15

DATE	BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYL-LIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHRO-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	620	1	<10	<2	41	36	10	13
Aug. 10	730	1	<10	<2	53	36	10	13

DATE	EURO-PIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTH-ANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	<2	6	<8	<4	20000	27	12	18
Aug. 10	<2	<4	<8	<4	22000	28	10	18

DATE	MANGA-NESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYB-DENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODY-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCAN-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELE-NIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRON-TIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	2100	<2	20	29	5	6	1.5	<2	250
Aug. 10	4200	5	21	39	<4	5	0.51	<2	290

DATE	TAN-TALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANA-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTER-BIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	<40	5	<5	1800	<100	82	2	16	70
Aug. 10	<40	7	<5	1600	<100	97	1	16	68

06453255 CHOTEAU CREEK NEAR AVON, SD

LOCATION.--Lat 42°55'24", long 98°06'21", in NW¼ NW¼ NW¼ 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 mi^2.

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 sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	27	69	e5.9	14	67	9.2	89	187	57	120	e4.9
2	3.7	25	65	e5.3	e14	63	9.9	79	205	365	99	e4.7
3	4.7	25	60	e4.8	17	52	11	70	207	662	83	e6.6
4	6.5	23	57	4.7	e15	48	11	73	808	714	72	e9.7
5	17	20	54	5.2	20	46	17	129	696	625	58	e21
6	20	20	56	5.7	22	46	87	223	432	545	47	e53
7	18	21	55	5.2	24	47	105	243	249	742	39	e85
8	16	23	49	4.8	25	42	108	239	173	1130	33	104
9	14	31	51	4.9	26	34	566	227	134	1100	28	139
10	13	52	44	4.5	e20	41	426	234	115	947	25	135
11	12	41	53	4.9	e20	39	462	259	97	785	21	107
12	12	68	54	5.0	e18	39	558	267	77	624	20	73
13	10	59	49	4.0	e18	38	791	239	66	467	18	48
14	8.5	85	47	4.5	e20	39	915	199	149	296	16	35
15	8.1	144	45	4.3	e20	44	847	177	273	207	14	26
16	11	141	43	4.9	22	48	683	156	293	154	12	22
17	23	116	40	6.3	24	43	488	138	262	118	10	18
18	20	103	e29	e9.0	24	40	342	124	213	99	9.3	15
19	21	101	e19	11	22	30	264	101	182	78	9.0	12
20	16	113	e15	14	18	26	231	85	154	98	7.9	12
21	14	133	e13	17	e18	23	203	79	141	102	7.2	9.5
22	13	152	12	17	17	21	187	78	118	97	7.2	7.7
23	12	161	11	16	17	21	165	87	137	87	6.9	6.7
24	16	154	9.7	e13	14	21	148	109	143	80	6.6	6.0
25	15	140	e9.7	e12	14	18	136	141	119	96	6.1	4.8
26	14	124	e9.7	e12	18	16	137	166	95	156	6.0	4.4
27	16	106	e9.7	e12	39	15	134	178	86	220	5.8	4.1
28	48	88	e8.9	e13	63	15	129	186	77	245	5.2	4.0
29	216	81	e8.6	e13	---	15	117	177	69	227	5.4	3.9
30	65	71	e7.6	e13	---	14	99	164	64	189	5.5	3.8
31	36	---	e6.7	e13	---	10	---	164	---	152	4.5	---
TOTAL	722.7	2448	1060.6	269.9	603	1061	8386.1	4880	6021	11464	807.6	985.8
MEAN	23.3	81.6	34.2	8.71	21.5	34.2	280	157	201	370	26.1	32.9
MAX	216	161	69	17	63	67	915	267	808	1130	120	139
MIN	3.2	20	6.7	4.0	14	10	9.2	70	64	57	4.5	3.8
AC-FT	1430	4860	2100	535	1200	2100	16630	9680	11940	22740	1600	1960

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1999, BY WATER YEAR (WY)

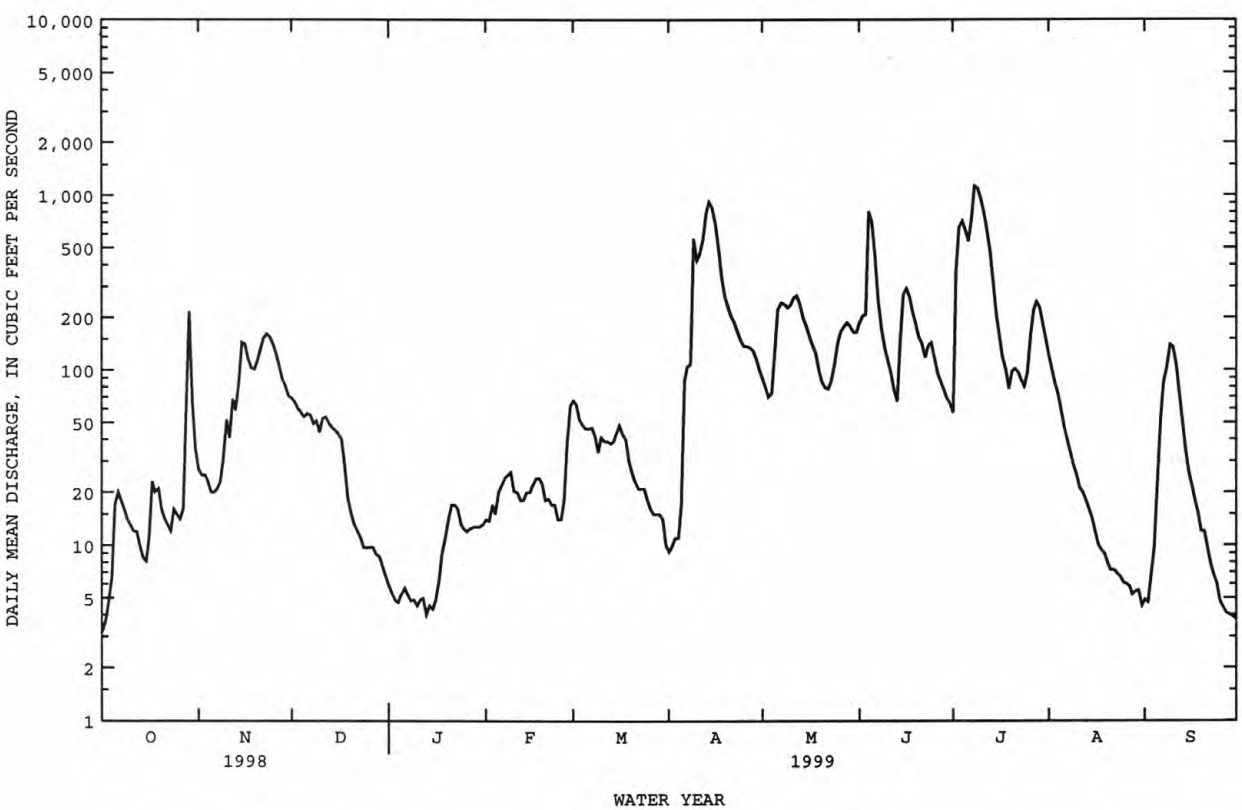
MEAN	7.20	8.60	5.26	2.90	25.2	163	167	145	138	81.6	12.7	12.6
MAX	42.0	81.6	34.2	8.71	125	914	653	865	910	502	89.4	98.2
(WY)	1987	1999	1999	1999	1997	1987	1986	1995	1984	1993	1993	1986
MIN	.23	.071	.22	.028	.70	.62	.42	1.17	2.01	.24	.067	.027
(WY)	1993	1993	1993	1993	1992	1991	1992	1989	1992	1991	1991	1991

e Estimated

06453255 CHOTEAU CREEK NEAR AVON, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1983 - 1999	
ANNUAL TOTAL	15919.0		38709.7			
ANNUAL MEAN	43.6		106		64.2a	
HIGHEST ANNUAL MEAN					168	1984
LOWEST ANNUAL MEAN					1.13	1992
HIGHEST DAILY MEAN	733	Jul 7	1130	Jul 8	5020	Mar 27 1987
LOWEST DAILY MEAN	1.2	Jan 14	3.2	Oct 1	.00	Aug 23 1991b
ANNUAL SEVEN-DAY MINIMUM	2.0	Jan 10	4.4	Sep 24	.00	Aug 23 1991
INSTANTANEOUS PEAK FLOW			1330	Jun 4	7280	Jun 12 1984
INSTANTANEOUS PEAK STAGE			7.42	Jun 4	13.93	Jun 12 1984
ANNUAL RUNOFF (AC-FT)	31580		76780		46530	
10 PERCENT EXCEEDS	105		239		146	
50 PERCENT EXCEEDS	18		41		4.8	
90 PERCENT EXCEEDS	2.8		6.4		.50	

a Median of annual mean discharges, 41 ft^3/s.
b Also Aug. 24 to Sept. 10, Sept. 15-18, 1991, and Sept. 26-30, 1992.



06453300 CHOTEAU CREEK BELOW AVON, SD

LOCATION.--Lat 42°51'40", long 98°08'25", in SW¼ SW¼ NE¼ 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 1998 TO SEPTEMBER 1999

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)
DEC										
09...	1550	38	2170	8.3	4.5	1.5	747	14.6	107	1100
MAR										
16...	0940	62	2650	8.4	8.5	7.0	720	11.3	99	1400
APR										
20...	1700	248	1810	8.3	24.0	16.0	722	7.3	79	970
JUN										
15...	1515	244	1970	8.2	13.5	19.3	735	7.8	88	910
AUG										
10...	1345	31	1680	8.5	32.5	28.5	730	10.1	137	740

DATE	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)	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)
DEC										
09...	850	258	278	240	119	125	20	2	17	291
MAR										
16...	1100	267	271	280	159	157	20	2	16	309
APR										
20...	750	218	224	200	112	107	19	2	19	259
JUN										
15...	670	239	264	200	100	114	21	2	16	292
AUG										
10...	450	287	288	170	75	84	19	1	21	314

DATE	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)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
DEC									
09...	0	1100	36	.29	13	1770	1940	199	.029
MAR									
16...	8	1300	48	.23	6.7	2180	2320	387	<.020
APR									
20...	4	940	34	.19	12	1560	1670	1120	<.020
JUN									
15...	0	890	33	.29	22	1520	1690	1120	.025
AUG									
10...	18	650	27	.22	21	1220	1300	110	<.020

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)	PHOS-PHORUS ORTHO, 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-PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
DEC									
09...	.66	<.010	.052	.108	.052	4	10	142	33
MAR									
16...	.87	<.010	<.050	.085	.017	3	10	56	93
APR									
20...	1.8	<.010	.060	.447	.077	4	13	487	97
JUN									
15...	1.9	<.010	.053	.757	.344	6	4	288	90
AUG									
10...	1.3	<.010	<.050	.351	.175	7	3	43	98

06453300 CHOTEAU CREEK BELOW AVON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	CALCIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	MAGNE-SIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	SODIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	POTAS-SIUM , TOTAL IN BOTTOM MATERIAL (MG/G)	PHOS-PHORUS, TOTAL IN BOTTOM MATERIAL (MG/G)	ALUM-INUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ARSENIC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 20	1700	100	8.6	14.0	16	1.4	42000	17
Aug. 10	1345	54	11.0	9.9	17	1.0	51000	11

DATE	BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYL-LIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHRO-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G
Apr. 20	1200	1	<10	<2	31	18	11	9
Aug. 10	900	1	<10	<2	45	40	10	13

DATE	EURO-PIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTH-ANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 20	<2	<4	<8	<4	26000	23	5	11
Aug. 10	<2	6	<8	<4	24000	25	16	20

DATE	MANGA-NESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYB-DENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODY-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCAN-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELE-NIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRON-TIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 20	12000	7	9	37	<4	4	2.3	<2	410
Aug. 10	3300	<2	19	28	<4	6	1.9	<2	260

DATE	TAN-TALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANA-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTER-BIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 20	<40	12	<5	900	<100	79	2	16	74
Aug. 10	<40	6	<5	1600	<100	95	1	15	83

06453305 MISSOURI RIVER BELOW CHOTEAU CREEK, NEAR VERDEL, NE

LOCATION.--Lat 42°50'05", long 98°08'20", in NW¼ SW¼ NW¼ sec.35, T.93 N., R.62 W., Charles Mix County, 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 1998 TO SEPTEMBER 1999

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE AIR (DEG C) (00020)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (IN) (00077)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT 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)
DEC												
10...	1000	766	8.2	3.5	5.2	72.0	750	11.8	95	230	85	157
MAR												
18...	1145	799	8.7	8.0	2.5	36.0	743	13.7	103	260	100	157
APR												
21...	0930	835	8.3	11.0	8.6	37.2	720	12.5	114	280	120	156
JUN												
16...	0930	923	8.4	14.0	15.0	45.6	737	9.0	93	280	130	152
AUG												
11...	1000	902	8.4	25.0	24.5	55.2	727	7.3	92	250	100	150

DATE	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (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 DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
DEC												
10...	157	58	22	73	40	2	5.4	182	0	230	11	.49
MAR												
18...	163	61	27	71	37	2	4.8	186	3	250	11	.44
APR												
21...	161	66	27	69	35	2	6.0	190	0	270	12	.44
JUN												
16...	159	71	26	82	38	2	6.3	176	5	300	12	.17
AUG												
11...	155	63	23	82	41	2	6.1	182	1	290	12	.42

DATE	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, NITRATE DISSOLVED (MG/L AS N) (00618)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)
DEC												
10...	7.6	497	519	.028	.23	<.010	.116	--	<.050	<.010	1	2
MAR												
18...	6.9	522	555	<.020	.26	<.010	.091	--	<.050	<.010	1	1
APR												
21...	6.6	550	580	.030	.31	<.010	.115	--	E.036	.011	2	2
JUN												
16...	5.7	592	628	.056	.34	.012	.351	.339	E.043	.027	2	4
AUG												
11...	6.1	570	598	<.020	.34	<.010	.240	--	E.045	<.010	2	2

06453305 MISSOURI RIVER BELOW CHOTEAU CREEK, NEAR VERDEL, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	CALCIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	MAGNE-SIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	SODIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	POTAS-SIUM, TOTAL IN BOTTOM MATERIAL (MG/G)	PHOS-PHORUS, TOTAL IN BOTTOM MATERIAL (MG/G)	ALUM-INUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ARSENIC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	0930	22	7.5	11.0	15	0.6	43000	9.6
Aug. 11	1000	25	8.3	10.0	16	0.7	46000	11

DATE	BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYL-LIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHRO-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	1000	1	<10	<2	70	37	10	4
Aug. 11	820	1	<10	<2	55	34	9	10

DATE	EURO-PIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTH-ANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	<2	9	<8	<4	18000	43	13	14
Aug. 11	<2	9	<8	<4	19000	29	12	18

DATE	MANGA-NESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYB-DENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODY-MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCAN-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELE-NIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRON-TIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	570	<2	30	21	9	5	0.57	<2	230
Aug. 11	900	<2	24	26	6	5	1	<2	250

DATE	TAN-TALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URAN-IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANA-DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTER-BIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
Apr. 21	<40	8	<5	2700	<100	54	2	16	39
Aug. 11	<40	6	<5	1800	<100	69	1	16	56

06464100 KEYA PAHA RIVER NEAR KEYAPAHA, SD

LOCATION.--Lat 43°07'45", long 100°06'24", in NW¼ SW¼ SW¼ 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 mi^2, 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 sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

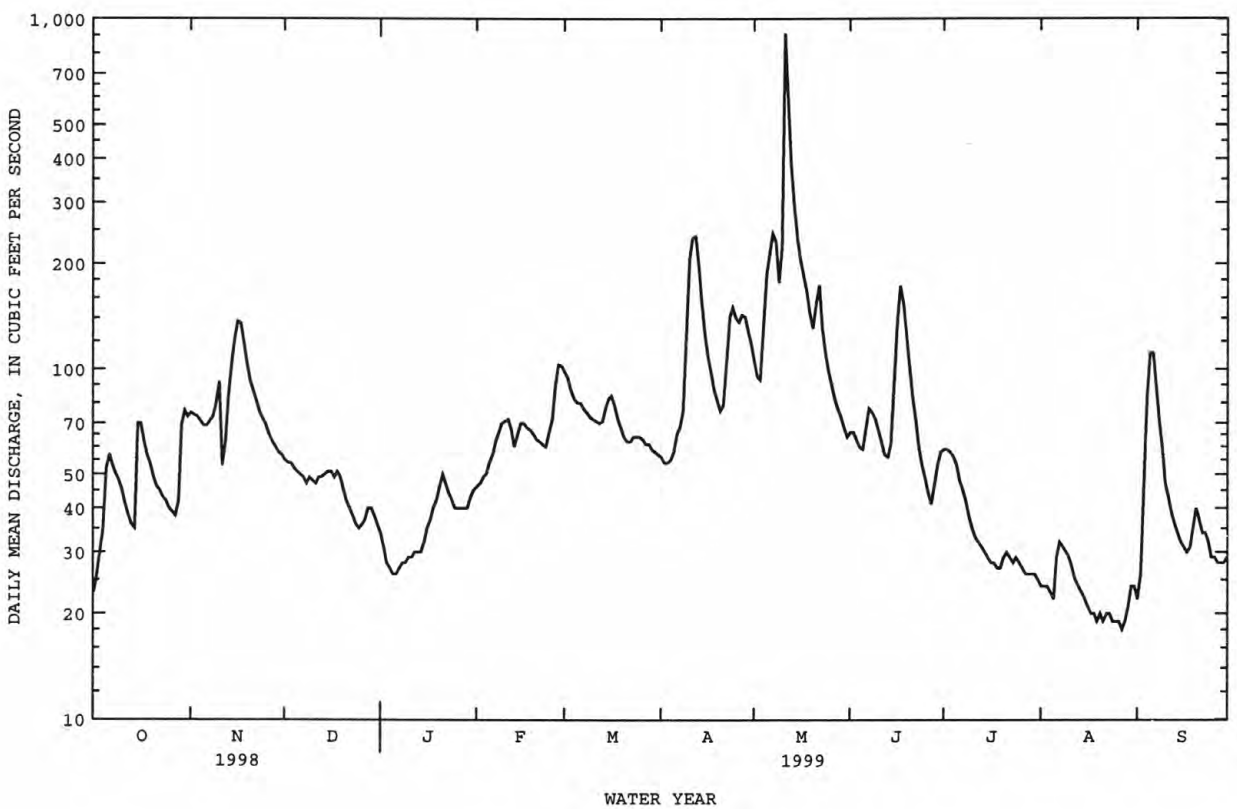
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	75	55	e34	e46	98	56	105	66	59	24	22
2	26	74	54	e31	e47	94	54	95	66	59	24	26
3	30	73	54	e28	e49	87	54	93	63	58	24	43
4	35	71	52	e27	e50	82	55	130	60	56	23	82
5	52	69	51	e26	e54	80	58	187	59	53	22	111
6	57	69	50	e26	e57	80	65	213	68	48	29	111
7	53	71	49	e27	e62	77	68	244	77	45	32	90
8	50	73	47	e28	e66	75	76	232	75	42	31	71
9	48	79	49	e28	e70	73	130	177	72	38	30	59
10	45	92	48	e29	e71	72	207	221	67	35	29	47
11	41	53	47	e29	e72	71	237	912	62	33	27	43
12	38	62	49	e30	e67	70	240	612	57	32	25	39
13	36	83	49	e30	e60	71	196	381	56	31	24	36
14	35	104	50	e30	e65	77	155	289	61	30	23	34
15	70	123	51	e32	e70	82	125	234	87	29	22	32
16	70	137	51	e35	e70	84	108	205	133	28	21	31
17	62	135	49	e37	e68	79	97	184	173	28	20	30
18	57	117	51	e40	e67	72	87	166	154	27	20	31
19	53	102	e49	e42	e65	68	81	145	124	27	19	35
20	49	92	e45	e46	e63	64	76	131	101	29	20	40
21	46	86	e42	e50	e62	62	79	154	83	30	19	37
22	45	81	e40	e47	e61	62	105	174	71	29	20	34
23	43	75	e38	e44	e60	64	141	131	60	28	20	34
24	42	72	e36	e42	e66	64	150	111	53	29	19	32
25	40	69	e35	e40	e72	64	140	99	49	28	19	29
26	39	65	e36	e40	89	63	136	90	44	27	19	29
27	38	62	e37	e40	103	61	143	82	41	26	18	28
28	42	60	e40	e40	102	61	141	77	47	26	19	28
29	69	58	e40	e40	---	59	129	73	53	26	21	28
30	76	57	e38	e43	---	58	117	68	58	26	24	29
31	73	---	e36	e45	---	57	---	64	---	25	24	---
TOTAL	1483	2439	1418	1106	1854	2231	3506	6079	2240	1087	711	1321
MEAN	47.8	81.3	45.7	35.7	66.2	72.0	117	196	74.7	35.1	22.9	44.0
MAX	76	137	55	50	103	98	240	912	173	59	32	111
MIN	23	53	35	26	46	57	54	64	41	25	18	22
AC-FT	2940	4840	2810	2190	3680	4430	6950	12060	4440	2160	1410	2620
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1999, BY WATER YEAR (WY)												
MEAN	24.5	28.9	23.1	20.6	60.5	83.5	77.5	89.1	64.8	33.3	23.9	19.9
MAX	54.8	81.3	45.7	67.0	247	158	155	257	148	81.3	87.1	44.0
(WY)	1996	1999	1999	1997	1997	1988	1987	1995	1995	1998	1998	1999
MIN	10.6	11.9	5.54	3.51	10.7	29.5	24.3	17.5	11.3	16.8	10.1	9.78
(WY)	1990	1986	1986	1991	1989	1995	1990	1992	1985	1985	1989	1990

e Estimated

06464100 KEYA PAHA RIVER NEAR KEYAPAHA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1982 - 1999	
ANNUAL TOTAL	22471		25475			
ANNUAL MEAN	61.6		69.8		45.7a	
HIGHEST ANNUAL MEAN					81.0	1997
LOWEST ANNUAL MEAN					18.5	1989
HIGHEST DAILY MEAN	528	Jul 31	912	May 11	928	Feb 20 1997
LOWEST DAILY MEAN	20	Sep 19	18	Aug 27	2.4	Jan 6 1991
ANNUAL SEVEN-DAY MINIMUM	21	Sep 14	19	Aug 21	2.5	Jan 1 1991
INSTANTANEOUS PEAK FLOW			1200	May 11	1200	May 11 1999b
INSTANTANEOUS PEAK STAGE			9.48	May 11	11.29	Feb 18 1997c
ANNUAL RUNOFF (AC-FT)	44570		50530		33100	
10 PERCENT EXCEEDS	109		130		92	
50 PERCENT EXCEEDS	51		56		27	
90 PERCENT EXCEEDS	25		27		12	

a Median of annual mean discharges, 45 ft^3/s.
b Gage height, 9.48 ft.
c Backwater from ice.



06464500 KEYA PAHA RIVER AT WEWELA, SD

LOCATION.--Lat 43°01'44", long 99°46'49", in NW¼ SW¼ SE¼ 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 mi^2, 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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	248	137	e85	e200	257	122	256	136	135	47	40
2	56	212	137	e77	e220	238	115	232	136	138	50	54
3	e77	198	135	e70	e240	216	114	232	134	249	49	74
4	e86	188	131	e64	e230	197	115	238	131	255	46	141
5	92	179	129	e58	e225	182	126	376	151	224	44	205
6	96	171	125	e58	e220	175	164	540	159	211	44	201
7	94	168	123	e59	e200	168	182	656	165	161	50	177
8	88	171	119	e60	178	165	225	616	159	125	53	139
9	83	199	124	e62	171	167	501	523	146	106	50	111
10	81	259	121	e64	172	171	618	497	136	93	54	94
11	76	212	120	e66	173	169	809	654	130	85	61	83
12	73	188	121	e68	149	169	700	1150	121	80	63	79
13	72	233	122	e70	e140	172	550	747	116	75	59	71
14	72	271	122	e72	e150	192	435	525	117	84	47	e68
15	73	274	121	e74	162	212	349	447	201	72	39	e70
16	108	285	121	e76	165	220	310	396	305	86	36	e70
17	140	280	120	e79	160	211	272	351	324	83	34	e65
18	189	262	e110	e80	158	184	248	321	318	90	33	e60
19	187	236	e100	e90	162	165	230	295	275	96	32	e68
20	151	214	e90	e100	e158	152	210	277	233	98	32	84
21	129	199	e80	e110	e156	141	208	255	191	78	38	e71
22	115	190	e70	e125	157	137	244	275	165	89	37	65
23	107	190	e73	e130	157	144	269	278	165	82	34	63
24	102	178	e76	e135	155	150	293	234	135	73	32	60
25	97	166	e80	e140	168	146	286	208	121	67	32	e72
26	93	158	e83	e145	216	140	299	190	107	63	31	e76
27	92	152	e86	e150	258	135	324	175	104	58	29	e73
28	95	146	e90	e155	269	133	332	162	116	52	28	e77
29	183	146	e95	e165	---	130	312	151	118	62	32	e81
30	258	141	e100	e175	---	128	285	142	126	69	35	83
31	279	---	e93	e180	---	124	---	135	---	54	36	---
TOTAL	3493	6114	3354	3042	5169	5290	9247	11534	4941	3293	1287	2675
MEAN	113	204	108	98.1	185	171	308	372	165	106	41.5	89.2
MAX	279	285	137	180	269	257	809	1150	324	255	63	205
MIN	49	141	70	58	140	124	114	135	104	52	28	40
AC-FT	6930	12130	6650	6030	10250	10490	18340	22880	9800	6530	2550	5310

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1940, 1948 - 1999, BY WATER YEAR (WY)

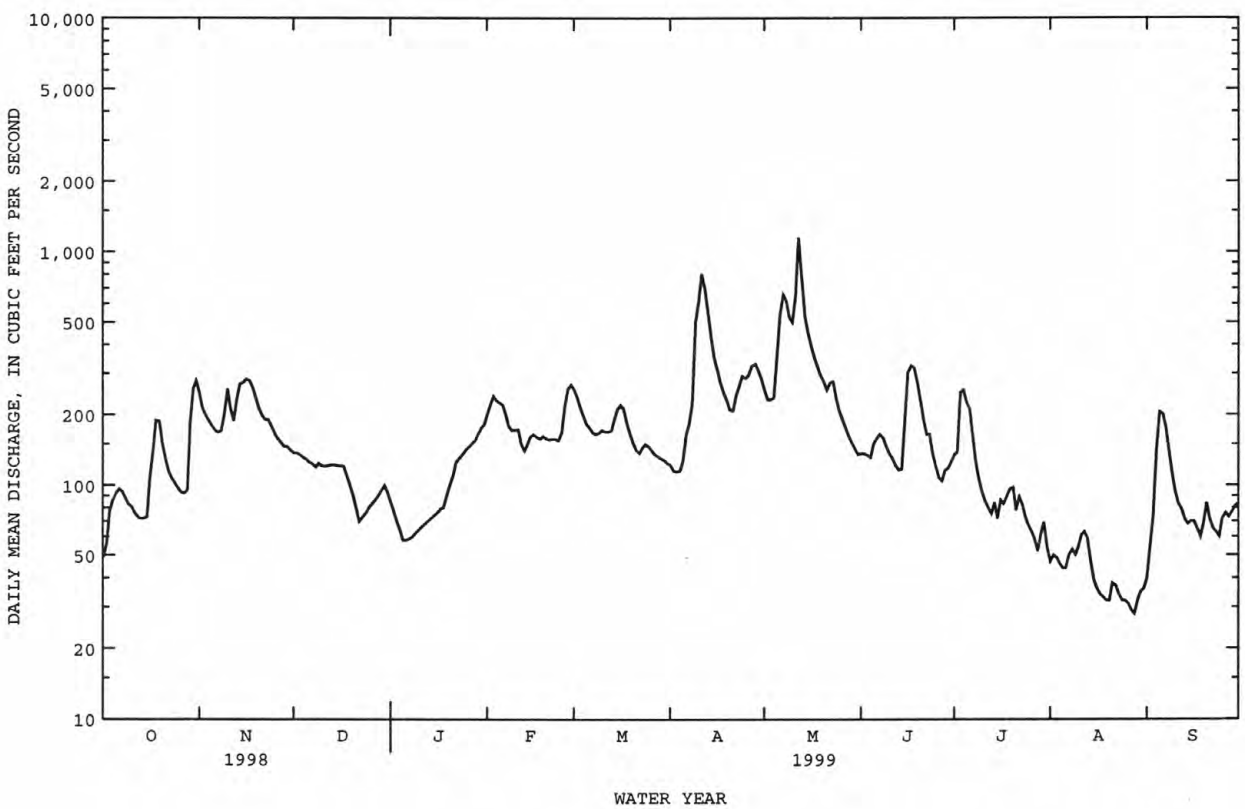
MEAN	40.6	46.5	36.8	31.9	76.5	178	164	145	108	64.1	37.2	31.4
MAX	141	204	108	135	546	598	605	754	512	607	178	89.2
(WY)	1996	1999	1999	1997	1997	1960	1952	1995	1962	1962	1998	1999
MIN	8.49	12.0	8.74	1.61	5.07	33.5	31.3	27.4	12.2	3.55	.80	3.71
(WY)	1977	1977	1956	1949	1979	1975	1976	1981	1976	1940	1976	1976

e Estimated

06464500 KEYA PAHA RIVER AT WEWELA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1939-1940, 1948-1999	
ANNUAL TOTAL	56374		59439			
ANNUAL MEAN	154		163		80.0a	
HIGHEST ANNUAL MEAN					188	1997
LOWEST ANNUAL MEAN					19.5	1976
HIGHEST DAILY MEAN	789	Jun 25	1150	May 12	4930	Mar 30 1952
LOWEST DAILY MEAN	44	Sep 12	28	Aug 28	.00	Jan 10 1949b
ANNUAL SEVEN-DAY MINIMUM	50	Sep 6	31	Aug 23	.00	Jan 10 1949
INSTANTANEOUS PEAK FLOW			1300	May 12	5430	Mar 31 1952c
INSTANTANEOUS PEAK STAGE			5.26	May 12	13.50	Mar 25 1950d
ANNUAL RUNOFF (AC-FT)	111800		117900		57960	
10 PERCENT EXCEEDS	291		278		164	
50 PERCENT EXCEEDS	120		136		42	
90 PERCENT EXCEEDS	60		58		15	

a Median of annual mean discharges, 67 ft^3/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.



06466700 LEWIS AND CLARK LAKE AT SPRINGFIELD, SD

LOCATION.--Lat 42°51'21", long 97°53'06", in SW¼ NE¼ SW¼ 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.

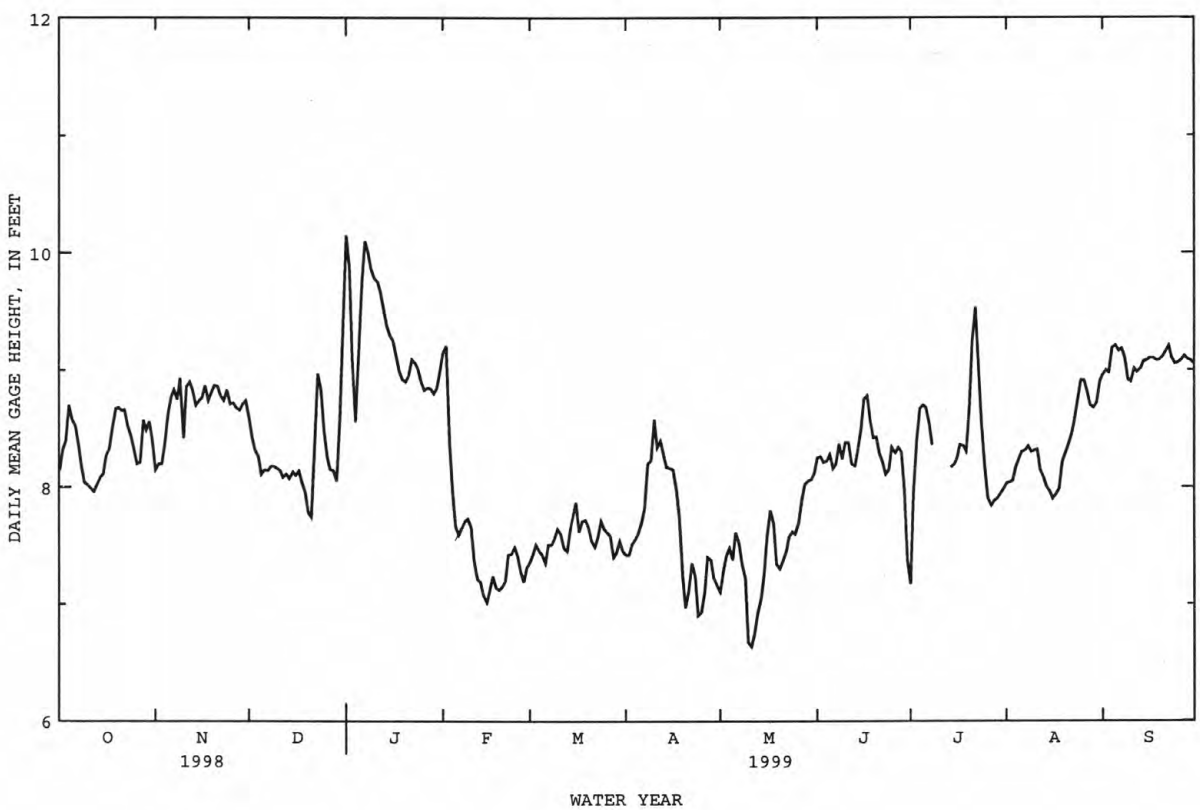
GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above sea level.

REMARKS.--Records good. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.14	8.15	8.59	10.15	9.15	7.36	7.42	7.10	8.25	7.17	8.03	8.96
2	8.32	8.20	8.42	9.88	9.21	7.43	7.42	7.28	8.26	7.95	8.04	9.00
3	8.39	8.20	8.31	9.09	8.39	7.51	7.52	7.41	8.21	8.40	8.05	8.98
4	8.70	8.37	8.26	8.56	7.98	7.45	7.56	7.48	8.22	8.67	8.17	9.19
5	8.57	8.62	8.11	9.03	7.66	7.42	7.61	7.38	8.28	8.70	8.24	9.21
6	8.52	8.77	8.15	9.75	7.59	7.35	7.70	7.61	8.16	8.68	8.30	9.16
7	8.37	8.83	8.14	10.10	7.65	7.51	7.82	7.53	8.20	8.54	8.31	9.18
8	8.17	8.75	8.18	10.00	7.71	7.51	8.20	7.34	8.37	8.36	8.35	9.10
9	8.04	8.93	8.18	9.86	7.73	7.57	8.23	7.22	8.24	---	8.30	8.92
10	8.02	8.42	8.16	9.78	7.66	7.64	8.58	6.67	8.38	---	8.31	8.90
11	7.99	8.86	8.14	9.75	7.36	7.60	8.34	6.63	8.38	---	8.32	9.01
12	7.96	8.90	8.08	9.66	7.21	7.48	8.40	6.74	8.20	---	8.14	8.98
13	8.02	8.83	8.11	9.52	7.19	7.45	8.27	6.92	8.18	---	8.08	9.01
14	8.08	8.70	8.07	9.37	7.07	7.63	8.17	7.04	8.32	8.17	8.00	9.07
15	8.11	8.74	8.13	9.29	7.01	7.76	8.16	7.27	8.50	8.19	7.96	9.08
16	8.27	8.76	8.10	9.25	7.11	7.87	8.15	7.58	8.75	8.25	7.90	9.10
17	8.33	8.87	8.14	9.11	7.24	7.62	7.98	7.80	8.78	8.36	7.94	9.10
18	8.50	8.74	8.04	8.99	7.14	7.71	7.75	7.69	8.56	8.35	7.99	9.08
19	8.67	8.81	7.96	8.92	7.12	7.72	7.25	7.34	8.42	8.30	8.21	9.08
20	8.68	8.87	7.78	8.90	7.15	7.66	6.97	7.30	8.43	8.68	8.29	9.11
21	8.65	8.86	7.74	8.96	7.20	7.54	7.11	7.37	8.28	9.25	8.36	9.16
22	8.66	8.78	8.42	9.09	7.42	7.49	7.35	7.45	8.21	9.53	8.46	9.21
23	8.52	8.74	8.97	9.06	7.43	7.57	7.24	7.58	8.11	9.03	8.59	9.10
24	8.44	8.83	8.83	9.00	7.49	7.71	6.90	7.62	8.15	8.54	8.76	9.05
25	8.33	8.71	8.49	8.90	7.41	7.64	6.93	7.60	8.34	8.17	8.91	9.06
26	8.20	8.72	8.26	8.83	7.28	7.61	7.10	7.69	8.29	7.90	8.91	9.08
27	8.21	8.68	8.15	8.85	7.19	7.58	7.40	7.89	8.34	7.84	8.81	9.12
28	8.57	8.66	8.14	8.84	7.32	7.40	7.38	8.02	8.30	7.88	8.70	9.09
29	8.49	8.71	8.05	8.80	---	7.44	7.22	8.05	8.00	7.90	8.68	9.08
30	8.56	8.74	8.60	8.85	---	7.54	7.15	8.06	7.37	7.94	8.72	9.05
31	8.40	---	9.52	8.98	---	7.45	---	8.12	---	7.98	8.90	---
MEAN	8.35	8.69	8.27	9.26	7.54	7.56	7.64	7.44	8.28	---	8.35	9.07
MAX	8.70	8.93	9.52	10.15	9.21	7.87	8.58	8.12	8.78	---	8.91	9.21
MIN	7.96	8.15	7.74	8.56	7.01	7.35	6.90	6.63	7.37	---	7.90	8.90

06466700 LEWIS AND CLARK LAKE AT SPRINGFIELD, SD--Continued



06467000 LEWIS AND CLARK LAKE NEAR YANKTON, SD

LOCATION.--Lat 42°50'56", long 97°28'54", in SW¼ 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 mi^2, 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. Datum of gage is above sea level. 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 ft^3/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 ft^3/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, 417,000 acre-ft, July 22; minimum contents, 311,000 acre-ft, Jan. 6.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,207.14	388,000	--
Oct. 31	1,207.10	386,000	-2,000
Nov. 30	1,207.32	392,000	+6,000
Dec. 31	1,206.66	375,000	-17,000
CAL YR 1998	--	--	-14,000
Jan. 31	1,207.17	387,000	+12,000
Feb. 28	1,206.18	362,000	-25,000
Mar. 31	1,205.72	351,000	-11,000
Apr. 30	1,206.11	360,000	+9,000
May 31	1,205.85	354,000	-6,000
June 30	1,205.96	358,000	+4,000
July 31	1,205.30	339,000	-19,000
Aug. 31	1,205.87	354,000	+15,000
Sept. 30	1,206.89	381,000	+27,000
WTR YR 1999	--	--	-7,000

NOTE.--Lake frozen over Jan. 5 to Mar. 4.

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06467500 MISSOURI RIVER AT YANKTON, SD

LOCATION.--Lat 42°51'58", long 97°23'37", in SW¼ SW¼ sec.18, T.93 N., R.55 W., Yankton County, Hydrologic Unit 10170101, near left bank in downstream end of left pier 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 mi^2, approximately.

PERIOD OF RECORD.--October 1, 1995, to current year, daily gage-height records. October 1930 to September 1995, daily discharge determined. 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.

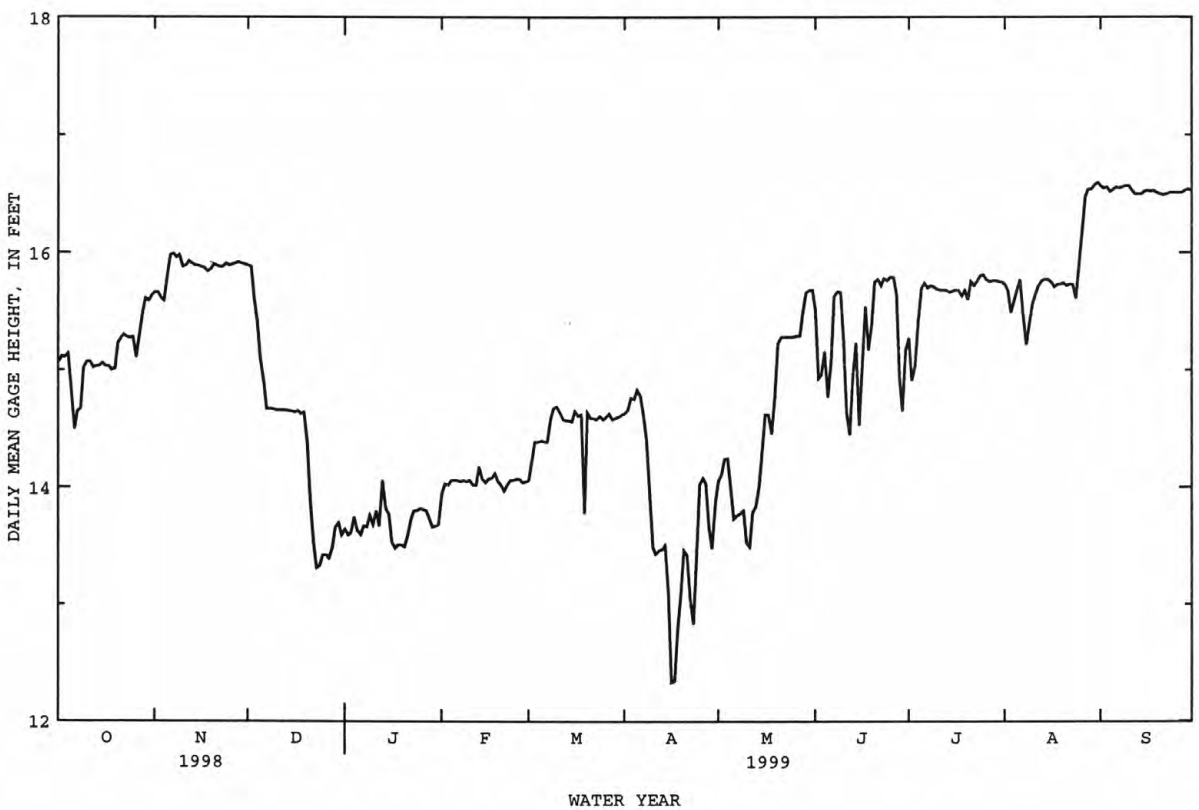
GAGE.--Water-stage recorder. Datum of gage is 1,139.68 ft above sea level. Prior to Sept. 20, 1932, nonrecording gage, and Sept. 20, 1932, to Mar. 9, 1967, water-stage recorder at present site and at datum 20.0 ft higher.

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.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.07	15.66	15.89	13.64	13.94	14.06	14.63	14.06	15.51	15.27	15.73	16.57
2	15.12	15.66	15.88	13.59	14.03	14.24	14.66	14.11	14.93	14.91	15.67	16.55
3	15.11	15.61	15.61	13.61	14.02	14.39	14.76	14.24	14.96	15.03	15.49	16.56
4	15.14	15.59	15.41	13.75	14.06	14.39	14.75	14.25	15.16	15.43	15.59	16.52
5	14.80	15.80	15.10	13.63	14.06	14.40	14.83	13.99	14.77	15.70	15.69	16.54
6	14.50	15.98	14.92	13.59	14.06	14.39	14.78	13.73	15.08	15.74	15.77	16.56
7	14.65	15.99	14.67	13.67	14.05	14.39	14.63	13.76	15.63	15.70	15.47	16.55
8	14.67	15.96	14.67	13.66	14.06	14.58	14.41	13.78	15.67	15.72	15.22	16.56
9	15.02	15.98	14.67	13.76	14.05	14.68	13.94	13.80	15.66	15.71	15.40	16.57
10	15.07	15.88	14.66	13.68	14.06	14.69	13.49	13.53	15.27	15.69	15.56	16.57
11	15.07	15.89	14.66	13.80	14.02	14.64	13.43	13.49	14.64	15.68	15.65	16.53
12	15.02	15.93	14.66	13.67	14.02	14.58	13.46	13.79	14.45	15.68	15.72	16.50
13	15.03	15.91	14.66	14.06	14.18	14.57	13.47	13.84	14.97	15.68	15.76	16.50
14	15.03	15.89	14.65	13.82	14.07	14.57	13.51	14.01	15.23	15.66	15.77	16.50
15	15.06	15.89	14.65	13.77	14.04	14.56	13.10	14.30	14.53	15.67	15.77	16.52
16	15.03	15.88	14.64	13.53	14.07	14.65	12.33	14.62	15.02	15.68	15.75	16.53
17	15.03	15.87	14.65	13.48	14.08	14.61	12.34	14.62	15.54	15.68	15.71	16.52
18	15.00	15.84	14.63	13.51	14.12	14.62	12.78	14.46	15.17	15.63	15.73	16.53
19	15.01	15.86	14.64	13.51	14.05	13.78	13.09	14.75	15.38	15.68	15.73	16.51
20	15.23	15.90	14.38	13.49	14.02	14.64	13.46	15.23	15.75	15.60	15.74	16.50
21	15.27	15.89	13.90	13.59	13.97	14.59	13.42	15.28	15.77	15.75	15.72	16.49
22	15.30	15.88	13.54	13.72	14.02	14.59	13.04	15.28	15.72	15.72	15.73	16.50
23	15.28	15.88	13.31	13.80	14.06	14.58	12.83	15.28	15.78	15.76	15.73	16.51
24	15.27	15.91	13.33	13.80	14.06	14.61	13.45	15.28	15.76	15.80	15.61	16.51
25	15.28	15.89	13.42	13.82	14.07	14.58	14.03	15.28	15.79	15.81	15.89	16.51
26	15.11	15.90	13.42	13.81	14.07	14.60	14.08	15.29	15.79	15.77	16.16	16.51
27	15.30	15.91	13.39	13.80	14.04	14.63	14.03	15.29	15.65	15.75	16.47	16.51
28	15.49	15.92	13.48	13.73	14.05	14.58	13.65	15.49	14.93	15.76	16.54	16.53
29	15.61	15.91	13.66	13.66	---	14.59	13.48	15.66	14.65	15.76	16.54	16.54
30	15.59	15.90	13.70	13.67	---	14.60	13.88	15.68	15.17	15.75	16.58	16.53
31	15.63	---	13.59	13.68	---	14.62	---	15.68	---	15.75	16.60	---
MEAN	15.12	15.87	14.40	13.69	14.05	14.52	13.72	14.58	15.28	15.64	15.82	16.53
MAX	15.63	15.99	15.89	14.06	14.18	14.69	14.83	15.68	15.79	15.81	16.60	16.57
MIN	14.50	15.59	13.31	13.48	13.94	13.78	12.33	13.49	14.45	14.91	15.22	16.49

06467500 MISSOURI RIVER AT YANKTON, SD--Continued



06470875 JAMES RIVER AT DAKOTA LAKE DAM NEAR LUDDEN, ND

LOCATION.--Lat 45°56'52", long 98°10'29", in SE¼NE¼NE¼ sec.34, T.129 N., R.60 W., Dickey County, Hydrologic Unit 10160003, on left bank, 10 ft upstream from dam, 4.5 mi southwest of Ludden and 0.8 mi upstream from North Dakota-South Dakota State line.

DRAINAGE AREA.--5,480 mi^2, of which about 3,300 mi^2 are probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder and concrete dam control. Datum of gage is 1,280.00 ft above sea level.

REMARKS.--Records good except for estimated discharge, which are fair. Estimated discharges, Nov. 15 to Sept. 30. Flow regulated by upstream reservoirs, Jamestown Reservoir (station 06469000), Pipestem Lake, capacity 147,000 acre-ft, and Lake LaMoure.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149	247	304	64	e45	e210	1110	e1110	1860	1180	e945	e975
2	160	244	309	63	e44	e235	1060	e1110	1790	1180	e940	e1000
3	145	249	313	59	e45	e270	1040	e1100	1710	1140	e940	1050
4	167	243	332	55	e45	e300	1030	e1090	1650	1140	e935	1140
5	205	241	312	54	e44	e330	1080	e1170	1750	1110	e940	1140
6	244	223	270	52	e43	e370	1120	e1250	1690	1080	e950	1090
7	224	218	263	51	e44	e400	1130	e1390	1690	1070	e960	1050
8	101	204	265	50	e45	e430	1170	1370	1630	1170	e955	1040
9	185	e200	263	43	e45	e440	1180	1420	1600	1200	e930	993
10	245	e170	258	46	e45	435	1200	1590	1580	1180	e915	967
11	173	128	256	47	e44	399	1230	e1710	1530	1130	e905	1010
12	230	141	250	45	e43	373	1260	e1830	1480	1100	e910	973
13	202	155	237	45	e43	343	1280	e1950	1440	1090	e915	996
14	184	172	228	45	e43	316	1330	2120	1390	1080	e920	1030
15	212	178	229	45	e43	289	1320	2280	1350	1030	e925	1050
16	278	186	219	46	e43	283	1340	2450	1330	1020	e935	1020
17	384	199	202	e45	e43	294	1270	2580	1280	997	e950	996
18	336	208	165	e45	e43	306	1190	2660	1240	1010	e970	1020
19	349	190	145	e44	e42	338	1160	2700	1270	996	e935	1040
20	343	193	129	e45	e42	412	1160	2720	1240	e990	e905	998
21	335	193	124	e45	e41	513	e1160	2680	1230	e985	e925	987
22	320	186	111	e45	e40	655	e1190	2610	1190	e980	e935	974
23	303	190	100	e46	e40	882	e1170	2560	1250	e980	e940	1020
24	321	199	90	e45	e40	1140	e1150	2490	1250	e975	e930	982
25	311	235	85	e44	e52	1270	e1160	2400	1140	e975	e915	971
26	291	258	79	e44	e90	1220	e1160	2280	1190	e970	e905	961
27	279	277	76	e45	e140	1060	1170	2230	1200	e965	e895	947
28	264	282	75	e45	e170	1240	1170	2130	1200	e965	e890	931
29	258	291	69	e45	---	1200	1150	2050	1150	e960	e910	874
30	267	292	67	e45	---	1140	e1120	2000	1190	e955	e920	877
31	242	---	64	e45	---	1110	---	1980	---	e950	e940	---
TOTAL	7707	6392	5889	1483	1487	18203	35260	61010	42490	32553	28785	30102
MEAN	249	213	190	47.8	53.1	587	1175	1968	1416	1050	929	1003
MAX	384	292	332	64	170	1270	1340	2720	1860	1200	970	1140
MIN	101	128	64	43	40	210	1030	1090	1140	950	890	874
AC-FT	15290	12680	11680	2940	2950	36110	69940	121000	84280	64570	57100	59710

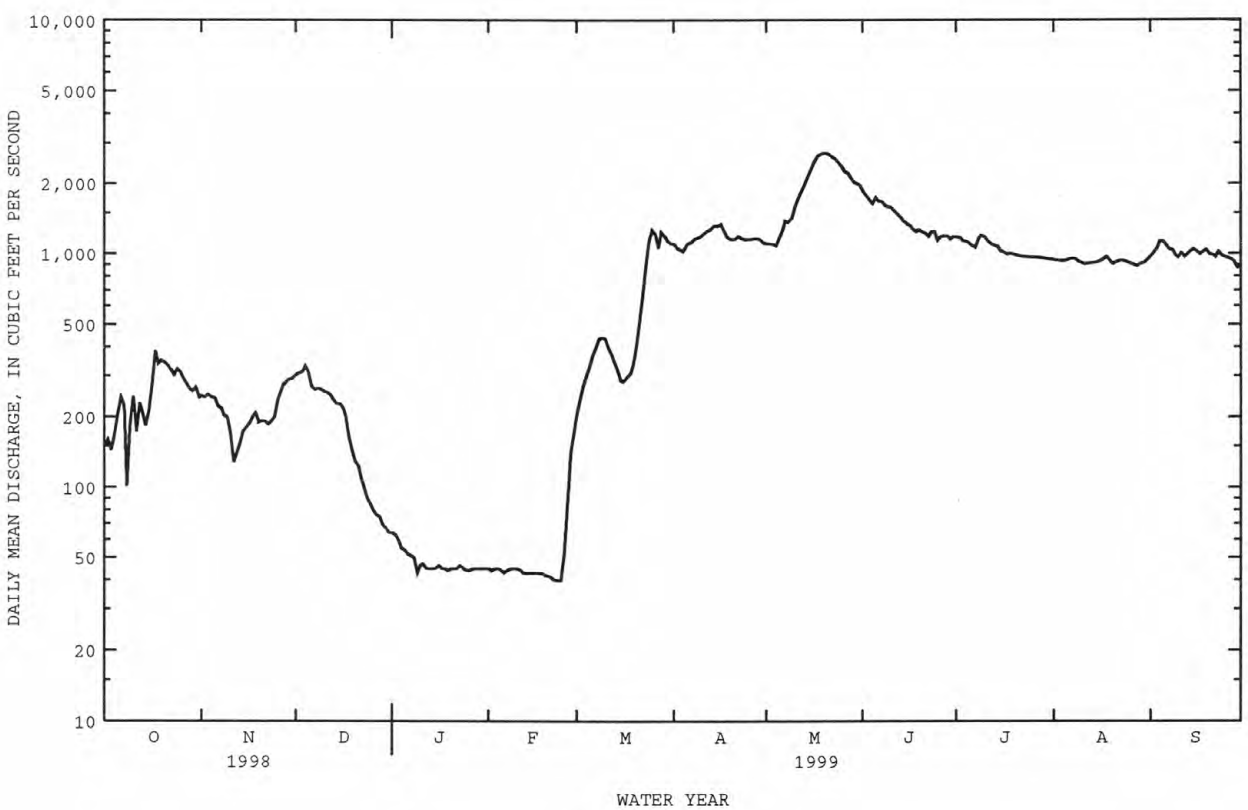
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1999, BY WATER YEAR (WY)

MEAN	176	122	52.1	25.5	26.2	354	871	617	443	369	298	250
MAX	867	512	190	77.1	68.5	853	4617	2316	1447	1181	1143	1003
(WY)	1994	1994	1999	1995	1995	1995	1997	1997	1997	1995	1993	1999
MIN	1.86	.20	.28	.056	.62	26.0	33.4	9.92	2.12	.015	.000	.011
(WY)	1989	1991	1991	1991	1989	1990	1990	1990	1988	1988	1988	1990

e Estimated

06470875 JAMES RIVER AT DAKOTA LAKE DAM NEAR LUDDEN, ND--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1982 - 1999	
ANNUAL TOTAL	160321		271361			
ANNUAL MEAN	439		743		301	
HIGHEST ANNUAL MEAN					969	1997
LOWEST ANNUAL MEAN					10.3	1990
HIGHEST DAILY MEAN	2620	Apr 1	2720	May 20	7500	Apr 6 1997
LOWEST DAILY MEAN	37	Feb 2	40	Feb 22	.00	Oct 8 1981
ANNUAL SEVEN-DAY MINIMUM	40	Jan 30	41	Feb 18	.00	Jul 10 1985
INSTANTANEOUS PEAK FLOW			2750	May 20	7500	Apr 6 1997
INSTANTANEOUS PEAK STAGE			14.02	May 20	17.86	Apr 6 1997
INSTANTANEOUS LOW FLOW			40	Feb 23	.00	Oct 2 1981
ANNUAL RUNOFF (AC-FT)	318000		538200		218000	
10 PERCENT EXCEEDS	965		1400		980	
50 PERCENT EXCEEDS	267		910		75	
90 PERCENT EXCEEDS	57		45		.10	



06471000 JAMES RIVER AT COLUMBIA, SD

LOCATION.--Lat 45°36'13", long 98°18'36", in NW¼ NW¼ 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 mi^2, of which about 3,376 mi^2 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 and crest-stage gage. Datum of gage is 1,272.91 ft above sea level. 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 fair except those for Oct. 17-21, Nov. 25 to Dec. 2, Mar. 7-11, 17-27, Mar. 31 to Apr. 6, Apr. 9-15, Apr. 17 to May 5, May 7-12, 14-31, July 8-27, Sept. 3-7, 9-23, and 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 ft^3/s, May 24, 25, 1950, gage height, 16.89 ft, from graph based on gage readings; maximum daily reverse flow, 1,860 ft^3/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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

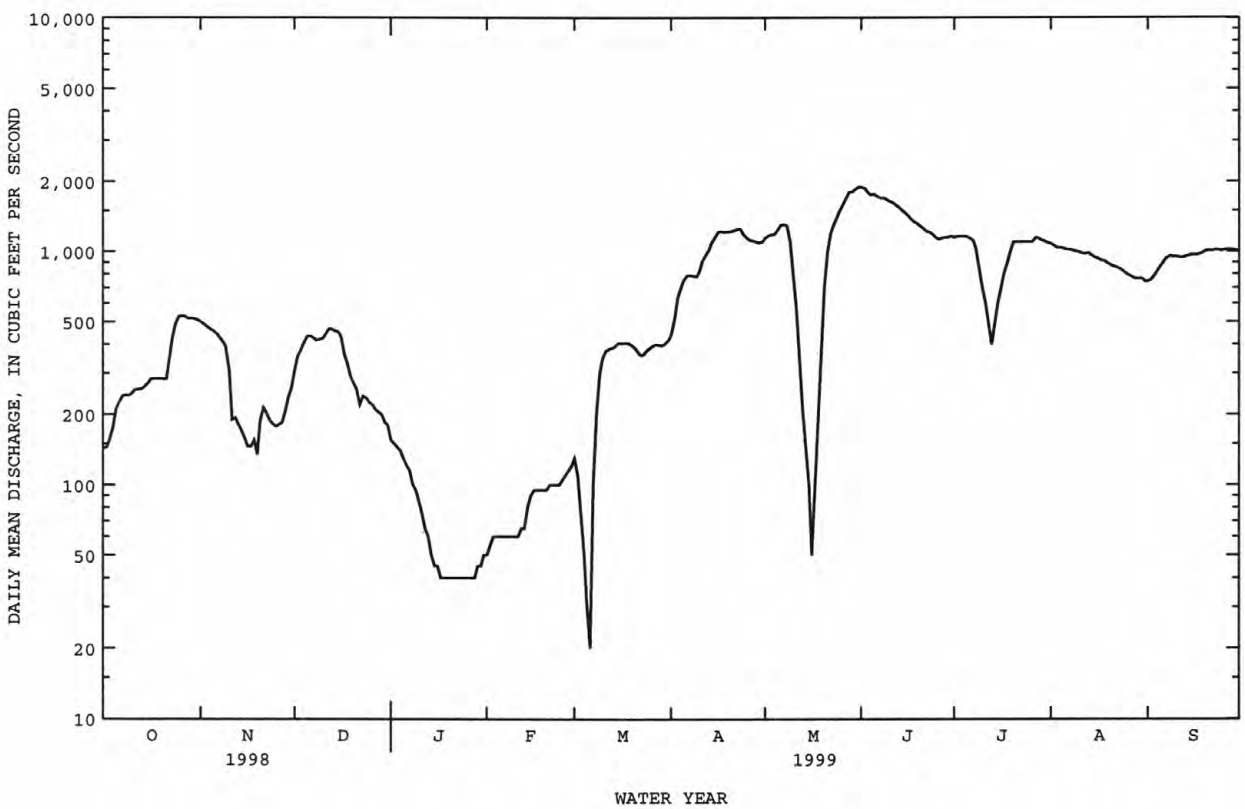
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	500	311	e155	e50	e130	443	1150	1890	1150	1080	745
2	145	488	359	e150	e55	e110	510	1170	1870	1160	1060	760
3	156	476	378	e145	e60	e80	633	1180	1800	1160	1040	790
4	175	466	407	e140	e60	e50	700	1190	1750	1160	1040	830
5	212	456	431	e130	e60	e30	756	1240	1770	1160	1030	870
6	227	444	434	e120	e60	e20	792	1300	1730	1140	1020	910
7	240	428	428	e115	e60	100	791	1310	1700	1120	1020	940
8	242	410	417	e100	e60	200	787	1290	1700	1030	1010	959
9	241	391	419	e95	e60	300	782	1100	1680	850	1000	949
10	246	309	424	e85	e60	350	830	812	1650	700	995	951
11	255	190	444	e75	e60	375	920	563	1630	600	981	946
12	256	194	465	e65	e65	382	975	355	1590	500	980	943
13	257	181	466	e60	e65	387	1020	212	1550	400	987	950
14	263	170	457	e50	e80	393	1100	150	1510	500	963	960
15	271	158	453	e45	e90	405	1160	100	1470	600	941	968
16	284	146	430	e45	e95	404	1220	50	1430	700	934	969
17	285	146	361	e40	e95	405	1220	100	1380	800	916	971
18	285	156	e330	e40	e95	405	1210	200	1340	900	913	983
19	285	135	e290	e40	e95	400	1220	400	1320	1000	894	1000
20	284	188	e270	e40	e95	390	1220	700	1290	1100	875	1010
21	284	214	e255	e40	e100	375	1230	1000	1260	1100	866	1010
22	343	203	e220	e40	e100	360	1250	1200	1220	1100	854	1010
23	429	189	e240	e40	e100	360	1250	1300	1210	1100	845	1020
24	495	181	e235	e40	e100	375	1190	1400	1190	1100	826	1010
25	525	178	e225	e40	e105	385	1150	1500	1150	1100	804	1010
26	530	181	e220	e40	e110	395	1120	1600	1130	1100	789	1020
27	526	185	e210	e40	e115	400	1120	1700	1140	1150	776	1020
28	516	208	e205	e40	e120	397	1100	1800	1150	1140	764	1020
29	517	237	e200	e45	---	396	1090	1800	1150	1120	763	1010
30	514	261	e185	e45	---	403	1100	1850	1160	1110	767	1010
31	509	---	e180	e50	---	416	---	1900	---	1090	743	---
TOTAL	9940	8069	10349	2195	2270	9578	29889	31622	43810	29940	28476	28544
MEAN	321	269	334	70.8	81.1	309	996	1020	1460	966	919	951
MAX	530	500	466	155	120	416	1250	1900	1890	1160	1080	1020
MIN	143	135	180	40	50	20	443	50	1130	400	743	745
AC-FT	19720	16000	20530	4350	4500	19000	59280	62720	86900	59390	56480	56620
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1999, BY WATER YEAR (WY)*												
MEAN	158	150	71.3	19.2	19.8	55.2	578	588	383	339	262	203
MAX	949	930	478	77.0	103	341	2856	2661	1610	1211	1085	1084
(WY)	1994	1994	1994	1994	1998	1998	1997	1997	1997	1997	1995	1993
MIN	.000	.000	.000	.000	.000	-215	.014	.000	.000	.000	.000	.000
(WY)	1977	1977	1977	1977	1977	1997	1977	1977	1977	1977	1977	1976

e Estimated

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1975 - 1999*	
ANNUAL TOTAL	155131		234682			
ANNUAL MEAN	425		643		236	
HIGHEST ANNUAL MEAN					856	1997
LOWEST ANNUAL MEAN					.063	1977
HIGHEST DAILY MEAN	1230	Apr 10	1900	May 31	4100	Apr 30 1997
LOWEST DAILY MEAN	50	Jan 14	20	Mar 6	-2400	Mar 30 1997a
ANNUAL SEVEN-DAY MINIMUM	55	Jan 12	40	Jan 17	-1410	Mar 27 1997a
INSTANTANEOUS PEAK FLOW			1910	May 31b	4130	Apr 30 1997c
INSTANTANEOUS PEAK STAGE			17.83	May 16a	19.08	Apr 19 1997a
ANNUAL RUNOFF (AC-FT)	307700		465500		171000	
10 PERCENT EXCEEDS	917		1230		859	
50 PERCENT EXCEEDS	284		488		40	
90 PERCENT EXCEEDS	80		65		.00	

* Regulated period only (1975-99). See REMARKS.
a Backwater from Elm River.
b Gage height, 17.10 ft, backwater.
c Gage height, 18.63 ft, backwater.



06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'20", long 98°27'08", in SW¼ SE¼ 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 mi^2, of which about 332 mi^2 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 sea level, 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 fair. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.30	63	215	e11	e3.7	e150	168	54	66	58	17	7.4
2	.31	61	207	e10	e3.6	e500	192	52	63	64	17	9.4
3	.31	60	192	e10	e3.6	e450	268	51	56	69	20	25
4	.57	56	171	e9.5	e3.7	e300	379	51	53	58	19	36
5	1.6	51	153	e9.5	e3.7	e250	363	57	57	54	17	40
6	1.8	47	138	e8.8	e3.5	e200	319	60	54	62	15	42
7	6.2	42	116	e8.2	e3.3	e150	306	75	52	75	14	140
8	8.0	38	103	e8.2	e3.3	e130	381	290	48	125	13	301
9	9.6	36	93	e7.5	e3.6	e100	460	533	48	170	12	285
10	11	e35	83	e7.5	e4.2	e80	430	563	44	139	11	215
11	11	e35	74	e7.5	e5.0	e70	333	499	42	114	10	171
12	11	e34	64	e6.7	e6.0	e60	242	928	40	110	16	148
13	12	34	58	e6.2	7.1	54	191	2110	39	125	23	135
14	12	31	52	e6.2	8.4	48	163	2150	38	124	31	120
15	11	31	48	e6.1	9.6	49	141	1300	36	103	22	118
16	12	32	42	e5.4	9.0	48	134	778	35	85	17	127
17	30	30	34	e5.4	9.0	50	121	606	32	69	14	122
18	38	30	e30	e5.2	8.9	52	110	537	30	61	13	109
19	41	24	e25	e5.3	7.9	143	101	411	29	51	11	94
20	55	29	e24	e5.3	7.1	197	92	321	27	44	10	79
21	270	27	e23	e5.2	6.5	200	83	256	26	39	9.5	66
22	333	30	e21	e5.0	6.3	188	78	212	24	37	9.5	56
23	270	33	e20	e5.3	6.1	164	70	182	25	35	13	49
24	211	35	e19	e5.2	6.5	138	66	158	29	33	9.1	42
25	171	39	e18	e5.8	10	118	64	137	27	30	7.4	39
26	145	45	17	e6.0	18	98	67	122	28	28	7.1	38
27	121	61	16	e5.4	38	98	69	111	26	28	6.6	34
28	102	85	16	e5.0	50	101	64	99	29	26	6.1	31
29	89	149	14	e4.6	---	101	60	88	44	24	6.1	28
30	79	200	13	e3.9	---	103	57	83	63	21	6.3	26
31	70	---	12	e3.9	---	144	---	74	---	19	5.3	---
TOTAL	2133.69	1503	2111	204.8	255.6	4534	5572	12948	1210	2080	408.0	2732.8
MEAN	68.8	50.1	68.1	6.61	9.13	146	186	418	40.3	67.1	13.2	91.1
MAX	333	200	215	11	50	500	460	2150	66	170	31	301
MIN	.30	24	12	3.9	3.3	48	57	51	24	19	5.3	7.4
AC-FT	4230	2980	4190	406	507	8990	11050	25680	2400	4130	809	5420

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1999, BY WATER YEAR (WY)

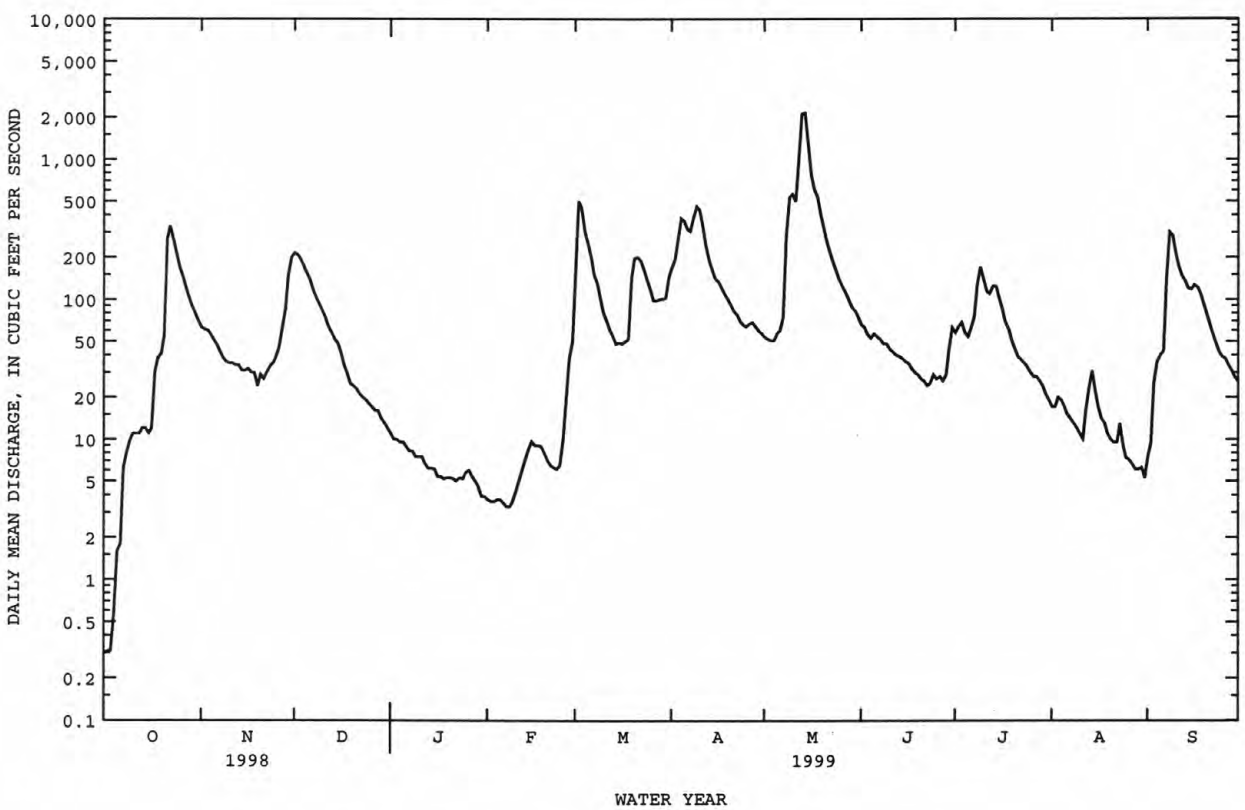
MEAN	2.98	1.96	2.02	.29	.94	89.5	113	40.8	18.2	31.3	6.69	3.89
MAX	68.8	50.1	68.1	6.61	12.0	419	840	418	131	446	142	91.1
(WY)	1999	1999	1999	1999	1998	1966	1997	1999	1964	1962	1966	1999
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1957	1957	1957	1957	1957	1957	1959	1959	1959	1959	1959	1958

e Estimated

06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1957 - 1999	
ANNUAL TOTAL	11741.83		35692.89			
ANNUAL MEAN	32.2		97.8		26.1a	
HIGHEST ANNUAL MEAN					116	1997
LOWEST ANNUAL MEAN					.000	1959b
HIGHEST DAILY MEAN	333	Oct 22	2150	May 14	5500	Apr 11 1969
LOWEST DAILY MEAN	.30	Oct 1	.30	Oct 1	.00	Oct 1 1956c
ANNUAL SEVEN-DAY MINIMUM	.35	Jan 30	1.6	Oct 1	.00	Oct 1 1956
INSTANTANEOUS PEAK FLOW			2590	May 13	5930	Apr 11 1969d
INSTANTANEOUS PEAK STAGE			11.72	May 13	16.19	Mar 29 1997f
ANNUAL RUNOFF (AC-FT)	23290		70800		18890	
10 PERCENT EXCEEDS	81		211		35	
50 PERCENT EXCEEDS	15		42		.02	
90 PERCENT EXCEEDS	.40		6.1		.00	

a Median of annual mean discharges, 16 ft^3/s.
b Also 1988 and 1990.
c No flow for long periods in most years.
d Gage height, 16.05 ft, backwater from ice.
f Backwater from ice.



06471500 ELM RIVER AT WESTPORT, SD

LOCATION.--Lat 45°39'22", long 98°29'48", in SW¼ NW¼ sec.12, T.125 N., R.64 W., Brown County, Hydrologic Unit 10160004, on downstream side of highway bridge (revised), 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 mi^2, of which about 444 mi^2 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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	218	391	26	15	136	345	111	123	132	89	17
2	1.6	202	383	e26	15	e440	398	104	118	144	82	19
3	1.7	193	361	e24	16	e780	455	99	104	140	73	79
4	2.7	182	330	e23	15	e740	573	95	93	143	66	114
5	4.7	170	299	e21	15	e620	698	100	108	135	57	149
6	3.4	153	265	e21	15	e515	711	120	133	124	50	207
7	2.8	136	222	e21	15	e420	721	152	127	122	43	222
8	2.5	123	e200	e20	15	e360	795	172	117	354	35	245
9	2.7	115	e185	e20	16	e320	861	361	104	539	31	361
10	3.1	e107	e170	e18	25	e260	845	688	90	739	27	356
11	5.1	e101	157	e18	33	e215	716	942	82	1170	24	320
12	9.4	e95	147	e18	37	e180	574	1660	78	990	25	285
13	10	e91	131	e18	32	e150	469	2940	67	740	27	250
14	10	e88	117	e17	30	e130	395	3560	61	569	31	236
15	10	86	110	17	32	127	347	2990	56	466	38	232
16	13	87	99	17	29	123	311	1990	58	382	45	232
17	52	89	e85	18	26	124	296	1320	55	309	36	230
18	78	93	e75	18	23	126	264	1030	55	279	28	220
19	68	e95	e65	17	21	167	222	850	53	237	23	198
20	112	e95	e59	16	21	265	194	666	50	205	21	179
21	361	92	49	15	20	339	178	543	45	179	19	160
22	519	86	43	15	20	344	168	456	41	159	18	137
23	547	88	38	15	18	331	156	382	37	164	16	118
24	462	97	36	e14	18	300	145	332	34	153	15	104
25	380	111	36	e13	25	265	134	290	33	140	17	95
26	321	127	34	13	54	231	130	253	77	130	16	96
27	278	192	32	13	116	208	131	216	118	127	13	89
28	240	256	31	13	137	242	132	187	140	121	13	84
29	244	323	32	13	---	264	127	171	127	115	17	76
30	273	366	28	14	---	265	117	151	126	110	18	68
31	252	---	26	15	---	287	---	134	---	103	17	---
TOTAL	4271.4	4257	4236	547	854	9274	11608	23065	2510	9420	1030	5178
MEAN	138	142	137	17.6	30.5	299	387	744	83.7	304	33.2	173
MAX	547	366	391	26	137	780	861	3560	140	1170	89	361
MIN	1.6	86	26	13	15	123	117	95	33	103	13	17
AC-FT	8470	8440	8400	1080	1690	18390	23020	45750	4980	18680	2040	10270

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1999, BY WATER YEAR (WY)

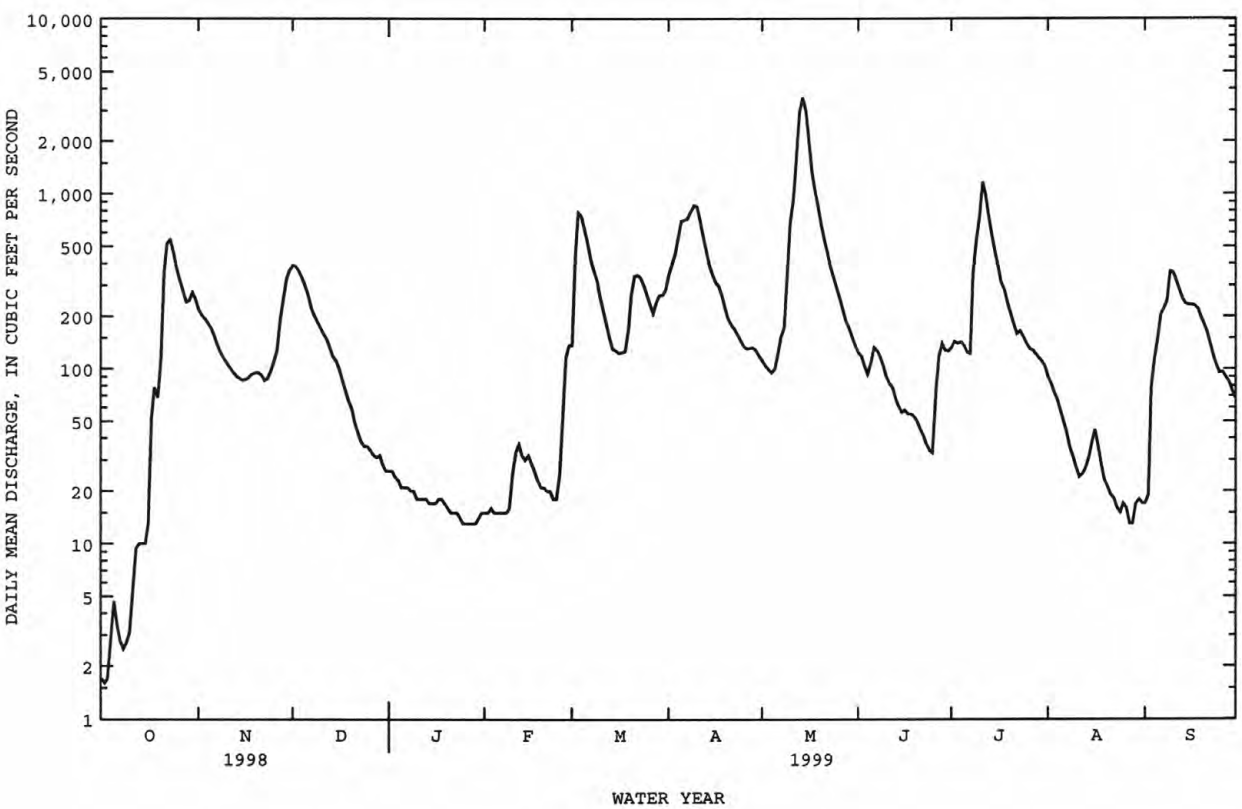
MEAN	8.94	7.64	6.23	3.44	7.40	179	258	87.5	52.5	54.8	15.1	9.86
MAX	138	142	137	19.9	113	1205	2399	777	584	606	197	173
(WY)	1999	1999	1999	1946	1996	1997	1969	1995	1964	1962	1993	1999
MIN	.79	.74	.20	.20	.000	1.03	.99	.63	.61	2.81	.53	.34
(WY)	1979	1946	1946	1950	1949	1952	1957	1959	1946	1949	1946	1946

e Estimated

06471500 ELM RIVER AT WESTPORT, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1946 - 1999	
ANNUAL TOTAL	25650.4		76250.4			
ANNUAL MEAN	70.3		209		57.7a	
HIGHEST ANNUAL MEAN					277	1997
LOWEST ANNUAL MEAN					4.17	1957
HIGHEST DAILY MEAN	547	Oct 23	3560	May 14	11900	Apr 10 1969
LOWEST DAILY MEAN	1.5	Jan 15	1.6	Oct 2	.00	Jan 27 1946b
ANNUAL SEVEN-DAY MINIMUM	1.8	Jan 12	2.7	Oct 1	.00	Jan 27 1946
INSTANTANEOUS PEAK FLOW			3670	May 14	12600	Apr 10 1969
INSTANTANEOUS PEAK STAGE			15.82	May 14	22.11	Apr 10 1969
ANNUAL RUNOFF (AC-FT)	50880		151200		41790	
10 PERCENT EXCEEDS	207		458		73	
50 PERCENT EXCEEDS	27		116		5.0	
90 PERCENT EXCEEDS	2.9		15		1.1	

a Median of annual mean discharges, 35 ft^3/s.
b No flow for many days in most years prior to 1960.



06473000 JAMES RIVER AT ASHTON, SD

LOCATION.--Lat 44°59'54", long 98°28'50", in NW¼ NW¼ NE¼ sec.36, T.118 N., R.64 W., Spink County, Hydrologic Unit 10160006, on right bank at 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 mi^2, of which 4,069 mi^2 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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

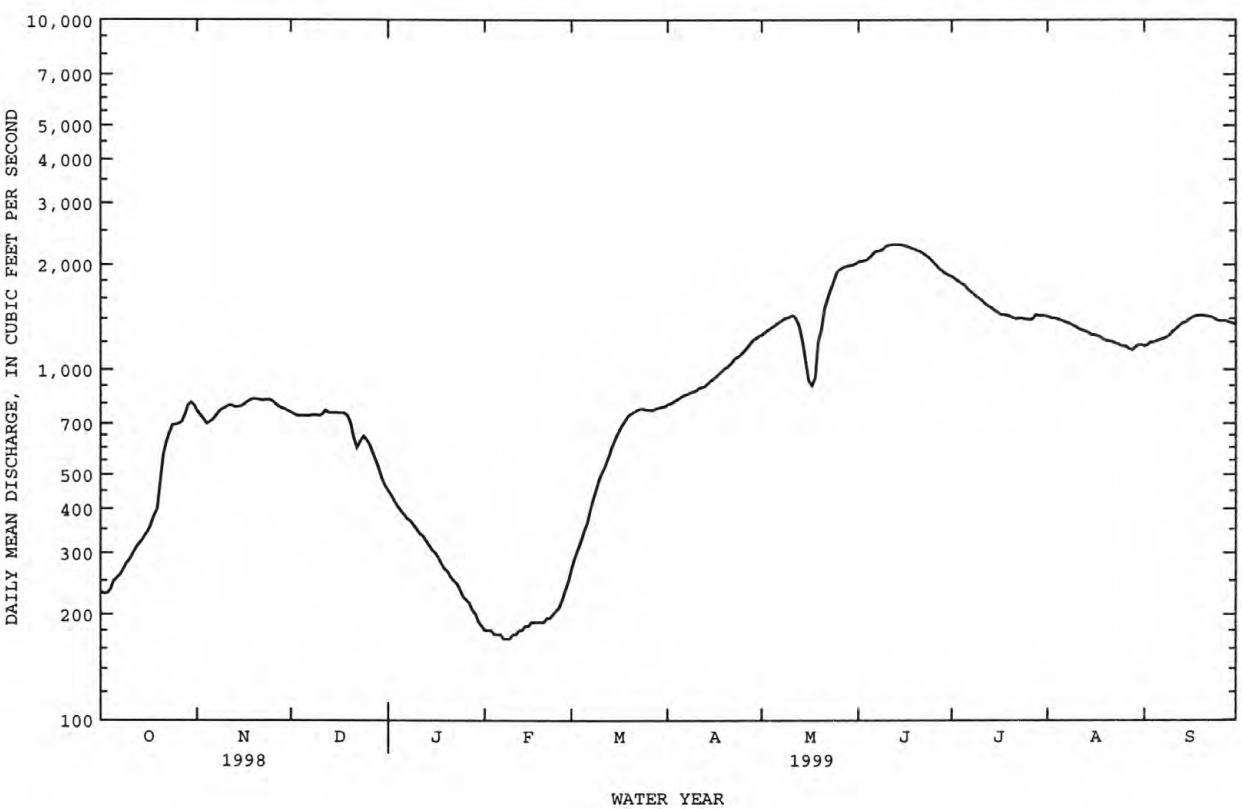
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	231	e760	755	e450	e180	e270	796	1260	2040	1850	1420	1170
2	229	e740	747	e435	e180	e290	801	1280	2050	1830	1410	1180
3	230	e720	740	e420	e180	e305	813	1300	2060	1800	1410	1200
4	236	e700	739	e405	e175	e325	823	1320	2080	1770	1400	e1200
5	250	e710	739	e395	e175	e345	834	1340	2120	1750	1390	e1210
6	254	e720	738	e385	e175	e365	844	1360	2180	1710	1380	e1220
7	259	e740	739	e375	e170	e395	851	1380	2190	1680	1370	e1230
8	269	e760	741	e370	e170	e425	858	e1400	2200	1650	1360	e1240
9	279	e770	742	e360	e170	e455	863	e1410	2230	1620	1340	e1260
10	286	e780	739	e350	e175	e485	872	e1420	2270	1600	1330	e1290
11	297	e790	747	e340	e175	e510	886	e1430	2280	1570	1310	e1310
12	309	791	765	e335	e180	e535	893	e1400	2290	1540	1300	e1330
13	317	783	753	e325	e180	e565	902	e1330	2290	1520	1290	1360
14	325	783	753	e315	e185	e600	917	e1200	2290	1500	1280	1370
15	335	785	753	e305	e185	e630	934	e1050	2280	1480	1260	1390
16	e345	795	752	e300	e190	e660	950	e930	2270	1460	1260	1410
17	e360	809	751	e290	e190	687	968	e900	2250	1440	1250	1420
18	e380	820	751	e280	e190	711	986	e950	2230	1440	1240	1430
19	e400	825	e740	e270	e190	732	1010	e1200	2220	1430	1220	1430
20	e470	824	e700	e265	e190	747	1020	e1300	2200	1420	1210	1430
21	e570	820	e640	e255	e195	757	1040	e1500	2180	1410	1210	1420
22	e618	818	e600	e250	e195	765	1070	e1600	2150	1400	1200	1420
23	e660	820	e625	e245	e200	770	1090	e1700	2120	1410	1190	1410
24	e695	822	e645	e235	e205	772	1100	e1800	2080	1400	1180	1390
25	e695	812	e630	e225	e210	768	1120	e1900	2040	1400	1170	1380
26	e700	799	e610	e220	e220	767	1150	e1940	1990	1390	1170	1380
27	e710	786	e580	e215	e235	765	1180	e1970	1950	1400	1150	1380
28	e745	776	e550	e205	e250	774	1210	e1980	1920	1440	1140	1370
29	e790	770	e520	e200	---	776	1230	e1990	1890	1430	1160	1360
30	e805	763	e485	e190	---	781	1250	e2000	1870	1430	1180	1350
31	e790	---	e465	e185	---	786	---	2020	---	1430	1180	---
TOTAL	13839	23391	21234	9395	5315	18518	29261	45560	64210	47600	39360	39940
MEAN	446	780	685	303	190	597	975	1470	2140	1535	1270	1331
MAX	805	825	765	450	250	786	1250	2020	2290	1850	1420	1430
MIN	229	700	465	185	170	270	796	900	1870	1390	1140	1170
AC-FT	27450	46400	42120	18630	10540	36730	58040	90370	127400	94410	78070	79220
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1999, BY WATER YEAR (WY)												
MEAN	102	103	67.8	24.2	15.8	107	633	718	474	342	263	161
MAX	1041	1017	735	303	190	879	7153	4133	2440	1746	1422	1331
(WY)	1994	1994	1994	1999	1999	1995	1997	1997	1950	1997	1997	1999
MIN	.000	.000	.000	.000	.000	-338	.000	.000	.000	.000	.000	.000
(WY)	1950	1950	1946	1950	1948	1997	1959	1959	1959	1959	1959	1958

e Estimated

06473000 JAMES RIVER AT ASHTON, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1946 - 1999	
ANNUAL TOTAL	257790		357623			
ANNUAL MEAN	706		980		252a	
HIGHEST ANNUAL MEAN					1530	1997
LOWEST ANNUAL MEAN					.000	1959
HIGHEST DAILY MEAN	1320	May 26	2290	Jun 12	9100	Apr 23 1997
LOWEST DAILY MEAN	90	Feb 4	170	Feb 7	-8400	Mar 31 1997b
ANNUAL SEVEN-DAY MINIMUM	90	Feb 3	173	Feb 4	-1960	Mar 26 1997b
INSTANTANEOUS PEAK FLOW			2290	Jun 11c	9150	Apr 23 1997d
INSTANTANEOUS PEAK STAGE			16.51	May 17b	26.64	Apr 6 1997f
ANNUAL RUNOFF (AC-FT)	511300		709300		182300	
10 PERCENT EXCEEDS	1200		1880		798	
50 PERCENT EXCEEDS	751		822		29	
90 PERCENT EXCEEDS	113		233		.00	

a Median of annual mean discharges, 140 ft^3/s.
b Backwater from Snake Creek.
c Gage height, 15.57 ft.
d Gage height, 25.03 ft, backwater.
f Backwater from Snake Creek, from floodmark.



06475000 JAMES RIVER NEAR REDFIELD, SD

LOCATION.--Lat 44°54'38", long 98°28'18", in NW¼ NW¼ NW¼ sec.31, T.117 N., R.63 W., Spink County, Hydrologic Unit 10160006, on downstream side of county highway bridge, 2.8 mi northeast of Redfield, and 0.7 mi downstream from Turtle Creek.

DRAINAGE AREA.--13,911 mi^2, of which about 4,118 mi^2 are probably noncontributing.

PERIOD OF RECORD.--March 1950 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,239.50 ft above sea level. 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. Daily discharge from Oct. 8, 1986, to Sept. 30, 1990, and crest-stage partial record from Oct. 1, 1990, to Sept. 30, 1997, at same site and datum as current.

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 ft^3/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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

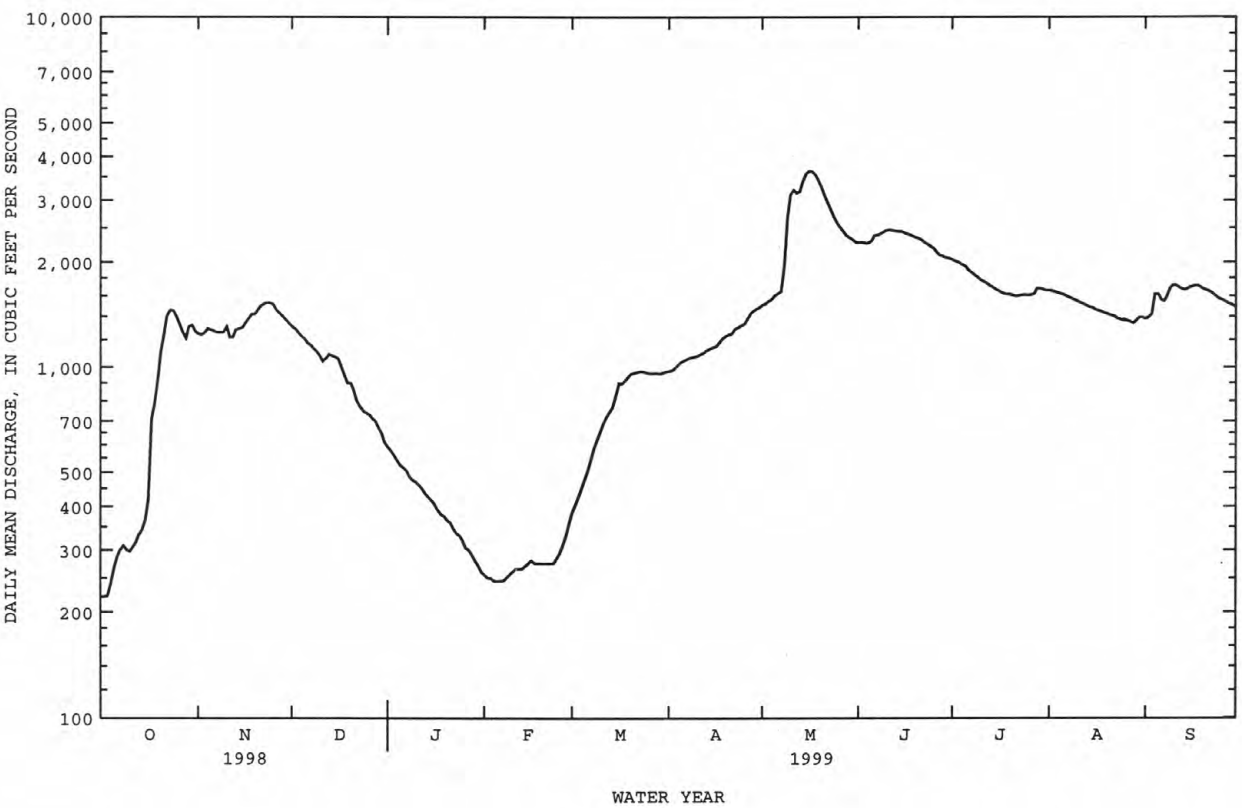
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	221	1250	1310	e590	e255	e385	974	1510	2280	2030	1660	1380
2	221	1240	1290	e575	e250	e405	980	1520	2280	2010	1650	1390
3	222	1260	1260	e560	e250	e425	998	1550	2270	2000	1640	1420
4	241	1290	1230	e540	e245	e455	1020	1570	2270	1970	1630	1620
5	266	1280	1210	e525	e245	e480	1040	1610	2300	1950	1620	1620
6	287	1270	1180	e515	e245	e510	1050	1630	2380	1900	1610	1560
7	300	1260	1160	e505	e245	e545	1060	1650	2390	1870	1590	1550
8	309	1260	1130	e485	e250	e590	1070	1960	2410	1840	1580	1610
9	301	1260	1110	e475	e255	e625	1070	2700	2440	1810	1560	1690
10	297	1310	1080	e470	e260	e655	1080	3120	2470	1780	1550	1720
11	307	1220	1040	e460	e265	e695	1090	3220	2470	1760	1530	1710
12	317	1220	1060	e450	e265	e725	1100	3150	2460	1740	1520	1690
13	332	1280	1090	e435	e265	e750	1120	3180	2450	1710	1500	1670
14	344	1290	1080	e425	e270	774	1130	3410	2450	1690	1490	1670
15	367	1300	1070	e415	e275	836	1140	3580	2440	1670	1480	1690
16	419	1340	1060	e405	e280	900	1150	3640	2420	1650	1460	1700
17	713	1380	e1000	e390	e275	898	1180	3630	2400	1630	1450	1710
18	782	1420	e950	e380	e275	919	1210	3550	2380	1620	1440	1710
19	926	1420	e900	e375	e275	945	1230	3420	2360	1620	1430	1690
20	1110	1460	e900	e365	e275	961	1240	3270	2340	1610	1420	1670
21	1250	1500	e860	e360	e275	964	1250	3100	2320	1600	1410	1660
22	1410	1520	e800	e345	e275	970	1290	2950	2280	1600	1400	1640
23	1460	1530	e770	e335	e275	974	1300	2820	2260	1610	1380	1620
24	1450	1530	e750	e330	e285	971	1320	2690	2220	1610	1370	1590
25	1400	1510	e740	e320	e295	964	1330	2590	2190	1610	1360	1570
26	1330	1460	e730	e305	e310	960	1380	2510	2130	1610	1360	1560
27	1260	1430	e715	e300	e330	963	1420	2440	2090	1620	1350	1540
28	1210	1400	e700	e290	e360	962	1450	2390	2080	1680	1340	1520
29	1310	1370	e670	e280	---	958	1470	2350	2060	1680	1360	1510
30	1320	1340	e645	e270	---	964	1490	2320	2050	1670	1390	1490
31	1270	---	e610	e260	---	973	---	2280	---	1660	1390	---
TOTAL	22952	40600	30100	12735	7625	24101	35632	81310	69340	53810	45920	48170
MEAN	740	1353	971	411	272	777	1188	2623	2311	1736	1481	1606
MAX	1460	1530	1310	590	360	974	1490	3640	2470	2030	1660	1720
MIN	221	1220	610	260	245	385	974	1510	2050	1600	1340	1380
AC-FT	45530	80530	59700	25260	15120	47800	70680	161300	137500	106700	91080	95550
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1990, 1998 - 1999, BY WATER YEAR (WY)												
MEAN	75.3	91.3	64.8	25.6	19.3	208	732	665	397	290	216	113
MAX	788	1353	971	411	272	1151	4812	2977	2311	1736	1481	1606
(WY)	1998	1999	1999	1999	1999	1986	1969	1969	1999	1999	1999	1999
MIN	.000	.000	.000	.000	.000	.000	1.36	.46	.077	.000	.000	.000
(WY)	1955	1956	1956	1956	1956	1975	1959	1959	1977	1959	1959	1958

e Estimated

06475000 JAMES RIVER NEAR REDFIELD, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1951-1990, 1998-1999	
ANNUAL TOTAL	335099		472295			
ANNUAL MEAN	918		1294		242a	
HIGHEST ANNUAL MEAN					1294	1999
LOWEST ANNUAL MEAN					.45	1959
HIGHEST DAILY MEAN	2090	May 17	3640	May 16	7280	Apr 13 1969
LOWEST DAILY MEAN	115	Jan 15	221	Oct 1	.00	Nov 8 1950b
ANNUAL SEVEN-DAY MINIMUM	116	Jan 14	247	Feb 2	.00	Jan 25 1951
INSTANTANEOUS PEAK FLOW			3650	May 16	17000	Apr 3 1997c
INSTANTANEOUS PEAK STAGE			17.95	May 16	31.10	Apr 6 1997d
ANNUAL RUNOFF (AC-FT)	664700		936800		175400	
10 PERCENT EXCEEDS	1420		2330		771	
50 PERCENT EXCEEDS	1180		1310		29	
90 PERCENT EXCEEDS	143		299		.00	

a Median of annual mean discharges, 140 ft^3/s.
b No flow for many days.
c Gage height, 29.92 ft.
d Backwater from ice, from floodmark.



06476000 JAMES RIVER AT HURON, SD

LOCATION (REVISED).--Lat 44°21'49", long 98°11'56", in SW¼ SE¼ NE¼ 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 mi^2, of which 4,148 mi^2 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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

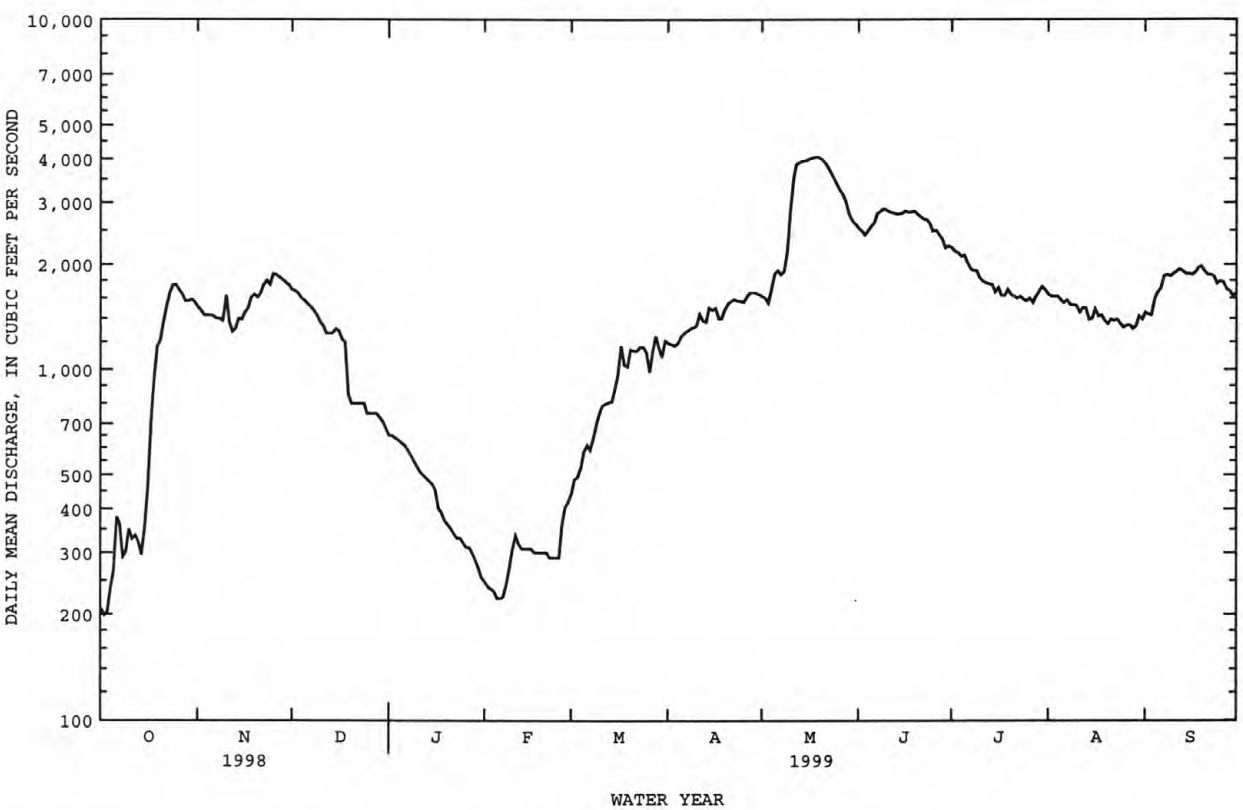
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	208	1510	1690	e650	247	441	1190	1620	2540	2230	1640	1460
2	199	1470	1680	e650	240	487	1180	1600	2490	2180	1620	1440
3	202	1430	1650	e640	236	492	1170	1550	2430	2160	1620	1430
4	236	1430	1600	e630	233	526	1190	1710	2500	2110	1620	1590
5	267	1430	1580	e620	222	584	1240	1880	2570	2130	1580	1670
6	379	1420	1540	e610	222	610	1270	1920	2630	2030	1550	1720
7	362	1400	1510	e590	224	589	1290	1870	2800	1950	1580	1850
8	292	1400	1470	e570	243	637	1310	1910	2840	1920	1530	1870
9	301	1380	1430	e550	269	e700	1320	2190	2890	1920	1530	1850
10	350	1630	1370	e530	306	e750	1340	2810	2860	1830	1520	1880
11	328	1370	1330	e510	335	e790	1440	3500	2820	1790	1460	1910
12	335	1280	1270	e500	317	799	1380	3870	2810	1770	1500	1940
13	322	1310	1270	e490	308	807	1370	3920	2790	1760	1500	1910
14	296	1400	1270	e480	308	809	1500	3940	2790	1750	1390	1880
15	357	1390	1310	e470	308	884	1480	3960	2800	1670	1400	1880
16	457	1460	1290	e450	308	964	1500	4000	2840	1720	1490	1870
17	705	1500	1220	e400	e300	1170	1400	4030	2820	1630	1420	1900
18	919	1610	e1200	e390	e300	1030	1400	4040	2820	1630	1430	1960
19	1170	1640	e850	e370	e300	1020	1490	4050	2840	1700	1380	1980
20	1210	1610	e800	e360	e300	1140	1540	4000	2790	1640	1350	1910
21	1370	1660	e800	e350	e300	1130	1570	3920	2740	1620	1390	1870
22	1510	1750	e800	e340	e290	1130	1590	3800	2690	1600	1380	1870
23	1650	1800	e800	e330	e290	1160	1570	3660	2690	1620	1390	1850
24	1740	1750	e800	e330	e290	1160	1570	3520	2610	1590	1350	1760
25	1750	1880	e750	e320	e290	1120	1560	3390	2490	1570	1320	1790
26	1690	1870	e750	e310	e360	985	1620	3260	2500	1600	1340	1780
27	1640	1840	e750	e310	406	1120	1660	3150	2430	1550	1340	1700
28	1570	1810	e750	297	420	1250	1660	3000	2360	1620	1310	1680
29	1570	1780	e730	285	---	1160	1660	2770	2230	1680	1330	1620
30	1590	1750	e710	270	---	1090	1640	2660	2260	1730	1420	1650
31	1560	---	e680	254	---	1210	---	2600	---	1690	1390	---
TOTAL	26535	46960	35650	13856	8172	27744	43100	94100	79670	55390	45070	53470
MEAN	856	1565	1150	447	292	895	1437	3035	2656	1787	1454	1782
MAX	1750	1880	1690	650	420	1250	1660	4050	2890	2230	1640	1980
MIN	199	1280	680	254	222	441	1170	1550	2230	1550	1310	1430
AC-FT	52630	93150	70710	27480	16210	55030	85490	186600	158000	109900	89400	106100
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1999, BY WATER YEAR (WY)												
MEAN	120	118	84.6	40.9	42.1	483	1261	1030	662	434	333	193
MAX	1148	1565	1150	447	328	3421	16590	7185	3883	2328	2221	1782
(WY)	1994	1999	1999	1999	1996	1994	1997	1997	1995	1997	1997	1999
MIN	.000	.000	.000	.000	.000	3.29	1.37	.000	.000	.000	.000	.000
(WY)	1946	1946	1946	1946	1956	1965	1959	1959	1959	1959	1959	1949

e Estimated

06476000 JAMES RIVER AT HURON, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1929-1932, 1944-1999	
ANNUAL TOTAL	428644		529717			
ANNUAL MEAN	1174		1451		383a	
HIGHEST ANNUAL MEAN					2915	1997
LOWEST ANNUAL MEAN					.51	1959
HIGHEST DAILY MEAN	4730	May 19	4050	May 19	22800	Apr 6 1997
LOWEST DAILY MEAN	125	Jan 13	199	Oct 2	.00	Oct 12 1944b
ANNUAL SEVEN-DAY MINIMUM	126	Jan 13	231	Feb 2	.00	Sep 29 1945c
INSTANTANEOUS PEAK FLOW			4060	May 19	23400	Apr 6 1997
INSTANTANEOUS PEAK STAGE			13.86	May 19d	21.28	Apr 6 1997f
ANNUAL RUNOFF (AC-FT)	850200		1051000		290500	
10 PERCENT EXCEEDS	1900		2690		1110c	
50 PERCENT EXCEEDS	1330		1460		52c	
90 PERCENT EXCEEDS	148		310		.00c	

a Median of annual mean discharges, 200 ft^3/s.
b No flow for long periods in most years.
c For period 1944-99 water years only.
d Backwater.
f Backwater, from floodmark.



06477000 JAMES RIVER NEAR FORESTBURG, SD

LOCATION.--Lat 43°58'26", long 98°04'14", in SW¼ SW¼ NW¼ 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 mi^2, of which about 4,148 mi^2 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 sea level (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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	244	1650	2090	e725	e370	e465	1270	1770	3050	2340	1660	1440
2	240	1620	2050	e705	e365	e480	1280	1750	2920	2320	1630	1460
3	235	1590	2010	e690	e355	e500	1270	1740	2800	2310	1610	1470
4	264	1560	1970	e670	e350	e580	1250	1770	2700	2270	1610	1520
5	292	1550	1910	e660	e345	e600	1270	1860	2670	2220	1600	1570
6	316	1540	1860	e645	e345	e650	1330	1960	2640	2190	1580	1610
7	348	1530	1810	e625	e345	e680	1350	2020	2630	2140	1570	1660
8	368	1520	1760	e610	e365	e700	1380	2070	2690	2070	1560	1730
9	341	1520	1710	e595	e380	e750	1510	2140	2700	2020	1540	1770
10	326	1570	1660	e580	e400	e800	1600	2290	2730	1980	1530	1800
11	351	1620	1600	e575	e425	e850	1740	2530	2770	1930	1520	1850
12	355	1560	1540	e560	e435	e850	1830	2810	2790	1870	1490	1900
13	351	1470	1490	e560	e430	e900	1900	3090	2790	1830	1490	1940
14	340	1470	1460	e550	e425	e950	1960	3300	2780	1800	1490	1970
15	330	1530	1450	e535	e425	1040	1980	3640	2770	1770	1450	1970
16	370	1590	1450	e520	e425	1080	1960	3950	2760	1750	1450	1960
17	547	1660	1440	e510	e425	1150	1890	4140	2760	1720	1470	1950
18	648	1710	1400	e500	e425	1240	1810	4350	2760	1690	1450	1960
19	810	1760	e1310	e490	e420	1230	1750	4530	2760	1680	1440	1990
20	1030	1840	e1220	e480	e415	1220	1730	4770	2750	1700	1420	1990
21	1160	1900	e1130	e465	e415	1260	1730	4940	2740	1680	1400	1960
22	1330	1970	e1040	e450	e420	1280	1760	5010	2720	1660	1410	1930
23	1480	2050	e950	e435	e420	1280	1760	5010	2710	1640	1400	1910
24	1600	2100	e900	e430	e420	1290	1730	4890	2700	1630	1400	1880
25	1690	2130	e860	e420	e425	1290	1720	4690	2650	1610	1380	1840
26	1730	2150	e840	e415	e430	1260	1720	4410	2590	1600	1360	1810
27	1730	2170	e850	e405	e440	1210	1750	4130	2540	1590	1360	1790
28	1710	2170	e850	e400	e450	1250	1770	3860	2500	1580	1350	1750
29	1700	2150	e800	e395	---	1300	1780	3560	2440	1590	1350	1710
30	1680	2130	e755	e385	---	1280	1780	3310	2390	1620	1400	1680
31	1670	---	e730	e375	---	1260	---	3170	---	1660	1440	---
TOTAL	25586	52780	42895	16360	11290	30675	49560	103460	81200	57460	45810	53770
MEAN	825	1759	1384	528	403	990	1652	3337	2707	1854	1478	1792
MAX	1730	2170	2090	725	450	1300	1980	5010	3050	2340	1660	1990
MIN	235	1470	730	375	345	465	1250	1740	2390	1580	1350	1440
AC-FT	50750	104700	85080	32450	22390	60840	98300	205200	161100	114000	90860	106700

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1999, BY WATER YEAR (WY)

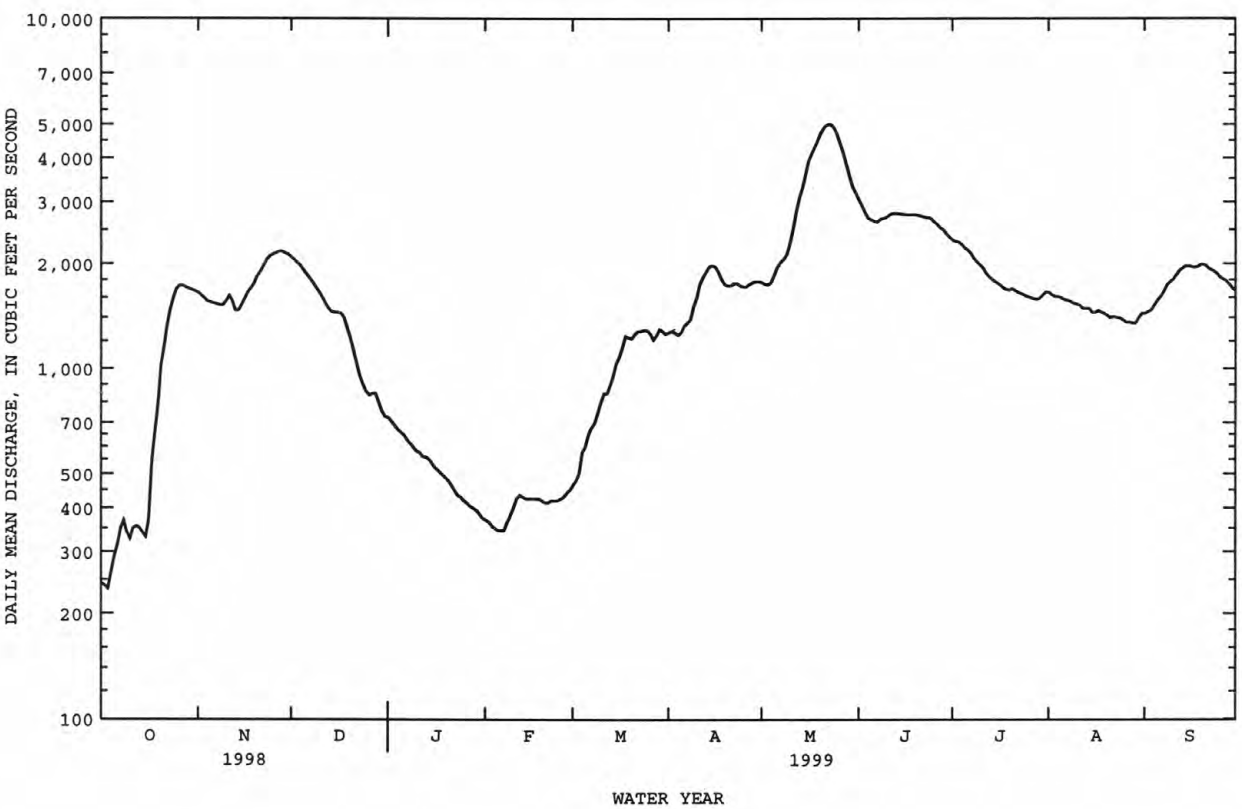
MEAN	147	150	109	54.0	59.7	605	1573	1223	806	498	380	231
MAX	1202	1759	1384	528	550	3735	17560	9047	5395	2196	2599	1792
(WY)	1994	1999	1999	1999	1996	1994	1997	1995	1995	1993	1993	1999
MIN	.000	.000	.000	.000	.000	9.75	2.39	5.61	.39	.002	.004	.000
(WY)	1977	1977	1977	1977	1977	1990	1990	1959	1981	1981	1976	1976

e Estimated

06477000 JAMES RIVER NEAR FORESTBURG, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1951 - 1999	
ANNUAL TOTAL	447271		570846			
ANNUAL MEAN	1225		1564		487a	
HIGHEST ANNUAL MEAN					3054	1997
LOWEST ANNUAL MEAN					4.75	1959
HIGHEST DAILY MEAN	4480	May 24	5010	May 22	25100	Apr 6 1997
LOWEST DAILY MEAN	150	Jan 19	235	Oct 3	.00	Jul 10 1959b
ANNUAL SEVEN-DAY MINIMUM	156	Jan 17	277	Oct 1	.00	Aug 9 1959
INSTANTANEOUS PEAK FLOW			5060	May 22	25600	Apr 6 1997
INSTANTANEOUS PEAK STAGE			14.75	May 22	20.61	Apr 6 1997
ANNUAL RUNOFF (AC-FT)	887200		1132000		353000	
10 PERCENT EXCEEDS	2150		2710		1340	
50 PERCENT EXCEEDS	1320		1570		68	
90 PERCENT EXCEEDS	198		420		2.4	

a Median of annual mean discharges, 230 ft^3/s.
b No flow at times in some years.



06477500 FIRESTEEL CREEK NEAR MOUNT VERNON, SD

LOCATION.--Lat 43°46'30", long 98°14'33", in SW¼ SW¼ sec.26, T.104 N., R.62 W., Davison County, Hydrologic Unit 10160011, near center of span on downstream side of highway bridge, 4.5 mi north of Mount Vernon, 5.2 mi downstream from West Firesteel Creek, and 12 mi northwest of Mitchell.

DRAINAGE AREA.--521 mi^2.

PERIOD OF RECORD.--September 1955 to current year.

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,297.22 ft above sea level.

REMARKS.--Records good except those for Apr. 16 to June 15, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.44	35	55	e7.0	e4.0	27	15	81	62	34	9.6	22
2	.87	38	50	e7.5	e4.5	35	13	69	61	38	9.3	8.4
3	1.5	39	46	e7.0	e5.0	44	13	60	60	87	9.1	6.1
4	3.0	37	42	e7.5	e5.5	44	13	56	59	524	8.6	20
5	4.1	36	39	e8.0	e6.0	39	14	164	61	621	7.9	68
6	3.9	35	36	e7.5	e6.5	35	21	1760	60	403	7.1	67
7	2.4	33	34	e7.0	e7.2	32	26	1950	59	269	6.9	32
8	1.8	31	30	e7.0	e8.5	26	33	1400	62	191	6.1	17
9	1.6	31	30	e6.5	e10	e25	182	1050	69	141	5.9	10
10	1.3	38	27	e6.5	e14	e25	638	848	68	110	5.4	7.2
11	1.2	32	25	e6.0	e19	e25	1360	1170	61	91	4.4	5.4
12	1.0	43	27	e5.6	e32	e25	1540	1190	61	76	4.0	4.6
13	.92	71	27	e5.2	e30	e25	1100	840	63	64	3.7	4.1
14	.82	97	26	e5.0	e28	26	683	598	60	58	3.3	3.4
15	.84	188	25	e4.9	e26	26	446	466	58	50	2.8	3.2
16	2.8	340	24	e4.8	e24	26	325	389	56	46	2.5	2.9
17	29	410	23	e4.7	e22	26	260	332	48	41	2.3	2.8
18	30	371	e20	e4.4	e20	27	227	280	45	35	2.2	2.6
19	31	281	e16	e4.1	e19	31	186	238	44	32	2.1	2.6
20	20	246	e14	e4.1	e18	30	150	196	42	31	2.1	2.6
21	13	208	e11	e3.9	e17	31	124	164	39	30	1.9	2.3
22	13	171	e9.0	e3.8	17	31	116	140	35	27	2.0	2.1
23	17	147	e8.0	e3.7	18	28	109	127	33	24	1.8	1.9
24	13	124	e7.5	e3.8	18	26	102	120	30	22	1.7	1.8
25	11	109	e7.5	e4.0	18	24	99	113	29	19	1.6	1.7
26	14	96	e7.5	e3.9	21	22	97	101	27	17	1.6	1.7
27	14	84	e7.5	e3.8	22	20	96	91	26	16	1.5	1.7
28	13	75	e7.5	e3.8	21	19	95	84	27	15	1.5	1.7
29	30	66	e7.0	e3.8	---	18	95	76	28	13	1.6	1.6
30	26	59	e7.0	e3.7	---	17	88	69	32	12	6.2	1.5
31	29	---	e7.0	e3.7	---	17	---	63	---	11	18	---
TOTAL	331.49	3571	702.5	162.2	461.2	852	8266	14285	1465	3148	144.7	309.9
MEAN	10.7	119	22.7	5.23	16.5	27.5	276	461	48.8	102	4.67	10.3
MAX	31	410	55	8.0	32	44	1540	1950	69	621	18	68
MIN	.44	31	7.0	3.7	4.0	17	13	56	26	11	1.5	1.5
AC-FT	658	7080	1390	322	915	1690	16400	28330	2910	6240	287	615

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1999, BY WATER YEAR (WY)

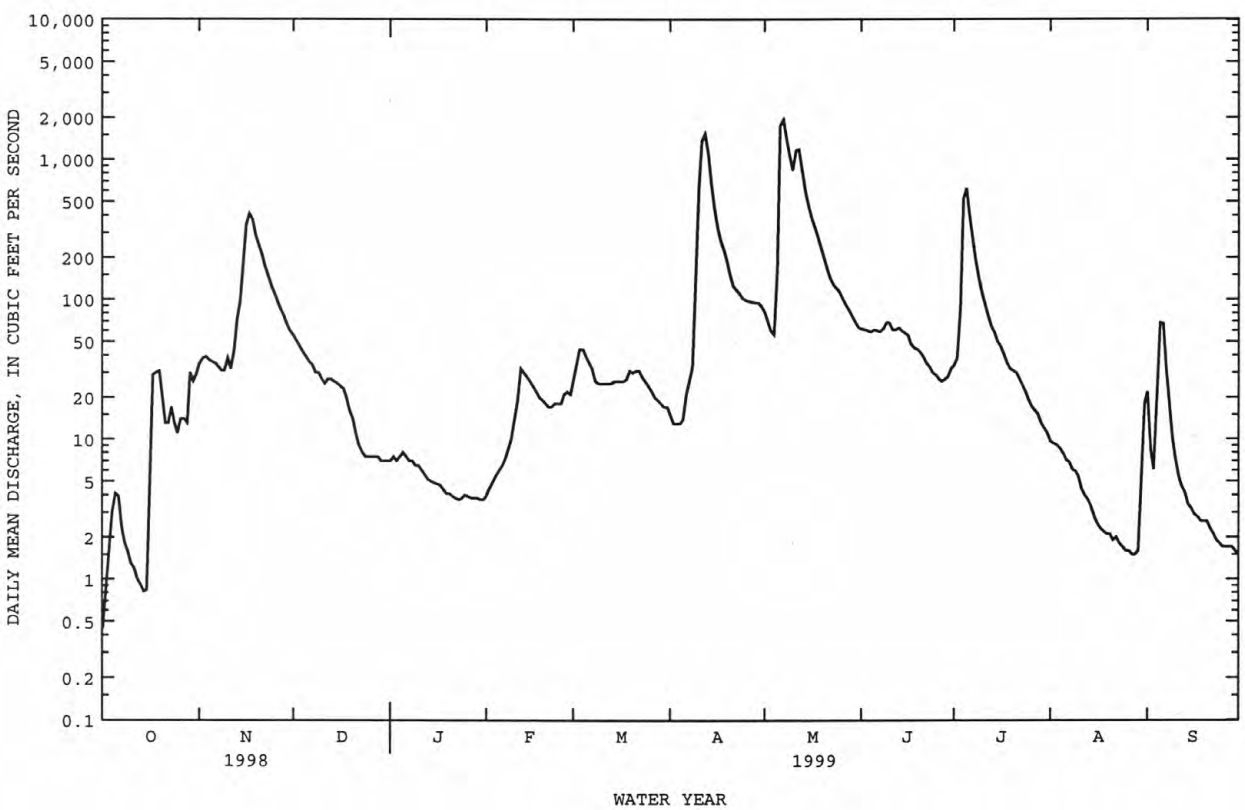
MEAN	1.89	3.90	1.13	1.12	9.64	93.0	86.9	88.3	76.1	27.3	7.95	1.12
MAX	39.2	119	22.7	23.3	175	759	623	1135	1097	623	124	13.8
(WY)	1983	1999	1999	1973	1996	1997	1969	1995	1962	1993	1992	1992
MIN	.000	.000	.000	.000	.000	.000	.049	.004	.001	.000	.000	.000
(WY)	1959	1960	1956	1956	1956	1965	1980	1980	1968	1959	1958	1958

e Estimated

06477500 FIRESTEEL CREEK NEAR MOUNT VERNON, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1956 - 1999	
ANNUAL TOTAL	15442.93		33698.99			
ANNUAL MEAN	42.3		92.3		33.3a	
HIGHEST ANNUAL MEAN					203	1962
LOWEST ANNUAL MEAN					.033	1980
HIGHEST DAILY MEAN	595	Jul 11	1950	May 7	5820	Apr 4 1969
LOWEST DAILY MEAN	.07	Jan 22	.44	Oct 1	.00	Oct 1 1955b
ANNUAL SEVEN-DAY MINIMUM	.08	Jan 19	1.1	Oct 9	.00	Oct 8 1955
INSTANTANEOUS PEAK FLOW			2280	May 7	6610	Apr 4 1969c
INSTANTANEOUS PEAK STAGE			11.87	May 7	17.12	Apr 3 1969d
ANNUAL RUNOFF (AC-FT)	30630		66840		24110	
10 PERCENT EXCEEDS	107		187		31	
50 PERCENT EXCEEDS	11		25		.20	
90 PERCENT EXCEEDS	.42		2.6		.00	

a Median of annual mean discharges, 12 ft^3/s.
b No flow for many days in most years.
c Gage height, 15.34 ft.
d Backwater from ice.



06478500 JAMES RIVER NEAR SCOTLAND, SD

LOCATION.--Lat 43°11'09", long 97°38'07", in SW¼ SW¼ 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 mi^2, of which 4,148 mi^2 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 sea level. 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. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	345	1750	2580	e980	e480	777	1310	2320	4710	2890	1670	1410
2	339	1760	2590	e970	e470	813	1330	2230	4540	3050	1660	1420
3	342	1760	2600	e950	e460	875	1330	2180	4440	3580	1660	1440
4	359	1760	2590	e920	e460	883	1330	2160	4290	4090	1660	2030
5	412	1750	2580	e900	e450	867	1340	2200	4090	4600	1660	2750
6	480	1730	2550	e880	e440	884	1440	2340	3890	4830	1640	3050
7	487	1720	2500	e860	e440	887	1550	2490	3730	4660	1620	3050
8	435	1700	2460	e860	e460	879	1630	2610	3600	4330	1640	2900
9	393	1700	2410	e830	e480	886	2180	2720	3570	3970	1650	2630
10	391	1740	2330	e800	e500	881	2880	2840	3610	3680	e1600	2300
11	409	1770	2240	e800	e550	873	3110	3130	3670	3440	e1560	2080
12	416	e1800	2160	e780	e560	919	3240	3350	3670	3210	e1540	1970
13	408	e1850	2090	e760	e560	1020	3330	3560	3590	2990	e1520	1910
14	399	e1900	2010	e750	e580	1110	3500	3670	3470	2830	e1500	1890
15	404	e2000	1940	e750	e580	1140	3760	3720	3370	2680	e1490	1880
16	429	e2050	1860	e720	e560	1160	4090	3720	3310	2630	e1480	1880
17	494	e2080	1790	e700	e560	1190	4250	3770	3200	2540	1470	1890
18	515	e2100	1730	e680	e550	1190	4290	3840	3150	2490	1460	1900
19	559	e2150	1640	e650	e550	1190	4170	3860	3100	2440	1450	1910
20	629	2200	e1600	e630	e550	1220	3970	3920	3060	2400	1440	1920
21	722	2290	e1550	e610	e560	1270	3770	3990	3030	2390	1430	1930
22	834	2330	e1500	e600	e560	1290	3580	4110	2990	2490	1430	1940
23	963	2360	e1450	e600	e600	1290	3380	4280	2970	2570	1420	1950
24	1100	2400	e1400	e580	e750	1300	3160	4500	2940	2520	1410	1950
25	1230	2410	e1350	e550	e750	1320	2980	4710	2930	2380	1420	1940
26	1360	2440	e1300	e550	704	1330	2840	4960	2900	2210	1390	1940
27	1480	2450	e1200	e530	724	1300	2720	5120	2890	2040	1360	1930
28	1570	2480	e1200	e500	773	1310	2610	5160	2890	1910	1340	1910
29	1660	2520	e1150	e500	---	1320	2510	5100	2880	1800	1340	1880
30	1710	2550	e1100	e500	---	1310	2410	4990	2890	1740	1360	1850
31	1740	---	e1000	e500	---	1280	---	4870	---	1700	1390	---
TOTAL	23014	61500	58450	22190	15661	33964	83990	112420	103370	91080	46660	61430
MEAN	742	2050	1885	716	559	1096	2800	3626	3446	2938	1505	2048
MAX	1740	2550	2600	980	773	1330	4290	5160	4710	4830	1670	3050
MIN	339	1700	1000	500	440	777	1310	2160	2880	1700	1340	1410
AC-FT	45650	122000	115900	44010	31060	67370	166600	223000	205000	180700	92550	121800

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1999, BY WATER YEAR (WY)

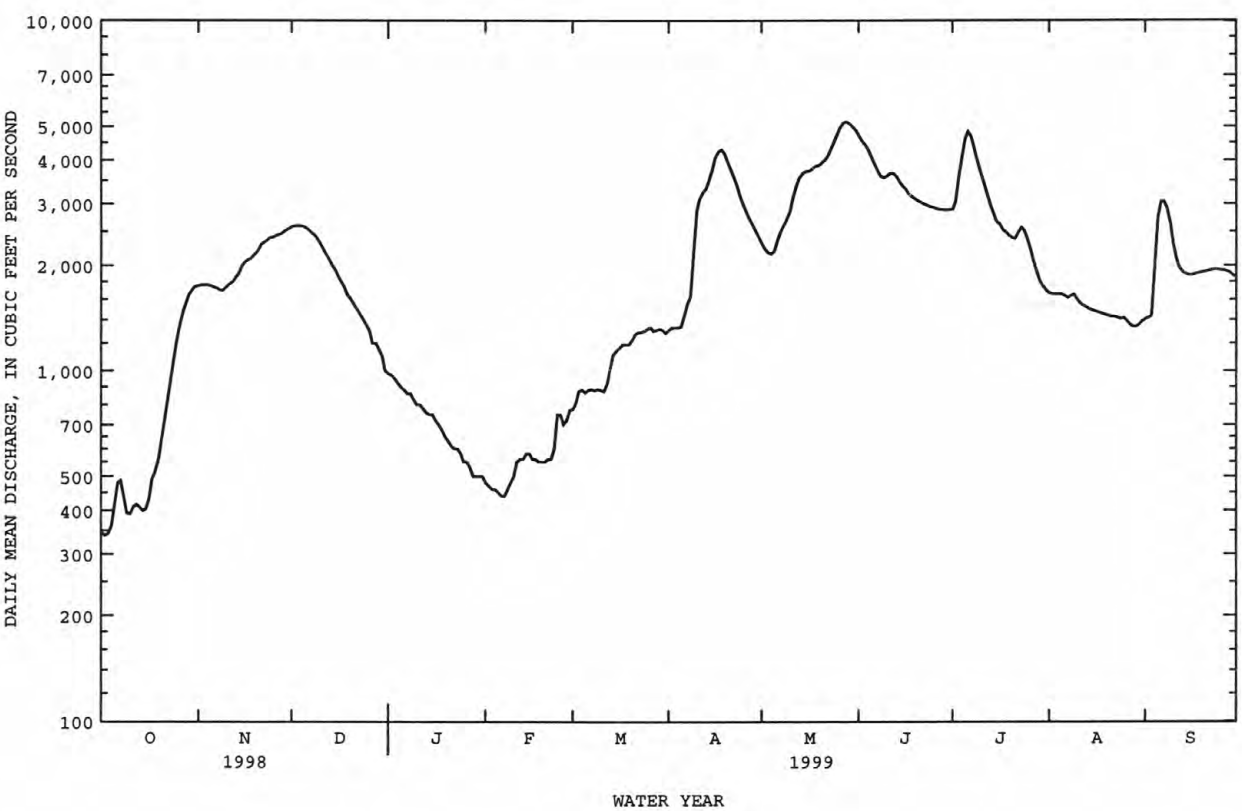
MEAN	148	149	116	63.6	116	811	1846	1366	1148	692	386	232
MAX	1370	2050	1885	716	800	4118	20950	13180	7585	8582	4154	2048
(WY)	1994	1999	1999	1999	1994	1994	1997	1995	1984	1993	1993	1999
MIN	.000	.000	2.72	1.52	2.14	16.8	18.5	8.52	5.14	.79	.000	.27
(WY)	1940	1940	1940	1940	1940	1940	1934	1934	1981	1936	1934	1941

e Estimated

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1929 - 1999	
ANNUAL TOTAL	523094		713729			
ANNUAL MEAN	1433		1955		590a	
HIGHEST ANNUAL MEAN					3996	1997
LOWEST ANNUAL MEAN					13.8	1934
HIGHEST DAILY MEAN	3890	Jun 4	5160	May 28	27800	Apr 9 1997
LOWEST DAILY MEAN	190	Jan 22	339	Oct 2	.00	Jul 28 1934b
ANNUAL SEVEN-DAY MINIMUM	191	Jan 20	395	Oct 1	.00	Jul 28 1934
INSTANTANEOUS PEAK FLOW			5180	May 28	29400	Jun 23 1984
INSTANTANEOUS PEAK STAGE			14.97	May 28	20.45	Jun 23 1984
ANNUAL RUNOFF (AC-FT)	1038000		1416000		427500	
10 PERCENT EXCEEDS	2590		3720		1560	
50 PERCENT EXCEEDS	1430		1740		88	
90 PERCENT EXCEEDS	276		550		8.2	

a Median of annual mean discharges, 270 ft^3/s.
b No flow for many days in some years.



06478515 MISSOURI RIVER NEAR GAYVILLE, SD

LOCATION.--Lat 42°51'01", long 97°13'12", in SW¼ NW¼ 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.

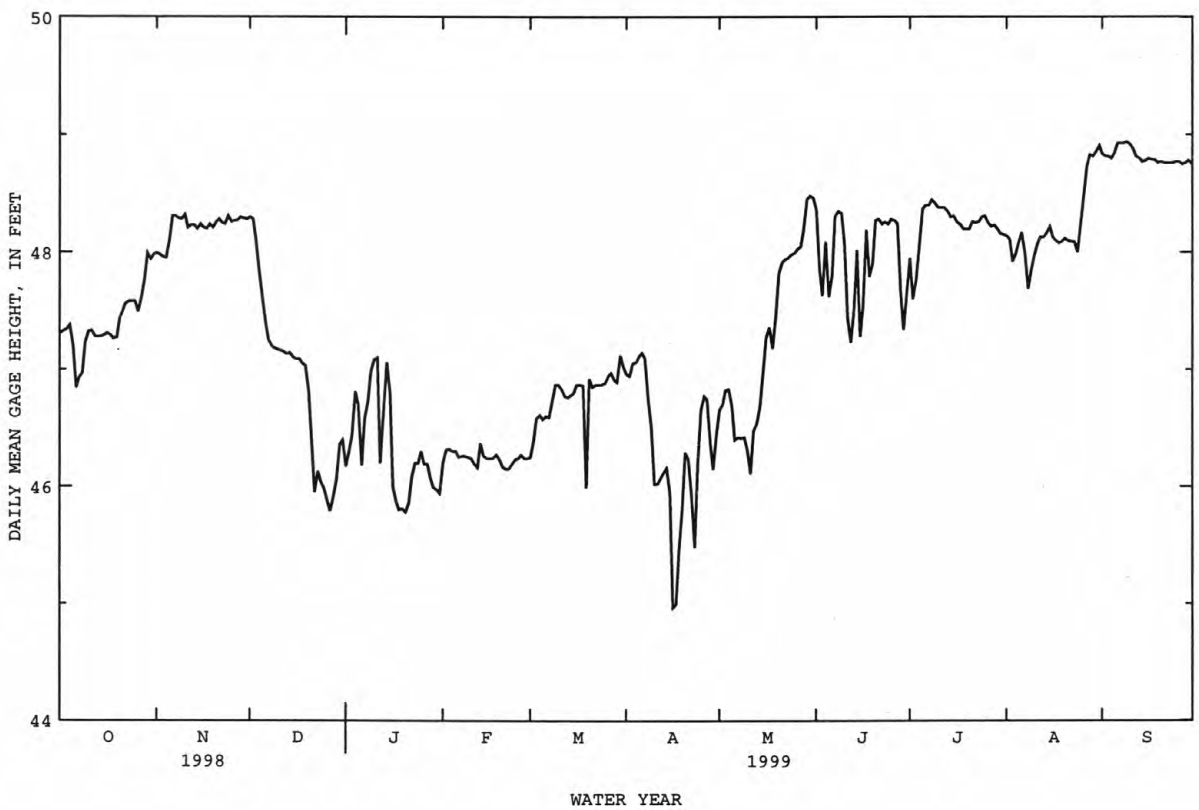
GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft above sea level (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47.31	47.99	48.30	46.17	46.20	46.25	46.96	46.66	48.36	47.95	48.14	48.84
2	47.33	47.98	48.28	46.30	46.31	46.39	46.94	46.70	47.86	47.60	48.11	48.82
3	47.34	47.96	48.09	46.44	46.32	46.58	47.05	46.82	47.63	47.76	47.92	48.82
4	47.38	47.95	47.83	46.81	46.30	46.61	47.06	46.83	48.09	48.08	47.99	48.80
5	47.21	48.10	47.64	46.70	46.30	46.57	47.11	46.69	47.62	48.37	48.09	48.85
6	46.84	48.31	47.42	46.18	46.25	46.60	47.14	46.40	47.80	48.40	48.17	48.93
7	46.93	48.31	47.25	46.58	46.26	46.59	47.09	46.42	48.31	48.40	47.99	48.93
8	46.97	48.29	47.20	46.73	46.26	46.73	46.75	46.41	48.35	48.45	47.69	48.93
9	47.23	48.28	47.18	46.98	46.25	46.87	46.51	46.42	48.33	48.42	47.85	48.94
10	47.32	48.32	47.17	47.08	46.24	46.87	46.02	46.31	48.08	48.38	47.97	48.92
11	47.33	48.21	47.16	47.10	46.19	46.83	46.02	46.11	47.44	48.38	48.07	48.88
12	47.28	48.23	47.15	46.20	46.16	46.77	46.07	46.48	47.23	48.38	48.13	48.82
13	47.28	48.23	47.13	46.65	46.37	46.76	46.12	46.54	47.51	48.35	48.13	48.80
14	47.28	48.20	47.14	47.06	46.26	46.78	46.16	46.69	48.02	48.30	48.17	48.77
15	47.29	48.24	47.10	46.81	46.24	46.80	45.95	46.97	47.28	48.31	48.22	48.78
16	47.31	48.21	47.09	46.00	46.24	46.87	44.96	47.27	47.54	48.26	48.13	48.80
17	47.29	48.20	47.09	45.87	46.24	46.87	44.99	47.36	48.19	48.24	48.10	48.79
18	47.26	48.24	47.05	45.80	46.27	46.86	45.46	47.18	47.79	48.20	48.08	48.79
19	47.27	48.21	47.03	45.81	46.23	45.99	45.81	47.44	47.90	48.20	48.09	48.76
20	47.44	48.25	46.82	45.78	46.17	46.92	46.29	47.82	48.27	48.20	48.12	48.77
21	47.50	48.28	46.35	45.86	46.15	46.85	46.23	47.91	48.28	48.26	48.10	48.76
22	47.56	48.25	45.95	46.08	46.15	46.87	45.92	47.94	48.24	48.25	48.09	48.76
23	47.58	48.24	46.13	46.20	46.19	46.87	45.48	47.95	48.26	48.26	48.09	48.76
24	47.58	48.31	46.03	46.20	46.23	46.87	46.18	47.98	48.24	48.30	48.00	48.76
25	47.58	48.26	45.98	46.30	46.24	46.88	46.65	47.99	48.28	48.31	48.20	48.77
26	47.49	48.27	45.88	46.19	46.27	46.94	46.77	48.03	48.27	48.25	48.45	48.77
27	47.61	48.27	45.79	46.19	46.24	46.97	46.74	48.05	48.24	48.22	48.73	48.75
28	47.77	48.30	45.91	46.06	46.24	46.91	46.38	48.20	47.67	48.23	48.83	48.76
29	47.99	48.29	46.06	45.99	---	46.89	46.15	48.45	47.34	48.20	48.82	48.78
30	47.94	48.28	46.36	45.97	---	47.12	46.46	48.48	47.63	48.16	48.86	48.75
31	47.98	---	46.40	45.94	---	47.02	---	48.46	---	48.15	48.91	---
MEAN	47.40	48.22	46.90	46.32	46.24	46.76	46.31	47.26	47.94	48.23	48.20	48.81
MAX	47.99	48.32	48.30	47.10	46.37	47.12	47.14	48.48	48.36	48.45	48.91	48.94
MIN	46.84	47.95	45.79	45.78	46.15	45.99	44.96	46.11	47.23	47.60	47.69	48.75

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 NE¼ NW¼ NW¼ sec.1, T.107 N., R.55 W., Miner County, Hydrologic Unit 10170102 (revised), 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 mi^2.

PERIOD OF RECORD.--Nov. 5, 1986, to Sept. 30, 1989, October 1995 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,678.46 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Gage-height telemeter 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

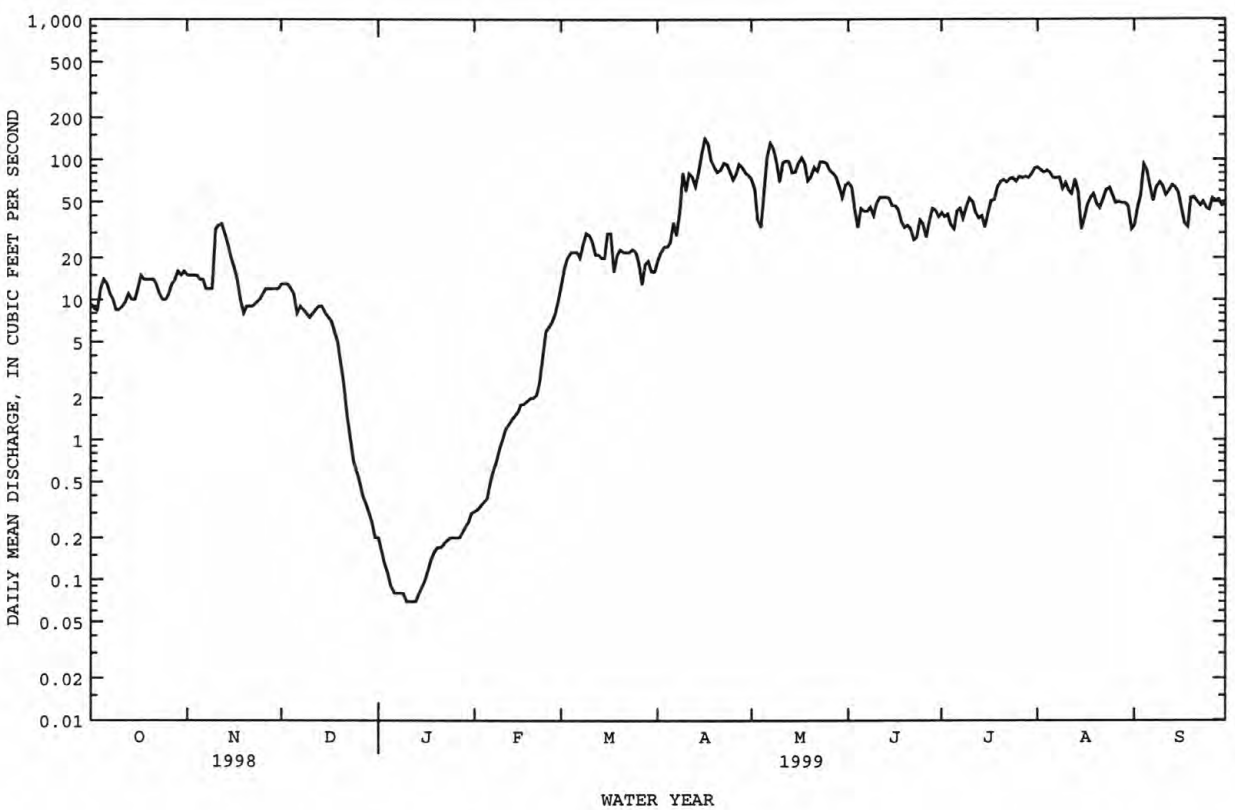
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.3	15	e13	e.20	e.31	e13	19	72	69	42	88	34
2	8.6	15	e13	e.16	e.32	e17	22	62	64	39	84	46
3	8.4	15	e13	e.13	e.34	e20	24	37	45	41	81	55
4	12	15	e12	e.11	e.36	e22	24	33	33	34	84	92
5	14	14	e11	e.09	e.38	e22	26	63	45	32	80	83
6	13	14	e8.0	e.08	e.50	e22	36	104	43	43	74	63
7	11	12	e9.0	e.08	e.60	e20	29	132	43	45	74	51
8	10	12	e8.5	e.08	e.70	e25	43	120	46	38	75	64
9	8.5	12	e8.0	e.08	e.85	e30	81	95	40	46	62	69
10	8.5	32	e7.5	e.07	e1.0	e29	60	70	49	53	69	65
11	9.0	e34	e8.0	e.07	e1.2	e26	80	96	54	50	60	56
12	9.8	e35	e8.5	e.07	e1.3	e21	76	99	54	42	57	60
13	11	e30	e9.0	e.07	e1.4	e21	65	97	54	38	72	66
14	10	e25	e9.0	e.08	e1.5	e20	81	81	53	40	59	63
15	10	e20	e8.0	e.09	e1.6	e20	110	82	47	33	32	58
16	12	e17	e7.5	e.10	e1.8	e30	142	95	47	42	38	45
17	15	e14	e7.0	e.12	e1.8	e30	130	104	44	51	48	35
18	14	e10	e6.0	e.14	e1.9	16	99	93	36	52	54	33
19	14	e8.0	e5.0	e.16	e2.0	21	88	71	33	64	57	53
20	14	e9.0	e3.5	e.17	e2.0	23	82	76	34	70	48	54
21	14	e9.0	e2.5	e.17	e2.1	22	85	88	32	72	45	50
22	13	e9.0	e1.5	e.18	e2.6	22	95	83	27	69	53	47
23	11	e9.5	e1.0	e.19	e4.0	22	93	97	28	73	61	50
24	10	e10	e.70	e.20	e6.0	23	83	97	37	74	63	45
25	10	e11	e.60	e.20	e6.5	22	72	95	35	70	56	44
26	11	e12	e.50	e.20	e7.0	18	80	84	28	76	49	53
27	13	e12	e.40	e.20	e8.0	13	93	80	36	74	50	51
28	14	e12	e.35	e.22	e10	18	88	76	45	76	49	52
29	16	e12	e.30	e.24	---	19	81	65	44	74	49	47
30	15	e12	e.25	e.26	---	16	77	54	39	79	46	48
31	16	---	e.20	e.30	---	16	---	66	---	87	32	---
TOTAL	365.1	466.5	182.80	4.51	68.06	659	2164	2567	1284	1719	1849	1632
MEAN	11.8	15.6	5.90	.15	2.43	21.3	72.1	82.8	42.8	55.5	59.6	54.4
MAX	16	35	13	.30	10	30	142	132	69	87	88	92
MIN	8.4	8.0	.20	.07	.31	13	19	33	27	32	32	33
AC-FT	724	925	363	8.9	135	1310	4290	5090	2550	3410	3670	3240
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)												
MEAN	52.4	53.0	46.5	28.2	26.8	57.7	138	159	83.9	67.8	58.1	35.5
MAX	191	214	190	130	119	194	468	615	229	168	129	78.6
(WY)	1996	1996	1996	1996	1996	1996	1997	1997	1997	1996	1997	1997
MIN	.000	.003	.000	.000	.000	.16	.021	.000	.045	.004	.000	.000
(WY)	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1988	1989

e Estimated

06478535 EAST FORK VERMILLION RIVER NEAR RAMONA, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1988-1989, 1996-1999	
ANNUAL TOTAL	12571.90		12960.97			
ANNUAL MEAN	34.4		35.5		67.4	
HIGHEST ANNUAL MEAN					165	1996
LOWEST ANNUAL MEAN					.020	1989
HIGHEST DAILY MEAN	135	Apr 8	142	Apr 16	1030	May 1 1997
LOWEST DAILY MEAN	.20	Dec 31	.07	Jan 10	.00	Feb 14 1988a
ANNUAL SEVEN-DAY MINIMUM	.37	Dec 25	.07	Jan 7	.00	Feb 14 1988
INSTANTANEOUS PEAK FLOW			156	Apr 16	1600	Apr 30 1997
INSTANTANEOUS PEAK STAGE			5.43	Apr 16	8.50	Apr 30 1997
ANNUAL RUNOFF (AC-FT)	24940		25710		48850	
10 PERCENT EXCEEDS	70		81		188	
50 PERCENT EXCEEDS	30		29		28	
90 PERCENT EXCEEDS	9.0		.33		.00	

a No flow for many days in 1988, 1989.



06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD
(Hydrologic bench-mark station)

LOCATION.--Lat 43°47'39", long 97°22'02", in SW¼ sec.19, T.104 N., R.54 W., McCook County, Hydrologic Unit 10170102, on right bank near downstream end of culvert on county highway, 2.0 mi upstream from small left-bank tributary, and 5.2 mi northeast of Salem.

DRAINAGE AREA.--78.6 mi^2.

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 sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.15	9.0	e.19	e.05	e3.2	3.7	8.7	7.2	1.5	.31	.00
2	.00	.14	7.7	e.17	e.09	e4.7	3.4	8.0	6.4	1.8	.21	.00
3	.00	.11	6.6	e.15	e.23	e5.0	3.4	7.7	5.6	3.7	.14	.00
4	.00	.08	5.7	e.10	e.31	e4.7	3.4	7.4	4.9	4.0	.03	e3.0
5	.00	.06	4.8	e.09	e.46	e4.0	3.9	8.6	4.4	3.4	.00	e10
6	.00	.04	4.3	e.07	e.67	e3.4	8.5	9.6	4.1	3.0	.00	e13
7	.00	.03	3.7	e.05	e.87	e3.0	12	11	3.7	2.8	.00	e12
8	.00	.03	3.1	e.03	e1.5	e2.3	23	17	4.1	2.7	.00	e11
9	.00	.08	2.6	e.02	e1.5	e2.2	48	40	3.7	2.6	.00	e10
10	.00	.33	2.2	e.01	e1.6	e2.1	82	53	3.2	2.3	.00	e9.5
11	.00	.45	1.9	e.00	e1.4	e1.9	117	59	2.9	1.9	.00	8.1
12	.00	.38	1.7	e.00	e1.1	e1.8	102	61	2.8	1.5	.00	6.7
13	.00	.28	1.6	e.00	e1.6	e1.8	73	74	3.0	1.2	.00	5.4
14	.00	.27	1.5	e.00	e3.2	e1.7	57	76	3.3	.91	.00	4.5
15	.00	.29	1.5	e.00	e2.8	e2.2	47	65	3.5	.66	.00	3.8
16	.00	.70	1.4	e.00	e2.2	e4.1	37	51	3.4	.64	.00	3.2
17	.00	1.6	1.3	e.00	e2.0	e5.5	30	39	3.1	.50	.00	2.6
18	.00	3.6	e1.3	e.00	e1.9	e7.6	25	30	2.9	1.3	.00	2.0
19	.00	e4.8	e.70	e.00	e1.6	e9.5	20	23	3.2	1.8	.00	1.7
20	.00	e4.7	e.60	e.00	e1.5	e9.2	15	19	3.1	3.6	.00	1.5
21	.00	e3.9	e.48	e.00	e1.3	e8.0	13	16	2.9	4.4	.00	1.3
22	.00	9.3	e.42	e.00	e1.2	e6.9	13	13	2.6	4.1	.00	1.1
23	.00	18	e.38	e.01	e1.2	e5.9	11	12	2.4	3.6	.00	.92
24	.00	20	e.34	e.02	e1.1	e5.1	10	12	2.0	3.0	.00	.76
25	.00	21	e.31	e.01	e1.3	e4.4	9.7	12	1.7	2.4	.00	.63
26	.00	21	e.28	e.03	e2.0	e4.0	9.7	13	1.4	1.9	.00	.52
27	.00	19	e.26	e.04	e2.9	e3.8	9.6	13	1.2	1.6	.00	.42
28	.03	16	e.25	e.03	e2.8	4.1	9.4	12	1.3	1.2	.00	.35
29	.16	13	e.23	e.01	---	3.9	9.3	11	1.3	.91	.00	.27
30	.15	11	e.21	e.00	---	3.8	9.1	9.2	1.5	.67	.00	.21
31	.16	---	e.20	e.00	---	3.8	---	7.9	---	.47	.00	---
TOTAL	0.50	170.32	66.56	1.03	40.38	133.6	818.1	799.1	96.8	66.06	0.69	114.48
MEAN	.016	5.68	2.15	.033	1.44	4.31	27.3	25.8	3.23	2.13	.022	3.82
MAX	.16	21	9.0	.19	3.2	9.5	117	76	7.2	4.4	.31	13
MIN	.00	.03	.20	.00	.05	1.7	3.4	7.4	1.2	.47	.00	.00
AC-FT	1.0	338	132	2.0	80	265	1620	1590	192	131	1.4	227

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1999, BY WATER YEAR (WY)

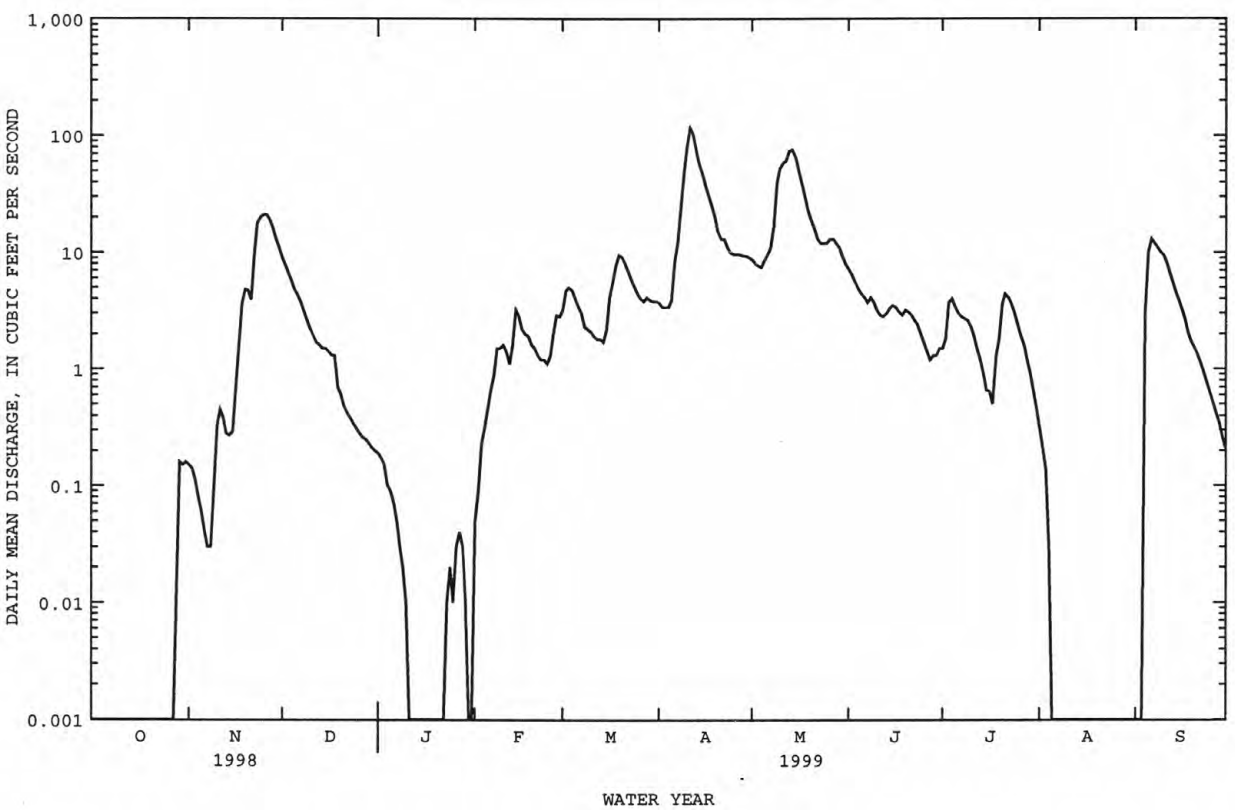
MEAN	2.37	1.64	.44	.054	2.55	22.4	21.1	10.5	16.5	15.8	3.23	2.85
MAX	40.0	17.1	4.08	.91	40.7	158	173	95.7	186	430	50.3	63.0
(WY)	1996	1996	1983	1983	1983	1997	1997	1995	1993	1993	1992	1986
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1967	1967	1967	1967	1968	1968	1967	1967	1968	1968	1967	1967

e Estimated

06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD--Continued
(Hydrologic bench-mark station)

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1967 - 1999	
ANNUAL TOTAL	580.92		2307.62			
ANNUAL MEAN	1.59		6.32		8.31a	
HIGHEST ANNUAL MEAN					73.4	1993
LOWEST ANNUAL MEAN					.000	1968b
HIGHEST DAILY MEAN	28	Apr 11	117	Apr 11	2500	Jul 4 1993
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Oct 1 1966c
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Oct 1 1966
INSTANTANEOUS PEAK FLOW			119	Apr 11	3300	Jul 4 1993e
INSTANTANEOUS PEAK STAGE			6.36	Apr 11	11.95	Jul 4 1993d
ANNUAL RUNOFF (AC-FT)	1150		4580		6020	
10 PERCENT EXCEEDS	4.4		13		11	
50 PERCENT EXCEEDS	.00		1.7		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

a Median of annual mean discharges, 3.4 ft^3/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 NW¼ NW¼ NE¼ 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 mi^2.

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 sea level, 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	164	166	e25	e28	e75	85	235	134	69	74	62
2	25	125	155	e25	e35	e90	89	208	124	83	70	61
3	27	97	139	e25	e40	e85	78	193	110	130	70	56
4	38	80	127	e20	e40	e75	75	189	101	264	73	78
5	69	70	123	e20	e45	e70	80	246	98	253	73	206
6	153	63	109	e20	e45	e60	211	366	94	177	73	321
7	149	59	97	e20	e50	e55	312	392	91	106	73	317
8	101	58	88	e20	e60	e50	318	351	127	99	73	262
9	71	60	77	e15	e80	e45	738	311	219	94	69	191
10	58	239	74	e15	e100	e40	940	291	197	79	69	140
11	51	531	68	e20	e150	e40	995	381	149	64	67	113
12	48	372	67	e20	e80	e40	843	429	116	61	64	101
13	42	e300	69	e20	e100	e40	687	372	96	59	64	91
14	37	e230	68	e20	e90	e45	592	318	88	57	56	77
15	36	180	70	e25	e70	e55	723	287	84	56	52	71
16	40	274	74	e25	e65	e90	719	269	84	59	56	67
17	139	330	73	e30	e60	226	573	256	79	58	57	67
18	309	356	68	e30	e50	234	462	221	74	59	55	65
19	229	351	e60	e30	e40	191	403	191	81	93	53	68
20	150	289	e50	e30	e40	158	363	196	85	149	46	63
21	105	268	e45	e30	e35	135	340	189	85	242	43	58
22	79	226	e40	e30	e35	116	330	174	80	300	45	57
23	64	220	e40	e30	e40	107	308	177	79	261	49	55
24	58	215	e40	e30	e30	95	274	164	69	202	48	55
25	55	223	e45	e25	e30	86	244	157	64	140	44	58
26	52	211	e45	e30	e25	76	248	146	61	118	44	61
27	56	196	e45	e28	e60	69	293	143	62	99	46	59
28	55	186	e50	e30	e80	90	323	142	64	88	47	55
29	114	178	e40	e25	---	89	303	128	65	81	48	53
30	243	178	e35	e27	---	83	266	123	68	78	54	51
31	219	---	e30	e27	---	80	---	146	---	79	60	---
TOTAL	2897	6329	2277	767	1603	2790	12215	7391	2928	3757	1815	3039
MEAN	93.5	211	73.5	24.7	57.2	90.0	407	238	97.6	121	58.5	101
MAX	309	531	166	30	150	234	995	429	219	300	74	321
MIN	25	58	30	15	25	40	75	123	61	56	43	51
AC-FT	5750	12550	4520	1520	3180	5530	24230	14660	5810	7450	3600	6030

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1999, BY WATER YEAR (WY)

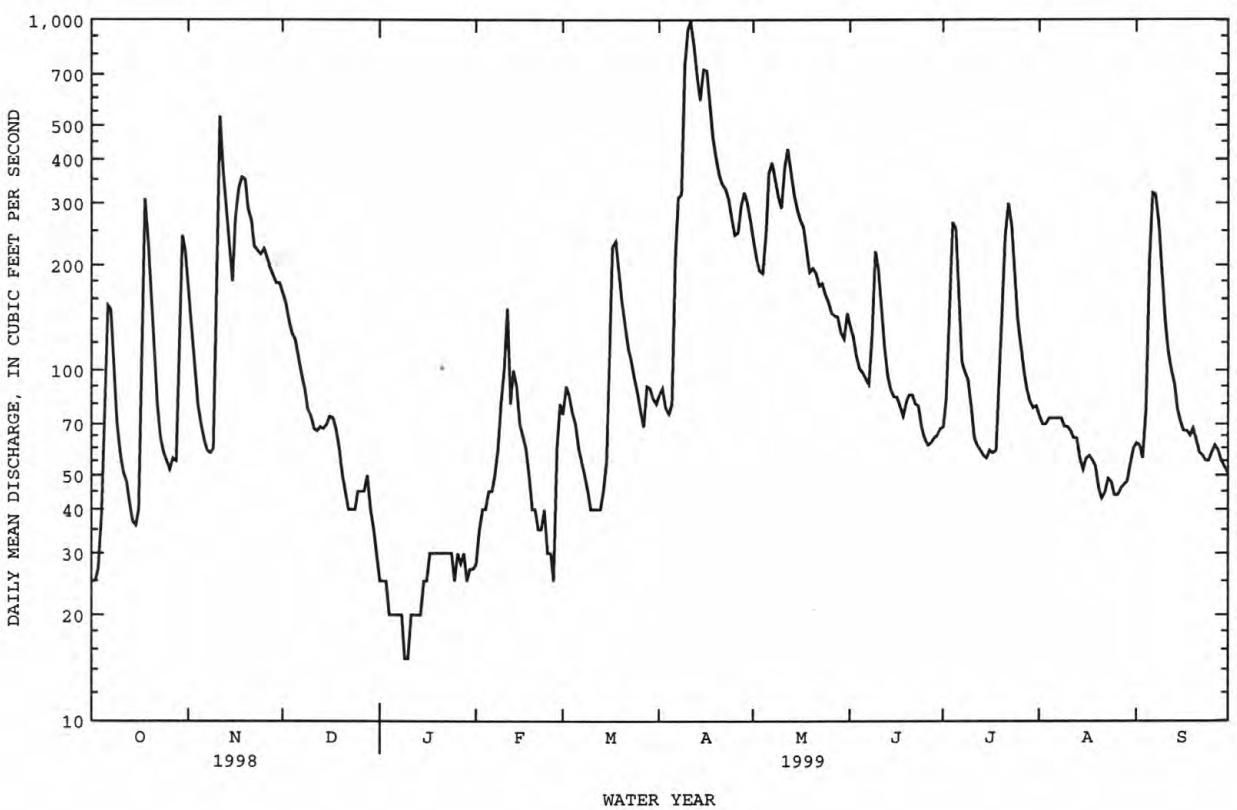
MEAN	147	160	80.6	49.0	85.2	307	511	370	238	132	100	81.7
MAX	332	280	151	128	215	732	1070	832	467	180	156	101
(WY)	1996	1996	1996	1996	1996	1997	1997	1997	1996	1996	1996	1999
MIN	78.0	66.0	32.6	11.7	8.93	83.8	231	107	81.4	47.2	54.1	30.0
(WY)	1997	1998	1997	1997	1997	1998	1998	1998	1998	1998	1998	1998

e Estimated

06478600 EAST FORK VERMILLION RIVER NEAR PARKER, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1996 - 1999	
ANNUAL TOTAL	33309		47808			
ANNUAL MEAN	91.3		131		188	
HIGHEST ANNUAL MEAN					298	1997
LOWEST ANNUAL MEAN					77.7	1998
HIGHEST DAILY MEAN	531	Nov 11	995	Apr 11	3960	Mar 29 1997
LOWEST DAILY MEAN	17	Jan 14	15	Jan 9	7.0	Jan 27 1997
ANNUAL SEVEN-DAY MINIMUM	18	Jan 14	19	Jan 4	8.0	Feb 7 1997
INSTANTANEOUS PEAK FLOW			1060	Jul 4	4210	Mar 29 1997a
INSTANTANEOUS PEAK STAGE			7.77	Jul 4	12.75	Mar 22 1997b
ANNUAL RUNOFF (AC-FT)	66070		94830		136500	
10 PERCENT EXCEEDS	205		300		383	
50 PERCENT EXCEEDS	60		77		97	
90 PERCENT EXCEEDS	26		30		27	

a Gage height, 12.73 ft.
b Backwater from ice.



06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD

LOCATION.--Lat 43°24'55", long 97°12'18", in NE¼ NE¼ 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 mi^2.

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 sea level, 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 estimated daily discharges, which are poor. National Weather Service gage-height telemeter 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.61	75	86	e7.0	e5.0	43	25	84	21	11	5.8	1.1
2	.91	59	77	e6.0	e6.0	50	20	81	21	80	5.2	1.0
3	1.3	46	72	e5.0	e8.0	40	19	81	18	280	4.7	1.2
4	6.0	39	65	e4.5	e15	31	19	80	16	212	4.3	52
5	11	34	59	e3.9	e9.0	26	22	113	14	142	3.9	324
6	6.4	31	55	e3.7	e12	25	155	142	14	110	3.6	256
7	9.5	28	50	e3.5	e16	23	216	145	11	87	3.6	97
8	8.8	27	45	e3.4	e21	21	174	141	118	66	3.5	53
9	6.2	32	41	e3.3	e30	e16	836	165	119	45	3.1	30
10	4.8	e48	38	e3.2	e29	e18	962	177	67	29	2.8	19
11	3.7	e90	35	e3.1	e48	e19	1010	277	33	20	2.5	13
12	3.3	e70	36	e3.0	e45	19	902	275	20	14	2.4	9.5
13	2.7	e85	34	e2.8	e33	19	767	202	15	11	2.2	7.3
14	2.2	117	32	e2.8	e22	19	563	182	13	8.5	2.1	5.9
15	2.0	287	31	e2.8	e20	23	812	184	13	6.7	1.9	4.9
16	3.5	492	31	e2.8	e23	55	839	155	14	6.5	1.8	4.1
17	64	463	29	e2.9	e20	102	586	129	12	5.6	1.8	3.6
18	70	539	28	e3.0	e15	84	393	110	10	13	1.5	3.2
19	42	388	22	e3.6	e15	61	287	89	10	40	1.3	3.0
20	28	303	e20	e3.9	e17	48	228	81	10	80	1.2	2.7
21	22	219	e18	e4.1	e18	43	195	73	9.7	155	1.2	2.4
22	19	192	e17	e4.2	e30	38	180	62	8.8	130	1.2	2.3
23	17	174	e16	e4.3	e20	35	163	59	8.6	129	1.1	2.1
24	15	161	e15	e4.4	e14	33	144	51	7.8	88	1.1	2.1
25	13	147	e15	e4.5	14	30	127	44	7.0	42	1.1	1.9
26	12	130	e15	e4.5	22	27	128	40	6.4	26	1.1	1.9
27	18	116	e14	e4.5	36	25	134	35	6.5	18	1.0	1.7
28	18	104	e13	e4.5	36	26	130	30	8.5	13	.94	1.6
29	187	98	e10	e4.5	---	29	114	25	12	11	1.0	1.4
30	204	93	e9.0	e4.5	---	26	96	21	9.6	8.2	1.3	1.4
31	107	---	e8.0	e4.5	---	24	---	19	---	6.6	1.2	---
TOTAL	908.92	4687	1036.0	122.7	599.0	1078	10246	3352	653.9	1894.1	71.44	910.3
MEAN	29.3	156	33.4	3.96	21.4	34.8	342	108	21.8	61.1	2.30	30.3
MAX	204	539	86	7.0	48	102	1010	277	119	280	5.8	324
MIN	.61	27	8.0	2.8	5.0	16	19	19	6.4	5.6	.94	1.0
AC-FT	1800	9300	2050	243	1190	2140	20320	6650	1300	3760	142	1810

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1999, BY WATER YEAR (WY)

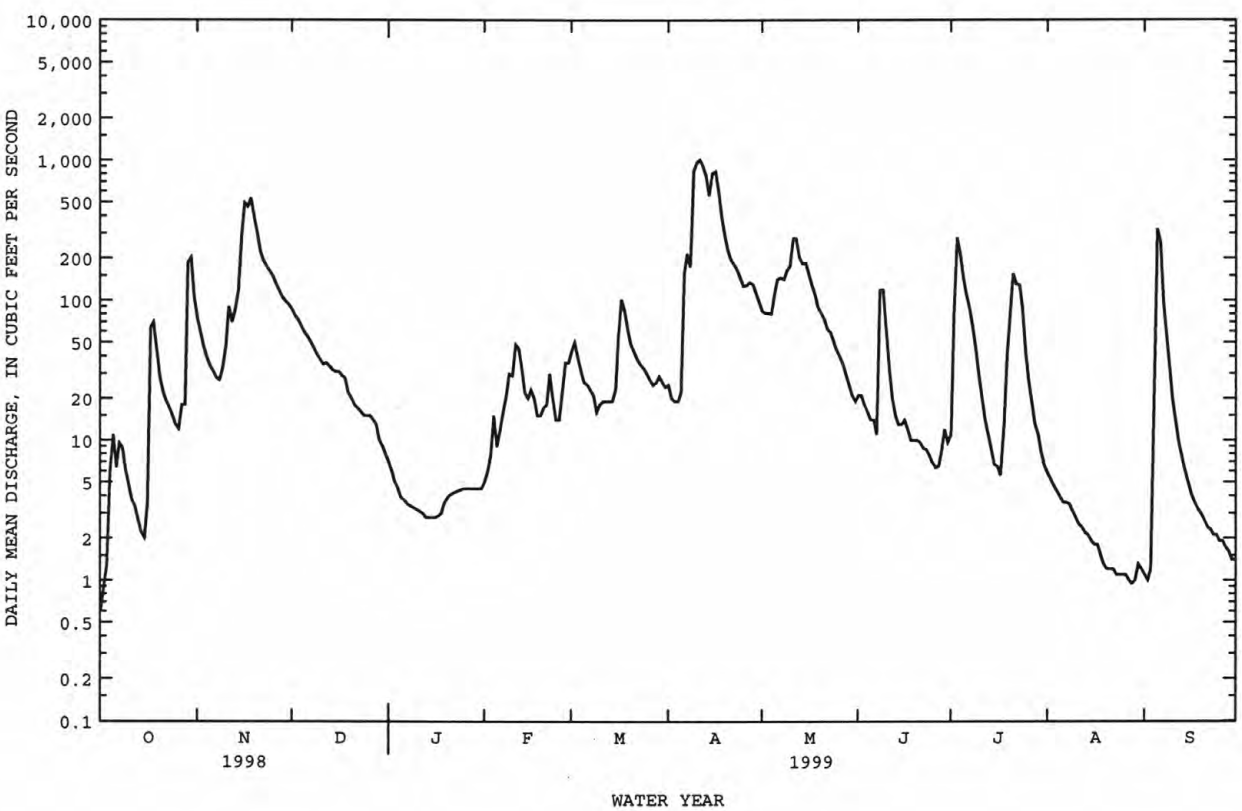
MEAN	7.20	10.5	3.02	1.06	18.5	135	124	60.3	86.5	50.5	9.42	12.2
MAX	106	156	33.4	9.05	267	795	698	550	1345	1081	144	324
(WY)	1996	1999	1999	1983	1983	1997	1984	1995	1984	1993	1993	1986
MIN	.000	.000	.000	.000	.000	.021	.000	.001	.008	.000	.000	.000
(WY)	1975	1982	1965	1965	1975	1981	1990	1990	1981	1989	1989	1989

e Estimated

06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1962 - 1999	
ANNUAL TOTAL	12151.63		25559.36			
ANNUAL MEAN	33.3		70.0		43.2a	
HIGHEST ANNUAL MEAN					249	1993
LOWEST ANNUAL MEAN					.019	1981
HIGHEST DAILY MEAN	539	Nov 18	1010	Apr 11	4110	May 8 1993
LOWEST DAILY MEAN	.30	Jan 13	.61	Oct 1	.00	Oct 6 1961b
ANNUAL SEVEN-DAY MINIMUM	.34	Jan 12	1.0	Aug 23	.00	Nov 4 1961
INSTANTANEOUS PEAK FLOW			1050	Apr 11	6300	May 8 1993
INSTANTANEOUS PEAK STAGE			7.34	Apr 11	13.14	May 8 1993
ANNUAL RUNOFF (AC-FT)	24100		50700		31290	
10 PERCENT EXCEEDS	92		174		66	
50 PERCENT EXCEEDS	5.7		20		.98	
90 PERCENT EXCEEDS	.50		2.4		.00	

a Median of annual mean discharges, 19 ft^3/s.
b No flow for many days in most years.



06479010 VERMILLION RIVER NEAR VERMILLION, SD

LOCATION.--Lat 42°49'02", long 96°55'26", in SE¼ SE¼ NE¼ (revised) 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 mi^2, of which 494 mi^2 usually is noncontributing (area was contributing during 1986-88, 1993-98).

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

REVISED RECORDS.--WDR SD-89-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,125 ft above sea level, from topographic map. Flow affected by East Vermillion Lake Reservoir, capacity, 550 acres, located about 54 mi upstream.

REMARKS.--Records fair 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

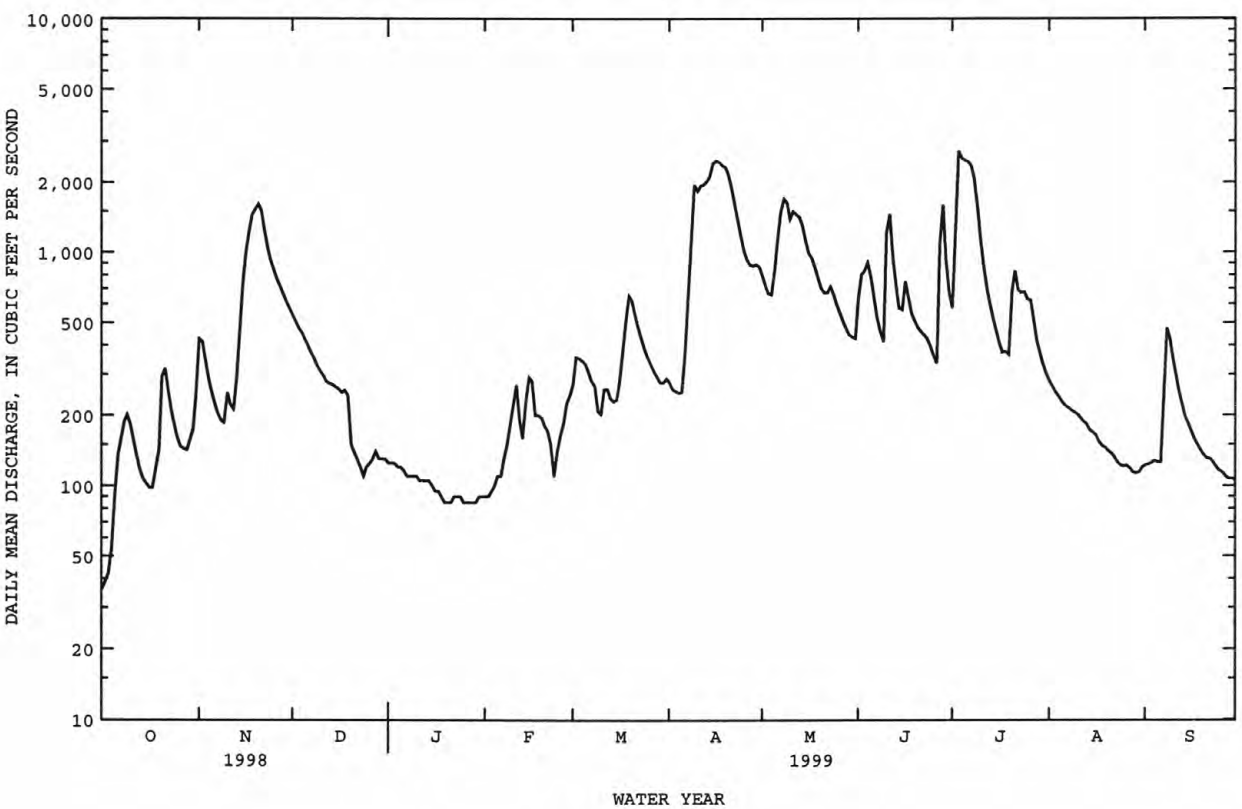
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	427	538	e125	e90	270	277	795	635	579	280	122
2	39	414	505	e125	e90	355	259	717	804	1360	265	123
3	42	339	475	e125	e95	352	254	667	832	2720	252	125
4	54	287	453	e120	e100	342	249	659	906	2530	241	128
5	91	250	425	e120	e110	332	252	840	786	2490	229	126
6	136	222	399	e115	e110	306	370	1130	630	2450	221	126
7	159	203	371	e110	e130	280	617	1490	526	2350	217	243
8	188	190	350	e110	e150	267	1020	1690	461	2070	211	474
9	201	186	327	e110	e180	208	1950	1630	414	1580	207	424
10	183	251	310	e110	e220	202	1830	1390	1210	1130	203	352
11	156	222	296	e105	e270	258	1930	1500	1460	866	195	298
12	133	212	279	e105	e190	260	1950	1460	945	706	189	254
13	117	286	274	e105	e160	236	2030	1420	714	597	184	220
14	107	474	272	e105	e230	230	2130	1300	577	518	173	196
15	102	744	265	e100	e290	234	2420	1120	568	462	169	183
16	98	995	260	e95	e280	278	2480	994	753	406	165	170
17	98	1230	251	e95	e200	380	2440	950	643	373	154	158
18	117	1460	256	e90	e200	511	2360	862	545	376	148	149
19	143	1540	243	e85	e195	651	2320	785	506	364	146	142
20	292	1610	e150	e85	e180	620	2160	705	477	682	141	135
21	317	1500	e140	e85	e170	536	1900	670	457	835	138	131
22	259	1250	e130	e90	e150	472	1620	671	442	690	132	130
23	212	1050	e120	e90	e110	426	1380	715	427	674	126	126
24	182	919	e110	e90	e140	384	1180	661	396	677	122	120
25	161	835	e120	e85	e165	353	1020	600	364	630	121	116
26	147	771	e125	e85	e185	328	927	553	335	623	122	114
27	144	716	e130	e85	226	309	886	510	1080	500	119	110
28	142	661	e140	e85	244	292	878	475	1600	419	114	107
29	157	617	e130	e85	---	277	891	444	940	369	113	107
30	174	576	e130	e90	---	276	866	435	675	332	114	106
31	248	---	e130	e90	---	288	---	428	---	303	120	---
TOTAL	4635	20437	8104	3100	4860	10513	40846	28266	21108	30661	5331	5315
MEAN	150	681	261	100	174	339	1362	912	704	989	172	177
MAX	317	1610	538	125	290	651	2480	1690	1600	2720	280	474
MIN	36	186	110	85	90	202	249	428	335	303	113	106
AC-FT	9190	40540	16070	6150	9640	20850	81020	56070	41870	60820	10570	10540
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1999, BY WATER YEAR (WY)												
MEAN	174	171	102	56.9	112	590	1209	786	950	674	216	175
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

e Estimated

06479010 VERMILLION RIVER NEAR VERMILLION, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1984 - 1999	
ANNUAL TOTAL	114874		183176			
ANNUAL MEAN	315		502		435a	
HIGHEST ANNUAL MEAN					1416	1993
LOWEST ANNUAL MEAN					27.9	1991
HIGHEST DAILY MEAN	2400	Apr 27	2720	Jul 3	20200	Jun 23 1984
LOWEST DAILY MEAN	34	Sep 29	36	Oct 1	3.6	Oct 10 1991b
ANNUAL SEVEN-DAY MINIMUM	37	Sep 26	80	Oct 1	4.5	Oct 6 1991
INSTANTANEOUS PEAK FLOW			2790	Jul 3	21400	Jun 23 1984
INSTANTANEOUS PEAK STAGE			15.77	Jul 3	31.77	Jun 23 1984
ANNUAL RUNOFF (AC-FT)	227900		363300		315200	
10 PERCENT EXCEEDS	745		1320		1100	
50 PERCENT EXCEEDS	171		276		120	
90 PERCENT EXCEEDS	62		107		11	

a Median of annual mean discharges, 320 ft^3/s.
b Also Oct. 18, 1991.



06479215 BIG SIOUX RIVER NEAR FLORENCE, SD

LOCATION.--Lat 45°10'51", long 97°11'09", in NE¼ NE¼ NE¼ 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 mi^2, of which 570 mi^2 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 sea level.

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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

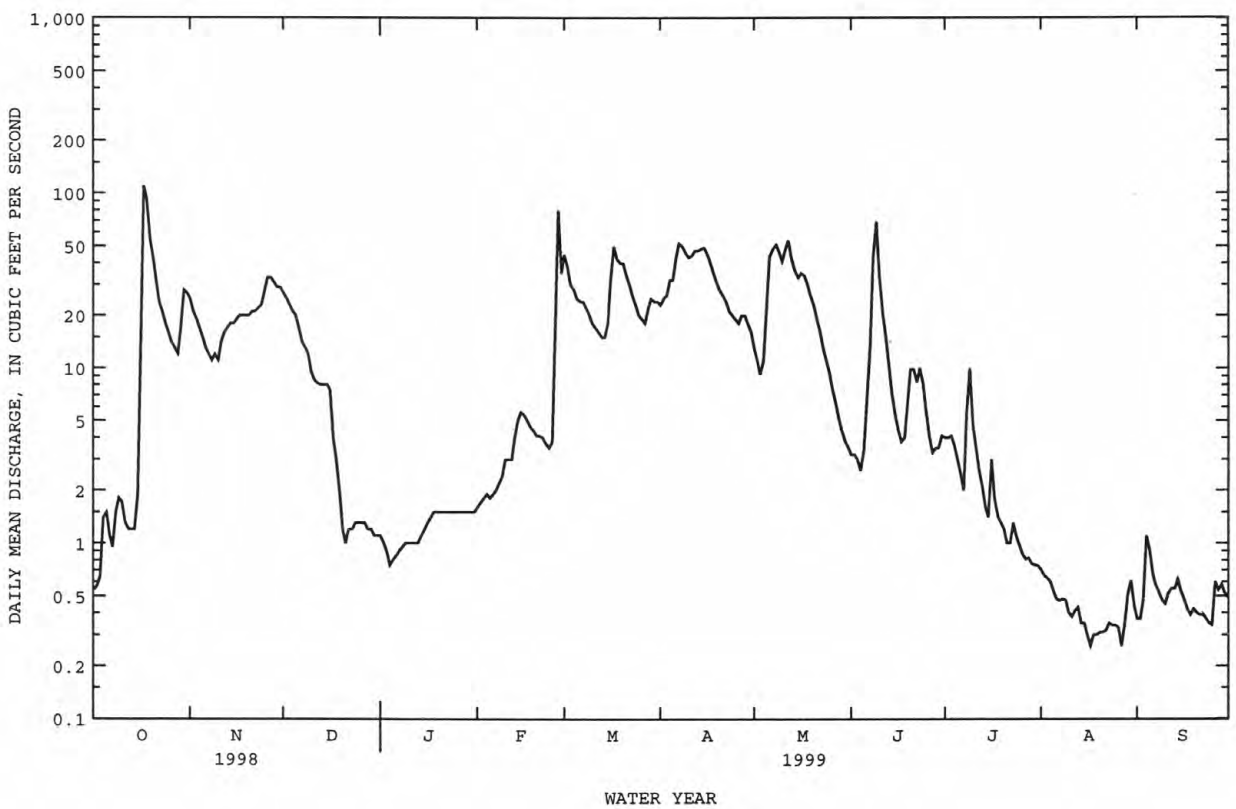
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.54	25	27	e1.1	e1.6	e45	23	13	3.2	4.0	.70	.37
2	.57	21	25	e1.0	e1.7	e38	25	11	3.2	4.0	.65	.37
3	.64	19	23	e.90	e1.8	e30	26	9.2	3.0	4.1	.63	.48
4	1.4	17	21	e.75	e1.9	e28	32	11	2.6	3.6	.60	1.1
5	1.5	15	20	e.80	e1.8	e25	32	23	3.4	3.0	.53	.91
6	1.1	13	e17	e.85	e1.9	e24	43	44	7.1	2.5	.48	.66
7	.95	12	e14	e.90	e2.0	e24	52	48	13	2.0	.47	.57
8	1.5	11	e13	e.95	e2.2	e22	50	51	43	5.4	.48	.52
9	1.8	12	e12	e1.0	e2.4	e20	46	46	69	9.9	.47	.47
10	1.7	e11	e9.5	e1.0	e3.0	e18	43	41	34	4.7	.40	.45
11	1.3	e14	e8.5	e1.0	e3.0	e17	44	48	21	3.4	.38	.52
12	1.2	e16	e8.2	e1.0	e3.0	e16	47	54	15	2.6	.41	.55
13	1.2	e17	e8.0	e1.0	e4.0	e15	47	42	10	2.1	.43	.55
14	1.2	e18	e8.0	e1.1	e5.0	15	48	36	7.1	1.6	.35	.62
15	1.9	e18	e8.0	e1.2	5.6	18	49	33	5.4	1.4	.35	.53
16	8.9	e19	e7.5	e1.3	5.4	32	45	35	4.5	3.0	.30	.48
17	110	e20	e4.0	e1.4	5.0	50	40	34	3.8	1.8	.26	.42
18	93	e20	e3.0	e1.5	4.6	e42	35	30	4.0	1.4	.30	.39
19	54	e20	e2.0	e1.5	4.4	e40	31	26	6.3	1.3	.30	.42
20	43	e20	e1.2	e1.5	4.1	e40	28	23	9.8	1.2	.31	.40
21	31	21	e1.0	e1.5	4.1	e34	26	19	9.8	1.0	.31	.39
22	24	21	e1.2	e1.5	4.0	e30	24	16	8.3	1.0	.32	.39
23	21	22	e1.2	e1.5	3.7	26	21	13	10	1.3	.35	.37
24	18	23	e1.3	e1.5	3.5	23	20	11	8.1	1.1	.34	.35
25	16	28	e1.3	e1.5	3.8	20	19	9.5	5.7	.97	.34	.34
26	14	33	e1.3	e1.5	e17	19	18	7.6	4.0	.86	.33	.60
27	13	33	e1.3	e1.5	e80	18	20	6.3	3.3	.81	.26	.54
28	12	31	e1.2	e1.5	e35	22	20	5.2	3.5	.82	.34	.58
29	17	29	e1.2	e1.5	---	25	18	4.4	3.5	.76	.51	.52
30	28	29	e1.1	e1.5	---	24	16	3.8	4.1	.75	.61	.49
31	27	---	e1.1	e1.5	---	24	---	3.5	---	.74	.44	---
TOTAL	548.40	608	253.1	38.25	215.5	824	988	757.5	328.7	73.11	12.95	15.35
MEAN	17.7	20.3	8.16	1.23	7.70	26.6	32.9	24.4	11.0	2.36	.42	.51
MAX	110	33	27	1.5	80	50	52	54	69	9.9	.70	1.1
MIN	.54	11	1.0	.75	1.6	15	16	3.5	2.6	.74	.26	.34
AC-FT	1090	1210	502	76	427	1630	1960	1500	652	145	26	30
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1999, BY WATER YEAR (WY)												
MEAN	8.14	5.52	2.68	1.03	5.02	47.9	55.5	24.7	15.3	26.3	8.56	5.14
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	.010	.056	.025	.000	.000	.54	1.08	1.73	.28	.020	.067	.032
(WY)	1989	1989	1990	1990	1990	1991	1990	1988	1988	1988	1988	1988

e Estimated

06479215 BIG SIOUX RIVER NEAR FLORENCE, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1985 - 1999	
ANNUAL TOTAL	9211.46		4662.86			
ANNUAL MEAN	25.2		12.8		17.2a	
HIGHEST ANNUAL MEAN					39.6	1995
LOWEST ANNUAL MEAN					.62	1988
HIGHEST DAILY MEAN	400	Feb 26	110	Oct 17	1600	Apr 5 1997
LOWEST DAILY MEAN	.34	Aug 1	.26	Aug 17	.00	Aug 9 1985b
ANNUAL SEVEN-DAY MINIMUM	.39	Jul 26	.30	Aug 16	.00	Dec 16 1989
INSTANTANEOUS PEAK FLOW			134	Oct 17	2000	Apr 4 1997c
INSTANTANEOUS PEAK STAGE			6.55	Oct 17	9.52	Apr 2 1997d
ANNUAL RUNOFF (AC-FT)	18270		9250		12470	
10 PERCENT EXCEEDS	65		35		38	
50 PERCENT EXCEEDS	8.2		4.1		2.4	
90 PERCENT EXCEEDS	.55		.48		.07	

a Median of annual mean discharges, 13 ft^3/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.



06479430 STILL LAKE OUTFLOW NEAR FLORENCE, SD

LOCATION.--Lat 45°02'15", long 97°12'25", in SW¼ SW¼ SW¼ sec.9, T.119 N., R.53 W., Codington County, Hydrologic Unit 10170202, on right downstream wingwall (revised) of county highway bridge, 2.0 mi upstream from Big Sioux River, 0.1 mi upstream from reservation boundary, and 6.1 mi east-southeast of Florence.

DRAINAGE AREA.--224 mi^2.

PERIOD OF RECORD.--May 1996 to current year (seasonal discharge records only).

GAGE.--Water-stage recorder. Datum of gage is 1,735.67 ft above sea level.

REMARKS.--Records good. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

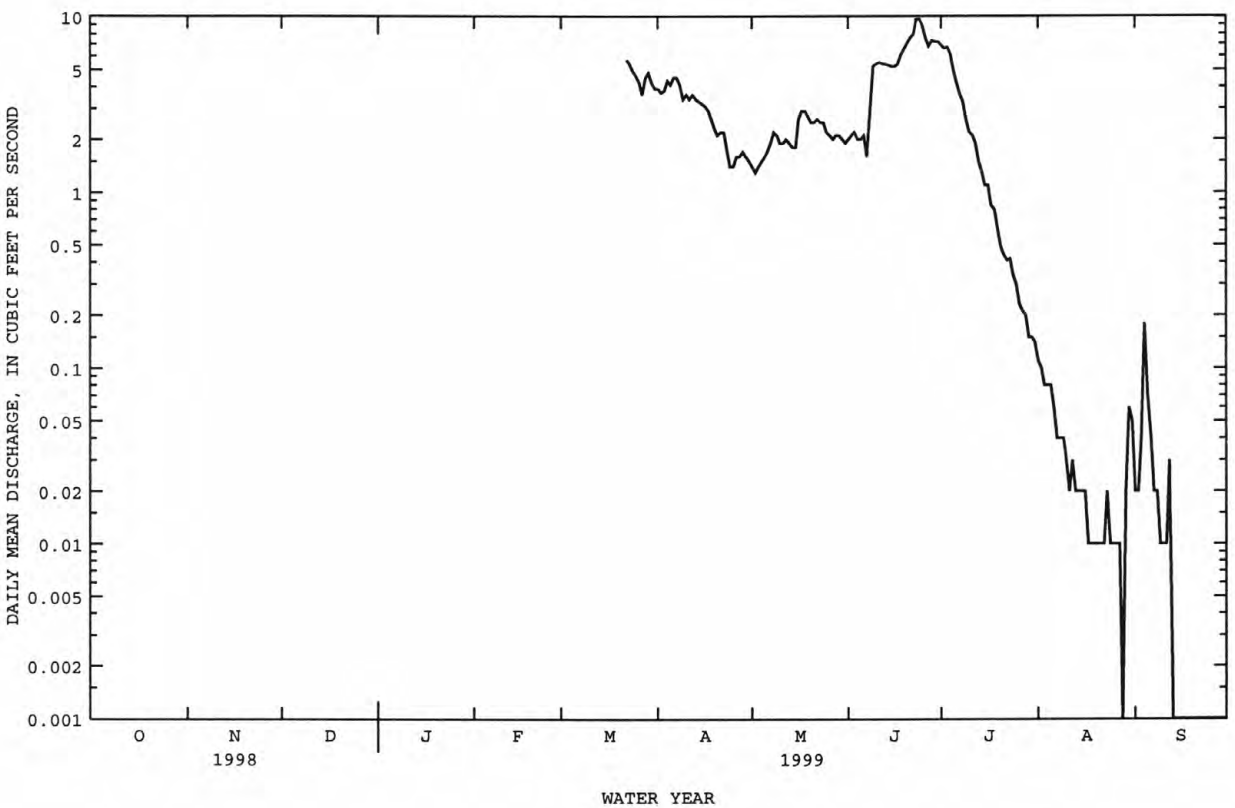
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge during period April to September, maximum daily discharge, 408 ft^3/s, Apr. 19, 1997; maximum gage height, 7.43 ft, Apr. 7, 1997, backwater from ice; minimum daily discharge, 0.0 ft^3/s, Sept. 13 to Sept. 30, 1999.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period April to September, 10 ft^3/s, June 23, gage height, 3.78 ft; minimum daily discharge, 0.0 ft^3/s, Sept. 13 to Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	3.9	1.4	2.0	6.9	.11	.02
2	---	---	---	---	---	---	3.7	1.3	2.1	6.6	.10	.02
3	---	---	---	---	---	---	3.8	1.4	2.2	6.7	.08	.04
4	---	---	---	---	---	---	4.3	1.5	2.0	6.1	.08	.18
5	---	---	---	---	---	---	4.1	1.6	2.0	4.9	.08	.07
6	---	---	---	---	---	---	4.5	1.7	2.1	4.2	.06	.04
7	---	---	---	---	---	---	4.5	1.9	1.6	3.6	.04	.02
8	---	---	---	---	---	---	4.1	2.2	2.9	3.3	.04	.02
9	---	---	---	---	---	---	3.4	2.1	5.2	2.6	.04	.01
10	---	---	---	---	---	---	3.6	1.9	5.4	2.2	.03	.01
11	---	---	---	---	---	---	3.4	1.9	5.5	2.1	.02	.01
12	---	---	---	---	---	---	3.6	2.0	5.4	1.9	.03	.03
13	---	---	---	---	---	---	3.4	1.9	5.4	1.5	.02	.00
14	---	---	---	---	---	---	3.3	1.8	5.3	1.3	.02	.00
15	---	---	---	---	---	---	3.2	1.8	5.2	1.1	.02	.00
16	---	---	---	---	---	---	3.1	2.6	5.2	1.1	.02	.00
17	---	---	---	---	---	---	2.9	2.9	5.4	.84	.01	.00
18	---	---	---	---	---	---	2.6	2.9	6.1	.79	.01	.00
19	---	---	---	---	---	---	2.3	2.7	6.6	.62	.01	.00
20	---	---	---	---	---	---	2.1	2.5	7.1	.49	.01	.00
21	---	---	---	---	---	---	2.2	2.5	7.6	.44	.01	.00
22	---	---	---	---	---	5.7	2.2	2.6	7.9	.41	.01	.00
23	---	---	---	---	---	5.4	1.7	2.5	9.6	.42	.02	.00
24	---	---	---	---	---	4.9	1.4	2.5	9.7	.34	.01	.00
25	---	---	---	---	---	4.6	1.4	2.2	8.9	.30	.01	.00
26	---	---	---	---	---	4.2	1.6	2.1	7.5	.23	.01	.00
27	---	---	---	---	---	3.6	1.6	2.0	6.8	.21	.01	.00
28	---	---	---	---	---	4.5	1.7	2.1	7.3	.20	.00	.00
29	---	---	---	---	---	4.8	1.6	2.1	7.2	.15	.02	.00
30	---	---	---	---	---	4.2	1.5	2.0	7.2	.15	.06	.00
31	---	---	---	---	---	3.9	---	1.9	---	.14	.05	---
TOTAL	---	---	---	---	---	---	86.7	64.5	164.4	61.83	1.04	0.47
MEAN	---	---	---	---	---	---	2.89	2.08	5.48	1.99	.034	.016
MAX	---	---	---	---	---	---	4.5	2.9	9.7	6.9	.11	.18
MIN	---	---	---	---	---	---	1.4	1.3	1.6	.14	.00	.00
AC-FT	---	---	---	---	---	---	172	128	326	123	2.1	.9

06479430 STILL LAKE OUTFLOW NEAR FLORENCE, SD--Continued



06479438 BIG SIOUX RIVER NEAR WATERTOWN, SD

LOCATION.--Lat 45°00'22", long 97°09'53", in NE¼ NE¼ NE¼ 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 mi^2, of which 779 mi^2 usually is noncontributing (213 mi^2 of the noncontributing area contributed runoff in the 1994-99 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 sea level (South Dakota Department of Transportation bench mark).

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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	92	97	e11	e13	e200	78	52	24	25	6.5	4.6
2	3.5	81	90	e11	e14	e147	79	49	23	25	6.2	4.8
3	3.8	72	82	e11	e14	e130	82	46	21	25	5.9	5.4
4	7.7	67	76	e10	e14	e115	90	47	19	23	5.6	12
5	18	63	72	e11	e14	e100	103	53	20	21	5.3	9.3
6	19	60	e63	e11	e14	e90	112	74	25	17	4.8	7.9
7	16	57	e60	e11	e14	e90	171	117	30	15	4.6	7.3
8	13	56	e60	e11	e14	e80	169	118	51	15	4.4	6.5
9	11	56	e57	e11	e14	e80	136	116	113	19	4.2	5.7
10	11	e52	e57	e11	e15	e70	119	102	171	23	4.1	5.0
11	11	e50	e57	e11	e15	e60	115	94	120	23	4.2	4.7
12	11	42	e55	e11	e13	e65	119	96	71	17	4.0	4.8
13	10	42	e48	e11	e16	e62	151	101	53	15	4.0	5.2
14	9.7	52	e46	e11	e20	e70	136	87	44	13	3.9	5.0
15	18	60	e46	e11	e25	e80	121	79	38	11	3.7	4.3
16	56	67	e46	e12	e33	81	112	81	33	12	3.5	4.1
17	561	72	e43	e12	e35	122	101	93	29	12	3.4	3.8
18	832	80	e35	e12	e31	150	92	109	28	31	3.1	3.7
19	404	e70	e17	e12	e28	116	86	89	32	34	3.2	3.7
20	188	e70	e15	e12	e25	104	79	74	35	22	2.8	3.6
21	149	e71	e14	e12	e25	96	74	63	39	16	2.9	3.4
22	99	72	e14	e12	e25	88	71	57	39	13	3.0	3.3
23	88	74	e14	e12	e25	82	66	52	44	13	3.8	3.1
24	78	80	e15	e12	e28	75	61	48	47	12	3.1	3.0
25	72	92	e15	e12	e30	69	59	45	45	11	3.0	2.9
26	67	110	e14	e12	e32	65	58	41	36	9.7	2.7	3.6
27	65	118	e13	e12	e100	63	60	38	28	8.6	2.6	3.8
28	63	110	e12	e12	e290	68	61	33	28	8.1	2.5	3.6
29	67	102	e11	e12	---	76	60	31	26	7.3	2.8	3.4
30	78	98	e11	e12	---	84	56	27	26	7.1	4.3	3.4
31	97	---	e11	e13	---	81	---	26	---	7.0	4.9	---
TOTAL	3130.1	2188	1266	357	936	2859	2877	2138	1338	510.8	123.0	144.9
MEAN	101	72.9	40.8	11.5	33.4	92.2	95.9	69.0	44.6	16.5	3.97	4.83
MAX	832	118	97	13	290	200	171	118	171	34	6.5	12
MIN	3.4	42	11	10	13	60	56	26	19	7.0	2.5	2.9
AC-FT	6210	4340	2510	708	1860	5670	5710	4240	2650	1010	244	287

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1999, BY WATER YEAR (WY)

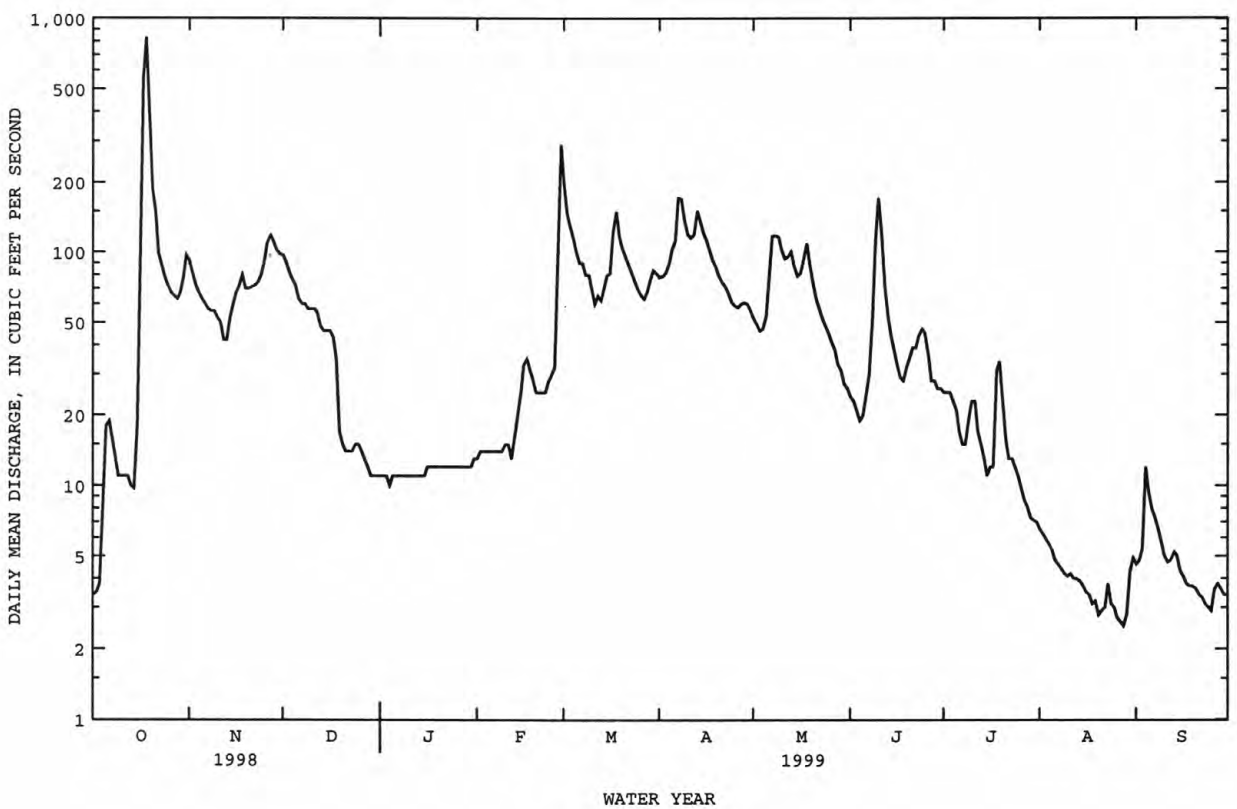
MEAN	19.2	15.8	7.61	3.39	10.7	113	159	67.3	52.6	51.8	22.6	13.6
MAX	221	155	55.7	26.5	120	321	1415	290	184	467	190	125
(WY)	1996	1996	1996	1996	1998	1986	1997	1995	1995	1993	1995	1995
MIN	.034	.10	.005	.000	.000	.26	2.95	.57	.035	.051	.035	.028
(WY)	1989	1989	1977	1977	1977	1975	1990	1981	1976	1976	1976	1982

e Estimated

06479438 BIG SIOUX RIVER NEAR WATERTOWN, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1973 - 1999	
ANNUAL TOTAL	31305.2		17867.8			
ANNUAL MEAN	85.8		49.0		44.8a	
HIGHEST ANNUAL MEAN					155	1997
LOWEST ANNUAL MEAN					2.22	1981
HIGHEST DAILY MEAN	898	May 17	832	Oct 18	6400	Apr 5 1997
LOWEST DAILY MEAN	3.4	Oct 1	2.5	Aug 28	.00	Feb 1 1974b
ANNUAL SEVEN-DAY MINIMUM	3.9	Sep 27	2.9	Aug 23	.00	Feb 1 1974
INSTANTANEOUS PEAK FLOW			946	Oct 17	7820	Apr 5 1997
INSTANTANEOUS PEAK STAGE			8.60	Oct 17	12.09	Apr 5 1997
ANNUAL RUNOFF (AC-FT)	62090		35440		32430	
10 PERCENT EXCEEDS	169		102		92	
50 PERCENT EXCEEDS	51		28		6.2	
90 PERCENT EXCEEDS	9.0		4.1		.06	

a Median of annual mean discharges, 26 ft^3/s.
b No flow at times in 1988-91.



06479450 LAKE KAMPESKA (INLET/OUTLET) NEAR WATERTOWN, SD

LOCATION.--Lat 44°56'56", long 97°10'30", in NE¼ SW¼ NE¼ sec.15, T.117 N., R.53 W., Codington County, Hydrologic Unit 10170202, on left bank 50 ft upstream (revised) from State Highway 20 bridge, 8.8 mi upstream from Willow Creek, and 4.6 mi northwest of Watertown.

DRAINAGE AREA.--28.8 mi^2. Does not include upstream drainage area of the Big Sioux River, which can contribute inflow to the lake.

PERIOD OF RECORD.--October 1993 to current year.

REVISED RECORDS.--WDR-94-1: Datum (1,700.00 ft 1994 water year only).

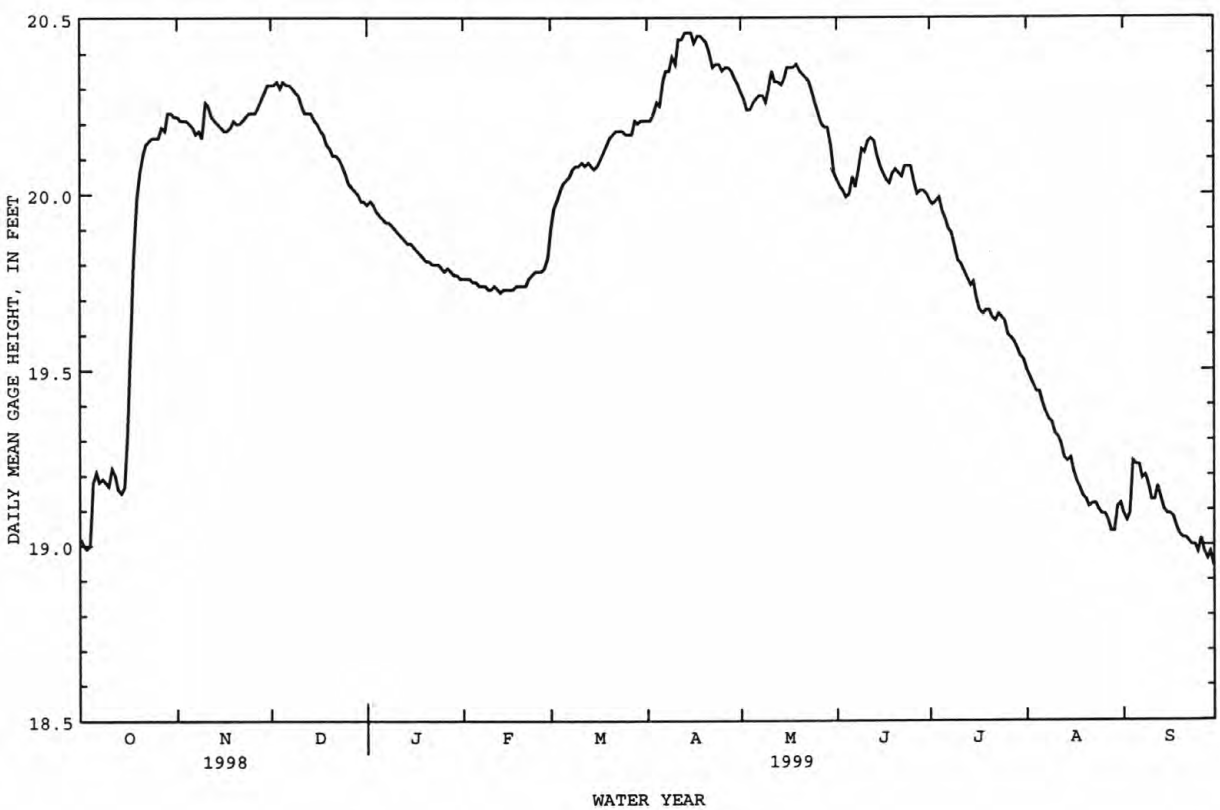
GAGE.--Water-stage recorder and acoustic velocity meter. Datum of gage is 1,697.89 ft above sea level.

REMARKS.--Published stage records good. Water-discharge records poor. Daily mean discharges, which are positive, are flows going into the lake, and negative discharges are flows going out of the lake. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.02	20.22	20.31	19.97	19.76	19.90	20.21	20.29	20.04	19.98	19.50	19.09
2	19.00	20.21	20.31	19.98	19.76	19.96	20.21	20.27	20.02	19.97	19.48	19.07
3	18.99	20.21	20.32	19.97	19.76	19.98	20.23	20.24	20.01	19.98	19.46	19.09
4	19.00	20.21	20.30	19.95	19.75	20.01	20.26	20.24	19.99	19.99	19.44	19.24
5	19.18	20.20	20.32	19.94	19.75	20.03	20.25	20.26	20.00	19.95	19.44	19.23
6	19.21	20.19	20.31	19.93	19.74	20.04	20.32	20.27	20.05	19.93	19.41	19.23
7	19.18	20.17	20.31	19.92	19.74	20.05	20.35	20.28	20.02	19.90	19.38	19.19
8	19.19	20.18	20.30	19.92	19.74	20.07	20.35	20.28	20.07	19.89	19.36	19.20
9	19.18	20.16	20.29	19.91	19.73	20.08	20.39	20.26	20.13	19.85	19.35	19.17
10	19.17	20.26	20.28	19.90	19.73	20.08	20.37	20.30	20.12	19.81	19.32	19.13
11	19.22	20.25	20.25	19.89	19.74	20.09	20.44	20.35	20.15	19.80	19.31	19.13
12	19.20	20.22	20.23	19.88	19.73	20.08	20.44	20.32	20.16	19.78	19.29	19.17
13	19.16	20.21	20.23	19.87	19.72	20.09	20.46	20.32	20.15	19.76	19.25	19.13
14	19.15	20.20	20.23	19.86	19.73	20.08	20.46	20.31	20.11	19.74	19.24	19.10
15	19.17	20.19	20.21	19.86	19.73	20.07	20.46	20.33	20.08	19.75	19.25	19.09
16	19.32	20.18	20.20	19.85	19.73	20.08	20.43	20.36	20.06	19.70	19.21	19.09
17	19.59	20.18	20.18	19.84	19.73	20.10	20.45	20.36	20.04	19.67	19.18	19.08
18	19.81	20.19	20.17	19.83	19.74	20.12	20.45	20.36	20.03	19.66	19.16	19.05
19	19.99	20.21	20.14	19.82	19.74	20.14	20.44	20.37	20.06	19.67	19.14	19.03
20	20.06	20.20	20.13	19.81	19.74	20.16	20.43	20.35	20.07	19.67	19.13	19.02
21	20.11	20.20	20.11	19.81	19.74	20.17	20.40	20.34	20.06	19.65	19.11	19.02
22	20.14	20.21	20.11	19.80	19.76	20.18	20.36	20.33	20.05	19.64	19.12	19.01
23	20.15	20.22	20.10	19.80	19.77	20.18	20.37	20.32	20.08	19.66	19.12	19.00
24	20.16	20.23	20.08	19.80	19.78	20.18	20.37	20.29	20.08	19.65	19.10	19.00
25	20.16	20.23	20.06	19.79	19.78	20.17	20.35	20.26	20.08	19.64	19.09	18.98
26	20.16	20.23	20.03	19.78	19.78	20.17	20.36	20.23	20.03	19.60	19.09	19.02
27	20.19	20.25	20.02	19.79	19.79	20.17	20.36	20.20	20.00	19.59	19.07	18.98
28	20.18	20.27	20.01	19.78	19.82	20.21	20.35	20.19	20.01	19.58	19.04	18.96
29	20.23	20.29	20.00	19.77	---	20.20	20.33	20.19	20.01	19.56	19.04	18.98
30	20.23	20.31	19.98	19.77	---	20.21	20.31	20.14	20.00	19.54	19.11	18.94
31	20.22	---	19.98	19.76	---	20.21	---	20.06	---	19.53	19.12	---
MEAN	19.60	20.22	20.18	19.86	19.75	20.11	20.37	20.28	20.06	19.74	19.24	19.08
MAX	20.23	20.31	20.32	19.98	19.82	20.21	20.46	20.37	20.16	19.99	19.50	19.24
MIN	18.99	20.16	19.98	19.76	19.72	19.90	20.21	20.06	19.99	19.53	19.04	18.94

06479450 LAKE KAMPESKA (INLET/OUTLET) NEAR WATERTOWN, SD--Continued



06479450 LAKE KAMPESKA (INLET/OUTLET) NEAR WATERTOWN, SD--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	31	e30	e.00	e.00	e40	e10	5.9	-5.7	1.2	32	28
2	20	38	e30	e.00	e.00	e30	e10	17	-17	14	44	37
3	14	-4.7	e31	e.00	e.00	e30	e20	51	3.3	14	39	30
4	27	41	e28	e.00	e.00	e30	e40	70	-19	1.9	24	40
5	59	5.2	e25	e.00	e.00	e30	e40	42	66	28	27	30
6	71	42	e25	e.00	e.00	e25	e40	-2.9	8.6	-30	30	45
7	72	50	e25	e.00	e.00	e25	e50	57	42	-9.8	-3.0	41
8	84	e40	e25	e.00	e.00	e20	66	48	73	29	-9.8	20
9	54	e40	e20	e.00	e.00	e20	86	91	94	13	30	19
10	49	e35	e20	e.00	e.00	e20	41	99	83	-2.4	42	44
11	62	e35	e15	e.00	e.00	e10	45	56	90	44	47	53
12	61	e35	e15	e.00	e.00	e5.0	71	29	25	50	54	26
13	24	e35	e15	e.00	e.00	e5.0	105	52	-1.1	32	37	46
14	74	e30	e10	e.00	e.00	e10	76	87	11	3.7	34	21
15	31	e30	e10	e.00	e.00	e20	46	64	-8.6	8.6	31	55
16	49	e25	e10	e.00	e.00	e20	50	6.6	-23	.29	28	28
17	401	e25	e8.0	e.00	e.00	e30	13	14	-1.6	22	44	41
18	849	e22	e8.0	e.00	e.00	e35	44	62	32	53	43	32
19	476	e20	e5.0	e.00	e.00	e40	-1.1	69	26	53	54	27
20	301	e20	e-5.0	e.00	e.00	e40	7.7	-1.6	-.65	64	50	12
21	156	e25	e-5.0	e.00	e.00	e50	-56	8.4	-.57	55	e40	26
22	132	e25	e-5.0	e.00	e5.0	e50	-113	15	12	49	e40	42
23	111	e30	e-10	e.00	e5.0	e50	-44	-14	12	46	e40	30
24	84	e30	e-10	e.00	e5.0	e50	-17	-45	19	18	e35	41
25	45	e30	e-5.0	e.00	e10	e50	23	-45	16	27	e35	44
26	51	e30	e-5.0	e.00	e10	e40	15	-34	41	20	e30	25
27	4.3	e35	e5.0	e.00	e20	e30	18	-16	2.8	42	e30	18
28	41	e30	e5.0	e.00	e30	e20	10	-66	-15	44	29	16
29	31	e30	e5.0	e.00	---	e10	25	-63	31	54	21	21
30	52	e30	e.00	e.00	---	e10	36	-19	-17	46	42	46
31	19	---	e.00	e.00	---	e10	---	-45	---	29	34	---
TOTAL	3575.3	889.5	325.00	0.00	85.00	855.0	756.6	592.4	578.48	819.49	1053.2	984
MEAN	115	29.6	10.5	.000	3.04	27.6	25.2	19.1	19.3	26.4	34.0	32.8
MAX	849	50	31	.00	30	50	105	99	94	64	54	55
MIN	4.3	-4.7	-10	.00	.00	5.0	-113	-66	-23	-30	-9.8	12
AC-FT	7090	1760	645	.00	169	1700	1500	1180	1150	1630	2090	1950

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 1999, BY WATER YEAR (WY)

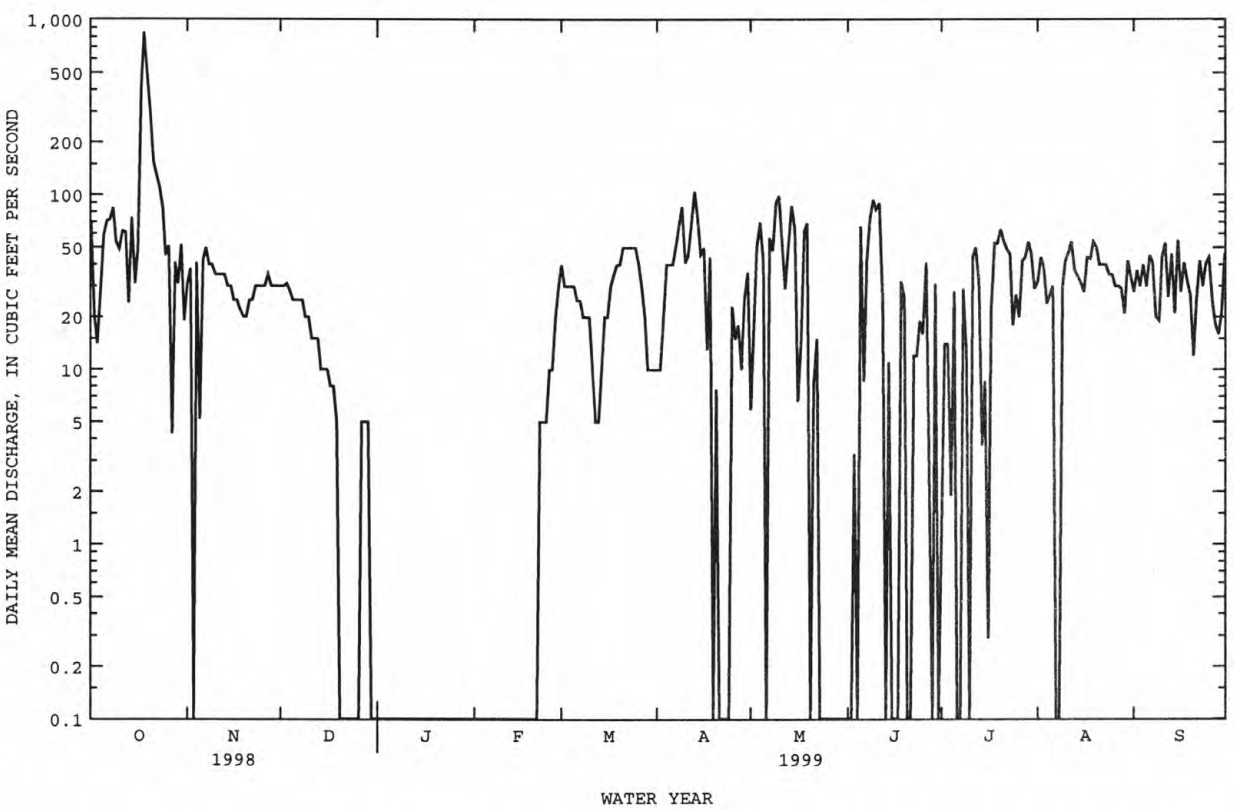
MEAN	36.0	20.7	6.41	.13	14.2	112	15.0	-20.1	-12.2	12.4	20.1	5.53
MAX	115	31.6	10.5	.77	79.1	281	298	41.1	31.8	48.7	75.4	62.1
(WY)	1999	1998	1999	1997	1998	1996	1997	1998	1998	1997	1995	1997
MIN	-24.0	-18.5	.000	.000	.000	11.8	-92.1	-85.7	-83.5	-34.1	-50.7	-48.2
(WY)	1996	1996	1994	1994	1994	1997	1995	1997	1996	1994	1994	1995

e Estimated

06479450 LAKE KAMPESKA (INLET/OUTLET) NEAR WATERTOWN, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1994 - 1999	
ANNUAL TOTAL	13172.21		10513.97			
ANNUAL MEAN	36.1		28.8		17.7	
HIGHEST ANNUAL MEAN					39.4	1997
LOWEST ANNUAL MEAN					-.51	1995
HIGHEST DAILY MEAN	849	Oct 18	849	Oct 18	4130	Apr 5 1997
LOWEST DAILY MEAN	-252	Apr 15	-113	Apr 22	-1410	Apr 10 1997
ANNUAL SEVEN-DAY MINIMUM	-180	Apr 14	-41	May 24	-961	Apr 8 1997
INSTANTANEOUS PEAK FLOW			849	Oct 18a	5890	Apr 6 1997
INSTANTANEOUS PEAK STAGE			20.51	Apr 13	25.78	Apr 6 1997
ANNUAL RUNOFF (AC-FT)	26130		20850		12790	
10 PERCENT EXCEEDS	80		55		73	
50 PERCENT EXCEEDS	21		25		.00	
90 PERCENT EXCEEDS	-28		-1.3		-109	

a Maximum daily mean.



06479520 BIG SIOUX RIVER BELOW WATERTOWN, SD

LOCATION.--Lat 44°50'32", long 97°02'57", in NE¼ NE¼ NE¼ 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 mi^2, of which 1,391 mi^2 usually is noncontributing (213 mi^2 of the noncontributing area contributed runoff in the 1994-99 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 sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Gage-height telemeter at station (discontinued). 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

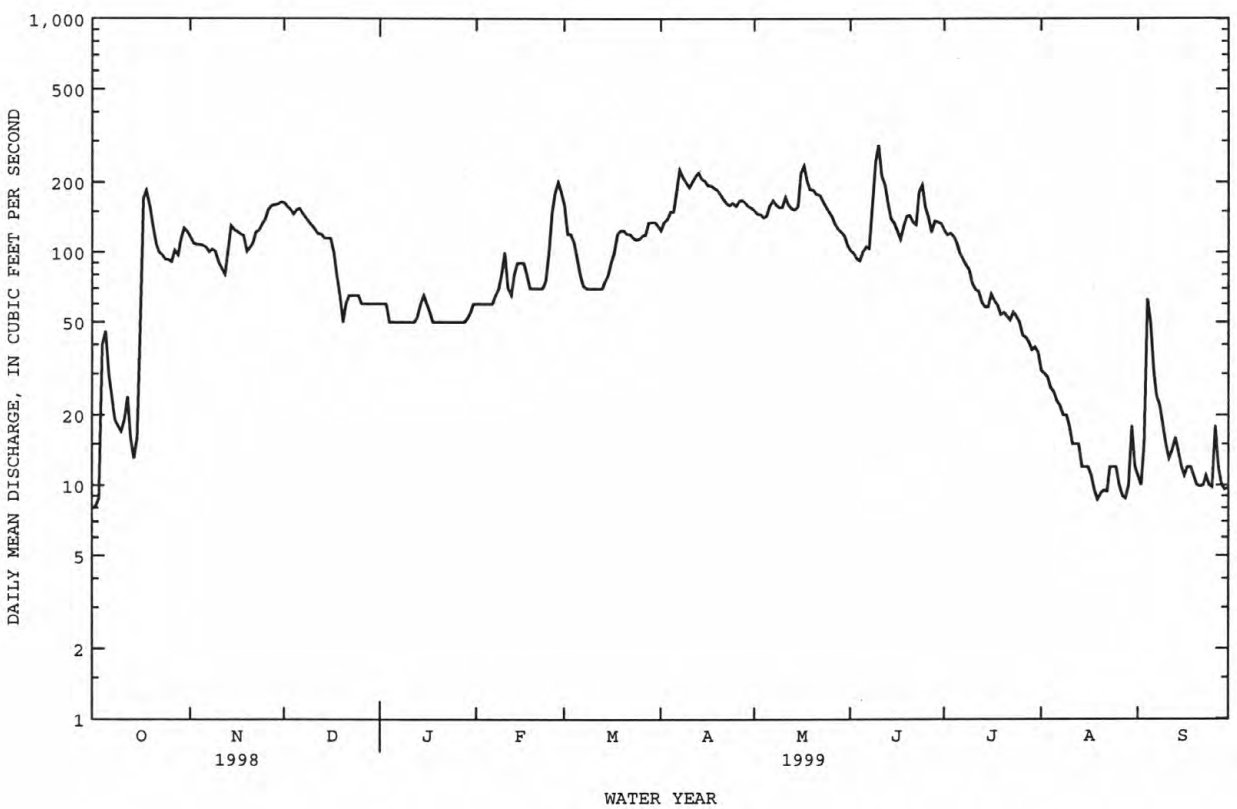
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	116	163	e60	e60	e160	124	151	102	124	31	11
2	8.2	109	157	e60	e60	e120	135	146	99	119	30	10
3	8.8	108	153	e60	e60	e120	139	146	94	121	29	15
4	40	108	146	e50	e60	e110	150	141	92	117	26	63
5	46	107	152	e50	e60	e95	150	144	101	109	25	50
6	30	105	154	e50	e60	e80	185	159	106	99	23	31
7	24	100	146	e50	e65	e72	226	167	104	93	22	24
8	19	103	e140	e50	e70	e70	210	160	168	88	20	22
9	18	101	e135	e50	e80	e70	200	156	246	84	20	18
10	17	e90	e130	e50	e100	e70	190	156	290	73	18	15
11	19	e85	e125	e50	e70	e70	201	173	212	69	15	13
12	24	e80	e120	e50	e65	e70	212	160	195	68	15	14
13	16	e100	e120	e53	e80	e70	220	154	160	61	15	16
14	13	e130	e115	e60	e90	e75	207	152	139	58	12	14
15	16	e125	e115	e65	e90	e80	203	157	133	58	12	12
16	53	e123	e115	e60	e90	e90	194	218	124	66	12	11
17	170	e120	e100	e55	e80	e100	194	236	114	62	11	12
18	184	118	e80	e50	e70	e120	189	201	130	59	9.5	12
19	157	101	e65	e50	e70	124	185	186	143	54	8.7	11
20	130	e105	e50	e50	e70	124	178	185	144	55	9.2	10
21	109	e110	e60	e50	e70	120	169	177	135	53	9.5	9.9
22	100	122	e65	e50	e70	120	162	176	131	51	9.4	10
23	97	125	e65	e50	e75	116	159	166	181	55	12	11
24	93	133	e65	e50	e100	113	163	157	195	53	12	10
25	93	140	e65	e50	e150	114	158	150	157	50	12	9.8
26	91	153	e60	e50	e180	118	166	143	140	44	10	18
27	102	159	e60	e50	e200	119	168	132	122	43	9.0	12
28	97	160	e60	e50	e180	134	163	126	136	41	8.8	10
29	114	161	e60	e52	---	135	158	122	135	38	10	9.6
30	127	165	e60	e55	---	135	155	118	133	39	18	9.7
31	123	---	e60	e60	---	130	---	107	---	37	12	---
TOTAL	2147.0	3562	3161	1640	2475	3244	5313	4922	4361	2141	486.1	494.0
MEAN	69.3	119	102	52.9	88.4	105	177	159	145	69.1	15.7	16.5
MAX	184	165	163	65	200	160	226	236	290	124	31	63
MIN	8.0	80	50	50	60	70	124	107	92	37	8.7	9.6
AC-FT	4260	7070	6270	3250	4910	6430	10540	9760	8650	4250	964	980
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 1999, BY WATER YEAR (WY)												
MEAN	117	129	81.7	47.0	105	222	816	505	268	136	87.4	64.5
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	25.9	25.0	27.5	21.6	22.9	42.8	177	159	145	69.1	15.7	12.6
(WY)	1998	1998	1998	1997	1997	1997	1999	1999	1999	1999	1999	1998

e Estimated

06479520 BIG SIOUX RIVER BELOW WATERTOWN, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1995 - 1999	
ANNUAL TOTAL	55386.0		33946.1			
ANNUAL MEAN	152		93.0		215	
HIGHEST ANNUAL MEAN					311	1997
LOWEST ANNUAL MEAN					93.0	1999
HIGHEST DAILY MEAN	800	Feb 23	290	Jun 10	4350	Apr 11 1997
LOWEST DAILY MEAN	8.0	Oct 1	8.0	Oct 1	8.0	Oct 1 1998
ANNUAL SEVEN-DAY MINIMUM	8.8	Sep 21	9.9	Aug 16	8.8	Sep 21 1998
INSTANTANEOUS PEAK FLOW			368	Jun 10a	6700	Apr 11 1997b
INSTANTANEOUS PEAK STAGE			7.91	Feb 12c	13.13	Apr 2 1997c
ANNUAL RUNOFF (AC-FT)	109900		67330		155400	
10 PERCENT EXCEEDS	374		168		502	
50 PERCENT EXCEEDS	109		91		96	
90 PERCENT EXCEEDS	19		12		22	

a Gage height, 7.21 ft.
b Gage height, 12.99 ft.
c Backwater from ice.



06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD

LOCATION.--Lat 44°43'54", long 97°02'39", in SW¼ SW¼ sec.26, T.115 N., R.52 W., Hamlin County, Hydrologic Unit 10170202, on right bank at upstream side of highway bridge on State Highway 22, 3.25 mi east of intersection of U.S. Highway 81 and State Highway 22, and 1.0 mi northwest of Castlewood.

DRAINAGE AREA.--1,997 mi^2, of which 1,427 mi^2 usually is noncontributing (213 mi^2 of the noncontributing area contributed runoff in the 1994-99 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 sea level (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for Oct. 7 to Nov. 10, July 31 to Aug. 11, Aug. 31 to Sept. 3, Sept. 5-9, 20-24, and 26-30, which are fair and those for estimated daily discharges, which are poor. National Weather Service gage-height telemeter 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	123	163	e65	e70	e180	140	161	115	155	47	17
2	12	119	159	e65	e70	e170	148	153	111	148	44	15
3	13	116	155	e65	e70	e130	150	152	106	150	41	16
4	19	116	151	e60	e60	e120	164	152	102	148	40	72
5	73	115	e140	e55	e70	e110	168	161	115	140	31	65
6	40	114	e140	e60	e75	e100	199	171	113	127	30	52
7	34	112	e140	e60	e75	e90	244	181	117	117	27	38
8	25	109	e140	e60	e80	e80	250	178	240	109	24	31
9	22	109	e135	e60	e90	e80	230	174	315	103	23	30
10	20	109	e135	e60	e100	e80	218	167	380	93	23	25
11	20	e110	e130	e60	e120	e75	219	184	259	85	21	21
12	25	e100	e125	e60	e80	e75	229	178	234	81	20	20
13	23	e110	e125	e65	e90	e75	241	167	199	77	22	23
14	17	e130	e125	e65	e85	e80	232	162	170	72	19	21
15	17	e150	e125	e65	e90	e85	221	166	154	69	16	18
16	28	e140	e115	e70	e85	e90	212	272	145	79	16	17
17	164	e130	e115	e75	e80	e100	206	304	131	69	15	16
18	185	126	e110	e70	e80	e120	205	257	130	73	14	16
19	172	115	e70	e65	e75	e130	202	221	168	66	13	15
20	153	e115	e60	e65	e75	142	196	212	167	64	13	14
21	129	e110	e70	e65	e70	138	190	203	160	66	13	15
22	116	e120	e70	e65	e70	135	180	198	152	62	14	14
23	111	131	e70	e65	e65	132	170	187	274	68	15	15
24	106	135	e70	e65	e70	128	173	177	261	62	15	13
25	104	142	e70	e60	e70	127	170	170	229	61	17	13
26	103	151	e66	e60	e90	129	173	162	191	56	15	18
27	116	158	e66	e65	e150	132	182	155	163	52	13	19
28	108	159	e66	e65	e190	140	179	147	165	54	12	14
29	115	161	e66	e65	---	146	172	141	167	50	13	14
30	130	164	e66	e70	---	146	167	130	167	67	24	14
31	129	---	e66	e70	---	148	---	123	---	60	23	---
TOTAL	2342	3799	3304	1985	2395	3613	5830	5566	5400	2683	673	691
MEAN	75.5	127	107	64.0	85.5	117	194	180	180	86.5	21.7	23.0
MAX	185	164	163	75	190	180	250	304	380	155	47	72
MIN	12	100	60	55	60	75	140	123	102	50	12	13
AC-FT	4650	7540	6550	3940	4750	7170	11560	11040	10710	5320	1330	1370

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1999, BY WATER YEAR (WY)

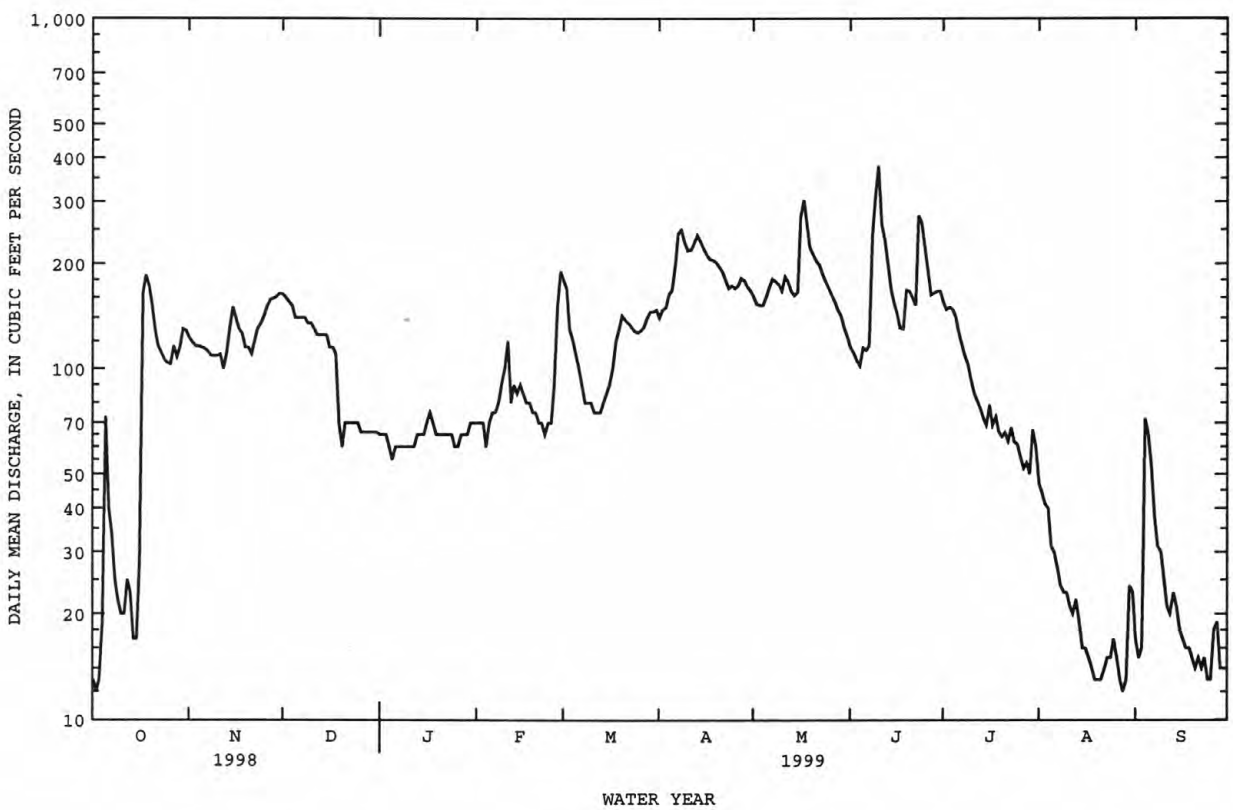
MEAN	50.2	49.4	31.5	17.9	36.0	157	380	208	144	98.6	71.8	49.1
MAX	424	414	210	96.9	204	562	2544	834	508	419	375	217
(WY)	1996	1996	1996	1996	1998	1994	1997	1995	1995	1993	1993	1995
MIN	1.06	.71	.039	.000	.000	1.54	7.60	3.28	3.11	3.17	2.33	2.94
(WY)	1977	1977	1977	1977	1977	1990	1990	1977	1988	1988	1983	1990

e Estimated

06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1977 - 1999	
ANNUAL TOTAL	58532		38281			
ANNUAL MEAN	160		105		108a	
HIGHEST ANNUAL MEAN					333	1997
LOWEST ANNUAL MEAN					8.15	1990
HIGHEST DAILY MEAN	947	Apr 8	380	Jun 10	4090	Apr 11 1997
LOWEST DAILY MEAN	10	Sep 22	12	Oct 2	.00	Dec 30 1976b
ANNUAL SEVEN-DAY MINIMUM	11	Sep 20	14	Aug 17	.00	Dec 30 1976
INSTANTANEOUS PEAK FLOW			430	Jun 10c	4300	Apr 11 1997d
INSTANTANEOUS PEAK STAGE			7.98	Nov 21f	13.19	Apr 7 1997f
ANNUAL RUNOFF (AC-FT)	116100		75930		78100	
10 PERCENT EXCEEDS	381		184		286	
50 PERCENT EXCEEDS	116		103		26	
90 PERCENT EXCEEDS	20		18		1.6	

a Median of annual mean discharges, 88 ft^3/s.
b No flow for many days in some years.
c Gage height, 7.79 ft.
d Gage height, 12.87 ft, backwater from ice.
f Backwater from ice.



06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD

LOCATION.--Lat 44°10'48", long 96°44'55", in NW¼ NW¼ 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 mi^2, of which 1,479 mi^2 usually is noncontributing (213 mi^2 of the noncontributing area contributed runoff in the 1994-99 water years).

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 sea level. Prior to May 30, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. National Weather Service gage-height telemeter 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

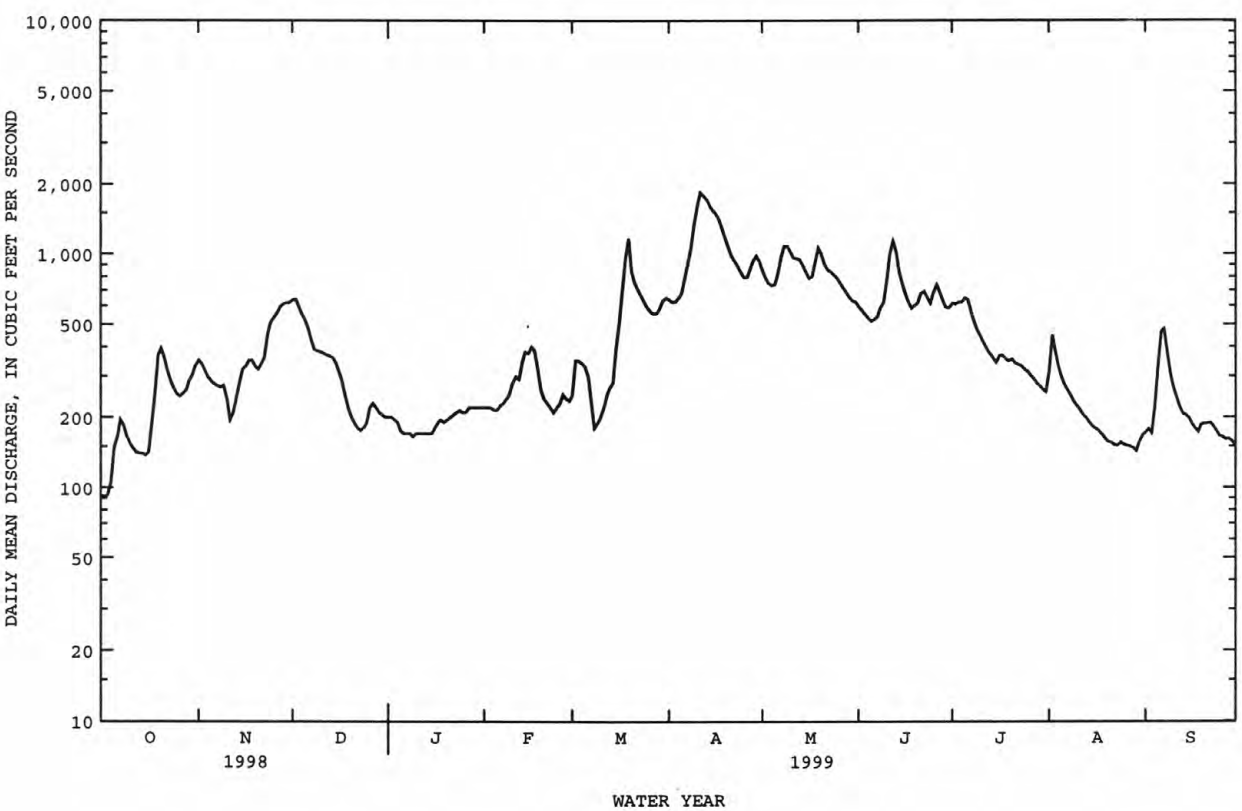
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	350	636	e200	e220	e250	640	854	595	617	316	172
2	91	337	641	e200	e220	e350	622	790	572	610	450	178
3	93	315	595	e195	e220	e350	626	750	553	621	384	171
4	105	296	551	e190	e215	e340	652	733	533	622	330	224
5	149	285	524	e175	e215	e330	684	740	516	649	297	335
6	165	278	e480	e170	e225	e300	795	824	526	638	276	465
7	195	273	e430	e170	e230	e240	912	964	538	566	260	478
8	185	269	e390	e170	e240	e180	1060	1080	591	514	246	377
9	166	274	e385	e165	e250	e190	1350	1080	624	472	232	306
10	155	238	e380	e170	e280	e200	1610	1020	763	443	223	268
11	147	e195	e375	e170	e300	e220	1840	964	999	415	214	244
12	141	e210	e370	e170	e290	e250	1780	957	1140	392	205	222
13	140	e240	e365	e170	e340	e270	1720	950	1020	373	198	207
14	140	e280	e360	e170	e380	e280	1610	895	838	358	189	205
15	137	e320	e340	e170	e375	e400	1540	835	744	342	182	198
16	141	e330	e315	e180	e400	e500	1480	789	676	366	179	187
17	193	e350	e285	e190	e385	690	1400	802	623	369	174	179
18	248	e350	e250	e195	e320	958	1290	933	585	356	168	173
19	369	e330	e220	e190	e260	1170	1170	1060	603	348	162	186
20	393	e320	e200	e195	e240	847	1070	995	615	354	157	188
21	360	e340	e190	e200	e230	748	979	901	680	343	156	188
22	319	e360	e180	e205	e220	701	930	855	693	336	152	189
23	287	e450	e175	e210	e210	663	882	841	653	332	151	183
24	266	513	e180	e215	e220	623	835	814	614	322	156	174
25	253	537	e190	e210	e230	588	794	791	679	314	153	166
26	245	556	e220	e210	e250	565	796	752	737	302	151	165
27	253	594	e230	e220	e240	554	862	717	686	292	150	161
28	262	610	e220	e220	e235	558	944	686	630	279	148	162
29	288	618	e210	e220	---	588	985	653	590	271	143	158
30	304	615	e205	e220	---	635	929	631	588	263	158	152
31	333	---	e200	e220	---	650	---	623	---	256	168	---
TOTAL	6615	11033	10292	5955	7440	15188	32787	26279	20204	12735	6528	6661
MEAN	213	368	332	192	266	490	1093	848	673	411	211	222
MAX	393	618	641	220	400	1170	1840	1080	1140	649	450	478
MIN	91	195	175	165	210	180	622	623	516	256	143	152
AC-FT	13120	21880	20410	11810	14760	30130	65030	52120	40070	25260	12950	13210
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1999, BY WATER YEAR (WY)												
MEAN	147	122	72.6	38.6	72.4	522	928	532	590	346	204	160
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	.039	.094	.088	.000	.000	1.45	27.3	21.4	13.5	.94	.015	.011
(WY)	1977	1977	1977	1977	1956	1975	1959	1959	1976	1976	1976	1976

e Estimated

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1954 - 1999	
ANNUAL TOTAL	174329		161717			
ANNUAL MEAN	478		443		312a	
HIGHEST ANNUAL MEAN					1174	1993
LOWEST ANNUAL MEAN					15.5	1959
HIGHEST DAILY MEAN	2160	Apr 11	1840	Apr 11	31200	Apr 9 1969
LOWEST DAILY MEAN	91	Oct 2	91	Oct 2	.00	Jan 18 1956b
ANNUAL SEVEN-DAY MINIMUM	93	Sep 27	127	Oct 1	.00	Jan 18 1956
INSTANTANEOUS PEAK FLOW			1870	Apr 11	33900	Apr 9 1969
INSTANTANEOUS PEAK STAGE			7.96	Apr 11	14.77	Apr 9 1969
ANNUAL RUNOFF (AC-FT)	345800		320800		225700	
10 PERCENT EXCEEDS	1100		887		824	
50 PERCENT EXCEEDS	329		322		67	
90 PERCENT EXCEEDS	140		170		4.5	

a Median of annual mean discharges, 180 ft^3/s.
b No flow at times in 1956, 1976, 1977, 1982.



06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD

LOCATION.--Lat 43°47'25", long 96°44'42", in NW¼ NW¼ 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 mi^2, of which 1,479 mi^2 usually is noncontributing (213 mi^2 of the noncontributing area contributed runoff in the 1994-99 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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	427	880	e220	e230	e530	782	1340	703	757	336	198
2	109	433	872	e220	e230	e590	776	1210	684	776	330	219
3	117	425	842	e215	e230	e640	777	1110	660	803	412	224
4	149	406	784	e215	e230	e710	785	1030	634	876	476	243
5	210	386	730	e215	e240	e750	814	998	609	869	423	238
6	217	369	696	e210	e240	e730	983	1100	589	863	385	298
7	229	358	668	e210	e270	e600	1310	1270	568	844	360	405
8	239	353	641	e210	e280	e400	1430	1370	672	757	339	495
9	248	359	593	e205	e300	e450	2020	1450	811	668	320	472
10	231	e400	536	e205	e400	e460	2370	1440	786	617	304	405
11	212	e300	574	e205	e550	e480	2590	1450	886	577	287	359
12	195	e250	565	e205	e500	e500	2470	1530	1220	544	270	320
13	183	e250	556	e200	e450	e510	2340	1450	1320	511	254	285
14	178	e300	547	e200	e440	e520	2310	1360	1270	481	250	263
15	174	364	558	e200	e500	e550	2410	1250	1110	458	242	247
16	183	473	534	e210	e550	704	2290	1160	970	452	225	241
17	218	540	509	e210	e540	1340	2100	1090	876	442	216	228
18	251	588	490	e210	e530	1450	1940	1040	815	479	207	217
19	296	629	e400	e210	e520	1470	1810	1070	814	519	207	210
20	367	e630	e300	e220	e480	1480	1680	1200	829	584	196	201
21	435	e640	e250	e220	e460	1300	1560	1240	821	629	202	210
22	436	e650	e220	e220	e440	1050	1480	1150	835	586	200	216
23	407	715	e240	e220	e430	931	1410	1060	856	526	184	216
24	374	765	e270	e220	e400	858	1320	1030	819	490	175	215
25	344	796	e380	e210	e380	797	1220	984	787	462	172	208
26	326	849	e370	e220	e440	754	1170	945	792	425	176	200
27	328	844	e330	e220	e460	716	1290	892	832	402	170	185
28	344	843	e280	e220	e480	707	1420	839	852	387	163	180
29	383	847	e250	e230	---	714	1460	784	876	372	161	174
30	403	878	e230	e230	---	725	1430	734	785	359	181	168
31	421	---	e225	e230	---	750	---	698	---	347	207	---
TOTAL	8316	16067	15320	6635	11200	24166	47747	35274	25081	17862	8030	7740
MEAN	268	536	494	214	400	780	1592	1138	836	576	259	258
MAX	436	878	880	230	550	1480	2590	1530	1320	876	476	495
MIN	109	250	220	200	230	400	776	698	568	347	161	168
AC-FT	16490	31870	30390	13160	22220	47930	94710	69970	49750	35430	15930	15350

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1999, BY WATER YEAR (WY)

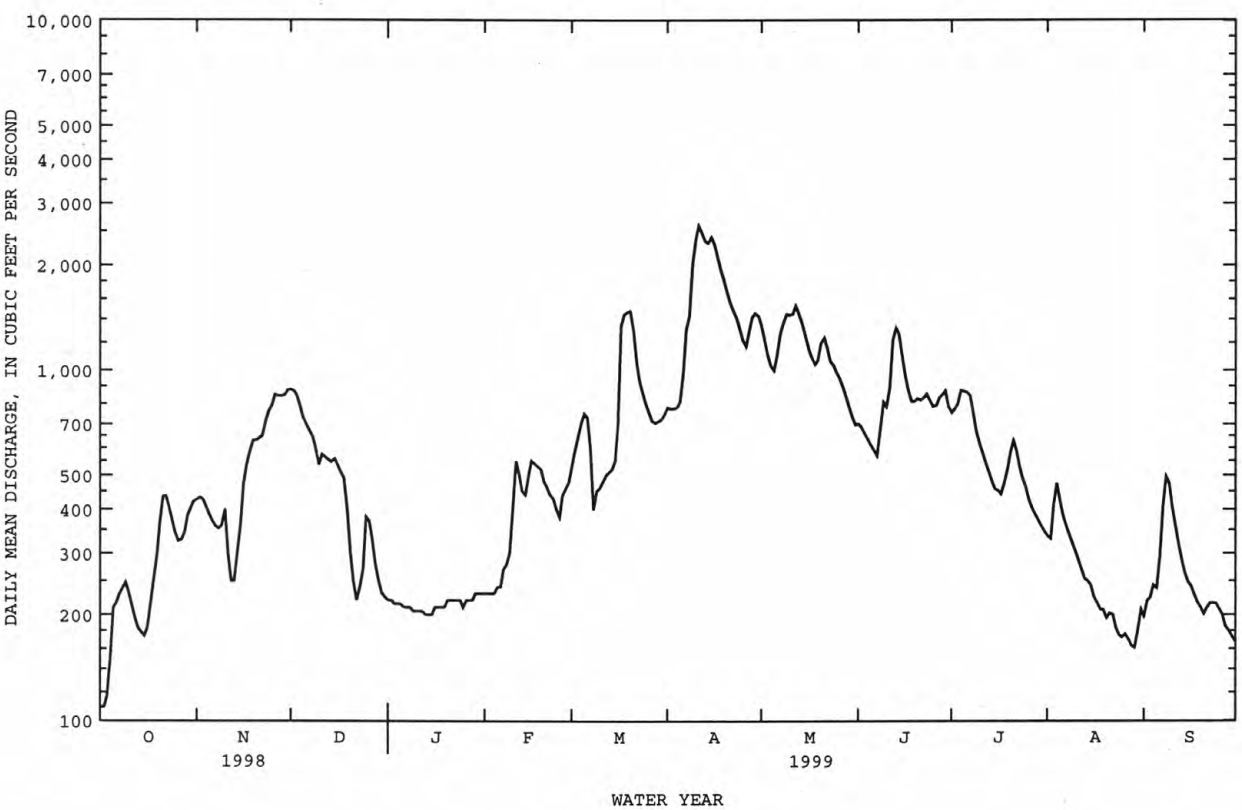
MEAN	184	162	101	50.1	97.9	721	1430	709	742	485	271	211
MAX	1736	1365	665	294	586	2813	8439	3699	5392	5362	1914	2541
(WY)	1996	1996	1996	1996	1998	1985	1997	1986	1984	1993	1993	1986
MIN	1.60	3.43	2.30	.71	1.30	10.6	45.3	42.6	19.4	2.77	.17	.000
(WY)	1977	1977	1977	1977	1977	1975	1959	1981	1976	1976	1976	1976

e Estimated

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1949 - 1999	
ANNUAL TOTAL	215176		223438			
ANNUAL MEAN	590		612		431a	
HIGHEST ANNUAL MEAN					1654	1993
LOWEST ANNUAL MEAN					23.1	1959
HIGHEST DAILY MEAN	2350	Apr 9	2590	Apr 11	35000	Apr 10 1969
LOWEST DAILY MEAN	109	Oct 1	109	Oct 1	.00	Aug 25 1976b
ANNUAL SEVEN-DAY MINIMUM	118	Sep 19	163	Oct 1	.00	Aug 25 1976
INSTANTANEOUS PEAK FLOW			2680	Apr 11	41300	Apr 9 1969
INSTANTANEOUS PEAK STAGE			9.97	Apr 11	16.47	Apr 9 1969
ANNUAL RUNOFF (AC-FT)	426800		443200		312000	
10 PERCENT EXCEEDS	1280		1280		1070	
50 PERCENT EXCEEDS	439		476		100	
90 PERCENT EXCEEDS	151		207		11	

a Median of annual mean discharges, 260 ft^3/s.
b Also Aug. 26 to Oct. 17, 1976.



06481500 SKUNK CREEK AT SIOUX FALLS, SD

LOCATION.--Lat 43°32'01", long 96°47'26", in NW¼ NW¼ SW¼ 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 mi^2, of which 8.51 mi^2 is probably noncontributing.

PERIOD OF RECORD.--May 1948 to current year. 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 sea level (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.--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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	270	351	e70	e130	281	248	490	290	140	61	24
2	14	258	331	e70	e150	290	241	459	320	166	55	33
3	22	241	317	e60	e160	e210	245	437	261	204	50	32
4	73	216	302	e50	e150	e200	243	463	220	220	46	37
5	148	196	291	e55	e150	199	267	701	196	256	43	36
6	249	180	284	e58	e180	171	523	1300	169	228	41	66
7	218	170	268	e60	e225	154	707	912	157	200	38	62
8	166	168	250	e55	e270	123	651	780	188	170	34	61
9	145	198	240	e50	352	e120	1380	687	229	132	32	60
10	132	224	223	e60	405	e150	1270	624	268	105	30	52
11	101	83	207	e65	310	e170	1400	702	250	89	28	40
12	86	86	206	e70	e230	e150	1120	666	237	77	26	32
13	77	145	199	e60	319	e145	939	579	206	67	24	26
14	70	256	192	e70	241	146	890	519	163	62	23	25
15	64	419	191	e75	221	159	1030	476	147	56	24	17
16	74	601	187	e80	207	313	1000	438	141	69	22	19
17	114	658	180	e90	203	859	938	404	137	60	21	21
18	351	643	172	e80	149	692	854	376	129	72	19	14
19	306	575	124	e80	158	446	773	340	141	173	17	13
20	251	573	87	e80	e200	379	709	454	176	233	16	12
21	242	505	e80	e80	146	341	670	482	187	267	15	12
22	239	494	e70	e83	e170	302	684	347	168	267	16	11
23	221	533	e70	e82	e160	278	646	346	153	282	16	e12
24	192	532	e70	e78	e80	262	586	314	131	269	16	12
25	158	493	e90	e70	124	247	543	282	112	231	15	11
26	143	457	e100	e80	155	236	558	252	98	177	15	11
27	176	423	e100	e115	256	230	638	228	95	126	15	16
28	201	392	e90	e110	308	239	635	211	93	101	13	17
29	285	385	e80	e105	---	263	570	194	102	85	13	13
30	344	374	e70	e100	---	257	521	188	140	76	20	11
31	307	---	e70	e115	---	248	---	238	---	68	21	---
TOTAL	5182	10748	5492	2356	5809	8260	21479	14889	5304	4728	825	808
MEAN	167	358	177	76.0	207	266	716	480	177	153	26.6	26.9
MAX	351	658	351	115	405	859	1400	1300	320	282	61	66
MIN	13	83	70	50	80	120	241	188	93	56	13	11
AC-FT	10280	21320	10890	4670	11520	16380	42600	29530	10520	9380	1640	1600

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1999, BY WATER YEAR (WY)

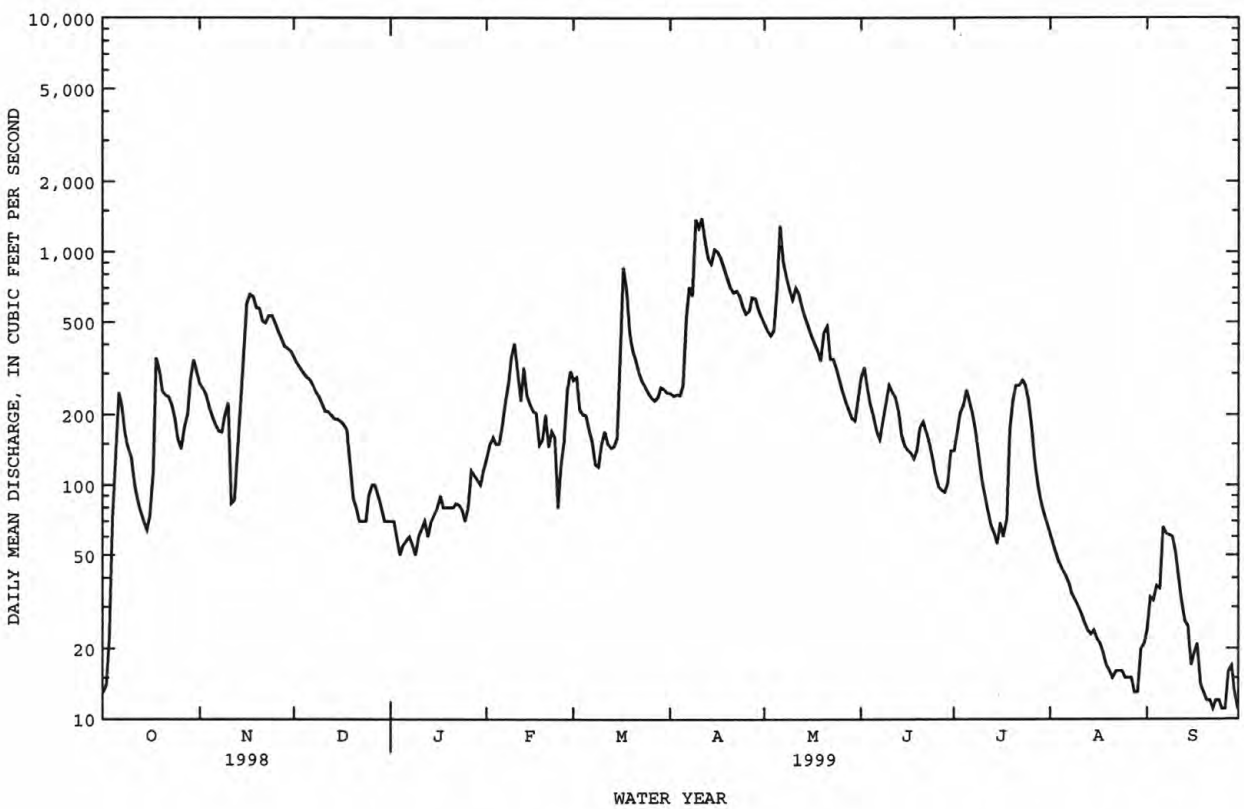
MEAN	32.9	33.5	17.4	8.30	36.0	205	274	147	150	120	46.1	39.3
MAX	405	358	177	76.0	321	869	1530	967	1903	2915	655	798
(WY)	1987	1999	1999	1999	1983	1983	1984	1995	1984	1993	1993	1986
MIN	.14	.29	.10	.048	.037	1.20	1.35	.82	.50	.16	.11	.070
(WY)	1959	1965	1965	1977	1977	1968	1959	1981	1977	1977	1976	1958

e Estimated

06481500 SKUNK CREEK AT SIOUX FALLS, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1949 - 1999	
ANNUAL TOTAL	50104.6		85880			
ANNUAL MEAN	137		235		92.5a	
HIGHEST ANNUAL MEAN					625	1993
LOWEST ANNUAL MEAN					1.55	1981
HIGHEST DAILY MEAN	781	Apr 8	1400	Apr 11	11500	Jun 17 1957
LOWEST DAILY MEAN	8.5	Sep 16	11	Sep 22	.00	Jan 26 1951b
ANNUAL SEVEN-DAY MINIMUM	9.4	Jan 23	12	Sep 20	.00	Jan 26 1951
INSTANTANEOUS PEAK FLOW			1750	May 6	29400	Jun 17 1957c
INSTANTANEOUS PEAK STAGE			4.51	May 6	17.78	Jun 17 1957
ANNUAL RUNOFF (AC-FT)	99380		170300		66990	
10 PERCENT EXCEEDS	350		571		204	
50 PERCENT EXCEEDS	76		170		9.3	
90 PERCENT EXCEEDS	11		24		.60	

a Median of annual mean discharges, 41 ft^3/s.
b No flow at times in some years.
c Site and datum then in use, from rating curve extended above 8,100 ft^3/s on basis of slope-area measurement of peak flow.



06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD

LOCATION.--Lat 43°34'01", long 96°42'39", in SW¼ NW¼ 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 mi^2, of which 1,487 mi^2 usually is noncontributing (213 mi^2 of the noncontributing area contributed runoff in the 1994-99 water years).

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 sea level (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 Aug. 1-19, which are fair, and 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 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	745	1370	e375	297	735	1050	1840	1140	960	454	242
2	144	732	1340	e365	290	825	1040	1710	1080	1060	420	273
3	199	723	1300	e300	292	803	1050	1600	1010	1090	438	279
4	542	683	1240	e275	291	920	1030	1540	950	1090	555	347
5	461	646	1180	e300	302	965	1170	1640	910	1150	560	304
6	425	e620	1120	e290	317	953	1460	2430	860	1130	496	342
7	465	601	1070	e290	338	861	1860	2220	815	1090	469	466
8	406	583	1020	e280	444	507	2150	2100	873	1030	436	574
9	343	677	983	e270	570	410	3200	2090	1100	929	379	622
10	358	788	895	e270	706	571	4030	2070	1080	864	364	565
11	318	336	808	e280	767	701	4220	2200	1070	795	336	493
12	291	357	839	e280	689	719	3970	2180	1250	700	331	427
13	268	464	891	e290	647	721	3520	2080	1400	682	309	365
14	253	620	873	e300	600	768	3430	1910	1360	670	287	341
15	246	788	882	316	599	797	3520	1760	1290	613	287	310
16	298	1040	864	305	e590	870	3580	1670	1150	729	261	281
17	523	1250	842	303	e590	1770	3260	1530	1060	605	235	254
18	523	1330	828	297	e590	2120	2990	1440	999	649	235	263
19	604	1330	539	293	e590	1810	2750	1380	1000	989	221	270
20	600	e1290	368	295	574	1740	2550	1730	1020	985	210	249
21	667	1250	297	294	546	1670	2370	1800	1030	963	262	234
22	695	1280	e400	298	490	1430	2260	1590	1030	952	255	242
23	683	1340	e475	298	489	1300	2170	1460	1030	1130	236	245
24	636	1410	535	292	483	1200	1990	1380	983	882	222	238
25	574	1420	599	e280	488	1120	1800	1300	959	833	215	232
26	536	1430	622	284	538	1040	1830	1240	937	738	225	225
27	718	1430	567	296	639	1000	1910	1180	1010	645	201	219
28	655	1380	524	299	659	1030	1970	1120	1020	613	202	215
29	742	1370	e475	303	---	992	1970	1050	1030	564	232	205
30	772	1370	e425	303	---	996	1940	1080	1020	517	333	202
31	768	---	e400	302	---	1030	---	977	---	484	237	---
TOTAL	14851	29283	24571	9223	14415	32374	72040	51297	31466	26131	9903	9524
MEAN	479	976	793	298	515	1044	2401	1655	1049	843	319	317
MAX	772	1430	1370	375	767	2120	4220	2430	1400	1150	560	622
MIN	138	336	297	270	290	410	1030	977	815	484	201	202
AC-FT	29460	58080	48740	18290	28590	64210	142900	101700	62410	51830	19640	18890

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1999, BY WATER YEAR (WY)

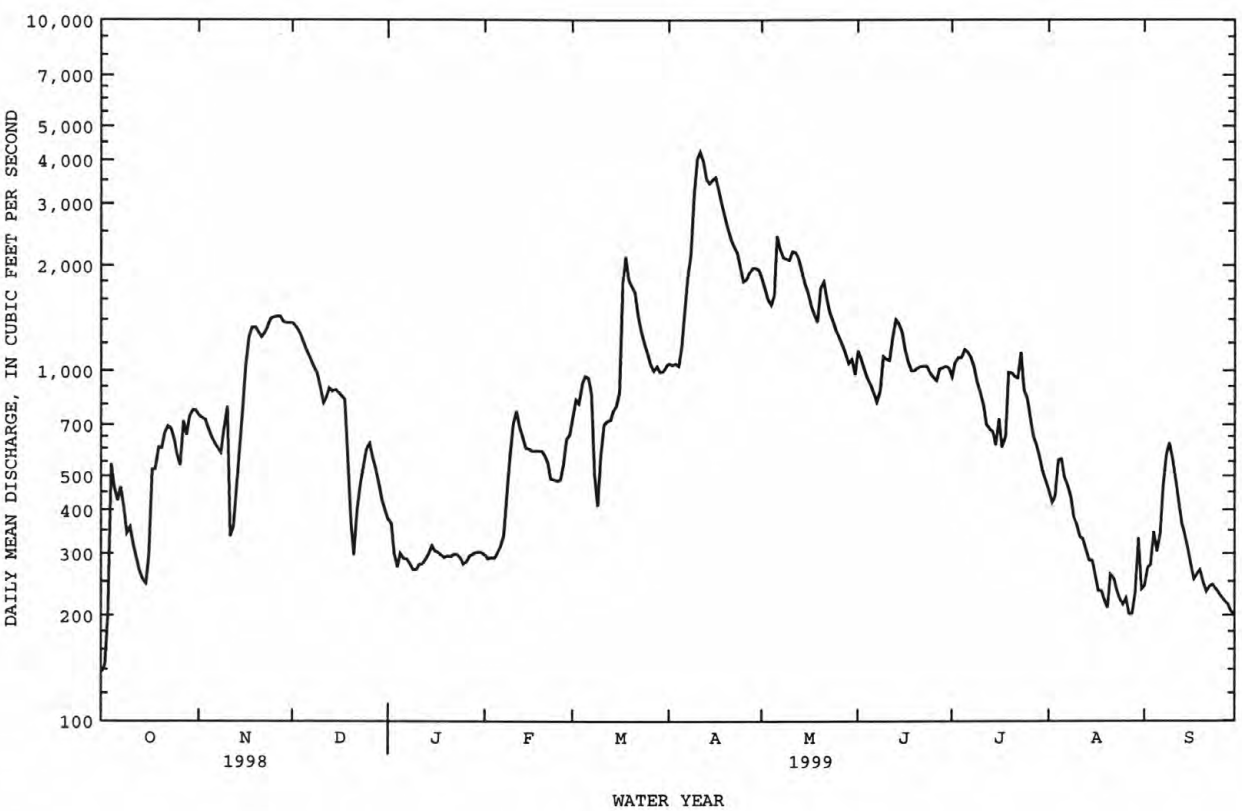
MEAN	349	325	209	108	197	1202	1992	1233	1217	914	469	405
MAX	1869	1528	793	437	798	3479	9974	4516	6880	8612	2528	3468
(WY)	1996	1996	1999	1996	1983	1985	1997	1986	1984	1993	1993	1986
MIN	15.9	17.4	15.0	6.26	10.2	31.7	40.8	54.4	31.6	19.4	20.3	16.7
(WY)	1989	1977	1990	1982	1989	1975	1990	1977	1976	1976	1976	1976

e Estimated

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1972 - 1999	
ANNUAL TOTAL	280300		325078			
ANNUAL MEAN	768		891		719a	
HIGHEST ANNUAL MEAN					2312	1993
LOWEST ANNUAL MEAN					50.4	1981
HIGHEST DAILY MEAN	3050	Apr 9	4220	Apr 11	20700	Jun 22 1984
LOWEST DAILY MEAN	124	Sep 22	138	Oct 1	.81	Feb 13 1982
ANNUAL SEVEN-DAY MINIMUM	137	Sep 20	219	Aug 23	1.3	Feb 8 1982
INSTANTANEOUS PEAK FLOW			4340	Apr 11	21600	Jun 22 1984
INSTANTANEOUS PEAK STAGE			13.79	Apr 11	25.40	Jun 22 1984
ANNUAL RUNOFF (AC-FT)	556000		644800		521100	
10 PERCENT EXCEEDS	1590		1800		1900	
50 PERCENT EXCEEDS	620		701		219	
90 PERCENT EXCEEDS	184		270		24	

a Median of annual mean discharges, 570 ft^3/s.



06483500 ROCK RIVER NEAR ROCK VALLEY, IA

LOCATION.--Lat 43°12'52", long 96°17'39", in SW¼ SW¼ sec.16, T.97 N., R.46 W., Sioux County, Hydrologic Unit 10170204, on left bank 3 ft upstream from bridge on county highway K30, 0.3 mi north of Rock Valley, and at mile 19.1.

DRAINAGE AREA.--1,592 mi^2.

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 sea level. 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. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	746	1060	e270	e420	547	654	1550	957	960	313	96
2	96	650	1000	e340	e460	608	638	1390	1120	964	292	99
3	105	588	944	e320	e500	553	624	1300	1220	997	275	100
4	148	538	902	e250	e600	503	617	1250	1180	1000	261	115
5	229	500	864	e230	e550	530	640	1240	1100	1070	247	129
6	271	471	825	e200	e600	484	958	1210	1100	982	227	112
7	290	448	786	e213	e700	425	1560	1210	1040	855	216	105
8	271	436	740	e210	e750	303	1720	1270	964	762	203	100
9	238	448	711	e180	e1200	e270	2270	1280	908	682	191	95
10	204	e600	684	e195	e1600	362	4430	1250	1270	612	180	90
11	187	e800	651	e200	e2500	474	4330	1210	1390	560	168	88
12	173	1060	643	e200	e3100	454	3940	1160	1720	519	165	88
13	164	1670	640	e180	2840	429	3280	1110	1600	481	153	84
14	162	1980	631	e190	2230	423	2730	1050	1390	449	146	82
15	157	2030	619	e180	1940	432	2590	1020	1260	438	143	81
16	160	2150	607	e210	1450	507	2350	1010	1220	404	137	80
17	202	2310	592	e250	1030	1160	2090	1010	1160	383	137	76
18	313	2320	592	e225	694	1950	1820	989	1080	381	131	75
19	417	2550	e360	e210	563	1420	1640	931	1070	466	121	74
20	425	2540	e280	e220	508	992	1490	917	1110	732	117	73
21	370	2010	e380	e250	468	854	1370	1080	1150	864	111	73
22	334	1690	e360	e240	425	770	1310	1740	1110	848	110	73
23	310	1560	e340	e250	e320	715	1250	1470	1060	839	113	75
24	291	1530	e300	e300	443	669	1180	1290	973	825	107	71
25	277	1510	e300	e270	442	625	1090	1180	894	673	104	70
26	270	1390	e320	e250	472	596	1110	1080	828	559	102	68
27	329	1310	e340	e340	488	583	1310	1010	825	487	97	69
28	401	1200	e400	e320	513	601	1830	929	922	440	92	69
29	628	1140	e360	e340	---	639	2120	874	1010	404	88	70
30	851	1100	e340	e360	---	675	1800	839	977	372	95	70
31	870	---	e320	e380	---	665	---	915	---	345	96	---
TOTAL	9235	39275	17891	7773	27806	20218	54741	35764	33608	20353	4938	2550
MEAN	298	1309	577	251	993	652	1825	1154	1120	657	159	85.0
MAX	870	2550	1060	380	3100	1950	4430	1740	1720	1070	313	129
MIN	92	436	280	180	320	270	617	839	825	345	88	68
AC-FT	18320	77900	35490	15420	55150	40100	108600	70940	66660	40370	9790	5060
CFSM	.19	.82	.36	.16	.62	.41	1.15	.72	.70	.41	.10	.05
IN.	.22	.92	.42	.18	.65	.47	1.28	.84	.79	.48	.12	.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1999, BY WATER YEAR (WY)

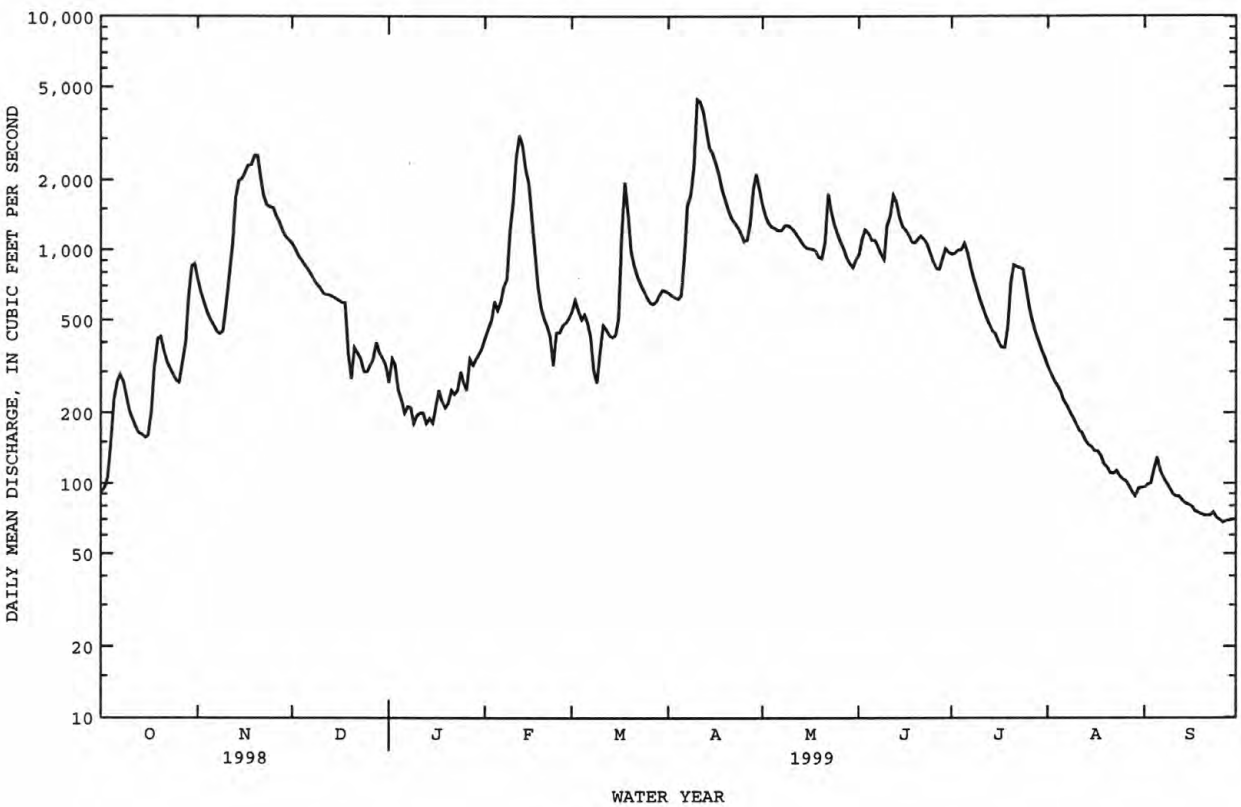
MEAN	240	268	147	82.2	228	1042	1296	697	953	610	271	240
MAX	1232	2039	676	434	1059	4646	6507	3728	6495	9088	2251	2135
(WY)	1993	1980	1983	1996	1966	1997	1969	1993	1993	1993	1993	1986
MIN	2.39	9.70	3.22	.037	.30	35.1	35.9	44.4	46.3	21.9	6.79	3.26
(WY)	1959	1959	1959	1977	1959	1959	1959	1968	1964	1976	1976	1955

e Estimated

06483500 ROCK RIVER NEAR ROCK VALLEY, IA--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1949 - 1999	
ANNUAL TOTAL	188989		274152			
ANNUAL MEAN	518		751		506	
HIGHEST ANNUAL MEAN					2656	1993
LOWEST ANNUAL MEAN					31.0	1968
HIGHEST DAILY MEAN	2550	Nov 19	4430	Apr 10	35400	Apr 7 1969
LOWEST DAILY MEAN	50	Jan 13	68	Sep 26	.00	Feb 20 1959b
ANNUAL SEVEN-DAY MINIMUM	59	Jan 12	70	Sep 24	.00	Feb 27 1959
INSTANTANEOUS PEAK FLOW			5000	Apr 10	40400	Apr 7 1969
INSTANTANEOUS PEAK STAGE			10.10	Apr 10	17.32	Apr 7 1969
INSTANTANEOUS LOW FLOW			67	Sep 25a		
ANNUAL RUNOFF (AC-FT)	374900		543800		366700	
ANNUAL RUNOFF (CFSM)	.33		.47		.32	
ANNUAL RUNOFF (INCHES)	4.42		6.41		4.32	
10 PERCENT EXCEEDS	1290		1560		1150	
50 PERCENT EXCEEDS	340		563		135	
90 PERCENT EXCEEDS	95		105		16	

a Also Sept. 26-30.
b Many days during winter periods in 1959 and 1977.



06485500 BIG SIOUX RIVER AT AKRON, IA

LOCATION.--Lat 42°50'14", long 96°33'41", in SW¼ SE¼ SW¼ 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 mi^2, of which 1,487 mi^2 usually is noncontributing (213 mi^2 of the noncontributing area contributed runoff in the 1994-99 water years).

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 sea level. 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

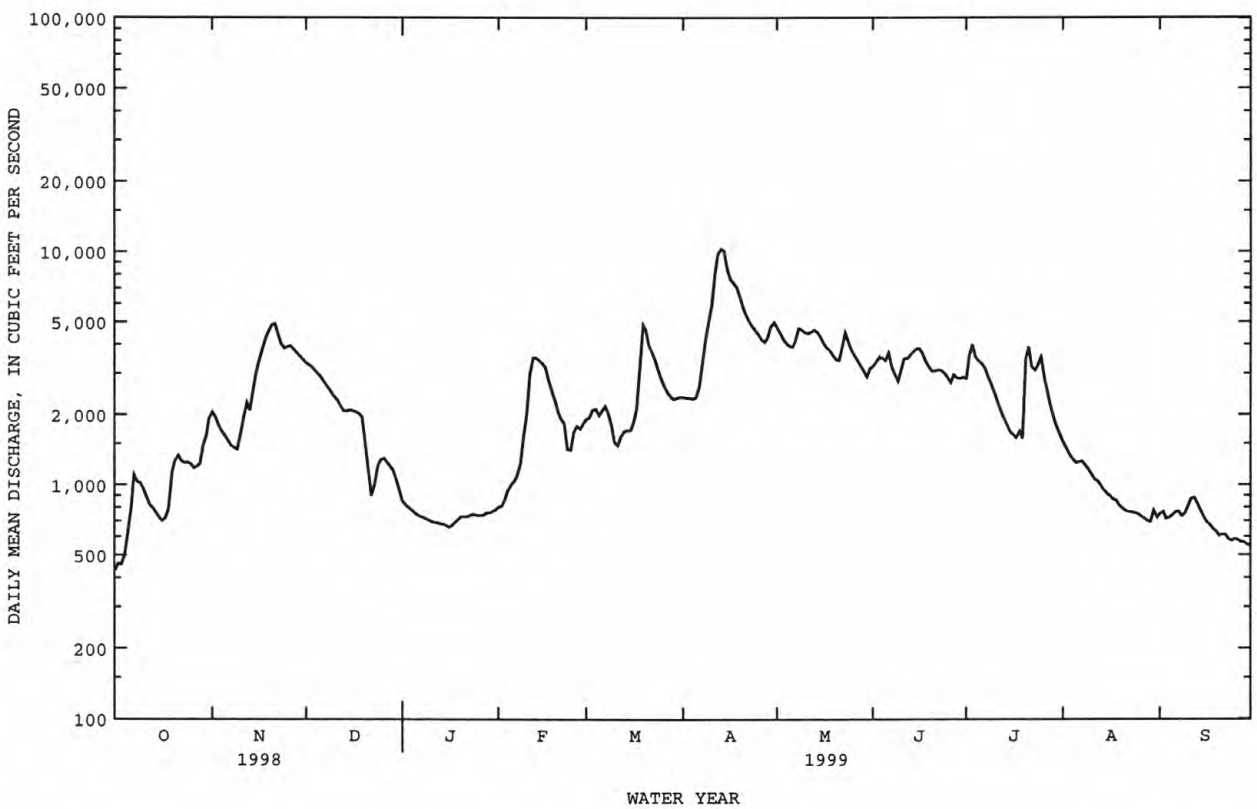
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	429	2050	3320	e850	e800	1910	2370	4730	3230	2850	1520	751
2	461	1940	3260	e820	e810	1950	2360	4470	3380	3560	1430	769
3	455	1790	3180	e800	e870	2090	2350	4220	3500	3990	1350	718
4	497	1690	3070	e780	e950	2110	2340	4040	3500	3510	1290	724
5	627	1620	2970	e760	e1000	1990	2370	3930	3410	3390	1240	742
6	791	1540	2850	e740	e1040	e2090	2620	3900	3680	3300	1250	763
7	1100	1470	2720	e730	e1100	e2170	3210	4160	3220	3160	1260	769
8	1030	1440	2600	e720	e1230	e2020	4150	4700	2970	2910	1210	733
9	1020	1420	2490	e710	e1600	e1780	5000	4620	2770	2700	1160	754
10	959	1670	2380	e700	e2000	e1520	5930	4500	3080	2480	1110	808
11	883	1950	2300	e690	e3000	e1470	7910	4460	3480	2260	1060	871
12	820	2250	2180	e690	e3500	1620	9790	4540	3470	2080	1040	884
13	797	2080	2070	e680	e3500	1700	10300	4620	3620	1930	995	824
14	756	2550	2060	e680	e3400	1710	10100	4520	3710	1800	950	775
15	723	3060	2090	e670	e3300	1710	8430	4290	3830	1690	917	727
16	700	3420	2070	e660	3180	1840	7600	4060	3830	1640	897	695
17	721	3830	2050	e670	2790	e2120	7310	3880	3630	1590	866	675
18	785	4260	2020	e690	2510	3220	7060	3770	3350	1700	854	647
19	1130	4600	1950	e710	2280	4860	6430	3600	3180	1580	816	630
20	1270	4870	e1500	e730	2050	4640	5830	3450	3070	3450	792	606
21	1340	4910	e1200	e730	1900	3950	5370	3420	3080	3920	775	611
22	1270	4450	e900	e730	1830	3680	5020	3920	3110	3200	764	609
23	1240	4020	e1000	e740	1420	3420	4770	4500	3090	3100	762	584
24	1250	3850	e1200	e750	1410	3090	4590	4120	3000	3270	757	576
25	1230	3900	e1280	e740	1700	2820	4410	3800	2890	3530	748	584
26	1180	3950	e1300	e740	1790	2620	4200	3580	2740	2870	732	582
27	1200	3810	e1250	e740	1740	2470	4100	3400	2960	2460	716	568
28	1230	3670	e1200	e760	1840	2380	4310	3240	2870	2170	701	568
29	1460	3560	e1150	e760	---	2330	4770	3080	2850	1930	695	555
30	1610	3440	e1050	e770	---	2360	4980	2900	2890	1770	775	548
31	1920	---	e950	e780	---	2380	---	3160	---	1640	724	---
TOTAL	30884	89060	61610	22720	54540	76020	159980	123580	97390	81430	30156	20650
MEAN	996	2969	1987	733	1948	2452	5333	3986	3246	2627	973	688
MAX	1920	4910	3320	850	3500	4860	10300	4730	3830	3990	1520	884
MIN	429	1420	900	660	800	1470	2340	2900	2740	1580	695	548
AC-FT	61260	176700	122200	45070	108200	150800	317300	245100	193200	161500	59810	40960
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1999, BY WATER YEAR (WY)												
MEAN	536	528	353	209	518	2419	3294	1793	2157	1490	763	680
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

e Estimated

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1929 - 1999	
ANNUAL TOTAL	635448		848020			
ANNUAL MEAN	1741		2323		1229a	
HIGHEST ANNUAL MEAN					6271	1993
LOWEST ANNUAL MEAN					120	1931
HIGHEST DAILY MEAN	6850	Apr 10	10300	Apr 13	77500	Apr 9 1969
LOWEST DAILY MEAN	300	Feb 5	429	Oct 1	4.0	Jan 17 1977
ANNUAL SEVEN-DAY MINIMUM	311	Feb 1	569	Sep 24	4.4	Jan 15 1977
INSTANTANEOUS PEAK FLOW			10400	Apr 13	80800	Apr 9 1969b
INSTANTANEOUS PEAK STAGE			17.90	Apr 13	23.05	May 10 1993c
ANNUAL RUNOFF (AC-FT)	1260000		1682000		890300	
10 PERCENT EXCEEDS	3820		4300		2920	
50 PERCENT EXCEEDS	1410		1950		390	
90 PERCENT EXCEEDS	430		719		70	

a Median of annual mean discharges, 820 ft^3/s.
b Gage height, 22.99 ft.
c From floodmark; discharge, 66,700 ft^3/s.



MISSOURI RIVER MAIN STEM

06486000 MISSOURI RIVER AT SIOUX CITY, IA

LOCATION.--Lat. 42°29'09", long 96°24'49", in NW¼ SE¼ 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, NE, 1.9 mi downstream from Big Sioux River, and at mile 732.2.

DRAINAGE.--314,600 mi^2, approximately. The 3,959 mi^2 in Great Divide basin are not included.

WATER-DISCHARGE RECORDS

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 sea level. 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. 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. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water quality data. U.S. Army Corps of Engineers rain gage and satellite data collection platform at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft^3/s, Apr. 14, 1952, gage height, 24.28 ft, datum then in use; minimum, 2,500 ft^3/s, Dec. 29, 1941; minimum gage height, 7.02 ft, Jan. 19, 1996.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33000	40000	46000	25000	26700	30100	36000	34300	48100	39200	44700	48300
2	32700	40400	45800	24400	28400	30200	36100	35700	48000	43300	44400	48200
3	33000	40400	45800	23700	29400	31200	35800	36000	42600	46400	44000	48200
4	33500	40100	44000	22600	29600	32500	36300	36200	42700	45500	42500	48600
5	34900	40000	42500	23800	29100	32600	36400	36600	46300	46800	43300	48500
6	32000	41200	40200	25700	29300	32400	37700	35600	44000	49000	44600	49000
7	29500	42900	38400	24500	29300	32500	37000	33200	43300	49600	45200	49700
8	30300	42800	36900	23800	29500	32500	37100	33600	45800	50000	42500	49700
9	30600	42400	36400	23800	30000	33600	37400	33900	44900	49800	39500	49600
10	32800	45400	36000	23700	30200	34100	36800	33600	46000	48700	40700	49100
11	33500	43200	35600	23800	30700	33900	34900	33100	48400	47700	41600	48800
12	33600	42200	35200	25700	29800	33500	35800	32200	39800	47000	42400	48800
13	33100	43200	34700	24100	29700	33400	37200	34600	37400	46100	42500	48500
14	33000	43600	34400	23200	31600	33500	38600	35000	40400	45200	42900	48200
15	33100	44300	34200	24500	31100	33800	40800	35800	45500	44300	43100	48000
16	33400	45100	34100	27000	31100	34200	38900	37300	40900	43900	43600	48200
17	33700	45600	33800	28000	30800	35500	32600	39200	42000	43400	43200	48500
18	33600	46500	33700	26000	30700	35700	31500	38800	45800	43600	42800	48300
19	33300	47300	33400	24900	30700	36500	33300	36200	42100	42400	42700	48100
20	33600	47600	32600	25400	30500	33100	34400	37400	42900	43800	42400	48000
21	35400	48300	29100	25400	29900	38600	36200	40400	45900	53300	41900	48100
22	35800	48600	24100	25700	29500	37200	35000	42000	46000	54500	41200	48100
23	36000	48200	20600	26500	29200	36700	31900	44700	45800	48200	40900	48300
24	36000	47800	20500	27200	30000	35800	28900	45200	46200	46700	40800	48600
25	36000	47900	21700	26400	30000	35600	32500	44300	45700	47000	39700	48500
26	36300	47400	24000	27200	30200	35200	35700	43700	45200	47600	41900	48400
27	36100	47100	24300	27600	30600	35200	36300	43600	49500	46500	44300	48200
28	36700	46700	25200	27200	30300	35600	35400	43400	51800	46100	46800	48000
29	38700	46500	24800	26900	---	35100	32700	44300	41900	45900	47800	48200
30	40100	46200	24100	26500	---	35000	31700	45800	37200	45600	48100	48200
31	39500	---	24800	26400	---	35500	---	45900	---	45200	48000	---
TOTAL	1062800	1338900	1016900	786600	837900	1060300	1060900	1191600	1332100	1442300	1340000	1454900
MEAN	34280	44630	32800	25370	29920	34200	35360	38440	44400	46530	43230	48500
MAX	40100	48600	46000	28000	31600	38600	40800	45900	51800	54500	48100	49700
MIN	29500	40000	20500	22600	26700	30100	28900	32200	37200	39200	39500	48000
AC-FT	2108000	2656000	2017000	1560000	1662000	2103000	2104000	2364000	2642000	2861000	2658000	2886000
CFSM	.11	.14	.10	.08	.10	.11	.11	.12	.14	.15	.14	.15
IN.	.13	.16	.12	.09	.10	.13	.13	.14	.16	.17	.16	.17

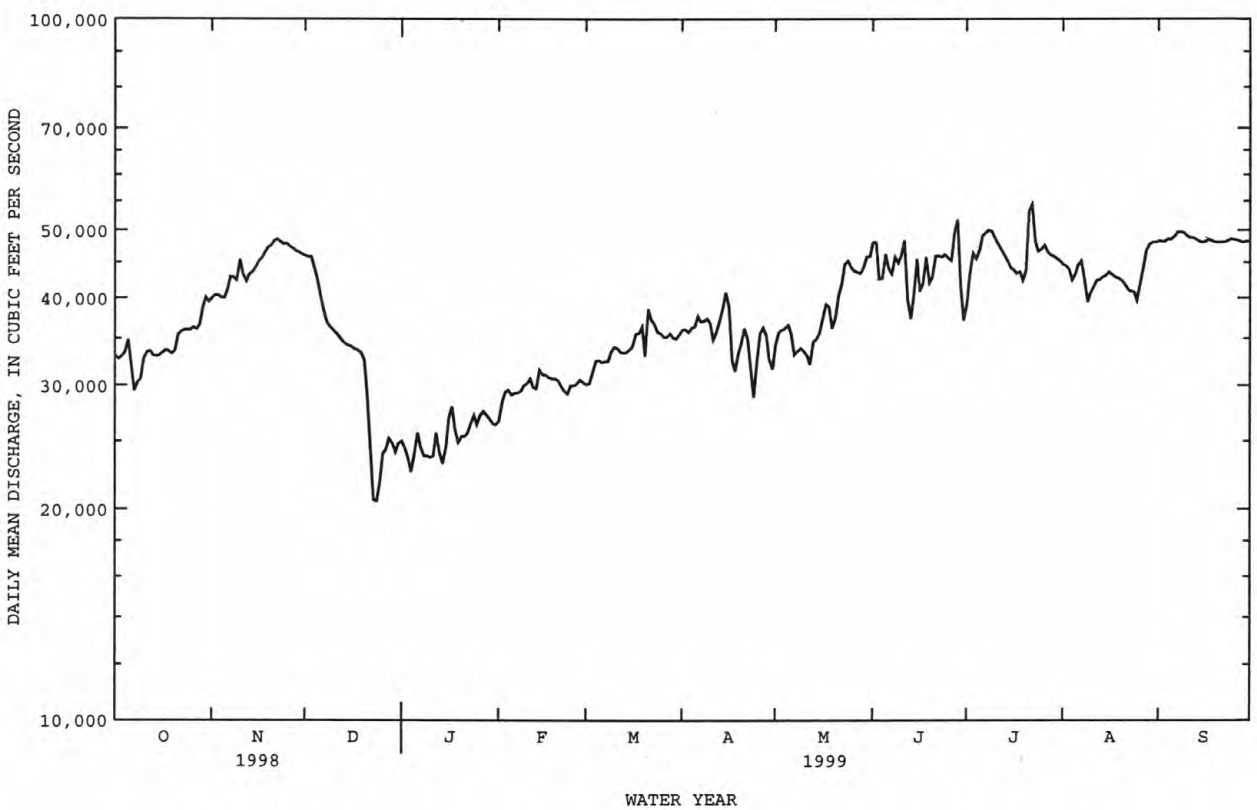
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1999, BY WATER YEAR (WY)

MEAN	36110	31090	18850	16040	17340	23440	33400	34010	35840	36490	36890	37040
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	26890	24270	25790
(WY)	1962	1962	1962	1964	1963	1957	1957	1962	1960	1958	1993	1962

06486000 MISSOURI RIVER AT SIOUX CITY, IA--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1953 - 1999a	
ANNUAL TOTAL	11942600		13925200			
ANNUAL MEAN	32720		38150		29750	
HIGHEST ANNUAL MEAN					55890	1997
LOWEST ANNUAL MEAN					19770	1957
HIGHEST DAILY MEAN	48600	Nov 22	54500	Jul 22	105000	Jun 25 1953
LOWEST DAILY MEAN	20500	Dec 24	20500	Dec 24	3000	Dec 11 1961
ANNUAL SEVEN-DAY MINIMUM	22900	Dec 22	22900	Dec 22	5430	Feb 22 1963
INSTANTANEOUS PEAK FLOW			55400	Jul 22	101000	Apr 3 1960
INSTANTANEOUS PEAK STAGE			20.93	Jul 22	30.65	Feb 19 1971
INSTANTANEOUS LOW FLOW			19800	Jan 4		
ANNUAL RUNOFF (AC-FT)	23690000		27620000		21560000	
ANNUAL RUNOFF (CFSM)	.10		.12		.095	
ANNUAL RUNOFF (INCHES)	1.41		1.65		1.29	
10 PERCENT EXCEEDS	40000		48200		46800	
50 PERCENT EXCEEDS	32400		37200		30200	
90 PERCENT EXCEEDS	27500		27000		11500	

a Post regulation, revised.



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 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
				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-southwest of Keldron. Elevation of gage is 2,355 ft above sea level, from topographic map.	30.0	1999	8-12-99	8.26	[a]	7- 7-98	[b]13.5	[a]
				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 sea level, from topographic map.	[c]	1999	3- 5-99	9.09	405	3- 5-99	9.09	405
				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 sea level, from topographic map.	[c]	1999	4- 5-99	[d]28.57	[c]	4- 5-99	[d]28.57	[c]

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
CHEYENNE RIVER BASIN--Continued										
06394450	Pass Creek near Dewey, SD	Lat 43°33'05", long 103°56'15", in $NE^1/_4$ $NE^1/_4$ $NE^1/_4$ 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 sea level, from topographic map.	30.0	1999	8- 7-99	[d]16.94	([c])	8- 7-99	[d]16.94	([c])
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.	111	1991-97‡, 1999	6-19-99	13.50	120	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 sea level, from topographic map.	68.7	1991-97‡, 1998-99	8- 7-99	8.87	1,070	8- 7-99	8.87	1,070
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 sea level, from topographic map. METWARN station.	6.8	1998-99	6-18-99	([c])	([c])	6-18-98	5.26	134

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
		CHEYENNE RIVER BASIN--Continued								
06403845	Grizzly Bear Creek above Grizzly Bear Falls, near Keystone, SD	Lat 43°51'06", long 103°28'53", in $SE^1/_4$ $NW/_4$ $NE^1/_4$ sec.26, T.2 S., R.5 E., Custer County, Hydrologic Unit 10120109, on left bank, 50 ft off trail 159, 0.5 mi northwest of Camp Remmington, and 9.6 mi southwest of Keystone. Elevation of gage is 5,210 ft above sea level, from topographic map.	4.26	1998-99	6-18-99	4.40	[a]	6-18-98	5.43	[a]
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 wingwall of Highway 16A bridge, and 1.2 mi southwest of Keystone. Elevation of gage is 4,510 ft above sea level, from topographic map. METWARN station.	4.52	1998-99	6-18-99	4.51	192	6-18-98	5.12	423
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 sea level, from topographic map.	7.48	1989-98‡, 1999	8- 1-99	5.16	26	5- 8-95	7.57	337
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 on Alt. 16 from intersection of Alt. 16 and Highway 36, and 5.5 mi south of Hayward. Elevation of gage is 4,110 ft above sea level, from topographic map.	4.23	1989-98‡, 1999	4-21-99	6.24	28	9- 7-89	[d]10.68	[e]1,250

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
CHEYENNE RIVER BASIN--Continued										
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. METWARN station.	42.3	1998-99	8- 1-99	5.90	112	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 sea level, from topographic map. METWARN station.	4.85	1998-99	10-28-98	4.81	26	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 sea level, from topographic map. METWARN station.	3.96	1998-99	7-31-99	4.54	17	6-18-98	5.84	99
06411900	Rapid Creek above Johnson Siding, below Pactola Dam, SD	Lat 44°04'56", long 103°26'32" (revised), in $NE^1/_4$ $NW^1/_4$ $NW^1/_4$ 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 sea level, from topographic map. METWARN station.	332	1998-99	6-19-99	4.37	480	6-24-98	4.62	638

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
				CHEYENNE RIVER BASIN--Continued						
06412000	Rapid Creek at Big Bend, near Rapid City, SD	Lat 44°03'18", long 103°25'00", in $NW^1/_4$ $SE^1/_4$ $SE^1/_4$ 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 sea level, from topographic map. METWARN station.	338	1998-99	6-17-99	6.50	555	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 sea level, from topographic map. METWARN station.	355	1989-97‡, 1998-99	6-17-99	7.24	654	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 sea level, from topographic map. METWARN station.	2.25	1998-99	6-15-99	4.45	14	6-15-99	4.45	14
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 sea level, from topographic map. METWARN station.	4.56	1998-99	6-15-99	6.20	73	6-15-99	6.20	73

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
		CHEYENNE RIVER BASIN--Continued								
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 sea level, from topographic map. METWARN station.	3.22	1998-99	--	--	0.00	--	--	0.00
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 sea level, from topographic map. METWARN station.	2.90	1998-99	6- 2-99	4.10	[f]<10	6- 2-99	4.10	[f]<10
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-southeast of Farmingdale. Elevation of gage is 2,755 ft above sea level, from topographic map.	12.8	1998-99	6-12-99	2.74	([a])	6-17-98	7.90	([a])
		BELLE FOURCHE RIVER BASIN								
06430850	Little Spearfish Creek near Lead, SD	Lat 44°20'58", long 103°56'08", in $NE^1/_4$ $NW^1/_4$ $SE^1/_4$ 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 downstream from Roughlock Falls, and 13.6 mi northwest of Lead. Elevation of gage is 5,020 ft above sea level, from topographic map.	25.8	1989-98‡, 1999	6-11-99	5.79	90	6-11-99	5.79	90

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
		BELLE FOURCHE RIVER BASIN--Continued								
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 sea level, from topographic map.	6.95	1989-98‡, 1999	6-11-99	4.86	39	5- 8-95	9.47	860
06430900	Spearfish Creek above Spearfish, SD	Lat 44°24'06", long 103°53'40", in $NW^1/_4$ $NE^1/_4$ $NE^1/_4$ 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. Elevation of gage is 4,440 ft above sea level, from topographic map.	139	1989-97‡, 1998-99	6-11-99	4.18	339	5- 8-95	7.42	2,890
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 sea level from topographic map.	204	1989-98‡, 1999	6-11-99	5.40	204	5- 9-95	7.37	1,590
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 sea level, from topographic map.	6.15	1989-98‡, 1999	6-11-99	[g]1.72	40	5- 8-95	6.67	507

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
				BELLE FOURCHE RIVER BASIN--Continued						
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 sea level, from topographic map. METWARN station.	51.8	1998-99	6-14-99	4.59	159	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 sea level.	192	1946-62, 1962-72‡, 1990-99	10-17-98	[d]9.63	1,720	6-16-62	[d]12.45	12,700
06437650	Elm Creek near Fairpoint, SD	Lat 44°46'59", long 103°03'43", in $NE^1/_4$ $SE^1/_4$ 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 sea level, from topographic map.	8.8	1999	6- 6-99	7.10	680	6- 6-99	7.10	680
				CHEYENNE RIVER BASIN						
06438800	Elm Creek near Red Owl, SD	Lat 44°45'04", long 102°26'55", in $NW^1/_4$ $SW^1/_4$ $SW^1/_4$ 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 sea level, from topographic map.	15.0	1999	2- 3-99	4.12	[a]	2- 3-99	4.12	[a]

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
				MISSOURI-OAHE RIVER BASIN						
06439770	Unnamed tributary Stone Lake near Lebanon, SD	Lat 44°55'35", long 99°44'48", in NE¼ NE¼ NW¼ 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 sea level, from topographic map.	[c]	1999	9- 3-99	7.01	[a]	9- 3-99	7.01	[a]
06439960	Chantier Creek near Hayes, SD	Lat 44°31'20", long 100°42'13", in NE¼ NE¼ SW¼ 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 sea level, from topographic map.	21.5	1990-99	6- 7-99	4.34	333	6- 7-93	[d]14.81	[h]8,000
				MISSOURI-FORT RANDALL RIVER BASIN						
06440300	Unnamed tributary Cottonwood Creek near Quinn, SD	Lat 43°57'39", long 102°08'17", in NW¼ SW¼ NW¼ 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 sea level, from topographic map.	9.56	1999	11- 9-98	10.28	130	11- 9-98	10.28	130
06440850	Medicine Creek near Phillip, SD	Lat 44°03'17", long 101°29'12", in SE¼ 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 sea level, from topographic map.	56.5	1989-99	6- 6-99	11.27	450	6- 6-99	11.27	450

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
MISSOURI-FORT RANDALL RIVER BASIN--Continued										
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 sea level, from topographic map.	24.5	1989-99	4-22-99	3.13	130	5- 9-95	6.74	936
06441110	Plum Creek below Hayes, SD	Lat 44°12'38", long 100°43'34", in $NW^1/_4$ $NW^1/_4$ $NW^1/_4$ 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 sea level, from topographic map.	252	1989-95‡, 1998-99	9- 4-99	19.73	5,670	5-30-91	23.74	13,500
WHITE RIVER BASIN										
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 sea level, from topographic map.	82.5	1993-97‡, 1998-99	6- 6-99	5.78	48	6- 3-97	[d]9.13	321
06447050	Unnamed tributary Buzzard Creek near Long Valley, SD	Lat 43°27'42", long 101°25'59", in $SW^1/_4$ $SW^1/_4$ $SW^1/_4$ sec.2, T.40 N., R.35 W., Jackson County, Hydrologic Unit 10140202, on left bank, 22 ft northwest 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 sea level, from topographic map.	9.26	1999	4- 9-99	4.54	21	4- 9-99	4.54	21

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
		WHITE RIVER BASIN--Continued								
06451600	Unnamed tributary White Thunder Creek near Wood, SD	Lat 43°37'23", long 100°30'33", in $NW^1/_4$ $NW^1/_4$ $NW^1/_4$ 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 sea level.	13.0	1998-99	5-10-99	8.31	112	7-30-98	[d]9.44	([a])
06451650	Williams Creek near Vivian, SD	Lat 43°43'33", long 100°17'50", in $SW^1/_4$ $SW^1/_4$ $NW^1/_4$ 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 the Interstate 90 and Highway 53 intersection. Elevation of gage is 1,700 ft above sea level, from topographic map.	48.8	1999	9- 4-99	[d]9.64	([c])	9- 4-99	[d]9.64	([c])
		MISSOURI-FORT RANDALL RIVER BASIN								
06452275	Snake Creek near Bijou Hills, SD	Lat 43°29'58", long 99°07'13", in $NW^1/_4$ $NW^1/_4$ $NW^1/_4$ 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 sea level, from topographic map.	([c])	1999	5- 5-99	8.31	830	5- 5-99	8.31	830

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
MISSOURI-FORT RANDALL RIVER BASIN--Continued										
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 sea level, from topographic map.	[c]	1999	7- 4-99	6.06	323	7- 4-99	6.06	323
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 southwest of Mission. Elevation of gage is 2,595 ft above sea level, from topographic map.	71.3	1990-99	5-10-99	3.93	34	2-18-97 7- 3-98	7.40 6.96	[i] 88
06464120	Sand Creek near Olsonville, SD	Lat 43°01'03", long 100°24'46", in $SW^1/_4$ $SW^1/_4$ $SW^1/_4$ 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 sea level, from topographic map.	11.0	1999	11-16-98	7.13	15	11-16-98	7.13	15
MISSOURI-LEWIS AND CLARK RIVER BASIN										
06466715	Snatch Creek near Tabor, SD	Lat 42°54'30", long 97°46'33", in $SW^1/_4$ $SE^1/_4$ $SE^1/_4$ (revised) sec.35 (revised), T.94 N. (revised), 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 sea level, from topographic map.	44	1993-99	7- 2-99	5.22	206	5-30-95	10.58	1,660

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
				JAMES RIVER BASIN						
06472050	Antelope Creek near Langford, SD	Lat 45°34'22", long 97°50'10", in $NE^1/_4$ $NE^1/_4$ $NE^1/_4$ 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 sea level, from topographic map.	24.5	1999	9- 4-99	5.76	[c]	9- 4-99	5.76	[c]
06473020	Howard tributary near Leola, SD	Lat 45°37'48", long 98°55'52", in $SW^1/_4$ $SW^1/_4$ $NW^1/_4$ 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 sea level, from topographic map.	45.2	1999	5-10-99	3.57	290	5-10-99	3.57	290
06473300	Preachers Run tributary at Ipswich, SD	Lat 45°27'08", long 99°01'45", in $NE^1/_4$ $SW^1/_4$ 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 sea level, from topographic map.	7.88	1971-80, 1999	5-10-99	3.41	50	3-24-78	[j]7.42	50
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 sea level, by barometer.	1,124	1954-56, 1966-81‡, 1985-89‡, 1990-99	5-10-99	11.93	2,140	3-26-97 3-28-97	19.32 18.80	[i] 13,500

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
		JAMES RIVER BASIN--Continued								
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 sea level, from topographic map.	19.7	1999	3-16-99	4.98	[a]	3-16-99	4.98	[a]
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 (revised), 7.7 mi east from junction of State Highways 37 and 28. Elevation of gage is 1,325 ft above sea level, from topographic map.	4.93	1971-80, 1999	2-10-99 9- 4-99	3.98 3.87	[i] 41	5-13-72 3-12-77	5.21 5.41	89 [i]
06477150	Rock Creek near Fulton, SD	Lat 43°45'30", long 97°54'32", in $NE^1/_4$ $NE^1/_4$ 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 sea level, 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, 1989-99	4-12-99	7.83	403	3-29-97	13.74	3,120
06478052	Enemy Creek near Mitchell, SD	Lat 43°38'33", long 97°59'09", in $NW^1/_4$ $NW^1/_4$ 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 sea level, from topographic map.	163	1976-87‡, 1989-99	4-12-99	9.72	845	6-22-84	15.15	4,280

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
				JAMES RIVER BASIN--Continued						
06478390	Wolf Creek near Clayton, SD	Lat 43°22'18", long 97°36'12", in NW¼ NE¼ 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 sea level, from topographic map.	396	1976-88‡, 1989-99	9- 5-99	8.89	845	6-21-84	18.01	6,520
06478513	James River near Yankton, SD	Lat 42°59'45", long 97°22'10", in NE¼ NW¼ 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 sea level.	20,942 4,148 NC	1981-95‡, 1996-99	5-30-99	13.20	5,360	6-23-84 4- 9-97	24.34 22.94	26,400 28,800
				MISSOURI-LEWIS AND CLARK RIVER BASIN						
06479000	Vermillion River near Wakonda, SD	Lat 42°59'27", long 96°57'49", in SW¼ NW¼ sec.2, T.94 N.,R.52 W., Clay County, Hydrologic Unit 10170102, at right downstream wingwall of State Highway 19, 4.3 mi downstream 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 sea level (levels by Corps of Engineers).	2,170 494 NC	1946-83‡, 1984-99	4-14-99	15.53	2,740	6-23-84	[d]17.62	17,000
06479158	Unnamed tributary Blue Dog Lake near Ortley, SD	Lat 45°21'02", long 97°08'39", in NE¼ SE¼ NE¼ 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 sea level, from topographic map.	11.8	1999	2-27-99	4.74	[a]	2-27-99	4.74	[a]

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
				BIG SIOUX RIVER BASIN						
06479490	Mud Creek near Rauville, SD	Lat 45°00'23", long 97°06'31", in $NW^1/_4$ $NE^1/_4$ $NE^1/_4$ sec.30, T.118 N., R.52 W., Codington County, Hydrologic Unit 10170202, at downstream end of right culvert on 164th Street, 7.4 mi upstream of Big Sioux River, and 2.0 mi north of Rauville. Elevation of gage is 1,765 ft above sea level, from topographic map.	28.9	1998-99	10-17-98	[d]3.98	47	3-26-98	[d]4.96	113
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 wingwall, 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 sea level, by barometer.	164	1969-85‡, 1990-99	6- 8-99	8.26	1,180	6-16-92	[d]13.10	[k]17,300
06479980	Medary Creek near Brookings, SD	Lat 44°13'27", long 96°46'06", in $NE^1/_4$ $NE^1/_4$ $NE^1/_4$ sec.25, T.109 N., R.50 W., Brookings County, Hydrologic Unit 10170202, at 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 sea level.	200	1981-90‡, 1991-99	4-10-99	6.90	451	7- 4-93 3-28-97	11.78 [i]13.02	3,710 3,500
06480650	Flandreau Creek above Flandreau, SD	Lat 44°03'45", long 96°29'15", in $SE^1/_4$ $NE^1/_4$ $NE^1/_4$ 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 sea level, from topographic map.	100	1982-91‡, 1992-99	4-11-99	7.30	500	6-20-84 3-28-97	11.02 [i]11.40	2,650 1,800

Annual maximum discharge at crest-stage partial-record stations

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Water year 1999 maximum			Period of Record Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
				BIG SIOUX RIVER BASIN--Continued						
06482848	Beaver Creek at Canton, SD	Lat 43°17'12", long 96°35'46", in $SW^1/_4$ $SW^1/_4$ $SE^1/_4$ 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 sea level, from topographic map.	124	1983-89‡, 1990-99	4-11-99	4.91	400	6- 7-93 6-20-83	[d]12.93 14.61	[f]3,680 ([1])

‡ Operated as a continuous-record gaging station.
a Insufficient data to develop rating.
b From local observer.
c To be determined.
d From floodmark.
e Based on slope-area measurement of flow.
f Estimated.
g Gage height estimated and affected by backwater from debris.
h Discharge determined by slope-area indirect measurement; peak resulted from stock dam failure.
i Backwater from ice.
j Site then in use, backwater from ice.
k Based on contracted-opening and flow-over-road indirect measurement of peak flow, 1.1 mi upstream of gage.
l Backwater from Big Sioux River.

DAILY PRECIPITATION STATIONS

The following daily precipitation stations are listed in alphabetical order.

BELLE FOURCHE RIVER BASIN

441859103385600 ADAMS RANCH NEAR LEAD, SD

LOCATION.--Lat 44°18'59", long 103°38'56", in NW¼ SE¼ SW¼ sec.9, T.4 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, at Adams Ranch 0.25 mi west of U.S.Forest Service Road 534, 1.5 mi southwest of Galena, and 5.5 mi southeast of Lead.

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

INSTRUMENTATION.--Precipitation recorder with shielded 8.0-in. orifice and 12-in. capacity. Prior to October 1988, gage was not shielded. Elevation of gage is 5,020 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--15 years, 27.08 in.

REMARKS.--Records fair.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.15	.02	.09	.26	.00	.11	.02	.04	.00
2	.42	.00	.00	.07	.00	.10	.36	.00	1.31	.00	.00	.16
3	.01	.36	.00	.03	.04	.00	.25	.53	.35	.00	.00	.21
4	.86	.10	.00	.15	.00	.00	.01	.43	.10	.00	.00	.04
5	.06	.01	.00	.28	.00	.41	.03	.00	.62	.00	.11	.00
6	1.96	.18	.00	.18	.00	.00	.00	.00	.70	.00	1.16	.00
7	.38	.09	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.05	.03	.01	.04	.10	.00	.00	.00	.00
9	.00	.26	.00	.10	.00	.00	.08	.03	.18	.00	.00	.00
10	.13	.05	.00	.09	.21	.45	.90	.40	1.68	.00	.00	.00
11	.02	.00	.00	.00	.00	.00	.02	.08	.19	.00	.30	.02
12	.00	.00	.00	.00	.00	.02	.00	.00	.68	.00	.38	.00
13	.00	.00	.00	.01	.00	.00	.00	.04	.00	.00	.04	.00
14	.00	.04	.00	.00	.00	.00	.14	.14	.45	.00	.00	.00
15	.01	.00	.00	.11	.16	.00	.06	.17	.19	.06	.00	.00
16	1.68	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.96	.00	.00	.02	.04	.02	.00	.00	.01	.55	.00	.00
18	.01	.01	.15	.00	.06	.00	.00	.00	.00	.04	.00	.00
19	.00	.01	.05	.00	.00	.00	.00	.00	.00	.01	.00	.04
20	.01	.00	.06	.00	.15	.00	.07	.00	.00	.12	.00	.00
21	.00	.00	.00	.00	.00	.00	.63	.08	.00	.00	.38	.00
22	.00	.06	.00	.00	.02	.01	.54	.16	.00	.00	.00	.00
23	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.09	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.10	.00	.00	.00	.19	.00	.00	.00	.00	.13
26	.00	.00	.00	.01	.07	.00	.18	.81	.00	.00	.00	.08
27	.00	.00	.00	.00	.05	.25	.01	.00	.58	.00	.44	.06
28	.21	.00	.10	.00	.00	.12	.01	.00	.01	.00	.57	.00
29	.45	.00	.05	.00	---	.00	.00	.00	.00	.02	1.00	.00
30	.01	.00	.25	.00	---	.00	.00	.06	.13	.03	.00	.00
31	.00	---	.00	.00	---	.78	---	.00	---	.86	.00	---
TOTAL	7.18	1.18	0.76	1.37	0.85	2.26	3.78	3.03	7.29	1.71	4.42	0.74

CAL YR 1998 TOTAL 36.35
WTR YR 1999 TOTAL 34.57

DAILY PRECIPITATION STATIONS

BELLE FOURCHE RIVER BASIN

441852103594800 PRECIP AT HEADWATERS LITTLE SPEARFISH CREEK NEAR LEAD, SD

LOCATION.--Lat 44°18'52", long 103°59'48", in NE¼ NE¼ NE¼ sec.16, T.4 N., R.1 E., Lawrence County, Hydrologic Unit 10120103, 0.1 mi west of U.S. Forest Service Road 134, 1.1 mi south of Timon Campground, and 11 mi southwest of Lead.

PERIOD OF RECORD.--October 1988 to current year.

INSTRUMENTATION.--Precipitation recorder with shielded 8.0-in. orifice and 12-in. capacity. Elevation of gage is 5,710 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--11 years, 27.78 in.

REMARKS.--Records fair except those for estimated periods, which are poor.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.00	e.00	.00	.05	.01	e.11	.09	.00	.00	.00	.01	.00
2	e.49	e.00	.00	.20	.00	e.12	.11	.00	.21	.00	.00	.06
3	e.01	e.36	.00	.25	.05	e.00	.33	.24	e.35	.00	.00	.07
4	e1.01	e.10	.00	.20	e.00	e.00	.00	.46	e.10	.00	.00	.10
5	e.07	e.01	.00	.24	e.00	e.50	.00	.00	e.62	.00	.60	.00
6	e2.30	e.18	.00	.10	e.00	e.00	.00	.00	e.70	.00	.52	.00
7	e.45	e.09	.00	.02	e.00	e.00	.00	.00	e.00	.14	.00	.00
8	e.00	e.00	.00	.18	e.04	e.01	.03	.07	e.00	.00	.00	.00
9	e.00	e.26	.00	.00	e.00	e.00	.09	.00	e.18	.00	.00	.00
10	e.15	e.05	.00	.00	e.26	e.55	.78	.03	e1.69	.00	.00	.00
11	e.02	e.00	.00	.00	e.00	e.00	.03	.44	e.19	.00	.00	.07
12	e.00	e.00	.00	.00	e.00	e.02	.00	.12	e.68	.00	.58	.00
13	e.00	e.00	.00	.00	e.00	e.00	.05	.16	e.00	.00	.00	.00
14	e.00	e.04	.00	.05	e.00	e.00	.15	.50	e.45	.00	.00	.00
15	e.01	e.00	.00	.05	e.20	e.00	.08	.11	e.19	.05	.00	.00
16	e1.98	e.01	.00	.00	e.00	e.00	.00	.01	e.00	.00	.00	.00
17	e1.13	e.00	.17	.00	e.05	e.02	.00	.00	e.01	.20	.00	.00
18	e.01	e.01	.04	.00	e.07	e.00	.00	.00	e.00	.32	.00	.00
19	e.00	e.01	.05	.00	e.00	e.00	.01	.00	e.00	.05	.00	.10
20	e.01	e.00	.00	.00	e.18	e.00	.26	.00	e.00	.00	.00	.00
21	e.00	e.00	.00	.00	e.00	e.00	.22	.22	e.00	.22	.07	.00
22	e.00	e.06	.00	.00	e.02	e.01	.06	.17	e.00	.25	.00	.00
23	e.00	e.00	.00	.10	e.00	e.00	.00	.00	e.00	.00	.00	.00
24	e.00	e.00	.00	.00	e.00	e.00	.00	.00	e.00	.00	.00	.00
25	e.00	e.00	.15	.01	e.00	e.00	.12	.00	e.00	.00	.00	.00
26	e.00	e.00	.00	.01	e.09	e.00	.02	.47	e.00	.00	.00	.26
27	e.00	e.00	.05	.01	e.06	e.30	.00	.00	e.58	.00	2.14	.05
28	e.25	e.00	.00	.00	e.00	e.15	.00	.00	e.01	.00	.58	.00
29	e.45	e.00	.30	.00	---	e.00	.00	.00	e.00	.00	.23	.00
30	e.01	e.00	.00	.00	---	e.00	.00	.00	e.13	.06	.00	.00
31	e.00	---	.15	.00	---	.35	---	.00	---	.70	.00	---
TOTAL	8.35	1.18	0.91	1.47	1.03	2.14	2.43	3.00	6.09	1.99	4.73	0.71

WTR YR 1999 TOTAL 34.03

e Estimated

DAILY PRECIPITATION STATIONS

CHEYENNE RIVER BASIN

435827104032500 PRECIP AT LITTLE BEAR RUN NEAR NEWCASTLE, WY

LOCATION.--Lat 43°58'27", long 104°03'25", in NW¼ SW¼ SW¼ 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 sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--8 years, 24.81 in.

REMARKS.--Records fair except those for estimated periods, which are poor.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.16	.00	.04	.10	.00	.00	.00	.03	.00
2	.13	.12	.00	.01	.00	.04	.24	.00	.62	.00	.02	.77
3	.40	.34	.00	.01	.00	.00	.20	.20	.57	.00	.00	.32
4	.72	.05	.00	.19	.00	.06	.00	.20	.03	.00	.00	.10
5	.43	.02	.00	.31	.00	.19	.00	.03	.38	.00	.00	.02
6	.04	.46	.00	.46	.00	.00	.00	.00	1.00	.00	.00	.00
7	.02	.04	.00	.12	.00	.00	.00	.00	.03	.51	.00	.00
8	.00	.10	.00	.01	.00	.00	.05	.04	.00	.00	.00	.00
9	.00	.22	.00	.26	.00	.51	.26	.11	.02	.00	.00	.00
10	.00	.03	.00	.02	.02	.04	.21	.20	1.37	.00	.00	.00
11	.04	.00	.00	.00	.00	.00	.00	.12	.37	.00	.06	.10
12	.00	.00	.00	.00	.00	.00	.00	.03	e1.16	.00	.07	.01
13	.00	.00	.00	.02	.00	.01	.00	.44	e.14	.00	.03	.00
14	.00	.00	.00	.00	.00	.00	.02	.29	e.78	.00	.01	.00
15	.00	.00	.00	.00	.04	.00	.14	.33	e1.02	.17	.00	.00
16	1.02	.00	.00	.00	.00	.00	.00	.00	e.14	.00	.00	.00
17	.07	.00	.00	.00	.14	.00	.00	.00	e.07	.35	.00	.00
18	.02	.00	.02	.05	.00	.00	.00	.00	e.14	.00	.00	.05
19	.00	.01	.12	.00	.16	.00	.00	.53	e.00	.31	.00	.08
20	.00	.02	.03	.39	.02	.00	.40	.04	e.04	.26	.00	.01
21	.01	.00	.00	.01	.04	.06	.20	.03	e.00	.01	.02	.00
22	.00	.02	.00	.00	.02	.00	.03	.28	e.00	.00	.04	.00
23	.00	.01	.00	.12	.00	.01	.00	.00	e.00	.00	.01	.00
24	.00	.00	.05	.14	.00	.01	.00	.00	e.00	.00	.00	.00
25	.00	.00	.11	.00	.00	.01	.27	.00	e.00	.03	.00	.00
26	.00	.00	.01	.05	.36	.00	.00	.11	.00	.00	.00	.01
27	.00	.00	.00	.01	.01	.51	.00	.00	.02	.00	.00	.01
28	1.16	.00	.00	.01	.00	.00	.00	.00	.00	.00	.45	.01
29	.09	.00	.07	.00	---	.01	.00	.00	.03	.00	.03	.01
30	.09	.00	.10	.00	---	.00	.01	.00	.14	.00	.02	.00
31	.00	---	.00	.00	---	.22	---	.09	---	1.24	.00	---
TOTAL	4.24	1.44	0.51	2.35	0.81	1.72	2.13	3.07	8.07	2.88	0.79	1.50

CAL YR 1998 TOTAL 28.82
WTR YR 1999 TOTAL 29.51

e Estimated

DAILY PRECIPITATION STATIONS

CHEYENNE RIVER BASIN

435355103432800 PRECIP AT MEDICINE MOUNTAIN NEAR CUSTER, SD

LOCATION.--Lat 43°53'55", long 103°43'28", in SW¼ SW¼ SE¼ sec.2, T.2 S., R.3 E., Pennington County, Hydrologic Unit 10120109, along Spring Creek, 1.0 mile southwest of Medicine Mountain, and 11 mi northwest of Custer.

PERIOD OF RECORD.--October 1988 to current year.

INSTRUMENTATION.--Precipitation recorder with shielded 8.0-in. orifice and 12-in. capacity since Oct. 18, 1994. Elevation of gage is 6,070 ft above sea level, from topographic map. September 1988 through Oct. 18, 1994, shielded 8.0-in. diameter plastic gage, 48 in. tall.

REMARKS.--Records fair except those for estimated periods.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.16	.00	.03	.73	.04	e.02	e.02	.00	.02
2	.28	.06	.00	.05	.00	.06	.15	.04	e.09	e.01	.00	1.01
3	.05	.42	.00	.00	.10	.00	.25	.20	e.46	e.00	.19	1.19
4	.98	.10	.00	.08	.00	.00	.02	.04	e.00	e.00	.38	.27
5	.25	.00	.00	.03	.01	.25	.00	.02	e.17	e.00	.00	.00
6	.03	.57	.00	.34	.01	.00	.00	.08	e.35	e.00	.00	.00
7	.00	.02	.00	.02	.00	.01	.00	.00	e.00	.00	.02	.00
8	.00	.02	.00	.00	.02	.02	.33	.00	e.00	.00	.00	.00
9	.00	.30	.00	.13	.00	.00	.30	.05	e.15	.00	.00	.00
10	.26	.05	.00	.01	.13	.43	.25	.18	e1.15	.00	.00	.00
11	.00	.01	.00	.00	.00	.01	.00	.01	e.19	.00	.12	.06
12	.00	.00	.00	.00	.00	.00	.00	.00	e.19	.00	.00	.05
13	.00	.00	.00	.00	.00	.00	.12	.21	e.02	.00	.00	.00
14	.00	.00	.00	.00	.00	.03	.23	.18	e.21	.00	.00	.00
15	.01	.00	.00	.00	.00	.00	.18	e.15	e.11	.34	.00	.00
16	.84	.00	.00	.00	.00	.00	.00	e.01	e.01	.02	.00	.00
17	.72	.00	.00	.00	.05	.00	.00	e.00	e.09	1.21	.00	.00
18	.00	.00	.00	.01	.03	.00	.00	e.00	e.02	.00	.00	.00
19	.00	.00	.01	.00	.01	.00	.00	e.04	e.01	.52	.00	.28
20	.00	.03	.00	.10	.05	.00	.34	e.01	e.01	.00	.00	.07
21	.00	.01	.00	.10	.04	.00	.65	e.07	e.00	.00	.10	.00
22	.00	.00	.15	.00	.00	.08	.27	e.18	e.00	.00	.00	.00
23	.00	.02	.00	.04	.00	.01	.00	e.01	e.03	.00	.00	.00
24	.00	.02	.00	.15	.00	.00	.00	e.00	e.00	.00	.00	.00
25	.00	.00	.12	.00	.00	.00	.33	e.00	e.00	.00	.00	.00
26	.00	.00	.01	.10	.26	.00	.00	e.82	e.00	.00	.00	.01
27	.00	.00	.01	.00	.16	.09	.00	e.01	e.00	.00	.00	.06
28	1.12	.00	.08	.00	.00	.12	.00	e.01	e.03	.00	.00	.04
29	.01	.00	.00	.00	---	.00	.00	e.02	e.00	.00	.24	.00
30	.07	.00	.18	.00	---	.00	.09	e.00	e.04	.01	.00	.00
31	.00	---	.00	.01	---	.00	---	e.02	---	2.07	.00	---
TOTAL	4.62	1.63	0.56	1.33	0.87	1.14	4.24	2.40	3.35	4.20	1.05	3.06

CAL YR 1998 TOTAL 33.30
WTR YR 1999 TOTAL 28.45

e Estimated

DAILY PRECIPITATION STATIONS

CHEYENNE RIVER BASIN

432343103421500 PRECIP AT PARKER PEAK NEAR EDGEMONT, SD
(Formerly published as Precip at Parker Peak near Minnekahta, SD)

LOCATION.--Lat 43°23'43", long 103°42'15", in SW¼ NW¼ NW¼ SE¼, sec.36, T.7 S., R.3 E., Fall River County, Hydrologic Unit 10120106, 0.5 mi east of Fossil Cycad National Monument, 0.75 mi southwest of Parker Peak, and 2.0 mi south of Minnekahta.

PERIOD OF RECORD.--May 1991 to current year (seasonal record).

INSTRUMENTATION.--Non-shielded, 4.0-in. diameter plastic gage with 11-in. capacity. Elevation of gage is 4,090 ft above sea level, from topographic map.

REMARKS.--Records fair. Precipitation gage is read daily by observer at approximately 0800 hours. Daily precipitation record is for the previous 24 hours.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.08	.16	.00	.00	.00
2	---	---	---	---	---	---	---	.16	.00	.00	.00	.45
3	---	---	---	---	---	---	---	.00	.73	.00	.04	.40
4	---	---	---	---	---	---	---	.00	.00	.00	.00	.45
5	---	---	---	---	---	---	---	.00	.16	.00	.36	.03
6	---	---	---	---	---	---	---	.00	.56	.00	.04	.00
7	---	---	---	---	---	---	---	.00	.08	.00	.20	.00
8	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
9	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.38	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	1.50	.00	.00	.00
12	---	---	---	---	---	---	---	.00	.00	.00	.00	.15
13	---	---	---	---	---	---	---	.00	.41	.00	.00	.00
14	---	---	---	---	---	---	---	.34	.00	.00	.00	.00
15	---	---	---	---	---	---	---	.22	.58	.02	.00	.00
16	---	---	---	---	---	---	---	.00	.06	.60	.00	.00
17	---	---	---	---	---	---	---	.00	.00	.06	.00	.00
18	---	---	---	---	---	---	---	.00	.00	1.60	.00	.00
19	---	---	---	---	---	---	---	.00	.20	.02	.00	.40
20	---	---	---	---	---	---	---	.46	.00	.00	.00	.00
21	---	---	---	---	---	---	---	.08	.00	.05	.08	.00
22	---	---	---	---	---	---	---	.06	.00	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.28	.00	.00	.00
24	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.21	.00	.00	.00	.00
27	---	---	---	---	---	---	---	.00	.18	.00	.00	.07
28	---	---	---	---	---	---	---	.00	.08	.00	.07	.04
29	---	---	---	---	---	---	---	.00	.20	.00	.01	.00
30	---	---	---	---	---	---	---	.00	.15	.00	.00	.00
31	---	---	---	---	---	---	---	.04	---	1.89	.00	---
TOTAL	---	---	---	---	---	---	---	2.03	5.33	4.24	0.80	1.99

DAILY PRECIPITATION STATIONS

CHEYENNE RIVER BASIN

434002103214500 PRECIP AT RACETRACK BUTTE NEAR FAIRBURN, SD

LOCATION.--Lat 43°40'02", long 103°21'45", in SW¼ SE¼ SE¼ 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 sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--16 years, 19.18 in.

REMARKS.--Records poor.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.14	.00	.00	.12	.00	.04	.79	.04	.00	.06	.07	.24
2	.10	.30	.00	.02	.00	.01	.16	.02	.00	.00	.02	.41
3	1.57	.56	.00	.00	.00	.00	.26	.16	1.02	.00	.02	.36
4	.09	.24	.00	.00	.00	.00	.00	.02	.07	.00	.00	.03
5	.00	.04	.00	.00	.00	.20	.00	.00	.89	.00	.00	.00
6	.00	1.00	.00	.25	.00	.00	.00	.00	.07	.00	.26	.00
7	.00	.04	.00	.00	.00	.00	.00	.00	.00	.00	.12	.00
8	.00	.00	.00	.00	.00	.22	.44	.00	.00	.00	.01	.00
9	.00	.39	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00
10	.04	.00	.00	.00	.04	.41	.40	.87	.29	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	1.02	.00	.00	.01
12	.00	.00	.00	.00	.00	.02	.00	.00	.40	.00	.00	.00
13	.00	.00	.00	.00	.00	.03	.00	.00	.19	.00	.00	.00
14	.00	.00	.00	.00	.01	.00	.21	.16	.64	.00	.00	.00
15	.01	.00	.00	.00	.00	.00	.00	.01	.46	.44	.00	.00
16	.75	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00	.00
17	.26	.02	.00	.00	.00	.00	.00	.00	.00	.26	.00	.00
18	.00	.00	.18	.00	.00	.00	.00	.00	.64	.00	.00	.00
19	.00	.00	.10	.00	.02	.00	.00	.08	.06	.08	.00	.18
20	.00	.00	.08	.02	.00	.00	.10	.10	.00	.00	.00	.00
21	.00	.00	.00	.07	.00	.00	.52	.25	.00	.00	.15	.00
22	.00	.00	.00	.00	.01	.02	1.00	.75	.00	.00	.01	.00
23	.01	.00	.00	.04	.00	.00	.00	.01	.00	.00	.00	.00
24	.00	.00	.00	.16	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.74	.00	.00	.00	.00	.00
26	.00	.00	.00	.14	.00	.00	.04	.50	.00	.00	.00	.08
27	.00	.00	.00	.02	.00	.00	.01	.00	.16	.00	.00	.09
28	1.60	.00	.00	.00	.00	.02	.01	.03	.20	.00	.02	.01
29	.03	.02	.00	.00	---	.00	.00	.00	.38	.00	.09	.00
30	.01	.00	.00	.00	---	.01	.02	.00	.02	.05	.00	.00
31	.00	---	.00	.00	---	.00	---	.05	---	2.33	.00	---
TOTAL	5.61	2.61	0.36	0.84	0.08	0.98	4.84	3.17	6.51	3.22	0.77	1.41

CAL YR 1998 TOTAL 34.63
WTR YR 1999 TOTAL 30.40

DAILY PRECIPITATION STATIONS

CHEYENNE RIVER BASIN

434751104005100 PRECIP AT REDBIRD CANYON NEAR NEWCASTLE, WY

LOCATION.--Lat 43°47'51", long 104°00'51", in SW¼ SW¼ SW¼, sec.9, T.3 S., R.1 E., Custer County, Hydrologic Unit 10120107, 5.4 mi north of Elk Mountain, 9.2 mi northwest of Jewel Cave National Monument, and 9.7 mi southeast of Newcastle.

PERIOD OF RECORD.--December 1990 to current year.

INSTRUMENTATION.--Precipitation recorder with shielded 8.0-in. orifice and 12-in. capacity. Elevation of gage is 4,760 ft above sea level, from topographic map.

REMARKS.--Records poor.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.02	.00	.00	.00	.00	.10	.02	.06	.00	.10	.00
2	.00	.04	.00	.00	.08	.00	.18	.00	.42	.02	.00	.18
3	.00	.28	.00	.00	.00	.00	.18	.10	.48	.00	.02	.62
4	.82	.08	.00	.32	.00	.00	.02	.06	.00	.00	2.24	.18
5	.14	.02	.00	.00	.00	.12	.00	.00	.2	.00	.06	.02
6	.02	.38	.00	.00	.00	.02	.02	.02	1.18	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.02	.02	.02	.00
8	.00	.04	.00	.00	.00	.00	.04	.00	.02	.10	.00	.00
9	.00	.20	.00	.04	.00	.06	.62	.06	.00	.00	.02	.00
10	.22	.02	.00	.02	.00	.36	.2	.00	1.36	.00	.00	.02
11	.04	.00	.00	.00	.00	.00	.02	.26	.22	.00	.30	.00
12	.00	.00	.00	.00	.00	.00	.00	.02	.66	.00	.06	.00
13	.00	.00	.00	.00	.00	.02	.00	.26	.08	.00	.04	.00
14	.00	.04	.00	.00	.00	.00	.06	.16	.44	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.06	.78	.58	.00	.00	.02
16	.38	.00	.00	.00	.00	.00	.02	.00	.08	.00	.00	.00
17	.18	.00	.00	.00	.00	.00	.02	.00	.04	1.20	.00	.00
18	.14	.00	.00	.02	.00	.00	.04	.02	.08	.02	.00	.10
19	.00	.00	.02	.14	.00	.00	.00	.64	.00	.22	.00	.20
20	.00	.00	.06	.28	.04	.00	.22	.18	.02	.94	.00	.00
21	.00	.00	.00	.00	.02	.00	.40	.18	.00	.14	.00	.00
22	.10	.02	.00	.02	.00	.06	.00	.22	.00	.00	.06	.00
23	.00	.00	.64	.14	.00	.02	.00	.02	.00	.00	.00	.00
24	.00	.00	.00	.08	.02	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.32	.00	.00	.00	.00	.00
26	.00	.00	.00	.10	.12	.00	.02	.00	.04	.00	.02	.00
27	.00	.00	.00	.00	.08	.10	.00	.00	.06	.00	.00	.00
28	.26	.00	.00	.00	.02	.06	.00	.00	.04	.00	.62	.00
29	.04	.00	.00	.00	---	.00	.00	.00	.00	.00	.30	.00
30	.04	.00	.00	.00	---	.00	.02	.00	.08	.10	.00	.00
31	.00	---	.00	.00	---	.10	---	.00	---	1.44	.02	---
TOTAL	2.38	1.14	0.72	1.16	0.38	0.92	2.56	3.00	6.16	4.20	3.88	1.34

CAL YR 1998 TOTAL 26.02
WTR YR 1999 TOTAL 27.84

DAILY PRECIPITATION STATIONS

CHEYENNE RIVER BASIN

440242103520600 PRECIP AT REYNOLDS PRAIRIE NEAR HILL CITY, SD

LOCATION.--Lat 44°02'42", long 103°52'06", in NW¼ NE¼ SW¼, sec.15, T.1 N., R.2 E., Pennington County, Hydrologic Unit 10120110, 0.1 mi northeast of U.S. Forest Service Road 110, 2.0 mi west of Reynolds Prairie, 3.5 mi northwest of Deerfield Lake, and 16 mi northwest of Hill City.

PERIOD OF RECORD.--October 1988 to current year.

INSTRUMENTATION.--Shielded, 8.0-in. diameter plastic gage, 72 in. tall. Elevation of gage is 6,100 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--11 years, 23.76 in.

REMARKS.--Records poor. Precipitation gage is read daily by observer at approximately 0800 hours. Daily precipitation record is for the previous 24 hours.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00
2	e.50	.00	.00	.00	.00	.00	.10	.00	.80	.00	.10	.00
3	e.00	.00	.00	.10	.00	.10	.00	.00	.00	.00	.00	.00
4	e1.00	.00	.00	.00	.20	.00	.00	.20	.40	.00	.10	.20
5	.00	.00	.00	1.10	.00	.00	.00	.00	.00	.00	.10	.00
6	.00	.00	.00	.00	.00	.10	.00	.00	.30	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.40	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.20	.20	.00	.80	.00	.00	.00
11	.00	1.10	.00	.00	.20	.00	.00	.00	.70	.00	.00	.00
12	.00	.20	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.50	.00	.00	.20
14	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00	.00
15	.00	.00	.00	.90	.10	.00	.50	.00	.30	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.30	.00	.40	.30	.00	.00
17	2.10	.00	.10	.00	.10	.00	.00	.00	.00	.70	.00	.00
18	.00	.00	.10	.10	.00	.00	.00	.00	.30	.00	.00	.00
19	.00	.00	.10	.00	.00	.20	.00	.00	.10	.00	.00	.10
20	.00	.20	.00	.00	.00	.00	.00	.00	.20	.00	.00	.00
21	.00	.00	.00	.10	.00	.00	.80	.00	.00	.00	.40	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.10	.00	.00	2.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.50	.00	.00	.10	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.50	.00	.00	.00	.10
28	.80	.00	.10	.00	.40	.00	.00	.00	.00	.00	.00	.00
29	.20	.00	.10	.00	---	.20	.00	.00	.30	.00	.20	.00
30	.00	.00	.00	.00	---	.20	.00	.00	.20	.00	.10	.00
31	.00	---	.00	.00	---	.00	---	.00	---	1.40	.00	---
TOTAL	4.60	1.50	0.50	2.30	1.10	1.00	2.40	3.00	6.00	2.90	1.00	0.60

CAL YR 1998 TOTAL 31.80
WTR YR 1999 TOTAL 26.90

e Estimated

433848103443200 PRECIP AT S & G CANYON NEAR PRINGLE, SD

LOCATION.--Lat 43°38'48", long 103°44'32", in NW¼ SE¼ NE¼, sec.3, T.5 S., R.3 E., Custer County, Hydrologic Unit 10120106, 6.2 mi southeast of Jewel Cave National Monument, 8.0 mi west northwest of Pringle, and 9.0 mi south southwest of Custer.

PERIOD OF RECORD.--May 1991 to current year (seasonal record).

INSTRUMENTATION.--Non-shielded, 4.0-in. diameter plastic gage with 11-in. capacity. Elevation of gage is 4,880 ft above sea level, from topographic map.

REMARKS.--Records fair. Precipitation gage is read daily by observer at approximately 0900 hours. Daily precipitation record is for the previous 24 hours.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	.00	.19
2	---	---	---	---	---	---	---	.00	.72	.00	.00	.39
3	---	---	---	---	---	---	---	.00	.00	.00	.05	.69
4	---	---	---	---	---	---	---	.00	.00	.00	.00	.04
5	---	---	---	---	---	---	---	.00	1.25	.00	.00	.00
6	---	---	---	---	---	---	---	.00	.00	.38	.36	.00
7	---	---	---	---	---	---	---	.00	.10	.00	.00	.00
8	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
9	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.47	1.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.85	.00	.00	.00
12	---	---	---	---	---	---	---	.00	.21	.00	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
14	---	---	---	---	---	---	---	.57	.36	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.00	.30	.00	.00
16	---	---	---	---	---	---	---	.00	.10	.41	.00	.00
17	---	---	---	---	---	---	---	.00	.25	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.18
19	---	---	---	---	---	---	---	.73	.18	.00	.00	.00
20	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
21	---	---	---	---	---	---	---	.20	.00	.00	.00	.00
22	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
24	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.04	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.15	.00	.00	.00
27	---	---	---	---	---	---	---	.00	.30	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	1.25	.00
29	---	---	---	---	---	---	---	.00	.04	.10	.04	.00
30	---	---	---	---	---	---	---	.00	.00	1.00	.00	.00
31	---	---	---	---	---	---	---	.16	---	2.15	.00	---
TOTAL	---	---	---	---	---	---	---	2.13	5.55	4.34	1.70	1.49

DAILY PRECIPITATION STATIONS

CHEYENNE RIVER BASIN

440756103450300 PRECIP AT TELEGRAPH GULCH ABOVE ROCHFORD, SD

LOCATION.--Lat 44°07'56", long 103°45'03", in SW¼ NW¼ NE¼ SW¼ sec.15, T.2 N., R.3 E., Pennington County, Hydrologic Unit 10120110, 1.0 mi east of Telegraph Gulch and 1.5 mi west of Rochford.

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

INSTRUMENTATION.--Non-shielded, metal can with 8.0-in. diameter orifice and 24-in capacity. Elevation of gage is 5,500 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--9 years, 24.86 in.

REMARKS.--Records fair except those for estimated periods, which are poor. Precipitation gage is read daily by observer at approximately 0730 hours. Daily precipitation record is for the previous 24 hours.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	.15	.00	.09	.00	.00	.74	.00	.00	.00	1.68	.00
2	.09	.19	.00	.00	.09	.03	.14	.00	.00	.00	.00	.66
3	.77	.00	.00	.00	.00	.00	.22	.00	.83	.00	.00	.35
4	.98	.00	.00	.13	.00	.00	.00	.10	.00	.00	.06	.00
5	.34	.00	.00	.07	.00	.17	.00	.11	.05	.00	.00	.00
6	.00	.30	.00	.13	.00	.12	.00	.00	1.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.17	.46	.00
8	.00	.23	.00	.00	.00	.00	.00	.00	.11	.00	.00	.00
9	.00	.08	.00	.12	.00	.00	.12	.17	.00	.00	.00	.00
10	.22	.00	.00	.00	.03	.18	.32	.13	.40	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.15	.07	1.28	.00	.00	.17
12	.00	.00	.00	.00	.00	.00	.00	.00	.18	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.62	.00	.00	.00
14	.00	.00	.00	.01	.00	.00	.07	.16	.14	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	e.14	.18	.45	.00	.00	.00
16	1.27	.00	.00	.00	.00	.00	e.01	.29	.06	.17	.00	.00
17	.00	.00	.00	.00	.04	.00	e.00	.00	.00	.80	.00	.00
18	.00	.00	.02	.00	.00	.00	e.00	.00	.13	.25	.00	.13
19	.00	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00
20	.00	.00	.05	.00	.01	.00	e.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	e.66	.10	.00	.00	.00	.00
22	.00	.00	.00	.08	.00	.00	e.04	.34	.00	.00	.34	.00
23	.00	.00	.00	.00	.00	.00	e.01	.00	.15	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00
25	.00	.00	.10	.00	.00	.00	e.09	e.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.18	.00	e.16	e.53	.00	.00	.00	.00
27	.55	.00	.00	.00	.00	.00	.00	e.02	.00	.00	.00	.00
28	.13	.00	.02	.00	.00	.27	.00	e.00	.13	.00	.3	.00
29	.00	.00	.22	.00	---	.00	.00	e.00	.00	.00	.83	.00
30	.00	.00	.00	.00	---	.00	.00	e.00	.00	.68	.00	.00
31	.00	---	.17	.00	---	.00	---	e.02	---	.00	.00	---
TOTAL	4.47	0.95	0.58	0.63	0.35	0.77	2.87	2.22	5.53	2.07	3.67	1.31

CAL YR 1998 TOTAL 35.98
WTR YR 1999 TOTAL 25.42

e Estimated

DAILY PRECIPITATION STATIONS

CHEYENNE RIVER BASIN

434534103290500 PRECIP NEAR MT. COOLIDGE NEAR CUSTER, SD

LOCATION.--Lat 43°45'34", long 103°29'05", in NW¼ NE¼ NW¼ SE¼ sec.26, T.3 S., R.5 E., Custer County, Hydrologic Unit 10120109, 0.3 mi southwest of the intersection of U.S. Highway 16A and State Highway 87, 1 mi north of Mt. Coolidge, and 4.9 mi east of Custer.

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

INSTRUMENTATION.--Precipitation recorder with shielded 8.0-in. orifice and 12-in. capacity. Elevation of gage is 5,010 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--10 years, 24.84 in.

REMARKS.--Records fair.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.15	.00	.03	.71	.06	.00	.00	.33	.12
2	.70	.16	.00	.03	.00	.00	.16	.02	.11	.00	.00	.28
3	.15	.46	.00	.00	.00	.00	.20	.13	.48	.00	.00	.35
4	.81	.11	.00	.00	.00	.00	.00	.05	.05	.00	.00	.09
5	.25	.02	.00	.00	.00	.27	.10	.00	.36	.00	.00	.00
6	.03	.55	.00	.30	.00	.00	.00	.00	.12	.00	.09	.00
7	.00	.04	.00	.00	.00	.00	.00	.00	.09	.00	1.34	.00
8	.00	.00	.00	.00	.01	.21	.50	.00	.00	.00	.00	.00
9	.00	.30	.00	.00	.00	.00	.55	.25	.00	.00	.00	.00
10	.13	.00	.00	.00	.08	.35	.20	.43	.45	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.64	.00	.00	.01
12	.00	.00	.00	.00	.00	.00	.00	.00	.11	.00	.00	.01
13	.00	.00	.00	.00	.00	.01	.20	.06	.25	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.24	.32	.45	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.03	.04	.29	.38	.00	.00
16	.78	.00	.00	.00	.00	.01	.00	.16	.00	.01	.00	.00
17	.44	.00	.00	.00	.04	.00	.00	.00	.00	1.23	.00	.00
18	.00	.00	.20	.00	.01	.00	.00	.00	.69	.01	.00	.00
19	.00	.00	.10	.00	.00	.00	.00	.46	.00	.14	.00	.16
20	.00	.00	.09	.18	.01	.00	.31	.00	.00	.00	.00	.00
21	.00	.00	.01	.05	.03	.00	.26	.17	.00	.01	.14	.00
22	.00	.00	.00	.01	.01	.06	.59	.64	.00	.00	.02	.00
23	.05	.02	.00	.05	.00	.02	.02	.00	.00	.00	.00	.00
24	.00	.00	.00	.15	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.01	.58	.00	.00	.00	.00	.00
26	.00	.00	.00	.11	.01	.00	.05	.00	.00	.00	.00	.01
27	.00	.00	.00	.01	.00	.00	.00	.00	.22	.00	.00	.10
28	1.91	.00	.00	.00	.00	.03	.00	.00	.05	.00	.00	.12
29	.03	.02	.00	.00	---	.00	.03	.01	.00	.00	.41	.00
30	.04	.03	.00	.00	---	.00	.06	.00	.19	.00	.00	.00
31	.00	---	.00	.00	---	.04	---	.11	---	2.99	.00	---
TOTAL	5.32	1.71	0.40	1.04	0.20	1.04	4.79	2.91	4.55	4.77	2.33	1.25

CAL YR 1998 TOTAL 29.84
WTR YR 1999 TOTAL 30.31

DAILY PRECIPITATION STATIONS

CHEYENNE RIVER BASIN

440001103300200 PRECIP NEAR SHERIDAN LAKE NEAR HILL CITY, SD

LOCATION.--Lat 44°00'01", long 103°30'02", in NE¼ SE¼ NW¼ SE¼ sec.34, T.1 N., R.5 E., Pennington County, Hydrologic Unit 10120109, along Horse Creek, 0.2 mi west of U.S. Highway 385, 2.0 mi northwest of Sheridan Lake, and 5.0 mi northeast of Hill City.

PERIOD OF RECORD.--October 1988 to current year (seasonal record).

INSTRUMENTATION.--Non-shielded, 4.0-in. diameter plastic gage with 11-in. capacity. Elevation of gage is 4,790 ft above sea level, from topographic map.

REMARKS.--Records fair. Precipitation gage is read daily by observer at approximately 0730 hours. Daily precipitation record is for the previous 24 hours.

PRECIPITATION INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	---	---
2	---	---	---	---	---	---	---	.00	1.05	.00	---	---
3	---	---	---	---	---	---	---	.18	.00	.00	---	---
4	---	---	---	---	---	---	---	.00	.00	.00	---	---
5	---	---	---	---	---	---	---	.00	1.40	.00	---	---
6	---	---	---	---	---	---	---	.00	.00	.00	---	---
7	---	---	---	---	---	---	---	.00	.00	.00	---	---
8	---	---	---	---	---	---	---	.00	.00	.04	---	---
9	---	---	---	---	---	---	---	.30	.35	.29	---	---
10	---	---	---	---	---	---	---	.08	.77	.00	---	---
11	---	---	---	---	---	---	---	.00	.00	.00	---	---
12	---	---	---	---	---	---	---	.00	.00	.00	---	---
13	---	---	---	---	---	---	---	.14	.00	.00	---	---
14	---	---	---	---	---	---	---	.00	.84	.00	---	---
15	---	---	---	---	---	---	---	.00	.00	.00	---	---
16	---	---	---	---	---	---	---	.00	.00	.00	---	---
17	---	---	---	---	---	---	---	.00	.00	.85	---	---
18	---	---	---	---	---	---	---	.00	.12	.00	---	---
19	---	---	---	---	---	---	---	.34	.00	.00	---	---
20	---	---	---	---	---	---	---	.00	.00	.00	---	---
21	---	---	---	---	---	---	---	.36	.00	.00	---	---
22	---	---	---	---	---	---	---	.00	.00	.00	---	---
23	---	---	---	---	---	---	---	.00	.00	.00	---	---
24	---	---	---	---	---	---	---	.00	.00	.00	---	---
25	---	---	---	---	---	---	---	.00	.00	.00	---	---
26	---	---	---	---	---	---	---	.85	.00	.00	---	---
27	---	---	---	---	---	---	---	.00	.22	.00	---	---
28	---	---	---	---	---	---	---	.00	.00	.00	---	---
29	---	---	---	---	---	---	---	.00	.00	.00	---	---
30	---	---	---	---	---	---	---	.00	.00	.00	---	---
31	---	---	---	---	---	---	---	.05	---	1.80	---	---
TOTAL	---	---	---	---	---	---	---	2.30	4.75	2.98	---	---

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 1998 TO SEPTEMBER 1999
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.15	.00	<.01	.00	.00	.01	.21	<.01	.00
2	.42	.00	.00	.00	.00	.00	.00	<.01	.00	.07	<.01	.01
3	<.01	.00	.00	.00	.00	.00	.07	.03	.14	<.01	.00	.57
4	1.90	.00	.01	.00	.00	.00	.01	.86	.00	.00	.01	.79
5	<.01	.00	.03	.00	.00	<.01	.37	.73	1.38	.00	.00	.00
6	.03	.00	.00	<.01	.00	.00	.00	.04	.00	<.01	.00	.00
7	.00	.10	.00	.00	.00	.00	<.01	<.01	.02	.00	.03	.00
8	.00	.04	.00	.05	.00	.06	.55	.00	.00	<.01	.00	.00
9	.00	.66	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.14	.00	.00	.00	.06	.72	.47	<.01	.00	.00	.00
11	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	<.01
12	.00	.00	.00	.00	.00	.00	.00	.00	<.01	.00	.16	.01
13	.00	.00	.00	<.01	.00	.00	<.01	.00	.02	<.01	.01	.01
14	.00	.00	.00	.00	.00	.00	.04	.04	.00	.00	.04	.00
15	.30	.00	.00	.05	.00	.00	.01	.17	.25	.06	.00	.00
16	1.54	.00	.00	.00	.00	.00	.00	.01	.15	.00	.00	.00
17	.04	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
18	.00	<.01	.00	.00	.00	.00	.00	.00	.19	.03	.00	.44
19	.00	.00	.00	.00	.05	.00	.00	.00	.04	.35	.00	.06
20	.00	.00	<.01	<.01	.05	.00	.00	.00	.01	.10	.62	.00
21	.00	.00	.00	.01	<.01	.00	.48	.00	<.01	.00	.00	.00
22	.00	.00	.00	.10	.10	.00	.00	<.01	.40	.02	.03	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00
24	.00	.00	.00	.04	<.01	.00	.00	<.01	.07	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.38
26	.17	.00	.00	<.01	.00	.00	.35	.00	.00	.00	.02	.02
27	.00	.00	.00	<.01	<.01	.07	.00	<.01	.04	.03	.00	.00
28	.71	.00	.00	.03	.00	.06	.00	.00	.40	.00	.00	.00
29	.39	.00	.00	.00	---	.00	.00	.00	.38	.01	.28	.00
30	.06	.00	.05	.00	---	.00	.00	.00	.00	.33	.99	.00
31	.01	---	.00	.00	---	.00	---	.04	---	<.01	.00	---
TOTAL	5.62	0.95	0.10	0.48	0.23	0.27	2.62	2.44	3.56	1.27	2.21	2.30

CAL YR 1998 TOTAL 22.68
WTR YR 1999 TOTAL 22.05

< Actual value is known to be less than the value shown

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 (2000), NADP Program Office, Illinois State Water Survey, 2204 Griffith Drive, Champaign, IL 61820, and are not reviewed for accuracy or consistency by the South Dakota District of the USGS. This data will be posted on the Internet as it becomes availaable at http://nadp.sws.uiuc.edu/nadpdata.

WATER-QUALITY DATA

DATE	TOTAL PRECIP-ITATION FOR DEFINED PERIOD (IN) (00193)	VOLUME ATM DEP WET (L) (83177)	SPEC. CONDUC-TANCE FIELD ATM DEP WET TOT (US/CM) (83154)	SPEC. CONDUC-TANCE LAB ATM DEP WET TOT (US/CM) (83156)	PH FIELD ATM DEP WET T (UNITS) (83106)	PH LAB ATM DEP WET T (UNITS) (83107)	CALCIUM ATM DEP WET DIS (MG/L) (82932)
SEP 29-OCT 06	2.35	3.861	5.6	4.0	5.07	5.59	.084
OCT 06-13	.03	.057	--	--	--	5.68	.937
OCT 13-20	1.88	3.354	11.4	11.9	5.15	5.57	.398
OCT 20-27	.17	.306	18.1	14.5	4.81	5.30	.244
OCT 27-NOV 03	1.17	2.050	7.9	6.6	5.36	5.56	.091
NOV 03-11	.94	1.672	6.4	6.2	4.96	5.17	.063
NOV 11-17	.00	.000	--	--	--	--	--
NOV 17-24	.00	.000	--	--	--	--	--
NOV 24-DEC 01	.00	.000	--	--	--	--	--
DEC 01-08	.04	.056	--	--	--	6.25	.670
DEC 08-15	.00	.000	--	--	--	--	--
DEC 15-22	.00	.000	--	--	--	--	--
DEC 22-29	.00	.000	--	--	--	--	--
DEC 29 1998-JAN 05 1999	.20	.000	--	--	--	--	--
JAN 05-12	.05	.043	--	--	--	5.00	.152
JAN 12-19	.05	.137	4.0	3.7	5.23	5.60	.070
JAN 19-26	.15	.122	32.9	30.6	4.27	4.40	.248
JAN 26-FEB 02	.03	.052	--	--	--	4.41	.879
FEB 02-09	.00	.000	--	--	--	--	--
FEB 09-16	.00	.000	--	--	--	--	--
FEB 16-23	.20	.002	--	--	--	--	--
FEB 23-MAR 02	.01	.009	--	--	--	--	--
MAR 02-09	.06	.010	--	--	--	--	--
MAR 09-16	.06	.002	--	--	--	--	--
MAR 16-23	.00	.000	--	--	--	--	--
MAR 23-30	.13	.216	--	--	--	--	--
MAR 30-APR 06	.45	.870	7.9	7.8	6.06	6.58	.315
APR 06-13	1.27	2.212	10.1	8.4	5.52	5.95	.468
APR 13-20	.05	.081	--	--	--	6.93	1.08
APR 20-26	.83	1.665	6.1	5.8	5.53	6.04	.098
APR 26-MAY 04	.66	1.214	9.9	10.0	5.68	6.38	.408
MAY 04-11	1.47	2.935	8.8	9.0	5.96	6.38	.382
MAY 11-20	.28	.581	--	--	--	--	--
MAY 20-25	.02	.041	--	--	--	--	--
MAY 25-JUN 01	.05	.053	--	--	--	6.69	.475

00430061 HURON WELL FIELD--Continued
(National Trends Network Acid Precipitation Station)

WATER-QUALITY DATA

DATE	MAG-NESIUM ATM DEP WET DIS (MG/L) (83002)	SODIUM ATM DEP WET DIS (MG/L) (83138)	POTAS-SIUM ATM DEP WET DIS (MG/L) (83120)	SULFATE ATM DEP WET DIS AS SO4 (MG/L) (83160)	CHLO-RIDE ATM DEP WET DIS (MG/L) (82944)	NI-TROGEN NITRATE ATM DEP WET DIS AS NO3 (MG/L) (83071)	NI-TROGEN AMMON. ATM DEP WET DIS AS NH4 (MG/L) (83047)
SEP 29-OCT 06	.020	.016	.009	.42	<.03	.46	.210
OCT 06-13	.066	.035	.079	3.01	.11	3.27	1.08
OCT 13-20	.030	.030	.029	2.13	.04	1.44	.840
OCT 20-27	.041	.037	.024	2.24	.07	2.07	1.17
OCT 27-NOV 03	.015	.049	.011	.69	.07	1.06	.510
NOV 03-11	.014	.021	.011	.49	<.03	.82	.240
NOV 11-17	--	--	--	--	--	--	--
NOV 17-24	--	--	--	--	--	--	--
NOV 24-DEC 01	--	--	--	--	--	--	--
DEC 01-08	.073	.098	.068	4.01	.24	4.09	2.28
DEC 08-15	--	--	--	--	--	--	--
DEC 15-22	--	--	--	--	--	--	--
DEC 22-29	--	--	--	--	--	--	--
DEC 29 1998-JAN 05 1999	--	--	--	--	--	--	--
JAN 05-12	.033	.041	.043	.27	.09	1.75	.140
JAN 12-19	.015	.014	.005	.23	.04	.32	.190
JAN 19-26	.050	.029	.019	2.18	.15	5.28	1.04
JAN 26-FEB 02	.082	.260	.101	7.60	.36	14.6	4.99
FEB 02-09	--	--	--	--	--	--	--
FEB 09-16	--	--	--	--	--	--	--
FEB 16-23	--	--	--	--	--	--	--
FEB 23-MAR 02	--	--	--	--	--	--	--
MAR 02-09	--	--	--	--	--	--	--
MAR 09-16	--	--	--	--	--	--	--
MAR 16-23	--	--	--	--	--	--	--
MAR 23-30	--	--	--	--	--	--	--
MAR 30-APR 06	.025	.030	.024	.52	.04	.87	.730
APR 06-13	.044	.038	.036	1.01	.06	1.28	.490
APR 13-20	.117	.065	.086	3.00	.13	5.68	3.04
APR 20-26	.015	.010	.009	.54	<.03	.86	.510
APR 26-MAY 04	.044	.055	.018	1.12	.07	1.16	.830
MAY 04-11	.038	.062	.028	.93	.08	1.27	.790
MAY 11-20	--	--	--	--	--	--	--
MAY 20-25	--	--	--	--	--	--	--
MAY 25-JUN 01	.076	.038	.043	.61	.11	1.62	1.09

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)	SPEC. CONDUC-TANCE FIELD ATM DEP WET TOT (US/CM) (83154)	SPEC. CONDUC-TANCE LAB ATM DEP WET TOT (US/CM) (83156)	PH FIELD ATM DEP WET T (UNITS) (83106)	PH LAB ATM DEP WET T (UNITS) (83107)	CALCIUM ATM DEP WET DIS (MG/L) (82932)
JUN 1999 01-08	1.54	2.771	11.3	12.6	6.25	6.69	.593
JUN 08-15	.02	.020	--	--	--	--	--
JUN 15-22	.64	1.000	10.3	10.7	6.34	6.59	.415
JUN 22-29	.94	1.704	7.7	8.4	5.88	6.25	.247
JUN 29-JUL 06	.66	1.252	5.2	5.5	6.02	6.03	.138
JUL 06-13	.00	.000	--	--	--	--	--
JUL 13-20	.55	.892	10.6	10.9	6.28	6.46	.224
JUL 20-27	.02	.000	--	--	--	--	--
JUL 27-AUG 03	.37	.607	13.9	14.3	6.56	6.48	.593
AUG 03-10	.04	.062	--	--	--	5.23	.321
AUG 10-17	.21	.348	13.5	14.7	5.81	6.26	.579
AUG 17-24	.65	1.147	14.3	14.4	6.51	6.64	.597
AUG 24-31	1.29	2.143	9.7	9.4	5.60	5.94	.345
AUG 31-SEP 07	1.37	2.340	11.3	11.1	4.93	5.01	.256
SEP 07-14	.02	.033	--	--	--	5.44	.626
SEP 14-21	.50	.880	10.5	9.9	5.53	6.48	.426
SEP 21-28	.40	.749	9.7	9.7	6.07	6.90	.583
SEP 28-OCT 05	.59	1.012	8.7	8.3	5.88	6.17	.343

DATE	MAG-NESIUM ATM DEP WET DIS (MG/L) (83002)	SODIUM ATM DEP WET DIS (MG/L) (83138)	POTAS-SIUM ATM DEP WET DIS (MG/L) (83120)	SULFATE ATM DEP WET DIS AS SO4 (MG/L) (83160)	CHLO-RIDE ATM DEP WET DIS (MG/L) (82944)	NI-TROGEN NITRATE ATM DEP WET DIS AS NO3 (MG/L) (83071)	NI-TROGEN AMMON. ATM DEP WET DIS AS NH4 (MG/L) (83047)
JUN 1999 01-08	.052	.105	.063	1.06	.10	1.35	1.14
JUN 08-15	--	--	--	--	--	--	--
JUN 15-22	.099	.018	.046	.91	.06	1.27	.820
JUN 22-29	.046	.034	.039	.78	.07	1.18	.610
JUN 29-JUL 06	.019	.023	.028	.38	.06	.86	.440
JUL 06-13	--	--	--	--	--	--	--
JUL 13-20	.044	.035	.052	.80	.07	1.69	1.18
JUL 20-27	--	--	--	--	--	--	--
JUL 27-AUG 03	.092	.047	.078	1.27	.12	2.26	1.10
AUG 03-10	.048	.005	.022	.25	.04	1.13	<.020
AUG 10-17	.056	.027	.052	1.43	.07	2.79	1.12
AUG 17-24	.074	.019	.086	1.11	.08	2.14	1.19
AUG 24-31	.031	.009	.018	1.21	.04	1.44	.650
AUG 31-SEP 07	.014	.014	.017	1.39	.05	1.29	.470
SEP 07-14	.737	.041	.082	2.05	.12	2.69	.960
SEP 14-21	.071	.016	.038	1.08	.05	1.39	.710
SEP 21-28	.087	.032	.042	.68	.03	.97	.730
SEP 28-OCT 05	.043	.034	.035	.86	.04	1.17	.610

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 1998 TO SEPTEMBER 1999

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)
LAGOON #1	434415096371501	05-12-99	1130	1080	8.0	14.5	15.0	729
EROS LAKE	434405096365501	05-12-99	0945	747	8.7	14.0	14.6	729
103N48W 5CACA2	434508096372701	05-11-99	1545	871	7.2	18.0	9.0	727
103N48W 9CCDA	434400096362201	05-11-99	1430	941	7.2	18.0	9.4	730
103N48W17ACCC2	434332096371501	05-11-99	1130	882	7.0	16.0	9.5	728

STATION NAME	DATE	OXYGEN, DIS-SOLVED (MG/L) (00300)	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)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	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)	NITRO-GEN NITRATE DIS-SOLVED (MG/L AS N) (00618)
LAGOON #1	05-12-99	5.5	57	71	87	681	<.020	.754	1.93	1.17
EROS LAKE	05-12-99	9.7	100	--	21	485	.023	<.010	<.050	--
103N48W 5CACA2	05-11-99	--	--	--	<10	571	<.020	<.010	7.84	--
103N48W 9CCDA	05-11-99	--	--	--	<10	625	<.020	<.010	23.7	--
103N48W17ACCC2	05-11-99	--	--	--	<10	600	.187	<.010	<.050	--

STATION NAME	DATE	PHOS-PHORUS ORTHO, 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 (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	05-12-99	3.75	70	240	2.6	.035	1700	18	7.8	40
EROS LAKE	05-12-99	.319	20	270	<1.0	<.010	60	<1	<1.0	0
103N48W 5CACA2	05-11-99	.017	340	110	<1.0	<.010	3500	<1	<1.0	260
103N48W 9CCDA	05-11-99	.025	10	60	<1.0	<.010	<10	<1	<1.0	40
103N48W17ACCC2	05-11-99	.017	10	290	<1.0	<.010	230	<1	<1.0	10

The following water-quality data were collected at two locations at the City of Mitchell Water Treatment Plant and one location on Firesteel Creek immediately downstream from Lake Mitchell, the source of the City's water supply. Water samples were routinely collected during the summer of 1999 as part of a nationwide monitoring project to investigate the occurrence of pesticides in drinking-water supplies that derive their water from reservoirs. This project was conducted by the USGS National Water Quality Assessment Program, which is performing a long-term assessment of the status and trends in the quality of the Nation's water resources.

The data presented represent currently (March 2000) available results. Complete laboratory results for some samples were not available at the time of preparation of this report. Complete results will be presented in the future or will be available from the South Dakota District office in Rapid City.

434424098013000 FIRESTEEL CREEK (HIGHWAY 37) AT MITCHELL

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	1,4-NAPTHO QUINON WATER FLTRD REC (UG/L) (61611)	1-NAPH THOL, WATER, FLTRD, GF 0.7U REC (UG/L) (49295)	2(4TERT BUTYL-PHENOXY CYCLO-HEXANOL FLT REC (UG/L) (61637)
APR												
20...	1345	208	731	100	10.4	8.1	1040	23.0	11.5	<.0080	<.0050	<.0160
MAY												
18...	1245	307	737	99	9.1	7.9	1020	22.0	17.5	<.0080	<.0050	<.0160
JUN												
01...	1410	69	731	98	8.5	8.0	1100	19.0	20.0	<.0080	<.0050	<.0160
15...	1255	66	742	106	9.0	8.3	1150	19.0	22.0	<.0080	<.0050	<.0160
29...	1335	22	734	100	8.1	8.5	1170	24.0	24.0	<.0080	<.0050	<.0160
JUL												
13...	1255	74	732	106	8.3	8.4	1100	30.5	25.4	<.0080	<.0050	<.0160
27...	1305	14	736	99	7.2	8.6	1010	33.5	30.0	--	--	--
AUG												
10...	1430	.42	733	181	13.8	8.7	1040	29.5	27.0	--	--	--
SEP												
07...	1250	76	729	102	8.2	8.8	1010	27.0	24.0	--	--	--

DATE	2,4-D METHYL ESTER, WATER FLTRD REC (UG/L) (50470)	2,4-D, DIS-SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	2,5-DI-CHLORO-ANILINE WATER FLTRD REC (UG/L) (61614)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	2-[2-ETHYL-6-METHY _PANOL WAT FLT REC (UG/L) (61615)	2AMINON ISOPROP PYLBEN ZAMIDE WAT FLT REC (UG/L) (61617)	2CHLORO -2,6-DIETHYL ACET-ANILIDE FLT REC (UG/L) (61618)	3HYDRXY CARBO-FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	3-KETO CARBO-FURAN WATER FLTRD REC (UG/L) (50295)	4CHLORO 2-METH-YL-PHENOL WAT FLT REC (UG/L) (61633)	4CHLORO BENZYL METHYL SULFONE WAT FLT REC (UG/L) (61634)
APR												
20...	E.012	E.063	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080
MAY												
18...	E.077	.283	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080
JUN												
01...	E.035	.702	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080
15...	E.062	.489	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080
29...	<.086	<.077	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080
JUL												
13...	--	--	--	<.0050	<.0030	<.0160	<.0050	<.0080	--	--	<.0050	<.0080
27...	--	--	--	--	<.0030	--	--	--	--	--	--	--
AUG												
10...	<.086	.095	<.0538	--	<.0030	--	--	--	<.0623	<.072	--	--
SEP												
07...	--	--	--	--	<.0030	--	--	--	--	--	--	--

DATE	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 SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA-RB SUL-FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	ALDI-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALPHA BHC DIS-SOLVED (UG/L) (34253)	ANILINE 2-ETHYL 6METHYL WATER FLTRD REC (UG/L) (61620)	ANILINE 3,4-DI-CHLORO WATER FLTRD REC (UG/L) (61625)	ANILINE 3,5-DI-CHLORO WATER FLTRD REC (UG/L) (61627)	ANILINE 3-TRI-FLUORO-METHYL WAT FLT REC (UG/L) (61630)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)
APR												
20...	.395	<.0622	<.002	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	1.11
MAY												
18...	.375	<.0622	.017	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	1.72
JUN												
01...	.265	<.0622	.011	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	1.31
15...	.149	<.0622	.006	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	1.17
29...	.102	<.0622	.005	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	.963
JUL												
13...	.0853	--	<.002	--	--	--	<.0020	<.0050	<.0080	<.0050	<.0050	2.09
27...	.0656	--	<.002	--	--	--	<.0020	--	--	--	--	2.66
AUG												
10...	.0262	<.0622	<.002	<.160	<.0271	<.0815	<.0020	--	--	--	--	2.24
SEP												
07...	.0433	--	<.002	--	--	--	<.0020	--	--	--	--	2.29

434424098013000 FIRESTEEL CREEK (HIGHWAY 37) AT MITCHELL--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	AZINPHOS-METHYL-OXON WAT FLT REC (UG/L) (61635)	BENDIOCARB, WATER FLTRD REC (UG/L) (50299)	BENFLURALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BENOMYL WATER FLTRD REC (UG/L) (50300)	BENSULFURON METHYL WAT FLT REC (UG/L) (61693)	BENTAZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BENZOPHENONE 4,4-DICHLORO WAT FLT REC (UG/L) (61631)	BENZYL ALCOHOL 3-PHENOXY WAT FLT REC (UG/L) (61629)	BIFENTHRIN WATER FLTRD REC (UG/L) (61580)	BROMOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYLATE, WATER, DISS, REC (UG/L) (04028)	CAFFEINE, WATER FLTRD REC (UG/L) (50305)
APR												
20...	<.0310	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080
MAY												
18...	<.0310	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080
JUN												
01...	<.0310	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080
15...	<.0310	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080
29...	<.0310	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080
JUL												
13...	<.0310	--	<.0020	--	--	--	<.0080	<.0310	<.0020	--	<.0020	--
27...	--	--	<.0020	--	--	--	--	--	--	--	<.0020	--
AUG												
10...	--	<.061	<.0020	<.022	<.0482	<.0193	--	--	--	<.0572	<.0020	<.080
SEP												
07...	--	--	<.0020	--	--	--	--	--	--	--	<.0020	--

DATE	CARBARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CARBARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBOFURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	CARBOFURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLORIMURON, WATER FLTRD REC (UG/L) (50306)	CHLOROTHALONIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLORPYRIFOS DISSOLVED (UG/L) (38933)	CHLORPYRIFOS OXYGEN ANALOG WAT FLT REC (UG/L) (61636)	CIS-CARBOXYATE WATER FLTRD REC (UG/L) (79842)	CIS-PROPICONAZOLE WAT FLT REC (UG/L) (79846)	CLOPYRALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANAZINE, WATER, DISS, REC (UG/L) (04041)
APR												
20...	<.0628	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0148
MAY												
18...	<.0628	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0182
JUN												
01...	<.0628	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0270
15...	<.0628	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0320
29...	<.0628	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0282
JUL												
13...	--	<.0030	--	<.0030	--	--	<.0040	<.0160	<.0160	<.0050	--	.0466
27...	--	<.0030	--	<.0030	--	--	<.0040	--	--	--	--	.0647
AUG												
10...	<.0628	E.0010	<.0566	<.0030	E.023	<.0485	<.0040	--	--	--	<.0411	.0321
SEP												
07...	--	<.0030	--	<.0030	--	--	<.0040	--	--	--	--	.0420

DATE	SICLOATE, WATER, DISS, REC (UG/L) (04031)	CYFLUTHRIN WATER FLTRD REC (UG/L) (61585)	CYPERMETHRIN WATER FLTRD REC (UG/L) (61586)	DACTHAL MONO-ACID, WAT,FLT GF 0.7U REC (UG/L) (49304)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L) (04040)	DEETHYL DEISOPROPYL ATRAZIN DISS, REC (UG/L) (04039)	DEISOPROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DIAZINON, DISSOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLORPROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DICROTOPHOS WATER FLTRD REC (UG/L) (38454)
APR												
20...	<.05	<.0310	<.0310	<.0722	<.0020	E.124	E.02	E.0469	<.002	<.0960	<.0500	<.0160
MAY												
18...	<.05	<.0310	<.0310	<.0722	<.0020	E.151	E.02	E.0467	<.002	<.0960	<.0500	<.0160
JUN												
01...	<.05	<.0310	<.0310	<.0722	<.0020	E.106	E.03	E.0580	<.002	<.0960	<.0500	<.0160
15...	<.05	<.0310	<.0310	<.0722	<.0020	E.0927	E.02	E.0298	<.002	<.0960	<.0500	<.0160
29...	<.05	<.0310	<.0310	<.0722	<.0020	E.139	E.03	.0891	<.002	<.0960	<.0500	<.0160
JUL												
13...	<.02	<.0310	<.0310	--	<.0020	E.293	--	--	<.002	--	--	<.0160
27...	--	--	--	--	<.0020	E.395	--	--	<.002	--	--	--
AUG												
10...	<.05	--	--	<.0722	<.0020	E.313	E.01	E.0533	<.002	<.0960	<.0500	--
SEP												
07...	--	--	--	--	<.0020	E.341	--	--	<.002	--	--	--

MISCELLANEOUS WATER QUALITY DATA

434424098013000 FIRESTEEL CREEK (HIGHWAY 37) AT MITCHELL--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	DI-ELDRIN DIS-SOLVED (UG/L) (39381)	DIMETH-OATE WATER FLTRD 0.7 U GF, REC (UG/L) (82662)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIPHEN-AMID, WATER, DISS, REC (UG/L) (04033)	DISULF-OTON SULFONE WATER FLTRD REC (UG/L) (61640)	DISULF-OTON SULF-OXIDE WAT FLT REC (UG/L) (61641)	DISUL-FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	E-DI-METHO-MORPH WATER FLTRD REC (UG/L) (79844)	ENDO-SULFAN ALPHA DISSOLV (UG/L) (34362)	ENDO-SULFAN BETA DISSOLV (UG/L) (34357)	ENDO-SULFAN ETHER WATER FLTRD REC (UG/L) (61642)
APR												
20...	<.001	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160
MAY												
18...	<.001	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160
JUN												
01...	<.001	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160
15...	<.001	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160
29...	<.001	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160
JUL												
13...	<.001	<.00	--	--	<.0050	<.0160	<.0170	--	<.0310	<.02	<.02	<.0160
27...	<.001	--	--	--	--	--	<.0170	--	--	--	--	--
AUG												
10...	<.001	--	<.0429	<.06	--	--	<.0170	E.0112	--	--	--	--
SEP												
07...	<.001	--	--	--	--	--	<.0170	--	--	--	--	--

DATE	ENDO-SULFAN SULFATE WATER FLTRD REC (UG/L) (61590)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL-FLUR-ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHION DISSOLV (UG/L) (82346)	ETHION MONOXON WATER FLTRD REC (UG/L) (61644)	ETHO-PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FENAMI-PHOS SULFONE WATER FLTRD REC (UG/L) (61645)	FENAMI-PHOS SULF-OXIDE WAT FLT REC (UG/L) (61646)	FENAMI-PHOS WATER FLTRD REC (UG/L) (61591)	FEN-THION SULF-OXIDE WAT FLT REC (UG/L) (61647)	FEN-URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUME-TRALIN WATER FLTRD REC (UG/L) (61592)
APR												
20...	<.0080	<.0050	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160
MAY												
18...	<.0080	.0193	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160
JUN												
01...	<.0080	.0375	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160
15...	<.0080	.0252	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160
29...	<.0080	.0125	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160
JUL												
13...	<.0080	<.0020	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	--	<.0160
27...	--	<.0020	<.0040	--	--	<.0030	--	--	--	--	--	--
AUG												
10...	--	<.0020	<.0040	--	--	<.0030	--	--	--	--	<.0735	--
SEP												
07...	--	<.0020	<.0040	--	--	<.0030	--	--	--	--	--	--

DATE	FLUMET-SULAM WATER FLTRD REC (UG/L) (61694)	FLUO-METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS OXYGEN ANALOG WATER FLTRD REC (UG/L) (61649)	FONOFOS WATER DISS REC (UG/L) (04095)	HEXA-ZINONE, WATER, DISS, REC (UG/L) (04025)	HYDROXY ATRA-ZINE WATER FLTRD REC (UG/L) (50355)	HYDROXY METHYL-PENDI-METH-LION FLT REC (UG/L) (61665)	IMAZ-AQUIN WATER FLTRD REC (UG/L) (50356)	IMAZE-THAPYR WATER FLTRD REC (UG/L) (50407)	IMID-ACLOP-RID WATER FLTRD REC (UG/L) (61695)	IPRO-DIONE WATER FLTRD REC (UG/L) (61593)
APR											
20...	<.0866	<.0617	<.0160	<.0030	<.01	E.904	<.0310	<.103	<.088	<.106	<.0310
MAY											
18...	<.0866	<.0617	<.0160	<.0030	<.01	E.999	<.0310	<.103	E.027	<.106	<.0310
JUN											
01...	<.0866	<.0617	<.0160	<.0030	<.01	E.899	<.0310	<.103	<.088	<.106	<.0310
15...	<.0866	<.0617	<.0160	<.0030	<.01	E.812	<.0310	<.103	<.088	<.106	<.0310
29...	<.0866	<.0617	<.0160	<.0030	<.01	E1.01	<.0310	<.103	--	<.106	<.0310
JUL											
13...	--	--	<.0160	<.0030	<.01	--	<.0310	--	--	--	<.0310
27...	--	--	--	<.0030	--	--	--	--	--	--	--
AUG											
10...	<.0866	<.0617	--	<.0030	--	E.667	--	<.103	<.088	<.106	--
SEP											
07...	--	--	--	<.0030	--	--	--	--	--	--	--

434424098013000 FIRESTEEL CREEK (HIGHWAY 37) AT MITCHELL--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	ISOFEN-PHOS WATER FLTRD REC (UG/L) (61594)	LAMDA-CYHALO-THRIN WATER FLTRD REC (UG/L) (61595)	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-OXON WATER FLTRD REC (UG/L) (61652)	MALA-THION, DIS-SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	META-LAXYL WATER FLTRD REC (UG/L) (61596)	METAL-AXYL WATER FLTRD REC (UG/L) (50359)	METHI-DATHION WATER FLTRD REC (UG/L) (61598)
APR												
20...	<.0080	<.0080	<.004	<.0695	<.0020	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080
MAY												
18...	<.0080	<.0080	<.004	<.0695	<.0020	<.0380	<.005	<.0585	<.0625	<.0160	<.057	<.0080
JUN												
01...	<.0080	<.0080	<.004	<.0695	<.0020	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080
15...	<.0080	<.0080	<.004	<.0695	<.0020	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080
29...	<.0080	<.0080	<.004	<.0695	<.0020	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080
JUL												
13...	<.0080	<.0080	<.004	--	<.0020	<.0160	<.005	--	--	<.0160	--	<.0080
27...	--	--	<.004	--	<.0020	--	<.005	--	--	--	--	--
AUG												
10...	--	--	<.004	<.0695	<.0020	--	<.005	<.0585	<.0625	--	<.057	--
SEP												
07...	--	--	<.004	--	<.0020	--	<.005	--	--	--	--	--

DATE	METHIO-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH-OMYL OXIME WATER FLTRD REC (UG/L) (61696)	METH-OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METHYL AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA-THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	METRI-BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MET-SUL-FURON METHYL WAT FLT REC (UG/L) (61697)	MOL-INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	MYCLO-BUTANIL WATER FLTRD REC (UG/L) (61599)	NAPROP-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEB-URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)
APR												
20...	<.0795	<.0102	<.0768	<.0010	<.0060	.059	<.004	<.114	<.0040	<.0080	<.0030	<.0747
MAY												
18...	<.0795	<.0102	<.0768	<.0010	<.0060	.081	<.004	<.114	<.0040	<.0080	<.0030	<.0747
JUN												
01...	<.0795	<.0102	<.0768	<.0010	<.0060	.083	<.004	<.114	<.0040	<.0080	<.0030	<.0747
15...	<.0795	<.0102	<.0768	<.0010	<.0060	.062	<.004	<.114	<.0040	<.0080	<.0030	<.0747
29...	<.0795	<.0102	<.0768	<.0010	<.0060	.039	<.004	<.114	<.0040	<.0080	<.0030	<.0747
JUL												
13...	--	--	--	<.0010	<.0060	.036	<.004	--	<.0040	<.0080	<.0030	--
27...	--	--	--	<.0010	<.0060	.034	<.004	--	<.0040	--	<.0030	--
AUG												
10...	<.0795	<.0102	<.0768	<.0010	<.0060	.018	<.004	<.114	<.0040	--	<.0030	<.0747
SEP												
07...	--	--	--	<.0010	<.0060	.032	<.004	--	<.0040	--	<.0030	--

DATE	NICOSUL FURON WATER FLTRD REC (UG/L) (50364)	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	O-ETHYL O-METHY S-PROPY _HIOATE WAT FLT REC (UG/L) (61660)	ORY-ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL OXIME WATER FLTRD REC (UG/L) (50410)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	OXY-FLUOR-FEN WATER FLTRD REC (UG/L) (61600)	P,P' DDE DISSOLV (UG/L) (34653)	PARA-OXON ETHYL WATER FLTRD REC (UG/L) (61663)	PARA-OXON METHYL WATER FLTRD REC (UG/L) (61664)	PARA-THION, DIS-SOLVED (UG/L) (39542)	PEB-ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)
APR												
20...	<.065	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040
MAY												
18...	<.065	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040
JUN												
01...	<.065	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040
15...	<.065	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040
29...	<.065	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040
JUL												
13...	--	--	<.0050	--	--	--	<.0160	<.0060	<.0310	<.0310	<.004	<.0040
27...	--	--	--	--	--	--	--	<.0060	--	--	<.004	<.0040
AUG												
10...	E.047	<.0774	--	<.0711	<.064	<.0160	--	<.0060	--	--	<.004	<.0040
SEP												
07...	--	--	--	--	--	--	--	<.0060	--	--	<.004	<.0040

434424098013000 FIRESTEEL CREEK (HIGHWAY 37) AT MITCHELL--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	PENDIMETHALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PERMETHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE OXON WATER FLTRD REC (UG/L) (61666)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PHOSMET OXON WATER FLTRD REC (UG/L) (61668)	PHOSMET WATER FLTRD REC (UG/L) (61601)	PHOSTEBUPIRIM WATER FLTRD REC (UG/L) (61602)	PICLORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PROFENOFOS WATER FLTRD REC (UG/L) (61603)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROMETRYN, WATER, DISS, REC (UG/L) (04036)	PRONAMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)
APR												
20...	<.0040	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0109	<.0050	<.0030
MAY												
18...	<.0040	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0094	<.0050	<.0030
JUN												
01...	<.0040	<.0050	<.0420	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0093	<.0050	<.0030
15...	<.0040	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0115	<.0050	<.0030
29...	<.0040	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0097	<.0050	<.0030
JUL												
13...	<.0040	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	--	<.0080	E.0074	<.0050	<.0030
27...	<.0040	<.0050	--	<.0020	--	--	--	--	--	E.0176	--	<.0030
AUG												
10...	<.0040	<.0050	--	<.0020	--	--	--	<.0712	--	E.0094	--	<.0030
SEP												
07...	<.0040	<.0050	--	<.0020	--	--	--	--	--	E.0121	--	<.0030

DATE	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	PROPANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PROPARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PROPETAMPHOS WATER FLTRD REC (UG/L) (61604)	PROPHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PROPICONAZOLE , WATER FLTRD REC (UG/L) (50471)	PROPOXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)	SULFOMETRURON METHYL WTR FLT REC (UG/L) (50337)	SULFOTEPP WATER FLTRD REC (UG/L) (61605)	SULPROFOS WATER FLTRD REC (UG/L) (38716)	TCPSA ETHYL ESTER WATER FLTRD REC (UG/L) (61670)
APR												
20...	<.0070	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	.0061	<.039	<.0050	<.0050	<.0050
MAY												
18...	<.0070	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	.0132	<.039	<.0050	<.0050	<.0050
JUN												
01...	<.0070	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	.0159	<.039	<.0050	<.0050	<.0050
15...	<.0070	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	.0119	<.039	<.0050	<.0050	<.0050
29...	<.0070	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	.0132	<.039	<.0050	<.0050	<.0050
JUL												
13...	<.0070	<.0040	<.0400	<.0160	--	--	--	.0089	--	<.0050	<.0050	<.0050
27...	<.0070	<.0040	<.0130	--	--	--	--	.0141	--	--	--	--
AUG												
10...	<.0070	<.0040	<.0130	--	<.0717	<.064	<.0594	.0078	<.039	--	--	--
SEP												
07...	<.0070	<.0040	<.0130	--	--	--	--	.0133	--	--	--	--

DATE	TEBUPIRIMPHOS OXYGEN ANALOG WAT FLT REC (UG/L) (61669)	TEBUTHIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TEFLUTHRIN METABOLITE R119364 FLT REC (UG/L) (61671)	TEFLUTHRIN METABOLITE R152912 FLT REC (UG/L) (61672)	TEFLUTHRIN WATER FLTRD REC (UG/L) (61606)	TEMEPHOS WATER FLTRD REC (UG/L) (61607)	TERBACIL, WATER, DISS, REC (UG/L) (04032)	TERBACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TERBUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	TERBUFOS O-ANALOGUE WAT FLT REC (UG/L) (61674)	TERBUTHYLAZINE, WATER, DISS, REC (UG/L) (04022)
APR											
20...	<.0160	<.0767	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	--
MAY											
18...	<.0160	<.0767	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	--
JUN											
01...	<.0160	<.0100	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	<.00
15...	<.0160	<.0100	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	<.00
29...	<.0160	<.0100	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	<.00
JUL											
13...	<.0160	<.0100	<.0050	<.0080	<.0080	<.0310	--	<.0070	<.0130	<.0160	<.00
27...	--	<.0100	--	--	--	--	--	<.0070	<.0130	--	--
AUG											
10...	--	<.0767	--	--	--	--	<.10	<.0070	<.0130	--	--
SEP											
07...	--	<.0100	--	--	--	--	--	<.0070	<.0130	--	--

434424098013000 FIRESTEEL CREEK (HIGHWAY 37) AT MITCHELL--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TER-BUTOL WATER FLTRD REC (UG/L) (50368)	THIO-BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRANS-CARBOX-YATE WATER FLTRD REC (UG/L) (79843)	TRANS-PROPI-CONA-ZOLE WAT FLT REC (UG/L) (79847)	TRIAL-LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI-BENURON METHYL WATER FLTRD (UG/L) (61159)	TRIBU-PHOS WATER FLTRD REC (UG/L) (61610)	TRI-CLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	TRI-FLUR-ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	UREA 3(4-CHLOR OPHENYL METHYL WAT FLT REC (UG/L) (61692)	Z-DI-METHO-MORPH WATER FLTRD REC (UG/L) (79845)
APR											
20...	<.093	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	<.0020	<.0915	<.0310
MAY											
18...	--	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	E.0026	<.0915	<.0310
JUN											
01...	--	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	E.0017	<.0915	<.0310
15...	--	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	<.0020	<.0915	<.0310
29...	--	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	<.0020	<.0915	<.0310
JUL											
13...	--	<.0020	<.0160	<.0050	<.0010	--	<.0160	--	<.0020	--	<.0310
27...	--	<.0020	--	--	<.0010	--	--	--	<.0020	--	--
AUG											
10...	--	<.0020	--	--	<.0010	<.07	--	<.101	<.0020	<.0915	--
SEP											
07...	--	<.0020	--	--	<.0010	--	--	--	<.0020	--	--

MISCELLANEOUS WATER QUALITY DATA

434415098012700 MITCHELL WATER TREATMENT PLANT RAW WATER TAP

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	1,4-NAPTHO QUINON WATER FLTRD REC (UG/L) (61611)	1-NAPH THOL, WATER, FLTRD, GF 0.7U REC (UG/L) (49295)	2(4TERT BUTYL-PHENOXY CYCLO-HEXANOL FLT REC (UG/L) (61637)	2,4-D METHYL ESTER, WATER FLTRD REC (UG/L) (50470)
APR												
20...	1035	731	89	9.9	7.5	1060	--	8.8	<.0080	<.0050	<.0160	<.086
MAY												
18...	1130	738	66	6.2	7.7	1020	--	16.6	<.0080	<.0050	<.0160	--
JUN												
01...	1130	729	56	4.9	7.5	1100	--	19.2	<.0080	<.0050	<.0160	<.086
15...	1100	741	34	2.9	7.4	1140	24.0	22.0	<.0080	<.0050	<.0160	E.054
29...	1015	734	84	6.9	8.0	1170	--	23.0	<.0080	<.0050	<.0160	<.086
JUL												
13...	0900	733	52	4.2	7.7	1140	--	24.0	--	--	--	--
a13...	0902	733	52	4.2	7.7	1140	--	24.0	--	--	--	--
27...	0945	736	29	2.3	7.5	1040	--	25.0	--	--	--	--
a27...	0946	736	29	2.3	7.5	1040	--	25.0	--	--	--	--
AUG												
10...	0955	733	82	6.3	8.6	1020	--	26.0	--	--	--	<.086
24...	0940	736	90	7.3	8.7	1010	--	24.0	--	--	--	--
SEP												
07...	0935	726	89	7.2	8.6	1020	--	23.0	--	--	--	--

DATE	2,4-D, DIS-SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	2,5-DI-CHLORO-ANILINE WATER FLTRD REC (UG/L) (61614)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	2-[2-ETHYL-6-METHY_PANOL WAT FLT REC (UG/L) (61615)	2AMINON ISOPROP PYLBEN ZAMIDE WAT FLT REC (UG/L) (61617)	2CHLORO -2,6-DIETHYL ACET-ANILIDE FLT REC (UG/L) (61618)	3HYDRXY CARBO-FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	3-KETO CARBO-FURAN WATER FLTRD REC (UG/L) (50295)	4CHLORO 2-METH-YL-PHENOL WAT FLT REC (UG/L) (61633)	4CHLORO BENZYL METHYL SULFONE WAT FLT REC (UG/L) (61634)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)
APR												
20...	E.019	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080	.334
MAY												
18...	--	--	<.0050	<.0030	<.0160	<.0050	<.0080	--	--	<.0050	<.0080	.324
JUN												
01...	<.077	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080	.249
15...	.414	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080	.153
29...	<.077	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080	.108
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	--	--	--	.0922	--	--	--	--	--	--	--	.199
27...	--	--	--	<.0030	--	--	--	--	--	--	--	.0844
a27...	--	--	--	<.0030	--	--	--	--	--	--	--	.0795
AUG												
10...	.102	<.0538	--	<.0030	--	--	--	<.0623	<.072	--	--	.0552
24...	--	--	--	<.0030	--	--	--	--	--	--	--	.0377
SEP												
07...	--	--	--	<.0030	--	--	--	--	--	--	--	.0381

DATE	ACIFL-UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	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)	ALDI-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALPHA BHC DIS-SOLVED (UG/L) (34253)	ANILINE 2-ETHYL 6METHYL WATER FLTRD REC (UG/L) (61620)	ANILINE 3,4-DI-CHLORO WATER FLTRD REC (UG/L) (61625)	ANILINE 3,5-DI-CHLORO WATER FLTRD REC (UG/L) (61627)	ANILINE 3-TRI-FLUORO-METHYL WAT FLT REC (UG/L) (61630)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	AZIN-PHOS-METHYL-OXON WAT FLT REC (UG/L) (61635)
APR												
20...	<.0622	<.002	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	1.08	<.0310
MAY												
18...	--	.013	--	--	--	<.0020	<.0050	<.0080	<.0050	<.0050	1.47	<.0310
JUN												
01...	<.0622	.013	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	1.27	<.0310
15...	<.0622	.011	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	1.18	<.0310
29...	<.0622	<.015	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	1.17	<.0310
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	--	.122	--	--	--	.106	--	--	--	--	2.05	--
27...	--	<.002	--	--	--	<.0020	--	--	--	--	2.53	--
a27...	--	<.002	--	--	--	<.0020	--	--	--	--	2.43	--
AUG												
10...	<.0622	<.002	<.160	<.0271	<.0815	<.0020	--	--	--	--	2.52	--
24...	--	<.002	--	--	--	<.0020	--	--	--	--	2.31	--
SEP												
07...	--	<.002	--	--	--	<.0020	--	--	--	--	1.86	--

a Field duplicate sample collected for quality-control purposes.

434415098012700 MITCHELL WATER TREATMENT PLANT RAW WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	BENDIOCARB, WATER FLTRD REC (UG/L) (50299)	BENFLURALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BENOMYL WATER FLTRD REC (UG/L) (50300)	BENSULFURON METHYL WAT FLT REC (UG/L) (61693)	BENTAZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BENZOPHENONE 4,4-DICHLORO WAT FLT REC (UG/L) (61631)	BENZYL ALCOHOL 3-PHENOXY WAT FLT REC (UG/L) (61629)	BIFENTHRIN WATER FLTRD REC (UG/L) (61580)	BROMOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYLATE, WATER, DISS, REC (UG/L) (04028)	CAFFEINE, WATER FLTRD REC (UG/L) (50305)	CARBARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)
APR												
20...	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080	<.0628
MAY												
18...	--	<.0020	--	--	--	<.0080	<.0310	<.0020	--	<.0020	--	--
JUN												
01...	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080	<.0628
15...	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080	<.0628
29...	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080	<.0628
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	--	.0947	--	--	--	--	--	--	--	.122	--	--
27...	--	<.0020	--	--	--	--	--	--	--	<.0020	--	--
a27...	--	<.0020	--	--	--	--	--	--	--	<.0020	--	--
AUG												
10...	<.061	<.0020	<.022	<.0482	<.0193	--	--	--	<.0572	<.0020	<.080	<.0628
24...	--	<.0020	--	--	--	--	--	--	--	<.0020	--	--
SEP												
07...	--	<.0020	--	--	--	--	--	--	--	<.0020	--	--

DATE	CARBARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBOFURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	CARBOFURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLORIMURON, WATER FLTRD REC (UG/L) (50306)	CHLOROTHALONIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLORPYRIFOS DISSOLVED (UG/L) (38933)	CHLORPYRIFOS OXYGEN ANALOG WAT FLT REC (UG/L) (61636)	CISCARBOXYATE WATER FLTRD REC (UG/L) (79842)	CISPROPICONAZOLE WAT FLT REC (UG/L) (79846)	CLOPYRALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANAZINE, WATER, DISS, REC (UG/L) (04041)	SICLOATE, WATER, DISS, REC (UG/L) (04031)
APR												
20...	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0162	<.05
MAY												
18...	<.0030	--	<.0030	--	--	<.0040	<.0160	<.0160	<.0050	--	.0174	<.02
JUN												
01...	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0284	<.05
15...	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0346	<.05
29...	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0272	<.05
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	E.130	--	E.114	--	--	.0787	--	--	--	--	.147	--
27...	<.0030	--	<.0030	--	--	<.0040	--	--	--	--	.0359	--
a27...	<.0030	--	<.0030	--	--	<.0040	--	--	--	--	.0284	--
AUG												
10...	<.0030	<.0566	<.0030	E.021	<.0485	<.0040	--	--	--	<.0411	.0326	<.05
24...	<.0030	--	<.0030	--	--	<.0040	--	--	--	--	.0307	--
SEP												
07...	<.0030	--	<.0030	--	--	<.0040	--	--	--	--	.0377	--

DATE	CYFLUTHRIN WATER FLTRD REC (UG/L) (61585)	CYPERMETHRIN WATER FLTRD REC (UG/L) (61586)	DACTHAL MONOACID, WAT,FLT GF 0.7U REC (UG/L) (49304)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L) (04040)	DEETHYL DEISOPROPYL ATRAZIN DISS, REC (UG/L) (04039)	DEISOPROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DIAZINON, DISSOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLORPROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DICROTOPHOS WATER FLTRD REC (UG/L) (38454)	DIELDRIN DISSOLVED (UG/L) (39381)
APR												
20...	<.0310	<.0310	<.0722	<.0020	E.141	E.03	E.0548	<.002	<.0960	<.0500	<.0160	<.001
MAY												
18...	<.0310	<.0310	--	<.0020	E.0919	--	--	<.002	--	--	<.0160	<.001
JUN												
01...	<.0310	<.0310	<.0722	<.0020	E.112	E.03	E.0307	<.002	<.0960	<.0500	<.0160	<.001
15...	<.0310	<.0310	<.0722	<.0020	E.0945	E.03	E.0562	<.002	<.0960	<.0500	<.0160	<.001
29...	<.0310	<.0310	<.0722	<.0020	E.142	E.03	.0834	<.002	<.0960	<.0500	<.0160	<.001
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	--	--	--	.104	E.325	--	--	.105	--	--	--	.106
27...	--	--	--	<.0020	E.444	--	--	<.002	--	--	--	<.001
a27...	--	--	--	<.0020	E.432	--	--	<.002	--	--	--	<.001
AUG												
10...	--	--	<.0722	<.0020	E.370	E.01	E.0733	<.002	<.0960	<.0500	--	<.001
24...	--	--	--	<.0020	E.363	--	--	<.002	--	--	--	<.001
SEP												
07...	--	--	--	<.0020	E.316	--	--	<.002	--	--	--	<.001

a Field duplicate sample collected for quality-control purposes.

434415098012700 MITCHELL WATER TREATMENT PLANT RAW WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	DIMETHOATE WATER FLTRD 0.7 U GF, REC (UG/L) (82662)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIPHENAMID, WATER, DISS, REC (UG/L) (04033)	DISULFOTON SULFONE WATER FLTRD REC (UG/L) (61640)	DISULFOTON SULFOXIDE WAT FLT REC (UG/L) (61641)	DISULFOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	E-DIMETHOMORPH WATER FLTRD REC (UG/L) (79844)	ENDOSULFAN ALPHA DISSOLV (UG/L) (34362)	ENDOSULFAN BETA DISSOLV (UG/L) (34357)	ENDOSULFAN ETHER WATER FLTRD REC (UG/L) (61642)	ENDOSULFAN SULFATE WATER FLTRD REC (UG/L) (61590)
APR												
20...	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160	<.0080
MAY												
18...	<.00	--	--	<.0050	<.0160	<.0170	--	<.0310	<.02	<.02	<.0160	<.0080
JUN												
01...	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160	<.0080
15...	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160	<.0080
29...	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160	<.0080
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	--	--	--	--	--	.0901	--	--	--	--	--	--
27...	--	--	--	--	--	<.0170	--	--	--	--	--	--
a27...	--	--	--	--	--	<.0170	--	--	--	--	--	--
AUG												
10...	--	<.0429	<.06	--	--	<.0170	E.0096	--	--	--	--	--
24...	--	--	--	--	--	<.0170	--	--	--	--	--	--
SEP												
07...	--	--	--	--	--	<.0170	--	--	--	--	--	--

DATE	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHALFLURALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHION DISSOLV (UG/L) (82346)	ETHION MONOXON WATER FLTRD REC (UG/L) (61644)	ETHOPROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FENAMIPHOS SULFONE WATER FLTRD REC (UG/L) (61645)	FENAMIPHOS SULFOXIDE WAT FLT REC (UG/L) (61646)	FENAMIPHOS WATER FLTRD REC (UG/L) (61591)	FENTHION SULFOXIDE WAT FLT REC (UG/L) (61647)	FENURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUMETRALIN WATER FLTRD REC (UG/L) (61592)	FLUMETSULAM WATER FLTRD REC (UG/L) (61694)
APR												
20...	<.0020	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160	<.0866
MAY												
18...	.0210	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	--	<.0160	--
JUN												
01...	.0362	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160	<.0866
15...	.0306	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160	<.0866
29...	.0134	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160	<.0866
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	.110	.103	--	--	.106	--	--	--	--	--	--	--
27...	<.0020	<.0040	--	--	<.0030	--	--	--	--	--	--	--
a27...	<.0020	<.0040	--	--	<.0030	--	--	--	--	--	--	--
AUG												
10...	<.0020	<.0040	--	--	<.0030	--	--	--	--	<.0735	--	<.0866
24...	<.0020	<.0040	--	--	<.0030	--	--	--	--	--	--	--
SEP												
07...	<.0020	<.0040	--	--	<.0030	--	--	--	--	--	--	--

DATE	FLUOMETURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS OXYGEN ANALOG WATER FLTRD REC (UG/L) (61649)	FONOFOS WATER DISS REC (UG/L) (04095)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC PERCENT (91065)	HEXAZINONE, WATER, DISS, REC (UG/L) (04025)	HYDROXY ATRAZINE WATER FLTRD REC (UG/L) (50355)	HYDROXY METHYLPENDIMETHLION FLT REC (UG/L) (61665)	IMAZAQUIN WATER FLTRD REC (UG/L) (50356)	IMAZETHAPYR WATER FLTRD REC (UG/L) (50407)	IMIDACLOPRID WATER FLTRD REC (UG/L) (61695)	IPRODIONE WATER FLTRD REC (UG/L) (61593)	ISOFENPHOS WATER FLTRD REC (UG/L) (61594)
APR												
20...	<.0617	<.0160	<.0030	102	<.01	E.963	<.0310	<.103	<.088	<.106	<.0310	<.0080
MAY												
18...	--	<.0160	<.0030	86.2	<.01	--	<.0310	--	--	--	<.0310	<.0080
JUN												
01...	<.0617	<.0160	<.0030	105	<.01	E.707	<.0310	<.103	<.088	<.106	<.0310	<.0080
15...	<.0617	<.0160	<.0030	99.7	<.01	E.725	<.0310	<.103	<.088	<.106	<.0310	<.0080
29...	<.0617	<.0160	<.0030	94.4	<.01	E1.26	<.0310	<.103	--	<.106	<.0310	<.0080
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	--	--	.0947	102	--	--	--	--	--	--	--	--
27...	--	--	<.0030	103	--	--	--	--	--	--	--	--
a27...	--	--	<.0030	99.1	--	--	--	--	--	--	--	--
AUG												
10...	<.0617	--	<.0030	110	--	E.766	--	<.103	<.088	<.106	--	--
24...	--	--	<.0030	99.9	--	--	--	--	--	--	--	--
SEP												
07...	--	--	<.0030	85.8	--	--	--	--	--	--	--	--

a Field duplicate sample collected for quality-control purposes.

434415098012700 MITCHELL WATER TREATMENT PLANT RAW WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	LAMDA-CYHALO-THRIN WATER FLTRD REC (UG/L) (61595)	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-OXON WATER FLTRD REC (UG/L) (61652)	MALA-THION, DIS-SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	META-LAXYL WATER FLTRD REC (UG/L) (61596)	METAL-AXYL WATER FLTRD REC (UG/L) (50359)	METHI-DATHION WATER FLTRD REC (UG/L) (61598)	METHIO-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)
APR												
20...	<.0080	<.004	<.0695	<.0020	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080	<.0795
MAY												
18...	<.0080	<.004	--	<.0020	<.0160	<.005	--	--	<.0160	--	<.0080	--
JUN												
01...	<.0080	<.004	<.0695	<.0020	<.0320	<.005	<.0585	<.0625	<.0160	<.057	<.0080	<.0795
15...	<.0080	<.004	<.0695	<.0020	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080	<.0795
29...	<.0080	<.004	<.0695	<.0020	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080	<.0795
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	--	.113	--	.106	--	.111	--	--	--	--	--	--
27...	--	<.004	--	<.0020	--	<.005	--	--	--	--	--	--
a27...	--	<.004	--	<.0020	--	<.005	--	--	--	--	--	--
AUG												
10...	--	<.004	<.0695	<.0020	--	<.005	<.0585	<.0625	--	<.057	--	<.0795
24...	--	<.004	--	<.0020	--	<.005	--	--	--	--	--	--
SEP												
07...	--	<.004	--	<.0020	--	<.005	--	--	--	--	--	--

DATE	METH-OMYL OXIME WATER FLTRD REC (UG/L) (61696)	METH-OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METHYL AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA-THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	METRI-BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MET-SUL-FURON METHYL WAT FLT REC (UG/L) (61697)	MOL-INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	MYCLO-BUTANIL WATER FLTRD REC (UG/L) (61599)	NAPROP-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEB-URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NICOSUL FURON WATER FLTRD REC (UG/L) (50364)
APR												
20...	<.0102	<.0768	<.0010	<.0060	.051	<.004	<.114	<.0040	<.0080	<.0030	<.0747	<.065
MAY												
18...	--	--	<.0010	<.0060	.069	<.004	--	<.0040	<.0080	<.0030	--	--
JUN												
01...	<.0102	<.0768	<.0010	<.0060	.079	<.004	<.114	<.0040	<.0080	<.0030	<.0747	<.065
15...	<.0102	<.0768	<.0010	<.0060	.061	<.004	<.114	<.0040	<.0080	<.0030	<.0747	<.065
29...	<.0102	<.0768	<.0010	<.0060	.046	<.004	<.114	<.0040	<.0080	<.0030	<.0747	<.065
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	--	--	E.170	.118	.149	.111	--	.103	--	.119	--	--
27...	--	--	<.0010	<.0060	.044	<.010	--	<.0040	--	<.0030	--	--
a27...	--	--	<.0010	<.0060	.045	<.010	--	<.0040	--	<.0030	--	--
AUG												
10...	<.0102	<.0768	<.0010	<.0060	.027	<.004	<.114	<.0040	--	<.0030	<.0747	E.062
24...	--	--	<.0010	<.0060	.021	<.004	--	<.0040	--	<.0030	--	--
SEP												
07...	--	--	<.0010	<.0060	.026	<.004	--	<.0040	--	<.0030	--	--

DATE	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	O-ETHYL O-METHY S-PROPY _HIOATE WAT FLT REC (UG/L) (61660)	ORY-ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL OXIME WATER FLTRD REC (UG/L) (50410)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	OXY-FLUOR-FEN WATER FLTRD REC (UG/L) (61600)	P,P' DDE DISSOLV (UG/L) (34653)	PARA-OXON ETHYL WATER FLTRD REC (UG/L) (61663)	PARA-OXON METHYL WATER FLTRD REC (UG/L) (61664)	PARA-THION, DIS-SOLVED (UG/L) (39542)	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)
APR												
20...	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040
MAY												
18...	--	<.0050	--	--	--	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040
JUN												
01...	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040
15...	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040
29...	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	--	--	--	--	--	--	.0630	--	--	.118	.100	.119
27...	--	--	--	--	--	--	<.0060	--	--	<.004	<.0040	<.0040
a27...	--	--	--	--	--	--	<.0060	--	--	<.004	<.0040	<.0040
AUG												
10...	<.0774	--	<.0711	<.064	<.0160	--	<.0060	--	--	<.004	<.0040	<.0040
24...	--	--	--	--	--	--	<.0060	--	--	<.004	<.0040	<.0040
SEP												
07...	--	--	--	--	--	--	<.0060	--	--	<.004	<.0040	<.0040

a Field duplicate sample collected for quality-control purposes.

434415098012700 MITCHELL WATER TREATMENT PLANT RAW WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	PER-METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE OXON WATER FLTRD REC (UG/L) (61666)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PHOSMET OXON WATER FLTRD REC (UG/L) (61668)	PHOSMET WATER FLTRD REC (UG/L) (61601)	PHOSTE-BUPIRIM WATER FLTRD REC (UG/L) (61602)	PIC-LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO-FENOFOS WATER FLTRD REC (UG/L) (61603)	PRO-METON, WATER, DISS, REC (UG/L) (04037)	PRO-METRYN, WATER, DISS, REC (UG/L) (04036)	PRON-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROP-CHLOR, WATER, DISS, REC (UG/L) (04024)
APR												
20...	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0110	<.0050	<.0030	<.0070
MAY												
18...	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	--	<.0080	E.0078	<.0050	<.0030	<.0070
JUN												
01...	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0078	<.0050	<.0030	<.0070
15...	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0090	<.0050	<.0030	<.0070
29...	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0114	<.0050	<.0030	<.0070
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	.0551	--	.0923	--	--	--	--	--	.117	--	.114	.122
27...	<.0050	--	<.0020	--	--	--	--	--	E.0116	--	<.0030	<.0070
a27...	<.0050	--	<.0020	--	--	--	--	--	E.0081	--	<.0030	<.0070
AUG												
10...	<.0050	--	<.0020	--	--	--	<.0712	--	E.0088	--	<.0030	<.0070
24...	<.0050	--	<.0020	--	--	--	--	--	E.0077	--	<.0030	<.0070
SEP												
07...	<.0050	--	<.0020	--	--	--	--	--	E.0099	--	<.0030	<.0070

DATE	PRO-PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO-PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PROPET-AMPHOS WATER FLTRD REC (UG/L) (61604)	PRO-PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PROP-ICONA-ZOLE , WATER FLTRD REC (UG/L) (50471)	PRO-POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SI-MAZINE, WATER, DISS, REC (UG/L) (04035)	SULFO-MET-RURON METHYL WTR FLT REC (UG/L) (50337)	SULFO-TEPP WATER FLTRD REC (UG/L) (61605)	SUL-PROFOS WATER FLTRD REC (UG/L) (38716)	TCPSA ETHYL ESTER WATER FLTRD REC (UG/L) (61670)	TEBUPIR IMPHOS OXYGEN ANALOG WAT FLT REC (UG/L) (61669)
APR												
20...	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	E.0046	<.039	<.0050	<.0050	<.0050	<.0160
MAY												
18...	<.0040	<.0130	<.0160	--	--	--	.0121	--	<.0050	<.0050	<.0050	<.0160
JUN												
01...	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	.0148	<.039	<.0050	<.0050	<.0050	<.0160
15...	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	.0138	<.039	<.0050	<.0050	<.0050	<.0160
29...	<.0040	<.0300	<.0160	<.0717	<.064	<.0594	.0163	<.039	<.0050	<.0050	<.0050	<.0160
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
a13...	.124	.0743	--	--	--	--	.136	--	--	--	--	--
27...	<.0040	<.0130	--	--	--	--	<.0050	--	--	--	--	--
a27...	<.0040	<.0130	--	--	--	--	<.0050	--	--	--	--	--
AUG												
10...	<.0040	<.0130	--	<.0717	<.064	<.0594	.0094	<.039	--	--	--	--
24...	<.0040	<.0130	--	--	--	--	.0082	--	--	--	--	--
SEP												
07...	<.0040	<.0130	--	--	--	--	.0106	--	--	--	--	--

DATE	TEBU-THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TEFLU-THRIN METAB-OLITE R119364 FLT REC (UG/L) (61671)	TEFLU-THRIN METAB-OLITE R152912 FLT REC (UG/L) (61672)	TEFLU-THRIN WATER FLTRD REC (UG/L) (61606)	TEME-PHOS WATER FLTRD REC (UG/L) (61607)	TER-BACIL, WATER, DISS, REC (UG/L) (04032)	TER-BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER-BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	TER-BUFOS O-ANA-LOGUE WAT FLT REC (UG/L) (61674)	TER-BUTHYL-AZINE, WATER, DISS, REC (UG/L) (04022)	TER-BUTOL WATER FLTRD REC (UG/L) (50368)
APR											
20...	<.0767	<.0050	<.0140	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	--	<.093
MAY											
18...	<.0100	<.0050	<.0080	<.0080	<.0310	--	<.0070	<.0130	<.0160	<.00	--
JUN											
01...	<.0100	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	<.00	--
15...	<.0100	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	<.00	--
29...	<.0100	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	<.00	--
JUL											
13...	--	--	--	--	--	--	--	--	--	--	--
a13...	.106	--	--	--	--	--	E.127	.0952	--	--	--
27...	<.0100	--	--	--	--	--	<.0070	<.0130	--	--	--
a27...	<.0100	--	--	--	--	--	<.0070	<.0130	--	--	--
AUG											
10...	<.0767	--	--	--	--	<.10	<.0070	<.0130	--	--	--
24...	E.0017	--	--	--	--	--	<.0070	<.0130	--	--	--
SEP											
07...	<.0100	--	--	--	--	--	<.0070	<.0130	--	--	--

a Field duplicate sample collected for quality-control purposes.

434415098012700 MITCHELL WATER TREATMENT PLANT RAW WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	THIO-BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRANS-CARBOX-YATE WATER FLTRD REC (UG/L) (79843)	TRANS-PROPI-CONA-ZOLE WAT FLT REC (UG/L) (79847)	TRIAL-LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI-BENURON METHYL WATER FLTRD (UG/L) (61159)	TRIBU-PHOS WATER FLTRD REC (UG/L) (61610)	TRI-CLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	TRI-FLUR-ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	UREA 3(4-CHLOR OPHENYL METHYL WAT FLT REC (UG/L) (61692)	Z-DI-METHO-MORPH WATER FLTRD REC (UG/L) (79845)
APR										
20...	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	<.0020	<.0915	<.0310
MAY										
18...	<.0020	<.0160	<.0050	<.0010	--	<.0160	--	E.0022	--	<.0310
JUN										
01...	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	E.0015	<.0915	<.0310
15...	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	<.0020	<.0915	<.0310
29...	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	<.0020	<.0915	<.0310
JUL										
13...	--	--	--	--	--	--	--	--	--	--
a13...	.109	--	--	.106	--	--	--	.102	--	--
27...	<.0020	--	--	<.0010	--	--	--	<.0020	--	--
a27...	<.0020	--	--	<.0010	--	--	--	<.0020	--	--
AUG										
10...	<.0020	--	--	<.0010	<.07	--	<.101	<.0020	<.0915	--
24...	<.0020	--	--	<.0010	--	--	--	<.0020	--	--
SEP										
07...	<.0020	--	--	<.0010	--	--	--	<.0020	--	--

DATE	TIME	1,4-NAPTHO QUINON WATER FLTRD REC (UG/L) (61611)	1-NAPH THOL, WATER, FLTRD, GF 0.7U REC (UG/L) (49295)	2(4TERT BUTYL-PHENOXY CYCLO-HEXANOL FLT REC (UG/L) (61637)	2,4-D METHYL ESTER, WATER FLTRD REC (UG/L) (50470)	2,4-D, DIS-SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	2,5-DI-CHLORO-ANILINE WATER FLTRD REC (UG/L) (61614)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	2-[2-ETHYL-6-METHY _PANOL WAT FLT REC (UG/L) (61615)	2AMINON ISOPROP PYLBEN ZAMIDE WAT FLT REC (UG/L) (61617)	2CHLORO -2,6-DIETHYL ACET-ANILIDE FLT REC (UG/L) (61618)
JUN												
b29...	0930	<.0080	<.0050	<.0160	<.086	<.077	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080

DATE	3HYDRXY CARBO-FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	3-KETO CARBO-FURAN WATER FLTRD REC (UG/L) (50295)	4CHLORO 2-METH-YL-PHENOL WAT FLT REC (UG/L) (61633)	4CHLORO BENZYL METHYL SULFONE WAT FLT REC (UG/L) (61634)	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 SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA-RB SUL-FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	ALDI-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALPHA BHC DIS-SOLVED (UG/L) (34253)	ANILINE 2-ETHYL 6METHYL WATER FLTRD REC (UG/L) (61620)
JUN												
b29...	<.0623	<.072	<.0050	<.0080	<.0020	<.0622	<.002	<.160	<.0271	<.0815	<.0020	<.0050

DATE	ANILINE 3,4-DI-CHLORO WATER FLTRD REC (UG/L) (61625)	ANILINE 3,5-DI-CHLORO WATER FLTRD REC (UG/L) (61627)	ANILINE 3-TRI-FLUORO-METHYL WAT FLT REC (UG/L) (61630)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	AZIN-PHOS-METHYL-OXON WAT FLT REC (UG/L) (61635)	BENDIO-CARB, WATER FLTRD REC (UG/L) (50299)	BEN-FLUR-ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BENOMYL WATER FLTRD REC (UG/L) (50300)	BEN-SUL-FURON METHYL WAT FLT REC (UG/L) (61693)	BENTA-ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BENZO-PHENONE 4,4-DI-CHLORO WAT FLT REC (UG/L) (61631)	BENZYL ALCOHOL 3-PHEN-OXY WAT FLT REC (UG/L) (61629)
JUN												
b29...	<.0080	<.0050	<.0050	<.001	<.0310	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310

DATE	BI-FENTH-RIN WATER FLTRD REC (UG/L) (61580)	BRO-MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CAF-FEINE, WATER FLTRD REC (UG/L) (50305)	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)	CHLORI-MURON, WATER FLTRD REC (UG/L) (50306)	CHLORO-THALO-NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLOR-PYRIFOS DIS-SOLVED (UG/L) (38933)	CHLOR-PYRIFOS OXYGEN ANALOG WAT FLT REC (UG/L) (61636)
JUN												
b29...	<.0020	<.0572	<.0020	E.015	<.0628	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160

a Field duplicate sample collected for quality-control purposes.
b Field blank sample collected for quality-control purposes.

434415098012700 MITCHELL WATER TREATMENT PLANT RAW WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	CIS-CARBOX-YATE WATER FLTRD REC (UG/L) (79842)	CIS-PROPI-CONAZ-OLE WAT FLT REC (UG/L) (79846)	CLOPYR-ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	SI-CLOATE, WATER, DISS, REC (UG/L) (04031)	CY-FLUTH-RIN WATER FLTRD REC (UG/L) (61585)	CYPER-METHRIN WATER FLTRD REC (UG/L) (61586)	DACTHAL MONO-ACID, WAT,FLT GF 0.7U REC (UG/L) (49304)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEETHYL DEISO-PROPYL ATRAZIN DISS, REC (UG/L) (04039)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)
JUN b29...	<.0160	<.0050	<.0411	<.0040	<.05	<.0310	<.0310	<.0722	<.0020	<.0020	<.06	<.0737

DATE	DI-AZINON, DIS-SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLOR PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DICROT-OPHOS WATER FLTRD REC (UG/L) (38454)	DI-ELDRIN DIS-SOLVED (UG/L) (39381)	DIMETH-OATE WATER FLTRD 0.7 U GF, REC (UG/L) (82662)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIPHEN-AMID, WATER, DISS, REC (UG/L) (04033)	DISULF-OTON SULFONE WATER FLTRD REC (UG/L) (61640)	DISULF-OTON SULF-OXIDE WAT FLT REC (UG/L) (61641)	DISUL-FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)
JUN b29...	<.002	<.0960	<.0500	<.0160	<.001	<.00	<.0429	<.06	<.0050	<.0160	<.0170

DATE	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	E-DI-METHO-MORPH WATER FLTRD REC (UG/L) (79844)	ENDO-SULFAN ALPHA DISSOLV (UG/L) (34362)	ENDO-SULFAN BETA DISSOLV (UG/L) (34357)	ENDO-SULFAN ETHER WATER FLTRD REC (UG/L) (61642)	ENDO-SULFAN SULFATE WATER FLTRD REC (UG/L) (61590)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL-FLUR-ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHION DISSOLV (UG/L) (82346)	ETHION MONOXON WATER FLTRD REC (UG/L) (61644)	ETHO-PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)
JUN b29...	<.0793	<.0310	<.02	<.02	<.0160	<.0080	<.0020	<.0040	<.005	<.0080	<.0030

DATE	FENAMI-PHOS SULFONE WATER FLTRD REC (UG/L) (61645)	FENAMI-PHOS SULF-OXIDE WAT FLT REC (UG/L) (61646)	FENAMI-PHOS WATER FLTRD REC (UG/L) (61591)	FEN-THION SULF-OXIDE WAT FLT REC (UG/L) (61647)	FEN-URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUME-TRALIN WATER FLTRD REC (UG/L) (61592)	FLUMET-SULAM WATER FLTRD REC (UG/L) (61694)	FLUO-METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS OXYGEN ANALOG WATER FLTRD REC (UG/L) (61649)	FONOFOS WATER DISS REC (UG/L) (04095)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC PERCENT (91065)
JUN b29...	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160	<.0866	<.0617	<.0160	<.0030	97.7

DATE	HEXA-ZINONE, WATER, DISS, REC (UG/L) (04025)	HYDROXY ATRA-ZINE WATER FLTRD REC (UG/L) (50355)	HYDROXY METHYL-PENDI-METH-LION FLT REC (UG/L) (61665)	IMAZ-AQUIN WATER FLTRD REC (UG/L) (50356)	IMID-ACLOP-RID WATER FLTRD REC (UG/L) (61695)	IPRO-DIONE WATER FLTRD REC (UG/L) (61593)	ISOFEN-PHOS WATER FLTRD REC (UG/L) (61594)	LAMDA-CYHALO-THRIN WATER FLTRD REC (UG/L) (61595)	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)
JUN b29...	<.01	<.193	<.0310	<.103	<.106	<.0310	<.0080	<.0080	<.004	<.0695	<.0020

DATE	MALA-OXON WATER FLTRD REC (UG/L) (61652)	MALA-THION, DIS-SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	META-LAXYL WATER FLTRD REC (UG/L) (61596)	METAL-AXYL WATER FLTRD REC (UG/L) (50359)	METHI-DATHION WATER FLTRD REC (UG/L) (61598)	METHIO-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH-OMYL OXIME WATER FLTRD REC (UG/L) (61696)	METH-OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METHYL AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)
JUN b29...	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080	<.0795	<.0102	<.0768	<.0010

b Field blank sample collected for quality-control purposes.

434415098012700 MITCHELL WATER TREATMENT PLANT RAW WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	METHYL PARATHION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	METSULFURON METHYL WAT FLT REC (UG/L) (61697)	MOLINATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	MYCLOBUTANIL WATER FLTRD REC (UG/L) (61599)	NAPROPAMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEBURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NICOSULFURON WATER FLTRD REC (UG/L) (50364)	NORFLURAZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	O-ETHYL O-METHY S-PROPY _HIOATE WAT FLT REC (UG/L) (61660)
JUN b29...	<.0060	<.002	<.004	<.114	<.0040	<.0080	<.0030	<.0747	<.065	<.0774	<.0050

DATE	ORYZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL OXIME WATER FLTRD REC (UG/L) (50410)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	OXYFLUORFEN WATER FLTRD REC (UG/L) (61600)	P,P' DDE DISSOLV (UG/L) (34653)	PARAOXON ETHYL WATER FLTRD REC (UG/L) (61663)	PARAOXON METHYL WATER FLTRD REC (UG/L) (61664)	PARATHION, DISSOLVED (UG/L) (39542)	PEBULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDIMETHALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PERMETHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)
JUN b29...	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040	<.0050

DATE	PHORATE OXON WATER FLTRD REC (UG/L) (61666)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PHOSMET OXON WATER FLTRD REC (UG/L) (61668)	PHOSMET WATER FLTRD REC (UG/L) (61601)	PHOSTEBUPIRIM WATER FLTRD REC (UG/L) (61602)	PICLORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PROFENOFOS WATER FLTRD REC (UG/L) (61603)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROMETRYN, WATER, DISS, REC (UG/L) (04036)	PRONAMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)
JUN b29...	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	<.0180	<.0050	<.0030	<.0070

DATE	PROPANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PROPARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PROPETAMPHOS WATER FLTRD REC (UG/L) (61604)	PROPHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PROPICONAZOLE , WATER FLTRD REC (UG/L) (50471)	PROPOXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)	SULFOMETRURON METHYL WTR FLT REC (UG/L) (50337)	SULFOTEPP WATER FLTRD REC (UG/L) (61605)	SULPROFOS WATER FLTRD REC (UG/L) (38716)	TCPSA ETHYL ESTER WATER FLTRD REC (UG/L) (61670)
JUN b29...	<.0040	<.0300	<.0160	<.0717	<.064	<.0594	<.0050	<.039	<.0050	<.0050	<.0050

DATE	TEBUPIRIMPHOS OXYGEN ANALOG WAT FLT REC (UG/L) (61669)	TEBUTHIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TEFLUTHRIN METABOLITE R119364 FLT REC (UG/L) (61671)	TEFLUTHRIN METABOLITE R152912 FLT REC (UG/L) (61672)	TEFLUTHRIN WATER FLTRD REC (UG/L) (61606)	TEMEPHOS WATER FLTRD REC (UG/L) (61607)	TERBACIL, WATER, DISS, REC (UG/L) (04032)	TERBACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TERBUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	TERBUFOS O-ANALOGUE WAT FLT REC (UG/L) (61674)	TERBUTHYLAZINE, WATER, DISS, REC (UG/L) (04022)
JUN b29...	<.0160	<.0100	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	<.00

DATE	THIOBENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRANSCARBOXYATE WATER FLTRD REC (UG/L) (79843)	TRANSPROPICONAZOLE WAT FLT REC (UG/L) (79847)	TRIALLATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRIBENURON METHYL WATER FLTRD REC (UG/L) (61159)	TRIBUPHOS WATER FLTRD REC (UG/L) (61610)	TRICLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	TRIFLURALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	UREA 3(4-CHLOROPHENYL METHYL WAT FLT REC (UG/L) (61692)	Z-DIMETHOMORPH WATER FLTRD REC (UG/L) (79845)
JUN b29...	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	<.0020	<.0915	<.0310

b Field blank sample collected for quality-control purposes.

MISCELLANEOUS WATER QUALITY DATA

434415098012701 MITCHELL WATER TREATMENT PLANT FINISHED WATER TAP

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	1,4-NAPTHO QUINON WATER FLTRD REC (UG/L) (61611)	1-NAPH THOL, WATER, FLTRD, GF 0.7U REC (UG/L) (49295)	2(4TERT BUTYL-PHENOXY CYCLO-HEXANOL FLT REC (UG/L) (61637)	2,4-D METHYL ESTER, WATER FLTRD REC (UG/L) (50470)
APR												
20...	0900	731	99	10.8	9.4	981	--	9.6	<.0080	<.0050	<.0160	E.014
MAY												
18...	0945	738	101	9.8	9.2	939	--	15.0	<.0080	<.0050	<.0160	E.054
JUN												
01...	1030	729	98	8.7	8.7	952	--	19.0	<.0080	<.0050	<.0160	E.079
15...	0920	741	96	8.1	8.9	975	24.0	22.0	<.0080	<.0050	<.0160	.136
a15...	0921	--	--	--	--	--	--	--	<.0080	<.0050	<.0160	.101
29...	1200	734	94	7.9	9.3	995	--	22.0	<.0080	<.0050	<.0160	E.035
JUL												
13...	1050	733	100	8.0	8.9	937	--	24.0	<.0080	<.0050	<.0160	--
27...	1115	736	95	7.6	8.8	860	--	25.0	--	--	--	--
AUG												
10...	1020	733	99	7.7	9.3	830	--	26.0	--	--	--	<.086
24...	1100	736	99	8.0	8.9	859	--	24.0	--	--	--	--
SEP												
07...	1045	726	100	8.0	9.3	842	--	24.0	--	--	--	--

DATE	2,4-D, DIS-SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	2,5-DI-CHLORO-ANILINE WATER FLTRD REC (UG/L) (61614)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	2-[2-ETHYL-6-METHY _PANOL WAT FLT REC (UG/L) (61615)	2AMINON ISOPROP PYLBEN ZAMIDE WAT FLT REC (UG/L) (61617)	2CHLORO -2,6-DIETHYL ACET-ANILIDE FLT REC (UG/L) (61618)	3HYDRXY CARBO-FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	3-KETO CARBO-FURAN WATER FLTRD REC (UG/L) (50295)	4CHLORO 2-METH-YL-PHENOL WAT FLT REC (UG/L) (61633)	4CHLORO BENZYL METHYL SULFONE WAT FLT REC (UG/L) (61634)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)
APR												
20...	E.062	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080	<.0020
MAY												
18...	.337	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080	.395
JUN												
01...	.634	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080	.229
15...	.551	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080	.147
a15...	.631	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080	.141
29...	<.077	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080	<.0623	<.072	<.0050	<.0080	.0975
JUL												
13...	--	--	<.0050	<.0030	<.0160	<.0050	<.0080	--	--	<.0050	<.0080	.354
27...	--	--	--	<.0030	--	--	--	--	--	--	--	.156
AUG												
10...	.106	<.0538	--	<.0030	--	--	--	<.0623	<.072	--	--	.0921
24...	--	--	--	<.0030	--	--	--	--	--	--	--	.0463
SEP												
07...	--	--	--	<.0030	--	--	--	--	--	--	--	.0544

DATE	ACIFL-UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	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)	ALDI-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALPHA BHC DIS-SOLVED (UG/L) (34253)	ANILINE 2-ETHYL 6METHYL WATER FLTRD REC (UG/L) (61620)	ANILINE 3,4-DI-CHLORO WATER FLTRD REC (UG/L) (61625)	ANILINE 3,5-DI-CHLORO WATER FLTRD REC (UG/L) (61627)	ANILINE 3-TRI-FLUORO-METHYL WAT FLT REC (UG/L) (61630)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	AZIN-PHOS-METHYL-OXON WAT FLT REC (UG/L) (61635)
APR												
20...	<.0622	<.002	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	<.001	<.0310
MAY												
18...	<.0622	.011	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	1.41	<.0310
JUN												
01...	<.0622	.011	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	1.13	<.0310
15...	<.0622	.009	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	1.10	<.0310
a15...	<.0622	<.010	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	1.07	<.0310
29...	<.0622	.006	<.160	<.0271	<.0815	<.0020	<.0050	<.0080	<.0050	<.0050	.857	<.0310
JUL												
13...	--	<.004	--	--	--	<.0020	<.0050	<.0080	<.0050	<.0050	2.11	<.0310
27...	--	<.002	--	--	--	<.0020	--	--	--	--	2.47	--
AUG												
10...	<.0622	<.002	<.160	<.0271	<.0815	<.0020	--	--	--	--	2.24	--
24...	--	<.002	--	--	--	<.0020	--	--	--	--	2.09	--
SEP												
07...	--	<.002	--	--	--	<.0020	--	--	--	--	1.95	--

a Field duplicate sample collected for quality-control purposes.

434415098012701 MITCHELL WATER TREATMENT PLANT FINISHED WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	BENDIOCARB, WATER FLTRD REC (UG/L) (50299)	BENFLURALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BENOMYL WATER FLTRD REC (UG/L) (50300)	BENSULFURON METHYL WAT FLT REC (UG/L) (61693)	BENTAZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BENZOPHENONE 4,4-DICHLORO WAT FLT REC (UG/L) (61631)	BENZYL ALCOHOL 3-PHENOXY WAT FLT REC (UG/L) (61629)	BIFENTHRIN WATER FLTRD REC (UG/L) (61580)	BROMOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYLATE, WATER, DISS, REC (UG/L) (04028)	CAFFEINE, WATER FLTRD REC (UG/L) (50305)	CARBARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)
APR												
20...	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080	<.0628
MAY												
18...	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080	<.0628
JUN												
01...	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080	<.0628
15...	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080	<.0628
a15...	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080	<.0628
29...	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310	<.0020	<.0572	<.0020	<.080	<.0628
JUL												
13...	--	<.0020	--	--	--	<.0080	<.0310	<.0020	--	<.0020	--	--
27...	--	<.0020	--	--	--	--	--	--	--	<.0020	--	--
AUG												
10...	<.061	<.0020	<.022	<.0482	<.0193	--	--	--	<.0572	<.0020	<.080	<.0628
24...	--	<.0020	--	--	--	--	--	--	--	<.0020	--	--
SEP												
07...	--	<.0020	--	--	--	--	--	--	--	<.0020	--	--

DATE	CARBARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBOFURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	CARBOFURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLORIMURON, WATER FLTRD REC (UG/L) (50306)	CHLOROTHALONIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLORPYRIFOS DISSOLVED (UG/L) (38933)	CHLORPYRIFOS OXYGEN ANALOG WAT FLT REC (UG/L) (61636)	CIS-CARBOXYATE WATER FLTRD REC (UG/L) (79842)	CIS-PROPICONAZOLE WAT FLT REC (UG/L) (79846)	CLOPYRALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANAZINE, WATER, DISS, REC (UG/L) (04041)	SICLOATE, WATER, DISS, REC (UG/L) (04031)
APR												
20...	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	<.0040	<.05
MAY												
18...	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0157	<.05
JUN												
01...	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0255	<.05
15...	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0317	<.05
a15...	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0307	<.05
29...	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160	<.0160	<.0050	<.0411	.0279	<.05
JUL												
13...	<.0030	--	<.0030	--	--	<.0040	<.0160	<.0160	<.0050	--	.0403	<.02
27...	<.0030	--	<.0030	--	--	<.0040	--	--	--	--	.0509	--
AUG												
10...	<.0030	<.0566	<.0030	E.026	<.0485	<.0040	--	--	--	<.0411	.0326	<.05
24...	<.0030	--	<.0030	--	--	<.0040	--	--	--	--	.0311	--
SEP												
07...	<.0030	--	<.0030	--	--	<.0040	--	--	--	--	.0381	--

DATE	CYFLUTHRIN WATER FLTRD REC (UG/L) (61585)	CYPERMETHRIN WATER FLTRD REC (UG/L) (61586)	DACTHAL MONOACID, WAT,FLT GF 0.7U REC (UG/L) (49304)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L) (04040)	DEETHYL DEISOPROPYL ATRAZIN DISS, REC (UG/L) (04039)	DEISOPROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DIAZINON, DISSOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLORPROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DICROTOPHOS WATER FLTRD REC (UG/L) (38454)	DIELDRIN DISSOLVED (UG/L) (39381)
APR												
20...	<.0310	<.0310	<.0722	<.0020	<.0020	E.02	E.0340	E.002	<.0960	<.0500	<.0160	<.001
MAY												
18...	<.0310	<.0310	<.0722	<.0020	E.115	<.06	E.0343	<.002	<.0960	<.0500	<.0160	<.001
JUN												
01...	<.0310	<.0310	<.0722	<.0020	E.105	E.04	E.0415	<.002	<.0960	<.0500	<.0160	<.001
15...	<.0310	<.0310	<.0722	<.0020	E.0914	E.03	E.0417	<.002	<.0960	<.0500	<.0160	<.001
a15...	<.0310	<.0310	<.0722	<.0020	E.108	E.03	E.0408	<.002	<.0960	<.0500	<.0160	<.001
29...	<.0310	<.0310	<.0722	<.0020	E.126	E.04	E.0551	<.002	<.0960	<.0500	<.0160	<.001
JUL												
13...	<.0310	<.0310	--	<.0020	E.328	--	--	<.002	--	--	<.0160	<.001
27...	--	--	--	<.0020	E.352	--	--	<.002	--	--	--	<.001
AUG												
10...	--	--	<.0722	<.0020	E.307	E.01	E.0449	<.002	<.0960	<.0500	--	<.001
24...	--	--	--	<.0020	E.323	--	--	<.002	--	--	--	<.001
SEP												
07...	--	--	--	<.0020	E.284	--	--	<.002	--	--	--	<.001

a Field duplicate sample collected for quality-control purposes.

434415098012701 MITCHELL WATER TREATMENT PLANT FINISHED WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	DIMETHOATE WATER FLTRD 0.7 U GF, REC (UG/L) (82662)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIPHENAMID, WATER, DISS, REC (UG/L) (04033)	DISULFOTON SULFONE WATER FLTRD REC (UG/L) (61640)	DISULFOTON SULFOXIDE WAT FLT REC (UG/L) (61641)	DISULFOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	E-DIMETHOMORPH WATER FLTRD REC (UG/L) (79844)	ENDOSULFAN ALPHA DISSOLV (UG/L) (34362)	ENDOSULFAN BETA DISSOLV (UG/L) (34357)	ENDOSULFAN ETHER WATER FLTRD REC (UG/L) (61642)	ENDOSULFAN SULFATE WATER FLTRD REC (UG/L) (61590)
APR												
20...	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160	<.0080
MAY												
18...	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160	<.0080
JUN												
01...	<.00	<.0429	<.06	<.0050	<.0160	<.0170	E.0290	<.0310	<.02	<.02	<.0160	<.0080
15...	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160	<.0080
a15...	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793	<.0310	<.02	<.02	<.0160	<.0080
29...	<.00	<.0429	<.06	<.0050	<.0160	<.0170	E.0177	<.0310	<.02	<.02	<.0160	<.0080
JUL												
13...	<.00	--	--	<.0050	<.0160	<.0170	--	<.0310	<.02	<.02	<.0160	<.0080
27...	--	--	--	--	--	<.0170	--	--	--	--	--	--
AUG												
10...	--	<.0429	<.06	--	--	<.0170	<.0793	--	--	--	--	--
24...	--	--	--	--	--	<.0170	--	--	--	--	--	--
SEP												
07...	--	--	--	--	--	<.0170	--	--	--	--	--	--

DATE	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHALFLURALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHION DISSOLV (UG/L) (82346)	ETHION MONOXON WATER FLTRD REC (UG/L) (61644)	ETHOPROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FENAMIPHOS SULFONE WATER FLTRD REC (UG/L) (61645)	FENAMIPHOS SULFOXIDE WAT FLT REC (UG/L) (61646)	FENAMIPHOS WATER FLTRD REC (UG/L) (61591)	FENTHION SULFOXIDE WAT FLT REC (UG/L) (61647)	FENURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUMETRALIN WATER FLTRD REC (UG/L) (61592)	FLUMETSULAM WATER FLTRD REC (UG/L) (61694)
APR												
20...	<.0020	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160	<.0866
MAY												
18...	.0128	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160	<.0866
JUN												
01...	.0286	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160	<.0866
15...	.0208	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160	<.0866
a15...	.0227	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160	<.0866
29...	.0139	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	<.0735	<.0160	<.0866
JUL												
13...	.0048	<.0040	<.005	<.0080	<.0030	<.0080	<.0310	<.0160	<.0080	--	<.0160	--
27...	<.0020	<.0040	--	--	<.0030	--	--	--	--	--	--	--
AUG												
10...	<.0020	<.0040	--	--	<.0030	--	--	--	--	<.0735	--	<.0866
24...	<.0020	<.0040	--	--	<.0030	--	--	--	--	--	--	--
SEP												
07...	<.0020	<.0040	--	--	<.0030	--	--	--	--	--	--	--

DATE	FLUOMETURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS OXYGEN ANALOG WATER FLTRD REC (UG/L) (61649)	FONOFOS WATER DISS REC (UG/L) (04095)	HEXAZINONE, WATER, DISS, REC (UG/L) (04025)	HYDROXYATRAZINE WATER FLTRD REC (UG/L) (50355)	HYDROXYMETHYLPENDIMETHLION FLT REC (UG/L) (61665)	IMAZAQUIN WATER FLTRD REC (UG/L) (50356)	IMAZETHAPYR WATER FLTRD REC (UG/L) (50407)	IMIDACLOPRID WATER FLTRD REC (UG/L) (61695)	IPRODIONE WATER FLTRD REC (UG/L) (61593)	ISOFENPHOS WATER FLTRD REC (UG/L) (61594)
APR											
20...	<.0617	<.0160	<.0030	<.01	E.782	<.0310	<.103	<.088	<.106	<.0310	<.0080
MAY											
18...	<.0617	<.0160	<.0030	<.01	E.886	<.0310	<.103	<.088	<.106	<.0310	<.0080
JUN											
01...	<.0617	<.0160	<.0030	<.01	E.907	<.0310	<.103	<.088	<.106	<.0310	<.0080
15...	<.0617	<.0160	<.0030	<.01	E.855	<.0310	<.103	<.088	<.106	<.0310	<.0080
a15...	<.0617	<.0160	<.0030	<.01	E.740	<.0310	<.103	<.088	<.106	<.0310	<.0080
29...	<.0617	<.0160	<.0030	<.01	E1.01	<.0310	<.103	--	<.106	<.0310	<.0080
JUL											
13...	--	<.0160	<.0030	<.01	--	<.0310	--	--	--	<.0310	<.0080
27...	--	--	<.0030	--	--	--	--	--	--	--	--
AUG											
10...	<.0617	--	<.0030	--	E.778	--	<.103	<.088	<.106	--	--
24...	--	--	<.0030	--	--	--	--	--	--	--	--
SEP											
07...	--	--	<.0030	--	--	--	--	--	--	--	--

a Field duplicate sample collected for quality-control purposes.

434415098012701 MITCHELL WATER TREATMENT PLANT FINISHED WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	LAMDA-CYHALO-THRIN WATER FLTRD REC (UG/L) (61595)	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-OXON WATER FLTRD REC (UG/L) (61652)	MALA-THION, DIS-SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	META-LAXYL WATER FLTRD REC (UG/L) (61596)	METAL-AXYL WATER FLTRD REC (UG/L) (50359)	METHI-DATHION WATER FLTRD REC (UG/L) (61598)	METHIO-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)
APR												
20...	<.0080	<.004	<.0695	<.0020	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080	<.0795
MAY												
18...	<.0080	<.004	<.0695	<.0020	<.0470	<.005	<.0585	<.0625	<.0160	<.057	<.0080	<.0795
JUN												
01...	<.0080	<.004	<.0695	<.0020	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080	<.0795
15...	<.0080	<.004	<.0695	<.0020	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080	<.0795
a15...	<.0080	<.004	<.0695	<.0020	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080	<.0795
29...	<.0080	<.004	<.0695	<.0020	<.0160	<.005	<.0585	<.0625	<.0160	E.010	<.0080	<.0795
JUL												
13...	<.0080	<.004	--	<.0020	<.0160	<.005	--	--	<.0160	--	<.0080	--
27...	--	<.004	--	<.0020	--	<.005	--	--	--	--	--	--
AUG												
10...	--	<.004	<.0695	<.0020	--	<.005	<.0585	<.0625	--	<.057	--	<.0795
24...	--	<.004	--	<.0020	--	<.005	--	--	--	--	--	--
SEP												
07...	--	<.004	--	<.0020	--	<.005	--	--	--	--	--	--

DATE	METH-OMYL OXIME WATER FLTRD REC (UG/L) (61696)	METH-OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METHYL AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA-THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	METRI-BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MET-SUL-FURON METHYL WAT FLT REC (UG/L) (61697)	MOL-INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	MYCLO-BUTANIL WATER FLTRD REC (UG/L) (61599)	NAPROP-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEB-URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NICOSUL FURON WATER FLTRD REC (UG/L) (50364)
APR												
20...	<.0102	<.0768	<.0010	<.0060	<.002	<.004	<.114	<.0040	<.0080	<.0030	<.0747	<.065
MAY												
18...	<.0102	<.0768	<.0010	<.0060	.061	<.004	<.114	<.0040	<.0080	<.0030	<.0747	<.065
JUN												
01...	<.0102	<.0768	<.0010	<.0060	.072	<.004	<.114	<.0040	<.0080	<.0030	<.0747	<.065
15...	<.0102	<.0768	<.0010	<.0060	.058	<.004	<.114	<.0040	<.0080	<.0030	<.0747	<.065
a15...	<.0102	<.0768	<.0010	<.0060	.052	<.004	<.114	<.0040	<.0080	<.0030	<.0747	<.065
29...	<.0102	<.0768	<.0200	<.0060	.038	<.004	<.114	<.0040	<.0080	<.0030	<.0747	<.065
JUL												
13...	--	--	<.0010	<.0060	.038	<.004	--	<.0040	<.0080	<.0030	--	--
27...	--	--	<.0010	<.0060	.041	<.004	--	<.0040	--	<.0030	--	--
AUG												
10...	<.0102	<.0768	<.0010	<.0060	.023	<.004	<.114	<.0040	--	<.0030	<.0747	E.057
24...	--	--	<.0010	<.0060	.020	<.004	--	<.0040	--	<.0030	--	--
SEP												
07...	--	--	<.0010	<.0060	.029	<.004	--	<.0040	--	<.0030	--	--

DATE	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	O-ETHYL O-METHY S-PROPY _HIOATE WAT FLT REC (UG/L) (61660)	ORY-ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL OXIME WATER FLTRD REC (UG/L) (50410)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	OXY-FLUOR-FEN WATER FLTRD REC (UG/L) (61600)	P,P' DDE DISSOLV (UG/L) (34653)	PARA-OXON ETHYL WATER FLTRD REC (UG/L) (61663)	PARA-OXON METHYL WATER FLTRD REC (UG/L) (61664)	PARA-THION, DIS-SOLVED (UG/L) (39542)	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)
APR												
20...	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040
MAY												
18...	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040
JUN												
01...	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040
15...	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040
a15...	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040
29...	<.0774	<.0050	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040
JUL												
13...	--	<.0050	--	--	--	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040
27...	--	--	--	--	--	--	<.0060	--	--	<.004	<.0040	<.0040
AUG												
10...	<.0774	--	<.0711	<.064	<.0160	--	<.0060	--	--	<.004	<.0040	<.0040
24...	--	--	--	--	--	--	<.0060	--	--	<.004	<.0040	<.0040
SEP												
07...	--	--	--	--	--	--	<.0060	--	--	<.004	<.0040	<.0040

a Field duplicate sample collected for quality-control purposes.

434415098012701 MITCHELL WATER TREATMENT PLANT FINISHED WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	PER-METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE OXON WATER FLTRD REC (UG/L) (61666)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PHOSMET OXON WATER FLTRD REC (UG/L) (61668)	PHOSMET WATER FLTRD REC (UG/L) (61601)	PHOSTE-BUPIRIM WATER FLTRD REC (UG/L) (61602)	PIC-LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO-FENOFOS WATER FLTRD REC (UG/L) (61603)	PRO-METON, WATER, DISS, REC (UG/L) (04037)	PRO-METRYN, WATER, DISS, REC (UG/L) (04036)	PRON-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROP-CHLOR, WATER, DISS, REC (UG/L) (04024)
APR												
20...	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	E.276	<.0080	<.0180	<.0050	<.0030	<.0070
MAY												
18...	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0097	<.0050	<.0030	<.0070
JUN												
01...	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0064	<.0050	<.0030	<.0070
15...	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0089	<.0050	<.0030	<.0070
a15...	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0105	<.0050	<.0030	<.0070
29...	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0099	<.0050	<.0030	<.0070
JUL												
13...	<.0050	<.0310	<.0020	<.0160	<.0080	<.0080	--	<.0080	E.0095	<.0050	<.0030	<.0070
27...	<.0050	--	<.0020	--	--	--	--	--	E.0168	--	<.0030	<.0070
AUG												
10...	<.0050	--	<.0020	--	--	--	.204	--	E.0089	--	<.0030	<.0070
24...	<.0050	--	<.0020	--	--	--	--	--	E.0080	--	<.0030	<.0070
SEP												
07...	<.0050	--	<.0020	--	--	--	--	--	E.0104	--	<.0030	<.0070

DATE	PRO-PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO-PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PROPET-AMPHOS WATER FLTRD REC (UG/L) (61604)	PRO-PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PROP-ICONA-ZOLE , WATER FLTRD REC (UG/L) (50471)	PRO-POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SI-MAZINE, WATER, DISS, REC (UG/L) (04035)	SULFO-MET-RURON METHYL WTR FLT REC (UG/L) (50337)	SULFO-TEPP WATER FLTRD REC (UG/L) (61605)	SUL-PROFOS WATER FLTRD REC (UG/L) (38716)	TCPSA ETHYL ESTER WATER FLTRD REC (UG/L) (61670)	TEBUPIR IMPHOS OXYGEN ANALOG WAT FLT REC (UG/L) (61669)
APR												
20...	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	<.0050	<.039	<.0050	<.0050	<.0050	<.0160
MAY												
18...	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	.0088	<.039	<.0050	<.0050	<.0050	<.0160
JUN												
01...	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	.0117	<.039	<.0050	<.0050	<.0050	<.0160
15...	<.0040	--	<.0160	<.0717	<.064	<.0594	.0120	<.039	<.0050	<.0050	<.0050	<.0160
a15...	<.0040	--	<.0160	<.0717	<.064	<.0594	.0114	<.039	<.0050	<.0050	<.0050	<.0160
29...	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	.0130	<.039	<.0050	<.0050	<.0050	<.0160
JUL												
13...	<.0040	--	<.0160	--	--	--	<.0100	--	<.0050	<.0050	<.0050	<.0160
27...	<.0040	<.0130	--	--	--	--	.0144	--	--	--	--	--
AUG												
10...	<.0040	<.0130	--	<.0717	<.064	<.0594	.0069	<.039	--	--	--	--
24...	<.0040	<.0130	--	--	--	--	.0077	--	--	--	--	--
SEP												
07...	<.0040	<.0130	--	--	--	--	.0099	--	--	--	--	--

DATE	TEBU-THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TEFLU-THRIN METAB-OLITE R119364 FLT REC (UG/L) (61671)	TEFLU-THRIN METAB-OLITE R152912 FLT REC (UG/L) (61672)	TEFLU-THRIN WATER FLTRD REC (UG/L) (61606)	TEME-PHOS WATER FLTRD REC (UG/L) (61607)	TER-BACIL, WATER, DISS, REC (UG/L) (04032)	TER-BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER-BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	TER-BUFOS O-ANA-LOGUE WAT FLT REC (UG/L) (61674)	TER-BUTHYL-AZINE, WATER, DISS, REC (UG/L) (04022)	TER-BUTOL WATER FLTRD REC (UG/L) (50368)
APR											
20...	<.0767	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	--	<.093
MAY											
18...	<.0100	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	--	--
JUN											
01...	<.0100	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	--	--
15...	<.0100	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	<.00	--
a15...	<.0100	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	<.00	--
29...	<.0100	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	<.00	--
JUL											
13...	<.0100	<.0050	<.0080	<.0080	<.0310	--	<.0070	<.0130	<.0160	<.00	--
27...	<.0100	--	--	--	--	--	<.0070	<.0130	--	--	--
AUG											
10...	<.0767	--	--	--	--	<.10	<.0070	<.0130	--	--	--
24...	E.0019	--	--	--	--	--	<.0070	<.0130	--	--	--
SEP											
07...	E.0035	--	--	--	--	--	<.0070	<.0130	--	--	--

a Field duplicate sample collected for quality-control purposes.

434415098012701 MITCHELL WATER TREATMENT PLANT FINISHED WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	THIO-BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRANS-CARBOX-YATE WATER FLTRD REC (UG/L) (79843)	TRANS-PROPI-CONA-ZOLE WAT FLT REC (UG/L) (79847)	TRIAL-LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI-BENURON METHYL WATER FLTRD (UG/L) (61159)	TRIBU-PHOS WATER FLTRD REC (UG/L) (61610)	TRI-CLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	TRI-FLUR-ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	UREA 3(4-CHLOR OPHENYL METHYL WAT FLT REC (UG/L) (61692)	Z-DI-METHO-MORPH WATER FLTRD REC (UG/L) (79845)
APR										
20...	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	<.0020	<.0915	<.0310
MAY										
18...	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	E.0020	<.0915	<.0310
JUN										
01...	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	E.0015	<.0915	<.0310
15...	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	<.0020	<.0915	<.0310
a15...	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	<.0020	<.0915	<.0310
29...	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	<.0020	<.0915	<.0310
JUL										
13...	<.0020	<.0160	<.0050	<.0010	--	<.0160	--	<.0020	--	<.0310
27...	<.0020	--	--	<.0010	--	--	--	<.0020	--	--
AUG										
10...	<.0020	--	--	<.0010	<.07	--	<.101	<.0020	<.0915	--
24...	<.0020	--	--	<.0010	--	--	--	<.0020	--	--
SEP										
07...	<.0020	--	--	<.0010	--	--	--	<.0020	--	--

DATE	TIME	1,4-NAPTHO QUINON WATER FLTRD REC (UG/L) (61611)	1-NAPH THOL, WATER, FLTRD, GF 0.7U REC (UG/L) (49295)	2(4TERT BUTYL-PHENOXY CYCLO-HEXANOL FLT REC (UG/L) (61637)	2,4-D METHYL ESTER, WATER FLTRD REC (UG/L) (50470)	2,4-D, DIS-SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	2,5-DI-CHLORO-ANILINE WATER FLTRD REC (UG/L) (61614)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	2-[2-ETHYL-6-METHY _PANOL WAT FLT REC (UG/L) (61615)	2AMINON ISOPROP PYLBEN ZAMIDE WAT FLT REC (UG/L) (61617)	2CHLORO -2,6-DIETHYL ACET-ANILIDE FLT REC (UG/L) (61618)
APR												
b20...	0855	<.0080	<.0050	<.0160	<.086	<.077	<.0538	<.0050	<.0030	<.0160	<.0050	<.0080

DATE	3HYDRXY CARBO-FURAN WAT,FLT GF 0.7U REC (UG/L) (49308)	3-KETO CARBO-FURAN WATER FLTRD REC (UG/L) (50295)	4CHLORO 2-METH-YL-PHENOL WAT FLT REC (UG/L) (61633)	4CHLORO BENZYL METHYL SULFONE WAT FLT REC (UG/L) (61634)	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 SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA-RB SUL-FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	ALDI-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALPHA BHC DIS-SOLVED (UG/L) (34253)	ANILINE 2-ETHYL 6METHYL WATER FLTRD REC (UG/L) (61620)
APR												
b20...	<.0623	<.072	<.0050	<.0080	.289	<.0622	<.002	<.160	<.0271	<.0815	<.0020	<.0050

DATE	ANILINE 3,4-DI-CHLORO WATER FLTRD REC (UG/L) (61625)	ANILINE 3,5-DI-CHLORO WATER FLTRD REC (UG/L) (61627)	ANILINE 3-TRI-FLUORO-METHYL WAT FLT REC (UG/L) (61630)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	AZIN-PHOS-METHYL-OXON WAT FLT REC (UG/L) (61635)	BENDIO-CARB, WATER FLTRD REC (UG/L) (50299)	BEN-FLUR-ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BENOMYL WATER FLTRD REC (UG/L) (50300)	BEN-SUL-FURON METHYL WAT FLT REC (UG/L) (61693)	BENTA-ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BENZO-PHENONE 4,4-DI-CHLORO WAT FLT REC (UG/L) (61631)	BENZYL ALCOHOL 3-PHEN-OXY WAT FLT REC (UG/L) (61629)
APR												
b20...	<.0080	<.0050	<.0050	.925	<.0310	<.061	<.0020	<.022	<.0482	<.0193	<.0080	<.0310

DATE	BI-FENTH-RIN WATER FLTRD REC (UG/L) (61580)	BRO-MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CAF-FEINE, WATER FLTRD REC (UG/L) (50305)	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)	CHLORI-MURON, WATER FLTRD REC (UG/L) (50306)	CHLORO-THALO-NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)	CHLOR-PYRIFOS DIS-SOLVED (UG/L) (38933)	CHLOR-PYRIFOS OXYGEN ANALOG WAT FLT REC (UG/L) (61636)
APR												
b20...	<.0020	<.0572	<.0020	<.080	<.0628	<.0030	<.0566	<.0030	<.037	<.0485	<.0040	<.0160

a Field duplicate sample collected for quality-control purposes.
b Field blank sample collected for quality-control purposes.

434415098012701 MITCHELL WATER TREATMENT PLANT FINISHED WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	CIS-CARBOX-YATE WATER FLTRD REC (UG/L) (79842)	CIS-PROPI-CONAZ-OLE WAT FLT REC (UG/L) (79846)	CLOPYR-ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	SI-CLOATE, WATER, DISS, REC (UG/L) (04031)	CY-FLUTH-RIN WATER FLTRD REC (UG/L) (61585)	CYPER-METHRIN WATER FLTRD REC (UG/L) (61586)	DACTHAL MONO-ACID, WAT,FLT GF 0.7U REC (UG/L) (49304)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEETHYL DEISO-PROPYL ATRAZIN DISS, REC (UG/L) (04039)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)
APR b20...	<.0160	<.0050	<.0411	.0100	<.05	<.0310	<.0310	<.0722	<.0020	E.103	<.06	<.0737

DATE	DI-AZINON, DIS-SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLOR PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DICROT-OPHOS WATER FLTRD REC (UG/L) (38454)	DI-ELDRIN DIS-SOLVED (UG/L) (39381)	DIMETH-OATE WATER FLTRD 0.7 U GF, REC (UG/L) (82662)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DIPHEN-AMID, WATER, DISS, REC (UG/L) (04033)	DISULF-OTON SULFONE WATER FLTRD REC (UG/L) (61640)	DISULF-OTON SULF-OXIDE WAT FLT REC (UG/L) (61641)	DISUL-FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)
APR b20...	<.002	<.0960	<.0500	<.0160	<.001	<.00	<.0429	<.06	<.0050	<.0160	<.0170	<.0793

DATE	E-DI-METHO-MORPH WATER FLTRD REC (UG/L) (79844)	ENDO-SULFAN ALPHA DISSOLV (UG/L) (34362)	ENDO-SULFAN BETA DISSOLV (UG/L) (34357)	ENDO-SULFAN ETHER WATER FLTRD REC (UG/L) (61642)	ENDO-SULFAN SULFATE WATER FLTRD REC (UG/L) (61590)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL-FLUR-ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHION DISSOLV (UG/L) (82346)	ETHION MONOXON WATER FLTRD REC (UG/L) (61644)	ETHO-PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FENAMI-PHOS SULFONE WATER FLTRD REC (UG/L) (61645)
APR b20...	<.0310	<.02	<.02	<.0160	<.0080	<.0020	<.0040	<.005	<.0080	<.0030	<.0080

DATE	FENAMI-PHOS SULF-OXIDE WAT FLT REC (UG/L) (61646)	FENAMI-PHOS WATER FLTRD REC (UG/L) (61591)	FEN-THION SULF-OXIDE WAT FLT REC (UG/L) (61647)	FEN-URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUME-TRALIN WATER FLTRD REC (UG/L) (61592)	FLUMET-SULAM WATER FLTRD REC (UG/L) (61694)	FLUO-METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	FONOFOS OXYGEN ANALOG WATER FLTRD REC (UG/L) (61649)	FONOFOS WATER DISS REC (UG/L) (04095)	HEXA-ZINONE, WATER, DISS, REC (UG/L) (04025)
APR b20...	<.0310	<.0160	<.0080	<.0735	<.0160	<.0866	<.0617	<.0160	<.0030	<.01

DATE	HYDROXY ATRA-ZINE WATER FLTRD REC (UG/L) (50355)	HYDROXY METHYL-PENDI-METH-LION FLT REC (UG/L) (61665)	IMAZ-AQUIN WATER FLTRD REC (UG/L) (50356)	IMAZE-THAPYR WATER FLTRD REC (UG/L) (50407)	IMID-ACLOP-RID WATER FLTRD REC (UG/L) (61695)	IPRO-DIONE WATER FLTRD REC (UG/L) (61593)	ISOFEN-PHOS WATER FLTRD REC (UG/L) (61594)	LAMDA-CYHALO-THRIN WATER FLTRD REC (UG/L) (61595)	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)
APR b20...	<.193	<.0310	<.103	<.088	<.106	<.0310	<.0080	<.0080	<.004	<.0695	<.0020

DATE	MALA-OXON WATER FLTRD REC (UG/L) (61652)	MALA-THION, DIS-SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	META-LAXYL WATER FLTRD REC (UG/L) (61596)	METAL-AXYL WATER FLTRD REC (UG/L) (50359)	METHI-DATHION WATER FLTRD REC (UG/L) (61598)	METHIO-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH-OMYL OXIME WATER FLTRD REC (UG/L) (61696)	METH-OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	METHYL AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)
APR b20...	<.0160	<.005	<.0585	<.0625	<.0160	<.057	<.0080	<.0795	<.0102	<.0768	<.0010

b Field blank sample collected for quality-control purposes.

434415098012701 MITCHELL WATER TREATMENT PLANT FINISHED WATER TAP--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	METHYL PARATHION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	METSULFURON METHYL WAT FLT REC (UG/L) (61697)	MOLINATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	MYCLOBUTANIL WATER FLTRD REC (UG/L) (61599)	NAPROPAMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	NEBURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NICOSULFURON WATER FLTRD REC (UG/L) (50364)	NORFLURAZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	O-ETHYL O-METHY S-PROPY _HIOATE WAT FLT REC (UG/L) (61660)
APR b20...	<.0060	.040	<.004	<.114	<.0040	<.0080	<.0030	<.0747	<.065	<.0774	<.0050

DATE	ORYZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL OXIME WATER FLTRD REC (UG/L) (50410)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	OXYFLUORFEN WATER FLTRD REC (UG/L) (61600)	P,P' DDE DISSOLV (UG/L) (34653)	PARAOXON ETHYL WATER FLTRD REC (UG/L) (61663)	PARAOXON METHYL WATER FLTRD REC (UG/L) (61664)	PARATHION, DISSOLVED (UG/L) (39542)	PEBULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDIMETHALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PERMETHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)
APR b20...	<.0711	<.064	<.0160	<.0160	<.0060	<.0310	<.0310	<.004	<.0040	<.0040	<.0050

DATE	PHORATE OXON WATER FLTRD REC (UG/L) (61666)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PHOSMET OXON WATER FLTRD REC (UG/L) (61668)	PHOSMET WATER FLTRD REC (UG/L) (61601)	PHOSTEBUPIRIM WATER FLTRD REC (UG/L) (61602)	PICLORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PROFENOFOS WATER FLTRD REC (UG/L) (61603)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROMETRYN, WATER, DISS, REC (UG/L) (04036)	PRONAMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)
APR b20...	<.0310	<.0020	<.0160	<.0080	<.0080	<.0712	<.0080	E.0096	<.0050	<.0030	<.0070

DATE	PROPANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PROPARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PROPETAMPHOS WATER FLTRD REC (UG/L) (61604)	PROPHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PROPICONAZOLE , WATER FLTRD REC (UG/L) (50471)	PROPOXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)	SULFOMETRURON METHYL WTR FLT REC (UG/L) (50337)	SULFOTEPP WATER FLTRD REC (UG/L) (61605)	SULPROFOS WATER FLTRD REC (UG/L) (38716)	TCPSA ETHYL ESTER WATER FLTRD REC (UG/L) (61670)
APR b20...	<.0040	<.0130	<.0160	<.0717	<.064	<.0594	<.0050	<.039	<.0050	<.0050	<.0050

DATE	TEBUPIRIMPHOS OXYGEN ANALOG WAT FLT REC (UG/L) (61669)	TEBUTHIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TEFLUTHRIN METABOLITE R119364 FLT REC (UG/L) (61671)	TEFLUTHRIN METABOLITE R152912 FLT REC (UG/L) (61672)	TEFLUTHRIN WATER FLTRD REC (UG/L) (61606)	TEMEPHOS WATER FLTRD REC (UG/L) (61607)	TERBACIL, WATER, DISS, REC (UG/L) (04032)	TERBACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TERBUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	TERBUFOS O-ANALOGUE WAT FLT REC (UG/L) (61674)	TERBUTOL WATER FLTRD REC (UG/L) (50368)
APR b20...	<.0160	<.0767	<.0050	<.0080	<.0080	<.0310	<.10	<.0070	<.0130	<.0160	<.093

DATE	THIOBENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRANSCARBOXYATE WATER FLTRD REC (UG/L) (79843)	TRANSPROPICONAZOLE WAT FLT REC (UG/L) (79847)	TRIALLATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRIBENURON METHYL WATER FLTRD (UG/L) (61159)	TRIBUPHOS WATER FLTRD REC (UG/L) (61610)	TRICLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	TRIFLURALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	UREA 3(4-CHLOROPHENYL METHYL WAT FLT REC (UG/L) (61692)	Z-DIMETHOMORPH WATER FLTRD REC (UG/L) (79845)	
APR b20...	<.0020	<.0160	<.0050	<.0010	<.07	<.0160	<.101	<.0020	<.0915	<.0310	

b Field blank sample collected for quality-control purposes.

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)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05051650 LA BELLE CR NEAR VEBLEN, SD (LAT 45 53 33N LONG 097 21 40W)					
OCT 1998					
05...	1215	.05	14.5	12.5	1510
NOV					
16...	1640	1.5	0.5	3.0	1100
DEC					
28...	1115	.68	0.0	3.0	1430
FEB 1999					
17...	1310	.78	0.0	-5.0	1200
MAR					
18...	1505	11	1.0	8.0	650
APR					
26...	1545	2.7	10.0	11.5	947
JUN					
07...	1320	3.9	21.0	22.0	914
JUL					
19...	1255	2.6	24.0	24.5	928
AUG					
31...	1300	.89	23.0	25.0	1020
05289985 BIG COULEE CR NEAR PEEVER, SD (LAT 45 29 14N LONG 096 57 26W)					
OCT 1998					
05...	1410	1.4	13.0	12.5	1270
NOV					
17...	0830	3.6	0.5	1.0	1260
DEC					
28...	1320	.26	0.0	4.5	1400
FEB 1999					
17...	1505	2.2	0.0	-2.0	1350
MAR					
18...	1715	9.8	1.0	9.0	869
APR					
26...	1955	3.6	10.0	11.5	1230
JUN					
07...	1600	6.3	20.0	28.0	1100
JUL					
19...	1440	1.2	24.0	24.5	1280
AUG					
31...	1450	1.6	24.0	26.0	1230
05292704 NORTH FORK YELLOW BANK RIVER NEAR ODESSA, MN (LAT 45 11 21N LONG 096 24 54W)					
OCT 1998					
05...	1655	6.5	13.5	12.5	848
NOV					
17...	1030	46	1.0	1.0	1060
DEC					
28...	1545	10	0.0	4.0	1520
FEB 1999					
18...	1015	37	0.0	-1.0	959
MAR					
19...	0815	135	0.0	2.0	752
24...	1205	55	1.0	2.0	846
APR					
27...	1235	39	11.0	11.0	1080
JUN					
08...	0840	18	21.5	16.0	959
10...	1355	1660	22.0	24.0	552
JUL					
19...	1715	74	24.0	25.0	827
AUG					
31...	1645	3.7	25.0	28.5	897

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
05299700 COBB CREEK NEAR GARY, SD (LAT 44 44 22N LONG 096 27 26W)					
OCT 1998					
07...	1115	5.5	12.0	12.0	780
NOV					
18...	1555	10	0.5	1.0	787
DEC					
30...	1445	4.1	0.0	-5.0	1040
MAR 1999					
01...	1040	12	0.5	11.0	600
24...	0910	20	1.5	-2.0	610
APR					
06...	1345	52	3.0	10.0	737
30...	1010	20	12.5	20.0	1040
JUN					
08...	1340	22	23.5	28.0	781
JUL					
21...	1020	7.4	25.0	28.0	817
AUG					
30...	1545	12	20.0	21.0	684
06334500 LITTLE MISSOURI R AT CAMP CROOK, SD (LAT 45 32 49N LONG 103 58 23W)					
OCT 1998					
13...	0830	108	6.0	4.0	536
NOV					
30...	0845	28	0.0	1.0	1330
JAN 1999					
11...	0955	13	0.0	5.0	2470
FEB					
22...	0845	--	0.0	-2.0	1000
APR					
12...	0850	837	8.0	6.0	996
MAY					
18...	1025	513	13.5	20.0	1200
JUN					
09...	1720	1680	12.0	19.0	886
29...	0910	75	18.0	17.0	1600
AUG					
23...	0840	21	16.0	18.0	2420
06354882 OAK CR NEAR WAKPALA, SD (LAT 45 42 43N LONG 100 33 32W)					
OCT 1998					
06...	1545	16	9.5	9.0	900
NOV					
18...	0835	18	0.0	-3.0	865
DEC					
16...	0930	4.9	0.0	2.0	1130
FEB 1999					
02...	0855	3.2	0.0	-2.0	1090
MAR					
02...	0920	558	3.5	3.0	1080
APR					
05...	1330	14	5.0	7.0	1250
MAY					
05...	1420	1080	--	--	429
11...	1515	1400	9.0	14.5	241
JUN					
21...	1615	14	26.5	29.5	1350
JUL					
29...	1625	2.3	31.0	43.0	952
SEP					
02...	0755	8.7	18.5	13.0	729

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06355500 NORTH FORK GRAND R NEAR WHITE BUTTE, SD (LAT 45 48 08N LONG 102 21 43W)					
OCT 1998					
13...	1505	13	8.0	8.0	2860
NOV					
30...	1335	24	3.0	12.0	2890
JAN 1999					
11...	1415	7.1	0.0	6.5	4540
FEB					
22...	1445	57	0.0	1.5	1760
APR					
12...	1805	105	12.0	22.0	2410
MAY					
18...	1635	130	18.5	27.0	2890
JUN					
29...	1440	26	20.0	21.0	2770
AUG					
23...	1300	33	22.0	25.0	2690
06356500 SOUTH FORK GRAND R NEAR CASH, SD (LAT 45 38 56N LONG 102 38 27W)					
OCT 1998					
13...	1040	--	6.0	3.0	990
NOV					
30...	1125	--	3.5	10.0	1810
JAN 1999					
11...	1215	--	0.0	5.0	2870
FEB					
22...	1055	--	0.0	2.0	1160
APR					
12...	1150	136	9.0	15.0	2190
MAY					
18...	1430	264	16.0	23.0	1490
JUN					
29...	1220	28	18.5	22.0	2370
AUG					
23...	1040	--	20.0	22.0	1520
06357620 WILLOW CREEK NEAR KELDRON, SD (LAT 45 50 00N LONG 101 52 02W)					
NOV 1998					
30...	1445	--	0.0	14.0	3490
APR 1999					
12...	1605	1.9	13.0	19.5	3060
MAY					
18...	1750	--	21.0	23.0	3510
JUN					
29...	1545	--	21.0	20.0	5190
AUG					
23...	1430	--	23.0	26.0	3190
06357800 GRAND R AT LITTLE EAGLE, SD (LAT 45 39 28N LONG 100 49 04W)					
OCT 1998					
07...	1000	1020	8.5	14.0	764
NOV					
17...	1440	252	2.0	-2.0	1390
DEC					
16...	1320	109	0.5	4.0	1780
FEB 1999					
02...	1230	60	0.0	8.5	1800
MAR					
02...	1200	2220	4.5	8.0	403
APR					
06...	0905	234	5.5	5.5	1530
MAY					
11...	1130	4740	8.5	11.5	503
JUN					
22...	0850	293	24.5	24.5	1640
JUL					
14...	1215	213	26.5	28.0	1210
29...	1050	98	26.0	32.0	1820
SEP					
01...	1345	199	23.0	20.0	1820

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06359500 MOREAU R NEAR FAITH, SD (LAT 45 11 52N LONG 102 09 22W)					
OCT 1998					
14...	1555	108	11.5	19.5	1910
DEC					
02...	0805	78	0.5	-1.0	1830
23...	0930	--	0.0	-11.0	3240
JAN 1999					
13...	0910	18	0.0	-15.0	1960
FEB					
03...	0837	--	0.0	2.5	492
APR					
14...	0925	222	9.5	6.0	2060
MAY					
19...	0925	1020	15.0	21.0	2200
JUN					
30...	1545	90	20.5	24.0	2020
AUG					
25...	0737	18	19.5	17.5	3290
SEP					
08...	1420	16	--	19.5	--
06360500 MOREAU R NEAR WHITEHORSE, SD (LAT 45 15 21N LONG 100 50 33W)					
OCT 1998					
06...	1210	119	9.5	9.5	2490
NOV					
17...	1040	158	2.0	0.5	2020
DEC					
16...	1540	66	0.0	3.0	1950
FEB 1999					
01...	1530	11	0.0	8.0	2470
25...	1135	594	0.0	12.0	938
MAR					
01...	1530	539	6.5	12.5	2330
APR					
05...	1020	107	6.5	6.0	1830
MAY					
12...	0945	1990	10.5	15.5	938
JUN					
21...	1240	771	26.0	33.0	1920
JUL					
15...	1005	52	25.5	32.0	2260
29...	1250	81	32.0	40.0	2370
AUG					
06...	1145	30	29.0	30.0	2660
SEP					
01...	1015	630	23.5	19.0	1460
06361045 UNNAMED TRIB SWIFT BIRD BAY, LAKE OAHE, NR LAPLANT, SD (LAT 45 08 38N LONG 100 23 35W)					
MAR 1999					
01...	1300	3.0	7.0	12.5	1950
APR					
06...	1335	.26	15.5	11.5	3290
MAY					
12...	1215	1.4	20.5	18.0	2610
06394450 PASS CREEK NEAR DEWEY, SD (LAT 43 33 05N LONG 103 56 15W)					
MAR 1999					
15...	1445	--	2.5	23.0	2570
APR					
06...	1125	.11	3.0	18.0	3050
JUN					
08...	0830	.10	16.0	22.0	2560
22...	1130	278	--	--	--
AUG					
09...	1300	1210	26.0	32.0	3240
JUL					
15...	0810	.00	--	--	--

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06395000 CHEYENNE R AT EDGEMONT, SD (LAT 43 18 20N LONG 103 49 14W)					
OCT 1998					
13...	1255	67	11.0	15.5	2340
NOV					
17...	0825	182	1.5	30.0	2910
JAN 1999					
11...	1310	37	0.0	13.0	3860
FEB					
16...	1300	121	2.0	-13.5	--
APR					
14...	1245	157	11.5	9.0	3110
JUN					
02...	1045	134	18.5	27.0	2490
13...	1038	2620	17.5	64.5	859
JUL					
15...	0940	64	22.5	25.0	1060
AUG					
30...	1110	20	24.0	35.0	5770
06400000 HAT CR NEAR EDGEMONT, SD (LAT 43 14 24N LONG 103 35 16W)					
OCT 1998					
13...	1410	7.0	10.5	22.0	724
NOV					
17...	1030	107	1.0	7.0	1850
JAN 1999					
11...	1055	4.8	0.0	13.0	3740
FEB					
16...	1030	11	0.0	-13.5	2060
APR					
15...	0840	225	8.0	2.0	2150
JUN					
02...	1335	20	22.0	30.0	4040
11...	0940	293	14.5	25.0	1400
JUL					
15...	1200	8.8	25.0	32.0	3230
AUG					
30...	1240	1.1	25.5	30.0	3590
06400875 HORSEHEAD CR AT OELRICHS, SD (LAT 43 11 17N LONG 103 13 34W)					
OCT 1998					
14...	0845	.04	8.5	11.0	3120
NOV					
16...	1545	5.2	3.0	11.0	1260
JAN 1999					
14...	1500	.36	1.0	12.0	3430
FEB					
18...	1015	1.2	2.0	7.0	1930
APR					
15...	1305	46	8.0	7.0	1550
JUN					
03...	1430	1.8	21.0	30.0	1660
13...	1330	168	18.0	35.0	1170
14...	1000	226	19.5	26.0	1200
16...	1125	396	17.0	17.0	824
JUL					
16...	1145	.48	20.5	20.0	2230
06401500 CHEYENNE R BELOW ANGOSTURA DAM, SD (LAT 43 20 42N LONG 103 26 12W)					
OCT 1998					
13...	1650	8.5	14.0	18.0	2590
NOV					
16...	1415	680	7.5	15.0	2340
JAN 1999					
15...	0930	7.5	2.5	9.0	2460
FEB					
18...	1140	7.3	5.0	7.5	2500
APR					
15...	1110	518	8.0	24.0	2680
JUN					
01...	1415	148	15.0	24.0	2740
JUL					
12...	0900	12	14.0	28.0	2530
SEP					
08...	0815	7.8	18.0	15.0	2600

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06402000 FALL R AT HOT SPRINGS, SD (LAT 43 25 50N LONG 103 28 33W)					
OCT 1998					
13...	1525	29	24.0	23.0	1250
NOV					
17...	1220	28	22.5	11.0	1250
JAN 1999					
11...	1430	27	22.0	11.5	1310
FEB					
16...	1425	24	22.0	8.0	1270
APR					
08...	1125	50	8.0	10.0	902
JUN					
08...	1105	38	25.0	21.0	1340
23...	1210	46	24.5	24.0	1360
29...	1305	50	23.0	20.0	1330
SEP					
08...	1025	32	23.5	15.0	1350
06402430 BEAVER CREEK NEAR PRINGLE, SD (LAT 43 34 53N LONG 103 28 34W)					
OCT 1998					
02...	0920	3.7	7.5	5.0	479
NOV					
17...	1345	8.6	4.5	10.0	506
JAN 1999					
15...	1120	4.4	2.5	10.0	509
APR					
12...	1010	9.1	6.0	15.0	488
MAY					
11...	1055	14	8.0	10.0	507
24...	1020	19	14.0	20.5	510
JUL					
12...	1110	19	17.0	30.0	560
SEP					
14...	0825	7.4	8.0	5.0	558
06402470 BEAVER CREEK ABOVE BUFFALO GAP, SD (LAT 43 31 20N LONG 103 21 23W)					
JUN 1999					
08...	1205	--	19.5	27.0	2000
11...	1420	30	17.5	17.0	1860
JUL					
09...	0850	36	17.5	18.0	1760
06402500 BEAVER CR NEAR BUFFALO GAP, SD (LAT 43 28 00N LONG 103 18 20W)					
OCT 1998					
02...	1225	15	10.5	5.0	2380
NOV					
16...	1100	22	8.5	13.0	2490
JAN 1999					
14...	1630	18	5.5	7.0	2540
FEB					
18...	1320	14	9.0	7.5	2480
APR					
12...	1410	15	15.0	20.0	2520
MAY					
11...	0900	27	9.0	8.0	2840
JUN					
11...	1245	91	15.0	23.0	2070
JUL					
09...	1025	35	18.5	22.0	1870
SEP					
08...	1250	15	15.5	20.0	2260

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06402995 FRENCH CREEK ABOVE STOCKADE LAKE, NEAR CUSTER, SD (LAT 43 46 10N LONG 103 32 10W)					
OCT 1998					
05...	1045	--	4.5	2.0	332
DEC					
01...	1130	--	3.5	11.0	290
APR 1999					
12...	0800	--	3.5	8.0	276
JUN					
08...	0720	--	14.0	25.0	311
JUL					
14...	1045	--	18.5	29.0	352
AUG					
07...	2030	995	15.0	17.0	215
10...	1000	--	15.5	31.0	334
06403300 FRENCH CR ABOVE FAIRBURN, SD (LAT 43 43 02N LONG 103 22 03W)					
OCT 1998					
01...	1240	9.7	10.5	11.5	284
NOV					
20...	1140	45	1.5	8.0	262
DEC					
01...	0935	--	4.0	14.0	267
JAN 1999					
04...	1245	13	0.0	-1.0	297
MAR					
11...	1200	18	0.0	-1.0	282
APR					
29...	0925	71	9.0	8.0	263
JUN					
15...	0910	87	14.0	11.0	235
JUL					
16...	0915	23	17.0	15.0	281
SEP					
16...	0845	17	10.0	11.0	275
06403700 CHEYENNE RIVER AT REDSHIRT, SD (LAT 43 40 23N LONG 102 53 36W)					
OCT 1998					
09...	1025	173	--	10.0	2130
30...	1015	556	9.5	7.0	2390
NOV					
04...	1140	1840	7.0	4.0	2500
JAN 1999					
06...	1140	119	0.0	-12.0	2450
MAR					
16...	1230	236	9.0	16.0	2580
APR					
30...	1010	676	11.5	14.0	2410
MAY					
25...	1420	495	20.0	28.0	2480
JUN					
15...	1435	4820	17.5	22.0	2500
18...	1226	3110	--	--	--
JUL					
13...	1130	172	24.0	27.0	2240
SEP					
09...	1245	136	17.5	26.0	2350
06403810 BATTLE CR ABOVE KEYSTONE, SD (LAT 43 54 17N LONG 103 27 48W)					
NOV 1998					
17...	1310	5.3	4.0	5.0	302
APR 1999					
19...	1305	2.2	8.0	21.0	327
MAY					
28...	1200	--	15.5	24.0	353
JUN					
21...	1055	24	13.5	32.5	246
AUG					
04...	1050	1.6	16.0	23.0	380

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06403845 GRIZZLY BEAR CREEK ABOVE G.B. FALLS, NR KEYSTONE, SD (LAT 43 51 06N LONG 103 29 06W)					
OCT 1998					
19...	1240	3.9	8.0	9.0	50
MAR 1999					
30...	1355	.92	18.0	22.0	--
APR					
13...	1335	2.8	9.0	16.0	49
06403850 GRIZZLY BEAR CREEK NEAR KEYSTONE, SD (LAT 43 52 41N LONG 103 26 14W)					
NOV 1998					
06...	1140	.47	3.0	7.5	110
17...	1445	11	3.0	5.0	68
APR 1999					
13...	1030	4.4	4.0	17.5	69
MAY					
28...	1045	3.6	13.5	23.0	82
AUG					
04...	0920	5.8	16.5	22.0	80
06404000 BATTLE CR NEAR KEYSTONE, SD (LAT 43 52 21N LONG 103 20 10W)					
OCT 1998					
07...	1300	16	8.5	19.0	228
NOV					
19...	0840	43	0.5	1.0	183
JAN 1999					
07...	1035	8.0	0.0	-11.0	283
MAR					
15...	0925	10	1.0	15.0	303
APR					
27...	0805	95	5.5	13.0	137
MAY					
25...	0940	26	13.0	20.0	221
JUL					
07...	0850	29	17.0	30.0	290
SEP					
09...	0750	5.9	10.0	11.0	359
06404800 GRACE COOLIDGE CREEK NEAR HAYWARD, SD (LAT 43 48 07N LONG 103 26 03W)					
OCT 1998					
05...	0955	6.5	5.0	3.0	70
APR 1999					
22...	0815	--	3.5	3.0	59
MAY					
28...	0910	--	10.0	23.0	77
JUL					
08...	0745	--	15.0	26.0	88
06404998 GRACE COOLIDGE CR NR GAME LODGE, NR CUSTER, SD (LAT 43 45 40N LONG 103 21 49W)					
OCT 1998					
01...	1015	5.1	10.0	12.0	196
NOV					
20...	0930	31	2.5	3.5	143
JAN 1999					
04...	0955	8.5	0.0	-10.0	188
MAR					
12...	1150	5.4	1.0	0.0	183
APR					
22...	1025	32	6.0	3.0	140
26...	0810	69	5.5	5.0	124
MAY					
27...	1115	18	14.0	19.0	165
JUN					
11...	1545	27	13.0	15.0	163
JUL					
08...	1000	13	18.5	24.0	181
14...	1300	11	21.0	26.0	185
SEP					
07...	1045	8.3	14.0	16.0	194
14...	1105	6.7	10.0	13.0	201

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06405800 BEAR GULCH NEAR HAYWARD, SD (LAT 43 47 31N LONG 103 20 49W)					
OCT 1998					
05...	0830	4.9	5.0	3.0	103
APR 1999					
22...	0730	--	5.0	15.0	99
JUL					
08...	0700	--	16.5	24.0	138
06406000 BATTLE CR AT HERMOSA, SD (LAT 43 49 41N LONG 103 11 44W)					
OCT 1998					
07...	1430	34	14.0	20.0	474
NOV					
17...	0920	86	5.0	5.0	346
JAN 1999					
06...	1345	43	0.0	-12.5	451
MAR					
15...	1125	36	9.0	16.0	469
APR					
27...	1000	179	8.0	16.0	254
MAY					
26...	0945	61	14.0	23.0	468
JUL					
13...	0740	59	16.5	18.0	520
SEP					
09...	0935	43	21.0	17.0	523
06406500 BATTLE CR BELOW HERMOSA, SD (LAT 43 43 30N LONG 102 54 15W)					
OCT 1998					
09...	0850	31	9.5	7.0	603
NOV					
17...	1050	89	4.5	13.0	705
JAN 1999					
06...	0915	33	0.0	-10.0	547
MAR					
16...	1010	46	7.0	14.5	690
APR					
27...	1325	209	11.5	20.0	668
MAY					
26...	1130	71	18.5	25.0	606
JUL					
13...	0945	69	20.5	27.0	635
SEP					
09...	1115	46	14.0	24.0	627
06406700 SPRING CR AT OREVILLE, NR HILL CITY, SD (LAT 43 51 58N LONG 103 37 24W)					
NOV 1998					
17...	1110	17	1.5	5.0	316
APR 1999					
19...	1155	22	4.0	18.5	276
MAY					
19...	1105	35	8.0	22.0	287
AUG					
17...	0935	11	12.0	24.5	384
06406740 SUNDAY GULCH BL JOHNSON CANYON, NR HILL CITY, SD (LAT 43 52 10N LONG 103 34 55W)					
NOV 1998					
16...	1320	4.5	4.0	10.0	68
APR 1999					
19...	1030	3.0	4.5	16.5	67
MAY					
19...	1335	4.6	11.5	20.0	73
AUG					
04...	1255	3.4	16.5	22.0	75

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06406760 RENO GULCH NEAR HILL CITY, SD (LAT 43 54 35N LONG 103 36 43W)					
NOV 1998					
16...	1130	.93	2.5	8.0	265
APR 1999					
19...	0940	.78	3.5	18.0	244
MAY					
19...	1425	1.4	11.5	20.0	249
AUG					
17...	1050	.68	12.5	24.0	260
06406920 SPRING CREEK ABOVE SHERIDAN LAKE, NEAR KEYSTONE, SD (LAT 43 57 39N LONG 103 29 18W)					
OCT 1998					
06...	1430	33	7.0	12.0	318
NOV					
18...	1150	59	3.0	3.0	258
JAN 1999					
05...	1230	26	0.0	3.0	322
FEB					
18...	1350	19	2.5	7.0	336
APR					
06...	1215	25	5.0	12.5	318
MAY					
14...	1120	89	8.0	11.0	233
JUN					
24...	1200	161	14.0	23.0	248
AUG					
18...	1245	27	18.0	25.0	368
06407500 SPRING CR NEAR KEYSTONE, SD (LAT 43 58 45N LONG 103 20 25W)					
AUG 1999					
31...	1345	--	22.5	34.0	287
06408500 SPRING CR NEAR HERMOSA, SD (LAT 43 56 31N LONG 103 09 32W)					
OCT 1998					
07...	0905	21	8.0	16.0	647
NOV					
17...	1335	54	6.0	11.0	489
JAN 1999					
07...	0840	9.6	0.0	-16.0	753
FEB					
19...	0930	6.7	3.0	1.0	944
APR					
09...	0930	18	7.0	9.0	840
MAY					
21...	0851	99	12.0	16.0	390
JUN					
23...	1210	271	14.5	19.0	315
AUG					
19...	0915	24	16.0	22.0	742
06408700 RHOADS FORK NEAR ROCHFORD, SD (LAT 44 08 12N LONG 103 51 29W)					
DEC 1998					
02...	1055	8.6	5.5	7.0	472
MAR 1999					
18...	1120	8.5	7.0	12.0	468
JUL					
01...	1329	9.6	11.5	19.5	473
01...	1405	9.6	11.5	20.0	473
AUG					
04...	0927	--	8.0	18.0	477
SEP					
15...	1610	10	9.0	18.0	480
15...	1733	9.9	--	--	--

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06409000 CASTLE CR ABOVE DEERFIELD RES, NEAR HILL CITY, SD (LAT 44 00 49N LONG 103 49 48W)					
OCT 1998					
13...	1130	24	3.5	16.0	500
NOV					
25...	1030	24	0.5	5.0	495
JAN 1999					
11...	1010	23	2.0	3.0	--
FEB					
12...	1150	27	0.0	-1.0	446
MAR					
25...	1150	45	3.0	12.5	354
MAY					
14...	1225	37	5.5	13.0	471
JUN					
25...	1040	53	9.5	28.0	502
SEP					
08...	1645	30	8.5	17.0	482
06410000 CASTLE CR BELOW DEERFIELD DAM, SD (LAT 44 01 45N LONG 103 46 53W)					
OCT 1998					
13...	0930	29	10.5	6.0	395
FEB 1999					
12...	0935	19	1.5	-2.0	403
MAR					
25...	1005	29	3.0	8.5	445
MAY					
12...	1542	48	6.5	16.0	455
JUN					
25...	1225	69	8.5	32.5	419
SEP					
08...	1445	32	11.5	18.5	360
06410500 RAPID CR ABOVE PACTOLA RES, AT SILVER CITY, SD (LAT 44 05 05N LONG 103 34 48W)					
OCT 1998					
06...	0830	109	4.0	3.0	355
NOV					
18...	0830	143	2.0	1.0	335
DEC					
09...	1002	134	0.0	-4.0	363
JAN 1999					
05...	0830	94	0.0	-1.5	395
FEB					
18...	0845	64	0.0	-2.0	407
APR					
06...	0830	135	1.5	-3.0	377
MAY					
13...	0945	207	6.5	9.5	300
26...	1633	--	11.0	12.0	325
JUN					
24...	0845	355	11.0	14.0	303
AUG					
18...	0900	96	13.0	12.0	391
SEP					
16...	1040	71	8.0	20.0	400
06411500 RAPID CR BELOW PACTOLA DAM, SD (LAT 44 04 36N LONG 103 28 54W)					
OCT 1998					
06...	1100	142	13.5	12.0	334
NOV					
18...	1015	141	6.5	1.0	337
JAN 1999					
05...	1020	68	3.0	1.0	343
FEB					
18...	1115	71	3.5	3.0	354
APR					
06...	1045	120	4.0	6.0	348
MAY					
13...	1255	289	6.0	14.5	325
14...	0930	290	6.0	10.0	331
18...	1500	280	6.5	25.0	333
JUN					
24...	1430	439	11.0	25.0	334
AUG					
18...	1050	136	13.0	23.5	310
SEP					
17...	1340	64	14.0	22.0	313
23...	1000	49	13.0	19.0	314

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06411900 RAPID CR ABV JOHNSON SIDING, BLW PACTOLA DAM, SD (LAT 44 04 55N LONG 103 27 32W)					
APR 1999					
15...	1350	191	6.0	2.0	349
MAY					
26...	1015	172	8.0	25.0	340
JUN					
17...	0925	458	--	--	--
AUG					
18...	0845	144	11.5	24.0	315
SEP					
27...	1000	50	10.5	13.0	323
06412000 RAPID CR AT BIG BEND, NR RAPID CITY, SD (LAT 44 03 43N LONG 103 25 05W)					
APR 1999					
15...	1505	211	6.5	1.0	350
MAY					
26...	1210	175	10.5	25.5	346
JUN					
17...	1100	537	--	--	--
AUG					
18...	1045	143	12.5	22.5	319
SEP					
27...	1155	48	9.5	11.5	330
06412200 RAPID CREEK AB VICTORIA CR, NR RAPID CITY, SD (LAT 44 02 48N LONG 103 21 06W)					
MAR 1999					
16...	1500	--	7.5	--	357
MAY					
26...	1340	184	12.0	22.5	342
JUN					
17...	1327	641	--	--	--
SEP					
28...	1005	54	7.5	10.0	333
06412220 VICTORIA CR ABOVE VICTORIA DAM, NR RAPID CITY, SD (LAT 44 01 47N LONG 103 26 06W)					
OCT 1998					
29...	1100	.70	9.0	11.0	258
MAY 1999					
03...	1105	3.4	7.0	15.0	219
28...	1315	2.1	16.0	28.0	229
JUN					
03...	1020	5.3	11.5	23.0	205
04...	0850	4.7	9.5	22.0	211
14...	1725	9.9	10.5	16.0	204
15...	1602	14	11.0	16.0	203
AUG					
03...	1310	.51	16.5	25.0	259

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06412250 VICTORIA CR BELOW VICTORIA DAM, NR RAPID CITY, SD (LAT 44 01 05N LONG 103 23 07W)					
OCT 1998					
29...	0945	1.6	8.5	10.5	239
MAY 1999					
03...	1200	8.8	8.0	15.0	206
29...	1420	5.5	17.0	29.0	217
JUN					
03...	0845	45	10.0	18.5	159
04...	1025	27	11.0	27.0	178
14...	1640	38	11.0	17.0	168
15...	1350	68	10.0	17.0	215
AUG					
03...	1045	1.7	17.5	25.0	239
06412500 RAPID CR ABOVE CANYON LAKE, NEAR RAPID CITY, SD (LAT 44 03 04N LONG 103 18 47W)					
OCT 1998					
01...	1255	119	12.5	13.0	335
JAN 1999					
19...	1430	78	2.5	--	349
APR					
14...	0945	212	5.5	11.5	348
MAY					
05...	1525	317	9.0	14.0	348
26...	1450	197	12.0	16.0	340
JUN					
17...	0945	599	9.5	16.0	327
JUL					
01...	1125	560	10.0	21.0	338
07...	0845	543	10.5	27.5	340
08...	1230	330	14.0	23.0	340
AUG					
19...	0820	147	13.5	22.0	326
SEP					
01...	0722	--	14.0	12.0	316
24...	1225	53	13.5	27.0	338
06412580 WILD IRISHMAN GULCH NEAR RAPID CITY, SD (LAT 44 04 52N LONG 103 21 54W)					
MAY 1999					
21...	1230	.00	--	22.0	--
06412810 CLEGHORN SPRINGS AT RAPID CITY, SD (LAT 44 03 32N LONG 103 17 49W)					
OCT 1998					
21...	1425	--	13.0	17.0	366
NOV					
17...	1342	--	11.0	7.0	366
JAN 1999					
29...	1322	--	12.0	15.0	368
FEB					
16...	1342	11	11.5	6.0	363
MAY					
13...	1108	--	12.0	12.0	368
JUL					
26...	1046	--	13.0	26.0	375
SEP					
16...	1450	--	13.5	26.5	366
06413620 SOUTH CANYON NEAR RAPID CITY, SD (LAT 44 05 34N LONG 103 19 37W)					
APR 1999					
19...	1440	.00	--	21.0	--
MAY					
21...	1215	.00	--	22.0	--
AUG					
02...	1305	.00	--	25.0	--

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06413650 LIME CREEK AT MOUTH, AT RAPID CITY, SD (LAT 44 04 30N LONG 103 16 00W)					
OCT 1998					
13...	1345	4.2	10.5	17.0	893
NOV					
27...	1035	4.9	8.0	14.0	864
JAN 1999					
04...	1535	3.5	2.5	1.0	834
FEB					
12...	1405	2.7	5.5	6.0	706
MAR					
26...	0845	3.5	8.0	13.5	837
JUN					
02...	--	505	--	--	--
JUL					
26...	1640	4.7	18.0	27.0	1100
AUG					
04...	1217	--	15.0	28.0	1140
06414000 RAPID CR AT RAPID CITY, SD (LAT 44 05 09N LONG 103 14 31W)					
OCT 1998					
01...	1145	148	12.0	11.0	420
NOV					
16...	1240	198	5.0	11.0	453
JAN 1999					
04...	1230	104	1.0	-7.0	489
FEB					
16...	1230	103	5.0	4.0	468
APR					
05...	1335	143	8.0	9.0	483
MAY					
13...	1540	353	8.0	14.0	391
JUN					
03...	1035	--	13.0	18.0	429
17...	1330	684	11.0	17.5	402
AUG					
16...	1310	177	18.0	25.0	446
SEP					
14...	1325	87	12.0	19.0	541
27...	1025	84	10.0	13.0	536
06418900 RAPID CR BL SEWAGE TREATMENT PL, NR RAPID CITY, SD (LAT 44 01 24N LONG 103 05 43W)					
OCT 1998					
01...	0830	132	11.0	10.0	620
NOV					
16...	0800	258	6.0	3.0	749
JAN 1999					
04...	0830	108	1.0	-14.0	732
FEB					
09...	0955	--	5.5	11.5	834
16...	0820	122	4.0	0.0	687
APR					
05...	0820	178	6.0	1.0	869
MAY					
04...	1017	--	10.0	11.0	650
12...	0930	392	8.5	14.0	588
JUN					
03...	0915	1270	--	21.0	--
AUG					
16...	0840	183	17.0	21.0	642
SEP					
01...	1544	--	19.5	31.0	603
14...	0900	101	12.0	8.0	826
17...	1118	--	16.5	24.5	882

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06421500 RAPID CR NEAR FARMINGDALE, SD (LAT 43 56 31N LONG 102 51 12W)					
OCT 1998					
01...	1015	132	12.5	10.0	697
NOV					
16...	1040	315	5.0	8.0	884
JAN 1999					
04...	1030	93	0.0	-10.0	945
11...	1551	--	0.0	10.0	--
FEB					
16...	1045	130	1.5	2.0	811
APR					
05...	1000	228	5.0	2.0	1220
MAY					
12...	1208	429	11.0	19.5	631
JUN					
22...	1055	625	18.0	25.0	569
AUG					
16...	1040	167	19.0	23.0	699
SEP					
02...	1308	--	19.0	18.0	613
14...	1030	99	12.0	12.0	823
06421800 LINDSEY DRAW NEAR FARMINGDALE, SD (LAT 43 54 27N LONG 102 51 31W)					
FEB 1999					
16...	0915	--	0.0	1.0	4730
MAR					
16...	1010	3.5	6.0	17.0	1610
APR					
05...	1120	4.3	5.0	10.0	1590
19...	0945	--	9.5	18.0	4730
MAY					
12...	1250	--	16.0	21.0	3580
24...	1112	--	22.0	28.0	4640
JUN					
22...	1130	--	25.0	28.0	3820
06422500 BOXELDER CR NEAR NEMO, SD (LAT 44 08 38N LONG 103 27 16W)					
DEC 1998					
28...	1525	36	0.0	2.5	298
FEB 1999					
02...	1530	25	0.5	6.0	310
MAY					
21...	1350	64	15.0	26.0	262
JUN					
11...	0910	153	10.5	12.0	214
06423010 BOXELDER CR NEAR RAPID CITY, SD (LAT 44 07 54N LONG 103 17 54W)					
OCT 1998					
27...	1135	56	10.0	21.5	278
JAN 1999					
28...	1530	7.2	5.5	10.0	326
APR					
15...	0950	45	6.0	2.0	267
MAY					
21...	1100	44	13.5	21.5	293
JUN					
14...	1700	234	10.5	12.5	--
AUG					
19...	1120	10	16.5	26.5	350

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06423500 CHEYENNE RIVER NEAR WASTA, SD (LAT 44 04 52N LONG 102 24 03W)					
OCT 1998					
19...	1710	1140	10.0	18.0	1140
NOV					
20...	1220	1580	4.0	18.0	1880
JAN 1999					
05...	1355	224	0.0	5.5	1720
FEB					
24...	0940	373	1.5	10.5	1850
MAR					
23...	1225	473	10.0	20.0	1990
APR					
23...	1100	1440	6.5	13.0	763
26...	1320	3260	10.5	18.0	1240
MAY					
27...	1430	998	22.0	26.0	1690
JUN					
16...	1245	8020	--	20.0	--
JUL					
19...	1615	797	22.0	22.0	--
AUG					
18...	1130	397	23.0	31.0	1310
06424000 ELK CR NEAR ROUBAIX, SD (LAT 44 17 41N LONG 103 35 47W)					
OCT 1998					
26...	1040	47	5.5	18.0	218
DEC					
16...	1445	10	0.0	1.0	327
FEB 1999					
02...	1405	6.8	1.0	5.5	357
APR					
16...	1400	36	3.0	2.5	211
MAY					
24...	1145	18	13.0	25.0	302
JUN					
11...	1045	87	10.5	14.5	179
AUG					
20...	0915	6.5	15.0	26.0	352
06425100 ELK CR NR RAPID CITY, SD (LAT 44 14 25N LONG 103 09 03W)					
OCT 1998					
20...	1300	118	8.5	14.0	727
NOV					
18...	1055	59	3.5	0.0	1050
JAN 1999					
08...	1125	18	0.5	2.0	1250
FEB					
24...	1500	20	4.0	15.0	1260
MAR					
30...	1535	20	11.5	22.0	1330
31...	1537	19	11.0	16.0	1320
MAY					
11...	1530	81	10.5	19.0	725
JUN					
14...	1452	314	13.0	18.0	316
SEP					
08...	1045	21	13.0	18.5	802

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06425500 ELK CR NEAR ELM SPRINGS, SD (LAT 44 14 54N LONG 102 30 10W)					
OCT 1998					
19...	1445	1360	9.0	13.0	510
NOV					
19...	1340	134	2.5	8.0	1320
JAN 1999					
05...	1100	21	0.0	5.0	1720
FEB					
17...	1200	51	1.5	7.0	1800
APR					
06...	1515	328	10.0	28.0	1550
MAY					
17...	0925	246	11.5	9.0	1710
JUN					
15...	1645	794	21.0	23.0	1110
AUG					
17...	0915	28	20.0	19.0	1360
06428500 BELLE FOURCHE R AT WY-SD STATE LINE (LAT 44 44 59N LONG 104 02 49W)					
OCT 1998					
09...	0925	151	10.5	14.0	1560
21...	1210	--	7.0	15.5	1130
NOV					
23...	1000	184	2.0	8.0	1330
JAN 1999					
05...	1120	29	0.0	4.5	2270
FEB					
16...	1100	117	0.0	-3.5	1100
MAR					
31...	0955	160	8.5	9.0	1070
APR					
27...	1130	652	10.5	24.0	1250
MAY					
11...	1035	581	9.0	8.0	1440
JUN					
18...	1010	688	19.0	21.0	1310
JUL					
13...	1303	--	26.0	33.5	1520
AUG					
02...	0915	75	19.0	--	1790
06429997 MURRAY DITCH AB HEADGATE AT WY-SD STATE LINE (LAT 44 34 35N LONG 104 03 20W)					
OCT 1998					
07...	1105	2.4	9.0	17.0	1560
DEC					
17...	1120	.00	--	--	--
MAR 1999					
30...	1250	.00	--	24.0	--
MAY					
07...	1025	.00	--	15.0	--
JUN					
12...	1505	.00	--	--	--
JUL					
30...	1325	6.4	19.5	--	1360
06430500 REDWATER CR AT WY-SD STATE LINE (LAT 44 34 26N LONG 104 02 54W)					
OCT 1998					
07...	1450	36	12.0	21.0	1580
DEC					
17...	1210	47	16.5	17.0	1480
JAN 1999					
29...	1400	44	5.0	11.0	1500
MAR					
30...	1210	51	10.0	20.0	1330
APR					
30...	1220	62	13.0	21.0	1300
MAY					
07...	0950	62	9.0	12.0	1240
JUN					
04...	0920	--	14.5	21.0	1340
17...	1425	83	14.5	23.5	1250
JUL					
30...	1155	50	18.0	28.0	1410

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06430532 CROW CREEK NEAR BEULAH, WY (LAT 44 34 14N LONG 104 00 19W)					
OCT 1998					
08...	1150	38	12.5	26.0	1390
DEC					
17...	1410	41	10.0	17.0	1370
JAN 1999					
29...	1230	34	9.0	11.5	1330
MAR					
30...	1005	38	9.5	19.5	1320
MAY					
07...	1155	53	10.5	12.0	1210
JUN					
04...	1325	39	15.5	25.0	1340
17...	1220	52	13.5	23.0	1210
JUL					
06...	1445	38	15.5	27.0	1300
13...	0855	--	14.0	30.0	1340
30...	1015	46	14.0	24.5	1320
AUG					
26...	1240	36	14.0	33.5	1300
SEP					
17...	1010	38	11.5	17.0	1290
06430770 SPEARFISH CREEK NEAR LEAD, SD (LAT 44 17 56N LONG 103 52 02W)					
OCT 1998					
13...	1355	54	6.5	11.5	465
MAR 1999					
15...	1045	--	4.5	15.0	448
16...	1015	--	5.5	9.0	464
APR					
12...	1325	--	6.5	17.5	457
30...	1425	55	9.0	10.0	456
MAY					
20...	1425	57	10.5	19.0	458
AUG					
24...	0935	48	7.0	21.0	470
06430800 ANNIE CREEK NEAR LEAD, SD (LAT 44 19 37N LONG 103 53 38W)					
OCT 1998					
14...	1150	--	6.5	18.0	349
DEC					
16...	1000	--	1.0	2.0	491
JAN 1999					
28...	1250	--	0.5	4.5	572
APR					
12...	1255	4.7	4.0	18.0	231
MAY					
20...	1310	--	9.5	19.5	287
AUG					
23...	1145	--	12.0	27.0	586
06430850 LITTLE SPEARFISH CREEK NEAR LEAD, SD (LAT 44 20 58N LONG 103 56 08W)					
OCT 1998					
13...	1520	23	7.5	16.0	484
MAR 1999					
15...	1007	--	7.0	13.0	483
APR					
12...	1200	--	7.5	17.0	480
MAY					
20...	1300	--	10.5	21.5	471
AUG					
23...	1120	--	9.0	26.0	485

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06430898 SQUAW CREEK NEAR SPEARFISH, SD (LAT 44 24 04N LONG 103 53 35W)					
OCT 1998					
15...	1225	8.7	6.5	17.0	236
APR 1999					
12...	1030	--	2.5	14.5	165
MAY					
20...	1230	--	11.5	19.0	191
AUG					
23...	1030	--	13.5	25.5	342
06430900 SPEARFISH CREEK ABOVE SPEARFISH, SD (LAT 44 24 06N LONG 103 53 40W)					
OCT 1998					
14...	1505	--	8.0	13.0	440
MAR 1999					
15...	0940	--	4.5	19.0	374
APR					
12...	1025	--	4.0	14.5	432
MAY					
20...	1210	--	11.0	19.0	239
AUG					
23...	1055	--	9.0	25.5	460
06431500 SPEARFISH CR AT SPEARFISH, SD (LAT 44 28 57N LONG 103 51 40W)					
OCT 1998					
09...	1435	70	7.0	22.0	438
DEC					
17...	1530	95	4.0	8.5	450
JAN 1999					
29...	1030	91	1.5	3.5	450
MAR					
15...	0903	--	5.0	18.0	453
16...	0845	--	5.0	14.0	452
APR					
07...	1230	85	5.0	13.0	423
22...	1200	--	6.0	3.0	375
MAY					
20...	1040	114	8.5	18.5	423
JUN					
29...	1000	127	9.5	20.0	446
AUG					
23...	0915	94	9.5	18.5	457
06432020 SPEARFISH CREEK BELOW SPEARFISH, SD (LAT 44 34 48N LONG 103 53 37W)					
OCT 1998					
08...	1425	94	12.5	29.0	620
MAY 1999					
07...	1300	--	12.0	17.0	487
JUN					
11...	1155	204	11.5	18.5	424
06433000 REDWATER RIVER ABOVE BELLE FOURCHE, SD (LAT 44 40 02N LONG 103 50 20W)					
OCT 1998					
09...	1230	204	10.5	18.0	1160
21...	1100	--	7.0	10.0	1100
NOV					
24...	1430	245	7.0	14.0	1060
JAN 1999					
05...	1450	235	0.0	5.0	957
22...	0942	--	3.0	0.5	1070
FEB					
16...	1325	212	3.5	5.0	--
MAR					
25...	1620	234	10.5	24.0	1020
MAY					
11...	1245	313	8.0	10.0	1060
JUN					
11...	1005	584	12.0	16.0	934
18...	1310	369	16.5	27.5	1000
AUG					
02...	1115	187	17.0	--	1090

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06434505 INLET CANAL ABOVE BELLE FOURCHE RESERVOIR, SD (LAT 44 42 05N LONG 103 44 00W)					
OCT 1998					
08...	1130	427	9.5	22.5	1100
21...	1010	--	7.0	7.0	1090
NOV					
24...	1305	2.3	7.5	13.5	2800
FEB 1999					
17...	1115	--	0.0	12.5	2270
MAR					
29...	1210	429	6.5	13.5	978
MAY					
03...	1020	1.1	--	--	--
12...	1328	1.4	15.0	24.0	3030
JUL					
14...	1223	--	23.5	30.0	1320
06436000 BELLE FOURCHE R NEAR FRUITDALE, SD (LAT 44 41 27N LONG 103 44 14W)					
OCT 1998					
08...	1350	30	12.0	23.5	1300
21...	1030	--	8.0	8.0	1620
NOV					
23...	1255	460	4.5	8.0	1300
JAN 1999					
06...	0850	--	0.0	-12.0	1320
22...	1232	298	3.0	2.5	1270
FEB					
17...	1025	321	1.0	4.0	1150
MAR					
29...	0935	18	6.0	8.5	1650
APR					
27...	1430	992	12.0	19.5	1250
MAY					
11...	1505	803	12.0	10.5	1380
JUN					
11...	1435	2340	17.5	18.0	1060
23...	1305	787	--	23.0	--
AUG					
04...	1205	24	24.0	29.0	1640
06436156 WHITETAIL CREEK AT LEAD, SD (LAT 44 20 36N LONG 103 45 57W)					
OCT 1998					
13...	1110	22	8.0	18.5	460
APR 1999					
12...	1400	--	8.0	15.0	390
MAY					
20...	1500	--	14.5	18.0	481
AUG					
20...	1230	--	16.5	26.0	672
06436180 WHITEWOOD CR ABOVE WHITEWOOD, SD (LAT 44 26 32N LONG 103 37 44W)					
OCT 1998					
15...	1304	77	9.0	15.0	649
NOV					
30...	1220	34	3.5	14.0	831
JAN 1999					
11...	1320	23	0.0	12.0	911
FEB					
18...	0850	17	0.5	0.0	1000
23...	0840	12	0.5	10.0	--
APR					
07...	1325	62	7.5	17.0	572
JUN					
22...	1030	84	15.0	20.0	650
AUG					
02...	1350	23	21.0	23.0	958

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06436190 WHITEWOOD CREEK NEAR WHITEWOOD, SD (LAT 44 32 30N LONG 103 34 16W)					
OCT 1998					
15...	1120	78	9.0	16.0	777
NOV					
30...	1045	40	4.5	11.0	1000
JAN 1999					
12...	0915	30	2.5	1.5	1080
FEB					
18...	1025	20	3.0	3.0	1150
APR					
07...	1200	70	8.0	13.5	740
MAY					
05...	1225	80	9.0	11.0	715
JUN					
22...	1210	94	18.0	22.0	833
JUL					
14...	1025	--	19.5	25.5	1160
AUG					
04...	0912	24	17.0	21.5	1210
06436198 WHITEWOOD CR ABOVE VALE, SD (LAT 44 37 04N LONG 103 28 52W)					
OCT 1998					
15...	0915	87	8.0	13.0	829
NOV					
30...	0920	40	3.0	15.0	1150
JAN 1999					
07...	1440	17	0.0	--	1390
FEB					
18...	1220	20	2.5	6.5	1340
23...	1050	22	0.5	10.0	--
MAR					
31...	1220	48	10.0	15.0	906
JUN					
22...	1340	109	21.5	24.0	982
JUL					
14...	1105	--	22.0	28.0	1390
AUG					
03...	1450	27	25.5	25.0	1350
06436760 HORSE CR ABOVE VALE, SD (LAT 44 39 08N LONG 103 21 59W)					
OCT 1998					
14...	1100	16	8.5	13.0	2480
21...	0920	--	6.0	2.5	1590
NOV					
24...	1200	25	2.5	13.0	3290
JAN 1999					
06...	1145	3.9	0.0	-9.5	1190
FEB					
17...	1335	10	0.0	7.0	4730
MAR					
31...	1405	7.0	11.5	15.5	3740
MAY					
12...	1150	68	11.0	18.0	4340
JUN					
22...	1540	310	23.5	21.0	1720
24...	1045	132	22.0	26.0	1780
JUL					
16...	0835	--	22.0	12.0	2480
AUG					
03...	1310	40	23.0	27.0	1950

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06437000 BELLE FOURCHE R NEAR STURGIS, SD (LAT 44 30 47N LONG 103 08 11W)					
OCT 1998					
14...	0910	182	8.5	14.0	1470
21...	0830	--	6.5	2.0	1380
NOV					
24...	1010	625	4.0	20.5	1670
JAN 1999					
07...	1135	303	0.0	-11.0	1600
FEB					
17...	1520	471	0.0	7.5	1590
24...	1513	374	1.0	12.5	--
MAR					
31...	1605	108	12.5	15.0	2040
MAY					
12...	0940	1380	10.0	8.0	2160
JUN					
11...	1800	5020	16.5	18.0	1360
24...	1403	1240	23.5	30.0	1470
AUG					
03...	1055	346	22.5	22.0	1840
17...	1305	273	24.0	27.0	1900
06437020 BEAR BUTTE CREEK NEAR DEADWOOD, SD (LAT 44 20 08N LONG 103 38 06W)					
NOV 1998					
23...	1330	12	2.5	6.0	460
DEC					
16...	1340	6.2	0.5	1.0	709
FEB 1999					
02...	1230	2.7	1.0	5.0	295
APR					
16...	1230	32	3.0	15.0	289
MAY					
24...	1355	11	14.5	18.0	215
JUN					
11...	1225	85	11.0	19.0	173
AUG					
20...	1115	4.3	16.0	26.0	1080
06437200 BEAR BUTTE CR NEAR GALENA, SD (LAT 44 23 48N LONG 103 34 36W)					
OCT 1998					
15...	1430	24	8.5	11.0	354
APR 1999					
07...	1420	1.1	14.5	14.0	1150
22...	1337	--	--	11.0	349
JUN					
01...	1410	1.6	17.0	20.0	1110
11...	1445	75	15.5	22.0	294
AUG					
20...	1345	.94	22.0	32.0	1170
06437400 BEAR BUTTE CREEK AT STURGIS, SD (LAT 44 24 44N LONG 103 29 10W)					
NOV 1998					
17...	0930	14	6.5	3.0	941
DEC					
15...	0930	6.5	6.0	-3.0	1120
JAN 1999					
25...	1125	4.8	4.5	0.0	1160
FEB					
10...	0915	4.3	5.5	3.0	1160
MAR					
09...	0915	3.8	3.5	-1.5	1150
APR					
06...	0900	4.3	5.5	1.5	1130
21...	1110	4.7	9.0	8.0	1010
MAY					
10...	0900	6.6	8.0	7.0	1690
JUN					
09...	0915	7.4	12.0	14.5	1090
15...	0845	92	12.0	15.0	438
17...	0945	--	12.5	21.0	608
JUL					
14...	0808	--	14.0	21.0	1230
19...	0735	9.9	14.0	19.5	1200
AUG					
16...	0840	7.4	14.0	17.5	1210
SEP					
14...	0910	6.2	11.5	5.0	1230

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06437500 BEAR BUTTE CR NEAR STURGIS, SD (LAT 44 28 53N LONG 103 16 31W)					
OCT 1998					
07...	1035	48	5.5	9.0	1040
NOV					
17...	1250	51	4.0	3.5	1710
DEC					
15...	1250	20	1.5	4.5	2000
JAN 1999					
26...	0855	15	0.0	-6.5	2160
FEB					
10...	1230	18	2.5	4.0	2090
MAR					
09...	1245	18	2.0	0.0	2200
APR					
06...	1220	69	6.5	8.5	2110
21...	1255	29	11.0	8.0	2140
MAY					
10...	1310	32	9.0	4.0	2020
JUN					
09...	1245	80	18.5	21.0	1860
15...	1225	190	17.0	16.0	1240
JUL					
19...	1050	31	21.5	29.5	2000
AUG					
16...	1145	12	20.0	23.0	2090
SEP					
14...	1245	9.6	12.0	16.5	2170
06437650 ELM CREEK NEAR FAIRPOINT, SD (LAT 44 46 59N LONG 103 03 43W)					
NOV 1998					
05...	1245	1.7	2.0	1.5	4770
APR 1999					
07...	0945	1.0	7.0	12.0	3360
JUN					
06...	1245	210	15.0	18.0	825
07...	0955	3.4	15.5	21.0	2770
06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD (LAT 44 22 11N LONG 102 33 56W)					
OCT 1998					
19...	1200	3760	8.5	11.0	950
NOV					
19...	1200	1230	2.0	7.0	1820
DEC					
17...	1400	499	0.5	18.0	1820
FEB 1999					
24...	1210	418	1.5	12.0	1770
APR					
07...	1130	2710	9.5	15.0	2010
MAY					
17...	1230	1760	13.5	11.0	1780
JUN					
07...	1340	7100	18.5	28.5	1620
AUG					
17...	1115	314	22.0	25.0	1980
SEP					
01...	1506	--	26.0	24.0	1840

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06438500 CHEYENNE R NEAR PLAINVIEW, SD (LAT 44 31 54N LONG 101 55 47W)					
OCT 1998					
14...	1250	753	12.0	16.0	1620
19...	1205	13900	--	--	--
DEC					
01...	1330	1550	5.0	22.0	1850
JAN 1999					
12...	1120	617	0.0	-10.0	1860
FEB					
24...	0840	929	0.0	2.5	1930
APR					
13...	1155	4690	12.0	20.0	1930
MAY					
20...	0943	3110	18.5	21.0	1840
JUN					
30...	1040	3850	20.0	23.0	1390
AUG					
24...	1015	695	20.0	23.0	1760
06438800 ELM CREEK NEAR RED OWL, SD (LAT 44 45 04N LONG 102 26 55W)					
DEC 1998					
02...	1025	--	4.5	5.0	2310
APR 1999					
07...	1315	2.4	11.5	18.0	2010
MAY					
25...	1510	--	21.0	21.5	2280
JUN					
07...	1110	--	18.0	25.5	1500
JUL					
01...	0925	--	17.0	19.0	2080
06439000 CHERRY CR NEAR PLAINVIEW, SD (LAT 44 44 35N LONG 102 03 11W)					
OCT 1998					
14...	0755	.05	7.0	4.0	3120
DEC					
01...	0800	43	1.0	0.5	2880
23...	1048	--	0.0	-5.0	3690
JAN 1999					
12...	1540	8.3	0.0	-12.0	3510
FEB					
03...	1030	--	0.0	3.5	820
23...	1105	52	0.5	6.0	1870
APR					
13...	0805	141	9.0	5.0	2860
MAY					
19...	1230	108	18.5	23.0	3110
JUN					
30...	0815	63	19.0	16.0	2160
AUG					
24...	0720	.46	19.0	12.5	4030
06439430 COTTONWOOD CR NR CHERRY CREEK, SD (LAT 44 40 28N LONG 101 24 16W)					
OCT 1998					
14...	1005	.00	--	9.0	--
DEC					
01...	1025	.00	0.0	13.0	--
FEB 1999					
01...	1130	.17	1.0	--	--
09...	1115	81	1.0	5.0	--
MAR					
01...	1010	2.0	4.0	12.0	3790
APR					
13...	1500	.81	19.0	19.0	5110
MAY					
19...	1515	9.8	21.5	24.0	1920
JUN					
30...	1210	.00	--	31.0	--
AUG					
24...	1135	.00	--	33.0	--

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06439770 UNNAMED TRIB STONE LAKE NEAR LEBANON, SD (LAT 44 55 35N LONG 099 44 48W)					
OCT 1998					
29...	1105	.02	10.0	9.5	843
APR 1999					
06...	1610	.02	10.0	13.5	796
06439960 CHANTIER CREEK NEAR HAYES, SD (LAT 44 31 20N LONG 100 42 13W)					
MAY 1999					
07...	0900	41	8.0	11.0	2060
SEP					
03...	0940	81	14.5	14.0	2010
06440200 SOUTH FORK BAD R NEAR COTTONWOOD, SD (LAT 43 53 08N LONG 101 46 00W)					
OCT 1998					
16...	1150	2.0	10.5	9.5	912
NOV					
19...	1345	14	2.0	8.5	464
DEC					
15...	1120	.72	0.5	0.5	--
JAN 1999					
14...	1042	.24	0.0	3.5	2960
MAR					
12...	1310	1.1	6.0	12.0	2970
APR					
12...	1250	560	7.0	17.0	419
JUN					
01...	0945	1.8	15.5	17.0	1340
JUL					
20...	1025	8.2	22.5	25.5	494
AUG					
25...	1000	.00	--	24.0	--
06440300 UNNAMED TRIB COTTONWOOD CREEK NEAR QUINN, SD (LAT 43 57 39N LONG 102 08 17W)					
OCT 1998					
29...	1545	2.8	10.5	8.0	406
NOV					
19...	1200	.32	1.0	7.0	646
MAR 1999					
15...	1130	.75	2.5	15.0	3540
APR					
12...	1030	2.2	7.5	10.0	479
26...	1510	6.6	12.5	20.0	356
06440850 MEDICINE CREEK NEAR PHILLIP, SD (LAT 44 03 17N LONG 101 29 12W)					
OCT 1998					
29...	1420	.19	11.5	14.0	3660
MAR 1999					
15...	1330	5.2	6.0	19.0	6560
JUL					
20...	1150	36	21.0	26.5	947
06441000 BAD R NEAR MIDLAND, SD (LAT 44 04 01N LONG 101 09 36W)					
NOV 1998					
20...	1115	146	1.0	6.0	1780
MAR 1999					
12...	1530	32	4.0	3.5	1720
APR					
23...	1020	170	10.0	11.0	3660
MAY					
18...	0955	601	15.5	18.5	2040
JUN					
07...	1130	6560	20.0	26.5	1340
23...	1010	54	23.0	27.0	2790
SEP					
08...	0955	68	--	18.0	1090

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06441100 PLUM CREEK NEAR HAYES, SD (LAT 44 20 41N LONG 101 07 40W)					
OCT 1998					
29...	1215	.05	12.5	14.0	3490
APR 1999					
23...	0800	28	8.0	5.0	3320
06441110 PLUM CREEK BELOW HAYES, SD (LAT 44 12 38N LONG 100 43 34W)					
OCT 1998					
29...	1004	3.6	12.0	11.5	4190
APR 1999					
23...	1255	50	14.0	11.5	3810
MAY					
07...	1410	360	8.0	6.5	1200
SEP					
03...	1355	484	14.5	15.0	1200
06441500 BAD R NEAR FORT PIERRE, SD (LAT 44 19 36N LONG 100 23 02W)					
JAN 1999					
07...	1400	12	0.0	-6.0	4070
06442718 CAMPBELL C NR LEE'S CORNER, SD (LAT 44 04 39N LONG 099 22 51W)					
OCT 1998					
08...	1015	.07	9.5	18.0	3080
NOV					
24...	1046	6.3	3.0	8.5	1500
JAN 1999					
20...	1200	.54	0.0	-2.0	2360
MAR					
15...	1215	1.8	7.5	14.5	2470
APR					
13...	1100	23	10.0	17.0	1070
MAY					
05...	1120	1870	10.5	8.0	624
05...	1150	1890	10.5	8.0	--
05...	1600	966	--	--	--
06...	1315	295	9.0	9.0	644
10...	0925	2770	12.5	11.5	397
11...	1150	285	11.0	14.5	577
12...	1000	59	12.0	13.0	1010
JUN					
07...	1455	1.1	27.5	27.0	4480
JUL					
13...	1010	.09	18.0	23.0	3910
AUG					
10...	0955	.01	19.0	22.0	3940
06442900 ELM CR NEAR GANN VALLEY, SD (LAT 44 04 38N LONG 099 09 03W)					
OCT 1998					
08...	1205	4.8	11.0	18.5	1730
NOV					
24...	1300	36	3.0	9.0	1820
JAN 1999					
20...	1400	3.3	0.0	3.0	2160
FEB					
25...	1330	23	4.0	11.0	2120
MAR					
15...	1035	20	3.5	8.0	1680
APR					
14...	1440	58	9.5	9.5	1900
MAY					
05...	1350	851	12.0	8.0	1130
06...	1110	1390	10.0	8.0	1100
11...	1010	2300	11.0	11.5	726
12...	1255	913	13.0	18.5	874
JUN					
02...	1455	18	22.0	26.0	1980
JUL					
13...	1300	3.9	25.5	29.5	2390
AUG					
10...	1220	1.1	25.0	29.0	2290

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06445685 WHITE R NR NE-SD STATE LINE (LAT 43 00 47N LONG 102 50 07W)					
OCT 1998					
14...	1100	11	10.0	18.0	628
DEC					
04...	1350	16	3.0	16.5	1070
JAN 1999					
14...	1315	18	0.0	7.0	1000
FEB					
23...	1030	24	0.0	5.0	833
APR					
19...	1050	57	8.5	23.0	840
JUN					
09...	1010	92	19.0	20.0	140
06445980 WHITE CLAY CR NEAR OGLALA, SD (LAT 43 08 46N LONG 102 40 58W)					
OCT 1998					
14...	1425	11	11.0	22.0	538
DEC					
04...	1600	16	4.5	13.0	565
JAN 1999					
14...	1145	8.0	0.0	5.0	575
FEB					
23...	1315	16	1.5	9.0	534
APR					
13...	1140	27	10.5	28.0	579
JUN					
03...	1205	18	19.0	25.0	528
06446000 WHITE R NEAR OGLALA, SD (LAT 43 15 17N LONG 102 49 29W)					
OCT 1998					
14...	1305	28	9.5	22.0	582
DEC					
04...	1110	31	2.0	16.0	878
JAN 1999					
14...	1025	28	0.0	3.0	1100
FEB					
23...	1430	44	0.5	11.0	677
APR					
20...	1030	78	11.5	18.0	1020
JUN					
07...	1030	831	16.0	30.0	1610
06446100 WOUNDED KNEE CREEK AT WOUNDED KNEE, SD (LAT 43 08 38N LONG 102 21 28W)					
DEC 1998					
08...	1300	--	0.0	8.5	494
APR 1999					
12...	0815	--	9.0	15.0	498
JUN					
07...	1230	--	18.5	--	470
SEP					
02...	0900	--	18.5	25.0	370
06446700 BEAR IN THE LODGE CR NEAR WANBLEE, SD (LAT 43 32 05N LONG 101 47 30W)					
OCT 1998					
15...	1320	15	10.5	10.0	572
NOV					
16...	1445	45	4.5	13.0	559
JAN 1999					
13...	1600	24	0.0	3.5	606
FEB					
17...	1140	27	0.5	7.0	569
MAR					
25...	1025	22	7.5	16.0	669
APR					
23...	1435	29	10.5	18.0	709
JUN					
01...	1520	19	18.5	32.0	638
05...	1340	332	18.0	23.0	230
14...	1035	126	17.0	--	256
JUL					
21...	1200	17	24.0	33.0	588
AUG					
30...	1040	7.4	22.5	30.0	527

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06447000 WHITE R NEAR KADOKA, SD (LAT 43 45 09N LONG 101 31 28W)					
OCT 1998					
15...	1620	147	10.0	10.0	607
NOV					
16...	1215	465	4.5	12.0	637
JAN 1999					
06...	0955	44	0.0	-11.0	1090
FEB					
17...	1545	335	1.0	6.0	601
MAR					
26...	1120	116	10.5	17.0	755
APR					
30...	1045	558	14.0	21.0	1010
JUN					
01...	1340	145	22.0	30.0	1320
15...	1715	4830	--	21.0	--
JUL					
21...	1010	637	25.0	30.0	547
AUG					
25...	1330	51	23.0	36.0	498
06447050 UNNAMED TRIB BUZZARD CREEK NR LONG VALLEY, SD (LAT 43 27 42N LONG 101 25 59W)					
OCT 1998					
29...	1145	5.5	11.5	10.0	128
MAR 1999					
26...	0945	--	5.5	15.0	776
AUG					
30...	1215	.23	17.5	32.5	276
06447230 BLACK PIPE CR NR BELVIDERE, SD (LAT 43 45 28N LONG 101 13 40W)					
OCT 1998					
16...	0835	6.6	10.0	9.0	1030
29...	0955	210	11.0	10.0	485
NOV					
16...	0950	47	3.0	6.5	620
DEC					
04...	1145	16	3.5	7.0	785
17...	1320	20	0.0	16.0	--
JAN 1999					
12...	1105	9.2	1.0	-4.0	1120
25...	1300	4.2	1.0	10.0	758
FEB					
17...	0855	12	0.0	-2.0	982
MAR					
15...	1525	51	13.0	21.0	679
APR					
30...	1250	29	19.5	24.0	983
JUN					
15...	1505	127	19.0	19.0	--
JUL					
20...	1345	6.7	32.5	32.0	1080
AUG					
25...	1150	1.3	23.5	29.5	1080

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06447500 LITTLE WHITE R NEAR MARTIN, SD (LAT 43 10 00N LONG 101 37 47W)					
OCT 1998					
14...	0820	27	10.5	6.5	433
NOV					
17...	0815	92	0.0	-1.0	470
JAN 1999					
06...	1600	16	0.0	-13.0	579
13...	0845	22	0.0	-3.5	473
FEB					
18...	0915	52	0.5	0.5	495
MAR					
25...	1550	31	10.5	15.5	594
MAY					
13...	1250	32	14.5	22.0	599
JUN					
28...	1545	35	20.0	18.5	521
JUL					
23...	0655	62	25.0	19.0	452
AUG					
30...	1645	9.6	24.0	33.5	297
06448000 LAKE CR ABOVE REFUGE, NEAR TUTHILL, SD (LAT 43 05 07N LONG 101 36 04W)					
OCT 1998					
15...	0940	25	10.5	9.0	122
NOV					
17...	1000	43	3.5	3.5	158
DEC					
03...	0910	26	5.5	8.0	130
JAN 1999					
07...	0940	25	0.0	-6.5	130
FEB					
18...	1035	34	3.0	0.5	142
MAR					
25...	1255	25	12.0	20.0	123
MAY					
13...	1130	27	15.0	24.0	125
JUN					
15...	1230	96	16.0	18.0	125
JUL					
23...	0800	21	21.0	21.5	119
AUG					
30...	1530	20	28.0	34.0	108
06449000 LAKE CR BELOW REFUGE, NEAR TUTHILL, SD (LAT 43 08 46N LONG 101 30 38W)					
OCT 1998					
15...	1115	11	11.5	10.0	370
NOV					
17...	1315	45	4.0	8.5	281
DEC					
03...	1605	48	5.5	3.0	303
JAN 1999					
06...	1400	44	1.0	-12.0	378
FEB					
18...	1210	40	3.0	2.5	196
MAR					
25...	1440	47	10.5	22.0	280
MAY					
13...	0945	38	13.0	18.0	378
JUN					
28...	1350	12	20.5	21.0	448
JUL					
23...	0910	10	26.5	30.5	467
AUG					
30...	1340	20	28.5	35.0	110

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06449100 LITTLE WHITE R NEAR VETAL, SD (LAT 43 06 03N LONG 101 13 49W)					
OCT 1998					
14...	1635	78	15.0	17.5	345
NOV					
17...	1525	147	4.0	6.0	372
DEC					
04...	0910	146	3.5	2.5	458
JAN 1999					
14...	1010	86	0.0	5.5	428
FEB					
18...	1410	120	5.5	6.5	330
MAR					
26...	0825	124	6.0	12.0	410
MAY					
13...	1550	101	17.5	28.0	501
JUN					
29...	0815	86	16.5	17.0	491
JUL					
27...	1045	72	25.0	30.5	433
AUG					
31...	1115	45	24.0	28.0	420
06449300 LITTLE WHITE R ABV ROSEBUD, SD (LAT 43 15 47N LONG 100 55 02W)					
OCT 1998					
13...	1210	130	11.0	14.0	312
NOV					
18...	0750	231	4.0	0.5	345
DEC					
23...	1210	115	0.0	-8.0	431
JAN 1999					
07...	1540	147	0.0	-5.5	383
FEB					
19...	1025	212	3.0	0.5	307
MAR					
23...	1400	192	10.5	16.0	368
MAY					
13...	1400	170	18.5	19.5	431
JUN					
29...	1000	161	18.0	21.0	491
JUL					
27...	1615	119	30.5	34.5	379
AUG					
31...	1250	85	26.0	28.0	341
06449500 LITTLE WHITE R NEAR ROSEBUD, SD (LAT 43 19 32N LONG 100 53 00W)					
OCT 1998					
13...	1035	143	9.5	10.5	319
NOV					
18...	0945	241	4.0	1.5	350
JAN 1999					
07...	1325	153	0.0	-4.5	374
FEB					
26...	1120	244	7.0	14.5	340
MAR					
23...	1235	213	8.5	14.0	375
MAY					
13...	1225	193	15.5	16.0	434
JUN					
29...	1220	178	19.5	26.0	413
JUL					
27...	1200	140	26.0	32.5	382
AUG					
31...	1420	99	29.0	35.0	345

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06450500 LITTLE WHITE R BELOW WHITE RIVER, SD (LAT 43 36 05N LONG 100 44 58W)					
OCT 1998					
09...	1115	118	14.5	20.0	398
NOV					
18...	1215	291	4.0	4.0	548
JAN 1999					
14...	1540	149	0.0	6.5	496
FEB					
26...	0915	296	6.0	12.5	576
MAR					
23...	1020	255	7.0	13.0	502
MAY					
13...	1035	361	13.5	15.0	920
JUN					
30...	1130	185	17.5	16.0	660
SEP					
02...	0800	121	19.5	18.0	540
06451600 UNNAMED TRIB WHITE THUNDER CREEK NEAR WOOD, SD (LAT 43 37 23N LONG 100 30 33W)					
OCT 1998					
09...	1030	.00	--	--	--
29...	1400	1.7	12.5	11.0	2000
FEB 1999					
26...	1320	.69	8.5	16.0	2750
MAR					
16...	1405	.54	13.0	23.0	3140
MAY					
13...	0845	8.0	12.5	13.0	1930
JUN					
30...	1030	.01	16.5	16.0	4090
06451650 WILLIAMS CREEK NEAR VIVIAN, SD (LAT 43 43 33N LONG 100 17 50W)					
NOV 1998					
19...	1515	2.4	2.0	10.5	2260
MAR 1999					
17...	1200	.79	7.5	8.0	3750
MAY					
05...	0705	8.9	10.0	8.0	3110
09...	--	695	--	--	--
11...	1145	99	12.0	17.0	1370
JUN					
30...	0940	.03	18.0	16.0	5510
SEP					
03...	--	1970	--	--	--
06452000 WHITE R NEAR OACOMA, SD (LAT 43 44 54N LONG 099 33 22W)					
OCT 1998					
08...	1055	4360	10.0	19.0	615
MAY 1999					
10...	1620	35800	13.5	11.0	921
06452275 SNAKE CREEK NEAR BIJOU HILLS, SD (LAT 43 29 58N LONG 099 07 13W)					
OCT 1998					
30...	1424	6.6	10.0	10.5	2260
NOV					
17...	1529	5.7	3.0	2.0	2540
APR 1999					
13...	1425	11	16.5	22.0	2520
MAY					
06...	1200	150	7.5	5.5	2480
11...	1125	45	7.5	8.0	2480

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06452290 EAST FORK PLATTE CREEK NEAR AURORA CENTER, SD (LAT 43 33 36N LONG 098 36 58W)					
OCT 1998					
30...	1148	.05	10.5	14.0	1380
NOV					
18...	1340	9.8	2.0	1.0	603
APR 1999					
13...	1645	45	18.5	22.0	549
MAY					
06...	1730	137	7.0	5.0	306
06452320 PLATTE CREEK NEAR PLATTE, SD (LAT 43 19 38N LONG 098 58 13W)					
OCT 1998					
06...	1230	18	12.0	14.0	1080
NOV					
18...	1045	160	4.0	3.0	1080
JAN 1999					
05...	1415	4.5	0.0	3.5	1880
FEB					
09...	1440	11	2.0	15.0	1910
APR					
05...	1120	7.5	9.0	6.5	1920
15...	1645	579	10.5	6.0	996
MAY					
06...	1420	1750	7.0	5.5	881
10...	1720	1770	6.0	8.5	885
17...	1250	689	18.0	18.0	939
JUL					
13...	1205	309	26.0	35.0	945
AUG					
16...	1340	18	25.0	35.0	1000
06453255 CHOTEAU CR NR AVON, SD (LAT 42 55 24N LONG 098 06 21W)					
OCT 1998					
05...	1306	10	12.0	16.5	2160
NOV					
19...	1610	103	3.0	2.5	2160
JAN 1999					
06...	1120	6.7	-2.0	-5.0	2360
FEB					
23...	1555	17	3.5	6.0	1230
APR					
06...	1020	89	5.0	7.0	1640
14...	1015	908	14.5	9.5	1650
MAY					
18...	1000	131	16.0	17.5	2010
JUL					
09...	1520	1120	25.5	26.0	1650
AUG					
17...	1035	10	21.0	19.0	1860
SEP					
08...	1500	104	15.0	15.5	1800
06463900 ANTELOPE CR NEAR MISSION, SD (LAT 43 16 26N LONG 100 40 56W)					
NOV 1998					
18...	1540	11	3.5	-1.0	457
MAR 1999					
16...	1600	9.4	12.0	24.0	423
MAY					
12...	1520	30	18.5	23.0	408
JUN					
29...	1320	6.5	19.0	24.0	365
JUL					
28...	0845	2.0	22.5	28.0	330
SEP					
01...	0710	3.2	20.5	18.0	312

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06464100 KEYA PAHA R NEAR KEYAPAHA, SD (LAT 43 07 45N LONG 100 06 24W)					
OCT 1998					
14...	0910	36	10.0	13.0	475
NOV					
19...	1040	105	0.5	0.5	522
JAN 1999					
08...	1100	28	0.0	-15.0	551
FEB					
12...	1215	68	0.0	-1.5	466
MAR					
17...	0930	81	5.5	4.5	533
MAY					
05...	1040	180	10.5	7.0	537
11...	1555	1200	14.0	20.0	415
12...	1240	593	14.5	18.0	419
JUN					
29...	1720	55	18.0	22.0	491
JUL					
28...	0910	26	21.0	25.0	473
SEP					
01...	1245	22	24.0	21.0	432
06464120 SAND CREEK NEAR OLSONVILLE, SD (LAT 43 01 03N LONG 100 24 46W)					
NOV 1998					
19...	0810	1.3	0.0	-6.0	596
MAR 1999					
16...	1710	1.6	14.0	22.0	654
MAY					
11...	1625	7.2	20.5	17.0	838
JUN					
29...	1435	.37	17.5	24.0	615
06464500 KEYA PAHA R AT WEWELA, SD (LAT 43 01 44N LONG 099 46 49W)					
OCT 1998					
14...	1110	71	11.5	18.5	475
NOV					
19...	1245	232	2.0	6.5	505
JAN 1999					
08...	1310	60	0.0	-14.0	524
FEB					
12...	1345	143	0.0	0.0	459
MAR					
17...	0850	208	6.5	4.0	533
MAY					
05...	1250	390	11.0	7.0	547
11...	2100	994	14.5	14.0	520
12...	0955	1270	12.5	12.0	475
JUN					
30...	0815	121	16.0	14.0	499
SEP					
01...	1450	34	27.5	31.0	393
06466715 SNATCH CREEK NEAR TABOR, SD (LAT 42 54 30N LONG 097 46 33W)					
APR 1999					
06...	1330	8.4	7.0	17.0	1840
15...	1320	49	6.5	6.0	1850
JUL					
20...	1005	32	22.5	22.5	1160

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06471000 JAMES R AT COLUMBIA, SD (LAT 45 36 13N LONG 098 18 36W)					
OCT 1998					
02...	0830	143	12.0	13.5	1020
22...	1000	330	7.5	9.0	940
28...	1015	517	10.5	13.5	888
NOV					
04...	0935	466	4.5	5.5	930
16...	1215	146	1.0	5.0	1160
DEC					
03...	1100	372	3.0	10.0	1110
16...	1435	430	0.5	1.5	1220
28...	1515	206	0.0	-1.0	1550
FEB 1999					
22...	1630	98	0.0	0.0	1610
MAR					
04...	1400	39	3.0	5.0	1240
16...	1515	407	4.0	16.0	860
30...	1405	400	9.0	19.5	618
APR					
07...	1105	791	8.0	16.0	553
16...	0915	1230	5.0	-1.0	712
MAY					
06...	1505	1300	16.0	13.0	863
13...	0845	222	12.5	7.5	853
JUN					
01...	1720	1900	19.5	21.5	900
23...	1025	1210	19.5	22.0	845
AUG					
03...	0955	1040	21.0	19.5	810
SEP					
08...	1330	965	18.0	16.0	766
24...	1330	1000	16.5	20.5	870
06471200 MAPLE R AT ND-SD STATE LINE (LAT 45 56 20N LONG 098 27 08W)					
OCT 1998					
01...	1320	.28	15.5	14.5	1380
NOV					
16...	1420	32	0.0	1.5	1370
DEC					
29...	0915	14	0.0	-15.0	1920
FEB 1999					
22...	1045	7.0	0.0	-1.0	1670
MAR					
17...	0810	50	0.0	1.5	700
APR					
15...	1510	142	7.5	5.5	1150
MAY					
12...	1520	1010	14.5	17.5	1230
JUN					
22...	1400	23	20.0	21.5	1440
AUG					
02...	1315	17	22.0	22.5	1410
06471500 ELM R AT WESTPORT, SD (LAT 45 39 22N LONG 098 29 48W)					
OCT 1998					
01...	1610	1.6	15.5	11.5	1280
NOV					
16...	1555	88	0.0	1.0	1090
DEC					
29...	1040	32	0.0	-15.0	1820
FEB 1999					
22...	1225	25	--	--	1540
MAR					
04...	1615	740	1.5	3.5	850
17...	0935	126	1.5	3.0	783
APR					
15...	1830	342	7.5	3.5	1130
MAY					
13...	1110	2870	13.0	9.5	1240
JUN					
22...	1530	41	20.5	22.0	1480
AUG					
02...	1500	81	25.0	24.5	1250

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06472050 ANTELOPE CREEK NEAR LANGFORD, SD (LAT 45 34 22N LONG 097 50 10W)					
OCT 1998					
19...	1235	6.3	7.0	8.5	1640
MAR 1999					
18...	1230	7.4	1.0	5.0	1340
06473000 JAMES R AT ASHTON, SD (LAT 44 59 54N LONG 098 28 50W)					
OCT 1998					
07...	1000	253	10.0	10.0	1140
22...	1245	618	9.5	15.5	1160
28...	1305	745	10.0	13.0	1110
NOV					
04...	1205	703	7.0	4.0	1090
16...	0935	792	1.0	7.0	1160
DEC					
03...	1400	740	4.0	12.0	1390
17...	1535	763	0.5	4.5	1340
28...	1210	552	0.0	-1.0	1640
FEB 1999					
23...	1200	194	0.0	-2.0	2030
MAR					
17...	1255	685	2.0	5.0	970
30...	1025	796	8.0	14.0	907
APR					
07...	1420	813	8.5	18.5	999
16...	1240	952	7.5	0.5	1070
MAY					
13...	1430	1330	18.5	17.5	1160
JUN					
01...	1420	2010	21.0	23.5	1140
24...	0840	2020	21.0	20.0	1060
AUG					
04...	0950	1420	23.5	19.5	990
SEP					
08...	1030	1240	17.5	15.0	953
24...	1110	1410	14.5	17.5	1030
06473020 HOWARD TRIB NEAR LEOLA, SD (LAT 45 37 48N LONG 098 55 52W)					
MAY 1999					
06...	1115	51	12.0	12.0	894
07...	1515	16	15.0	--	1110
12...	1130	20	14.5	17.0	764
06473300 PREACHERS RUN TRIB AT IPSWICH, SD (LAT 45 27 08N LONG 099 01 45W)					
MAR 1999					
16...	0930	.05	0.5	1.0	1830
MAY					
06...	0910	27	10.5	9.5	639
07...	1335	9.2	12.0	11.5	541
12...	1005	18	12.5	16.5	482
06474000 TURTLE CR NEAR TULARE, SD (LAT 44 44 06N LONG 098 35 09W)					
MAY 1999					
07...	1025	432	10.5	8.5	1910
12...	0935	914	15.0	15.0	1010

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06475000 JAMES R NEAR REDFIELD, SD (LAT 44 54 33N LONG 098 28 18W)					
OCT 1998					
07...	1255	305	12.5	15.0	1290
NOV					
17...	1110	1340	1.0	4.0	1290
DEC					
28...	1000	699	0.0	-2.5	1750
FEB 1999					
23...	1545	277	0.0	2.0	2050
MAR					
17...	1500	872	3.0	5.0	1160
APR					
19...	1315	1200	9.0	17.0	1270
MAY					
12...	1330	3170	15.0	17.0	1210
JUN					
01...	1210	2290	20.5	17.0	1260
24...	1400	2220	23.0	30.5	1020
AUG					
04...	1240	1720	24.0	25.5	1020
27...	1250	1330	26.0	35.5	1000
06475600 TURTON TRIB SOUTH NEAR TURTON, SD (LAT 45 03 07N LONG 097 59 38W)					
OCT 1998					
19...	1030	3.9	7.0	7.0	1760
MAR 1999					
18...	1000	5.7	0.5	3.0	1430
06475850 FOSTER CR TRIB NEAR CARPENTER, SD (LAT 44 37 56N LONG 098 03 42W)					
OCT 1998					
19...	0845	.53	7.0	1.0	1710
FEB 1999					
25...	1420	.50	0.0	5.0	--
AUG					
30...	0935	25	18.0	17.5	213
31...	1305	3.7	24.0	28.0	307
06476000 JAMES R AT HURON, SD (LAT 44 21 49N LONG 098 11 56W)					
OCT 1998					
07...	1645	344	12.0	17.0	1250
NOV					
17...	1450	1560	2.0	2.0	1430
DEC					
30...	1620	710	0.0	-10.0	1660
MAR 1999					
03...	1250	478	1.5	4.0	1880
15...	1405	902	3.0	14.0	1460
MAY					
04...	0950	1700	18.0	19.5	1330
12...	1130	3870	15.5	18.0	1560
12...	1445	3860	--	22.0	--
14...	1035	3940	--	--	1260
24...	1320	3520	19.0	22.5	1420
JUN					
09...	1620	3000	25.0	30.0	1160
JUL					
08...	1405	1960	26.0	27.0	1140
AUG					
31...	1530	1350	26.0	31.5	1020

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06477000 JAMES R NEAR FORESTBURG, SD (LAT 43 58 26N LONG 098 04 14W)					
OCT 1998					
06...	1340	315	11.0	12.0	1240
NOV					
19...	0940	1760	0.5	1.0	980
DEC					
30...	1245	759	0.0	-12.0	1750
MAR 1999					
03...	1020	484	0.5	1.5	1860
18...	1025	1240	4.0	7.0	1480
APR					
14...	1150	1950	11.5	7.0	1330
MAY					
18...	1040	4340	17.0	16.5	1370
JUN					
02...	1230	2940	20.5	24.0	1440
JUL					
13...	1630	1780	25.5	34.5	1150
AUG					
18...	1150	1450	23.5	24.5	1040
06477150 ROCK CR NEAR FULTON, SD (LAT 43 45 30N LONG 097 54 25W)					
APR 1999					
12...	1620	371	10.5	17.0	1120
06477500 FIRESTEEL CR NEAR MOUNT VERNON, SD (LAT 43 46 30N LONG 098 14 33W)					
OCT 1998					
05...	1125	4.0	10.0	13.0	1500
NOV					
19...	1305	266	0.5	2.0	1380
DEC					
30...	0950	7.0	0.0	-10.0	2480
FEB 1999					
24...	1130	16	0.5	4.0	1880
MAR					
18...	1215	27	5.5	10.0	2000
APR					
12...	1205	1570	9.5	14.0	886
13...	1910	978	14.0	18.0	901
MAY					
18...	1320	281	18.5	23.5	1160
JUL					
14...	0910	58	24.5	22.5	946
AUG					
18...	1405	2.4	25.5	26.5	1460
06478052 ENEMY CR NEAR MITCHELL, SD (LAT 43 38 33N LONG 097 59 09W)					
APR 1999					
12...	1420	766	10.5	16.0	754
06478390 WOLF CR NEAR CLAYTON, SD (LAT 43 22 18N LONG 097 36 12W)					
APR 1999					
12...	1400	293	12.0	16.5	1450
MAY					
18...	1645	90	24.5	25.0	1450
AUG					
18...	1330	8.1	27.0	26.0	2360
SEP					
08...	1755	130	15.0	15.0	2100

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06478500 JAMES R NEAR SCOTLAND, SD (LAT 43 11 09N LONG 097 38 07W)					
OCT 1998					
05...	1020	399	12.0	12.0	1280
NOV					
20...	1120	2210	3.5	3.0	1240
JAN 1999					
07...	1200	1320	-2.0	-10.0	1730
FEB					
24...	1600	796	0.5	12.0	2120
APR					
14...	1545	3530	11.5	7.0	1140
MAY					
19...	1205	3830	19.5	21.0	1380
JUL					
09...	1200	4040	20.0	23.0	1320
AUG					
17...	1610	1500	28.0	32.0	1120
06478513 JAMES RIVER NR YANKTON, SD (LAT 42 59 45N LONG 097 22 10W)					
NOV 1998					
19...	1023	2130	3.0	2.0	1270
APR 1999					
15...	0940	3310	9.5	5.5	1170
JUL					
09...	0920	4960	22.0	25.0	1020
AUG					
18...	1550	1500	29.0	26.0	1130
06478535 EAST FORK VERMILLION RIVER NEAR RAMONA, SD (LAT 44 06 35N LONG 097 23 13W)					
OCT 1998					
06...	0915	14	9.0	11.0	1160
NOV					
20...	1250	9.1	0.0	2.0	1420
JAN 1999					
07...	1355	.08	0.0	-10.0	260
FEB					
25...	1100	6.5	0.0	3.0	1620
MAR					
19...	1115	21	2.0	8.0	1160
APR					
14...	1030	71	11.0	7.0	1310
MAY					
13...	1235	102	16.0	16.0	1210
24...	1440	95	19.0	15.5	1200
JUL					
06...	1130	44	22.5	24.0	1170
AUG					
17...	1120	49	22.5	26.0	1220
06478540 LITTLE VERMILLION R NEAR SALEM, SD (LAT 43 47 39N LONG 097 22 02W)					
NOV 1998					
20...	1010	4.6	0.0	0.0	1650
JAN 1999					
07...	1135	.05	0.0	-8.0	300
FEB					
25...	0845	1.1	0.0	0.0	1340
MAR					
19...	0915	9.6	1.5	6.0	1170
APR					
12...	1125	106	8.0	12.5	1190
MAY					
27...	1240	13	20.0	22.0	1580
JUL					
06...	1405	3.1	24.0	24.0	1740
AUG					
17...	0955	.00	--	--	--

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06478600 EAST FORK VERMILLION RIVER NEAR PARKER, SD (LAT 43 26 43N LONG 097 06 34W)					
OCT 1998					
07...	0825	160	10.5	6.5	1340
NOV					
18...	1325	350	4.0	4.0	1430
JAN 1999					
04...	1415	20	0.0	-20.0	1810
FEB					
24...	1150	34	0.5	4.0	1790
MAR					
19...	0825	201	3.0	0.5	1640
APR					
12...	1605	820	10.5	16.0	1570
MAY					
25...	1035	162	16.0	26.0	1680
JUL					
06...	1620	168	27.0	29.0	1520
AUG					
18...	0830	56	21.0	21.0	1480
06478690 WEST FORK VERMILLION R NEAR PARKER, SD (LAT 43 24 55N LONG 097 12 18W)					
OCT 1998					
07...	1015	7.0	10.0	11.0	1370
NOV					
18...	1110	521	2.5	6.0	900
JAN 1999					
04...	1130	4.7	0.0	-29.0	250
FEB					
24...	0950	14	0.0	0.0	1590
MAR					
19...	1020	64	4.0	7.0	1510
APR					
12...	1400	917	9.0	16.0	1150
MAY					
25...	1410	43	19.5	19.5	1760
JUL					
06...	1820	103	28.0	30.0	1350
AUG					
18...	1020	1.6	22.0	21.0	1620
06479000 VERMILLION R NEAR WAKONDA, SD (LAT 42 59 27N LONG 096 57 49W)					
NOV 1998					
17...	1440	1200	5.0	6.0	1410
MAR 1999					
22...	1420	413	6.0	10.0	1930
APR					
13...	1605	2380	12.5	21.0	1400
MAY					
19...	1605	632	25.0	28.0	1540
JUL					
08...	1310	1490	23.0	25.0	1380
AUG					
16...	1050	99	23.5	24.0	1540
06479010 VERMILLION RIVER NR VERMILLION, SD (LAT 42 49 02N LONG 096 55 26W)					
OCT 1998					
•06...	1110	140	12.0	12.5	1480
NOV					
17...	1245	1220	3.0	13.0	1520
JAN 1999					
05...	1050	120	0.0	-4.0	1910
MAR					
02...	1245	364	4.0	5.0	1770
22...	1205	467	4.0	8.0	1940
APR					
12...	1835	1970	10.0	17.0	1430
MAY					
20...	0900	715	16.5	17.0	1680
JUL					
08...	0940	2150	26.0	28.0	--
AUG					
19...	1045	143	19.5	19.0	1580

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06479158 UNNAMED TRIB BLUE DOG LAKE NEAR ORTLEY, SD (LAT 45 21 02N LONG 097 08 39W)					
OCT 1998					
20...	1045	.82	6.0	6.0	530
MAR 1999					
19...	1100	1.5	1.0	5.0	374
06479215 BIG SIOUX RIVER NR FLORENCE, SD (LAT 45 10 51N LONG 097 11 09W)					
OCT 1998					
06...	0830	1.2	8.5	8.0	643
NOV					
17...	1310	20	0.5	2.0	664
DEC					
29...	0900	1.2	0.0	-20.0	934
FEB 1999					
18...	1230	4.5	0.0	-1.0	676
MAR					
22...	1205	38	1.0	8.0	484
APR					
27...	1600	21	11.0	15.0	645
JUN					
08...	1115	35	18.5	--	454
JUL					
20...	0805	1.2	20.0	24.0	657
SEP					
01...	0915	.35	20.0	24.0	710
06479430 STILL LAKE OUTFLOW NEAR FLORENCE, SD (LAT 45 02 15N LONG 097 12 25W)					
OCT 1998					
06...	1145	1.6	8.5	8.0	1290
MAR 1999					
22...	1615	5.7	1.5	12.0	1250
APR					
28...	1530	1.8	21.0	15.0	1050
JUN					
08...	1455	2.6	28.5	27.0	760
JUL					
20...	1110	.51	22.0	24.0	1140
SEP					
01...	1300	.02	24.0	26.0	2010
06479438 BIG SIOUX R NEAR WATERTOWN, SD (LAT 45 00 22N LONG 097 09 53W)					
OCT 1998					
06...	1035	19	8.5	8.0	741
NOV					
13...	1145	40	0.5	6.0	840
DEC					
29...	1130	11	0.0	-15.0	919
FEB 1999					
18...	1605	31	0.0	2.0	742
MAR					
22...	1430	88	1.0	10.0	476
APR					
28...	1300	64	11.0	19.0	698
JUN					
08...	1350	59	22.0	23.0	582
JUL					
20...	1010	23	20.0	24.0	560
SEP					
01...	1140	4.6	21.0	24.0	698

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06479450 LAKE KAMPESKA (INLET/OUTLET) NEAR WATERTOWN, SD (LAT 44 56 56N LONG 097 10 30W)					
OCT 1998					
06...	1350	133	12.5	10.0	648
19...	1720	275	8.5	8.5	430
20...	0840	169	7.0	4.5	480
NOV					
18...	0950	23	1.0	2.5	666
DEC					
29...	1505	4.1	0.0	-15.0	582
FEB 1999					
19...	1430	.00	0.0	-2.0	705
MAR					
23...	1240	48	0.5	12.0	368
APR					
29...	0855	8.9	10.5	10.0	553
JUN					
14...	1220	2.9	20.0	17.0	582
JUL					
20...	1335	4.5	23.5	26.0	582
06479490 MUD CREEK NEAR RAUVILLE, SD (LAT 45 00 29N LONG 097 06 21W)					
OCT 1998					
19...	1505	12	8.5	11.0	660
FEB 1999					
18...	1430	3.1	0.0	0.0	677
06479520 BIG SIOUX RIVER BELOW WATERTOWN, SD (LAT 44 50 32N LONG 097 02 57W)					
OCT 1998					
06...	1545	32	12.0	10.0	811
NOV					
17...	1545	122	0.5	1.0	820
DEC					
30...	0955	60	0.0	-10.0	860
FEB 1999					
19...	1020	70	0.0	-5.0	820
MAR					
23...	0910	112	1.5	5.0	582
APR					
29...	1120	166	12.0	14.0	746
JUN					
09...	0850	245	22.0	22.0	671
JUL					
20...	1455	57	24.0	26.0	731
SEP					
01...	1445	10	25.0	27.0	901
06479525 BIG SIOUX R NEAR CASTLEWOOD, SD (LAT 44 43 54N LONG 097 02 39W)					
OCT 1998					
07...	0920	36	8.0	6.5	742
NOV					
18...	1340	126	0.5	1.0	817
DEC					
30...	1225	66	0.0	-10.0	853
MAR 1999					
01...	0910	184	1.0	5.0	540
23...	1535	135	1.5	12.0	599
APR					
29...	1515	165	12.5	21.0	767
JUN					
08...	1050	198	19.5	23.5	566
JUL					
21...	0840	68	25.0	28.0	763
AUG					
30...	1335	24	19.0	18.0	853

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06479640 HIDEWOOD CR NEAR ESTELLINE, SD (LAT 44 36 42N LONG 096 54 17W)					
MAR 1999					
23...	1700	32	12.0	12.0	782
JUN					
08...	1550	347	23.0	28.0	621
06479980 MEDARY CR NEAR BROOKINGS, SD (LAT 44 13 26N LONG 096 46 02W)					
MAR 1999					
17...	0910	86	4.0	2.0	760
06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD (LAT 44 10 48N LONG 096 44 55W)					
OCT 1998					
07...	1425	200	14.0	15.0	880
NOV					
19...	0955	266	0.5	-.5	912
JAN 1999					
06...	0910	172	0.0	-12.0	1250
FEB					
25...	1040	231	0.0	8.0	1100
MAR					
17...	1200	676	3.0	6.0	960
APR					
30...	1350	943	12.0	19.0	993
JUN					
09...	1225	622	25.0	28.0	943
JUL					
21...	1655	339	24.5	28.5	1010
AUG					
31...	0910	169	20.0	21.0	970
06480650 FLANDREAU CR ABOVE FLANDREAU, SD (LAT 44 03 45N LONG 096 29 14W)					
MAR 1999					
17...	1425	226	1.5	7.5	330
23...	1205	43	7.0	12.0	720
06481000 BIG SIOUX R NEAR DELL RAPIDS, SD (LAT 43 47 25N LONG 096 44 42W)					
OCT 1998					
07...	1250	224	13.0	12.5	833
NOV					
19...	1120	509	1.0	1.0	995
JAN 1999					
06...	1225	208	0.0	-12.0	1240
MAR					
18...	0820	1510	--	2.0	740
APR					
13...	1645	2330	11.0	21.0	997
MAY					
26...	1050	953	18.5	24.0	968
JUL					
07...	1015	885	24.5	27.0	969
AUG					
17...	1605	215	25.0	36.0	1000

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06481500 SKUNK CR AT SIOUX FALLS, SD (LAT 43 32 01N LONG 096 47 26W)					
OCT 1998					
08...	0900	167	10.0	7.5	1340
NOV					
18...	1555	634	2.0	2.0	1270
JAN 1999					
06...	1600	58	0.0	-12.0	1780
FEB					
24...	1415	78	1.0	6.0	1360
MAR					
23...	0800	282	6.0	3.0	1380
APR					
13...	1155	905	11.5	13.0	1300
MAY					
26...	1800	247	20.0	20.0	1430
JUL					
07...	1450	200	27.0	30.0	1440
AUG					
18...	1655	18	22.0	31.0	1030
06482020 BIG SIOUX R AT NORTH CLIFF AVE, AT SIOUX FALLS, SD (LAT 43 34 01N LONG 096 42 39W)					
OCT 1998					
08...	1125	402	12.0	10.0	1050
NOV					
19...	0850	1340	1.0	4.0	1240
JAN 1999					
07...	0855	287	1.0	-10.0	1440
FEB					
26...	0925	516	0.5	3.0	1320
MAR					
23...	1000	1310	--	9.0	1080
APR					
13...	1420	3500	12.0	21.0	1150
MAY					
26...	1500	1240	--	25.0	1200
JUL					
07...	1235	1090	25.5	29.0	1120
AUG					
19...	0845	215	22.0	20.0	1140
06482848 BEAVER CR AT CANTON, SD (LAT 43 17 12N LONG 096 35 46W)					
NOV 1998					
18...	0750	286	4.0	10.0	1150
APR 1999					
13...	0940	205	10.0	12.0	1590
06485500 BIG SIOUX R AT AKRON, IA (LAT 42 50 14N LONG 096 33 41W)					
OCT 1998					
06...	1325	736	12.5	14.0	950
NOV					
17...	1630	3910	3.5	5.5	925
JAN 1999					
05...	1445	763	0.0	-3.0	1210
MAR					
02...	0905	1880	3.0	3.0	990
18...	1300	3200	4.0	11.0	980
APR					
13...	1055	10300	10.5	17.0	869
MAY					
20...	1245	3430	18.0	21.5	978
JUL					
07...	1530	3250	27.0	35.0	963
AUG					
19...	1330	814	19.5	21.5	1000

The following miscellaneous discharge measurements were made in the state. Sites are listed in downstream order.

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06357500 GRAND R AT SHADEHILL, SD (LAT 45 45 23N LONG 102 11 44W)					
JAN 1999					
11...	1545	54	1.0	0.0	1870
451057101121500 MOREAU RIVER NEAR GREEN GRASS, SD (LAT 45 10 57N LONG 101 12 15W)					
AUG 1999					
24...	1500	45	26.0	32.0	2840
SEP					
08...	1420	39	--	21.0	--
434422103503300 HELL CANYON CR AT JEWEL CAVE ABV HWY16, NR CUSTER, SD (LAT 43 44 22N LONG 103 50 33W)					
OCT 1998					
07...	--	2.1	--	21.0	--
NOV					
16...	1000	.72	--	10.0	--
DEC					
14...	1400	.86	--	10.0	--
JAN 1999					
28...	1130	.39	--	4.5	--
FEB					
24...	1130	.25	--	10.0	--
MAR					
31...	1000	1.2	--	15.5	--
APR					
30...	1400	1.0	--	10.0	--
MAY					
20...	1030	2.3	--	18.5	--
JUN					
24...	1500	4.4	--	26.5	--
JUL					
23...	1430	5.3	--	26.5	--
AUG					
26...	1400	4.3	--	26.5	--
SEP					
20...	1530	2.9	--	18.5	--
432748103292800 COLD BROOK RESERVOIR INFLOW NEAR HOT SPRINGS, SD (LAT 43 27 48N LONG 103 29 28W)					
DEC 1998					
15...	1019	1.2	--	--	--
432708103291800 COLD BROOK RESERVOIR OUTFLOW NEAR HOT SPRINGS, SD (LAT 43 27 08N LONG 103 29 18W)					
DEC 1998					
15...	1200	2.4	--	--	--
432012103331100 CASCADE SPRINGS ABV ALABAUGH CYN, NR HOT SPRINGS, SD (LAT 43 20 12N LONG 103 33 11W)					
JUL 1999					
15...	1340	24	20.5	30.0	2690
434558103354000 FRENCH CREEK AT EIGHTH STREET, AT CUSTER, SD (LAT 43 45 58N LONG 103 35 40W)					
AUG 1999					
07...	1620	423	15.0	17.0	219
07...	1800	903	15.0	17.0	215
06413200 RAPID CREEK BELOW PARK DRIVE, AT RAPID CITY, SD (LAT 44 03 33N LONG 103 17 02W)					
SEP 1999					
01...	1126	177	16.5	29.0	318
16...	1345	72	12.5	24.0	348

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06413570 RAPID C AB JACKSON BLVD, AT RAPID CITY, SD (LAT 44 03 55N LONG 103 16 21W)					
OCT 1998					
08...	0830	187	11.0	--	352
NOV					
16...	1405	197	8.0	11.0	353
JAN 1999					
07...	1310	89	1.0	-8.0	360
FEB					
19...	0800	91	4.5	2.5	366
APR					
08...	0815	155	8.0	9.0	362
MAY					
21...	1150	277	9.5	21.0	344
JUN					
23...	1410	572	11.0	24.0	386
AUG					
19...	0740	161	15.5	15.0	347
SEP					
10...	1216	--	14.5	27.0	360
17...	0810	75	13.0	12.0	374
06416000 RAPID CR BELOW HAWTHORN DITCH, AT RAPID CITY, SD (LAT 44 04 02N LONG 103 10 49W)					
JUN 1999					
17...	1555	641	13.0	16.0	560
JUL					
09...	1135	--	14.5	21.0	428
13...	1000	203	16.0	25.0	464
SEP					
01...	1445	175	17.5	24.5	410
17...	0940	84	12.0	14.0	580
06420000 RAPID CR AT CAPUTA, SD (LAT 43 59 20N LONG 102 59 40W)					
JUN 1999					
23...	0920	658	14.0	20.0	534
JUL					
07...	1200	--	13.0	35.0	488
13...	1130	168	19.0	27.0	611
SEP					
02...	1153	166	18.0	19.0	598
17...	1049	80	16.5	16.0	836
06422000 RAPID CR AT CRESTON, SD (LAT 43 55 00N LONG 102 42 00W)					
JUN 1999					
22...	1315	658	22.0	28.0	603
JUL					
07...	0915	--	19.0	37.0	501
13...	1325	245	22.0	35.0	644
SEP					
02...	1508	175	19.5	19.0	668
14...	1135	97	13.0	17.0	866
441738103333400 MEADOW CREEK ABOVE ELK CREEK, NEAR TILFORD, SD (LAT 44 17 38N LONG 103 33 34W)					
OCT 1998					
26...	1245	1.4	11.0	19.0	469
441412103275600 LITTLE ELK CREEK BELOW DALTON LAKE, NR PIEDMONT, SD (LAT 44 14 12N LONG 103 27 56W)					
OCT 1998					
26...	1340	4.5	9.0	21.0	435
06430765 EAST SPEARFISH CREEK NEAR LEAD, SD (LAT 44 17 44N LONG 103 52 10W)					
OCT 1998					
13...	1255	24	6.5	10.5	459

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
06432172 FALSE BOTTOM CREEK NR CENTRAL CITY, SD (LAT 44 23 28N LONG 103 47 58W)					
DEC 1998					
17...	1525	.63	1.5	13.0	228
APR 1999					
30...	1225	6.3	9.5	15.5	157
JUN					
01...	1245	2.4	11.0	18.0	225
AUG					
24...	1305	.85	15.5	32.0	324
442811103205000 BEAR BUTTE CR BELOW STURGIS, SD (LAT 44 28 11N LONG 103 20 50W)					
NOV 1998					
17...	1130	22	5.5	6.0	1240
DEC					
15...	1115	10	2.0	8.0	1360
JAN 1999					
25...	1300	8.4	0.0	9.0	1580
FEB					
10...	1055	6.6	3.0	7.0	1490
MAR					
09...	1105	6.3	1.5	5.0	1530
APR					
06...	1055	20	5.5	6.0	1720
21...	1200	15	10.0	7.5	1530
MAY					
10...	1130	16	8.5	4.0	1470
JUN					
09...	1100	17	16.5	18.0	1730
15...	1027	122	13.5	15.0	755
JUL					
19...	0925	14	19.5	26.0	1380
AUG					
16...	1025	6.8	18.5	19.5	1430
SEP					
14...	1100	5.2	11.0	12.0	1470
443048103091400 BEAR BUTTE CR NR MOUTH, NR VALE, SD (LAT 44 30 48N LONG 103 09 14W)					
OCT 1998					
07...	1330	56	8.0	19.5	1980
NOV					
17...	1420	62	4.0	3.5	1890
DEC					
15...	1430	22	0.0	5.5	2080
JAN 1999					
26...	1125	14	0.0	-2.0	2360
FEB					
10...	1405	21	0.0	2.5	2220
MAR					
09...	1435	20	3.0	3.5	2310
APR					
06...	1400	107	8.5	16.0	2150
21...	1350	42	11.0	7.0	2620
MAY					
10...	1445	37	9.0	5.0	2410
JUN					
09...	1430	119	21.0	22.0	1930
15...	1456	265	18.0	21.0	1410
JUL					
19...	1210	32	23.5	30.5	2070
AUG					
16...	1255	12	23.0	26.0	2090
SEP					
14...	1430	7.9	15.5	18.5	2250
06439295 CHERRY CR AT CHERRY CREEK, SD (LAT 44 36 13N LONG 101 30 33W)					
OCT 1998					
14...	0930	.06	10.0	9.0	3670
DEC					
01...	0955	60	1.5	7.0	3250
FEB 1999					
23...	1340	--	2.5	6.0	1360

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
432323101113300 BLACK PIPE CREEK, NEAR BLACKPIPE, SD (LAT 43 23 23N LONG 101 11 33W)					
JUL 1999					
29...	0745	3.9	21.0	24.0	435
SEP					
01...	1305	2.8	20.0	20.0	433
432743101100900 BLACK PIPE CREEK NEAR NORRIS, SD (LAT 43 27 43N LONG 101 10 09W)					
JUL 1999					
29...	0840	3.6	22.5	28.0	476
431837101033200 CUT MEAT CREEK BLW PHISTER CREEK, NR PARMELEE, SD (LAT 43 18 37N LONG 101 03 32W)					
JUL 1999					
28...	1550	1.1	26.5	34.0	446
SEP					
01...	1430	.67	19.5	18.0	487
431830101033400 PHISTER CREEK NEAR PARMELEE, SD (LAT 43 18 30N LONG 101 03 34W)					
JUL 1999					
28...	1510	.74	25.0	31.0	453
SEP					
01...	1400	.56	18.5	20.0	496
432249100595500 CUT MEAT CREEK NEAR PARMELEE, SD (LAT 43 22 49N LONG 100 59 55W)					
JUL 1999					
28...	1620	2.4	27.5	34.5	418
SEP					
01...	1115	.01	20.0	27.0	568
432405100591300 GRAY EAGLETAIL CREEK NR PARMELEE, SD (LAT 43 24 05N LONG 100 59 13W)					
JUL 1999					
29...	0930	2.1	23.5	30.0	445
SEP					
01...	1200	2.2	21.5	22.0	431
431911100525200 SOLDIER CREEK NR ROSEBUD, SD (LAT 43 19 11N LONG 100 52 52W)					
JUL 1999					
27...	1553	1.7	27.5	34.5	380
AUG					
31...	1515	1.9	25.5	35.0	339
06449400 ROSEBUD CR AT ROSEBUD, SD (LAT 43 14 14N LONG 100 51 26W)					
JUL 1999					
27...	1510	8.0	26.0	35.0	307
AUG					
31...	1405	7.8	24.5	29.5	318
431343100571700 SOUTH FORK IRONWOOD CREEK NEAR ROSEBUD, SD (LAT 43 13 43N LONG 100 57 17W)					
JUL 1999					
27...	1453	1.8	27.0	34.5	340
AUG					
31...	1442	1.6	24.0	33.0	312
431208100580300 LITTLE WHITE RIVER BELOW BEADS CREEK (LAT 43 12 08N LONG 100 58 03W)					
JUL 1999					
27...	1350	117	28.5	--	384
AUG					
31...	1400	76	28.5	39.0	341

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
431205100580200 BEADS CREEK NR ROSEBUD, SD (LAT 43 12 05N LONG 100 58 02W)					
JUL 1999					
27...	1455	1.5	30.0	33.5	303
AUG					
31...	1320	1.0	27.5	39.0	294
431146100574900 OMAHA CREEK NEAR ROSEBUD, SD (LAT 43 11 46N LONG 100 57 49W)					
JUL 1999					
27...	1335	.91	25.5	35.0	404
AUG					
31...	1330	.79	23.0	35.0	410
430611101044600 LITTLE WHITE RIVER BL SPRING CR, NR ST. FRANCIS, SD (LAT 43 06 11N LONG 101 04 46W)					
JUL 1999					
27...	1258	117	29.5	37.0	450
AUG					
31...	1140	66	26.0	34.0	357
430610101044300 SPRING CREEK (NR SPRING CR) NEAR ST. FRANCIS, SD (LAT 43 06 10N LONG 101 04 43W)					
JUL 1999					
27...	1201	9.1	25.0	35.0	254
AUG					
31...	1154	4.3	19.5	34.0	216
430158101045400 SPRING CREEK NEAR CODY, NE (LAT 43 01 58N LONG 101 04 54W)					
JUL 1999					
29...	0946	2.1	24.0	31.5	--
431700100412500 ANTELOPE CREEK TRIB BELOW MISSION, SD (LAT 43 17 00N LONG 100 41 25W)					
JUL 1999					
28...	0930	.50	21.5	30.0	481
SEP					
01...	0755	.58	19.0	18.0	419
431648100330200 ANTELOPE CREEK BL ANTELOPE LAKE, NEAR MISSION, SD (LAT 43 16 48N LONG 100 33 02W)					
JUL 1999					
28...	1110	4.3	24.0	32.5	447
SEP					
01...	0710	1.3	19.0	19.0	497
431506100281600 ANTELOPE CREEK ABV KEYA PAHA RIVER, NR MISSION, SD (LAT 43 15 06N LONG 100 28 16W)					
JUL 1999					
28...	1050	6.1	24.5	32.0	465
SEP					
01...	0800	1.7	19.5	21.0	516
430940100294800 LONE TREE CREEK NEAR OLSONVILLE, SD (LAT 43 09 40N LONG 100 29 48W)					
JUL 1999					
28...	0845	.72	16.5	31.0	415
SEP					
01...	0745	.56	15.0	19.0	401
430940100294600 ROCK CREEK BELOW LONE TREE CR, NEAR OLSONVILLE, SD (LAT 43 09 40N LONG 100 29 46W)					
JUL 1999					
28...	0915	5.2	20.5	31.0	432
SEP					
01...	0830	4.4	17.0	20.0	415

MISCELLANEOUS DISCHARGE MEASUREMENTS

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
431258100240000 ROCK CREEK NEAR MISSION, SD (LAT 43 12 58N LONG 100 24 00W)					
JUL 1999					
28...	1240	9.4	26.5	33.5	421
SEP					
01...	0855	8.6	20.5	21.0	401
431257100220000 KEYA PAHA RIVER BELOW ROCK CREEK, NEAR MISSION, SD (LAT 43 12 57N LONG 100 22 00W)					
JUL 1999					
28...	1200	19	27.5	35.0	449
SEP					
01...	0945	14	21.0	26.0	431
431132100184700 KEYA PAHA RIVER ABOVE EAGLE CREEK, NEAR MISSION, SD (LAT 43 11 32N LONG 100 18 47W)					
JUL 1999					
28...	1400	20	29.0	36.5	454
SEP					
01...	1010	15	21.5	25.0	431
430645100185200 EAGLE CREEK NEAR OLSONVILLE, SD (LAT 43 06 45N LONG 100 18 52W)					
JUL 1999					
28...	1130	.21	--	34.0	--
SEP					
01...	1030	.36	21.0	23.0	640
430930100171500 EAGLE CREEK NEAR KEYAPAHA, SD (LAT 43 09 30N LONG 100 17 15W)					
JUL 1999					
28...	1238	1.6	29.5	37.5	417
SEP					
01...	1137	2.2	20.0	29.0	456
431008100140300 KEYA PAHA RIVER BL EAGLE CREEK, NR KEYAPAHA, SD (LAT 43 10 08N LONG 100 14 03W)					
JUL 1999					
28...	1305	22	30.5	37.0	453
SEP					
01...	1105	16	22.5	24.5	440
430254100111000 SAND CREEK NEAR KEYAPAHA, SD (LAT 43 02 54N LONG 100 11 10W)					
JUL 1999					
28...	1443	4.4	--	39.5	--
SEP					
01...	1400	4.4	23.0	29.0	376
430021101075300 MINNECHADUZA CREEK NEAR CODY, NE (LAT 43 00 21N LONG 101 07 53W)					
JUL 1999					
29...	0842	.10	--	--	--
430114100574900 MINNECHADUZA CREEK NEAR KILGORE, NE (LAT 43 01 14N LONG 100 57 49W)					
JUL 1999					
29...	0748	2.7	22.0	24.0	708
SEP					
02...	0735	16	18.0	18.0	240

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
453014097165900 PICKERAL LAKE OUTFLOW NEAR GRENVILLE, SD (LAT 45 30 14N LONG 097 16 59W)					
NOV 1998					
16...	1255	11	2.0	3.0	452
JUL 1999					
29...	1300	10	27.5	30.0	445
AUG					
11...	1605	3.2	24.0	27.0	451
25...	1600	3.2	25.5	26.0	440
SEP					
08...	1630	16	18.5	15.5	442
22...	1415	9.4	16.0	20.0	447
452357097165200 CAMPBELL SLOUGH OUTFLOW NEAR WAUBAY, SD (LAT 45 23 57N LONG 097 16 52W)					
NOV 1998					
16...	1135	11	0.5	3.0	429
JUL 1999					
29...	1150	7.9	27.0	29.5	402
AUG					
11...	1425	3.2	27.0	31.0	330
25...	1415	.33	24.0	26.0	397
SEP					
08...	1510	5.7	18.5	19.0	380
22...	1215	.02	--	--	--
06479159 BLUE DOG LAKE INFLOW (OWENS CR) NR WAUBAY, SD (LAT 45 20 48N LONG 097 15 07W)					
JUL 1999					
29...	1040	5.8	25.0	28.0	566
AUG					
11...	1100	4.7	22.0	25.0	538
25...	1250	3.9	23.0	24.0	546
SEP					
08...	1355	15	15.5	14.5	552
22...	1140	6.7	12.0	19.0	542
451918097193700 LITTLE RUSH LAKE OUTFLOW NR WAUBAY, SD (LAT 45 19 18N LONG 097 19 37W)					
JUL 1999					
21...	1340	67	25.0	28.0	448
29...	1505	52	30.0	36.0	430
AUG					
11...	1040	44	22.5	25.0	463
25...	1040	46	22.0	22.0	515
SEP					
08...	1210	45	18.0	15.0	500
22...	1030	39	15.0	14.0	559

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 SW¼ SW¼ SW¼ NW¼ 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 sea level. 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 current year.

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 1998 TO SEPTEMBER 1999
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	52.76	52.44	52.40	52.33	52.22	52.13	52.02	51.78	51.76	51.96	52.00
2	---	52.76	52.41	52.40	52.25	52.28	52.19	51.96	51.77	51.75	51.97	52.02
3	---	52.74	52.37	52.41	52.23	52.29	52.18	51.86	51.77	51.71	51.97	52.02
4	---	52.74	52.38	52.43	52.31	52.26	52.18	51.77	51.75	51.65	51.93	52.02
5	---	52.74	52.38	52.39	52.27	52.27	52.18	51.72	51.69	51.77	51.92	51.99
6	52.82	52.74	52.39	52.40	52.28	52.35	52.14	51.56	51.67	51.82	51.90	51.99
7	52.87	52.74	52.42	52.40	52.26	52.35	52.13	51.63	51.74	51.81	51.89	51.95
8	52.88	52.74	52.42	52.39	52.25	52.29	52.13	51.73	51.74	51.79	51.93	52.01
9	52.85	52.69	52.50	52.39	52.27	52.23	52.02	51.73	51.72	51.81	51.91	52.02
10	52.83	52.50	52.52	52.36	52.26	52.25	52.00	51.69	51.78	51.88	51.89	52.02
11	52.86	52.52	52.52	52.36	52.29	52.27	51.94	51.67	51.78	51.88	51.89	52.01
12	52.92	52.57	52.47	52.34	52.39	52.27	51.97	51.69	51.83	51.86	51.89	52.04
13	52.92	52.57	52.46	52.35	52.39	52.27	51.96	51.69	51.85	51.82	51.98	52.07
14	52.88	52.49	52.46	52.35	52.35	52.27	51.96	51.68	51.87	51.76	51.99	52.08
15	52.82	52.49	52.46	52.33	52.27	52.23	51.97	51.67	51.86	51.76	51.96	52.09
16	52.80	52.43	52.46	52.23	52.29	52.14	51.97	51.67	51.86	51.82	52.00	52.09
17	52.74	52.43	52.44	52.25	52.29	52.25	52.00	51.72	51.86	51.83	52.03	52.09
18	52.80	52.43	52.36	52.29	52.27	52.31	52.00	51.74	51.85	51.83	52.03	52.07
19	52.85	52.46	52.48	52.29	52.27	52.31	51.98	51.73	51.81	51.81	52.05	52.07
20	52.86	52.47	52.49	52.29	52.37	52.28	51.98	51.71	51.81	51.81	52.05	52.11
21	52.88	52.47	52.49	52.28	52.38	52.27	51.93	51.74	51.81	51.79	52.03	52.11
22	52.88	52.39	52.49	52.29	52.38	52.27	51.95	51.75	51.78	51.79	52.03	52.10
23	52.86	52.46	52.49	52.29	52.27	52.26	52.03	51.77	51.75	51.78	52.05	52.05
24	52.81	52.46	52.49	52.36	52.27	52.28	52.04	51.76	51.78	51.78	52.07	52.04
25	52.79	52.40	52.46	52.36	52.25	52.29	52.04	51.77	51.78	51.78	52.07	52.00
26	52.79	52.42	52.42	52.36	52.23	52.29	51.95	51.77	51.79	51.83	52.07	52.05
27	52.79	52.42	52.35	52.30	52.21	52.19	51.91	51.78	51.82	51.83	52.09	52.11
28	52.79	52.42	52.35	52.33	52.22	52.23	51.95	51.78	51.81	51.82	52.14	52.18
29	52.72	52.36	52.45	52.35	---	52.25	52.00	51.78	51.81	51.82	52.16	52.19
30	52.76	52.44	52.45	52.37	---	52.24	52.02	51.78	51.79	51.80	52.16	52.12
31	52.76	---	52.40	52.37	---	52.10	---	51.78	---	51.89	51.99	---
MAX	---	52.76	52.52	52.43	52.39	52.35	52.19	52.02	51.87	51.89	52.16	52.19

442112098174001.

LOCATION.--Lat 44°21'12", long 98°17'40", in SW¼ SW¼ SW¼ NW¼ 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 sea level. 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 current year.

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 1998 TO SEPTEMBER 1999
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.87	21.50	---	24.37	26.16	25.77	23.16	25.29	16.34	14.23	14.80	16.47
2	12.99	21.50	---	25.07	26.04	26.56	23.74	21.98	16.27	14.16	15.00	16.47
3	12.83	21.62	---	25.27	26.04	26.56	25.32	20.77	16.22	14.05	15.14	16.44
4	12.78	21.76	---	24.98	26.96	24.65	25.35	20.12	16.05	14.03	15.30	16.38
5	16.59	22.11	---	24.35	27.03	26.54	25.83	19.58	15.86	14.15	15.52	16.39
6	16.59	22.03	---	25.22	26.40	26.56	25.83	19.31	15.74	14.18	15.55	16.36
7	18.44	21.32	---	24.55	26.40	25.63	24.55	19.18	15.77	14.15	15.78	16.23
8	18.44	21.93	---	26.56	24.73	25.77	25.94	19.09	15.69	14.00	15.98	16.26
9	19.25	21.94	---	26.56	26.19	25.69	25.49	19.04	15.62	14.04	16.08	16.26
10	19.37	22.00	---	25.62	25.80	25.82	25.52	18.71	15.63	14.11	16.20	16.19
11	19.80	22.01	---	25.62	25.37	24.61	25.46	18.60	15.60	14.08	16.61	16.13
12	19.94	21.39	---	26.16	26.60	26.38	24.86	18.58	15.57	14.00	16.52	16.13
13	20.25	22.61	---	26.16	25.42	26.68	24.83	18.44	15.56	13.87	16.68	16.13
14	20.52	22.70	---	25.52	25.81	26.04	23.28	18.25	15.52	13.76	16.71	16.12
15	20.61	22.53	---	24.50	26.04	26.04	24.29	18.05	15.48	13.70	16.71	16.11
16	20.61	22.83	---	25.47	24.26	24.49	24.83	17.93	15.40	13.78	16.81	16.09
17	20.36	23.49	---	25.47	26.33	25.93	24.83	17.85	15.35	13.85	16.83	16.02
18	20.56	23.49	---	25.70	26.34	25.15	24.49	17.81	15.23	13.78	16.91	15.89
19	21.84	23.10	---	25.05	26.27	25.22	24.78	17.62	15.09	13.70	16.97	15.86
20	21.85	22.32	---	25.32	25.93	25.67	24.78	17.46	15.03	13.64	16.95	15.90
21	21.19	23.12	---	24.82	24.68	25.10	24.84	17.46	14.94	13.57	16.92	15.89
22	21.76	23.34	---	25.36	25.14	25.03	24.74	17.35	14.80	13.55	16.92	15.79
23	21.76	23.72	---	24.84	25.60	25.95	23.12	17.25	14.66	13.52	16.91	15.64
24	20.41	22.85	---	25.96	24.36	24.55	24.62	17.13	14.65	13.55	16.90	15.58
25	21.20	---	---	26.00	25.71	25.30	24.62	17.08	14.61	13.62	16.87	15.43
26	21.45	---	---	25.73	25.71	26.22	24.57	16.98	14.54	13.86	16.77	15.44
27	21.68	---	---	25.75	24.30	26.22	24.56	16.84	14.51	13.94	16.72	15.51
28	21.18	---	---	25.99	25.63	24.74	24.95	16.80	14.48	14.04	16.79	15.74
29	21.39	---	---	26.32	---	26.10	24.97	16.66	14.45	14.11	16.76	15.77
30	20.63	---	---	26.32	---	25.31	25.13	16.59	14.30	14.22	16.68	15.50
31	21.20	---	---	26.17	---	24.29	---	16.50	---	14.53	16.50	---
MAX	21.85	---	---	26.56	27.03	26.68	25.94	25.29	16.34	14.53	16.97	16.47

450905097072202.

LOCATION.--Lat 45°09'05", long 97°07'22", in NW¼ NW¼ NW¼ NW¼ 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 sea level. 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 current year.

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 1998 TO SEPTEMBER 1999
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.86	14.71	13.31	13.00	12.97	12.80	12.52	12.21	12.25	12.44	24.48	---
2	17.78	14.63	13.25	12.98	12.96	12.81	12.54	12.17	12.31	12.49	23.76	31.59
3	17.72	14.57	13.21	12.98	12.97	12.81	12.52	12.13	12.33	12.48	23.76	29.80
4	17.65	14.51	13.20	12.99	13.01	12.73	12.51	12.09	12.36	12.71	24.10	28.73
5	17.29	14.44	13.15	12.95	12.97	12.75	12.49	12.04	12.35	13.08	24.21	27.93
6	17.20	14.39	13.15	13.02	12.99	12.77	12.45	12.07	12.31	13.30	24.44	27.27
7	17.14	14.35	13.14	13.02	12.95	12.76	12.42	12.07	12.33	13.41	25.11	26.63
8	17.09	14.28	13.12	13.02	12.95	12.70	12.40	12.12	12.33	13.54	26.13	26.12
9	16.98	14.20	13.12	13.00	12.98	12.69	12.38	12.10	12.24	13.70	26.26	25.65
10	16.88	14.04	13.11	13.00	12.94	12.71	12.35	12.06	12.28	13.90	27.76	25.18
11	16.80	14.03	13.06	12.96	12.96	12.73	12.36	12.06	12.29	14.00	29.11	24.76
12	16.72	14.04	13.04	13.02	13.01	12.72	12.36	12.06	12.36	13.99	30.06	24.35
13	16.66	13.97	13.03	13.01	13.01	12.71	12.33	12.05	12.33	14.15	---	24.00
14	16.57	13.89	13.01	12.99	12.92	12.71	12.29	12.04	12.32	14.24	---	23.64
15	16.47	13.88	13.01	12.96	12.90	12.69	12.28	12.01	12.35	14.34	29.62	23.33
16	16.29	13.80	12.98	12.97	12.91	12.67	12.25	11.97	12.43	14.68	29.88	23.03
17	16.03	13.80	12.96	12.95	12.90	12.74	12.26	11.99	12.41	14.86	---	22.73
18	15.96	13.73	12.93	12.98	12.88	12.77	12.24	11.98	12.38	15.00	---	22.45
19	15.88	13.71	12.96	12.99	12.88	12.73	12.22	11.95	12.38	15.64	---	22.20
20	15.77	13.69	12.96	12.97	12.92	12.71	12.19	11.94	12.38	17.43	---	21.99
21	15.66	13.64	12.95	12.98	12.93	12.70	12.16	11.96	12.38	18.78	---	21.75
22	15.55	13.54	12.96	13.00	12.87	12.69	12.22	11.95	12.33	20.13	30.20	21.50
23	15.42	13.56	12.96	12.99	12.83	12.67	12.24	11.95	12.43	21.00	30.12	21.27
24	15.32	13.54	12.98	13.04	12.82	12.71	12.24	11.94	12.44	20.82	---	21.07
25	15.21	13.46	12.95	13.03	12.81	12.71	12.21	11.96	12.41	20.25	---	20.85
26	15.14	13.45	12.94	13.01	12.80	12.69	12.17	11.96	12.37	21.56	---	20.61
27	15.05	13.41	12.95	13.00	12.83	12.65	12.17	12.07	12.38	22.12	---	20.48
28	14.99	13.37	12.95	13.02	12.84	12.65	12.20	12.13	12.44	23.05	---	20.34
29	14.85	13.30	13.01	13.03	---	12.64	12.23	12.16	12.45	23.02	---	20.19
30	14.80	13.32	13.00	13.03	---	12.61	12.23	12.20	12.43	23.00	---	19.96
31	14.77	---	13.00	13.03	---	12.53	---	12.24	---	24.17	---	---
MAX	17.86	14.71	13.31	13.04	13.01	12.81	12.54	12.24	12.45	24.17	---	---

431619096460202.

LOCATION.--Lat 43°16'19", long 96°46'02", in NE¼ NE¼ NE¼ NE¼ 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 sea level. Measuring point: Top of recorder platform 3.0 ft above land-surface datum.

PERIOD OF RECORD.--August 1979 to current year.

EXTREMES.--Jan. 1, 1981, to current year: Maximum water level, 176.94 ft below land-surface datum, Oct. 27, 1996; minimum water level, 151.81 ft below land-surface datum, Feb. 21-23, 1981.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	176.85	176.58	176.16	176.04	175.99	176.02	175.70	175.12	173.50	172.65	172.43	172.00
2	176.72	176.55	176.06	176.08	175.96	176.19	175.73	174.94	173.55	172.61	172.42	172.00
3	176.72	176.60	176.07	176.19	176.12	176.16	175.69	174.75	173.49	172.47	172.36	171.96
4	176.63	176.59	176.04	176.18	176.14	176.08	175.75	174.63	173.36	172.47	172.37	172.15
5	176.52	176.57	176.05	176.08	176.05	176.28	175.70	174.56	173.33	172.65	172.34	172.15
6	176.65	176.58	176.13	176.29	176.05	176.33	175.74	174.60	173.39	172.66	172.31	171.97
7	176.72	176.55	176.13	176.27	175.87	176.28	175.70	174.68	173.42	172.62	172.38	171.97
8	176.71	176.52	176.09	176.31	176.04	176.02	175.59	174.71	173.35	172.56	172.41	172.00
9	176.60	176.41	176.19	176.31	176.04	176.08	175.63	174.68	173.34	172.71	172.28	172.17
10	176.58	176.36	176.19	176.36	175.91	176.13	175.65	174.51	173.37	172.96	172.34	---
11	176.72	176.46	176.00	176.20	176.09	176.14	175.82	174.54	173.35	173.02	172.33	---
12	176.74	176.50	175.98	176.47	176.23	176.09	175.85	174.50	173.37	172.90	172.29	---
13	176.71	176.31	175.99	176.47	176.19	176.06	175.71	174.43	173.38	172.71	172.39	---
14	176.56	176.36	175.92	176.42	175.94	175.98	175.70	174.37	173.36	172.66	172.38	---
15	176.53	176.26	175.98	176.33	176.04	175.82	175.64	174.28	173.27	172.58	172.28	---
16	176.52	176.29	175.89	176.36	176.03	175.79	175.66	174.21	173.23	172.75	172.35	---
17	176.57	176.31	175.83	176.38	175.98	176.06	175.70	174.26	173.20	173.12	172.36	---
18	176.67	176.34	175.90	176.44	176.02	176.09	175.61	174.27	173.13	172.82	172.59	---
19	176.72	176.40	175.98	176.40	176.07	176.01	175.61	174.14	173.06	172.82	172.59	---
20	176.70	176.40	175.94	176.33	176.21	175.95	175.46	174.03	173.04	172.67	172.37	---
21	176.74	176.24	175.99	176.33	176.21	175.92	175.38	174.05	172.98	172.48	172.31	---
22	176.73	176.33	175.97	176.35	176.01	175.85	175.55	174.01	172.90	172.40	172.27	---
23	176.63	176.38	175.94	176.30	176.02	175.86	175.60	173.99	172.89	172.39	172.36	---
24	176.55	176.31	175.94	176.44	176.02	175.92	175.57	173.91	172.92	172.42	172.52	---
25	176.56	176.27	175.84	176.42	176.00	175.93	175.39	173.90	172.88	172.32	172.53	---
26	176.56	176.27	175.83	176.24	175.94	175.81	175.20	173.86	172.82	172.38	172.45	---
27	176.54	176.21	175.87	176.25	176.02	175.68	175.22	173.82	172.82	172.36	172.47	---
28	176.51	176.16	175.92	176.26	176.03	175.84	175.26	173.78	172.80	172.29	172.22	---
29	176.54	176.14	176.06	176.27	---	175.83	175.29	173.72	172.76	172.21	172.18	---
30	176.63	176.27	176.02	176.24	---	175.65	175.25	173.65	172.69	172.24	172.07	---
31	176.64	---	176.03	176.15	---	175.54	---	173.61	---	172.39	171.99	---
MAX	176.85	176.60	176.19	176.47	176.23	176.33	175.85	175.12	173.55	173.12	172.59	---

454745097450401.

LOCATION.--Lat 45°47'45", long 97°45'04", in SE¼ NE¼ SE¼ 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 sea level. Measuring point: Top of recorder platform 1.95 ft above land-surface datum.

PERIOD OF RECORD.--July 1970 to current year.

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 1998 TO SEPTEMBER 1999
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38.79	38.56	38.34	38.45	38.39	38.36	38.33	38.61	38.43	38.33	38.53	38.47
2	38.74	38.54	38.26	38.47	38.29	38.48	38.42	38.50	38.48	38.34	38.55	38.49
3	38.72	38.55	38.28	38.47	38.26	38.50	38.42	38.40	38.48	38.32	38.51	38.49
4	38.71	38.56	38.31	38.49	38.41	38.43	38.44	38.26	38.42	38.34	38.50	38.30
5	38.48	38.56	38.26	38.38	38.33	38.52	38.44	38.21	38.37	38.48	38.47	38.28
6	38.52	38.55	38.31	38.46	38.38	38.62	38.41	38.17	38.26	38.54	38.42	38.28
7	38.64	38.57	38.35	38.47	38.30	38.62	38.40	38.26	38.35	38.53	38.46	38.21
8	38.66	38.54	38.36	38.45	38.28	38.49	38.40	38.40	38.36	38.48	38.51	38.27
9	38.56	38.46	38.49	38.45	38.35	38.48	38.39	38.41	38.36	38.45	38.43	38.28
10	38.58	38.30	38.52	38.40	38.30	38.55	38.39	38.35	38.45	38.54	38.42	38.26
11	38.56	38.41	38.44	38.37	38.37	38.59	38.52	38.36	38.46	38.52	38.40	38.27
12	38.65	38.50	38.41	38.41	38.53	38.59	38.57	38.39	38.50	38.48	38.38	38.24
13	38.68	38.44	38.44	38.43	38.54	38.57	38.54	38.39	38.56	38.40	38.45	38.28
14	38.62	38.38	38.43	38.39	38.41	38.54	38.52	38.36	38.59	38.36	38.46	38.32
15	38.51	38.38	38.46	38.32	38.37	38.43	38.52	38.33	38.57	38.36	38.39	38.35
16	38.45	38.32	38.45	38.18	38.42	38.34	38.50	38.33	38.58	38.50	38.47	38.35
17	38.31	38.37	38.43	38.18	38.42	38.48	38.53	38.40	38.57	38.54	38.51	38.31
18	38.45	38.37	38.38	38.28	38.42	38.61	38.51	38.44	38.54	38.53	38.51	38.26
19	38.54	38.38	38.56	38.29	38.44	38.61	38.49	38.42	38.50	38.44	38.54	38.36
20	38.56	38.40	38.58	38.28	38.58	38.57	38.46	38.40	38.48	38.43	38.52	38.42
21	38.60	38.35	38.53	38.27	38.60	38.57	38.41	38.46	38.47	38.42	38.49	38.41
22	38.61	38.19	38.52	38.34	38.54	38.55	38.55	38.45	38.39	38.42	38.46	38.34
23	38.56	38.37	38.48	38.34	38.42	38.52	38.65	38.47	38.38	38.41	38.47	38.27
24	38.47	38.37	38.49	38.44	38.40	38.64	38.65	38.46	38.43	38.42	38.51	38.26
25	38.47	38.27	38.41	38.45	38.39	38.65	38.61	38.48	38.43	38.40	38.49	38.20
26	38.49	38.30	38.39	38.43	38.34	38.60	38.49	38.47	38.42	38.48	38.45	38.20
27	38.48	38.30	38.35	38.38	38.33	38.42	38.48	38.49	38.48	38.47	38.50	38.33
28	38.48	38.30	38.34	38.41	38.37	38.46	38.55	38.48	38.48	38.31	38.58	38.43
29	38.39	38.20	38.49	38.46	---	38.52	38.64	38.44	38.47	38.28	38.61	38.43
30	38.52	38.33	38.49	38.49	---	38.49	38.65	38.42	38.37	38.29	38.57	38.30
31	38.56	---	38.44	38.49	---	38.30	---	38.46	---	38.44	38.46	---
MAX	38.79	38.57	38.58	38.49	38.60	38.65	38.65	38.61	38.59	38.54	38.61	38.49

430027102311801.

LOCATION.--Lat 43°00'27", long 102°31'18", in SW¼ NW¼ SE¼ 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 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 sea level. Measuring point: Top of steel casing 2.00 ft above land-surface datum.

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

EXTREMES.--June 9, 1989, to current year: Maximum water level, 43.13 ft below land-surface datum, Dec. 23, 1992; minimum water level, 40.08 ft below land-surface datum, Sept. 30, 1999.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41.13	41.03	40.95	40.95	40.82	40.76	40.66	40.47	40.39	40.31	40.38	40.29
2	41.07	41.01	40.93	40.94	40.79	40.76	40.65	40.44	40.39	40.31	40.36	40.27
3	41.07	41.02	40.94	40.92	40.86	40.72	40.59	40.42	40.39	40.34	40.33	40.27
4	41.03	41.02	40.93	40.91	40.85	40.71	40.61	40.47	40.37	40.30	40.33	40.29
5	41.09	40.99	40.94	40.84	40.82	40.80	40.59	40.52	40.38	40.40	40.31	40.28
6	41.11	40.97	40.95	40.95	40.78	40.79	40.60	40.50	40.40	40.40	40.28	40.24
7	41.11	40.99	40.97	40.84	40.74	40.70	40.60	40.49	40.39	40.33	40.32	40.32
8	41.07	40.96	40.96	40.93	40.83	40.71	40.62	40.51	40.37	40.34	40.32	40.32
9	41.07	40.94	41.01	40.87	40.80	40.71	40.60	40.48	40.41	40.40	40.31	40.29
10	41.05	41.00	41.00	40.87	40.84	40.75	40.65	40.48	40.41	40.40	40.30	40.23
11	41.12	41.03	40.95	40.80	40.88	40.73	40.65	40.49	40.40	40.33	40.27	40.29
12	41.11	41.03	40.95	40.88	40.87	40.71	40.63	40.47	40.44	40.31	40.37	40.29
13	41.07	40.99	40.95	40.91	40.81	40.68	40.57	40.46	40.42	40.27	40.37	40.27
14	41.03	41.01	40.98	40.86	40.75	40.67	40.63	40.46	40.38	40.29	40.29	40.23
15	41.02	40.97	40.99	40.87	40.79	40.63	40.61	40.44	40.36	40.33	40.35	40.21
16	41.03	40.99	40.96	40.83	40.78	40.71	40.58	40.47	40.36	40.36	40.37	40.19
17	41.07	40.99	40.90	40.88	40.75	40.76	40.57	40.47	40.34	40.32	40.35	40.18
18	41.11	41.02	41.02	40.86	40.78	40.74	40.55	40.43	40.33	40.31	40.35	40.20
19	41.11	41.01	41.01	40.85	40.78	40.70	40.54	40.43	40.34	40.32	40.34	40.21
20	41.11	41.00	40.98	40.81	40.83	40.73	40.51	40.46	40.32	40.29	40.31	40.19
21	41.10	40.93	41.00	40.86	40.82	40.67	40.51	40.44	40.30	40.30	40.31	40.18
22	41.06	41.03	40.96	40.86	40.74	40.64	40.60	40.47	40.34	40.31	40.31	40.13
23	41.03	41.02	40.97	40.85	40.74	40.64	40.62	40.47	40.34	40.31	40.33	40.11
24	41.01	40.98	40.95	40.89	40.73	40.67	40.58	40.43	40.34	40.30	40.30	40.12
25	41.01	40.99	40.91	40.86	40.71	40.66	40.51	40.42	40.30	40.31	40.28	40.12
26	41.01	40.99	40.89	40.83	40.72	40.60	40.49	40.45	40.35	40.34	40.31	40.13
27	41.03	40.95	40.93	40.86	40.75	40.66	40.52	40.46	40.37	40.31	40.30	40.14
28	40.96	40.91	40.98	40.85	40.72	40.69	40.54	40.41	40.37	40.30	40.32	40.18
29	41.07	40.97	40.98	40.86	---	40.67	40.54	40.39	40.31	40.30	40.29	40.13
30	41.07	40.99	40.96	40.85	---	40.59	40.52	40.43	40.31	40.31	40.27	40.08
31	41.06	---	40.92	40.82	---	40.59	---	40.42	---	40.36	40.29	---
MAX	41.13	41.03	41.02	40.95	40.88	40.80	40.66	40.52	40.44	40.40	40.38	40.32

SHANNON COUNTY--Continued

430027102311806.

LOCATION.--Lat 43°00'27", long 102°31'18", in SW¼ NW¼ SE¼ 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 sea level. Measuring point: Top of steel casing 2.09 ft above land-surface datum.

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

EXTREMES.--June 9, 1989, to current year: Maximum water level, 44.82 ft below land-surface datum, Aug. 20, 1999; minimum water level, 34.18 ft below land-surface datum, Feb. 25, 1998.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	37.50	37.13	37.70	36.46	36.37	36.67	38.48	42.29	43.23
2	---	---	---	37.50	37.13	37.77	36.46	36.29	36.73	38.48	42.28	43.26
3	---	---	---	37.45	37.13	37.77	36.37	36.16	36.69	38.53	42.20	43.34
4	---	---	e37.50	37.33	37.14	37.68	---	36.21	36.71	38.68	42.15	43.33
5	---	---	37.50	37.08	37.05	37.83	36.33	36.34	36.75	39.01	42.11	43.27
6	---	---	37.55	37.06	37.04	37.84	36.32	36.37	36.92	39.12	42.09	43.03
7	---	---	37.58	36.96	36.88	37.75	36.33	36.37	36.99	39.15	42.29	42.73
8	---	---	37.54	36.90	36.95	37.59	36.22	36.40	37.05	39.27	42.40	42.67
9	---	---	37.62	36.83	36.95	37.59	36.20	36.33	37.20	39.46	42.57	42.51
10	---	---	37.62	36.76	36.83	37.57	36.21	36.32	37.28	39.55	42.65	42.22
11	---	---	37.58	36.59	36.96	37.56	36.27	36.36	37.30	39.60	42.77	41.93
12	---	---	37.93	36.67	36.96	37.47	36.27	36.35	37.39	39.65	43.13	41.80
13	---	---	38.34	36.78	36.95	37.42	36.20	36.28	37.43	39.75	43.22	41.57
14	---	---	38.92	36.77	36.81	37.33	36.27	36.25	37.41	39.87	43.36	41.26
15	---	---	39.36	36.73	36.87	37.19	36.27	36.24	37.35	40.04	43.72	40.99
16	---	---	39.58	36.73	36.87	37.08	36.22	36.25	37.36	40.19	44.09	40.69
17	---	---	39.58	36.85	36.87	37.20	36.23	36.30	37.30	40.17	44.38	40.43
18	---	---	39.57	36.85	36.99	37.20	36.17	36.25	37.22	40.17	44.63	40.17
19	---	---	39.57	36.88	37.10	37.11	36.17	36.19	37.21	40.21	44.76	39.98
20	---	---	39.45	36.88	37.32	37.07	36.09	36.25	37.23	40.33	44.82	39.82
21	---	---	39.29	37.00	37.33	37.00	36.02	36.25	37.22	40.43	44.80	39.63
22	---	---	39.17	37.06	37.26	36.85	36.19	36.30	37.37	40.55	44.65	39.38
23	---	---	38.95	37.07	37.34	36.82	36.27	36.32	37.52	40.73	44.45	39.14
24	---	---	38.81	37.22	37.40	36.82	36.27	36.29	37.65	40.91	44.20	38.92
25	---	---	38.54	37.22	37.40	36.81	36.21	36.34	37.71	41.26	43.89	38.78
26	---	---	38.35	37.14	37.51	36.66	36.13	36.45	37.93	41.61	43.63	38.71
27	---	---	38.13	37.23	37.63	36.59	36.23	36.57	38.02	41.87	43.46	38.73
28	---	---	37.99	37.24	37.64	36.67	36.32	36.58	38.25	42.09	43.39	38.77
29	---	---	37.95	37.25	---	36.66	36.40	36.58	38.35	42.13	43.33	38.74
30	---	---	37.74	37.25	---	36.52	36.42	36.70	38.41	42.15	43.26	38.55
31	---	---	37.73	37.23	---	36.37	---	36.71	---	42.25	43.16	---
MAX	---	---	---	37.50	37.64	37.84	---	36.71	38.41	42.25	44.82	43.34

e Estimated

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CONVERSION FACTORS AND VERTICAL DATUM

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

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

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