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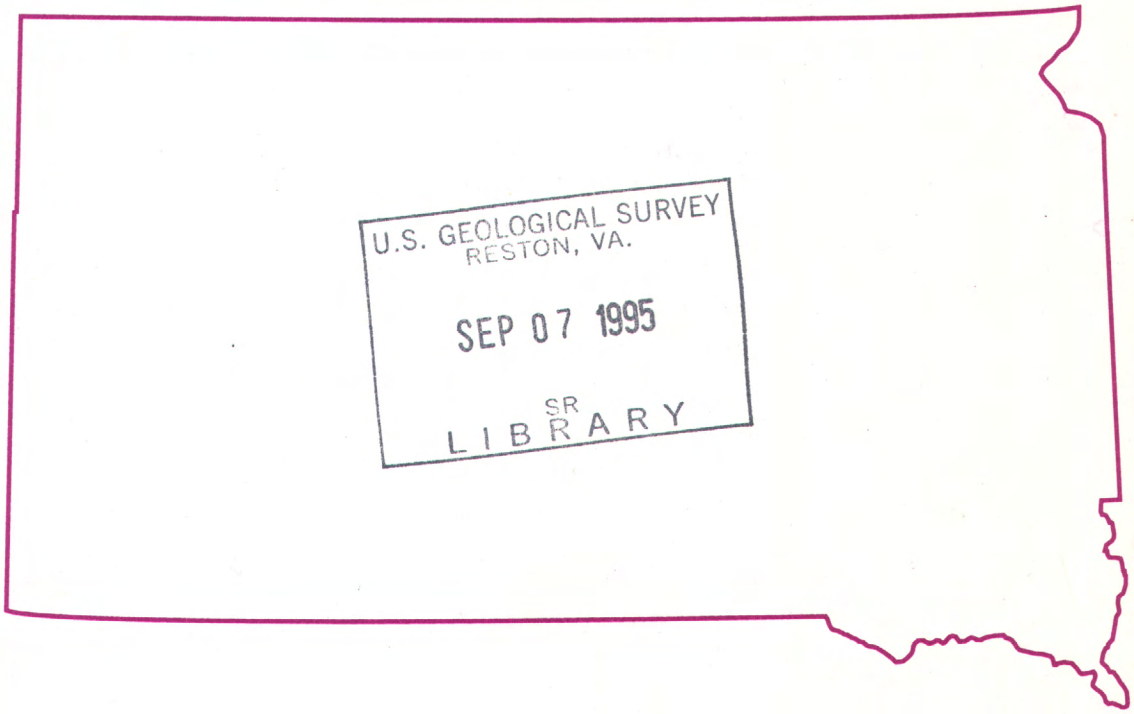
Water Resources Data South Dakota Water Year 1994



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CALENDAR FOR WATER YEAR 1994

1993

OCTOBER

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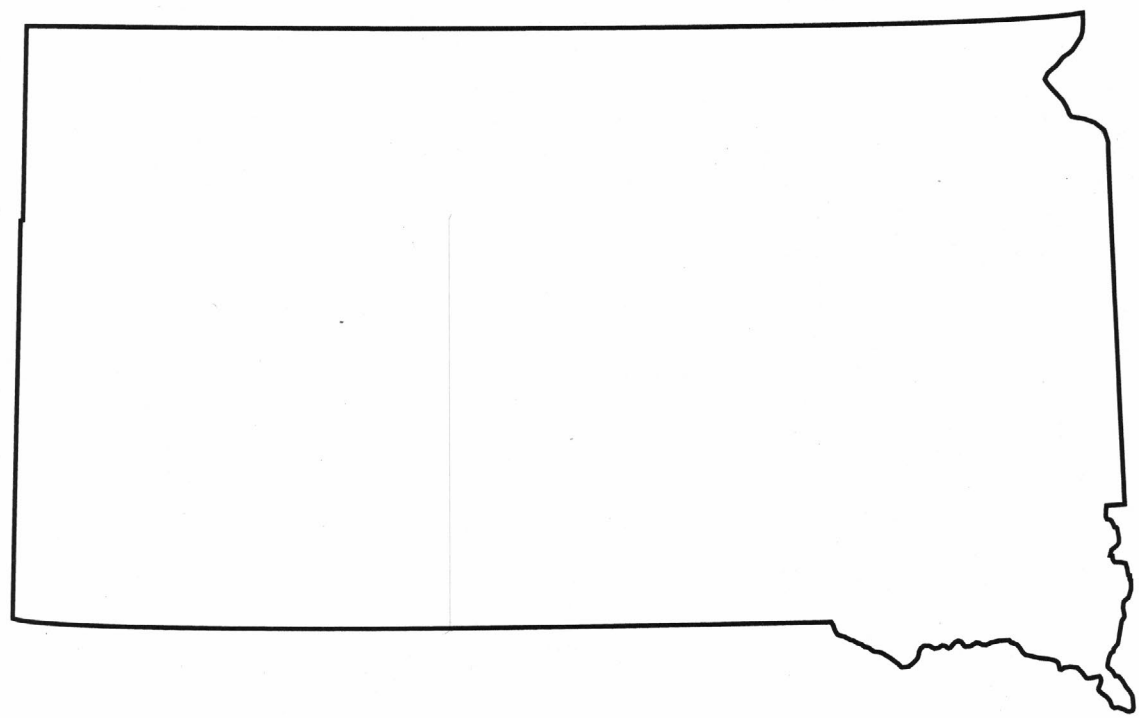
Water Resources Data South Dakota Water Year 1994

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT SD-94-1
Prepared in cooperation with the State of South Dakota
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY

Gordon P. Eaton, Director

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

1995

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 K.L. Lindskov, 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 1994 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 142 streamflow-gaging stations; stage and contents records for 10 lakes and reservoirs, stage for 7 streams and 4 lakes; water-quality records for 12 streamflow-gaging stations, 4 daily sediment stations, 3 wells, 9 ungaged stream sites, 5 lakes, 1 sewage lagoon, and 1 precipitation site; water levels for 7 wells; daily precipitation records at 46 sites; and 22 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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[Letters after station name designate type of data: (d) discharge, (e) gage height, elevation, or contents, (c) chemical, (b) biological, (m) microbiological, (p) pesticide, (r) precipitation, (t) daily water temperature, (s) sediment]

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FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

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WATER RESOURCES DATA - SOUTH DAKOTA, 1994

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 142 streamflow-gaging stations; (2) stage and contents records for 10 lakes and reservoirs, stage for 7 stream sites and 4 lakes; (3) water-quality records for 12 streamflow-gaging stations, 4 daily sediment stations, 3 wells, 9 ungaged streamsites, 5 lakes, 1 sewage lagoon, and 1 precipitation site; (4) water levels for 7 wells; (5) precipitation records at 46 sites; and (6) 22 partial-record crest-stage gage stations. Locations of these sites are shown in figures 5, 6, and 7. Miscellaneous hydrologic data were collected at 33 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-94-1." 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. Beginning with the 1990 water year, all water-data reports will also be available on Compact Disc - Read Only Memory (CD-ROM). All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc.

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) 394-1781. A limited number of CD-ROM discs will be available for sale by the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver Colorado 80225.

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; West Dakota Water Development District; West River Water Development District; City of Rapid City; City of Watertown; Lawrence County; Stanley County Conservation District; Belle Fourche Irrigation 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. 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; Cheyenne River Sioux Tribe; and Oglala Sioux Tribe. Organizations that supplied data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

By K. L. Lindskov, S. K. Sando, and K. M. Neitzert

Water year 1994 was uneventful, in terms of hydrologic conditions, when compared to water year 1993. In 1993, precipitation and streamflow were much greater than normal and there was extreme flooding in east-central and southeastern South Dakota. Streamflow in 1994 generally continued to be greater than normal even in areas of the State where precipitation was at or below normal. This was especially true for the southeastern part of the State where streamflow was significantly greater than normal even though precipitation for water year 1994 was 3.16 inches less than normal. In contrast, there were very few gaging stations that had record peak flow during water year 1994. The level of Lake Oahe on September 30, 1994, was 4.44 feet lower than at that same time in 1993, because outflow in 1994 was greater than in 1993. The near-normal to above-normal streamflow conditions that were typical in water year 1994 generally had a dilutional effect on concentrations of many dissolved chemical constituents in South Dakota surface waters. Dissolved-solids concentrations and specific-conductance measurements for most water-quality stations generally tended to be near or below normal in 1994.

Precipitation

Precipitation for water year 1994 was within 1.5 inches of normal for the north central, central, east central, and south central parts of the State (table 1). In the northeast, it was 2.56 inches greater than normal. In the northwest, Black Hills, southwest, and southeast parts of the State, water year 1994 precipitation ranged from 3.16 to 5.95 inches less than normal. Precipitation for the first one-half of water year 1994 was within 1 inch of normal for eight of the State's nine National Weather Service divisions shown in figure 1; it was 1.81 inches less than normal in the southeast part of the State.

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	1.65	-0.32	3.22	-0.41	8.35	-3.03	12.91	-3.19
North Central	1.97	-.11	3.53	-.38	7.94	-3.82	16.53	-.92
Northeast	3.39	+.88	5.45	+.77	11.11	-1.69	22.66	+2.56
Black Hills	3.70	+.82	6.56	+.92	11.80	-3.70	15.95	-5.95
Southwest	2.57	+.55	4.13	+.31	9.64	-2.09	13.58	-3.25
Central	2.54	+.44	3.89	-.14	10.19	-1.56	16.91	-.59
East Central	2.70	-.29	4.56	-.93	14.51	+.32	23.08	+1.37
South Central	2.80	+.29	4.33	-.50	13.13	-.71	20.92	+.27
Southeast	2.44	-.79	4.08	-1.81	13.03	-2.32	20.41	-3.16

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

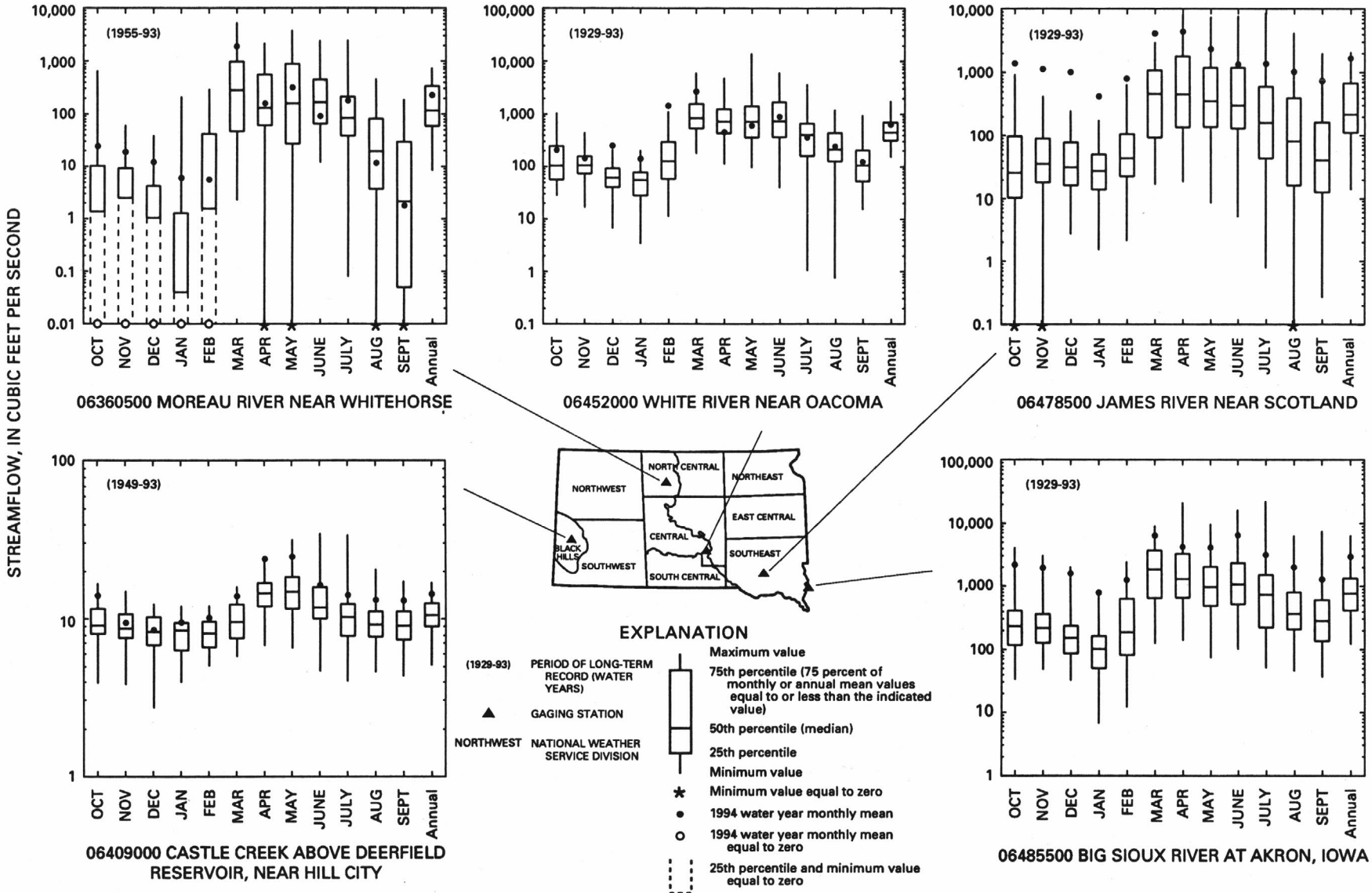


Figure 1.--Comparison of 1994 monthly and annual means to long-term distributions of monthly and annual mean flows at five representative gaging stations.

Surface Water

Annual streamflow for water year 1994, as recorded at five representative gaging stations, averaged 329 percent of the long-term median (normal) streamflow. Annual streamflow ranged from 135 percent of median for Castle Creek above Deerfield Reservoir, near Hill City to 795 percent of median for James River near Scotland. Monthly and annual streamflow for water year 1994 are compared with the maximum, minimum, and selected percentiles in figure 1 for the five representative gaging stations.

Streamflow at all five of the representative gaging stations was greater than normal at the beginning of water year 1994. Streamflow for the Castle Creek above Deerfield Reservoir station receded to near normal during the early winter months, while streamflow at the other four stations was much greater than normal. Streamflow for the Moreau River near Whitehorse and White River near Oacoma stations receded to near normal in April and remained near normal for the rest of water year 1994, while streamflow for the other three stations was considerably greater than normal for the remainder of water year 1994. Apparently, natural and artificial storage from the much greater than normal precipitation in the central and eastern parts of the State in 1993 caused streamflow to continue greater than normal throughout much of water year 1994.

While monthly and annual mean streamflow during water year 1994 was generally greater than the normal for all five of the representative stations, peak-flow values at these stations were less than what is expected every 10 years on the average (table 2). However, peak flow or stage at 14 other continuous-record and crest-stage stations did exceed the previous peak flow of record as shown in table 3. But, only 6 of these 14 stations had more than 10 years of record.

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

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

Gaging-station number and name		Long-term period used (water (years)	Peak streamflow					
			Water year 1994			Long-term period		
			Peak (ft^3/s)	Date	Recurrence interval (years)	Peak (ft^3/s)	Date	Recurrence interval (years)
06360500	Moreau River near Whitehorse	1955-93	10,000	03-05-94	4	27,700	05-24-82	28
06409000	Castle Creek above Deerfield Reservoir, near Hill City	1949-93	65	04-22-94	3	1,120	05-22-52	>100
06452000	White River near Oacoma	1929-93	25,000	03-04-94	10	51,900	03-30-52	>100
06478500	James River near Scotland	1929-93	7,370	03-28-94	8	29,400	06-23-84	>100
06485500	Big Sioux River at Akron, Iowa	1929-93	20,400	06-16-94	4	80,800	04-09-69	85

Combined storage in the four Missouri River reservoirs (Lakes Oahe, Sharpe, Francis Case, and Lewis and Clark) was 23,990,000 acre-feet on September 30, 1994, a decrease of 1,354,000 acre-feet during water year 1994. The decrease in storage resulted from increased winter flow releases during January to March to provide for flood-control storage. Inflow to Lake Oahe during water year 1994, as recorded at station 06342500, Missouri River at Bismarck, North Dakota, was about 12,010,000 acre-feet (73 percent of normal for 1976-93) while outflow from the Missouri River system, as recorded at station 06467500, Missouri River at Yankton was 17,080,000 acre-feet (83 percent of normal for 1976-93.) Monthend contents for water year 1994 for Lake Oahe, which represents about one-third of the total storage in the main-stem system in Montana, North Dakota, and South Dakota, are depicted in figure 2. The monthend contents in figure 2 for water year 1994 are compared to the distribution of the monthend contents since the reservoir first reached its normal maximum pool level in 1968. The reservoir contents were at or above record maximums through December. The contents decreased to near normal by April and remained near normal for the remainder of water year 1994.

Table 3.--Peak streamflow for stations where water year 1994 stage and/or flow values exceeded previous peak values

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

Gaging-station number and name		Period of record (water years)	Water year 1994 maximum			Period of record maximum		
			Date	Gage height (ft)	Stream-flow (ft^3/s)	Date	Gage height (ft)	Stream-flow (ft^3/s)
		Continuous-record gages						
05292704	North Fork Yellow Bank River near Odessa, MN	1992-94	7-08-94	14.62	2,580	6-18-92	13.32	2,020
06392900	Beaver Creek at Mallo Camp, near Four Corners, WY	1975-82, 1992-94	4-22-94	2.14	103	6-07-93	2.10	75
06408700	Rhoads Fork near Rochford	1983-94	6-21-94	3.96	7.3	3-16-85	2.00	9.7
						7-23-82	2.19	(1)
06425500	Elk Creek near Elm Springs	1950-94	6-08-94	14.21	5,570	3-29-52	10.61	8,540
						2-27-86	13.25	(1)
06430770	Spearfish Creek near Lead	1989-94	4-25-94	7.74	66	6-08-93	7.64	51
						1-29-91	7.79	(1)
06430800	Annie Creek near Lead	1989-94	4-22-94	5.08	25	6-08-93	4.96	19
						3-17-93	5.18	(1)
06434500	Inlet Canal near Belle Fourche	1946-94	3-05-94	11.48	1,250	6-08-93	11.48	1,440
			3-03-94	12.12	(1)			
06446100	Wounded Knee Creek at Wounded Knee	1993-94	3-06-94	3.54	34	6-09-93	2.30	20
						2-09-93	3.34	(1)
06447230	Blackpipe Creek near Belvidere	1993-94	6-22-94	9.30	2,620	6-29-93	6.34	1,760
06452000	White River near Oacoma	1929-94	3-04-94	[1]24.70	25,000	3-30-52	15.40	51,900
						3-14-78	23.59	(1)
06471000	James River at Columbia	1946-94	4-26-94	15.57	1,350	5-03-79	16.15	2,340
			3-23-94	17.17	(1)	3-24-87	17.11	(1)
		Crest-stage gages						
06440850	Medicine Creek near Philip	1989-94	7-12-94	7.75	268	6-15-91	6.82	(2)
06441100	Plum Creek near Hayes	1989-94	2-18-94	5.10	400	6-07-93	2.73	67
06463900	Antelope Creek near Mission	1990-94	5-03-94	6.23	61	5-01-93	6.00	53

[1]Backwater.
[2]Not determined.

Water Quality

The dissolved-solids concentrations of surface-water samples collected during water year 1994 are compared to concentrations measured in previous years using boxplots (fig. 3). Of the 10 stations shown in figure 3, five (Cheyenne River near Cherry Creek, Belle Fourche River near Elm Springs, White River near Oacoma, James River near Scotland, and Big Sioux River at Akron) are National Stream-Quality Accounting Network (NASQAN) stations, three (Grand River at Little Eagle, Moreau River near Whitehorse, and James River at Columbia) are discontinued NASQAN stations, and two (Castle Creek above Deerfield Reservoir and Little Vermillion River near Salem) are Hydrologic Benchmark stations. The boxplots for the Moreau River near Whitehorse, the Grand River at Little Eagle, the James River at Columbia, and the Little Vermillion River near Salem stations are for specific conductance, a field measurement that varies similarly to dissolved-solids concentration.

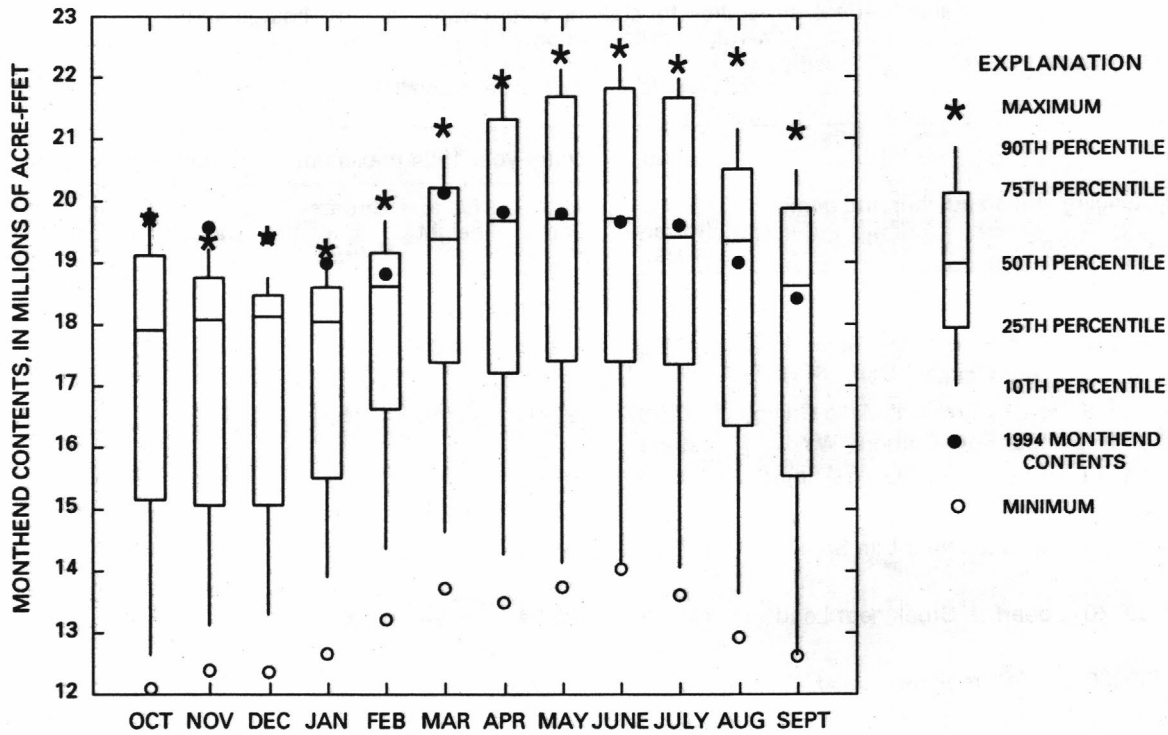


Figure 2.--Comparison of monthend contents of Lake Oahe for water year 1994 with distributions of monthend contents for water years 1969-93.

Boxplots are also 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 1994 values are plotted with a closed circle to show where these data lie with respect to the historic distribution of data.

The boxplots of dissolved-solids concentrations for selected South Dakota stations (fig. 3) generally illustrate an inverse relation with discharge (fig. 1). Smaller median dissolved-solids concentrations generally occur during months that have larger mean discharges. Larger median dissolved-solids concentrations generally occur during months that have smaller mean discharges. Some of the sites show seasonal differences in the variability of dissolved-solids concentrations. 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 dissolved-solids concentrations at some sites during the winter and spring months. Small variability in dissolved-solids concentrations often occurs during the months of August through November when base-flow conditions may occur.

Dissolved-solids concentrations ranged from as little as 257 milligrams per liter in the August sample for the Castle Creek above Deerfield Reservoir station to as much as 2,470 milligrams per liter in the December sample for the Belle Fourche River near Elm Springs station. For sites west of the Missouri River, dissolved-solids concentration and specific-conductance measurements during fall and winter tended to be near or below the long-term 50th percentiles, and generally were associated with above-normal flow conditions. An exception to this pattern was the February specific-conductance

measurement at the Moreau River near Whitehorse station that was the greatest recorded of any February sample at that site and was made during low-flow conditions. During spring, dissolved-solids concentrations and specific-conductance measurements generally were near or below long-term 50th percentiles, and generally were associated with near-normal to above-normal flow conditions. Exceptions to this pattern were the March and May dissolved-solids concentrations for the White River near Oacoma station that were above the long-term 75th percentiles and were associated with low-flow conditions at the times of sample collection. During summer, dissolved-solids concentrations and specific-conductance measurements generally were near the long-term 50th percentiles and generally were associated with variable but near-normal flow conditions. Exceptions to this pattern include: the July specific-conductance measurement at the Grand River at Little Eagle station was below the long-term 25th percentile and was associated with high-flow conditions at the time of measurement; and the July dissolved-solids concentration for the Cheyenne River near Cherry Creek station was above the long-term 75th percentile and was associated with low-flow conditions at the time of measurement.

For sites east of the Missouri River in South Dakota, dissolved-solids concentrations and specific-conductance measurements during all of water year 1994 generally were below or near long-term 50th percentiles and generally were associated with high-flow conditions that persisted during water year 1994 in eastern South Dakota. The November dissolved-solids concentration for the James River near Scotland was lower than the previous minimum for any November sample at that site. A notable exception to the pattern of below-normal dissolved-solids concentration and specific conductance associated with above-normal streamflow was the Little Vermillion River near Salem station that had water year 1994 specific-conductance measurements that nearly all exceeded the 75th percentiles and were associated with high-flow conditions. Several of water year 1994 specific-conductance measurements for this site were the highest ever recorded for the given months in which they were measured. The pattern of elevated specific conductance associated with high-flow conditions is not typical for streams in eastern South Dakota. The high-flow conditions of water years 1993 and 1994 may have resulted in the following situations that could possibly explain the unusual pattern: (1) sloughs 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

Water levels in wells and the quality of water from wells are key measurements in monitoring ground-water trends. During water year 1994, the U.S. Geological Survey regularly monitored several observation wells in South Dakota. The hydrographs in figure 4 are from seven of the wells in the observation-well network. Net water-level changes during the water year for four of the seven wells historically have correlated with precipitation in the areas where the wells are located; water year 1994 was similar. The water level in the Aurora County well (southeast part of the State where precipitation was 3.16 inches less than normal) had a net decline of 2.96 feet. The water level in the Beadle County well (east-central part where precipitation was 1.37 inches greater than normal) had a net rise of 6.26 feet. The water level in the Codington County well (northeast part where precipitation was 2.56 inches greater than normal) had a net decline of 0.35 foot. The water level in the Lincoln County well (southeast part where precipitation was 3.16 inches less than normal) had a net decline of 2.08 feet. The decline in the Lincoln County well probably resulted from the less than normal precipitation received in the southeast part of the State during 1994. Water-level fluctuations in the Marshall County well generally do not react directly to precipitation; however, the water level during 1994 had a net rise of 0.40 foot and precipitation in the northeast part of the State was 2.56 inches greater than normal. Water-level fluctuations in the two Shannon County wells historically have not appeared to react directly to precipitation; however, the water level in the wells averaged a net decline of 0.22 foot and precipitation in the southwest area was 3.25 inches less than normal. Water levels recorded during 1994 for the seven wells shown on the map in figure 4 are presented in the Ground-Water Levels section of this report.

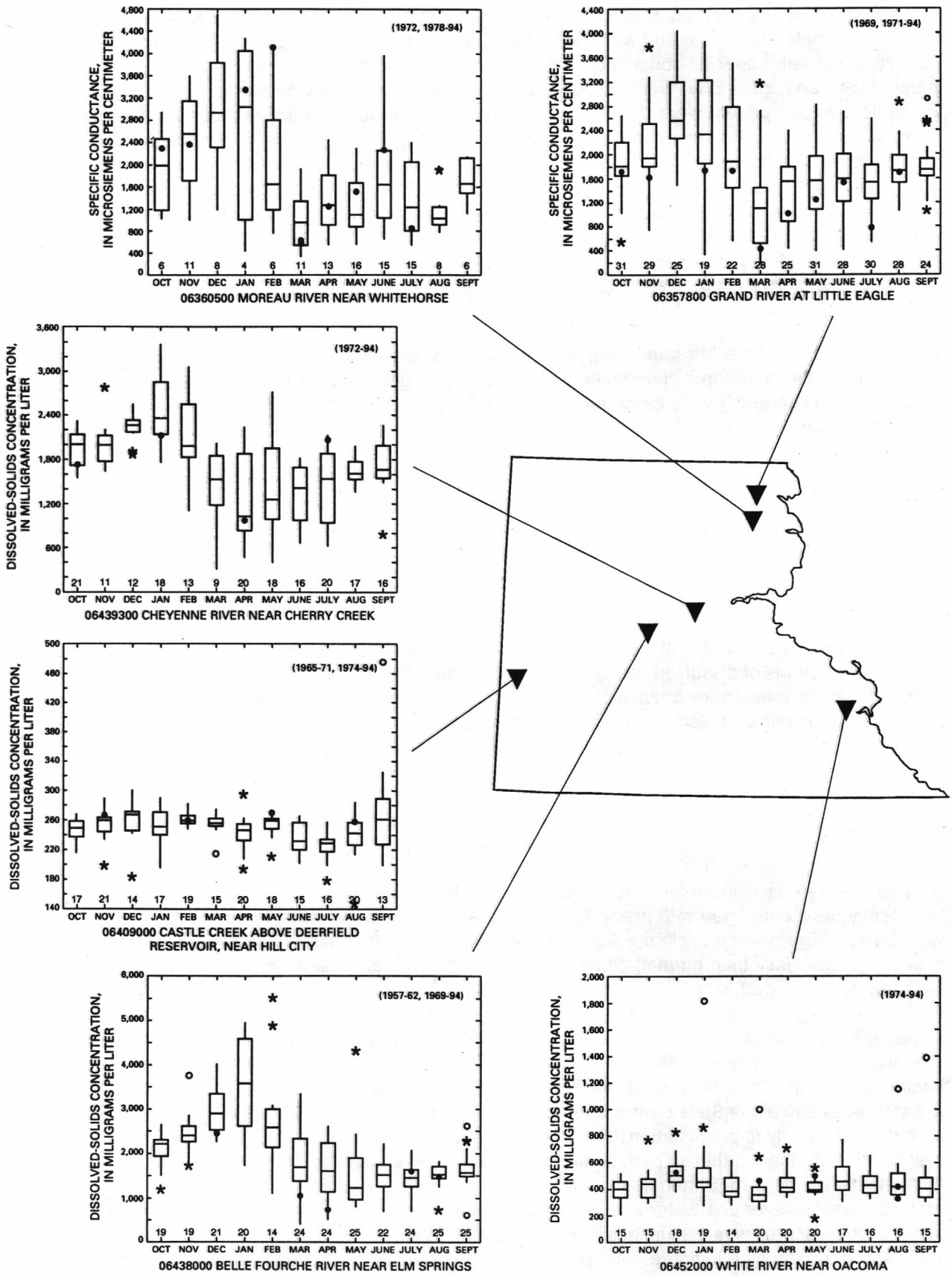


Figure 3.--Comparison of 1994 monthly dissolved-solids concentrations or specific conductance to the distributions of long-term monthly values.

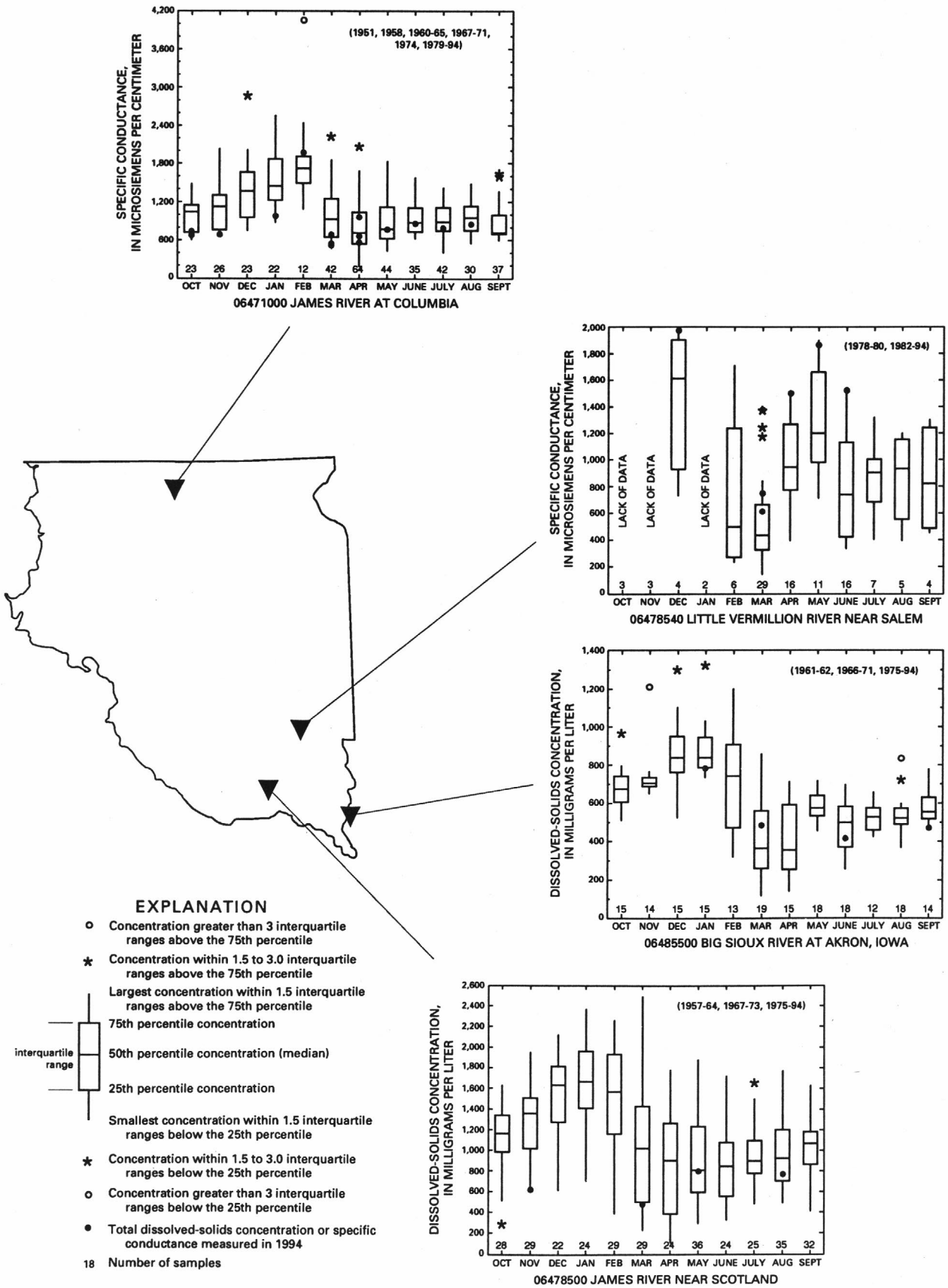


Figure 3.--Comparison of 1994 monthly dissolved-solids concentrations or specific conductance to the distributions of long-term monthly values.--Continued

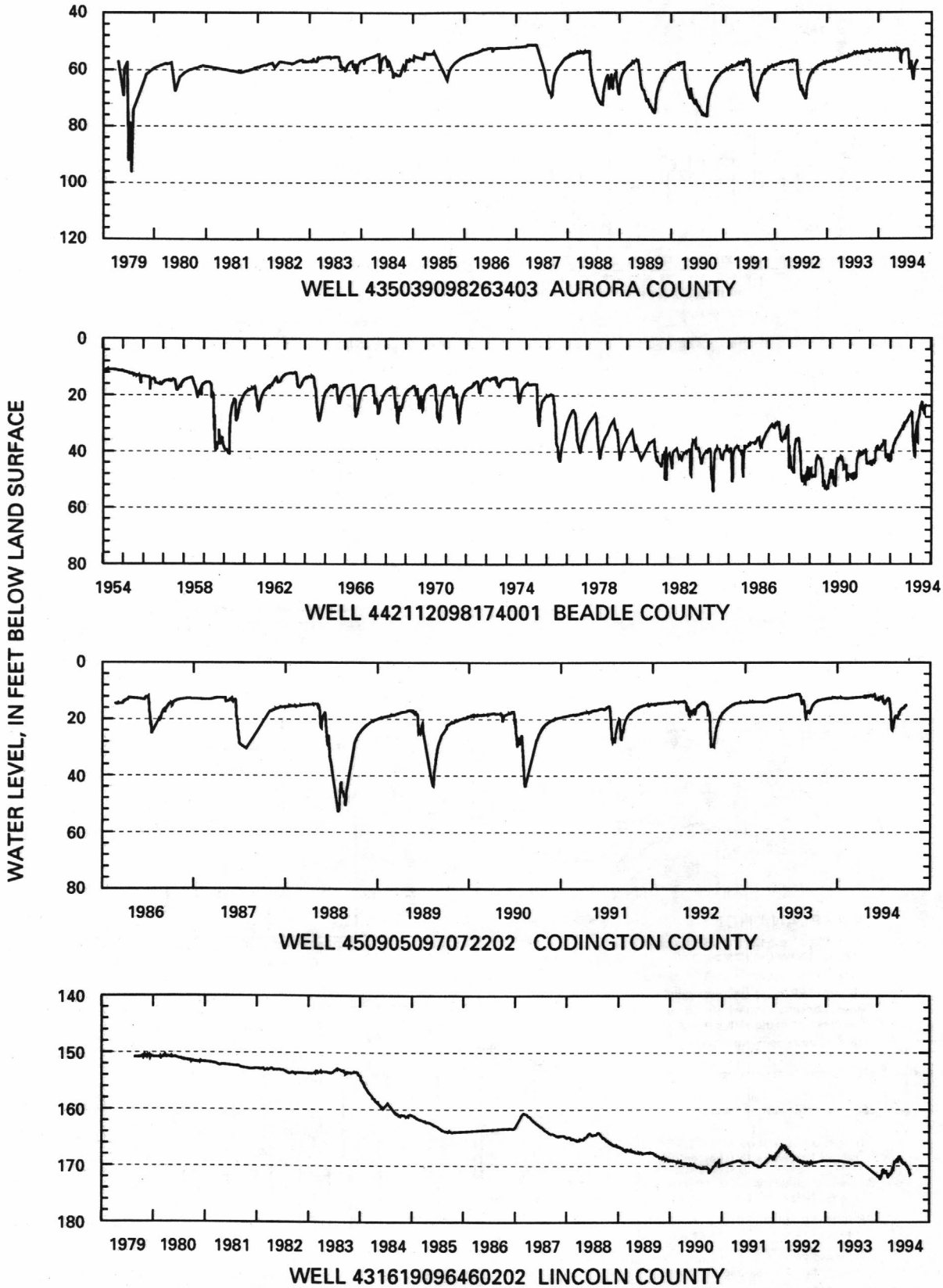


Figure 4.--Water levels from selected observation wells.

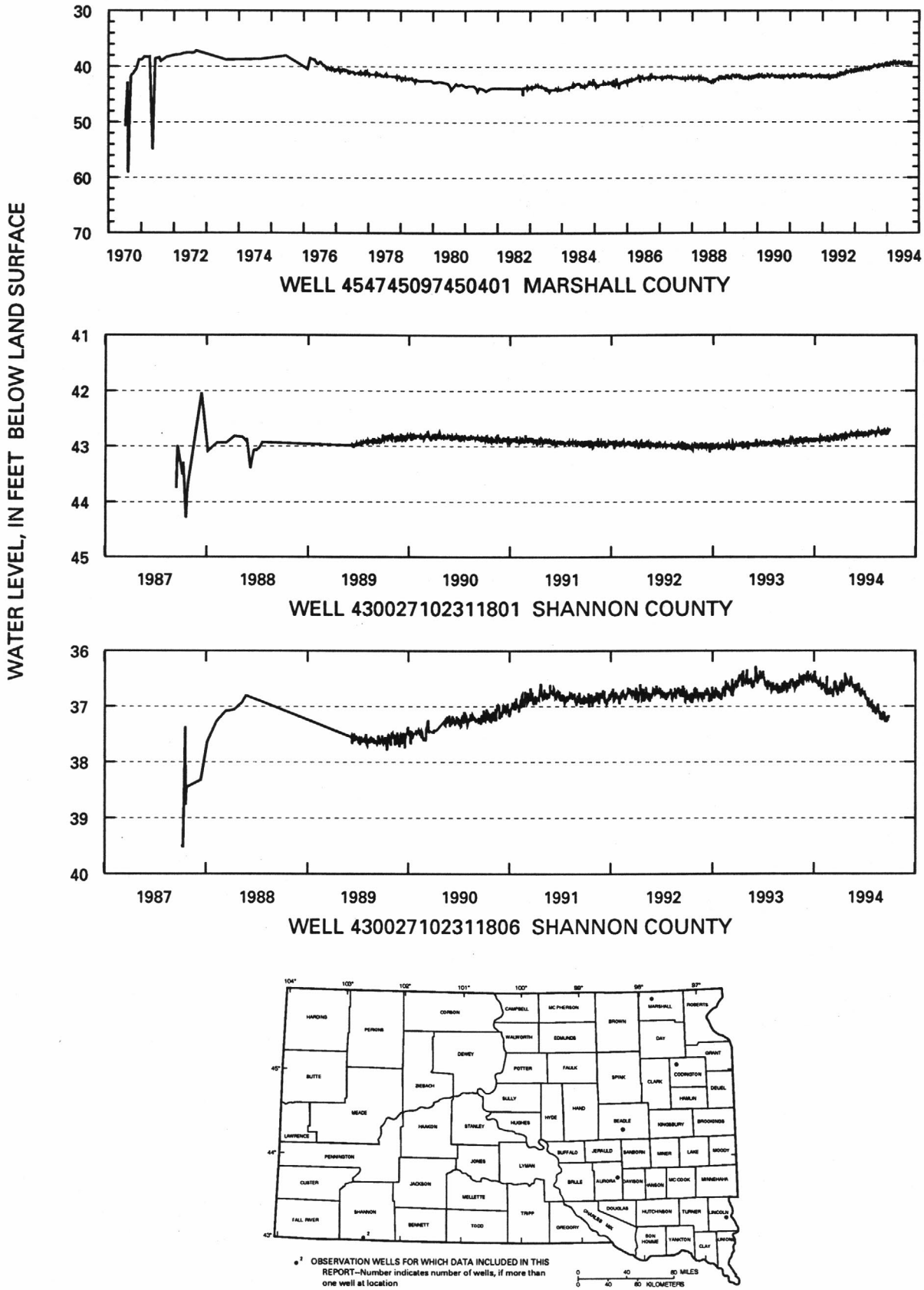


Figure 4.--Water levels from selected observation wells.--Continued

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 53 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 the activities of man.

National Stream-Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 284 sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The primary objective of NASQAN is to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for: (1) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs; (2) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics; and (3) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a network of about 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1994 water year that began October 1, 1993, and ended September 30, 1994. 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

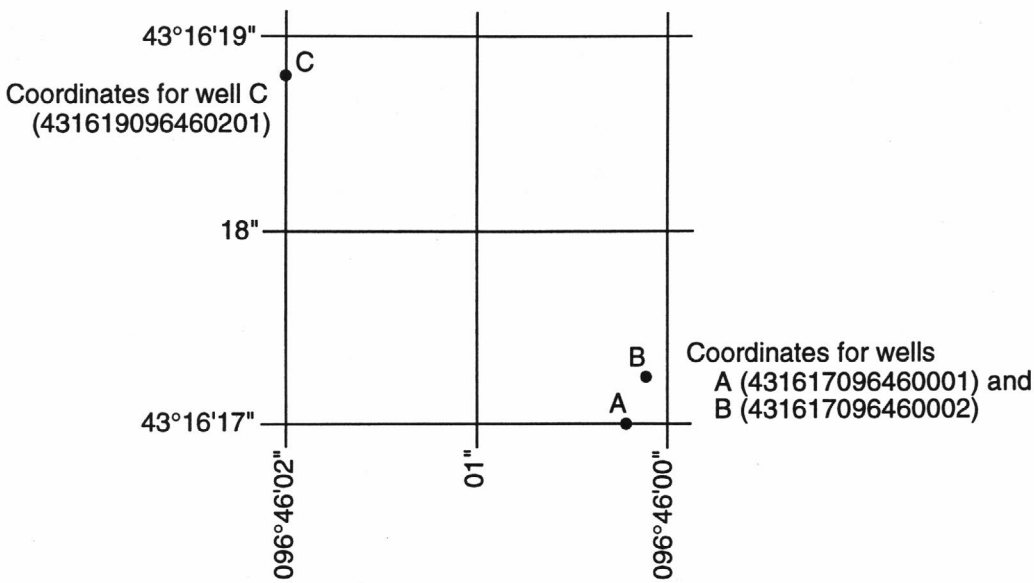
Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream 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 06442500, which appears just to the left of the station name, includes the two-digit Part number "06" plus the six-digit downstream-order number "442500." 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.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of four 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; and 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.

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.

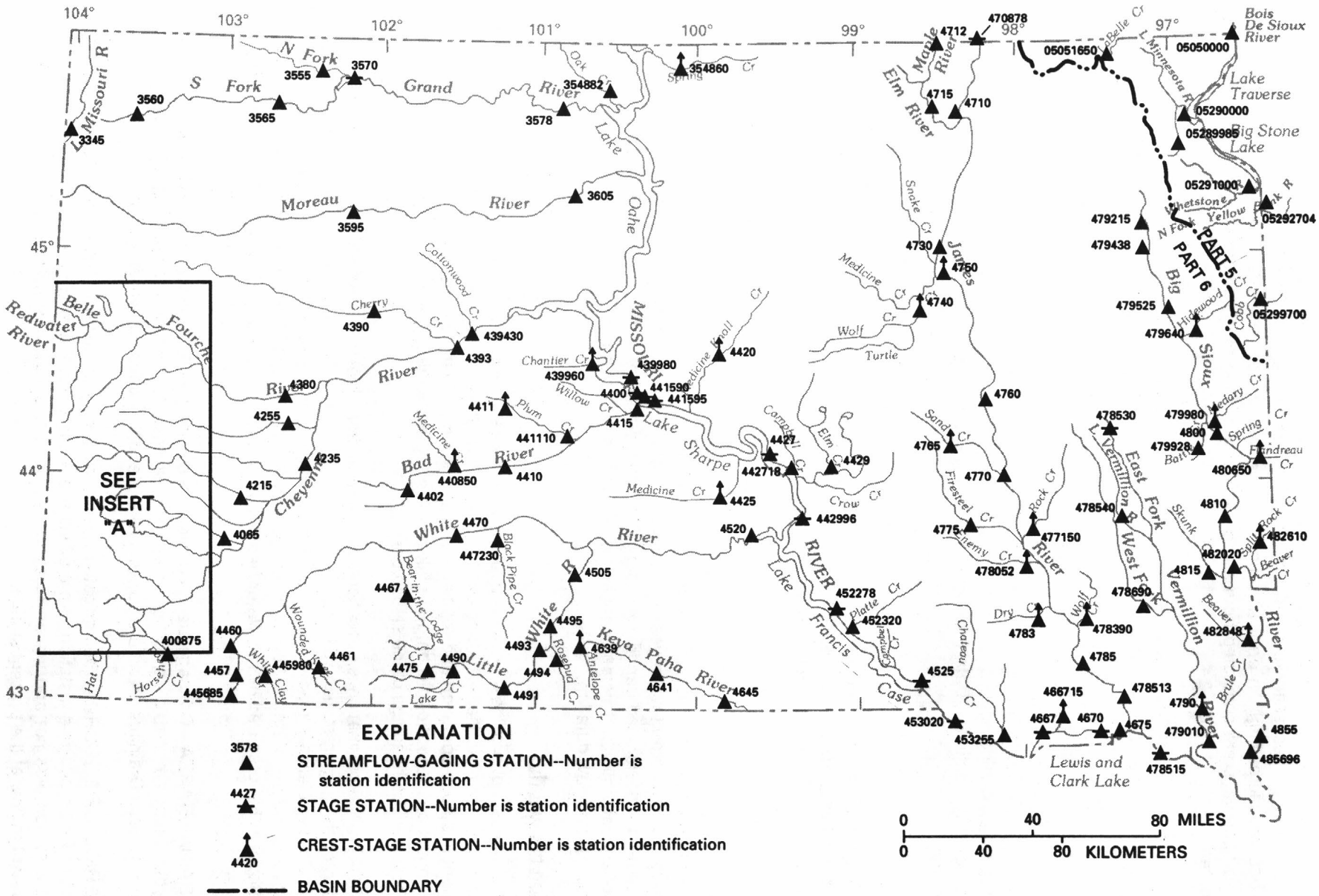


Figure 5.--Location of surface-water gaging stations.

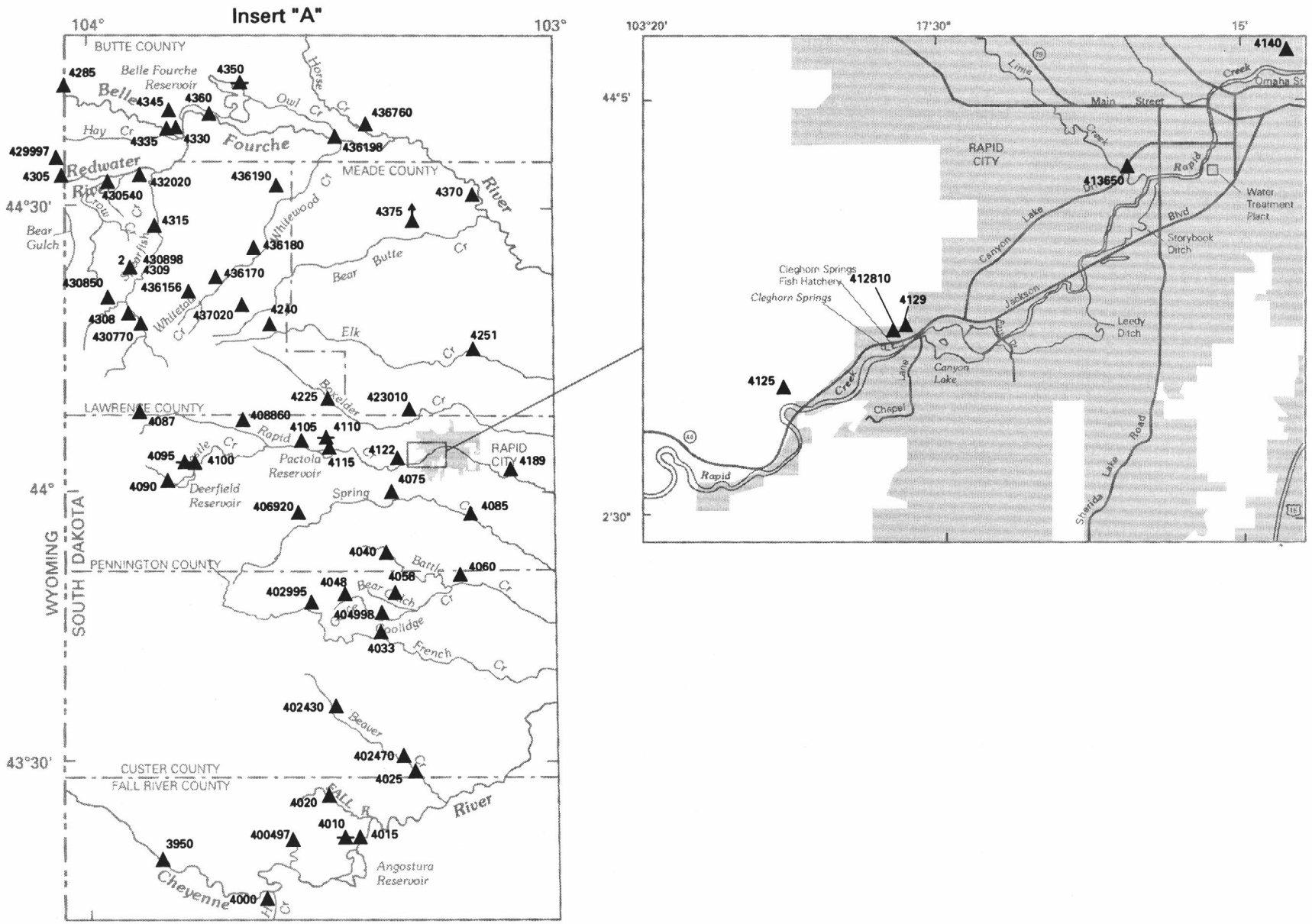


Figure 5.--Location of surface-water gaging stations.--Continued

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, except for the listing of secondary instantaneous peak discharges in the EXTREMES FOR CURRENT YEAR paragraph, 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.

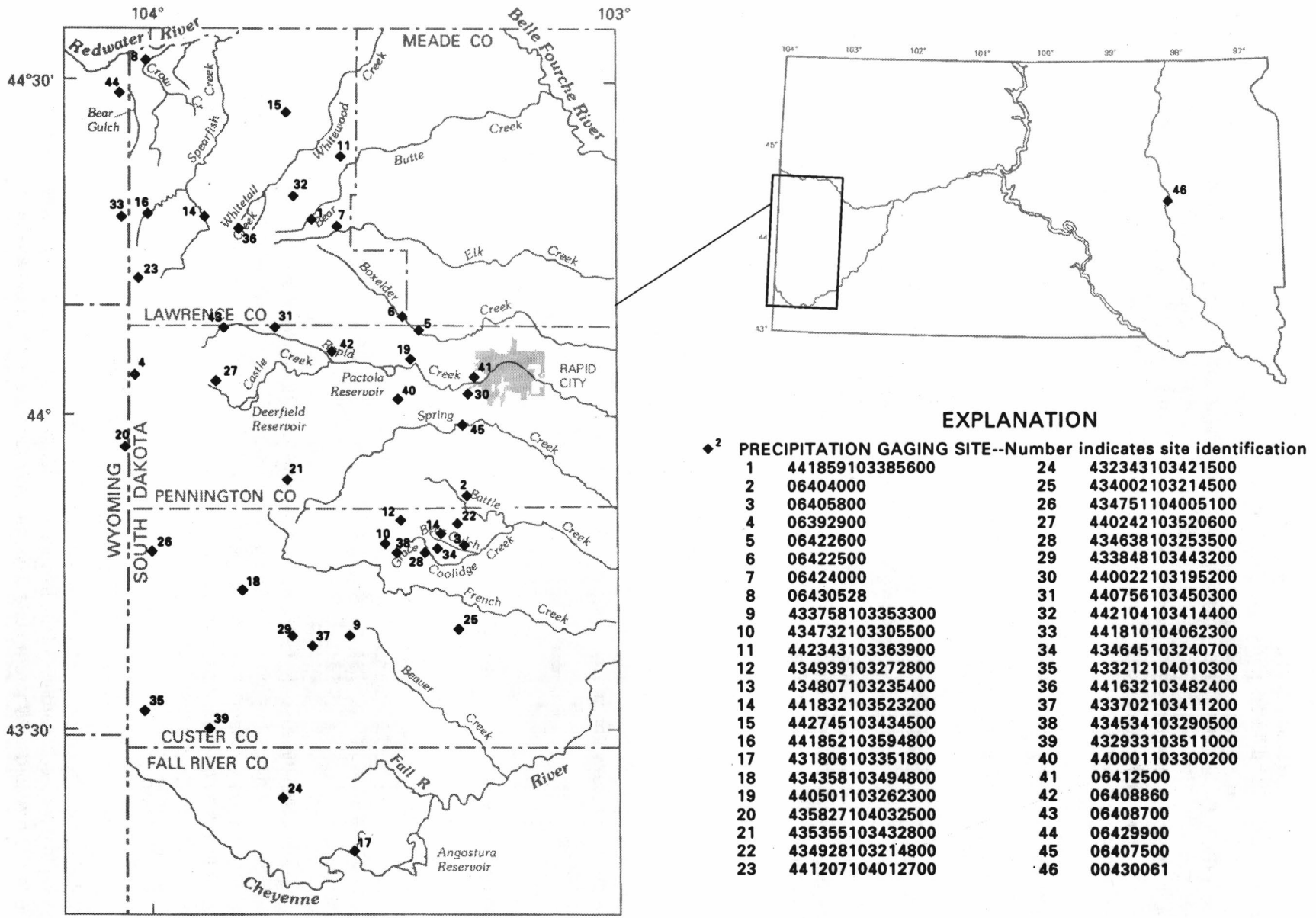
Classification of Records

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 7.

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



1	441859103385600	24	432343103421500
2	06404000	25	434002103214500
3	06405800	26	434751104005100
4	06392900	27	440242103520600
5	06422600	28	434638103253500
6	06422500	29	433848103443200
7	06424000	30	440022103195200
8	06430528	31	440756103450300
9	433758103353300	32	442104103414400
10	434732103305500	33	441810104062300
11	442343103363900	34	434645103240700
12	434939103272800	35	433212104010300
13	434807103235400	36	441632103482400
14	441832103523200	37	433702103411200
15	442745103434500	38	434534103290500
16	441852103594800	39	432933103511000
17	431806103351800	40	440001103300200
18	434358103494800	41	06412500
19	440501103262300	42	06408860
20	435827104032500	43	06408700
21	435355103432800	44	06429900
22	434928103214800	45	06407500
23	441207104012700	46	00430061

Figure 6.--Location of precipitation stations.

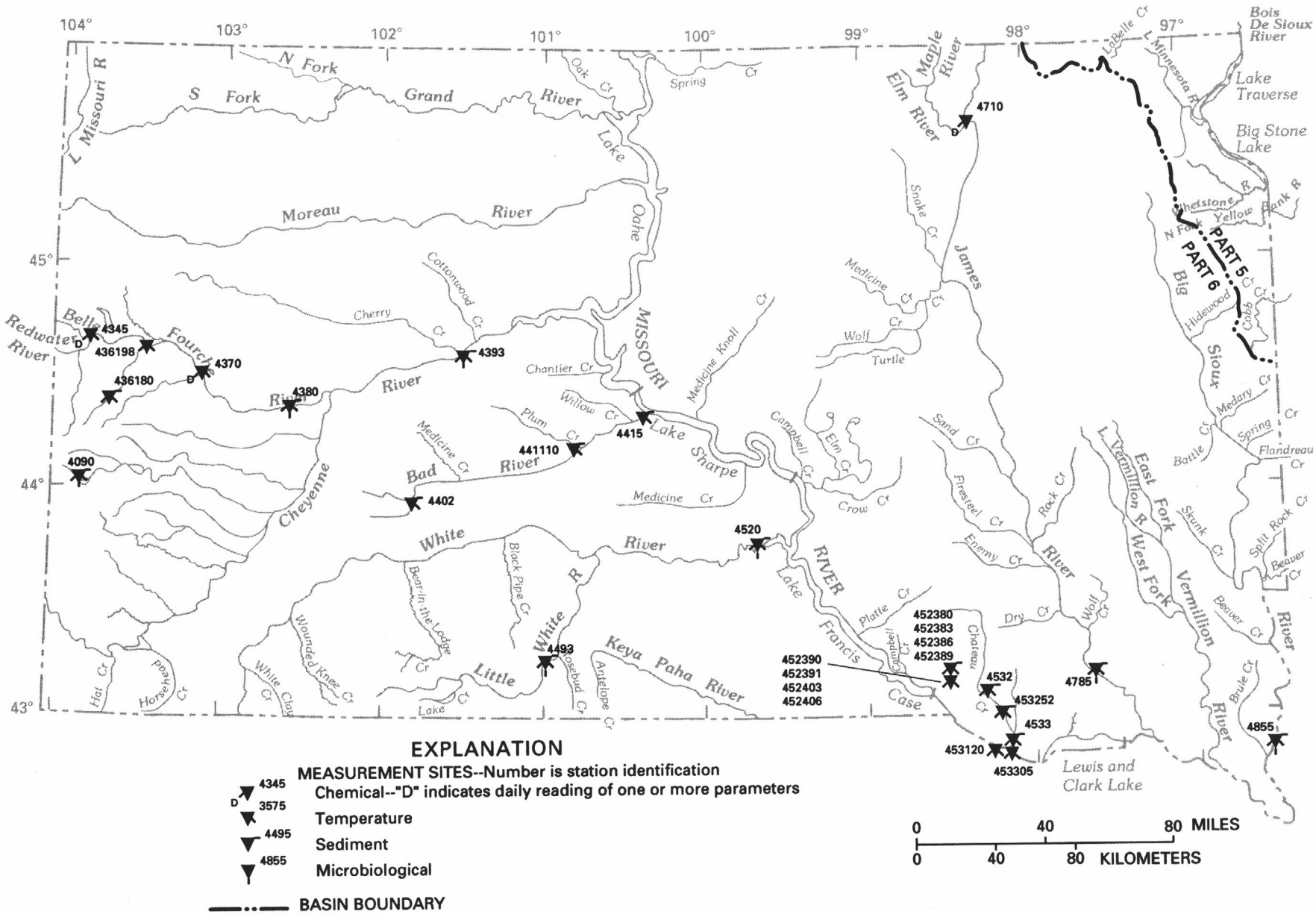


Figure 7.--Location of surface-water quality stations.

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.

Historical and current (1994) 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 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. Those measurements and others collected for some special reason are given in the section, "MISCELLANEOUS DISCHARGE MEASUREMENTS." 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) National Geodetic Vertical Datum of 1929 (NGVD of 1929); 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 (1994) 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 WATSTORE DATA

The U.S. Geological Survey is the principal Federal water-data agency and, as such, collects and disseminates about 70 percent of the water data currently being used by numerous State, local, private, and other Federal agencies to develop and manage our water resources. As part of the Geological Survey's program of releasing water data to the public, a large-scale computerized system has been developed for the storage and retrieval of water data collected through its activities. The National Water Data Storage and Retrieval System (WATSTORE) was established in 1972 to provide an effective and efficient means for the processing and maintenance of water data collected through the activities of the

U.S. Geological Survey and to facilitate release of the data to the public. A variety of useful products, ranging from data tables to complex statistical analyses such as Log Pearson Type III, can be produced using WATSTORE. The system resides on the central computer facilities of the U.S. Geological Survey at its National Center in Reston, Virginia, and consists of related files and data bases.

- Station Header File - Contains descriptive information on more than 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.
- Daily Values File - Contains more than 220 million daily values of stream flows, stages, reservoir contents, water temperatures, specific conductances, sediment concentrations, sediment discharges, and ground-water levels.
- Peak Flow File - Contains approximately 500,000 maximum (peak) streamflow and gage-height values at surface-water sites.
- Water Quality File - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radio-chemical characteristics of both surface and ground water.
- Ground-Water Site Inventory Data Base - Contains inventory data for more than 900,000 wells, springs, and other sources of ground water. The data includes site location, geohydrologic characteristics, well-construction history, and one-time field measurements such as water temperature.

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requester will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey
National Water Data Exchange
421 USGS National Center
Reston, VA 22092

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk; and, as noted in the introduction, on CD-ROM discs. Beginning with the 1990 water year, all water-data reports will also be available on CD-ROM discs. All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc. 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's District offices. (See address on the back of the title page.) A limited number of CD-ROM discs will be available for sale by the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, CO 80225.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also the table for converting English units to International System of units (SI) on the inside of the back cover.

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 or about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important to the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living

material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

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

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

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

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaeobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as Gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

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

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.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, 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 salt water.

Cubic foot per second (ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

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

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

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

Dissolved refers to that material in a representative water sample which passes through a 0.45 µm 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-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 the 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 0.492 to reflect the change.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the Earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary 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 particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

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

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-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 the water surface in a well is measured to obtain the water level.

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

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

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

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute 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.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both 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.

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per unit area habitat, usually square meters (m^2), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

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

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle-size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) 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 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.....	.004 - .062	Sedimentation
Sand	.062 - 2.0	Sedimentation or 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.

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

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

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

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

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

Milligrams of carbon per area or volume per unit time [mg C/(m^2•time)] for periphyton and macrophytes and [mg C/(m^3•time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg O_2/(m^2•time)] for periphyton and macrophytes and [mg O_2/(m^3•time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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 only 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.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

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 both the United States and Canada, formerly called Sea Level Datum of 1929.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it 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 at any given time 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).

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

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a 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 general term that refers to material in suspension. It is not synonymous with either 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, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow (7 Q_{10}) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

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 about 65 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-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

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

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

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

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

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

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

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter. 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 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.

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

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	Hexagenia
Species	Hexagenia limbata

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

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water 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 indicates 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) is the quantity of substance in solution or suspension that passes a stream section during a 24-hour period.

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

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-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 (NTU) is based on the comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension of Formazin polymer under the same conditions.

Water year in 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, 1986, is called the "1986 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.

WSP is used as an abbreviation for "Water-Supply Paper" in references 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."

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.

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.

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.

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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.

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.

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PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

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-Al0. *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 soluable waste transport and buildup in surface waters using tracers,* by F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A20. 1993. 38 pages.

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.

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

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.

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.

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.

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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.

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.

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

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.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

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.

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.

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.

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).
&	Biological organism estimated as dominant.

Dissolved Trace-Element Concentrations

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

RED RIVER OF THE NORTH BASIN

05050000 BOIS DE SIOUX RIVER NEAR WHITE ROCK, SD

LOCATION.--Lat 45°51'45", long 96°34'25", in SW1/4 SW1/4 sec.27, T.128 N., R.47 W., Roberts County, Hydrologic Unit 09020101, on Sisseton Indian Reservation, on left bank just downstream from Big Slough Outlet, 300 ft downstream from White Rock Dam, 4 mi south of White Rock, SD and 5 mi northwest of Wheaton.

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 period which are poor. Flow regulated by Lake Traverse-Boise de Sioux Flood Control and Water Conservation project (available capacity for flood control, 137,000 acre-ft).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	983	79	e5.8	e6.8	e6.6	e7.7	516	1180	1070	45	592	10
2	972	55	e5.6	e6.7	e6.6	e7.7	540	1170	1050	4.4	522	11
3	960	54	e5.5	e6.7	e6.7	e7.7	467	1160	1030	4.2	473	14
4	938	55	e5.4	e6.6	e6.8	e7.7	604	1170	1000	4.3	362	15
5	929	54	e5.4	e6.6	e6.8	e7.7	921	1160	980	4.6	356	14
6	916	54	e5.4	e6.6	e6.8	e7.7	1190	1110	956	5.4	304	13
7	889	47	e5.4	e6.6	e6.8	e7.7	1370	1120	929	192	269	12
8	866	45	e5.8	e6.6	e7.0	e7.9	1400	1120	831	422	262	11
9	846	44	e6.6	e6.6	e7.0	e8.2	1420	1110	742	474	256	11
10	830	30	e6.8	e6.6	e7.0	e9.0	1390	1100	717	584	204	11
11	794	5.9	e7.0	e6.6	e7.0	e100	1380	1110	693	738	152	10
12	706	4.7	e7.1	e6.6	e7.1	e200	1290	1090	668	858	124	7.7
13	646	4.7	e7.2	e6.6	e7.2	e210	1170	1090	564	891	100	7.8
14	617	4.7	e7.2	e6.6	e7.4	e240	1150	1100	477	890	97	7.9
15	523	4.3	e7.1	e6.6	e7.4	e270	1170	1090	371	853	94	8.6
16	409	4.4	e7.1	e6.6	e7.5	e320	1140	1080	290	804	59	5.7
17	406	4.5	e7.1	e6.6	e7.6	e360	1120	1070	326	701	6.9	6.0
18	404	5.0	e7.0	e6.6	e7.6	e410	1120	1080	365	768	5.5	5.5
19	399	4.9	e7.0	e6.6	e7.6	e480	1110	1080	354	1040	5.0	5.3
20	399	5.4	e7.0	e6.6	e7.6	e550	1100	1070	266	1170	4.5	4.1
21	393	e5.8	e6.9	e6.6	e7.6	e410	1090	1080	135	1170	4.1	2.5
22	295	e6.1	e6.9	e6.6	e7.6	e300	1080	1080	121	1130	3.5	2.8
23	184	e5.5	e6.9	e6.6	e7.6	e220	1070	1090	119	1090	3.9	3.7
24	182	e6.0	e6.8	e6.6	e7.6	e190	1070	1100	120	1060	3.6	3.9
25	184	e6.6	e6.8	e6.6	e7.6	e170	1080	1100	121	1040	4.1	3.2
26	185	e6.8	e6.8	e6.6	e7.6	e160	1110	1100	120	1010	11	3.2
27	181	e6.8	e6.8	e6.6	e7.6	e150	1120	1100	91	978	8.3	2.3
28	185	e6.6	e6.8	e6.6	e7.6	e150	1120	1100	63	952	7.5	1.6
29	142	e6.4	e6.8	e6.6	---	e250	1140	1090	62	917	10	1.3
30	107	e6.2	e6.8	e6.6	---	465	1180	1090	61	838	11	1.6
31	103	---	e6.8	e6.6	---	484	---	1080	---	721	10	---
TOTAL	16573	628.3	203.6	205.0	202.9	6168.0	32628	34270	14692	21358.9	4324.9	216.7
MEAN	535	20.9	6.57	6.61	7.25	199	1088	1105	490	689	140	7.22
MAX	983	79	7.2	6.8	7.6	550	1420	1180	1070	1170	592	15
MIN	103	4.3	5.4	6.6	6.6	7.7	467	1070	61	4.2	3.5	1.3
AC-FT	32870	1250	404	407	402	12230	64720	67970	29140	42370	8580	430
CFSM	.46	.02	.01	.01	.01	.17	.94	.95	.42	.59	.12	.01
IN.	.53	.02	.01	.01	.01	.20	1.05	1.10	.47	.68	.14	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1994, BY WATER YEAR (WY)

MEAN	25.8	11.8	4.87	2.59	3.32	28.8	216	260	235	167	74.9	37.0
MAX	535	258	57.5	36.0	53.0	227	1322	1310	1103	1035	1182	1062
(WY)	1994	1985	1985	1987	1966	1985	1969	1969	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1942 - 1994	
ANNUAL TOTAL	143443.9		131471.3			
ANNUAL MEAN	393		360		89.2a	
HIGHEST ANNUAL MEAN					360	1994
LOWEST ANNUAL MEAN					.38	1977
HIGHEST DAILY MEAN	1290	Aug 4	1420	Apr 9	3380	Apr 20 1969
LOWEST DAILY MEAN	4.1	Feb 14	1.3	Sep 29	.00	Oct 1 1941
ANNUAL SEVEN-DAY MINIMUM	4.1	Feb 14	2.4	Sep 24	.00	Oct 1 1941
INSTANTANEOUS PEAK FLOW			1550	Apr 8	3770b	Apr 19 1969
INSTANTANEOUS PEAK STAGE			11.88	Apr 8	15.07b,c	Apr 19 1969
ANNUAL RUNOFF (AC-FT)	284500		260800		64610	
ANNUAL RUNOFF (CFSM)	.34		.31		.077	
ANNUAL RUNOFF (INCHES)	4.60		4.22		1.04	
10 PERCENT EXCEEDS	1110		1100		273	
50 PERCENT EXCEEDS	159		62		2.0	
90 PERCENT EXCEEDS	4.4		5.4		.00	

a Median of annual mean discharges is 54 ft^3/s.
b Occurred during period Apr. 19-21, 1969.
c From floodmark.
e Estimated.

RED RIVER OF THE NORTH BASIN

05051650 LA BELLE CREEK NEAR VEBLEN, SD

LOCATION.--Lat 45°53'33", long 97°21'40", in SW1/4 SW1/4 SW1/4 SE1/4 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 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.21	e.40	e.66	e.41	e.60	e19	27	.50	.00	.10	.00
2	.14	.25	e.50	e.67	e.41	e.66	e19	21	.44	.00	.09	.18
3	.13	.26	e.60	e.72	e.37	e1.0	e18	18	.38	.00	.05	.21
4	.10	.27	e.70	e.68	e.36	e1.5	e18	15	.34	.17	.06	.10
5	.09	.24	e.80	e.71	e.36	e5.0	e17	13	.30	.16	.04	.06
6	.15	.18	e.85	e.70	e.33	e15	e17	11	.25	.05	.02	.03
7	.23	.22	e.85	e.70	e.30	e2.2	e15	9.2	.22	1.3	e.02	.02
8	.26	.26	e.90	e.74	e.29	e1.0	e14	7.9	.23	18	e.01	.01
9	.25	.28	e.78	e.72	e.28	e.80	e13	6.3	.20	7.8	e.15	.00
10	.25	.25	e.68	e.65	e.28	e.70	e13	5.1	.19	5.3	e.20	.00
11	.24	.29	e.67	e.57	e.29	e.60	e12	4.5	.19	4.7	.11	.00
12	.23	.25	e.67	e.57	e.29	e.70	e11	3.6	.18	3.3	.11	.00
13	.24	.29	e.62	e.53	e.30	e.70	9.7	3.3	.18	2.7	.09	.48
14	.21	.29	e.55	e.57	e.31	e3.0	9.4	5.7	.12	2.9	.06	.17
15	.19	.31	e.53	e.58	e.31	e3.5	12	4.1	.08	2.1	.03	.08
16	.17	.32	e.51	e.59	e.31	e2.0	9.7	3.2	.40	1.5	.01	.04
17	.17	.31	e.60	e.56	e.31	e1.0	7.8	2.6	.35	1.2	.01	.03
18	.18	.33	e.72	e.59	e.45	e15	7.4	2.4	.28	1.1	.00	.02
19	.19	.33	e.70	e.54	e.51	e30	5.5	2.2	.23	1.1	.00	.01
20	.15	.32	e.70	e.49	e.50	e35	4.4	2.0	.19	1.2	.00	.02
21	.14	.36	e.70	e.46	e.45	e75	4.3	1.8	.09	.97	.00	.27
22	.15	e.13	e.69	e.42	e.40	e50	3.6	1.7	.30	.97	.00	.23
23	.17	e.18	e.72	e.41	e.40	e26	3.6	1.6	.27	.76	.00	.16
24	.17	e.20	e.86	e.41	e.40	e24	3.2	1.7	.15	.58	.00	.11
25	.18	e.20	e.70	e.41	e.40	e23	9.1	1.5	.06	.49	.00	.08
26	.17	e.30	e.83	e.41	e.40	e22	33	1.2	.02	.38	.01	.06
27	.17	e.34	e.85	e.41	e.50	e21	28	1.1	.02	.34	.00	.06
28	.18	e.30	e.85	e.40	e.50	e21	22	.99	.02	.28	.00	.05
29	.16	e.30	e.86	e.36	---	e20	27	.90	.01	.25	.00	.05
30	.18	e.30	e.68	e.38	---	e20	30	.76	.00	.19	.00	.05
31	.14	---	e.67	e.39	---	e20	---	.60	---	.14	.00	---
TOTAL	5.47	8.07	21.74	17.00	10.42	441.96	415.7	180.95	6.19	59.93	1.17	2.58
MEAN	.18	.27	.70	.55	.37	14.3	13.9	5.84	.21	1.93	.038	.086
MAX	.26	.36	.90	.74	.51	75	33	27	.50	18	.20	.48
MIN	.09	.13	.40	.36	.28	.60	3.2	.60	.00	.00	.00	.00
AC-FT	11	16	43	34	21	877	825	359	12	119	2.3	5.1

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1994, BY WATER YEAR (WY)

MEAN	.026	.058	.11	.080	.18	3.96	4.87	1.48	1.91	2.99	1.17	.18
MAX	.18	.27	.70	.55	.50	14.3	13.9	5.84	6.46	14.1	7.42	.77
(WY)	1994	1994	1994	1994	1992	1994	1994	1994	1993	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1988 - 1994	
ANNUAL TOTAL	1595.97		1171.18			
ANNUAL MEAN	4.37		3.21		1.42	
HIGHEST ANNUAL MEAN					4.29	1993
LOWEST ANNUAL MEAN					.056	1990
HIGHEST DAILY MEAN	81	Jul 17	75	Mar 21	81	Jul 17 1993
LOWEST DAILY MEAN	.00	Jan 1	.00	Jun 30a	.00	Oct 1 1987a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Aug 18	.00	Oct 1 1987
INSTANTANEOUS PEAK FLOW			100	Mar 21	450	Aug 17 1993e,b
INSTANTANEOUS PEAK STAGE			8.42	Mar 21c	8.58	Mar 26 1989c
ANNUAL RUNOFF (AC-FT)	3170		2320		1030	
10 PERCENT EXCEEDS	13		12		3.4	
50 PERCENT EXCEEDS	.70		.40		.02	
90 PERCENT EXCEEDS	.00		.02		.00	

e Estimated
a No flow for many days in each year.
b Gage height, 7.29 ft.
c Backwater from ice.

MINNESOTA RIVER BASIN

05289985 BIG COULEE CREEK NEAR PEEVER, SD

LOCATION.--Lat 45°29'14", long 96°57'26", in SW1/4 SW1/4 SW1/4 SW1/4 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 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	4.7	2.3	.10	.00	9.0	e16	e14	9.2	2.0	.89	e.40
2	.90	4.5	2.5	.07	.00	6.4	e16	e13	10	1.7	.77	e1.0
3	.94	4.6	2.5	.07	.00	e10	e15	e12	9.8	.85	.50	e10
4	.49	5.1	2.4	.05	.00	e65	e15	e9.0	9.7	.87	.50	e8.0
5	.45	4.9	2.2	.07	.00	e50	e15	e7.5	10	.79	.33	e6.0
6	.59	4.4	1.7	.07	.00	e25	e14	e6.5	9.1	1.1	.30	e4.0
7	.81	4.7	1.7	.07	.00	e20	e13	e5.5	9.0	12	.17	e1.0
8	.81	4.7	1.7	.07	.00	e20	e13	e4.5	9.8	7.5	.06	e.70
9	1.2	4.7	1.8	.07	.00	e20	e12	e4.0	10	5.7	.02	e.25
10	1.9	4.3	1.7	.07	.00	e15	11	e3.5	9.9	3.5	1.3	e.15
11	2.2	4.1	1.6	.07	.00	e15	10	e3.0	8.9	2.3	1.8	e.14
12	1.8	4.0	1.6	.02	.00	15	9.7	e3.0	6.5	.63	2.0	e.30
13	1.7	4.4	1.5	.02	.00	15	9.2	e3.0	6.6	1.1	1.0	e3.0
14	1.4	4.6	1.5	.00	.00	16	9.4	e6.5	7.8	10	e.75	e1.5
15	1.4	4.3	1.5	.00	.00	15	e12	e6.0	5.7	4.2	e.55	e.80
16	2.6	4.4	1.5	.00	.00	e13	e9.0	e5.5	7.2	7.5	e.45	e.40
17	2.9	4.3	1.5	.00	.00	e12	e8.0	4.9	11	2.7	e.40	e.25
18	3.2	3.7	1.5	.00	.50	e17	e7.0	4.1	10	.84	e.30	e.17
19	3.3	3.7	1.5	.00	2.7	e24	e5.5	4.2	9.5	2.9	e.25	e.14
20	3.3	3.7	1.4	.00	2.2	e24	e5.0	3.9	8.4	1.0	e.20	e.30
21	3.3	4.0	1.2	.00	2.4	e25	e4.5	4.2	5.4	1.0	e.17	e1.5
22	4.0	2.8	.72	.00	2.3	e24	e4.5	5.2	4.4	1.2	e.16	e3.2
23	4.2	2.4	.58	.00	2.8	e23	e4.0	7.0	4.5	1.9	e.14	e3.5
24	4.6	1.8	.33	.00	2.9	e20	e4.0	12	4.0	2.5	e.13	e3.0
25	4.9	2.0	.33	.00	3.4	e20	e5.5	8.1	3.5	2.4	e.11	e2.8
26	4.8	2.0	.33	.00	4.3	e19	e9.0	6.9	2.2	2.1	e1.0	e2.4
27	4.8	1.9	.33	.00	6.3	e18	e13	6.2	.95	2.0	e.90	e2.2
28	5.2	2.2	.19	.00	8.3	e18	e14	6.0	.26	1.9	e.80	e2.0
29	5.0	1.9	.07	.00	---	e17	e15	6.4	.56	1.7	e.70	e1.9
30	5.0	2.0	.15	.00	---	e17	e14	7.9	1.3	1.4	e.60	e2.0
31	4.7	---	.21	.00	---	e17	---	9.4	---	.81	e.50	---
TOTAL	83.79	110.8	40.04	0.82	38.10	624.4	312.3	202.9	205.17	88.09	17.75	63.00
MEAN	2.70	3.69	1.29	.026	1.36	20.1	10.4	6.55	6.84	2.84	.57	2.10
MAX	5.2	5.1	2.5	.10	8.3	65	16	14	11	12	2.0	10
MIN	.45	1.8	.07	.00	.00	6.4	4.0	3.0	.26	.63	.02	.14
AC-FT	166	220	79	1.6	76	1240	619	402	407	175	35	125

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1994, BY WATER YEAR (WY)

MEAN	.70	.87	.33	.11	.84	8.41	6.31	3.33	4.32	4.24	1.17	1.36
MAX	2.70	3.69	1.29	.67	2.90	20.1	12.6	6.55	11.1	16.6	3.69	2.91
(WY)	1994	1994	1994	1992	1992	1994	1993	1994	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1988 - 1994	
ANNUAL TOTAL	2025.07		1787.16			
ANNUAL MEAN	5.55		4.90		2.67	
HIGHEST ANNUAL MEAN					5.11	1993
LOWEST ANNUAL MEAN					.63	1990
HIGHEST DAILY MEAN	170	Jul 25	65	Mar 4	170	Jul 25 1993
LOWEST DAILY MEAN	.02	Jan 1	.00	Jan 14a	.00	Oct 1 1987a
ANNUAL SEVEN-DAY MINIMUM	.03	Jan 1	.00	Jan 14	.00	Oct 1 1987
INSTANTANEOUS PEAK FLOW			90	Mar 4	456	Jun 21 1991
INSTANTANEOUS PEAK STAGE			6.73	Mar 4b	8.21	Jun 21 1991
ANNUAL RUNOFF (AC-FT)	4020		3540		1940	
10 PERCENT EXCEEDS	12		13		7.0	
50 PERCENT EXCEEDS	3.3		2.5		.50	
90 PERCENT EXCEEDS	.20		.02		.00	

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

MINNESOTA RIVER BASIN

05290000 LITTLE MINNESOTA RIVER NEAR PEEVER, SD

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

DRAINAGE AREA.--447 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 450 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 6	--	Ice jam	*9.87	Mar. 21	0100	*874	5.41
Mar. 10	--	500	Ice jam	Apr. 27	1400	674	5.01

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	16	e19	e15	e9.6	e11	273	605	74	11	15	4.0
2	24	16	e19	e15	e9.6	e11	274	502	65	10	14	5.3
3	23	16	e19	e15	e9.6	e12	282	401	59	9.6	12	6.2
4	23	17	e19	e14	e9.6	e16	270	359	55	10	11	7.3
5	21	17	e19	e14	e9.6	e80	267	340	51	11	10	9.9
6	21	15	e19	e14	e9.6	e400	241	303	47	11	10	9.9
7	25	e15	e19	e13	e9.6	e350	224	278	44	58	10	8.1
8	24	e15	e19	e13	e9.6	e300	210	253	41	178	9.6	7.0
9	22	e15	e19	e13	e9.6	e420	215	227	39	249	9.5	5.8
10	21	e15	e19	e12	e9.6	e480	231	205	37	212	11	5.1
11	20	e16	e19	e12	e9.6	e390	224	185	35	234	11	4.1
12	19	e16	e19	e12	e9.6	e320	214	169	34	209	14	3.8
13	19	e16	e18	e11	e9.6	e350	205	156	32	146	18	4.0
14	20	e17	e18	e11	e9.6	e620	189	166	30	108	19	4.0
15	20	e17	e18	e11	e9.6	e840	198	227	28	111	15	5.5
16	20	e18	e18	e11	e9.6	e770	220	225	28	90	12	6.3
17	19	e18	e18	e11	e9.6	e800	206	202	29	80	10	4.5
18	20	e18	e18	e10	e9.7	e820	190	173	33	74	8.8	4.7
19	21	e19	e18	e10	e9.8	836	176	156	34	66	7.8	4.7
20	23	e19	e18	e10	e9.9	825	165	145	30	66	8.2	4.4
21	23	e19	e18	e9.9	e10	856	154	133	28	64	7.6	4.3
22	22	e19	e18	e9.8	e10	816	150	118	25	65	7.0	4.2
23	21	e19	e18	e9.7	e10	759	141	110	22	60	5.9	4.0
24	19	e19	e18	e9.7	e10	465	134	277	20	53	5.1	4.5
25	18	e19	e18	e9.6	e11	e405	172	405	18	44	5.0	4.2
26	18	e19	e18	e9.6	e11	e390	319	336	16	37	5.1	4.2
27	18	e19	e17	e9.6	e11	e370	614	231	15	29	5.5	4.3
28	18	e19	e17	e9.6	e11	e350	572	166	13	25	4.4	3.9
29	17	e19	e17	e9.6	---	339	522	128	13	21	4.1	3.6
30	17	e19	e16	e9.6	---	304	612	104	11	18	4.3	3.8
31	16	---	e16	e9.6	---	276	---	86	---	16	4.1	---
TOTAL	637	521	563	353.3	276.6	13981	7864	7371	1006	2375.6	294.0	155.6
MEAN	20.5	17.4	18.2	11.4	9.88	451	262	238	33.5	76.6	9.48	5.19
MAX	25	19	19	15	11	856	614	605	74	249	19	9.9
MIN	16	15	16	9.6	9.6	11	134	86	11	9.6	4.1	3.6
AC-FT	1260	1030	1120	701	549	27730	15600	14620	2000	4710	583	309
CFSM	.05	.04	.04	.03	.02	1.01	.59	.53	.08	.17	.02	.01
IN.	.05	.04	.05	.03	.02	1.16	.65	.61	.08	.20	.02	.01
MEAN	3.90	4.75	2.70	1.32	2.53	102	200	86.1	73.3	56.4	12.9	4.44
MAX	40.7	34.7	18.2	11.4	21.8	573	1321	531	355	865	235	43.3
(WY)	1943	1958	1994	1994	1976	1943	1952	1962	1942	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1940 - 1994	
ANNUAL TOTAL	55571.87		35398.1			
ANNUAL MEAN	152		97.0		45.9a	
HIGHEST ANNUAL MEAN					153	1962
LOWEST ANNUAL MEAN					1.37	1981
HIGHEST DAILY MEAN	5400	Jul 25	856	Mar 21	5400	Jul 25 1993
LOWEST DAILY MEAN	.80	Jan 9	3.6	Sep 29	.00b	Jan 1 1940
ANNUAL SEVEN-DAY MINIMUM	.81	Jan 6	4.1	Sep 24	.00	Jan 1 1940
INSTANTANEOUS PEAK FLOW			874	Mar 21	8900	Jul 25 1993
INSTANTANEOUS PEAK STAGE			9.87c	Mar 6	13.58	Jul 25 1993
INSTANTANEOUS LOW FLOW			3.4	Sep 29		
ANNUAL RUNOFF (AC-FT)	110200		70210		33270	
ANNUAL RUNOFF (CFSM)	.34		.22		.10	
ANNUAL RUNOFF (INCHES)	4.62		2.95		1.40	
10 PERCENT EXCEEDS	356		303		100	
50 PERCENT EXCEEDS	31		19		2.9	
90 PERCENT EXCEEDS	2.2		7.2		.30	

a Median of annual mean discharges is 33 ft3/s.
b Many days, several years.
c From high-water mark, backwater from ice.
e Estimated.

05291000 WHETSTONE RIVER NEAR BIG STONE CITY, SD

LOCATION.--Lat 45°17'32", long 96°29'14", in SE1/4 NW1/4 sec.18, T.121 N., R.46 W., Grant County, Hydrologic Unit 07020001, on right bank 20 ft downstream from former highway bridge site, 1.5 mi west of Big Stone City, and 4.5 mi upstream from Big Stone Lake.

DRAINAGE AREA.--389 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.

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 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 06		a1,200		Apr. 30	2100	1,260	6.87
Mar. 15	0100	1,510	7.43	May 16	1200	215	3.48
Mar. 22	0100	814	5.76	Jun 18	2100	528	4.93
Apr. 03	1300	280	3.72	Jul 08	0800	*3,980	*11.14
Apr. 10	1700	239	3.46	July 14	2400	1,460	7.31
Apr. 16	2100	312	3.83	July 19	2200	1,280	6.94
Apr. 27	1300	1,800	7.98				

a Daily mean discharge.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	33	38	e38	e36	e83	189	1120	66	49	63	32
2	39	33	41	e38	e36	e92	205	800	64	45	59	34
3	36	34	43	e37	e36	e105	261	520	59	43	63	48
4	36	37	42	e37	e36	e120	238	403	56	42	61	67
5	36	36	43	e37	e36	e500	208	334	54	46	53	76
6	37	36	44	e37	e36	e1200	187	294	52	43	50	75
7	36	30	e44	e36	e36	e950	172	266	51	1190	48	67
8	40	33	e43	e36	e36	873	167	234	49	3230	45	57
9	45	37	e42	e36	e36	801	172	204	48	1670	52	48
10	43	30	e42	e36	e37	581	215	182	46	698	78	43
11	43	29	e41	e36	e38	404	231	168	42	365	117	38
12	43	30	e41	e36	e40	405	198	149	39	218	124	33
13	42	35	e40	e36	e42	542	181	139	37	154	105	37
14	42	37	e39	e36	e44	1090	174	144	36	533	94	39
15	41	35	e39	e36	e45	1350	203	163	36	1020	82	37
16	41	36	e40	e36	e47	935	263	203	42	458	73	36
17	41	40	e42	e36	e49	668	274	168	70	361	66	31
18	40	41	e42	e36	e51	586	212	144	295	236	63	30
19	42	42	e42	e36	e52	562	177	123	345	934	59	30
20	42	41	e42	e36	e54	650	167	110	185	870	56	27
21	42	41	e41	e36	e55	775	163	100	113	399	54	26
22	40	39	e41	e36	e57	719	165	95	89	241	51	28
23	39	35	e41	e36	e59	616	160	95	93	171	45	27
24	39	47	e40	e36	e62	423	148	104	103	137	42	25
25	38	52	e40	e36	e64	334	275	111	135	112	38	27
26	37	44	e39	e36	e66	329	1020	132	104	96	41	30
27	36	e43	e39	e36	e71	306	1660	110	80	87	40	28
28	36	e41	e39	e36	e76	320	985	94	69	79	37	26
29	34	40	e39	e36	---	269	608	88	60	74	34	24
30	33	39	e39	e36	---	221	1030	77	54	71	31	23
31	34	---	e38	e36	---	189	---	71	---	66	32	---
TOTAL	1214	1126	1266	1124	1333	16998	10308	6945	2572	13738	1856	1149
MEAN	39.2	37.5	40.8	36.3	47.6	548	344	224	85.7	443	59.9	38.3
MAX	45	52	44	38	76	1350	1660	1120	345	3230	124	76
MIN	33	29	38	36	36	83	148	71	36	42	31	23
AC-FT	2410	2230	2510	2230	2640	33720	20450	13780	5100	27250	3680	2280
CFSM	.10	.10	.10	.09	.12	1.41	.88	.58	.22	1.14	.15	.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 1994, BY WATER YEAR (WY)

MEAN	9.38	10.9	7.80	5.30	11.4	151	183	81.5	75.4	54.8	17.7	9.19
MAX	70.5	78.3	43.3	36.3	118	612	1386	491	478	885	327	65.7
(WY)	1958	1972	1972	1994	1984	1978	1952	1972	1984	1993	1991	1942
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1910 - 1994	
ANNUAL TOTAL	58841.5		59629			
ANNUAL MEAN	161		163		53.1a	
HIGHEST ANNUAL MEAN					181	1986
LOWEST ANNUAL MEAN					1.52	1934
HIGHEST DAILY MEAN	3440	Jul 18	3230	Jul 8	6090	Apr 8 1969
LOWEST DAILY MEAN	8.0	Jan 16	23	Sep 30	.00b	Sep 13 1931
ANNUAL SEVEN-DAY MINIMUM	8.1	Jan 13	26	Sep 24	.00	Jul 31 1933
INSTANTANEOUS PEAK FLOW			3980	Jul 8	6870	Apr 8 1969
INSTANTANEOUS PEAK STAGE			11.14	Jul 8	14.32c	Apr 8 1969
ANNUAL RUNOFF (AC-FT)	116700		118300		38450	
ANNUAL RUNOFF (CFSM)	.41		.42		.14	
10 PERCENT EXCEEDS	397		404		95	
50 PERCENT EXCEEDS	52		47		7.2	
90 PERCENT EXCEEDS	9.0		36		1.3	

a Median of annual mean discharges is 36 ft^3/s.
b No flow at times in most years.
c From floodmark.
e Estimated.

MINNESOTA RIVER BASIN

05292704 NORTH FORK YELLOW BANK RIVER NEAR ODESSA, MN

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

DRAINAGE AREA.--208 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 fair. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	17	37	e20	e13	e150	109	727	35	44	27	16
2	17	19	36	e19	e14	e80	109	614	32	38	25	19
3	17	24	33	e19	e14	e50	112	363	29	34	24	25
4	16	22	32	e18	e14	e40	108	257	26	34	23	47
5	16	22	32	e18	e14	e100	92	203	25	37	21	62
6	15	22	31	e17	e14	e640	78	174	22	32	21	72
7	15	18	30	e15	e14	e650	74	157	21	577	20	57
8	14	19	28	e16	e14	e400	69	141	21	2300	19	46
9	15	19	29	e17	e12	e350	67	121	20	1600	24	40
10	17	22	30	e18	e13	e310	70	106	18	807	57	37
11	17	19	29	e18	e13	e270	71	95	16	402	114	35
12	17	21	30	e18	e13	e270	68	84	14	238	103	32
13	17	29	31	e18	e15	e350	62	74	14	168	74	32
14	17	30	31	e17	e16	e750	58	73	13	145	60	31
15	18	30	31	e17	e18	e1130	78	75	13	367	49	31
16	19	30	31	e17	e21	e900	119	73	14	161	42	29
17	18	33	32	e17	e22	604	125	64	19	124	38	27
18	19	39	33	e17	e23	456	90	58	99	110	35	26
19	20	43	33	e16	e30	396	72	52	314	293	32	24
20	21	42	e28	e16	e40	414	65	47	148	245	31	23
21	22	42	e26	e16	e50	536	69	43	108	149	28	21
22	22	42	e24	e18	e40	456	80	40	99	126	26	21
23	22	39	e20	e18	e25	373	72	40	138	97	23	20
24	21	40	e20	e18	e19	272	62	56	209	76	21	24
25	22	42	e25	e18	e18	235	65	114	165	63	20	21
26	22	36	e20	e17	e18	212	132	123	109	53	23	20
27	21	32	e18	e16	e23	202	558	75	83	46	19	20
28	22	30	e19	e15	e100	169	589	58	69	41	18	19
29	22	29	e20	e15	---	147	359	49	59	37	17	18
30	20	34	e20	e14	---	126	504	43	51	34	17	17
31	22	---	e20	e14	---	110	---	39	---	30	18	---
TOTAL	584	886	859	527	640	11148	4186	4238	2003	8508	1069	912
MEAN	18.8	29.5	27.7	17.0	22.9	360	140	137	66.8	274	34.5	30.4
MAX	22	43	37	20	100	1130	589	727	314	2300	114	72
MIN	14	17	18	14	12	40	58	39	13	30	17	16
AC-FT	1160	1760	1700	1050	1270	22110	8300	8410	3970	16880	2120	1810

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1994, BY WATER YEAR (WY)

MEAN	9.92	14.8	13.6	9.99	16.1	182	137	68.2	129	304	35.8	21.2
MAX	18.8	29.5	27.7	17.0	22.9	360	250	137	212	501	59.9	30.4
(WY)	1994	1994	1994	1994	1994	1994	1993	1994	1992	1993	1993	1994
MIN	3.98	5.59	5.79	6.28	5.55	36.9	21.8	9.14	66.8	135	13.0	6.23
(WY)	1993	1992	1992	1993	1993	1992	1992	1992	1994	1992	1992	1992

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1992 - 1994	
ANNUAL TOTAL	38061.1		35560			
ANNUAL MEAN	104		97.4		78.9	
HIGHEST ANNUAL MEAN					99.6	1993
LOWEST ANNUAL MEAN					39.8	1992
HIGHEST DAILY MEAN	1260	Jul 26	2300	Jul 8	2300	Jul 8 1994
LOWEST DAILY MEAN	4.8	Feb 16	12	Feb 9	3.0	Dec 3-5 1991
ANNUAL SEVEN-DAY MINIMUM	5.0	Feb 15	13	Feb 6	3.4	Nov 30 1991
INSTANTANEOUS PEAK FLOW			2580	Jul 8	2580	Jul 8 1994
INSTANTANEOUS PEAK STAGE			14.62	Jul 8	14.62	Jul 8 1994
ANNUAL RUNOFF (AC-FT)	75490		70530		57170	
10 PERCENT EXCEEDS	315		241		185	
50 PERCENT EXCEEDS	33		31		21	
90 PERCENT EXCEEDS	6.1		16		5.3	

e Estimated

MINNESOTA RIVER BASIN

05299700 COBB CREEK NEAR GARY, SD

LOCATION.--Lat 44°44'22", long 96°27'26", in NW1/4 NW1/4 SW1/4 sec.27, T.115 N., R.47 W., Deuel County, Hydrologic Unit 07020003, on right bank at upstream side of 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	5.5	e10	e7.0	e4.5	e6.0	36	91	8.4	52	5.9	7.0
2	18	5.7	e9.8	e7.0	e4.5	e15	34	76	8.3	41	5.9	10
3	16	5.9	e9.5	e6.5	e4.5	e40	29	71	8.1	34	6.4	22
4	16	6.4	e10	e6.5	e4.5	e230	28	68	7.9	30	23	26
5	15	6.5	e10	e6.0	e4.5	e150	24	61	16	25	8.3	29
6	14	5.9	e9.0	e6.0	e4.0	e100	26	56	16	22	6.7	24
7	14	5.8	e9.5	e5.5	e4.0	e100	24	52	16	30	6.1	22
8	14	6.0	e10	e5.5	e4.0	e120	24	47	17	35	5.8	22
9	13	5.8	e12	e5.5	e3.5	e140	23	40	14	30	15	21
10	13	6.1	e10	e6.0	e4.0	e180	22	34	13	23	110	20
11	12	5.9	e9.5	e6.0	e4.5	e170	20	30	12	22	125	18
12	12	6.9	e11	e5.7	e4.5	123	19	26	13	21	160	16
13	9.5	9.5	e10	e5.0	e5.0	130	19	24	19	19	223	14
14	6.7	10	e10	e4.5	e5.0	174	22	24	19	17	193	13
15	6.8	8.8	e10	e4.0	e8.0	200	60	23	29	20	154	12
16	7.9	9.0	e10	e4.0	e20	172	57	21	40	17	116	11
17	7.6	11	e10	e4.0	e15	162	41	20	63	14	77	9.5
18	6.9	9.3	e9.5	e3.8	e10	189	40	19	288	14	54	8.6
19	6.7	9.5	e9.0	e4.5	e20	176	38	17	267	19	40	8.2
20	6.7	9.1	e8.0	e5.0	e40	175	38	15	327	14	30	8.3
21	6.9	9.8	e8.0	e5.0	e30	175	38	13	397	12	23	17
22	6.2	8.9	e7.0	e5.0	e20	149	34	13	332	12	19	19
23	6.4	6.9	e6.5	e5.0	e15	130	29	13	361	10	15	16
24	6.2	e9.0	e7.0	e5.0	e10	95	27	17	319	9.5	13	16
25	5.9	e8.0	e7.0	e5.0	e9.0	82	25	16	256	8.7	11	17
26	6.0	e9.0	e7.0	e5.0	e8.0	79	40	13	219	8.2	10	17
27	5.9	e9.0	e6.0	e5.0	e7.0	66	57	12	176	8.0	9.5	17
28	6.0	e9.0	e6.0	e5.0	e6.0	53	46	11	134	7.2	8.9	15
29	6.1	e9.0	e7.0	e4.5	---	46	47	9.8	90	7.0	7.9	14
30	5.7	e9.0	e7.0	e4.0	---	39	74	9.4	67	6.5	7.9	13
31	5.6	---	e9.0	e4.0	---	38	---	8.7	---	6.1	7.6	---
TOTAL	303.7	236.2	274.3	160.5	279.0	3704.0	1041	950.9	3552.7	594.2	1497.9	482.6
MEAN	9.80	7.87	8.85	5.18	9.96	119	34.7	30.7	118	19.2	48.3	16.1
MAX	21	11	12	7.0	40	230	74	91	397	52	223	29
MIN	5.6	5.5	6.0	3.8	3.5	6.0	19	8.7	7.9	6.1	5.8	7.0
AC-FT	602	469	544	318	553	7350	2060	1890	7050	1180	2970	957

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1994, BY WATER YEAR (WY)

MEAN	7.20	8.19	6.91	3.98	6.51	90.6	84.2	64.3	139	52.0	56.8	16.7
MAX	9.80	8.50	8.85	5.18	9.96	119	134	97.9	159	84.9	65.2	17.3
(WY)	1994	1993	1994	1994	1994	1994	1993	1993	1993	1993	1993	1993
MIN	4.61	7.87	4.97	2.79	3.06	61.7	34.7	30.7	118	19.2	48.3	16.1
(WY)	1993	1994	1993	1993	1993	1993	1994	1994	1994	1994	1994	1994

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1993 - 1994	
ANNUAL TOTAL	19884.1		13077.0			
ANNUAL MEAN	54.5		35.8		44.8	
HIGHEST ANNUAL MEAN					53.8	1993
LOWEST ANNUAL MEAN					35.8	1994
HIGHEST DAILY MEAN	703	Jun 20	397	Jun 21	703	Jun 20 1993
LOWEST DAILY MEAN	1.9	Jan 7	3.5	Feb 9	1.9	Jan 7 1993
ANNUAL SEVEN-DAY MINIMUM	2.3	Jan 4	4.1	Feb 4	2.3	Jan 4 1993
INSTANTANEOUS PEAK FLOW			427	Jun 21a	860	Jun 17 1992
INSTANTANEOUS PEAK STAGE			11.33	Mar 4b	12.09	Jun 17 1992
ANNUAL RUNOFF (AC-FT)	39440		25940		32450	
10 PERCENT EXCEEDS	169		104		140	
50 PERCENT EXCEEDS	13		13		12	
90 PERCENT EXCEEDS	3.0		5.5		3.5	

e Estimated
a Gage height, 10.28 ft.
b Backwater from ice.

LITTLE MISSOURI RIVER BASIN

06334500 LITTLE MISSOURI RIVER AT CAMP CROOK, SD

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

DRAINAGE AREA.--1,970 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 fair except those for estimated daily discharges, which are poor. Small diversions upstream from station for irrigation. 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.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	11	13	e8.5	e5.8	e16	e120	124	23	8.0	6.7	3.2
2	11	11	13	e8.1	e5.4	e75	e113	366	23	8.4	9.5	3.6
3	10	11	13	e8.0	e5.2	e200	e110	885	26	7.4	11	3.9
4	9.5	10	14	e7.7	e5.0	e300	e115	1220	25	8.4	12	3.9
5	9.5	9.9	14	e7.3	e5.0	e280	e130	1240	29	96	9.4	3.6
6	9.4	9.5	e13	e7.0	e4.8	e400	e125	1070	28	59	7.5	3.2
7	8.9	11	13	e7.0	e4.5	e1500	e120	732	24	54	6.6	3.1
8	10	10	12	e7.1	e4.2	e1600	e125	446	49	21	6.8	3.0
9	10	10	13	e7.3	e4.0	e1800	e128	286	80	16	7.1	2.9
10	9.9	10	13	e7.5	e4.0	e2100	e120	195	44	45	7.9	2.6
11	10	10	13	e8.0	e4.2	e1830	e100	143	32	125	7.7	2.4
12	10	10	14	e9.0	e4.7	e1590	e90	124	26	94	8.3	2.2
13	10	11	14	e9.0	e5.0	e1610	e75	107	24	65	7.2	14
14	10	12	14	e8.6	e9.0	e1480	e60	90	21	51	7.0	12
15	10	10	14	e8.1	e16	e1230	e48	74	19	45	6.8	8.5
16	10	12	13	e7.9	e25	e1260	e38	61	20	37	6.4	42
17	11	11	e13	e7.4	e40	e1270	e30	54	23	26	6.8	16
18	11	12	e12	e7.0	e60	e1190	e23	51	22	21	6.4	12
19	10	13	e12	e7.1	e42	e1110	e18	48	20	23	5.6	7.9
20	10	14	e11	e7.2	e29	e959	e14	43	18	21	5.4	6.7
21	9.8	13	e11	e7.4	e20	e859	e10	43	16	19	5.6	5.4
22	10	10	e10	e8.2	e17	e678	e8.5	41	16	18	5.4	4.6
23	9.9	e8.2	e10	e9.0	e13	e507	e7.0	38	15	16	5.1	3.7
24	9.4	e7.0	e10	e8.5	e9.0	e413	e7.5	36	13	14	4.7	3.1
25	10	e7.5	e11	e8.0	e9.0	e317	45	36	9.6	11	4.5	4.8
26	10	e8.0	e12	e7.7	e9.2	e277	53	34	9.5	9.1	3.9	4.5
27	10	e9.0	e10	e7.2	e9.7	e219	48	30	10	15	3.8	4.7
28	9.6	e11	e9.8	e7.0	e13	e157	45	27	7.8	31	3.5	4.6
29	9.3	e12	e9.5	e6.7	---	e149	50	25	7.6	16	3.5	4.7
30	9.1	14	e9.0	e6.3	---	e140	49	24	8.5	16	3.3	4.9
31	10	---	e8.9	e6.0	---	e130	---	25	---	13	3.2	---
TOTAL	308.3	318.1	372.2	236.8	382.7	25646	2025.0	7718	689.0	1009.3	198.6	201.7
MEAN	9.95	10.6	12.0	7.64	13.7	827	67.5	249	23.0	32.6	6.41	6.72
MAX	11	14	14	9.0	60	2100	130	1240	80	125	12	42
MIN	8.9	7.0	8.9	6.0	4.0	16	7.0	24	7.6	7.4	3.2	2.2
AC-FT	612	631	738	470	759	50870	4020	15310	1370	2000	394	400

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1904-1905, 1957-1994, BY WATER YEAR (WY)

MEAN	58.7	9.98	6.19	6.97	49.9	330	199	337	265	101	43.7	33.8
MAX	876	103	34.9	59.7	612	2121	1198	1894	1107	961	537	244
(WY)	1972	1972	1972	1974	1983	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1904-1905, 1957-1994	
ANNUAL TOTAL	63814.6		39105.7			
ANNUAL MEAN	175		107		121a	
HIGHEST ANNUAL MEAN					492	1978
LOWEST ANNUAL MEAN					4.68	1961
HIGHEST DAILY MEAN	3780	Jun 10	2100	Mar 10	8560	Mar 24 1978
LOWEST DAILY MEAN	1.1	Jan 1	2.2	Sep 12	.00	Jul 31 1904b
ANNUAL SEVEN-DAY MINIMUM	1.1	Feb 17	2.8	Sep 6	.00	Jul 31 1904
INSTANTANEOUS PEAK FLOW			2200	Mar 9	9420	Mar 24 1978
INSTANTANEOUS PEAK STAGE			10.25	Mar 9c	16.90	Mar 24 1978
ANNUAL RUNOFF (AC-FT)	126600		77570		87660	
10 PERCENT EXCEEDS	505		145		228	
50 PERCENT EXCEEDS	14		11		9.0	
90 PERCENT EXCEEDS	1.6		5.0		1.0	

e Estimated
a Median of annual mean discharges, 99 ft^3/s.
b No flow at times in some years.
c Backwater from ice.

MISSOURI-OAHE RIVER MAIN STEM

06342500 MISSOURI RIVER AT BISMARCK, ND

LOCATION.--Lat 46°48'51", long 100°49'12", in SE1/4 NW1/4 SE1/4 sec.31, T.139 N., R.80 W., Burleigh County, Hydrologic Unit 10130101, on left bank 40 ft upstream from Bismarck City waterplant, 2,100 ft downstream from Burlington Northern Railway bridge, 1.6 mi northwest of Bismarck Post Office, 3.5 mi upstream from Heart River, and at mile 1,314.5.

DRAINAGE AREA.--186,400 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 those for period of estimated daily discharges, 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11000	10800	e13600	e13100	e14400	e13400	13000	16300	28400	21100	19600	18900
2	11200	11200	e13900	e13300	e15100	e12000	13000	16700	28200	20900	20400	20000
3	11000	10600	e13500	e13400	e14700	e12000	13000	18100	28700	21300	19500	19900
4	10900	11200	e14100	e13600	e14700	e12200	12900	18600	27300	20900	20300	20100
5	11200	10500	e14300	e13400	e13400	e14100	13000	20200	28600	21500	19600	20000
6	11400	10900	e13900	e12700	e13100	e12700	13100	22800	27200	21200	19600	20000
7	10900	11300	e14300	e13000	e13800	e13300	13000	23100	27000	21200	20100	18700
8	10800	11000	e15900	e13600	e13400	e12500	12200	24200	28400	21300	20200	18900
9	10800	11300	e16000	e12700	e13500	e12900	12600	23600	29000	21200	19300	18200
10	11300	11400	e15500	e14400	e14700	e12500	12700	23300	29300	20200	20100	20100
11	10900	11000	e14800	e14300	e16200	e12700	12100	25100	27900	21600	19700	18600
12	11100	11300	e14300	e14100	e14500	e12400	12000	25700	28300	21500	20300	17900
13	10900	11300	e13000	e12700	e14400	e12600	11800	27400	27700	21400	19900	18400
14	11100	11200	e13100	e12700	e13300	e12400	11600	27700	28800	21800	19600	16600
15	10900	10900	e12500	e13100	e13600	e12600	11900	27000	29500	21800	19700	17100
16	11200	10900	e12900	e14600	e13000	e12400	11300	27800	29400	20800	19800	16800
17	11000	10800	e13100	e14900	e13400	e12300	11300	27800	26200	21000	19900	15600
18	11200	10800	e12800	e15000	e13800	e14000	11600	28200	26000	21000	19800	15100
19	11200	11000	e13100	e16200	e12100	e15000	11600	28300	21400	21300	20000	15500
20	11000	11000	e12700	e14900	e12500	e17300	12500	30100	21800	21300	19800	15200
21	11000	11000	e12700	e16200	e12700	e16500	13000	28300	21500	21900	20000	16200
22	11100	11000	e13400	e15400	e12900	e16000	12600	27900	21300	20400	19800	15000
23	10900	10800	e13100	e14800	e12900	e15300	12900	28100	21200	20400	19800	15400
24	11200	e11000	e13000	e14300	e12500	e14900	12800	28000	21600	20200	19900	15300
25	11200	e12300	e13500	e14900	e13700	e14500	12300	28200	21500	19900	20100	15400
26	11100	e13600	e12800	e14200	e14000	13800	12700	28800	21500	19900	19900	15400
27	11000	e13700	e12700	e14100	e13300	13500	12000	27800	21100	19500	20100	15400
28	10800	e13800	e12600	e14700	e12200	13200	12800	28000	21300	20000	19800	15000
29	11100	e14100	e13400	e15700	---	13200	14000	27900	21100	21000	19600	15000
30	11000	e14000	e13500	e14600	---	13100	14400	27400	20900	20200	19800	15200
31	10900	---	e13300	e14300	---	12900	---	28700	---	19300	21400	---
TOTAL	342300	345700	421300	438900	381800	418200	375700	791100	762100	647000	617400	514900
MEAN	11040	11520	13590	14160	13640	13490	12520	25520	25400	20870	19920	17160
MAX	11400	14100	16000	16200	16200	17300	14400	30100	29500	21900	21400	20100
MIN	10800	10500	12500	12700	12100	12000	11300	16300	20900	19300	19300	15000
AC-FT	679000	685700	835600	870600	757300	829500	745200	1569000	1512000	1283000	1225000	1021000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1994, BY WATER YEAR (WY)

MEAN	20770	20940	20820	22950	25280	23070	21650	22760	23970	24780	24310	21150
MAX	35080	35040	31690	32350	34840	34370	40370	42030	43540	64610	57010	39700
(WY)	1969	1979	1970	1969	1969	1972	1972	1972	1975	1975	1975	1975
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1954 - 1994	
ANNUAL TOTAL	5287830		6056400			
ANNUAL MEAN	14490		16590		22690	
HIGHEST ANNUAL MEAN					35630	1975
LOWEST ANNUAL MEAN					14320	1960
HIGHEST DAILY MEAN	25700	Jul 24	30100	May 20	68800	Jul 13 1975
LOWEST DAILY MEAN	9700	Apr 3	10500	Nov 5	4000	Mar 25 1955
ANNUAL SEVEN-DAY MINIMUM	9970	Apr 1	10900	Oct 31	4860	Mar 21 1955
INSTANTANEOUS PEAK FLOW			31400	Jun 16	500000	Apr 6 1952
INSTANTANEOUS PEAK STAGE			a13.55	Nov 28	27.90	Apr 6 1952
ANNUAL RUNOFF (AC-FT)	10490000		12010000		16440000	
10 PERCENT EXCEEDS	18900		26100		33500	
50 PERCENT EXCEEDS	13800		14400		21900	
90 PERCENT EXCEEDS	10500		11100		11600	

a Backwater from ice.
e Estimated.

MISSOURI-OAHE RIVER BASIN

06354882 OAK CREEK NEAR WAKPALA, SD

LOCATION.--Lat 45°42'43", long 100°33'32", in SW1/4 SE1/4 NW1/4 sec.9, T.20 N., R.29 E., Corson County, Hydrologic Unit 10130102, on right bank at upstream side of bridge on farm access road, 1.6 mi east of Rattlesnake Butte, and 4.0 mi northwest of Wakpala.

DRAINAGE AREA.--356 mi^2, approximately.

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

GAGE.--Water-stage recorder. Elevation of gage is 1,690 ft above sea level, from topographic map.

REMARKS.--Records fair. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	1.2	1.4	1.3	1.6	1.5	78	147	e2.3	9.1	.18	.04
2	.11	1.3	1.3	1.3	1.6	1.5	135	255	e2.2	8.5	.20	.06
3	.08	1.3	1.3	1.3	1.6	1.6	130	172	e2.1	8.0	.23	.10
4	.06	1.4	1.4	1.4	1.6	1.8	100	114	e2.0	8.8	e.22	.24
5	.05	1.4	1.4	1.4	1.5	2.0	80	80	e2.0	14	e.21	.17
6	.02	1.3	1.2	1.4	1.5	2.4	65	62	e1.9	19	e.20	.15
7	.00	1.3	1.2	1.4	1.5	2.5	56	48	e1.9	90	e.19	.13
8	.00	1.4	1.1	1.5	1.5	2.6	55	38	e10	57	e.18	.12
9	.00	1.4	1.1	1.5	1.5	3.2	58	30	21	28	e.17	.11
10	.07	1.4	1.1	1.6	1.7	2.8	51	23	13	19	e.16	.06
11	.08	1.4	1.1	1.6	1.7	2.3	46	18	8.7	19	e.15	.05
12	.04	1.4	1.2	1.6	1.6	2.4	42	14	5.6	8.3	e.13	.05
13	.21	1.4	1.2	1.6	1.7	3.6	38	12	3.6	13	e.12	.05
14	.63	1.4	1.2	1.6	1.6	18	37	11	3.1	20	e.11	.05
15	.51	1.4	1.2	1.6	1.5	44	34	11	2.7	9.7	e.10	.05
16	.38	1.4	1.2	1.6	1.4	49	29	8.9	2.6	4.5	e.09	.05
17	.55	1.3	1.2	1.5	1.5	229	26	8.4	5.8	2.8	e.08	.04
18	.56	1.4	1.3	1.5	1.5	223	25	e8.0	7.4	3.6	e.07	.03
19	.48	1.3	1.3	1.5	1.5	291	23	e7.5	9.0	25	.06	.03
20	.73	1.2	1.3	1.5	1.5	582	21	e7.0	8.9	3.6	.06	.03
21	.84	1.2	1.2	1.5	1.5	374	18	30	9.7	2.0	.05	.02
22	.82	.97	1.2	1.5	1.5	278	16	7.0	36	1.2	.05	.02
23	.93	.82	1.2	1.6	1.6	200	15	5.8	18	.87	.05	.01
24	.89	.78	1.2	1.6	1.6	129	14	5.4	7.1	.73	.04	.01
25	.87	.87	1.3	1.6	1.5	99	18	4.8	8.2	.59	.04	.01
26	1.0	.98	1.2	1.6	1.5	97	36	4.3	7.6	.59	.04	.00
27	1.0	1.1	1.2	1.6	1.5	74	43	3.6	9.0	.46	.04	.00
28	1.1	1.3	1.2	1.6	1.5	65	62	e3.2	7.8	.33	.03	.00
29	.94	1.4	1.2	1.5	---	59	88	e2.9	6.6	.30	.03	.00
30	.96	1.4	1.2	1.5	---	61	128	e2.6	9.0	.21	.04	.00
31	1.1	---	1.2	1.6	---	71	---	e2.4	---	.23	.04	---
TOTAL	15.17	37.82	38.0	46.9	43.3	2973.2	1567	1146.8	234.8	378.41	3.36	1.68
MEAN	.49	1.26	1.23	1.51	1.55	95.9	52.2	37.0	7.83	12.2	.11	.056
MAX	1.1	1.4	1.4	1.6	1.7	582	135	255	36	90	.23	.24
MIN	.00	.78	1.1	1.3	1.4	1.5	14	2.4	1.9	.21	.03	.00
AC-FT	30	75	75	93	86	5900	3110	2270	466	751	6.7	3.3

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1994, BY WATER YEAR (WY)

MEAN	.13	.46	.61	.79	1.53	143	44.1	22.3	8.50	13.2	1.61	.17
MAX	.62	1.81	1.83	4.23	9.70	568	171	131	36.8	106	5.91	1.07
(WY)	1987	1987	1987	1987	1987	1986	1987	1986	1991	1993	1985	1985
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1985 - 1994	
ANNUAL TOTAL	9011.65		6486.44			
ANNUAL MEAN	24.7		17.8		19.9a	
HIGHEST ANNUAL MEAN					70.7	1986
LOWEST ANNUAL MEAN					.65	1992
HIGHEST DAILY MEAN	657	Jul 28	582	Mar 20	3200	Mar 4 1986
LOWEST DAILY MEAN	.00	Jan 8	.00	Oct 7b	.00	Oct 1 1984b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 8	.00	Sep 24	.00	Oct 1 1984
INSTANTANEOUS PEAK FLOW			664	Mar 20	3780	Mar 4 1986c
INSTANTANEOUS PEAK STAGE			10.60	Mar 20	18.35	Mar 23 1987d
ANNUAL RUNOFF (AC-FT)	17870		12870		14440	
10 PERCENT EXCEEDS	43		50		19	
50 PERCENT EXCEEDS	1.4		1.5		.36	
90 PERCENT EXCEEDS	.02		.05		.00	

e Estimated
a Median of annual mean discharges, 16 ft^3/s.
b No flow for many days in each year.
c Gage height, 17.73 ft.
d Backwater from ice.

GRAND-MOREAU RIVER BASIN

06355000 NORTH FORK GRAND RIVER AT HALEY, ND

LOCATION.--Lat 45°57'39", long 103°07'09", at southwest corner of sec.30, T.129 N., R.99 W., Bowman County, Hydrologic Unit 10130301, on left bank 10 ft downstream from county highway bridge at Haley, and 1 mi north of North Dakota-South Dakota State line.

DRAINAGE AREA.--509 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1908 to September 1917, October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS (WATER YEARS).--WSP 1239: 1908-10, 1913-15(M), 1917(M).

GAGE.--Water-stage recorder. Datum of gage is 2,658.60 ft above sea level. Oct. 23, 1945, to June 18, 1951, nonrecording gage on downstream side of bridge near left abutment at present datum. See WSP 1729 or 1917 for history of changes prior to Oct. 23, 1945.

REMARKS.--Records fair except those for periods of estimated daily discharge, which are poor. Flow regulated since August 1966 by Bowman-Haley Lake (station 06354988) 8 mi upstream. There are some small diversions for irrigation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.9	3.3	e1.9	e.70	e5.0	59	37	47	1.6	49	1.4
2	1.6	2.0	3.4	e1.9	e.72	e10	59	52	48	1.6	49	1.3
3	1.5	2.0	3.4	e1.9	e.72	e20	58	59	37	1.5	48	1.4
4	1.5	2.0	3.5	e1.9	e.75	e30	57	65	13	1.5	31	1.5
5	1.5	1.8	3.7	e1.5	e.80	e21	58	67	7.8	1.5	13	1.5
6	1.5	1.9	3.7	e1.0	e.75	e15	58	66	5.3	1.5	11	1.6
7	1.5	2.2	3.7	e.65	e.70	e14	56	47	4.5	1.5	8.1	1.7
8	1.5	2.2	3.5	e.50	e.60	e100	56	45	8.6	1.5	5.4	1.8
9	1.5	2.2	3.4	e.54	e.50	e300	55	43	9.3	1.5	4.2	1.8
10	1.5	2.2	3.3	e.57	e.45	e270	48	42	8.4	1.5	3.3	1.8
11	1.5	2.2	3.2	e.60	e.47	e250	45	42	8.0	1.5	3.6	1.8
12	1.5	2.2	3.2	e.63	e.50	e230	42	44	7.5	1.3	5.0	e1.8
13	1.5	2.0	3.2	e.62	e.52	e215	39	49	6.6	1.3	4.7	e1.8
14	1.5	2.0	3.2	e.56	e.55	e200	39	50	5.9	1.8	4.4	e2.0
15	1.5	2.0	2.8	e.54	e.57	e190	36	50	5.1	9.0	4.1	e2.5
16	1.5	e2.1	2.7	e.52	e.60	e180	34	29	4.8	16	3.8	e3.0
17	1.5	e2.4	2.7	e.50	e.62	e170	29	36	4.6	21	3.5	e2.9
18	1.6	e2.9	2.5	e.52	e.65	e160	26	44	4.4	24	3.3	e2.6
19	1.6	e2.8	2.4	e.60	e.66	e150	25	48	4.0	28	3.0	e2.3
20	1.6	e2.5	2.2	e.65	e.60	e140	25	49	3.8	32	2.9	e2.2
21	1.6	e2.4	e2.0	e.70	e.58	e135	23	50	3.5	36	2.7	e2.2
22	1.6	e2.3	e1.9	e.75	e.55	126	21	50	3.3	38	2.7	e2.1
23	1.6	e1.9	e1.8	e.80	e.54	117	20	50	3.1	40	2.5	e2.1
24	1.6	e1.9	e1.7	e.80	e.54	112	19	50	2.7	42	2.3	e2.0
25	1.6	e1.8	e1.7	e.75	e.50	104	18	22	2.6	44	2.2	e2.0
26	1.7	e1.8	e1.7	e.70	e.50	95	18	18	2.4	46	2.0	e2.0
27	1.9	e1.7	e1.7	e.70	e1.0	88	18	25	2.3	48	1.9	e2.0
28	2.2	e2.0	e1.7	e.70	e2.0	78	18	33	2.0	49	1.8	e2.0
29	2.1	e2.1	e1.7	e.70	---	73	18	40	1.8	49	1.7	e2.1
30	2.0	2.9	e1.7	e.70	---	68	21	44	1.7	49	1.6	e2.1
31	1.8	---	e1.8	e.70	---	64	---	46	---	49	1.6	---
TOTAL	50.2	64.3	82.4	26.10	18.64	3730.0	1098	1392	269.0	641.1	283.3	59.3
MEAN	1.62	2.14	2.66	.84	.67	120	36.6	44.9	8.97	20.7	9.14	1.98
MAX	2.2	2.9	3.7	1.9	2.0	300	59	67	48	49	49	3.0
MIN	1.5	1.7	1.7	.50	.45	5.0	18	18	1.7	1.3	1.6	1.3
AC-FT	100	128	163	52	37	7400	2180	2760	534	1270	562	118

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1908 - 1994, BY WATER YEAR (WY)

MEAN	2.06	2.42	1.52	2.91	7.95	74.5	102	33.1	42.9	19.6	5.80	1.80
MAX	23.0	32.9	12.3	56.4	97.5	457	1683	266	291	210	49.1	27.0
(WY)	1983	1983	1983	1973	1947	1972	1952	1982	1953	1915	1914	1951
MIN	.16	.17	.029	.000	.000	.70	.69	.60	.20	.065	.000	.000
(WY)	1962	1962	1962	1909	1949	1915	1961	1992	1990	1961	1961	1992

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1908 - 1994	
ANNUAL TOTAL	3200.95		7714.34			
ANNUAL MEAN	8.77		21.1		24.6	
HIGHEST ANNUAL MEAN					143	1952
LOWEST ANNUAL MEAN					.88	1988
HIGHEST DAILY MEAN	83	Jul 31	300	Mar 9	13100	Apr 7 1952
LOWEST DAILY MEAN	.00	Jan 15	.45	Feb 10	.00	Aug 9 1908
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 15	.51	Feb 9	.00	Aug 9 1908
INSTANTANEOUS PEAK FLOW			a400	Mar 9	14100	Apr 7 1952
INSTANTANEOUS PEAK STAGE			b8.96	Mar 9	17.10	Apr 15 1950
ANNUAL RUNOFF (AC-FT)	6350		15300		17850	
10 PERCENT EXCEEDS	29		55		31	
50 PERCENT EXCEEDS	2.6		2.5		1.5	
90 PERCENT EXCEEDS	.00		.70		.20	

a About.
b Backwater from ice.
e Estimated.

GRAND-MOREAU RIVER BASIN

06355500 NORTH FORK GRAND RIVER NEAR WHITE BUTTE, SD

LOCATION.--Lat 45°48'08", long 102°21'43", in SW1/4 NW1/4 NW1/4 sec.11, T.21 N., R.14 E., Perkins County, Hydrologic Unit 10130301, on left bank on upstream side of highway bridge and 9.8 mi south of White Butte.

DRAINAGE AREA.--1,190 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	4.8	e2.0	e1.2	e.90	e1.0	103	54	43	3.4	37	.00
2	4.5	5.1	e2.0	e1.1	e.89	e3.0	103	52	46	3.7	39	.00
3	4.5	5.1	e2.0	e1.1	e.87	e10	102	e100	44	3.6	40	.08
4	4.2	5.3	e2.0	e1.0	e.86	e35	100	e200	44	3.7	40	.29
5	4.0	5.1	e1.9	e.92	e.85	68	97	e130	44	4.9	42	.28
6	4.1	4.9	e1.8	e.86	e.83	108	95	e95	42	5.7	45	.15
7	3.6	5.1	e1.9	e.80	e.82	133	91	e80	38	13	45	.04
8	3.5	5.4	e2.0	e.80	e.80	325	93	e70	37	41	38	.00
9	3.5	5.4	e2.0	e.83	e.80	295	88	e64	33	32	25	.00
10	3.5	5.4	e2.0	e.88	e.80	312	84	e59	133	27	18	.00
11	3.4	5.4	e2.0	e.92	e.80	361	85	e54	115	22	13	.00
12	3.5	5.4	e2.0	e.95	e.80	396	78	51	58	18	9.9	.00
13	3.7	5.4	e1.8	e1.0	e.80	353	71	49	40	14	7.3	.00
14	4.0	5.4	e1.7	e.94	e1.0	371	66	50	28	11	5.5	.00
15	4.0	5.8	e1.6	e.90	e1.4	388	62	53	19	9.1	e4.7	.00
16	4.0	5.9	e1.6	e.85	e1.7	382	59	59	14	6.8	e3.8	.00
17	4.3	5.5	e1.5	e.80	e2.0	350	56	58	13	6.2	e3.0	.00
18	4.8	5.8	e1.5	e.75	e2.5	333	53	57	10	9.6	e2.7	.00
19	4.8	5.5	e1.4	e.70	e2.0	292	50	49	9.5	11	e2.5	.00
20	4.8	5.3	e1.3	e.72	e1.7	266	46	51	8.6	24	e2.4	.00
21	4.8	5.0	e1.3	e.77	e1.5	228	43	52	7.6	30	e2.3	.00
22	4.8	e4.5	e1.2	e.80	e1.3	203	41	55	7.3	30	e2.2	.00
23	4.8	e2.8	e1.2	e1.2	e1.0	186	39	64	7.4	30	1.9	.34
24	4.8	e1.7	e1.2	e1.1	e.95	167	38	53	5.5	35	1.2	1.5
25	5.1	e1.0	e1.3	e1.0	e.90	155	38	51	5.6	37	1.3	2.7
26	5.0	e1.2	e1.3	e.98	e.92	146	45	49	5.0	38	.96	2.6
27	4.7	e1.4	e1.2	e.97	e.95	134	45	47	3.9	36	.69	2.0
28	4.8	e1.6	e1.2	e.96	e.98	124	45	44	4.8	37	.37	1.5
29	4.5	e1.8	e1.2	e.94	---	117	45	32	4.4	39	.16	1.1
30	4.5	e2.0	e1.2	e.92	---	109	51	34	3.1	38	.01	.94
31	4.5	---	e1.3	e.91	---	105	---	40	---	37	.00	---
TOTAL	133.5	130.0	49.6	28.57	31.62	6456.0	2012	1956	873.7	656.7	434.89	13.52
MEAN	4.31	4.33	1.60	.92	1.13	208	67.1	63.1	29.1	21.2	14.0	.45
MAX	5.1	5.9	2.0	1.2	2.5	396	103	200	133	41	45	2.7
MIN	3.4	1.0	1.2	.70	.80	1.0	38	32	3.1	3.4	.00	.00
AC-FT	265	258	98	57	63	12810	3990	3880	1730	1300	863	27

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1994, BY WATER YEAR (WY)*

MEAN	6.77	7.06	4.28	7.11	12.0	162	114	85.6	57.3	24.9	8.61	2.92
MAX	72.1	56.9	21.2	61.1	102	964	627	414	229	154	65.9	27.1
(WY)	1983	1983	1983	1973	1983	1978	1978	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1967 - 1994*	
ANNUAL TOTAL	15938.89		12776.10			
ANNUAL MEAN	43.7		35.0		41.2a	
HIGHEST ANNUAL MEAN					160	1978
LOWEST ANNUAL MEAN					2.72	1981
HIGHEST DAILY MEAN	1880	Mar 6	396	Mar 12	6030	Mar 28 1978
LOWEST DAILY MEAN	.06	Feb 17	.00	Aug 31b	.00	Aug 3 1967b
ANNUAL SEVEN-DAY MINIMUM	.06	Feb 20	.00	Sep 8	.00	Aug 3 1967
INSTANTANEOUS PEAK FLOW			471	Mar 12	6710	Mar 28 1978c
INSTANTANEOUS PEAK STAGE			4.30	Mar 12	12.08	Mar 23 1978d
ANNUAL RUNOFF (AC-FT)	31610		25340		29860	
10 PERCENT EXCEEDS	88		96		83	
50 PERCENT EXCEEDS	5.1		4.8		4.5	
90 PERCENT EXCEEDS	.09		.80		.00	

e Estimated
* Regulated period only (1967-94). See REMARKS.
a Median of annual mean discharges, 33 ft^3/s.
b No flow at times in most years.
c Gage height, 11.63 ft.
d Backwater from ice.

06356000 SOUTH FORK GRAND RIVER AT BUFFALO, SD

LOCATION.--Lat 45°34'34", long 103°32'38", in SW1/4 sec.29, T.19 N., R.5 E., Harding County, Hydrologic Unit 10130302, on right bank at downstream side of bridge on U.S. Highway 85, 0.3 mi south of Buffalo.

DRAINAGE AREA.--148 mi^2.

PERIOD OF RECORD.--August 1955 to current year.

REVISED RECORDS.--WSP 1917: 1956-57. WDR SD-76-1: 1974(M), 1975.

GAGE.--Water-stage recorder. Datum of gage is 2,839.60 ft above sea level. Prior to May 5, 1970, 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 reached a stage of 15.4 ft, from information by South Dakota Department of Transportation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	3.1	9.4	e4.2	e3.0	e70	4.3	98	3.4	1.8	1.6	1.2
2	2.3	e3.1	7.6	e4.0	e3.0	e350	2.5	50	2.2	1.6	1.4	1.2
3	2.3	3.2	6.3	e3.7	e2.9	e600	2.1	18	1.9	1.4	1.5	1.3
4	2.3	3.3	6.3	e3.4	e2.9	e400	3.8	12	255	1.3	1.4	1.3
5	2.3	e3.2	6.1	e3.0	e2.9	e250	5.4	7.1	19	313	1.4	1.1
6	2.2	e3.0	e6.0	e2.5	e2.9	e160	9.6	4.1	4.1	218	1.5	1.1
7	2.2	e3.4	6.5	e2.0	2.4	70	7.1	3.6	2.4	234	1.4	1.1
8	2.4	e4.0	7.3	e2.0	2.4	48	4.9	3.4	5.4	23	1.4	1.1
9	2.5	e5.0	7.0	e2.0	2.2	34	4.3	3.2	8.4	6.2	1.5	1.0
10	2.6	5.8	6.9	e2.0	2.0	24	2.6	3.3	8.5	6.6	1.6	.97
11	2.6	5.4	5.5	e2.0	2.0	23	2.2	3.2	3.8	40	1.5	1.0
12	2.5	4.7	5.5	e2.3	2.3	25	2.0	2.9	2.2	20	1.5	1.0
13	2.5	e3.9	e5.3	e2.5	2.2	24	1.9	3.3	2.4	21	1.4	1.1
14	2.4	3.1	e5.1	e2.4	2.5	18	1.8	3.6	2.7	5.3	1.3	1.1
15	2.5	e3.3	e4.6	e2.2	2.7	16	1.7	3.1	2.6	3.6	1.3	4.4
16	2.7	e3.6	e4.1	e2.1	2.6	11	1.6	3.0	3.0	2.9	1.4	1.8
17	2.8	e3.8	e4.0	e2.0	2.5	10	1.5	2.8	5.7	2.5	1.5	3.2
18	2.8	3.9	e3.8	e2.0	e3.0	7.8	1.3	2.7	8.1	2.3	1.4	2.0
19	2.8	4.3	e3.6	e2.0	e200	6.5	1.2	2.7	4.9	3.3	1.4	1.5
20	2.7	4.3	e3.4	e2.0	e150	5.8	1.2	2.5	3.1	2.2	1.4	1.4
21	2.7	7.0	e3.1	e2.0	e100	5.1	1.1	5.1	2.5	2.1	1.4	1.3
22	2.7	e5.0	e3.0	e2.8	e70	4.0	1.1	2.4	2.2	2.0	1.4	1.3
23	3.0	e3.5	e3.0	e3.7	e50	3.5	1.2	2.1	2.3	1.9	1.4	1.2
24	3.0	e2.5	e3.7	e5.0	e40	4.5	1.0	2.0	2.2	1.9	1.3	1.2
25	3.0	1.6	e4.6	e4.5	e35	3.7	1.3	2.0	1.9	1.8	1.4	1.2
26	3.0	e1.3	e9.0	e4.0	e30	5.5	2.1	2.0	1.7	1.8	1.2	1.2
27	e3.0	e1.0	e8.0	e3.8	e34	6.3	19	1.9	1.7	1.7	1.1	1.1
28	e2.9	e2.0	e6.4	e3.6	e38	7.2	19	1.9	1.5	1.7	1.1	1.3
29	e2.8	e3.5	e5.5	e3.5	---	4.4	19	1.6	1.5	1.7	1.2	1.3
30	2.9	e5.8	e4.7	e3.0	---	4.3	40	1.6	1.5	1.7	1.1	1.2
31	3.1	---	e4.4	e3.0	---	3.6	---	1.5	---	1.6	1.2	---
TOTAL	81.7	110.6	169.7	89.2	793.4	2205.2	167.8	256.6	367.8	929.9	42.6	42.17
MEAN	2.64	3.69	5.47	2.88	28.3	71.1	5.59	8.28	12.3	30.0	1.37	1.41
MAX	3.1	7.0	9.4	5.0	200	600	40	98	255	313	1.6	4.4
MIN	2.2	1.0	3.0	2.0	2.0	3.5	1.0	1.5	1.5	1.3	1.1	.97
AC-FT	162	219	337	177	1570	4370	333	509	730	1840	84	84

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1994, BY WATER YEAR (WY)

MEAN	5.07	2.84	2.05	1.70	4.87	17.1	11.4	18.2	20.0	12.5	4.06	4.01
MAX	41.5	6.02	5.47	5.36	31.4	117	65.6	85.4	113	134	18.1	23.5
(WY)	1972	1992	1994	1983	1986	1978	1975	1982	1963	1993	1981	1986
MIN	1.44	1.25	.60	.039	.000	2.45	3.00	1.45	2.15	.98	.93	1.21
(WY)	1965	1974	1993	1960	1960	1965	1968	1958	1961	1961	1990	1990

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1956 - 1994	
ANNUAL TOTAL	7784.33		5256.67			
ANNUAL MEAN	21.3		14.4		8.67a	
HIGHEST ANNUAL MEAN					22.5	1978
LOWEST ANNUAL MEAN					2.59	1990
HIGHEST DAILY MEAN	1060	Jul 28	600	Mar 3	1610	Jun 15 1963
LOWEST DAILY MEAN	.20	Jan 1	.97	Sep 10	.00	Jan 18 1956b
ANNUAL SEVEN-DAY MINIMUM	.29	Jan 1	1.0	Sep 6	.00	Jan 18 1956
INSTANTANEOUS PEAK FLOW			1110	Jul 5	2780	Jun 14 1963c
INSTANTANEOUS PEAK STAGE			7.78	Jul 5	9.01	Jun 14 1963
ANNUAL RUNOFF (AC-FT)	15440		10430		6280	
10 PERCENT EXCEEDS	28		19		10	
50 PERCENT EXCEEDS	3.3		2.8		2.5	
90 PERCENT EXCEEDS	1.0		1.3		1.0	

e Estimated
a Median of annual mean discharges, 7.0 ft^3/s.
b No flow at times in 1956-58, 1960, 1965, 1972, 1990.
c From rating curve extended above 550 ft^3/s on basis of slope-area measurement of peak flow.

GRAND-MOREAU RIVER BASIN

06356500 SOUTH FORK GRAND RIVER NEAR CASH, SD

LOCATION.--Lat 45°38'56", long 102°38'27", in SE1/4 NE1/4 SE1/4 SE1/4 (revised) 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. 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	10	e20	e9.5	e5.4	e50	e25	e170	18	19	10	8.8
2	15	8.2	22	e9.0	e5.2	e100	e20	e300	19	20	9.8	9.7
3	15	9.1	22	e8.5	e5.0	e300	e18	e220	20	21	9.5	10
4	14	9.8	21	e8.0	e5.0	e800	e20	e170	21	26	9.2	12
5	15	6.9	e18	e7.8	e5.0	e1800	e27	e110	22	47	9.1	12
6	15	e7.4	e17	e7.4	e5.0	e1500	e40	e80	100	428	10	11
7	14	e8.0	e17	e7.0	e4.6	e1000	e50	e60	51	567	10	10
8	13	8.4	18	e7.0	e4.3	e600	e51	e49	106	439	9.3	9.7
9	14	11	18	e7.0	e4.0	e350	e42	e41	117	349	9.1	9.5
10	14	14	19	e6.9	e4.0	e200	e32	e37	78	149	9.8	9.4
11	14	14	19	e6.8	e4.0	e180	e24	e34	62	79	12	9.3
12	14	15	19	e6.6	e4.0	e160	e19	32	52	148	11	9.1
13	14	12	18	e6.3	e4.5	e150	e17	30	47	119	10	9.2
14	13	12	e18	e6.0	e5.0	e140	e14	30	40	73	9.4	9.6
15	13	15	e17	e5.8	e6.0	e130	e13	29	32	60	9.4	11
16	13	14	e17	e5.5	e9.0	e110	e13	29	29	46	8.9	14
17	13	16	e16	e5.2	e15	e90	e12	29	28	33	9.1	17
18	13	14	e15	e5.0	e20	e68	e12	26	27	32	8.9	20
19	13	42	e15	e5.0	e80	e55	e11	23	28	27	8.4	17
20	12	18	e15	e5.0	e300	e44	e11	21	30	23	8.2	14
21	11	14	e15	e5.5	e200	e36	e10	21	31	19	8.2	14
22	12	e11	e14	e6.0	e130	e32	e9.8	20	28	18	8.3	12
23	11	e9.0	e13	e7.0	e80	e28	e9.4	34	28	16	8.7	11
24	11	e7.0	e13	e8.0	e50	e25	e9.0	32	26	14	8.3	11
25	11	e5.3	e14	e7.0	e47	e20	e10	22	23	13	8.4	11
26	10	e4.0	e15	e6.8	e44	e20	e20	20	20	12	7.6	10
27	10	e3.0	e14	e6.5	e40	e21	e31	18	20	12	8.1	10
28	9.8	e5.0	e13	e6.2	e45	e22	e50	18	18	12	7.6	10
29	7.4	e8.0	e12	e6.0	---	e26	e55	17	18	11	8.0	10
30	8.6	e13	e11	e5.9	---	e27	e60	17	19	11	8.3	11
31	9.5	---	e10	e5.6	---	e28	---	16	---	10	8.5	---
TOTAL	386.3	344.1	505	205.8	1131.0	8112	735.2	1755	1158	2853	281.1	342.3
MEAN	12.5	11.5	16.3	6.64	40.4	262	24.5	56.6	38.6	92.0	9.07	11.4
MAX	15	42	22	9.5	300	1800	60	300	117	567	12	20
MIN	7.4	3.0	10	5.0	4.0	20	9.0	16	18	10	7.6	8.8
AC-FT	766	683	1000	408	2240	16090	1460	3480	2300	5660	558	679

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1994, BY WATER YEAR (WY)

MEAN	21.0	11.6	6.69	6.42	20.8	150	168	74.0	74.7	47.1	20.4	14.5
MAX	135	26.6	20.5	64.1	267	807	2446	401	336	590	85.6	62.7
(WY)	1983	1973	1973	1973	1972	1972	1952	1982	1967	1993	1981	1986
MIN	6.32	3.57	.000	.000	.000	5.58	10.7	9.39	5.37	2.84	1.16	4.40
(WY)	1959	1956	1956	1949	1949	1975	1981	1992	1961	1961	1959	1981

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1947 - 1994	
ANNUAL TOTAL	32787.05		17808.8			
ANNUAL MEAN	89.8		48.8		51.3a	
HIGHEST ANNUAL MEAN					221	1950
LOWEST ANNUAL MEAN					10.1	1961
HIGHEST DAILY MEAN	1930	Jul 28	1800	Mar 5	15600	Apr 16 1950
LOWEST DAILY MEAN	.00	Jan 4	3.0	Nov 27	.00	Feb 6 1948b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 4	4.2	Feb 7	.00	Feb 6 1948
INSTANTANEOUS PEAK FLOW			2000	Mar 5	27000	Apr 15 1950c
INSTANTANEOUS PEAK STAGE			7.01	Mar 5d	15.40	Apr 15 1950
ANNUAL RUNOFF (AC-FT)	65030		35320		37190	
10 PERCENT EXCEEDS	220		80		71	
50 PERCENT EXCEEDS	17		14		12	
90 PERCENT EXCEEDS	3.2		6.8		2.0	

e Estimated
a Median of annual mean discharges, 36 ft^3/s.
b No flow at times in most years.
c From rating curve extended above 14,000 ft^3/s on basis of slope-area measurement of peak flow.
d From floodmarks, backwater from ice.

GRAND-MOREAU RIVER BASIN

06357000 SHADEHILL RESERVOIR AT SHADEHILL, SD

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

DRAINAGE AREA.--3,120 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, 89,400 acre-ft, Mar. 19, elevation, 2,273.61 ft; minimum, 63,800 acre-ft, Mar. 1, elevation, 2,268.23 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,270.61	74,800	-
Oct. 31	2,270.16	72,700	-2,100
Nov. 30	2,269.62	70,200	-2,500
Dec. 31	2,269.28	68,600	-1,600
CAL YR 1993	-	-	+22,100
Jan. 31	2,268.77	66,200	-2,400
Feb. 28	2,268.25	63,900	-2,300
Mar. 31	2,272.97	86,200	+22,300
Apr. 30	2,272.54	84,100	-2,100
May 31	2,272.28	82,800	-1,300
June 30	2,271.93	81,100	-1,700
July 31	2,272.07	81,800	+700
Aug. 31	2,271.12	77,200	-4,600
Sept. 30	2,270.35	73,600	-3,600
WTR YR 1994	-	-	-1,200

06357800 GRAND RIVER AT LITTLE EAGLE, SD

LOCATION.--Lat 45°39'28", long 100°49'04", in NE1/4 NE1/4 sec.32, T.20 N., R.27 E., Corson County, Hydrologic Unit 10130303, on left bank at downstream side of bridge on State Highway 63, 1.3 mi southwest of Little Eagle, and 4.7 mi downstream from Little Oak Creek.

DRAINAGE AREA.--5,370 mi^2, approximately.

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

GAGE.--Water-stage recorder. Datum of gage is 1,628.63 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 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. Flow regulated by Shadehill Dam 144 mi upstream since July 1, 1950. (See station 06357000.) This site discontinued as a National stream-quality accounting network station in September 1990. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	59	e60	e50	e47	e49	704	1050	118	120	76	57
2	72	57	e60	e50	e46	e49	701	1400	115	108	74	59
3	62	62	e60	e50	e45	e52	650	1250	112	103	73	60
4	57	64	e60	e50	e45	e60	573	865	102	99	69	61
5	55	e45	e60	e48	e42	e130	511	664	97	110	96	61
6	54	e44	e60	e47	e39	e2300	477	562	94	155	91	60
7	53	e52	e60	e46	e34	e1500	439	474	96	535	85	58
8	53	e51	e60	e46	e31	e1800	404	416	116	893	76	55
9	51	e50	e60	e46	e31	e1900	387	376	1920	727	74	54
10	53	e60	e60	e47	e33	e1700	390	333	1750	432	71	53
11	54	e62	e60	e48	e35	e2100	392	298	961	265	69	53
12	55	e64	e60	e51	e38	e2500	343	265	565	295	68	69
13	52	e62	e60	e52	e40	1640	318	248	361	282	67	66
14	52	e60	e60	e51	e44	1560	303	232	268	265	66	61
15	52	e58	e60	e49	e49	2210	289	213	224	253	61	60
16	51	e58	e60	e48	e52	2360	277	202	203	181	59	65
17	51	e56	e60	e47	e54	2030	264	189	185	185	59	67
18	51	e58	e59	e46	e56	2010	258	177	177	291	56	67
19	53	e60	e57	e46	e56	2040	232	166	171	191	57	70
20	52	e62	e56	e47	e55	1830	220	161	162	149	58	63
21	50	e64	e54	e50	e54	1650	207	158	149	130	56	58
22	50	e50	e53	e52	e53	1420	192	151	150	119	53	57
23	50	e35	e52	e54	e52	1210	180	148	139	112	52	57
24	50	e33	e51	e53	e52	1030	176	144	136	105	52	59
25	48	e45	e51	e52	e51	910	182	254	179	96	50	59
26	48	e55	e50	e51	e50	838	220	221	203	91	50	57
27	47	e58	e50	e50	e49	787	270	175	161	88	49	57
28	46	e60	e50	e49	e49	763	307	154	134	86	48	57
29	44	e60	e50	e50	---	706	405	139	126	83	49	57
30	32	e60	e50	e49	---	631	581	129	116	80	58	57
31	47	---	e50	e48	---	581	---	121	---	77	57	---
TOTAL	1617	1664	1753	1523	1282	40346	10852	11335	9290	6706	1979	1794
MEAN	52.2	55.5	56.5	49.1	45.8	1301	362	366	310	216	63.8	59.8
MAX	72	64	60	54	56	2500	704	1400	1920	893	96	70
MIN	32	33	50	46	31	49	176	121	94	77	48	53
AC-FT	3210	3300	3480	3020	2540	80030	21520	22480	18430	13300	3930	3560

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1994, BY WATER YEAR (WY)

MEAN	77.5	51.1	30.6	48.0	72.1	817	515	447	313	199	103	80.4
MAX	231	204	103	867	782	3866	3183	2292	1045	2298	554	249
(WY)	1980	1961	1983	1973	1973	1987	1978	1986	1967	1993	1993	1973
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1959 - 1994	
ANNUAL TOTAL	143032.99		90141			
ANNUAL MEAN	392		247		231a	
HIGHEST ANNUAL MEAN					745	1978
LOWEST ANNUAL MEAN					46.3	1992
HIGHEST DAILY MEAN	7100	Mar 7	2500	Mar 12	26500	Mar 23 1987
LOWEST DAILY MEAN	.00	Jan 1	31	Feb 8	.00	Oct 2 1958b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	34	Feb 6	.00	Oct 2 1958
INSTANTANEOUS PEAK FLOW			4000	Mar 11c	31000	Mar 23 1987d
INSTANTANEOUS PEAK STAGE			14.23	Mar 6f	21.76	Mar 18 1966g
ANNUAL RUNOFF (AC-FT)	283700		178800		167100	
10 PERCENT EXCEEDS	1180		656		424	
50 PERCENT EXCEEDS	60		61		60	
90 PERCENT EXCEEDS	3.4		48		3.7	

e Estimated
a Median of annual mean discharges, 180 ft^3/s.
b No flow at times in most years.
c Gage height, 9.95 ft, ice jam.
d Gage height, 19.16 ft.
f 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 NW1/4 NW1/4 sec.10, T.14 N., R.16 E., Perkins County, Hydrologic Unit 10130306, on left bank 10 ft downstream from bridge on State Highway 73, 3.1 mi downstream from Rabbit Creek, and 13.5 mi northwest of Faith.

DRAINAGE AREA.--2,660 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. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	17	e20	e14	e10	e10	86	233	19	7.0	e5.2	1.2
2	17	20	e20	e13	e10	e200	80	672	22	8.8	e4.8	1.5
3	17	16	e22	e12	e10	e900	75	1090	22	8.4	e4.8	2.5
4	16	17	e25	e11	e10	e1500	77	855	21	8.5	e4.5	4.9
5	16	e17	e22	e10	e10	e3300	76	597	19	8.2	e5.7	4.1
6	16	e16	e20	e9.5	e10	e3280	74	431	17	36	e7.0	4.3
7	16	e17	e20	e9.0	e10	e2060	70	311	34	180	e4.1	4.4
8	16	e21	e21	e9.0	e9.6	e1410	77	222	110	91	e4.8	6.1
9	16	23	e22	e9.2	e9.3	e1200	86	164	55	68	e4.5	8.0
10	17	33	e22	e9.4	e9.0	e871	87	131	75	75	e5.7	7.0
11	17	33	e22	e9.6	e9.5	e653	95	109	103	59	5.2	5.5
12	17	e28	e22	e9.8	e9.8	e589	99	89	77	43	5.0	5.0
13	17	e24	e21	e10	e10	e593	90	75	51	50	4.8	5.0
14	18	e22	e20	e9.5	e11	e616	80	69	37	48	5.1	5.0
15	18	e22	e20	e9.0	e12	e646	73	60	30	e52	5.0	5.2
16	20	e22	e20	e8.5	e13	e602	65	53	29	e41	5.8	5.4
17	20	e23	e20	e8.0	e15	e560	59	48	26	e40	4.2	5.3
18	20	24	e19	e8.0	e16	e529	55	45	24	e73	3.9	5.0
19	20	31	e19	e8.0	e20	e439	51	41	21	e38	3.1	4.7
20	19	29	e19	e8.8	e16	e362	48	37	19	e31	3.2	4.3
21	20	e31	e19	e9.2	e11	e311	45	46	16	e25	2.0	4.8
22	19	e24	e18	e10	e10	e275	41	44	16	e19	1.7	4.8
23	19	e18	e18	e13	e9.8	e241	39	34	17	e15	1.6	4.5
24	19	e16	e17	e12	e9.4	e216	38	30	14	e12	1.2	5.6
25	19	e15	e17	e11	e9.0	e181	42	27	13	e8.4	1.2	7.8
26	18	e15	e17	e11	e9.0	e155	57	25	11	e5.7	1.1	7.9
27	e17	e16	e16	e11	e9.4	e135	63	23	10	e3.4	1.2	7.8
28	e16	e17	e15	e11	e9.6	e117	77	21	9.0	e3.7	1.1	7.3
29	15	e18	e15	e11	---	e119	86	19	7.8	e5.2	1.0	6.9
30	20	e20	e15	e10	---	e114	124	18	6.9	e5.2	1.1	7.1
31	25	---	e15	e10	---	95	---	17	---	e5.2	1.1	---
TOTAL	557	645	598	314.5	307.4	22279	2115	5636	931.7	1073.7	110.7	158.9
MEAN	18.0	21.5	19.3	10.1	11.0	719	70.5	182	31.1	34.6	3.57	5.30
MAX	25	33	25	14	20	3300	124	1090	110	180	7.0	8.0
MIN	15	15	15	8.0	9.0	10	38	17	6.9	3.4	1.0	1.2
AC-FT	1100	1280	1190	624	610	44190	4200	11180	1850	2130	220	315

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1994, BY WATER YEAR (WY)

MEAN	30.8	12.2	6.18	6.76	38.3	372	388	266	278	125	33.9	15.9
MAX	463	90.8	23.4	99.0	606	2757	4355	2203	1850	1530	258	262
(WY)	1983	1947	1987	1973	1947	1978	1952	1982	1944	1993	1993	1986
MIN	.000	1.10	.000	.000	.000	.19	5.27	4.60	12.5	.36	.000	.003
(WY)	1959	1946	1956	1944	1944	1944	1981	1980	1989	1955	1949	1958

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1944 - 1994	
ANNUAL TOTAL	110911.9		34726.9			
ANNUAL MEAN	304		95.1		131a	
HIGHEST ANNUAL MEAN					485	1944
LOWEST ANNUAL MEAN					7.60	1961
HIGHEST DAILY MEAN	4490	Jul 28	3300	Mar 5	25300	Apr 8 1944
LOWEST DAILY MEAN	1.1	Jan 1	1.0	Aug 29	.00	Dec 15 1943b
ANNUAL SEVEN-DAY MINIMUM	1.2	Jan 8	1.1	Aug 25	.00	Dec 15 1943
INSTANTANEOUS PEAK FLOW			3750	Mar 5e	26000	Apr 9 1944c
INSTANTANEOUS PEAK STAGE			14.37	Mar 5d	20.90	Apr 9 1944f
ANNUAL RUNOFF (AC-FT)	220000		68880		95130	
10 PERCENT EXCEEDS	1050		133		181	
50 PERCENT EXCEEDS	27		18		10	
90 PERCENT EXCEEDS	2.6		5.0		.01	

e Estimated
a Median of annual mean discharges, 92 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.
d Ice jam.
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 SW1/4 SE1/4 sec.17, T.15 N., R.27 E., Dewey County, Hydrologic Unit 10130306, on left bank 30 ft downstream from bridge, 2.4 mi southeast of Whitehorse, 8.8 mi downstream from Little Moreau River, and 16.3 mi southeast of town of Timber Lake.

DRAINAGE AREA.--4,880 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. 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 1953 reached a stage of about 26.2 ft. Flood in March 1947 was probably higher.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	20	e14	e10	e4.0	e9.0	279	340	27	14	9.9	6.3
2	22	22	e13	e10	e4.5	e10	300	689	27	12	9.5	7.1
3	22	22	e14	e10	e4.0	e30	286	757	27	9.8	71	7.1
4	25	21	e14	e10	e4.0	e1000	248	926	25	8.3	55	5.8
5	26	e20	e14	e9.0	e4.5	e7000	231	1300	26	6.9	19	4.8
6	26	e21	e13	e8.0	e4.0	e5500	205	1090	22	30	18	4.1
7	26	e19	e12	e7.0	e3.0	e4500	190	860	22	1210	15	3.8
8	26	e21	e12	e7.0	e2.0	e3800	182	693	32	1150	11	3.5
9	25	e22	e13	e7.0	e2.5	e3300	182	548	73	e634	10	3.0
10	26	e24	e14	e7.0	e2.8	e3000	166	432	588	e472	8.2	2.4
11	24	e22	e13	e7.0	e3.0	e2900	156	340	442	e405	7.0	1.8
12	22	e21	e14	e7.0	e3.3	e2800	151	261	264	e333	6.0	1.4
13	22	e20	e13	e6.5	e3.5	e2700	147	208	168	e260	6.9	1.0
14	22	e21	e13	e6.0	e3.8	e2600	151	179	137	178	8.7	.67
15	21	e23	e13	e5.5	e4.0	e2500	161	156	126	120	11	.51
16	23	e25	e13	e5.0	e5.0	e2300	e145	135	106	96	8.5	.55
17	25	e27	e12	e4.5	e7.0	2170	e130	112	79	72	7.1	.31
18	26	e20	e12	e4.0	e10	1880	e115	96	59	57	6.1	e.20
19	27	e21	e11	e3.5	e9.5	1710	e100	93	51	46	5.4	e.10
20	26	e18	e11	e4.0	e9.0	1480	84	79	36	47	5.0	e.00
21	25	e17	e11	e4.0	e8.0	1270	84	76	30	47	4.0	.00
22	25	e16	e10	e4.5	e8.0	1060	77	67	25	54	3.7	.00
23	25	e15	e10	e4.5	e8.0	896	71	57	24	62	5.5	.00
24	24	e12	e11	e4.0	e8.0	743	68	52	37	47	6.3	.00
25	23	e10	e11	e4.0	e8.0	660	65	50	48	36	6.2	.00
26	22	e10	e11	e4.0	e7.5	578	73	46	59	30	6.2	.00
27	22	e11	e10	e4.0	e7.5	537	96	48	41	24	6.0	.00
28	22	e12	e10	e4.5	e8.0	463	160	42	36	20	6.7	.00
29	21	e13	e10	e4.0	---	411	189	37	28	16	6.6	.00
30	19	e13	e10	e4.0	---	367	230	32	19	13	6.7	.00
31	22	---	e10	e4.0	---	313	---	30	---	11	6.5	---
TOTAL	734	559	372	183.5	156.4	58487.0	4722	9831	2684	5521.0	362.7	54.44
MEAN	23.7	18.6	12.0	5.92	5.59	1887	157	317	89.5	178	11.7	1.81
MAX	27	27	14	10	10	7000	300	1300	588	1210	71	7.1
MIN	19	10	10	3.5	2.0	9.0	65	30	19	6.9	3.7	.00
AC-FT	1460	1110	738	364	310	116000	9370	19500	5320	10950	719	108

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1994, BY WATER YEAR (WY)

MEAN	41.4	7.14	3.92	7.61	35.9	846	396	570	357	204	59.4	20.2
MAX	642	59.1	38.2	210	291	5239	2135	3759	2433	2438	452	186
(WY)	1983	1983	1987	1973	1973	1978	1986	1982	1967	1993	1993	1986
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1955 - 1994	
ANNUAL TOTAL	195836.00		83667.04			
ANNUAL MEAN	537		229		214a	
HIGHEST ANNUAL MEAN					738	1978
LOWEST ANNUAL MEAN					8.39	1980
HIGHEST DAILY MEAN	7870	Jul 23	7000	Mar 5	24900	Mar 24 1978
LOWEST DAILY MEAN	.00	Jan 1	.00	Sep 20b	.00	Jan 12 1955b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Sep 20	.00	Jan 12 1955
INSTANTANEOUS PEAK FLOW			10000	Mar 5	27700	May 24 1982c
INSTANTANEOUS PEAK STAGE			23.25	Mar 5d	26.20	Mar 14 1972d
ANNUAL RUNOFF (AC-FT)	388400		166000		154900	
10 PERCENT EXCEEDS	1750		498		384	
50 PERCENT EXCEEDS	40		21		7.6	
90 PERCENT EXCEEDS	.00		4.0		.00	

e Estimated
a Median of annual mean discharges, 130 ft^3/s.
b No flow at times in each year.
c Gage height, 26.00 ft.
d Backwater from ice.

CHEYENNE RIVER BASIN

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

LOCATION.--Lat 44°05'06", long 104°03'36", in SE1/4 NE1/4 NE1/4 sec.4, T.47 N., R.60 W., Weston County, Hydrologic Unit 10120107, on right bank in Mallo Campgrounds, 250 ft upstream from mouth, 750 ft upstream from dam on Stockade Beaver Creek, and 3.8 mi east of Four Corners.

DRAINAGE AREA.--10.3 mi^2.

PERIOD OF RECORD.--October 1974 to September 1982 and 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.--Estimated daily discharges: Oct. 29 to Nov. 1, Nov. 5-11, 20-29, Dec. 6-12, Dec. 15 to Jan. 1, Jan. 4-13, 16-29, Feb. 4-18, 23-28, and Mar. 8-10, 27-31. Records good except those for estimated daily discharges, which are poor. No diversions upstream from station

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 22	1715	*103	*2.14	Apr. 25	0445	53	1.82
Apr. 23	1945	19	1.45				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.7	1.8	1.7	1.4	1.4	1.4	2.6	1.8	.94	1.4	1.6
2	1.6	1.7	1.7	1.7	1.6	1.3	1.4	2.7	1.8	.92	1.5	1.6
3	1.6	1.7	1.7	1.6	1.7	1.3	1.4	2.5	1.7	1.2	1.4	1.6
4	1.6	1.6	1.7	1.4	1.6	1.3	1.5	2.4	1.7	1.6	1.5	1.6
5	1.6	1.5	1.7	1.2	1.5	1.3	1.4	2.1	1.7	1.3	1.4	1.6
6	1.6	1.4	1.6	.95	1.6	1.3	1.5	2.7	1.6	1.7	1.4	1.6
7	1.6	1.3	1.4	1.2	1.6	1.3	1.5	2.4	1.7	1.6	1.3	1.6
8	1.7	1.4	1.6	1.4	1.3	1.1	1.4	2.2	1.7	1.4	1.5	1.6
9	1.7	1.5	1.7	1.6	1.1	1.3	1.4	2.4	1.6	1.5	1.2	1.6
10	1.7	1.6	1.5	1.7	1.2	1.4	1.4	2.2	1.6	1.4	1.2	1.6
11	1.7	1.7	1.6	1.7	1.3	1.6	1.4	2.2	1.6	1.4	2.3	1.5
12	1.7	1.8	1.6	1.7	1.2	1.3	1.5	2.0	1.6	1.5	1.7	1.5
13	1.7	1.8	1.6	1.6	1.2	1.3	1.5	2.1	1.6	1.5	1.7	1.5
14	1.8	1.8	1.6	1.6	1.3	1.3	1.4	2.2	1.6	1.5	1.7	1.6
15	1.8	1.7	1.5	1.5	1.2	1.3	1.4	2.0	1.1	1.4	1.6	1.8
16	2.1	1.8	1.5	1.4	1.3	1.3	1.5	1.9	1.4	1.4	1.7	1.6
17	1.8	1.8	1.6	1.2	1.4	1.3	1.8	2.0	1.2	1.4	1.7	1.6
18	1.8	1.8	1.5	1.0	1.5	1.3	2.2	1.9	1.3	1.6	1.7	1.6
19	1.7	1.7	1.4	1.1	1.5	1.4	2.5	1.9	1.2	1.2	1.7	1.6
20	1.7	1.5	1.5	1.2	1.4	1.4	3.0	2.0	1.2	1.4	1.8	1.6
21	1.7	1.6	1.5	1.3	1.4	1.4	6.5	1.8	1.1	1.4	1.6	1.6
22	1.7	1.5	1.5	1.4	1.4	1.4	28	2.0	1.1	1.4	1.6	1.5
23	1.7	1.2	1.3	1.4	1.3	1.4	13	1.9	1.0	1.4	1.6	1.4
24	1.7	1.1	1.3	1.5	1.2	1.4	5.6	1.9	.91	1.4	1.6	1.4
25	1.7	1.2	1.4	1.5	1.0	1.4	18	1.9	.89	1.5	1.5	1.4
26	1.7	1.4	1.5	1.5	1.1	1.4	5.2	1.8	.94	1.4	1.5	1.4
27	1.7	1.5	1.6	1.4	1.2	1.3	3.9	1.8	.91	1.6	1.5	1.5
28	1.7	1.6	1.6	1.4	1.3	1.3	3.4	1.8	.90	1.4	1.5	1.5
29	1.6	1.7	1.6	1.4	---	1.2	3.1	1.9	.91	1.3	1.5	1.5
30	1.3	1.9	1.7	1.4	---	1.3	2.8	1.8	.96	1.4	1.6	1.4
31	1.5	---	1.7	1.4	---	1.3	---	1.7	---	1.5	1.7	---
TOTAL	52.1	47.5	48.5	44.05	37.8	41.3	122.0	64.7	40.32	43.56	48.6	46.5
MEAN	1.68	1.58	1.56	1.42	1.35	1.33	4.07	2.09	1.34	1.41	1.57	1.55
MAX	2.1	1.9	1.8	1.7	1.7	1.6	28	2.7	1.8	1.7	2.3	1.8
MIN	1.3	1.1	1.3	.95	1.0	1.1	1.4	1.7	.89	.92	1.2	1.4
AC-FT	103	94	96	87	75	82	242	128	80	86	96	92

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1994, BY WATER YEAR (WY)

MEAN	1.71	1.57	1.50	1.40	1.62	1.68	2.19	2.10	2.25	1.96	1.83	1.76
MAX	2.32	2.35	2.23	2.17	2.51	2.70	4.07	3.44	4.05	3.09	2.89	2.78
(WY)	1979	1981	1980	1979	1979	1979	1994	1978	1980	1979	1978	1978
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1975 - 1994	
ANNUAL TOTAL	481.83		636.93			
ANNUAL MEAN	1.32		1.75		1.81	
HIGHEST ANNUAL MEAN					2.59	1979
LOWEST ANNUAL MEAN					.94	1977
HIGHEST DAILY MEAN	27	Jun 8	28	Apr 22	28	Apr 22 1994
LOWEST DAILY MEAN	.10	Jan 20	.89	Jun 25	.10	Jan 20 1993
ANNUAL SEVEN-DAY MINIMUM	.12	Jan 17	.92	Jun 24	.12	Jan 17 1993
INSTANTANEOUS PEAK FLOW			103a	Apr 22	103a	Apr 22 1994
INSTANTANEOUS PEAK STAGE			2.14	Apr 22	2.14	Apr 22 1994
ANNUAL RUNOFF (AC-FT)	956		1260		1310	
10 PERCENT EXCEEDS	1.7		1.9		2.6	
50 PERCENT EXCEEDS	1.3		1.5		1.7	
90 PERCENT EXCEEDS	.68		1.2		.95	

a From rating curve extended above 3.0 ft^3/s on basis of critical-depth computations.

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

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Shielded precipitation recorder with 8.0-in. orifice and 12-in. capacity. Elevation of gage is 6,000 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--5 years, 23.52 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	e.07	e.00	.00	.00	e.14	e.00	.73	.04
2	.00	.00	.40	.12	e.10	.00	.00	.11	e.32	e.00	.26	.00
3	.00	.09	.00	.18	e.00	.00	.00	.00	e.01	e.08	.00	.06
4	.00	.25	.35	.00	e.00	.00	.49	.02	e.01	e.00	.00	.00
5	.00	.07	.63	.05	e.00	.10	.00	.40	e.00	e.00	.00	.00
6	.00	.00	.00	.00	e.12	.00	.00	.15	e.00	e1.05	.00	.00
7	.07	.03	.00	.15	e.14	.04	.33	e.00	e.30	e.08	.03	.00
8	.28	.00	.00	.04	e.02	.00	.00	e.00	e.07	e.01	.00	.00
9	.02	.00	.00	.00	e.00	.00	.00	e.00	e.00	e.01	.10	.00
10	.00	.00	.00	.00	e.12	.00	.00	e.00	e.00	e.01	.00	.00
11	.00	.00	.00	.00	e.02	.00	.00	e.00	e.00	e.00	.00	.00
12	.05	.00	.05	.22	e.00	.00	.00	e.06	e.00	.00	.00	.00
13	.08	.13	.00	.50	e.00	.00	.00	e.68	e.00	.15	.00	.05
14	.29	.02	.00	.27	e.00	.00	.06	e.00	e.00	.00	.00	.00
15	.06	.00	.00	.19	e.00	.00	.09	e.00	e.24	.00	.00	.68
16	.67	.00	.08	.09	e.00	.00	.00	e.00	e.00	.00	.00	.00
17	.01	.00	.05	.18	e.00	.00	.00	e.00	e.00	.00	.00	.00
18	.00	.14	.00	.12	e.00	.00	.00	e.00	e.00	.00	.00	.00
19	.00	.00	.17	.00	e.13	.05	.00	e.33	e.00	.10	.00	.00
20	.00	.00	.00	.02	e.09	.02	.00	e.11	e.00	.00	.00	.00
21	.00	.00	.26	.00	e.16	.00	.00	e.00	e.54	.00	.00	.13
22	.00	.01	.24	.01	e.04	.00	.25	e.00	e.00	.00	.11	.00
23	.00	.09	.25	.00	e.00	.71	.00	e.00	e.00	.00	.00	.00
24	.00	.03	.78	.00	e.29	.00	.47	e.07	e.00	.00	.00	.00
25	.00	.23	.02	.00	e.00	.00	.70	e.00	e.00	.28	.00	.00
26	.00	.66	.00	.00	e.00	.20	.40	e.00	e.00	.00	.00	.00
27	.03	.00	.04	.00	e.00	.21	.10	e.00	e.00	.00	.04	.00
28	.09	.00	.00	.03	e.11	.38	.03	e.00	e.00	.00	.00	.00
29	.06	.00	.00	.44	---	.06	.00	e.00	e.00	.00	.07	.00
30	.00	.00	.00	.05	---	.00	.00	e.34	e.00	.00	.00	.00
31	.00	---	.16	.15	---	.00	---	e.02	---	.00	.33	---
TOTAL	1.71	1.75	3.48	2.81	1.41	1.77	2.92	2.29	1.63	1.77	1.67	0.96

CAL YR 1993 TOTAL 29.70
WTR YR 1994 TOTAL 24.17

e Estimated

CHEYENNE RIVER BASIN

06392950 STOCKADE BEAVER CREEK NEAR NEWCASTLE, WY

LOCATION.--Lat 43°51'32", long 104°06'24", in SW1/4 SE1/4 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.--Estimated daily discharges: Nov. 23-25, Jan. 7, 8, and Feb. 3-5, 8, 9, 13, 18, 25. Records fair except those for estimated discharges, which are poor. A few small diversions upstream from station for irrigation.

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

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 9	1030	ice jam	*7.60	No peak greater than base discharge.			
July 24	1730	*38	7.31				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.6	11	12	11	14	12	8.3	6.6	8.5	8.1	12
2	11	9.3	11	12	11	16	12	8.1	6.5	7.2	9.7	12
3	11	8.5	12	12	10	18	12	8.1	6.5	7.3	9.1	11
4	11	8.4	12	12	9.5	20	12	8.0	6.1	7.4	8.6	12
5	11	8.3	12	12	11	19	12	7.9	6.2	7.5	8.6	12
6	11	8.4	12	12	12	16	12	8.7	6.4	7.8	8.5	12
7	11	8.6	12	10	12	14	12	8.1	6.3	8.1	8.3	11
8	11	8.6	12	11	11	13	13	8.0	7.5	8.3	8.7	11
9	11	9.1	12	12	9.4	13	12	7.9	7.6	7.6	9.6	11
10	11	9.1	13	12	12	13	12	7.9	7.8	7.6	9.8	11
11	11	9.3	12	12	12	14	12	8.1	7.8	8.3	9.8	11
12	11	9.4	13	12	12	14	12	7.8	7.9	8.1	8.8	11
13	11	9.8	13	12	11	14	12	8.4	7.9	8.9	8.7	10
14	11	9.9	12	12	12	14	12	8.7	8.0	8.8	9.1	10
15	11	10	12	12	12	14	12	8.3	9.9	7.9	9.4	10
16	11	10	12	12	12	13	11	8.3	10	8.0	10	11
17	11	10	12	12	12	13	8.7	8.3	10	8.1	10	11
18	11	10	12	12	11	13	8.6	8.0	10	7.8	9.5	11
19	10	10	12	12	12	13	8.4	7.7	10	8.1	9.5	11
20	10	10	12	12	12	13	8.3	8.2	9.8	8.6	9.5	11
21	10	11	12	11	12	13	8.3	8.1	9.3	8.8	9.4	11
22	10	11	12	11	12	13	8.4	8.1	8.6	8.8	7.5	11
23	10	9.8	12	11	12	13	9.0	7.9	8.6	8.9	7.5	11
24	10	9.2	12	11	12	12	8.5	8.1	8.5	15	7.0	11
25	10	10	12	11	11	12	11	8.0	8.3	12	8.6	11
26	10	11	12	11	13	12	9.9	7.7	8.5	9.9	8.8	11
27	10	11	12	11	13	12	9.1	7.5	9.5	9.4	9.5	11
28	10	11	12	11	13	12	9.0	7.5	9.6	9.3	11	11
29	10	11	11	11	---	12	8.9	7.5	8.2	9.1	11	11
30	9.8	11	11	11	---	12	8.5	7.5	8.7	8.5	11	11
31	9.6	---	12	11	---	12	---	7.3	---	8.0	12	---
TOTAL	327.4	292.3	371	358	324.9	426	316.6	248.0	246.6	267.6	286.6	332
MEAN	10.6	9.74	12.0	11.5	11.6	13.7	10.6	8.00	8.22	8.63	9.25	11.1
MAX	11	11	13	12	13	20	13	8.7	10	15	12	12
MIN	9.6	8.3	11	10	9.4	12	8.3	7.3	6.1	7.2	7.0	10
AC-FT	649	580	736	710	644	845	628	492	489	531	568	659

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1994, BY WATER YEAR (WY)

MEAN	11.9	12.3	12.4	12.1	12.4	13.3	12.0	8.92	10.3	10.3	10.3	11.3
MAX	14.1	14.8	14.4	14.8	14.4	15.7	16.5	12.3	12.5	13.7	13.8	13.5
(WY)	1975	1977	1976	1977	1977	1979	1975	1978	1991	1993	1979	1979
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1975 - 1994	
ANNUAL TOTAL	3770.8		3797.0			
ANNUAL MEAN	10.3		10.4		11.5	
HIGHEST ANNUAL MEAN					13.0	1979
LOWEST ANNUAL MEAN					9.80	1992
HIGHEST DAILY MEAN	143	Jul 16	20	Mar 4	143	Jul 16 1993
LOWEST DAILY MEAN	5.2	Jun 1	6.1	Jun 4	3.9	May 21 1992
ANNUAL SEVEN-DAY MINIMUM	5.4	May 28	6.4	Jun 1	4.6	Aug 2 1992
INSTANTANEOUS PEAK FLOW			38a	Jul 24	776b	Jul 16 1993
INSTANTANEOUS PEAK STAGE			7.60c	Feb 9	12.44	Jul 16 1993
ANNUAL RUNOFF (AC-FT)	7480		7530		8310	
10 PERCENT EXCEEDS	12		12		14	
50 PERCENT EXCEEDS	10		11		11	
90 PERCENT EXCEEDS	6.9		7.9		8.1	

a Gage height, 7.31 ft.
b From rating curve extended above 18 ft^3/s on basis of culvert-backwater computations.
c Backwater from ice.

06395000 CHEYENNE RIVER AT EDGEMONT, SD

LOCATION.--Lat 43°18'20", long 103°49'14", in SW1/4 SE1/4 SE1/4 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. U.S. Bureau of Reclamation satellite data-collection platform at station.

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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	15	e7.0	e8.5	e8.0	e70	64	133	14	.43	8.3	.07
2	13	17	e6.5	e8.5	e8.0	e300	55	159	13	.35	7.1	.09
3	14	18	e8.0	e8.0	e9.0	e1700	54	111	12	.31	6.9	.10
4	15	18	e8.0	e9.0	e8.0	1280	59	102	10	.25	5.2	.10
5	16	33	e8.0	e9.5	e7.0	1280	65	78	11	.24	3.9	.09
6	17	32	e7.5	e9.0	e9.0	1300	67	65	11	.27	3.2	.08
7	21	34	e6.0	e8.0	e8.0	1310	65	62	9.7	2.5	2.4	.08
8	29	32	e6.0	e7.5	e7.0	1390	66	53	13	1.6	1.8	.08
9	33	30	e7.0	e7.5	e6.0	1220	63	46	10	36	1.6	.07
10	31	38	e7.5	e7.5	e7.0	653	67	45	8.3	22	1.3	.07
11	30	29	e7.5	e8.0	e8.5	499	62	55	7.8	13	.86	.08
12	36	32	e8.0	e8.0	e9.0	377	56	51	7.2	21	1.7	.15
13	40	19	e8.0	e8.5	e9.0	366	57	70	6.7	21	.63	.11
14	37	e17	e7.0	e9.0	e17	563	55	70	5.5	14	.51	.09
15	40	e16	e6.0	e7.5	e35	567	47	42	4.2	14	.38	.12
16	43	e15	e5.5	e7.5	e80	438	42	35	4.7	18	.27	.09
17	42	e20	e5.5	e7.0	e58	399	39	29	3.3	243	.15	.09
18	40	e20	e5.0	e6.0	e40	355	40	31	2.7	199	.13	.09
19	38	e20	e5.0	e5.5	e70	281	38	38	2.8	168	.11	.09
20	46	e27	e5.0	e5.5	e52	218	32	35	3.6	87	.09	.10
21	65	e29	e5.0	e6.0	e40	182	27	31	3.6	42	.08	.10
22	53	e35	e5.0	e7.0	e35	143	29	29	4.8	28	.07	.10
23	46	e15	e4.5	e8.0	e30	125	25	28	6.9	19	.06	.10
24	41	e9.0	e4.5	e9.0	e30	114	20	28	4.9	14	.06	.11
25	36	e8.0	e5.0	e9.0	e25	91	26	40	3.3	12	.05	.12
26	36	e7.0	e6.0	e8.0	e20	86	40	35	2.0	13	.05	.13
27	36	e7.0	e7.0	e7.0	e30	83	60	30	1.2	11	.05	.13
28	36	e7.0	e8.0	e7.0	e50	78	96	26	.72	27	.05	.14
29	29	e6.8	e8.0	e8.0	---	74	86	20	.76	19	.06	.15
30	e25	e6.8	e8.0	e8.0	---	69	112	17	.59	15	.06	.18
31	e20	---	e8.0	e7.0	---	68	---	14	---	10	.06	---
TOTAL	1017	612.6	203.0	239.5	715.5	15679	1614	1608	189.27	1071.95	47.18	3.10
MEAN	32.8	20.4	6.55	7.73	25.6	506	53.8	51.9	6.31	34.6	1.52	.10
MAX	65	38	8.0	9.5	80	1700	112	159	14	243	8.3	.18
MIN	13	6.8	4.5	5.5	6.0	68	20	14	.59	.24	.05	.07
AC-FT	2020	1220	403	475	1420	31100	3200	3190	375	2130	94	6.1

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1994, BY WATER YEAR (WY)

MEAN	16.3	11.5	7.23	6.57	31.7	120	62.4	227	263	133	71.4	28.3
MAX	202	51.0	32.3	34.0	156	506	558	2192	2084	806	388	275
(WY)	1987	1983	1983	1974	1984	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1929-32, 1947-1994	
ANNUAL TOTAL	35904.60		23000.10			
ANNUAL MEAN	98.4		63.0		91.5a	
HIGHEST ANNUAL MEAN					434	1962
LOWEST ANNUAL MEAN					12.0	1988
HIGHEST DAILY MEAN	1680	Aug 20	1700	Mar 3	24000	May 20 1978
LOWEST DAILY MEAN	.50	Feb 22	.05	Aug 25	.00	Jan 5 1947b
ANNUAL SEVEN-DAY MINIMUM	.53	Feb 20	.05	Aug 23	.00	Aug 31 1947
INSTANTANEOUS PEAK FLOW			2000	Mar 3	28000	May 20 1978c
INSTANTANEOUS PEAK STAGE			6.25	Mar 3d	13.65	May 20 1978
ANNUAL RUNOFF (AC-FT)	71220		45620		66300	
10 PERCENT EXCEEDS	286		84		150c	
50 PERCENT EXCEEDS	34		13		10c	
90 PERCENT EXCEEDS	3.0		.12		.10c	

e Estimated
a Median of annual mean discharges, 72 ft^3/s.
b No flow at times in most years.
c Reflects water years 1947-94 only.
d Backwater from ice.

CHEYENNE RIVER BASIN

06400000 HAT CREEK NEAR EDGEMONT, SD

LOCATION.--Lat 43°14'24", long 103°35'16", in SW1/4 SE1/4 NE1/4 sec.25, T.9 S., R.4 E., Fall River County, Hydrologic Unit 10120108, on right bank at upstream side of bridge on State Highway 71, 2.4 mi upstream from mouth, 2.0 mi west of Heppner, and 12.5 mi southeast of Edgemont.

DRAINAGE AREA.--1,044 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. 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 1994 are given herewith:

Oct. 6	0	Mar. 14	0	June 24	0
Nov. 29	0	May. 10	2.12	Aug. 24	0
Feb. 14	0				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	2.9	3.7	2.6	2.6	e7.0	10	19	7.0	3.3	.27	.00
2	1.3	2.6	3.7	2.8	2.6	e10	10	18	7.8	3.7	.15	.00
3	1.6	2.9	3.7	2.9	2.6	e20	11	16	12	3.0	.12	.00
4	1.8	2.8	3.6	3.0	2.6	e48	11	16	13	2.7	.06	.00
5	2.2	2.6	3.6	3.0	2.6	e100	e12	8.7	10	2.2	.04	.00
6	2.1	2.8	4.5	3.0	2.5	e60	14	e4.0	11	2.1	.02	.00
7	2.2	2.9	4.7	2.9	e2.4	e30	16	e4.2	12	2.3	.00	.00
8	2.4	3.0	4.7	2.9	e2.3	e18	16	5.7	25	2.4	.00	.00
9	2.8	2.9	5.7	2.9	e2.2	e12	13	4.1	8.5	3.4	.00	.00
10	2.9	3.0	6.4	2.9	e2.1	e10	12	3.5	6.9	7.7	.00	.00
11	3.1	e4.0	7.5	3.0	e2.0	e12	9.5	5.7	5.9	5.5	.00	.00
12	6.8	3.4	6.4	2.9	e2.0	e15	9.2	7.0	5.5	5.0	.00	.00
13	10	3.5	5.7	3.0	e3.0	e12	9.5	16	4.4	4.2	.00	.00
14	7.3	3.3	5.3	3.2	e4.5	e18	10	13	3.4	5.6	.00	.00
15	3.2	3.3	5.1	3.2	e5.5	e25	11	24	3.5	8.7	.00	.00
16	5.2	3.5	5.0	3.3	e7.5	e17	13	24	5.3	12	.00	.00
17	3.1	3.3	5.0	e3.0	e8.5	e20	15	11	5.5	11	.00	.00
18	3.3	3.9	5.1	2.8	e10	e30	15	2.4	4.7	9.1	.00	.00
19	4.5	4.2	5.3	2.7	e10	e40	17	1.6	4.7	9.3	.00	.00
20	2.8	4.0	4.0	2.7	e5.0	e20	17	1.2	5.1	9.3	.00	.00
21	1.7	4.5	3.3	2.9	e4.5	e11	19	.91	6.3	7.9	.00	.00
22	3.3	4.4	2.9	2.8	e4.0	e13	18	1.5	5.1	6.2	.00	.00
23	7.6	4.2	2.8	2.9	e3.5	e8.0	18	.91	7.3	4.6	.00	.00
24	8.1	4.2	2.7	3.1	e4.0	e6.7	21	.92	17	3.5	.00	.00
25	7.2	4.2	2.9	2.8	e3.5	7.5	19	1.2	13	2.5	.00	.00
26	5.8	4.2	2.8	2.9	e3.0	8.5	21	1.8	9.7	2.0	.00	.00
27	5.9	4.2	2.5	2.8	e3.0	e8.1	21	1.9	9.3	1.6	.00	.00
28	5.9	4.5	2.5	2.8	e5.0	e9.5	19	2.4	8.0	1.2	.00	.00
29	4.2	4.0	2.5	2.6	---	e8.9	16	2.3	5.9	.86	.00	.00
30	3.8	4.0	2.4	2.6	---	e9.3	17	3.6	4.6	.74	.00	.00
31	4.0	---	2.5	2.6	---	10	---	3.9	---	.37	.00	---
TOTAL	127.1	107.2	128.5	89.5	113.0	624.5	440.2	226.44	247.4	143.97	0.66	0.00
MEAN	4.10	3.57	4.15	2.89	4.04	20.1	14.7	7.30	8.25	4.64	.021	.000
MAX	10	4.5	7.5	3.3	10	100	21	24	25	12	.27	.00
MIN	1.0	2.6	2.4	2.6	2.0	6.7	9.2	.91	3.4	.37	.00	.00
AC-FT	252	213	255	178	224	1240	873	449	491	286	1.3	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1994, BY WATER YEAR (WY)

MEAN	1.26	1.04	1.18	1.61	4.75	24.8	20.1	46.6	71.7	19.6	6.70	3.02
MAX	13.0	6.73	16.0	25.5	52.6	150	141	444	1223	174	68.4	70.1
(WY)	1987	1968	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1906, 1951 - 1994	
ANNUAL TOTAL	12848.23		2248.47			
ANNUAL MEAN	35.2		6.16		16.9a	
HIGHEST ANNUAL MEAN					112	1967
LOWEST ANNUAL MEAN					.16	1989
HIGHEST DAILY MEAN	1090	Jul 16	100	Mar 5	8350	Jun 16 1967
LOWEST DAILY MEAN	.00	Jan 9	.00	Aug 7b	.00	Nov 1 1950b
ANNUAL SEVEN-DAY MINIMUM	.13	Jan 5	.00	Aug 7	.00	Nov 1 1950c
INSTANTANEOUS PEAK FLOW			144	May 13d	13300	Jun 16 1967f
INSTANTANEOUS PEAK STAGE			11.10	Mar 5g	14.94	Jul 16 1993h
ANNUAL RUNOFF (AC-FT)	25480		4460		12220	
10 PERCENT EXCEEDS	108		15		18c	
50 PERCENT EXCEEDS	4.2		3.5		.36c	
90 PERCENT EXCEEDS	.17		.00		.00c	

e Estimated
a Median of annual mean discharges, 12 ft^3/s.
b No flow for many days in each year.
c Reflects only water years 1951-94.
d Gage height, 10.60 ft.
f Gage height, 13.35 ft, at different site, same datum.
g Backwater from ice.
h Discharge, 3,230 ft^3/s.

CHEYENNE RIVER BASIN

06400497 CASCADE SPRINGS NEAR HOT SPRINGS, SD

LOCATION.--Lat 43°20'10", long 103°33'07", in SE1/4 SW1/4 sec.20, T.8 S., R.5 E., Fall River County, Hydrologic Unit 10120106, on left bank near upstream end of culvert on State Highway 71, 3.3 mi upstream from mouth, and 8.3 mi southwest of Hot Springs.

DRAINAGE AREA.--0.47 mi^2.

PERIOD OF RECORD.--July 1976 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,440 ft above sea level, from topographic map.

REMARKS.--No estimated record. Records good. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	17	18	18	18	18	18	20	18	18	19	20
2	16	17	18	18	18	18	18	20	18	19	19	20
3	16	17	18	18	18	18	18	20	18	18	19	20
4	16	17	18	18	18	19	17	20	18	18	19	20
5	17	17	18	18	18	19	17	20	18	18	19	19
6	17	17	18	17	18	19	18	20	18	18	19	20
7	18	17	18	18	18	19	18	20	18	18	19	20
8	18	17	18	18	18	19	18	20	17	18	18	20
9	18	17	18	18	19	19	18	20	17	18	19	20
10	18	18	19	18	19	18	18	20	17	18	19	20
11	18	17	19	18	19	18	18	20	18	18	19	20
12	18	17	19	18	19	18	18	20	17	18	19	20
13	18	17	18	18	19	18	18	20	17	18	19	20
14	18	17	19	18	19	18	18	20	17	18	19	20
15	18	18	19	18	19	17	18	20	17	18	19	20
16	18	18	19	18	19	18	18	20	17	18	19	20
17	17	17	19	18	19	17	18	20	17	18	19	20
18	18	18	19	18	20	18	18	20	17	18	19	19
19	18	17	19	18	19	17	18	20	17	18	19	19
20	18	18	19	18	19	17	18	19	17	18	19	19
21	18	18	19	18	19	17	18	19	17	18	19	19
22	18	18	19	18	19	17	19	19	17	18	19	20
23	17	18	19	18	19	17	19	19	17	18	19	20
24	17	18	19	18	19	18	19	19	17	18	19	19
25	17	18	19	18	19	18	19	19	17	18	19	19
26	17	19	19	18	19	18	19	18	17	18	19	19
27	17	19	19	18	19	18	19	19	18	18	19	19
28	17	19	18	18	19	18	20	19	18	18	19	19
29	17	19	18	18	---	18	20	19	18	19	20	19
30	17	19	18	18	---	18	20	19	18	19	20	19
31	17	---	18	18	---	18	---	18	---	19	20	---
TOTAL	538	530	575	557	525	557	550	606	522	562	591	588
MEAN	17.4	17.7	18.5	18.0	18.7	18.0	18.3	19.5	17.4	18.1	19.1	19.6
MAX	18	19	19	18	20	19	20	20	18	19	20	20
MIN	16	17	18	17	18	17	17	18	17	18	18	19
AC-FT	1070	1050	1140	1100	1040	1100	1090	1200	1040	1110	1170	1170

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1994, BY WATER YEAR (WY)

MEAN	19.4	19.5	19.4	19.4	19.3	19.2	19.4	20.0	20.0	20.0	19.6	19.4
MAX	22.0	22.5	23.8	24.8	22.2	23.0	23.0	23.7	23.1	23.2	22.6	22.0
(WY)	1987	1978	1978	1978	1978	1984	1984	1984	1984	1982	1982	1986
MIN	17.4	16.3	15.8	15.6	16.5	15.6	16.6	17.1	16.2	14.6	16.2	16.6
(WY)	1994	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1977 - 1994	
ANNUAL TOTAL	6041		6701			
ANNUAL MEAN	16.6		18.4		19.6	
HIGHEST ANNUAL MEAN					21.4	1984
LOWEST ANNUAL MEAN					16.3	1993
HIGHEST DAILY MEAN	20	May 10	20	Feb 18a	25	Dec 30 1977b
LOWEST DAILY MEAN	13	Jul 22	16	Oct 1	13	Jul 22 1993
ANNUAL SEVEN-DAY MINIMUM	14	Jul 16	17	Oct 1	14	Jul 16 1993
INSTANTANEOUS PEAK FLOW			25	Jul 19c	49	Jul 4 1977
INSTANTANEOUS PEAK STAGE			5.04	Oct 1,3-6d	6.25	Jul 4 1977
ANNUAL RUNOFF (AC-FT)	11980		13290		14170	
10 PERCENT EXCEEDS	18		20		22	
50 PERCENT EXCEEDS	16		18		19	
90 PERCENT EXCEEDS	15		17		18	

a Many days.
b Also Dec. 31, 1977, to Jan. 24, 1978, and July 27 to Aug. 4, 1982.
c Gage height, 4.81 ft.
d Backwater.

CHEYENNE RIVER BASIN

06400875 HORSEHEAD CREEK AT OELRICHS, SD

LOCATION.--Lat 43°11'17", long 103°13'34", in SW1/4 SW1/4 SW1/4 SW1/4 sec.7, T.10 S., R.8 E., Fall River County, Hydrologic Unit 10120106, on left bank on downstream side of bridge on Highway 18, 1.5 mi upstream (corrected) 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.18	e.20	e.20	e1.0	e36	1.7	.24	.00	.00	.00	.00
2	.00	.17	.27	e.23	e1.5	e45	1.6	.34	.00	.00	.00	.00
3	.00	.22	.28	.25	e2.0	e55	1.5	.26	.00	.00	.00	.00
4	.00	.19	.26	.20	e2.0	e80	1.5	.21	.00	.00	.00	.00
5	.00	.12	.26	.18	e2.5	e79	1.2	.23	.00	.00	.00	.00
6	.00	.16	.20	e.17	e3.0	e75	1.2	.57	.00	.00	.00	.00
7	.00	.19	.19	e.15	e2.5	72	.89	.58	.00	.00	.00	.00
8	.00	.20	.18	e.16	e2.0	54	.94	.61	.00	.00	.00	.00
9	.00	.20	.23	e.17	e1.5	15	.83	.59	.15	.00	.00	.00
10	.00	.20	.22	.19	e1.5	33	.76	.37	.92	.00	.00	.00
11	.05	.21	.23	.20	e1.5	31	.74	.33	.65	.00	.00	.00
12	.06	.29	.25	.22	e3.0	15	.69	.14	.28	.00	.00	.00
13	.05	.35	.23	.23	e3.0	11	.64	.24	.12	.00	.00	.00
14	.09	.32	.22	.22	e6.0	9.3	.57	.33	.02	.00	.00	.00
15	.09	.26	.17	.21	e10	7.9	.43	.28	.00	.00	.00	.00
16	.15	.23	e.16	e.16	e15	6.8	.33	.25	.00	.00	.00	.00
17	.20	.20	e.15	e.12	e20	5.9	.22	.21	.00	.00	.00	.00
18	.20	.22	e.14	e.10	e23	4.9	.21	.10	.00	.00	.00	.00
19	.19	.18	e.13	e.09	e40	4.2	.20	.15	.00	.00	.00	.00
20	.18	.17	e.12	e.08	e40	3.5	.17	.15	.00	.00	.00	.00
21	.17	.18	e.11	e.08	e30	3.1	.16	.10	.00	.00	.00	.00
22	.19	.16	e.11	e.20	e15	2.6	.08	.02	.00	.00	.00	.00
23	.19	.13	e.11	e.80	e10	2.5	.07	.00	.00	.00	.00	.00
24	.20	e.12	e.14	e1.6	e10	2.4	.07	.00	.00	.00	.00	.00
25	.20	e.10	e.15	e1.3	e13	2.2	.00	.00	.00	.00	.00	.00
26	.19	e.10	e.16	e1.0	e17	2.1	.10	.00	.00	.00	.00	.00
27	.19	e.11	e.17	e1.0	e20	1.9	.20	.00	.00	.00	.00	.00
28	.16	e.13	e.17	e1.0	e30	2.0	.25	.00	.00	.00	.00	.00
29	.12	e.15	e.17	e1.4	---	1.9	.28	.00	.00	.00	.00	.00
30	e.14	e.18	e.17	e1.0	---	1.8	.25	.00	.00	.00	.00	.00
31	.17	---	e.19	e.09	---	1.8	---	.00	---	.00	.00	---
TOTAL	3.18	5.62	5.74	13.00	326.0	667.8	17.78	6.30	2.14	0.00	0.00	0.00
MEAN	.10	.19	.19	.42	11.6	21.5	.59	.20	.071	.000	.000	.000
MAX	.20	.35	.28	1.6	40	80	1.7	.61	.92	.00	.00	.00
MIN	.00	.10	.11	.08	1.0	1.8	.00	.00	.00	.00	.00	.00
AC-FT	6.3	11	11	26	647	1320	35	12	4.2	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1994, BY WATER YEAR (WY)

MEAN	.019	.025	.033	.067	1.26	11.4	16.9	28.3	26.8	4.59	.16	.001
MAX	.10	.19	.19	.42	11.6	58.9	83.3	246	187	31.4	.74	.008
(WY)	1987	1994	1994	1994	1994	1986	1986	1991	1986	1993	1986	1986
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1984 - 1994	
ANNUAL TOTAL	4134.38		1047.56			
ANNUAL MEAN	11.3		2.87		7.48	
HIGHEST ANNUAL MEAN					29.3	1986
LOWEST ANNUAL MEAN					.000	1990
HIGHEST DAILY MEAN	344	Jul 17	80	Mar 4	4080	May 11 1991
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Oct 1 1983a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Oct 1 1983
INSTANTANEOUS PEAK FLOW			95	Mar 5	8270	May 11 1991
INSTANTANEOUS PEAK STAGE			5.10	Mar 5b	18.57	May 11 1991
ANNUAL RUNOFF (AC-FT)	8200		2080		5420	
10 PERCENT EXCEEDS	40		3.0		3.0	
50 PERCENT EXCEEDS	.20		.16		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a No flow for many days in each year.
b Backwater from ice.

CHEYENNE RIVER BASIN

06401000 ANGOSTURA RESERVOIR NEAR HOT SPRINGS, SD

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

DRAINAGE AREA.--9,100 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, 121,400 acre-ft, Mar. 9, elevation, 3,187.04 ft; minimum, 76,800 acre-ft, Sept. 27, elevation, 3,175.87 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,184.56	110,400	-
Oct. 31	3,184.76	111,300	+900
Nov. 30	3,184.28	109,200	-2,100
Dec. 31	3,184.29	109,300	+100
CAL YR 1993	-	-	+32,600
Jan. 31	3,184.92	112,000	+2,700
Feb. 28	3,186.63	119,600	+7,600
Mar. 31	3,186.64	119,600	0
Apr. 30	3,186.95	121,000	+1,400
May 31	3,186.01	116,800	-4,200
June 30	3,184.24	109,000	-7,800
July 31	3,180.69	94,500	-14,500
Aug. 31	3,176.90	80,400	-14,100
Sept. 30	3,175.87	76,800	-3,600
WTR YR 1994	-	-	-33,600

CHEYENNE RIVER BASIN

06401500 CHEYENNE RIVER BELOW ANGOSTURA DAM, SD

LOCATION.--Lat 43°20'42", long 103°26'12", in NE1/4 NW1/4 NW1/4 sec.20, T.8 S., R.6 E., Fall River County, Hydrologic Unit 10120109, on right bank 800 ft downstream from Angostura Dam, 4.8 mi upstream from Fall River, and 6.5 mi southeast of Hot Springs.

DRAINAGE AREA.--9,100 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.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Angostura Dam 800 ft upstream since October 1949. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. U.S. Bureau of Reclamation satellite data-collection platform at station.

AVERAGE DISCHARGE.--28 years (regulated water years, 1951-78), 67.1 ft^3/s, 48,610 acre-ft/yr.

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 PERIOD.--Maximum discharge, 2,240 ft^3/s, Mar. 3, gage height, 6.86 ft; minimum daily discharge, 1.3 ft^3/s, July 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	e2.3	219	47	116	8.6	2.9	---	---
2	---	---	---	---	e2.3	589	7.5	117	7.9	2.8	---	---
3	---	---	---	---	e2.3	1670	7.5	148	8.2	2.5	---	---
4	---	---	---	---	e2.3	1720	8.0	161	8.3	2.5	---	---
5	---	---	---	---	e2.3	1510	7.8	134	7.9	2.5	---	---
6	---	---	---	---	e2.3	1860	7.5	147	8.1	2.5	---	---
7	---	---	---	---	e2.3	1920	7.6	123	8.4	2.5	---	---
8	---	---	---	---	e2.3	1450	25	114	7.7	2.4	---	---
9	---	---	---	---	e2.3	1450	33	57	7.4	2.2	---	---
10	---	---	---	---	e2.3	1420	47	84	7.4	2.0	---	---
11	---	---	---	---	e2.3	1050	57	40	6.9	2.1	---	---
12	---	---	---	---	e2.3	1080	62	24	6.7	2.2	---	---
13	---	---	---	---	e2.3	1060	94	27	6.5	2.1	---	---
14	---	---	---	---	e2.3	622	78	42	6.0	2.0	---	---
15	---	---	---	---	e2.3	395	83	44	6.0	1.9	---	---
16	---	---	---	---	e2.3	363	64	42	6.1	1.9	---	---
17	---	---	---	---	e2.3	311	53	28	5.3	1.8	---	---
18	---	---	---	---	2.3	299	61	35	5.1	1.7	---	---
19	---	---	---	---	2.3	252	54	9.2	5.1	1.7	---	---
20	---	---	---	---	2.6	233	56	8.1	4.3	1.6	---	---
21	---	---	---	---	2.8	187	47	8.1	4.4	1.6	---	---
22	---	---	---	---	2.8	146	88	8.4	4.3	1.6	---	---
23	---	---	---	---	2.9	114	87	8.4	3.9	1.6	---	---
24	---	---	---	---	3.0	105	57	8.3	3.7	1.5	---	---
25	---	---	---	---	6.6	70	72	8.6	3.6	1.5	---	---
26	---	---	---	---	7.4	58	113	9.1	3.4	1.6	---	---
27	---	---	---	---	6.9	61	80	8.7	3.3	1.3	---	---
28	---	---	---	---	5.8	68	55	8.6	3.1	1.5	---	---
29	---	---	---	---	---	69	85	8.8	3.0	1.6	---	---
30	---	---	---	---	---	68	97	8.5	2.9	1.5	---	---
31	---	---	---	---	---	67	---	8.6	---	1.5	---	---
TOTAL	---	---	---	---	84.5	20486	1640.9	1594.4	173.5	60.6	---	---
MEAN	---	---	---	---	3.02	661	54.7	51.4	5.78	1.95	---	---
MAX	---	---	---	---	7.4	1920	113	161	8.6	2.9	---	---
MIN	---	---	---	---	2.3	58	7.5	8.1	2.9	1.3	---	---
AC-FT	---	---	---	---	168	40630	3250	3160	344	120	---	---

e Estimated

CHEYENNE RIVER BASIN

06402000 FALL RIVER AT HOT SPRINGS, SD

LOCATION.--Lat 43°25'50", long 103°28'33", in NW1/4 NW1/4 sec.24, T.7 S., R.5 E., Fall River County, Hydrologic Unit 10120109, on left bank at intersection of River Street and University Avenue in Hot Springs, and 6.0 mi upstream from mouth.

DRAINAGE AREA.--137 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.--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 fair, including estimated daily discharges. 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, 1970, 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	e23	22	22	e21	24	23	21	22	22	21	21
2	23	e23	22	22	e21	31	23	21	23	22	21	21
3	23	e23	22	22	e21	31	23	21	23	22	21	21
4	23	e23	22	22	e21	24	23	21	23	22	21	21
5	23	e23	23	22	e21	23	23	22	22	21	21	21
6	23	e23	23	22	e21	24	22	22	22	21	21	21
7	23	e23	23	22	e21	23	22	22	24	21	21	20
8	23	e23	23	22	e21	23	22	21	22	21	21	20
9	23	e23	23	22	e21	23	22	21	21	21	21	20
10	23	e23	23	21	e21	23	22	21	21	21	21	21
11	23	e23	23	21	21	23	22	21	21	21	21	21
12	23	e23	23	21	21	23	22	21	20	19	21	21
13	23	e23	23	21	21	23	22	23	20	19	21	21
14	23	e23	23	21	21	23	22	22	21	21	21	21
15	23	e23	23	21	21	23	22	21	21	21	21	21
16	23	e23	23	21	21	23	22	21	21	21	21	21
17	23	e23	23	21	22	23	22	21	21	21	20	21
18	23	e23	23	21	22	23	22	21	21	21	e20	21
19	23	e23	23	21	23	23	22	21	21	21	e20	21
20	23	e23	23	21	22	23	22	21	21	21	e20	20
21	23	e23	22	21	22	23	22	21	21	21	e20	21
22	23	e23	22	21	22	23	22	21	21	21	e20	21
23	23	22	22	21	22	23	22	21	21	21	e20	21
24	23	22	22	21	22	23	22	21	22	21	e20	21
25	23	22	22	e21	22	23	22	21	21	21	19	21
26	23	22	22	e21	22	23	22	21	21	21	19	21
27	23	22	22	e21	22	23	22	21	21	21	20	21
28	23	22	22	e21	23	23	22	22	21	21	20	21
29	23	22	22	e21	---	23	21	22	21	21	20	21
30	23	22	22	e21	---	23	21	22	22	21	20	21
31	23	---	22	e21	---	23	---	22	---	21	21	---
TOTAL	713	682	698	660	602	732	663	661	643	651	635	626
MEAN	23.0	22.7	22.5	21.3	21.5	23.6	22.1	21.3	21.4	21.0	20.5	20.9
MAX	23	23	23	22	23	31	23	23	24	22	21	21
MIN	23	22	22	21	21	23	21	21	20	19	19	20
AC-FT	1410	1350	1380	1310	1190	1450	1320	1310	1280	1290	1260	1240

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1994, BY WATER YEAR (WY)*

MEAN	21.6	21.6	22.2	21.8	22.1	22.6	21.9	21.8	21.5	20.4	20.8	21.2
MAX	23.0	23.8	26.8	24.4	24.0	26.8	26.8	25.8	24.4	22.6	23.4	24.8
(WY)	1979	1972	1972	1980	1985	1987	1987	1978	1990	1979	1978	1971
MIN	18.8	18.3	19.0	19.4	19.8	20.0	19.7	19.0	17.9	18.0	18.6	17.7
(WY)	1973	1987	1987	1984	1977	1982	1982	1976	1981	1980	1972	1983

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1971 - 1994*	
ANNUAL TOTAL	8130		7966			
ANNUAL MEAN	22.3		21.8		21.6	
HIGHEST ANNUAL MEAN					22.8	1978
LOWEST ANNUAL MEAN					20.9	1981
HIGHEST DAILY MEAN	34	Aug 19	31	Mar 2,3	75	Mar 19 1978
LOWEST DAILY MEAN	18	Aug 16	19	Jul 12a	14	May 2 1982b
ANNUAL SEVEN-DAY MINIMUM	20	Aug 12	20	Aug 20	15	Sep 23 1983
INSTANTANEOUS PEAK FLOW			59	Jun 7	486	Jul 4 1977c
INSTANTANEOUS PEAK STAGE			2.93	Jun 7	4.62	Jul 17 1988
ANNUAL RUNOFF (AC-FT)	16130		15800		15670	
10 PERCENT EXCEEDS	23		23		24	
50 PERCENT EXCEEDS	22		22		22	
90 PERCENT EXCEEDS	21		21		19	

e Estimated
* Regulated period only (1971-94). See REMARKS.
a Also July 13 and Aug. 25-26.
b Also May 3, 8, 9, 1982, Sept. 16, 17, 28, 1983, and July 23, 1985.
c Gage height, 3.32 ft.

CHEYENNE RIVER BASIN

06402430 BEAVER CREEK NEAR PRINGLE, SD

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

DRAINAGE AREA.--45.8 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.--No estimated daily discharges. Records good. Minor diversions for irrigation of hay meadows and domestic use may occur upstream of the gage. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.4	1.2	1.1	1.0	3.5	2.0	2.2	1.3	.85	.52	.64
2	1.3	1.3	1.2	1.2	.99	7.0	1.9	2.1	1.3	.85	.60	.70
3	1.3	1.5	1.2	1.2	.99	7.7	1.9	2.0	1.3	.85	1.1	.72
4	1.3	1.4	1.2	1.1	.99	8.3	1.9	2.0	1.3	.85	.95	.72
5	1.3	1.0	1.3	1.2	.99	7.5	1.9	2.0	1.9	.85	.84	.72
6	1.2	1.1	1.0	1.0	.98	6.4	2.0	2.0	1.4	.85	.72	.69
7	1.2	1.2	1.1	.79	.92	4.1	2.0	2.0	1.3	.87	.72	.60
8	1.6	1.1	1.1	.95	.92	2.2	2.0	2.0	1.3	1.0	.72	.54
9	1.5	1.1	1.2	.92	.92	2.6	1.9	2.0	1.3	1.0	.72	.50
10	1.4	1.1	1.2	.92	.92	3.0	1.9	2.0	1.3	.95	.75	.54
11	1.4	1.2	1.3	.95	.92	2.9	1.8	2.0	1.1	.78	.78	.60
12	1.5	1.3	1.3	.99	.92	2.8	1.7	2.2	.99	.82	.78	.72
13	1.5	1.3	1.3	1.0	.96	2.8	1.7	2.5	.99	.85	.83	.70
14	1.5	1.3	.79	1.1	1.0	2.8	1.8	2.9	.99	.85	.76	.73
15	1.5	1.3	.92	1.1	1.1	2.7	1.9	2.6	.99	.85	.66	.75
16	1.5	1.2	1.0	1.1	1.1	2.5	1.8	2.4	.92	.84	.64	.66
17	1.5	1.3	1.1	1.1	1.5	2.5	1.9	2.3	.92	.78	.60	.65
18	1.4	1.5	1.1	1.1	2.2	2.4	1.9	2.2	.92	.78	.60	.75
19	1.4	1.2	1.1	1.1	2.5	2.3	1.9	2.2	.96	.72	.60	.72
20	1.5	1.2	1.1	1.1	1.5	2.3	1.9	2.2	.99	.72	.56	.76
21	1.5	1.4	1.1	1.1	1.2	2.2	1.9	2.2	.99	.72	.55	.78
22	1.5	1.2	1.0	1.1	1.3	2.2	1.9	2.0	.99	.67	.55	.83
23	1.5	1.0	.99	1.2	1.3	2.2	1.9	1.9	.92	.66	.55	.94
24	1.5	1.0	.99	1.3	1.4	2.1	1.9	1.9	.87	.66	.55	.97
25	1.4	1.1	.99	1.4	1.4	2.3	2.2	1.9	.91	.66	.54	.99
26	1.4	1.1	.99	1.2	1.4	2.1	2.2	1.9	.84	.66	.45	.98
27	1.4	1.1	.99	1.2	1.4	1.9	2.2	1.7	.85	.66	.45	.98
28	1.3	1.1	.99	1.0	1.4	1.9	2.2	1.6	.85	.58	.45	.98
29	1.0	1.1	.99	1.1	---	1.9	2.2	1.6	.85	.50	.45	.86
30	.92	1.1	.99	1.1	---	1.9	2.2	1.4	.85	.50	.45	.81
31	1.3	---	1.0	1.1	---	2.0	---	1.3	---	.50	.50	---
TOTAL	42.72	36.2	33.73	33.82	34.12	101.0	58.5	63.2	32.39	23.68	19.94	22.53
MEAN	1.38	1.21	1.09	1.09	1.22	3.26	1.95	2.04	1.08	.76	.64	.75
MAX	1.6	1.5	1.3	1.4	2.5	8.3	2.2	2.9	1.9	1.0	1.1	.99
MIN	.92	1.0	.79	.79	.92	1.9	1.7	1.3	.84	.50	.45	.50
AC-FT	85	72	67	67	68	200	116	125	64	47	40	45

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1994, BY WATER YEAR (WY)

MEAN	.54	.56	.51	.46	.57	1.50	1.11	1.17	1.55	.75	.70	.72
MAX	1.38	1.21	1.09	1.09	1.22	3.26	1.95	2.04	2.99	.95	1.21	1.25
(WY)	1994	1994	1994	1994	1994	1994	1994	1994	1993	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1992 - 1994	
ANNUAL TOTAL	401.98		501.83			
ANNUAL MEAN	1.10		1.37		.85	
HIGHEST ANNUAL MEAN					1.37	1994
LOWEST ANNUAL MEAN					.32	1992
HIGHEST DAILY MEAN	16	Jun 8	8.3	Mar 4	16	Jun 8 1993
LOWEST DAILY MEAN	.13	Jan 13	.45	Aug 26-30	.06	Oct 1 1991a
ANNUAL SEVEN-DAY MINIMUM	.13	Jan 10	.47	Aug 25	.07	Oct 1 1991
INSTANTANEOUS PEAK FLOW			10	Mar 4	28	Jun 8 1993
INSTANTANEOUS PEAK STAGE			8.35	Mar 4	8.46	Jun 8 1993
ANNUAL RUNOFF (AC-FT)	797		995		613	
10 PERCENT EXCEEDS	1.5		2.2		1.8	
50 PERCENT EXCEEDS	1.0		1.1		.64	
90 PERCENT EXCEEDS	.20		.67		.15	

a Also Oct. 2, 3, 1991.

CHEYENNE RIVER BASIN

06402470 BEAVER CREEK ABOVE BUFFALO GAP, SD

LOCATION.--Lat 43°31'20", long 103°21'23", in SW1/4 SE1/4 SW1/4 sec.13, T.6 S., R.6 E., Custer County, Hydrologic Unit 10120109, on right side of flume approximately 1 mi downstream from commercial fish hatchery and approximately 4 mi northeast of Buffalo Gap.

DRAINAGE AREA.--111 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 3,400 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Regulation of flow by ponds and gates at commercial fish hatchery approximately 1 mi above gage. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	9.4	9.4	9.1	9.3	12	11	10	9.8	9.6	9.5	9.3
2	9.4	9.4	9.4	9.1	9.3	14	11	10	9.8	9.6	9.7	9.2
3	9.5	9.4	9.3	9.1	9.2	11	11	10	10	9.6	10	9.3
4	9.5	9.4	9.4	9.1	9.3	11	11	10	9.9	9.7	9.7	9.3
5	9.4	9.4	9.3	9.1	9.4	11	11	10	9.7	9.5	9.6	9.3
6	9.4	9.4	9.3	9.1	9.3	11	11	10	10	9.6	9.5	9.2
7	9.3	9.4	9.3	9.1	9.3	11	11	10	9.9	9.6	9.4	9.2
8	9.6	9.4	9.3	9.2	9.3	11	11	10	9.7	9.6	9.6	9.3
9	9.4	9.4	9.3	9.1	9.3	11	11	10	9.7	9.4	9.5	9.4
10	9.4	9.4	9.3	9.1	9.2	11	11	10	9.7	9.3	9.5	9.3
11	9.4	9.4	9.3	9.1	9.3	11	11	9.9	9.9	9.6	9.4	9.3
12	9.2	9.5	9.3	9.0	9.2	11	11	9.5	10	10	9.5	9.3
13	9.2	9.5	9.3	9.1	9.2	11	11	9.8	10	9.9	9.4	9.5
14	9.2	9.4	9.2	9.1	9.1	11	11	9.4	9.9	9.7	9.4	9.5
15	9.3	9.4	9.3	9.1	9.2	11	11	9.4	9.7	9.6	9.4	9.4
16	9.3	9.4	9.4	9.1	9.3	11	10	9.5	9.9	9.6	9.4	9.4
17	9.3	9.3	9.3	9.2	9.4	11	10	9.6	9.9	9.6	9.3	9.4
18	9.3	9.4	9.3	9.1	9.5	10	10	9.4	9.9	11	9.3	9.5
19	9.2	9.4	9.3	9.2	9.4	10	10	9.5	9.9	10	9.2	9.5
20	9.2	9.4	9.2	9.1	9.3	11	10	10	10	9.8	9.2	9.5
21	9.2	9.4	9.2	9.3	9.3	11	10	10	9.9	9.7	9.3	9.5
22	9.2	9.3	9.2	9.3	9.2	11	10	9.9	9.8	9.6	9.2	9.6
23	9.2	9.4	9.3	9.3	9.1	11	10	9.8	9.8	9.6	9.2	9.6
24	9.3	9.3	9.2	9.2	9.2	11	10	10	9.7	9.6	9.2	9.6
25	9.3	9.3	9.2	9.2	9.2	11	10	9.9	9.6	9.6	9.2	9.6
26	9.3	9.3	9.3	9.3	9.2	11	10	9.8	9.7	9.5	9.2	9.6
27	9.3	9.3	9.2	9.3	9.2	11	10	10	9.7	9.5	9.2	9.7
28	9.3	9.4	9.0	9.3	9.1	11	10	9.6	9.6	9.5	9.2	9.5
29	9.3	9.4	9.0	9.3	---	11	10	9.9	9.7	9.4	9.2	9.6
30	9.3	9.4	9.1	9.3	---	11	10	9.8	9.7	9.6	9.2	9.7
31	9.4	---	9.2	9.3	---	11	---	9.8	---	9.6	9.3	---
TOTAL	289.0	281.6	287.1	284.3	259.3	343	315	304.5	294.5	299.5	290.9	283.1
MEAN	9.32	9.39	9.26	9.17	9.26	11.1	10.5	9.82	9.82	9.66	9.38	9.44
MAX	9.6	9.5	9.4	9.3	9.5	14	11	10	10	11	10	9.7
MIN	9.2	9.3	9.0	9.0	9.1	10	10	9.4	9.6	9.3	9.2	9.2
AC-FT	573	559	569	564	514	680	625	604	584	594	577	562

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1994, BY WATER YEAR (WY)

MEAN	8.60	8.75	8.62	8.58	8.62	9.31	9.00	8.66	8.74	8.91	8.87	8.78
MAX	9.32	9.39	9.26	9.17	9.26	11.1	10.5	9.82	9.82	9.82	9.90	9.50
(WY)	1994	1994	1994	1994	1994	1994	1994	1994	1994	1993	1993	1993
MIN	8.18	8.46	8.29	8.22	8.22	8.12	8.03	7.43	7.24	8.01	7.84	7.79
(WY)	1991	1992	1991	1992	1991	1991	1992	1992	1992	1992	1991	1991

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1991 - 1994	
ANNUAL TOTAL	3415.9		3531.8			
ANNUAL MEAN	9.36		9.68		8.79	
HIGHEST ANNUAL MEAN					9.68	1994
LOWEST ANNUAL MEAN					8.12	1992
HIGHEST DAILY MEAN	11	Mar 6	14	Mar 2	14	Mar 2 1994
LOWEST DAILY MEAN	8.0	Feb 23	9.0	Dec 28a	7.0	May 20 1992
ANNUAL SEVEN-DAY MINIMUM	8.6	Jan 1	9.1	Dec 28	7.1	Jun 6 1992
INSTANTANEOUS PEAK FLOW			18	Jul 18b	21	Oct 7 1990
INSTANTANEOUS PEAK STAGE			11.36	Mar 1c	11.61	Oct 7 1990
ANNUAL RUNOFF (AC-FT)	6780		7010		6370	
10 PERCENT EXCEEDS	9.9		11		9.8	
50 PERCENT EXCEEDS	9.4		9.4		8.5	
90 PERCENT EXCEEDS	8.7		9.2		7.9	

a Also Dec. 29 and Jan. 12.
b Gage height, 11.35 ft.
c Discharge, 16 ft^3/s.

CHEYENNE RIVER BASIN

06402500 BEAVER CREEK NEAR BUFFALO GAP, SD

LOCATION.--Lat 43°28'00", long 103°18'20", in NE1/4 SE1/4 sec.5, T.7 S., R.7 E., Fall River County, Hydrologic Unit 10120109, on left bank 1.5 mi south of Buffalo Gap and 4.5 mi upstream from mouth.

DRAINAGE AREA.--130 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. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	11	9.1	8.3	8.3	11	7.0	9.4	1.0	e.90	e.60	2.3
2	12	11	8.7	8.4	8.3	e11	7.5	5.5	1.1	e.89	e.60	1.7
3	12	11	9.1	8.4	9.1	10	7.5	3.1	1.2	e.89	e.60	4.0
4	12	10	9.0	8.6	8.4	8.3	8.1	1.9	1.2	e.88	e.59	4.5
5	12	10	8.6	8.4	8.3	8.6	8.3	4.5	1.5	e.87	e.58	3.4
6	10	10	8.5	8.5	8.4	8.3	7.3	6.3	1.4	e.85	e.57	3.8
7	6.5	10	8.6	e8.5	e8.0	8.7	2.5	1.6	1.4	e.84	e.56	7.3
8	13	10	8.6	e8.5	e7.0	8.8	2.7	1.8	.97	e.81	e.55	7.1
9	13	9.8	8.7	8.5	e6.0	8.9	3.9	1.5	1.5	e.80	e.55	9.3
10	12	9.8	8.5	8.4	e7.0	9.1	4.5	.84	1.6	e.80	e.54	11
11	12	9.3	8.4	8.4	e7.5	9.1	4.2	1.5	1.5	e.80	e.53	6.7
12	12	9.5	8.5	8.4	e8.5	8.9	4.0	1.3	1.4	e.85	e.54	3.9
13	12	9.9	8.6	8.4	8.5	9.0	3.7	1.4	1.3	e.80	e.53	3.6
14	12	9.8	8.4	8.4	8.5	9.0	3.3	1.3	1.1	e.79	e.51	3.8
15	13	9.3	8.4	e8.4	8.4	8.9	6.3	1.1	1.2	e.78	e.50	4.7
16	13	9.1	8.4	8.2	8.4	8.8	5.9	.97	1.1	e.77	e.50	5.1
17	12	9.0	8.7	e8.5	8.5	8.6	5.5	.69	1.5	e.77	e.50	8.1
18	12	8.8	8.5	e8.5	8.4	7.8	4.7	1.2	1.3	e.90	e.49	8.0
19	12	8.7	8.4	e8.5	8.4	8.4	5.7	2.1	.72	e.74	e.48	6.3
20	12	9.1	8.4	e8.5	8.4	8.6	8.9	1.0	.74	e.70	e.47	3.4
21	11	9.0	8.4	e8.5	e8.0	8.7	8.9	1.2	.79	e.70	e.46	3.3
22	11	8.9	8.4	8.4	e7.0	8.6	9.1	.98	.85	e.70	e.46	3.4
23	11	9.7	8.4	8.4	e7.0	8.2	9.6	1.1	.95	e.69	e.45	5.3
24	11	11	8.4	8.3	e8.6	7.6	9.3	.96	1.2	e.68	e.44	6.9
25	11	12	8.4	8.2	e8.5	7.5	9.7	.99	.80	e.67	e.43	5.4
26	11	11	8.6	8.2	e8.6	7.5	11	.89	1.0	e.66	.37	3.1
27	11	10	8.4	8.2	8.7	7.2	11	.89	.97	e.65	.48	3.9
28	11	9.4	8.4	8.2	8.6	7.5	11	.89	.87	e.65	1.1	6.0
29	11	9.1	8.4	8.4	---	7.6	10	.93	.91	e.64	.96	5.2
30	11	9.1	8.3	8.2	---	7.7	11	.95	e.90	e.62	.62	6.8
31	11	---	8.3	e8.2	---	7.6	---	.99	---	e.61	.47	---
TOTAL	357.5	294.3	264.5	259.9	227.3	265.5	212.1	59.77	33.97	23.70	17.03	157.3
MEAN	11.5	9.81	8.53	8.38	8.12	8.56	7.07	1.93	1.13	.76	.55	5.24
MAX	13	12	9.1	8.6	9.1	11	11	9.4	1.6	.90	1.1	11
MIN	6.5	8.7	8.3	8.2	6.0	7.2	2.5	.69	.72	.61	.37	1.7
AC-FT	709	584	525	516	451	527	421	119	67	47	34	312

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1994, BY WATER YEAR (WY)

MEAN	6.93	8.75	9.52	9.80	9.86	9.09	6.24	4.45	6.31	4.58	3.49	5.91
MAX	11.5	12.4	12.5	12.9	13.5	16.1	16.9	11.8	27.9	22.2	18.3	56.6
(WY)	1994	1978	1979	1941	1971	1978	1941	1944	1947	1947	1955	1938
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1938 - 1994	
ANNUAL TOTAL	3090.27		2172.87			
ANNUAL MEAN	8.47		5.95		6.99	
HIGHEST ANNUAL MEAN					11.1	1947
LOWEST ANNUAL MEAN					3.78	1961
HIGHEST DAILY MEAN	20	Jul 27	13	Oct 8a	815	Sep 4 1938
LOWEST DAILY MEAN	.16	May 28	.37	Aug 26	.00	Jul 29 1952b
ANNUAL SEVEN-DAY MINIMUM	.30	May 26	.44	Aug 20	.06	Jul 28 1952c
INSTANTANEOUS PEAK FLOW			17	Nov 25	11700	Sep 4 1938d
INSTANTANEOUS PEAK STAGE			4.45	Nov 25	16.46	Sep 4 1938f
ANNUAL RUNOFF (AC-FT)	6130		4310		5060	
10 PERCENT EXCEEDS	11		11		11c	
50 PERCENT EXCEEDS	8.8		8.0		8.0c	
90 PERCENT EXCEEDS	3.9		.68		.68c	

e Estimated
a Also Oct. 9, 16, 17.
b No flow at times in some years.
c Reflects water years 1938-57, 1959-94 only.
d From rating curve extended above 11 ft^3/s on basis of slope-area measurement.
f Site of peak flow and datum then in use.

CHEYENNE RIVER BASIN

06402995 FRENCH CREEK ABOVE STOCKADE LAKE, NEAR CUSTER, SD

LOCATION.--Lat 43°46'10", long 103°32'10", in SE1/4 NW1/4 SW1/4 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.

DRAINAGE AREA.--68.7 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 5,190 ft above sea level, from topographic map.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	3.2	e2.8	e1.6	e1.5	e45	6.3	15	2.8	.20	.18	.33
2	3.0	3.1	e2.8	e1.6	e1.4	e82	6.6	19	7.0	.21	.40	.31
3	3.2	3.3	e2.7	e1.7	e1.3	e60	6.4	22	9.3	.20	1.1	.26
4	2.8	3.5	e2.6	e1.8	e1.0	e41	6.9	21	13	.21	.45	.23
5	2.7	2.9	e2.6	e1.9	e.93	e29	6.2	15	19	.18	.51	.18
6	2.6	2.7	e2.6	e1.7	e.90	e14	5.7	18	8.7	.53	.52	.17
7	2.6	2.5	e2.6	e1.7	e.75	e9.9	7.2	17	6.1	.71	.38	.15
8	4.2	2.4	e2.6	e1.7	e.60	e8.8	9.8	14	6.3	.56	.29	.14
9	4.3	2.4	e2.6	e1.8	e.48	e7.5	8.3	11	5.3	.36	.39	.12
10	5.2	2.3	e2.6	e1.9	e.40	e9.0	7.6	10	4.2	.25	1.2	.07
11	6.5	2.3	e2.6	e2.0	e.38	13	6.5	10	3.4	.19	.85	.09
12	6.4	2.4	e2.8	e2.0	e.36	15	6.2	9.3	2.9	.18	1.3	.12
13	5.6	2.5	e2.6	e2.2	e.34	14	5.6	19	2.5	.25	.67	.16
14	6.0	2.6	e2.7	e2.4	e.60	18	5.8	34	2.0	5.9	.61	.29
15	8.6	2.9	e2.4	e2.5	e1.1	16	4.9	22	1.6	1.8	.46	.20
16	8.7	2.9	e2.3	e2.6	e3.2	13	4.5	15	1.7	1.4	.39	.17
17	10	2.9	e2.2	e2.7	e13	14	5.4	12	1.4	.90	.30	.16
18	8.9	2.9	e2.1	e2.9	e13	11	6.0	10	1.5	.58	.24	.13
19	8.2	2.7	e2.1	e2.8	e22	11	6.0	9.3	1.9	.41	.19	.13
20	6.9	2.6	e2.0	e2.9	e17	12	6.3	9.4	1.8	.30	.20	.11
21	5.9	2.5	e1.8	e3.1	e9.1	8.5	6.5	8.8	1.7	.23	.19	.16
22	5.6	2.4	e1.9	e3.6	e9.6	7.8	6.6	7.5	1.8	.17	.17	.17
23	5.0	2.4	e1.8	e3.8	e6.3	7.3	7.5	6.7	1.7	.14	.16	.18
24	4.7	e2.3	e1.8	e3.1	e5.7	5.7	7.9	6.3	1.5	.15	.14	.17
25	4.4	e2.3	e1.8	e3.0	e2.6	5.8	12	6.5	1.0	.15	.15	.17
26	4.1	e2.4	e1.8	e2.8	e2.2	6.2	13	6.1	.71	.26	.12	.17
27	3.9	e2.5	e1.7	e2.4	e6.3	5.9	9.5	5.3	.45	.19	.07	.17
28	4.0	e2.6	e1.7	e2.4	e27	4.5	9.0	4.5	.30	.15	.07	.17
29	3.3	e2.8	e1.6	e2.0	---	4.8	8.2	4.0	.36	.13	.09	.16
30	2.8	e3.0	e1.6	e1.7	---	4.9	8.9	3.4	.22	.15	.11	.18
31	2.8	---	e1.6	e1.6	---	5.3	---	2.9	---	.15	.24	---
TOTAL	155.9	80.2	69.4	71.9	149.04	509.9	217.3	374.0	112.14	17.19	12.14	5.22
MEAN	5.03	2.67	2.24	2.32	5.32	16.4	7.24	12.1	3.74	.55	.39	.17
MAX	10	3.5	2.8	3.8	27	82	13	34	19	5.9	1.3	.33
MIN	2.6	2.3	1.6	1.6	.34	4.5	4.5	2.9	.22	.13	.07	.07
AC-FT	309	159	138	143	296	1010	431	742	222	34	24	10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1994, BY WATER YEAR (WY)

MEAN	1.94	1.75	1.13	.82	1.86	7.44	6.26	15.5	21.2	6.57	4.83	1.52
MAX	5.03	2.67	2.24	2.32	5.32	16.4	7.99	31.7	40.3	14.9	10.3	3.96
(WY)	1994	1994	1994	1994	1994	1994	1993	1991	1991	1993	1991	1993
MIN	.42	.60	.30	.19	.31	3.03	3.70	2.31	3.74	.55	.39	.17
(WY)	1993	1993	1991	1991	1993	1991	1992	1992	1994	1994	1994	1994

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1991 - 1994	
ANNUAL TOTAL	3062.95		1774.33			
ANNUAL MEAN	8.39		4.86		5.91	
HIGHEST ANNUAL MEAN					8.48	1991
LOWEST ANNUAL MEAN					2.64	1992
HIGHEST DAILY MEAN	170	Jun 7	82	Mar 2	170	Jun 7 1993
LOWEST DAILY MEAN	.23	Jan 14	.07	Aug 27a	.07	Aug 27 1994a
ANNUAL SEVEN-DAY MINIMUM	.25	Feb 15	.11	Aug 24	.11	Aug 24 1994
INSTANTANEOUS PEAK FLOW			150	Mar 2	320	Aug 6 1991
INSTANTANEOUS PEAK STAGE			6.49	Mar 2b	7.31	Jun 8 1991c
ANNUAL RUNOFF (AC-FT)	6080		3520		4280	
10 PERCENT EXCEEDS	18		11		13	
50 PERCENT EXCEEDS	4.3		2.6		2.3	
90 PERCENT EXCEEDS	.30		.17		.27	

e Estimated
a Also Aug. 28 and Sept. 10.
b Backwater from ice.
c Also Aug. 6, 1991.

CHEYENNE RIVER BASIN

06403300 FRENCH CREEK ABOVE FAIRBURN, SD

LOCATION.--Lat 43°43'02", long 103°22'03", in SW1/4 SW1/4 NE1/4 sec.11, T.4 S., R.6 E., Custer County, Hydrologic Unit 10120109, on right bank 500 ft upstream from concrete diversion dam, 1.0 mi southwest of landing strip in Custer State Park, 1.5 mi west of east boundary of Custer State Park, 2.6 mi southwest of abandoned Fairview School, and 3.5 mi southeast of Custer State Park Headquarters.

DRAINAGE AREA.--105 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 and Oct. 30 to Feb. 27, 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	4.1	2.8	e3.1	e2.5	11	8.0	14	6.3	3.0	2.6	1.4
2	6.0	3.7	2.5	e2.7	e2.9	43	8.3	20	5.8	3.0	3.1	1.5
3	5.8	4.0	2.5	e2.3	e3.3	80	9.0	23	6.6	3.1	3.8	1.5
4	5.7	3.9	2.6	e1.9	e3.6	47	9.4	33	12	3.1	4.3	1.7
5	5.6	3.6	e2.5	e1.5	e3.1	38	10	26	16	2.9	3.5	1.7
6	5.7	e3.4	e2.4	e1.4	e2.7	32	10	22	19	2.9	3.1	1.5
7	5.3	e3.2	e2.3	e1.5	e2.4	23	8.9	23	14	3.2	3.0	1.4
8	5.7	3.1	2.3	e1.5	e2.0	19	9.8	22	11	3.3	2.6	1.4
9	8.1	e3.1	2.2	e1.5	e2.3	18	12	19	9.4	3.2	2.5	1.3
10	8.9	3.0	2.7	e1.4	e2.6	16	11	17	8.0	3.0	2.6	1.4
11	8.0	e2.9	2.0	e1.4	e2.8	13	10	16	7.1	2.8	2.8	1.3
12	8.3	2.9	2.5	e1.4	e3.1	16	9.6	15	6.5	2.5	2.9	1.3
13	8.3	2.8	2.2	1.4	e3.4	18	9.2	15	6.1	2.6	2.5	1.3
14	8.1	3.3	e2.2	e1.4	e7.3	18	8.9	23	5.7	3.0	2.5	1.5
15	10	3.2	e2.2	e1.3	e11	20	9.4	31	5.2	4.1	2.4	1.8
16	15	e3.2	e2.1	e1.3	e15	19	9.2	24	5.1	4.3	2.2	1.7
17	13	e3.1	e2.1	e1.2	e19	18	8.5	20	5.2	3.8	2.2	1.6
18	13	3.0	e2.1	e1.2	e23	17	8.7	17	4.8	3.3	2.2	1.6
19	13	e3.0	e2.0	e1.3	e27	17	9.2	15	4.7	3.2	1.9	1.5
20	11	e3.0	e2.0	e1.5	e30	16	9.6	15	4.1	3.1	1.8	1.5
21	9.3	e2.9	e2.0	e1.7	e25	16	9.7	14	4.6	3.1	1.8	1.5
22	7.8	e2.9	e1.9	e1.9	e19	14	10	12	4.9	2.9	1.9	1.6
23	6.8	e2.8	e1.9	e2.0	e14	12	11	11	4.8	2.6	1.9	1.6
24	6.1	e2.8	e1.8	e2.0	e8.4	11	11	11	4.9	2.5	1.5	1.7
25	5.9	e2.9	e2.4	e2.0	e3.0	9.4	12	10	4.4	2.6	1.3	1.7
26	5.6	2.9	e3.0	e1.8	e3.0	8.7	17	9.8	4.0	2.8	1.2	1.6
27	5.0	3.0	e3.6	e1.6	e5.3	8.6	19	8.6	3.8	2.9	1.2	1.6
28	4.8	3.3	e4.0	e1.4	7.6	8.5	16	8.0	3.4	2.8	.99	1.7
29	4.7	3.0	4.4	e1.4	---	7.8	15	7.7	3.2	2.6	1.0	1.6
30	e4.4	2.9	4.6	e1.4	---	8.3	14	7.0	3.1	2.5	1.1	1.5
31	4.2	---	3.5	e1.9	---	8.9	---	6.5	---	2.5	1.2	---
TOTAL	235.2	94.9	79.3	51.3	254.3	612.2	323.4	515.6	203.7	93.2	69.59	46.0
MEAN	7.59	3.16	2.56	1.65	9.08	19.7	10.8	16.6	6.79	3.01	2.24	1.53
MAX	15	4.1	4.6	3.1	30	80	19	33	19	4.3	4.3	1.8
MIN	4.2	2.8	1.8	1.2	2.0	7.8	8.0	6.5	3.1	2.5	.99	1.3
AC-FT	467	188	157	102	504	1210	641	1020	404	185	138	91

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1994, BY WATER YEAR (WY)

MEAN	4.34	3.12	1.59	1.37	2.21	8.22	7.65	15.7	18.2	8.87	4.38	2.82
MAX	12.6	8.63	2.93	3.90	9.08	24.8	12.0	54.8	64.8	24.2	12.2	7.36
(WY)	1983	1983	1987	1985	1994	1987	1993	1991	1991	1984	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1983 - 1994	
ANNUAL TOTAL	4664.58		2578.69			
ANNUAL MEAN	12.8		7.06		6.55a	
HIGHEST ANNUAL MEAN					13.7	1991
LOWEST ANNUAL MEAN					1.01	1989
HIGHEST DAILY MEAN	211	Jun 8	80	Mar 3	252	Jun 4 1991
LOWEST DAILY MEAN	.55	Feb 18	.99	Aug 28	.02	Feb 3 1989b
ANNUAL SEVEN-DAY MINIMUM	.66	Feb 16	1.1	Aug 25	.03	Feb 2 1989
INSTANTANEOUS PEAK FLOW			110	Mar 3	329	Mar 7 1987
INSTANTANEOUS PEAK STAGE			1.92	Mar 3	2.73	Mar 7 1987
ANNUAL RUNOFF (AC-FT)	9250		5110		4750	
10 PERCENT EXCEEDS	27		17		15	
50 PERCENT EXCEEDS	7.8		3.4		2.5	
90 PERCENT EXCEEDS	.91		1.5		.65	

e Estimated
a Median of annual mean discharges, 6.0 ft^3/s.
b Also Feb. 4, 5, 1989.

CHEYENNE RIVER BASIN

06404000 BATTLE CREEK NEAR KEYSTONE, SD

LOCATION.--Lat 43°52'21", long 103°20'10", in SW1/4 SW1/4 sec.18, T.2 S., R.7 E., Pennington County, Hydrologic Unit 10120109, at right downstream end county highway bridge, 0.6 mi downstream from Iron Creek, and 4.5 mi southeast of Keystone.

DRAINAGE AREA.--66 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	4.7	4.5	5.3	e2.7	10	5.7	9.5	5.0	.94	.04	.22
2	2.7	4.3	3.9	4.2	e2.4	17	5.5	11	6.3	.98	.10	.23
3	2.9	4.0	3.9	3.8	e2.2	16	5.3	10	8.4	.86	.28	.26
4	2.9	4.0	3.9	7.5	e2.0	17	5.7	14	7.5	.74	.85	.32
5	2.8	e3.5	e3.5	e3.3	e2.0	12	6.0	13	12	.67	1.1	.29
6	2.8	e3.0	e3.0	e3.0	e1.7	11	5.6	24	9.2	1.1	.73	.27
7	2.8	e3.5	e5.0	e2.5	e1.5	16	5.8	23	7.4	2.2	.51	.24
8	3.4	3.7	9.2	e2.7	e1.2	20	6.2	17	6.5	2.3	.43	.25
9	4.0	7.2	3.7	e2.8	e1.0	18	6.4	15	5.4	1.9	.37	.25
10	4.6	4.8	12	e3.0	e1.0	14	5.7	13	4.4	1.7	.42	.21
11	5.0	5.1	9.9	e5.0	e1.0	9.3	5.4	12	4.2	1.6	.76	.15
12	5.0	3.4	3.4	7.8	e1.0	9.2	5.1	11	4.2	1.2	2.3	.20
13	4.6	3.5	4.9	6.2	e1.8	9.6	5.0	14	3.9	1.2	.78	.20
14	4.6	3.8	e4.6	e5.0	e2.7	9.9	4.7	29	3.7	1.0	.60	.57
15	14	5.8	e4.7	e4.9	e4.0	9.9	4.7	20	3.4	.90	.46	.42
16	14	6.9	e4.8	4.8	e5.6	8.7	4.4	16	3.6	.98	.46	.39
17	12	6.9	e4.9	4.8	e8.0	8.6	4.2	14	3.7	.88	.69	.28
18	9.8	3.4	e5.1	5.1	e11	8.4	4.3	12	3.4	.86	.60	.22
19	12	6.7	e5.2	5.8	e16	8.0	4.2	12	4.2	.86	.49	.15
20	10	8.7	e5.3	6.5	e20	8.0	4.3	14	5.6	.65	.38	.01
21	7.7	4.7	e5.4	6.0	e15	7.8	4.4	12	3.7	.38	.30	.00
22	6.4	e4.0	e5.5	5.5	e9.0	7.0	4.2	10	3.5	.21	.25	.00
23	6.2	e3.4	e5.6	4.6	7.1	6.7	4.4	9.2	3.2	.16	.21	.00
24	6.4	e2.8	e6.8	4.1	7.0	6.3	4.4	9.2	3.1	.13	.17	.00
25	5.7	e2.5	8.2	e4.3	7.1	6.0	5.0	8.3	2.5	.10	.15	.00
26	4.8	e2.0	5.9	e4.2	7.6	5.9	7.2	7.5	2.1	.15	.09	.00
27	4.8	e3.0	5.8	e4.0	7.9	5.7	7.1	6.9	1.8	.13	.06	.00
28	5.0	e5.0	6.0	e4.0	8.4	5.4	6.7	6.4	1.5	.06	.02	.00
29	4.6	8.1	7.0	e3.6	---	5.5	6.4	5.8	1.3	.01	.02	.00
30	e4.0	6.1	7.7	e3.3	---	6.9	6.3	5.6	1.1	.01	.04	.00
31	4.1	---	7.0	e3.0	---	5.8	---	5.1	---	.00	.15	---
TOTAL	182.5	138.5	176.3	140.6	157.9	309.6	160.3	389.5	135.8	24.86	13.81	5.13
MEAN	5.89	4.62	5.69	4.54	5.64	9.99	5.34	12.6	4.53	.80	.45	.17
MAX	14	8.7	12	7.8	20	20	7.2	29	12	2.3	2.3	.57
MIN	2.7	2.0	3.0	2.5	1.0	5.4	4.2	5.1	1.1	.00	.02	.00
AC-FT	362	275	350	279	313	614	318	773	269	49	27	10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1994, BY WATER YEAR (WY)

MEAN	2.25	1.90	1.53	1.15	1.40	3.44	8.54	23.6	36.1	11.8	4.04	1.89
MAX	12.7	5.24	5.69	4.54	5.64	12.8	38.8	89.8	199	46.3	15.6	6.20
(WY)	1987	1987	1994	1994	1994	1987	1971	1978	1972	1962	1979	1989
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1962 - 1994	
ANNUAL TOTAL	5900.80		1834.80			
ANNUAL MEAN	16.2		5.03		8.13a	
HIGHEST ANNUAL MEAN					21.1	1972
LOWEST ANNUAL MEAN					.69	1988
HIGHEST DAILY MEAN	521	Jun 7	29	May 14	2400	Jun 10 1972
LOWEST DAILY MEAN	.60	Feb 17	.00	Jul 31b	.00	Oct 1 1961b
ANNUAL SEVEN-DAY MINIMUM	.71	Feb 16	.00	Sep 21	.00	Oct 1 1961
INSTANTANEOUS PEAK FLOW			35	May 14c	26200	Jun 9 1972d
INSTANTANEOUS PEAK STAGE			4.06	Feb 20f	14.50	Jun 9 1972d
ANNUAL RUNOFF (AC-FT)	11700		3640		5890	
10 PERCENT EXCEEDS	35		11		15	
50 PERCENT EXCEEDS	6.2		4.4		2.1	
90 PERCENT EXCEEDS	1.4		.21		.20	

e Estimated
a Median of annual mean discharges, 6.4 ft^3/s.
b No flow for some days in 1961, 1962, 1970, 1974, 1976, 1980-89, 1994.
c Gage height, 3.91 ft.
d From floodmarks, site then in use, from rating curve extended above 550 ft^3/s on basis of slope-area measurement of peak flow.
f Backwater from ice.

CHEYENNE RIVER BASIN

06404000 BATTLE CREEK NEAR KEYSTONE, SD--Continued

PRECIPITATION RECORDS

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 3,815 ft above sea level, from topographic map.

REMARKS.--Records poor. Gage is located 0.1 mi east of streamflow gaging station. Precipitation gage is read daily by observer at approximately 0730 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.02	---	---	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.12	---	---	.37
3	.00	.00	.00	.00	.00	.00	.28	.11	.17	---	---	.20
4	.00	.00	.00	.00	.00	.00	.00	.00	.27	---	---	.86
5	.00	.00	.00	.00	.00	.00	.00	.57	.00	---	---	.73
6	.00	.00	.00	.00	.00	.00	.00	.00	.15	---	---	.00
7	.00	.00	.00	.00	.00	.08	.00	.00	.00	---	---	.00
8	.00	.00	.00	.00	.30	.00	.00	.00	.00	---	---	.00
9	.42	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.05
12	.00	.00	.00	.00	.00	.00	.00	.22	.00	---	---	.00
13	.22	.00	.00	.00	.00	.00	.00	.55	.00	---	---	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.00
15	.00	.22	.00	.00	.00	.00	.00	.00	.00	---	---	1.26
16	e.28	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.00
17	e.17	.00	.00	.30	.00	.00	.00	.00	.00	---	---	.00
18	e.47	.00	.00	.00	.00	.00	.00	.00	.06	---	---	.48
19	.00	.00	.00	.15	.00	.00	.00	.10	.84	---	---	.00
20	.00	.00	.00	.00	.22	.03	.00	.00	.30	---	---	.00
21	.00	.00	.00	.00	.00	.00	.00	.16	.30	---	---	.00
22	.00	.00	.04	.00	.00	.00	.00	.03	.09	---	---	.00
23	.00	.00	.00	.00	.00	.00	.00	.03	.00	---	---	.00
24	.00	.00	.02	.00	.00	.02	.00	.00	.00	---	---	.00
25	.00	.04	.00	.00	.00	.00	.05	.00	.00	---	---	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.00
27	.00	.00	.00	.00	.00	.03	.00	.00	.00	---	---	.00
28	.00	.00	.00	.00	.00	.04	.00	.00	.00	---	---	.05
29	.00	.00	.00	.02	---	.00	.00	.00	.01	---	---	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	---	---	.00
31	.00	---	.00	.00	---	.00	---	.00	---	---	---	---
TOTAL	1.56	0.26	0.06	0.47	0.52	0.20	0.33	1.77	2.33	---	---	4.00

e Estimated

CHEYENNE RIVER BASIN

06404800 GRACE COOLIDGE CREEK NEAR HAYWARD, SD

LOCATION.--Lat 43°48'07", long 103°26'03", in NE1/4 NW1/4 SW1/4 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 mi upstream from Center Lake, and 7.0 mi southwest of Hayward.

DRAINAGE AREA.--7.48 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 4,780 ft above sea level, from topographic map.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.72	1.1	.78	.51	.32	.56	.79	1.6	.81	.44	.16	.38
2	.69	1.1	.78	.50	.32	.71	.80	1.8	.89	.45	.30	.34
3	.67	1.1	.76	.50	.30	.76	.83	1.8	.94	.41	.75	.31
4	.66	1.1	.72	.51	.33	.77	.88	1.7	.91	.39	.62	.29
5	.68	.96	.69	.52	.31	.78	.87	1.4	1.2	.37	.37	.28
6	.77	.97	.66	.45	.31	.76	.94	2.2	.89	.51	.26	.25
7	.71	.97	.64	.40	.26	.62	.98	1.9	.88	.60	.20	.24
8	.93	.95	.63	.51	.25	.60	1.1	1.7	.82	.48	.18	.23
9	.92	.88	.67	.51	.22	.61	.96	1.4	.77	.41	.21	.21
10	1.0	.86	.66	.50	.25	.70	.95	1.4	.72	.34	.25	.19
11	1.1	.86	.65	.50	.29	.85	.92	1.3	.72	.28	.28	.19
12	1.0	.87	.73	.47	.34	.85	.89	1.2	.70	.24	.49	.21
13	.92	.94	.64	.47	.36	.87	.89	1.5	.67	.33	.27	.25
14	1.5	.95	.57	.47	.33	1.0	.89	2.1	.62	.56	.20	.41
15	1.9	.93	.55	.46	.33	.96	.86	1.4	.58	.41	.18	.36
16	1.7	.94	e.55	.45	.36	.97	.83	1.3	.70	.39	.21	.36
17	1.7	.88	e.58	.43	.40	1.1	.83	1.1	.68	.35	.33	.36
18	2.0	.93	.60	.43	.52	1.0	.84	1.1	.65	.27	.28	.36
19	2.0	.94	.63	.45	.54	1.1	.83	1.1	1.1	.25	.23	.36
20	1.6	.93	.63	.44	.43	1.1	.83	1.2	.95	.24	.22	.36
21	1.5	.89	.61	.43	.40	1.0	.82	1.1	.70	.21	.20	.39
22	1.5	.81	.58	.43	.39	.98	.81	1.0	.67	.18	.18	.44
23	1.4	e.77	.57	.43	.37	.96	.86	.95	.65	.18	.16	.44
24	1.4	.73	.55	.44	.37	.89	.82	.95	.63	.17	.18	.41
25	1.3	.70	.54	.43	.36	.91	.92	.93	.59	.17	.17	.41
26	1.2	.75	.54	.43	.36	.86	1.1	.83	.55	.19	.16	.39
27	1.2	.79	.54	.41	.42	.77	1.0	.81	.52	.17	.15	.41
28	1.1	.83	.53	.39	.50	.81	1.0	.78	.50	.15	.15	.43
29	1.1	.78	.53	.37	---	.77	1.0	.81	.49	.15	.15	.50
30	1.0	.79	.54	.34	---	.80	1.1	.83	.45	.17	.23	.54
31	1.1	---	.54	.31	---	.78	---	.83	---	.16	.37	---
TOTAL	36.97	27.00	19.19	13.89	9.94	26.20	27.14	40.02	21.95	9.62	8.09	10.30
MEAN	1.19	.90	.62	.45	.35	.85	.90	1.29	.73	.31	.26	.34
MAX	2.0	1.1	.78	.52	.54	1.1	1.1	2.2	1.2	.60	.75	.54
MIN	.66	.70	.53	.31	.22	.56	.79	.78	.45	.15	.15	.19
AC-FT	73	54	38	28	20	52	54	79	44	19	16	20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1994, BY WATER YEAR (WY)

MEAN	.71	.49	.32	.24	.21	.66	1.73	7.28	7.98	2.02	1.03	.60
MAX	1.19	.90	.62	.45	.35	.96	3.85	18.0	18.4	3.33	1.59	1.00
(WY)	1994	1994	1994	1994	1994	1993	1993	1991	1991	1993	1992	1992
MIN	.24	.24	.17	.12	.14	.25	.42	.37	.73	.31	.26	.28
(WY)	1991	1991	1991	1991	1990	1991	1992	1992	1994	1994	1994	1990

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1990 - 1994	
ANNUAL TOTAL	1019.72		250.31			
ANNUAL MEAN	2.79		.69		1.95	
HIGHEST ANNUAL MEAN					3.57	1991
LOWEST ANNUAL MEAN					.69	1994
HIGHEST DAILY MEAN	78	Jun 7	2.2	May 6	102	May 30 1990
LOWEST DAILY MEAN	.17	Feb 17	.15	Jul 28,29,Aug 27-29	.02	Dec 22 1990a
ANNUAL SEVEN-DAY MINIMUM	.19	Feb 13	.16	Aug 23	.04	Jan 25 1991
INSTANTANEOUS PEAK FLOW			3.1	May 13	210	Jun 3 1991
INSTANTANEOUS PEAK STAGE			4.40	May 13	7.23	Jun 3 1991
ANNUAL RUNOFF (AC-FT)	2020		496		1410	
10 PERCENT EXCEEDS	6.1		1.1		3.6	
50 PERCENT EXCEEDS	1.1		.64		.54	
90 PERCENT EXCEEDS	.21		.24		.18	

e Estimated
a Also Dec. 26, 1990.
b Also Oct. 14, 15, 1993; discharge, 2.7 ft^3/s.

CHEYENNE RIVER BASIN

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

LOCATION.--Lat 43°45'40", long 103°21'49", in SW1/4 NE1/4 sec.26, T.3 S., R.6 E., Custer County, Hydrologic Unit 10120109, on right bank 0.3 mi downstream from bridge on U.S. Highway 16A, 0.9 mi east of Game Lodge, 1.5 mi southwest of junction of State Highway 36 and U.S. Highway 16A, and 11.5 mi east of Custer.

DRAINAGE AREA.--25.2 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. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	6.0	4.0	e3.0	e2.8	7.1	3.3	4.7	3.0	1.4	1.1	1.5
2	4.8	5.5	3.9	e3.0	e3.0	5.4	3.2	5.1	3.2	1.4	2.8	1.5
3	4.8	5.6	4.0	e3.0	3.2	4.3	3.0	5.7	3.4	1.3	4.1	1.4
4	4.7	5.7	3.9	e2.9	3.5	3.8	3.5	6.6	3.6	1.3	2.7	1.2
5	4.6	4.9	3.9	e2.9	3.5	3.7	3.3	5.7	3.6	1.2	2.0	1.2
6	4.4	e4.2	e3.7	e2.7	3.3	e3.6	3.5	7.5	3.2	1.4	1.7	1.1
7	4.4	e4.8	e3.6	e2.7	e3.0	3.5	3.4	7.2	3.0	1.8	1.4	.93
8	6.0	5.3	3.7	e2.8	e2.8	e3.4	3.6	6.7	3.0	1.6	1.4	.84
9	6.1	5.1	4.0	e2.9	e2.7	e3.5	3.3	5.9	2.7	1.5	1.4	.77
10	5.8	4.6	3.6	e3.0	e2.8	3.5	3.1	5.7	2.4	1.5	1.6	.73
11	5.7	4.8	3.8	e3.2	e2.9	3.7	3.0	5.4	2.3	1.3	1.9	.70
12	5.3	5.3	4.1	e3.4	e3.0	3.8	2.9	5.2	2.3	1.2	2.2	.74
13	5.0	5.4	4.0	3.5	e3.2	3.8	3.0	5.6	2.3	1.5	1.7	.86
14	8.0	5.2	e3.9	3.3	e3.4	4.0	3.0	8.1	2.2	2.1	1.4	1.7
15	12	4.8	e3.8	3.4	3.2	4.0	3.1	6.3	2.1	2.6	1.3	1.3
16	9.0	4.9	e3.6	3.5	3.2	3.8	2.7	5.4	2.5	2.2	1.3	1.4
17	8.9	4.7	e3.5	3.1	3.3	4.0	2.7	4.9	2.3	1.8	1.4	1.1
18	9.8	4.8	e3.4	3.4	3.8	3.9	2.8	4.6	2.4	1.5	1.2	.98
19	9.5	4.5	e3.2	3.5	3.1	3.9	2.8	4.5	2.7	1.6	1.0	.93
20	8.6	4.4	e3.1	3.7	2.8	4.0	2.8	5.4	2.4	1.3	1.0	.92
21	8.1	4.4	e3.0	3.6	e2.6	3.7	2.8	5.3	2.3	1.2	.94	.99
22	7.8	e4.0	e2.8	3.4	e2.4	3.6	2.8	4.3	2.2	1.0	.83	1.2
23	7.4	e3.5	e2.7	3.3	e2.2	3.6	3.0	4.0	2.0	.95	.80	.99
24	7.1	e3.0	e2.8	3.2	e2.0	3.5	2.8	3.9	1.9	1.0	.76	.91
25	7.0	e3.2	e2.9	3.1	2.3	3.6	3.2	4.0	1.7	1.0	.73	.91
26	6.5	e3.6	e3.0	3.0	2.6	3.6	4.6	3.7	1.5	1.0	.73	.87
27	6.2	3.9	e2.9	e2.9	2.8	3.5	3.8	3.6	1.6	.96	.66	.88
28	6.2	4.2	e2.8	e2.8	2.9	2.9	3.8	3.6	1.4	.98	.67	.85
29	5.9	4.2	e2.8	e2.7	---	3.4	3.8	3.4	1.5	.92	.67	.86
30	5.3	4.3	e2.8	e2.6	---	3.1	3.9	3.2	1.4	.96	.86	.93
31	5.9	---	e2.9	e2.7	---	3.4	---	3.1	---	1.0	1.4	---
TOTAL	205.5	138.8	106.1	96.2	82.3	118.6	96.5	158.3	72.1	42.47	43.65	31.19
MEAN	6.63	4.63	3.42	3.10	2.94	3.83	3.22	5.11	2.40	1.37	1.41	1.04
MAX	12	6.0	4.1	3.7	3.8	7.1	4.6	8.1	3.6	2.6	4.1	1.7
MIN	4.4	3.0	2.7	2.6	2.0	2.9	2.7	3.1	1.4	.92	.66	.70
AC-FT	408	275	210	191	163	235	191	314	143	84	87	62

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1994, BY WATER YEAR (WY)

MEAN	2.13	1.65	1.31	1.10	1.06	1.92	2.69	11.2	9.82	4.90	2.96	1.98
MAX	6.63	4.63	3.42	3.10	2.94	5.54	8.52	40.4	43.9	22.3	11.9	5.93
(WY)	1994	1994	1994	1994	1994	1989	1993	1978	1991	1979	1979	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1977 - 1994	
ANNUAL TOTAL	3578.36		1191.71			
ANNUAL MEAN	9.80		3.26		3.57	
HIGHEST ANNUAL MEAN					9.12	1993
LOWEST ANNUAL MEAN					.61	1988
HIGHEST DAILY MEAN	179	Jun 7	12	Oct 15	254	May 30 1990
LOWEST DAILY MEAN	.96	Feb 17	.66	Aug 27	.00	Jun 5 1977a
ANNUAL SEVEN-DAY MINIMUM	1.4	Feb 11	.72	Aug 23	.00	Sep 1 1988
INSTANTANEOUS PEAK FLOW			19	Oct 14	1030	Sep 7 1989b
INSTANTANEOUS PEAK STAGE			7.64	Oct 14	12.76	Feb 9 1979c
ANNUAL RUNOFF (AC-FT)	7100		2360		2590	
10 PERCENT EXCEEDS	20		5.5		6.8	
50 PERCENT EXCEEDS	5.8		3.1		1.4	
90 PERCENT EXCEEDS	1.7		1.0		.47	

e Estimated
a No flow some days in 1977, part of day June 14, 1979, 1985, 1988, and 1989.
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.

CHEYENNE RIVER BASIN

06405800 BEAR GULCH NEAR HAYWARD, SD

LOCATION.--Lat 43°47'31", long 103°20'49", in NW1/4 SW1/4 NE1/4 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.

DRAINAGE AREA.--4.23 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and compound weir. Elevation of gage is 4,110 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Considerable loss occurs to sinkholes in reach 0.5 mi upstream from station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.33	1.3	.52	.23	e.02	e.00	.21	.46	.35	.00	.00	.33
2	.34	1.2	.50	.22	e.02	e.00	.18	.45	.39	.00	.09	.15
3	.31	1.1	.50	.22	e.02	e.00	.19	.50	.37	.00	.14	.00
4	.28	1.1	.49	e.21	e.02	e.00	.25	.51	.31	.00	.06	.00
5	.26	e1.0	.39	e.20	e.02	e.00	.30	.54	.30	.00	.11	.00
6	.23	e.97	e.30	e.17	e.01	e.00	.27	1.0	.20	.00	.04	.00
7	.25	1.0	e.32	e.15	e.01	e.00	.24	.98	.15	.00	.09	.00
8	.45	.95	e.35	e.17	e.01	e.00	.20	.99	.18	.00	.28	.00
9	.42	.94	.38	e.18	e.01	e.00	.17	1.0	.18	.00	.37	.00
10	.43	.85	.38	e.20	e.02	e.10	.16	1.0	.14	.00	.09	.00
11	.38	.82	.38	e.20	e.02	e.32	.15	.97	.10	.00	.08	.00
12	.33	.86	.36	e.19	e.02	.27	.14	.95	.06	.00	.06	.00
13	.30	.81	.33	e.18	e.02	.26	.12	1.1	.06	.16	.01	.00
14	1.5	.79	.32	e.17	e.02	.26	.12	1.5	.04	.29	.01	.04
15	4.4	e.78	e.31	e.16	e.02	.28	.11	1.2	.04	.43	.01	.00
16	4.4	e.75	e.30	e.10	e.02	.30	.09	1.2	.09	.32	.01	.00
17	4.0	.74	e.30	e.07	e.03	.28	.07	.95	.07	.04	.01	.00
18	3.6	.72	e.29	e.06	e.02	.30	.07	.84	.07	.04	.05	.00
19	3.5	e.71	e.29	e.07	e.01	.28	.07	.76	.16	.00	.02	.00
20	3.0	e.70	e.28	e.08	e.00	.27	.06	.74	.15	.02	.01	.00
21	2.7	.69	e.28	e.08	e.00	.27	.06	.73	.06	.00	.00	.00
22	2.4	e.65	e.27	e.08	e.00	.26	.06	.60	.06	.00	.00	.00
23	2.2	e.60	e.27	e.07	e.00	e.23	.06	.55	.06	.00	.00	.00
24	2.0	e.55	e.26	e.06	e.00	e.20	.06	.54	.17	.00	.00	.00
25	1.8	e.50	e.26	e.05	e.00	e.20	.12	.50	.07	.00	.00	.00
26	1.7	e.50	.25	e.05	e.00	e.20	.18	.43	.04	.00	.00	.00
27	1.6	e.55	.25	e.04	e.00	e.20	.27	.40	.00	.00	.00	.00
28	1.5	e.60	e.24	e.04	e.00	e.20	.27	.37	.00	.00	.00	.00
29	1.4	.64	e.23	e.03	---	e.27	.27	.36	.00	.00	.00	.00
30	e1.3	.52	e.23	e.02	---	.33	.30	.32	.00	.00	.01	.00
31	1.3	---	e.23	e.02	---	.24	---	.33	---	.00	.27	---
TOTAL	48.61	23.89	10.06	3.77	0.34	5.52	4.82	22.77	3.87	1.30	1.82	0.52
MEAN	1.57	.80	.32	.12	.012	.18	.16	.73	.13	.042	.059	.017
MAX	4.4	1.3	.52	.23	.03	.33	.30	1.5	.39	.43	.37	.33
MIN	.23	.50	.23	.02	.00	.00	.06	.32	.00	.00	.00	.00
AC-FT	96	47	20	7.5	.7	11	9.6	45	7.7	2.6	3.6	1.0

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1994, BY WATER YEAR (WY)

MEAN	.45	.19	.066	.024	.002	.14	.95	3.96	3.74	1.37	.46	.16
MAX	1.57	.80	.32	.12	.012	.31	2.57	8.03	8.38	2.01	.73	.55
(WY)	1994	1994	1994	1994	1994	1993	1993	1993	1993	1992	1993	1993
MIN	.000	.000	.000	.000	.000	.000	.084	.45	.13	.042	.059	.003
(WY)	1991	1991	1991	1990	1990	1991	1990	1992	1994	1994	1994	1990

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1990 - 1994	
ANNUAL TOTAL	750.31		127.29			
ANNUAL MEAN	2.06		.35		.96	
HIGHEST ANNUAL MEAN					1.83	1993
LOWEST ANNUAL MEAN					.35	1994
HIGHEST DAILY MEAN	48	Jun 7	4.4	Oct 15	56	May 30 1990
LOWEST DAILY MEAN	.00	Jan 1	.00	Feb 20a	.00	Dec 5 1989a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Feb 20	.00	Dec 11 1989
INSTANTANEOUS PEAK FLOW			6.1	Oct 14b	1250	Sep 7 1989c
INSTANTANEOUS PEAK STAGE			6.88	Mar 1d	10.68	Sep 7 1989f
ANNUAL RUNOFF (AC-FT)	1490		252		698	
10 PERCENT EXCEEDS	4.4		.95		2.3	
50 PERCENT EXCEEDS	.70		.17		.10	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a No flow for many days in each year.
b Gage height, 5.39 ft.
c Based on slope-area measurement of peak flow.
d Backwater from ice.
e From floodmarks.

CHEYENNE RIVER BASIN

06405800 BEAR GULCH NEAR HAYWARD, SD--Continued

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Shielded precipitation recorder with 8.0-in. orifice and 12-in. capacity.

AVERAGE ANNUAL PRECIPITATION.--5 years, 22.10 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.00	e.00	.00	e.00	e.02	.00	e.00	.00	e.00	.00	.00	e.22
2	e.00	e.00	.11	e.06	e.05	.00	e.00	.00	e.08	.00	1.06	e.07
3	e.00	e.00	.00	e.00	e.00	.00	e.00	.10	e.00	.00	.89	e.00
4	e.00	e.00	.00	e.00	e.00	.00	e.30	.00	e.23	.00	.00	e.00
5	e.00	e.00	.00	.00	e.01	.14	e.00	.42	e.00	.06	.02	e.00
6	e.00	e.00	.00	.00	e.13	.25	e.00	.23	e.00	.19	.00	e.00
7	e.06	e.00	.00	.00	e.11	.08	e.00	.00	e.00	.00	.00	e.00
8	e.74	e.00	.00	.00	e.00	.00	e.00	.00	e.30	.00	.03	e.00
9	e.00	e.00	.00	.00	e.01	.00	e.00	.00	e.00	.00	.00	e.00
10	e.00	e.00	.05	.00	e.08	.00	e.00	.00	e.00	.06	.00	e.00
11	e.00	e.00	.00	.05	e.00	.00	e.00	.00	e.00	.00	.29	e.00
12	e.00	e.32	.00	.00	e.01	.00	e.00	e.04	e.00	.00	.00	e.00
13	e.14	e.11	.00	.02	e.00	.00	e.00	e.54	e.00	.99	.01	e.08
14	e1.36	e.07	.00	.03	e.00	.00	e.00	e.00	e.00	.14	.00	e.54
15	e.06	e.00	.00	.00	.00	.00	e.00	e.00	e.08	1.12	.12	e.19
16	e.03	e.00	.39	.13	.00	.00	e.00	e.00	e.00	.09	.43	e.00
17	e.14	.00	.07	.05	.00	.00	e.00	e.09	e.08	.00	.00	e.00
18	e.40	.00	.06	.07	.00	.00	e.00	e.00	e.00	.14	.00	e.00
19	e.00	.00	.00	.03	.02	.00	e.00	e.08	e.26	.01	.00	e.00
20	e.00	.00	.00	.00	.14	.00	e.00	e.20	e.00	.00	.00	e.00
21	e.00	.00	.00	.00	.20	.00	e.00	e.00	e.00	.00	.00	e.02
22	e.00	.04	.00	.00	.01	.00	.08	e.00	e.00	.00	.00	e.00
23	e.00	.15	.00	.00	.00	.00	.00	e.00	e.00	.00	.00	e.00
24	e.00	.03	.00	.00	.24	.05	.10	e.14	e.00	.00	.00	e.00
25	e.00	.04	.00	.00	.00	.00	.44	e.00	e.12	.07	e.00	e.00
26	e.00	.01	.00	.00	.00	.00	.29	e.00	e.08	.00	e.00	e.00
27	e.00	.00	.00	.00	.00	.00	.11	e.04	e.00	.00	e.16	e.00
28	e.00	.00	.00	.00	.00	.03	.09	e.00	e.00	.00	e.00	e.00
29	e.00	.00	.00	.00	---	.08	.00	e.00	e.00	.14	e.00	e.00
30	e.00	.00	.00	e.02	---	.00	.00	e.00	e.00	.00	e.41	e.00
31	e.00	---	.00	e.00	---	e.00	---	e.00	---	.04	e.29	---
TOTAL	2.93	0.77	0.68	0.46	1.03	0.63	1.41	1.88	1.23	3.05	3.71	1.12

CAL YR 1993 TOTAL 28.51
WTR YR 1994 TOTAL 18.90

e Estimated

06406000 BATTLE CREEK AT HERMOSA, SD

LOCATION.--Lat 43°49'41", long 103°11'44", in NE1/4 SW1/4 SW1/4 sec.32, T.2 S., R.8 E., Custer County, Hydrologic Unit 10120109, on right bank 50 ft downstream from Chicago and North Western Transportation Company bridge, 0.8 mi south of Hermosa, and 2.9 mi downstream from Grace Coolidge Creek.

DRAINAGE AREA.--178 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	18	17	15	e10	e25	12	13	12	9.2	5.0	8.0
2	18	18	17	14	e10	e20	12	13	12	7.3	5.1	8.5
3	18	18	17	14	e10	16	11	13	11	7.2	6.3	8.5
4	18	18	17	15	e10	12	12	13	11	7.4	6.4	8.2
5	17	18	17	e15	e10	12	12	13	11	7.5	5.5	7.9
6	17	18	17	e14	e9.2	12	13	14	11	7.5	4.1	7.1
7	17	18	17	e14	e8.5	13	12	14	11	8.5	4.0	6.5
8	18	18	17	e15	e7.9	12	12	13	11	8.3	4.0	6.2
9	18	18	17	e15	e7.2	12	12	13	11	7.9	4.3	6.1
10	18	18	17	e15	e8.0	12	12	13	11	7.2	5.4	5.7
11	18	18	17	e15	e8.3	12	12	13	11	6.7	5.7	5.6
12	18	18	17	e14	e9.0	12	12	13	11	7.0	5.0	5.7
13	18	18	17	e14	e9.5	12	12	13	11	6.3	4.3	5.7
14	17	18	17	e13	9.9	12	12	14	11	6.6	4.2	5.1
15	18	18	17	e13	11	12	12	14	11	7.0	3.9	5.1
16	18	18	17	e12	10	13	12	14	11	7.5	3.9	5.1
17	18	18	17	e12	9.9	13	12	13	11	6.9	4.9	5.1
18	18	18	16	e12	10	13	11	13	10	6.3	4.5	5.0
19	18	18	16	e11	9.9	13	11	13	12	6.7	4.5	4.7
20	18	18	16	e11	9.5	13	11	13	12	5.6	5.8	4.8
21	18	18	e16	e11	9.1	13	11	13	11	5.3	6.4	4.8
22	18	18	e16	e12	e9.0	13	11	13	10	5.1	6.4	5.4
23	18	17	e16	e12	e8.5	13	11	13	10	4.8	6.0	5.1
24	18	16	e16	e11	e8.0	13	11	13	10	5.1	4.8	4.6
25	18	16	16	e11	e8.0	13	11	13	10	5.1	4.5	4.4
26	18	17	16	e11	e8.0	13	13	13	9.9	5.1	5.3	4.1
27	18	17	15	e12	e8.5	13	13	13	9.9	4.9	6.1	4.0
28	18	18	e16	e13	e9.0	12	13	13	9.9	5.4	6.3	4.0
29	18	18	e15	e12	---	12	13	13	9.5	5.3	6.1	4.2
30	18	17	15	e11	---	12	13	12	9.8	5.1	6.1	4.3
31	18	---	15	e11	---	12	---	12	---	5.1	6.8	---
TOTAL	554	532	509	400	255.9	410	357	406	323.0	200.9	161.6	169.5
MEAN	17.9	17.7	16.4	12.9	9.14	13.2	11.9	13.1	10.8	6.48	5.21	5.65
MAX	18	18	17	15	11	25	13	14	12	9.2	6.8	8.5
MIN	17	16	15	11	7.2	12	11	12	9.5	4.8	3.9	4.0
AC-FT	1100	1060	1010	793	508	813	708	805	641	398	321	336

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1994, BY WATER YEAR (WY)

MEAN	4.22	4.46	3.95	3.43	3.20	3.80	5.65	24.0	35.0	13.0	6.07	4.00
MAX	17.9	17.7	16.4	12.9	9.14	13.2	31.9	129	158	75.5	25.5	17.1
(WY)	1994	1994	1994	1994	1994	1994	1971	1965	1967	1962	1957	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1950 - 1994	
ANNUAL TOTAL	10751.5		4278.9			
ANNUAL MEAN	29.5		11.7		9.24a	
HIGHEST ANNUAL MEAN					26.5	1965
LOWEST ANNUAL MEAN					.99	1955
HIGHEST DAILY MEAN	597	Jun 8	25	Mar 1	1750	Jun 10 1972
LOWEST DAILY MEAN	2.2	Feb 17	3.9	Aug 15	.00	Oct 6 1954b
ANNUAL SEVEN-DAY MINIMUM	2.5	Feb 16	4.2	Sep 24	.00	Oct 9 1954
INSTANTANEOUS PEAK FLOW			26	Mar 3c	21400	Jun 10 1972d
INSTANTANEOUS PEAK STAGE			5.24	Mar 1f	17.72	Jun 10 1972d
ANNUAL RUNOFF (AC-FT)	21330		8490		6700	
10 PERCENT EXCEEDS	59		18		13	
50 PERCENT EXCEEDS	17		12		3.5	
90 PERCENT EXCEEDS	2.8		5.1		1.0	

e Estimated
a Median of annual mean discharges, 6.0 ft^3/s.
b No flow at times in 1954-57, 1959, and 1989.
c Gage height, 3.06 ft.
d 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.
f Backwater from ice.

CHEYENNE RIVER BASIN

06406500 BATTLE CREEK BELOW HERMOSA, SD

LOCATION.--Lat 43°43'30", long 102°54'15", in NE1/4 SW1/4 SE1/4 sec.3, T.4 S., R.10 E., Pennington County, Hydrologic Unit 10120109, at left downstream side of bridge on State Highway 40, approximately 9 mi upstream from mouth, and 18.0 mi southeast of Hermosa.

DRAINAGE AREA.--285 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. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	21	20	16	e11	e12	15	14	7.7	3.4	2.1	2.7
2	17	19	20	e16	e11	e20	15	15	7.0	3.5	1.9	3.4
3	17	19	20	e15	e11	e30	15	14	6.9	3.4	2.8	4.2
4	16	19	20	e16	e12	e23	15	14	6.9	3.0	3.1	4.6
5	16	19	e20	e17	e12	e19	15	14	6.8	2.5	3.1	4.3
6	16	e19	e20	e16	e12	e16	15	15	6.4	2.6	3.4	3.9
7	16	e22	e20	e15	e11	e15	15	15	7.1	3.5	3.3	3.6
8	17	e21	e20	e16	e10	e14	15	15	12	4.7	2.8	3.2
9	17	e20	e19	e17	e9.0	e14	15	14	7.8	4.8	2.4	2.8
10	18	e20	e20	e17	e9.0	e15	14	13	8.1	4.5	2.1	2.4
11	18	e20	e21	16	e9.5	e15	14	13	8.3	4.1	2.1	2.1
12	18	e20	e19	15	e10	e14	14	13	8.3	3.6	2.1	2.0
13	17	e21	e18	15	e10	e14	14	13	8.3	3.7	2.5	2.0
14	17	e20	e18	e15	e10	e14	14	12	8.3	3.8	2.9	2.0
15	18	e20	e18	e15	e10	e14	14	12	8.1	4.0	2.3	2.1
16	19	e20	e18	e15	e10	e14	14	12	9.0	4.1	2.0	2.3
17	19	e21	e18	e11	e11	e14	14	12	8.9	3.9	2.3	2.3
18	18	20	e18	e12	e11	e14	13	12	9.4	3.8	2.2	2.2
19	18	19	e18	e13	e10	e14	13	12	9.6	4.0	1.7	2.2
20	18	20	e18	e14	e10	e14	13	12	9.9	3.7	1.7	2.3
21	18	e19	e18	e15	e9.5	e14	13	13	11	3.7	1.7	2.6
22	19	e18	e18	e16	e9.0	e14	12	11	11	3.5	1.4	2.8
23	18	e18	e18	e17	e8.5	e14	9.0	9.9	9.3	2.8	1.4	2.7
24	18	e17	e19	e15	e8.6	e14	11	10	8.5	2.4	1.9	2.5
25	18	e16	e17	e14	e8.6	e14	12	11	7.8	2.2	1.9	3.1
26	18	e18	e16	e13	e8.7	e14	14	11	7.1	2.1	1.8	3.3
27	18	20	e15	e12	e8.8	e14	15	9.8	7.0	2.0	1.5	3.1
28	19	21	e15	e12	e9.0	e15	15	8.1	5.6	1.9	1.1	3.0
29	19	20	e15	e12	---	15	14	8.0	4.0	1.7	.90	2.6
30	19	20	e16	e12	---	15	14	7.7	3.7	1.6	1.3	2.5
31	18	---	16	e11	---	15	---	8.6	---	1.7	1.9	---
TOTAL	549	587	566	451	280.2	477	415.0	374.1	239.8	100.2	65.60	84.8
MEAN	17.7	19.6	18.3	14.5	10.0	15.4	13.8	12.1	7.99	3.23	2.12	2.83
MAX	19	22	21	17	12	30	15	15	12	4.8	3.4	4.6
MIN	16	16	15	11	8.5	12	9.0	7.7	3.7	1.6	.90	2.0
AC-FT	1090	1160	1120	895	556	946	823	742	476	199	130	168

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1953, 1989 - 1994, BY WATER YEAR (WY)

MEAN	3.13	4.32	4.06	3.51	3.55	5.41	4.09	40.6	44.5	9.40	6.17	3.58
MAX	17.7	19.6	18.3	14.5	10.0	15.4	13.8	188	152	35.8	21.8	18.2
(WY)	1994	1994	1994	1994	1994	1994	1994	1952	1991	1993	1953	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1951 - 1953, 1989 - 1994	
ANNUAL TOTAL	11342.6		4189.70			
ANNUAL MEAN	31.1		11.5		11.0	
HIGHEST ANNUAL MEAN					27.2	1993
LOWEST ANNUAL MEAN					.40	1989
HIGHEST DAILY MEAN	499	Jun 9	30	Mar 3	1760	May 23 1952
LOWEST DAILY MEAN	2.2	Feb 27	.90	Aug 29	.00	Oct 1 1950a
ANNUAL SEVEN-DAY MINIMUM	2.4	Feb 22	1.5	Aug 24	.00	Oct 1 1950
INSTANTANEOUS PEAK FLOW			31	Jun 7b	2060	May 23 1952c
INSTANTANEOUS PEAK STAGE			6.14	Mar 3d	8.57	Jun 8 1993
ANNUAL RUNOFF (AC-FT)	22500		8310		8000	
10 PERCENT EXCEEDS	60		19		18	
50 PERCENT EXCEEDS	18		13		2.8	
90 PERCENT EXCEEDS	3.2		2.3		.00	

e Estimated
a No flow for many days in most years.
b Gage height, 3.38 ft.
c From rating curve extended above 110 ft^3/s.
d Backwater from ice.

CHEYENNE RIVER BASIN

06406920 SPRING CREEK ABOVE SHERIDAN LAKE, NEAR KEYSTONE, SD

LOCATION.--Lat 43°57'39", long 103°29'18", in SE1/4 NE1/4 SW1/4 sec.14, T.1 S., R.5 E., Pennington County, Hydrologic Unit 10120109, on left bank 0.25 mi upstream from Sheridan Lake and 1.5 mi northeast of the junction of State Highways 16 and 385.

DRAINAGE AREA.--127 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	e12	13	8.1	e4.0	e15	13	29	19	6.4	4.4	2.6
2	9.8	13	12	7.8	e3.8	e20	14	31	22	6.7	4.0	3.0
3	9.8	14	11	7.9	e3.7	e25	12	33	28	6.2	4.7	3.0
4	9.5	13	11	7.8	e3.6	e30	13	35	24	5.7	5.9	2.6
5	9.5	11	11	e7.0	e3.5	e27	9.6	33	24	5.4	4.9	2.3
6	9.2	e13	e10	e6.4	e3.3	24	11	49	22	7.6	4.2	1.9
7	8.8	16	e11	e6.0	e3.1	15	15	45	20	11	3.4	1.7
8	10	15	12	e6.4	e3.0	15	18	40	20	9.4	3.2	1.5
9	11	16	11	e6.7	e3.1	15	15	38	20	8.0	3.2	1.4
10	13	15	10	e7.0	e3.2	15	14	38	17	6.8	3.4	1.3
11	14	15	11	e7.0	e3.5	15	13	36	16	6.2	3.6	1.2
12	14	12	11	e6.9	e3.8	16	12	35	15	5.8	4.3	1.2
13	13	12	9.5	e6.8	e4.0	17	13	38	15	6.1	4.4	1.1
14	16	12	e8.0	e6.5	e5.0	24	14	60	13	7.1	3.3	1.5
15	24	14	e8.3	e6.0	e7.0	23	13	44	12	6.9	2.8	1.4
16	22	17	e8.5	e5.5	e8.5	20	13	41	12	6.2	2.6	1.3
17	23	16	e8.0	e5.0	e10	21	14	39	12	6.3	2.5	1.3
18	18	14	e7.5	e5.0	e12	17	15	36	12	5.5	2.2	1.3
19	20	13	e7.7	e5.0	e11	17	15	36	13	5.1	2.0	1.2
20	17	15	e8.0	e5.3	e10	20	15	35	12	4.8	1.9	1.1
21	16	12	e8.0	e5.8	e10	14	15	34	11	4.5	1.8	1.1
22	15	e10	e7.8	e6.4	e9.0	15	15	31	12	4.2	1.8	1.2
23	15	e8.5	e7.5	e7.0	e8.0	13	18	30	13	3.9	1.6	1.4
24	14	e7.0	e8.0	e6.0	e7.0	9.4	18	29	11	3.9	1.5	1.4
25	14	e6.0	e9.0	e5.0	e6.0	12	24	29	9.4	3.6	1.4	1.3
26	13	e6.8	10	e4.8	e7.0	11	27	27	8.3	4.0	1.2	1.2
27	13	e7.8	8.9	e4.5	e8.5	11	20	26	7.6	4.2	1.2	1.2
28	14	e9.0	8.2	e4.5	e10	9.7	23	24	6.9	3.5	1.1	1.2
29	12	e10	8.8	e4.2	---	12	22	23	6.6	3.2	1.1	1.1
30	e10	12	8.3	e4.0	---	12	22	22	6.4	4.5	1.1	1.1
31	e11	---	8.1	e4.0	---	13	---	20	---	5.4	1.6	---
TOTAL	428.4	367.1	292.1	186.3	174.6	523.1	475.6	1066	440.2	178.1	86.3	46.1
MEAN	13.8	12.2	9.42	6.01	6.24	16.9	15.9	34.4	14.7	5.75	2.78	1.54
MAX	24	17	13	8.1	12	30	27	60	28	11	5.9	3.0
MIN	8.8	6.0	7.5	4.0	3.0	9.4	9.6	20	6.4	3.2	1.1	1.1
AC-FT	850	728	579	370	346	1040	943	2110	873	353	171	91

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1994, BY WATER YEAR (WY)

MEAN	6.20	6.13	4.57	3.18	3.48	9.73	12.8	46.3	62.9	22.3	11.4	6.02
MAX	13.8	12.2	9.42	6.01	6.24	16.9	17.6	73.7	121	45.2	22.8	12.7
(WY)	1994	1994	1994	1994	1994	1994	1993	1991	1991	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1991 - 1994	
ANNUAL TOTAL	9962.9		4263.9			
ANNUAL MEAN	27.3		11.7		16.3	
HIGHEST ANNUAL MEAN					24.9	1993
LOWEST ANNUAL MEAN					6.06	1992
HIGHEST DAILY MEAN	306	Jun 8	60	May 14	311	Jun 7 1991
LOWEST DAILY MEAN	1.2	Feb 16	1.1	Aug 28a	1.1	Aug 28 1994
ANNUAL SEVEN-DAY MINIMUM	1.7	Feb 13	1.2	Sep 16	1.2	Sep 16 1994
INSTANTANEOUS PEAK FLOW			74	May 14b	455	Jun 4 1991
INSTANTANEOUS PEAK STAGE			9.83	Mar 4c	10.77	Jun 4 1991
ANNUAL RUNOFF (AC-FT)	19760		8460		11790	
10 PERCENT EXCEEDS	63		24		36	
50 PERCENT EXCEEDS	14		9.8		6.6	
90 PERCENT EXCEEDS	2.0		1.9		2.0	

e Estimated
a For many days.
b Gage height, 8.95 ft.
c Backwater from ice.

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

LOCATION.--Lat 43°58'45", long 103°20'25", in SW1/4 NE1/4 sec.12, T.1 S., R.6 E., Pennington County, Hydrologic Unit 10120109, on right bank 0.5 mi upstream from Deadman Creek tributary at bottom of Stratosphere Bowl.

DRAINAGE AREA.--163 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 estimated daily discharges, which are poor. Flow regulated by Sheridan Lake, capacity, 12,657 acre-ft, 11.2 mi upstream from station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. Recording precipitation gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1972, reached a stage of about 14 ft, present datum.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	13	e7.0	e6.0	e7.8	14	15	28	23	3.1	2.6	2.0
2	13	14	e6.8	e6.0	e7.6	15	15	31	25	3.5	2.7	1.9
3	13	14	e7.0	e7.0	e6.9	18	16	35	30	4.1	2.9	1.8
4	13	14	e8.0	e7.0	e6.8	21	17	38	31	4.7	3.1	1.6
5	13	14	e6.0	e6.5	e6.6	27	19	38	31	4.7	3.4	1.6
6	13	13	e5.5	e5.0	e6.6	30	17	44	29	6.3	3.6	1.4
7	13	13	e5.3	e4.0	e6.0	31	17	52	27	9.1	3.4	1.5
8	13	12	e5.6	e6.0	e5.8	29	19	54	25	9.6	3.4	1.4
9	14	13	e6.0	e7.2	e4.3	25	20	50	24	9.4	3.1	1.4
10	14	13	e6.0	e8.3	e6.0	19	19	47	22	8.9	3.0	1.4
11	14	13	e7.0	e8.3	e6.3	17	18	45	20	8.6	3.4	1.5
12	15	12	e8.0	e9.0	e6.5	17	18	43	19	7.8	3.8	1.5
13	16	12	e5.5	e9.0	e6.3	18	18	44	18	8.1	3.9	1.5
14	17	13	e4.7	e8.0	e6.4	19	22	56	17	7.4	3.5	1.7
15	23	13	e4.5	e8.0	e6.3	21	20	59	16	7.5	3.2	1.6
16	29	13	e4.2	e8.0	e6.9	23	15	59	15	8.6	3.7	1.7
17	30	13	e4.2	e7.0	e7.5	23	15	58	15	8.2	4.4	2.1
18	29	13	e4.3	e6.0	e7.9	23	16	52	15	7.8	3.9	1.8
19	26	12	e4.0	e5.5	e11	22	16	48	17	7.1	3.3	1.7
20	24	12	e4.0	e5.5	e9.0	21	17	46	18	6.3	2.6	1.7
21	22	12	e4.0	e8.0	e8.0	21	18	42	17	5.7	2.2	1.9
22	21	11	e4.1	e9.6	e6.5	20	18	39	16	4.7	2.0	1.9
23	20	e7.0	e4.3	e9.5	e6.1	20	19	37	16	4.1	1.6	1.9
24	19	e5.0	e4.5	e9.2	e6.1	19	20	36	15	3.8	1.6	1.8
25	18	e4.0	e5.0	e9.1	e6.1	17	22	34	14	3.7	1.3	1.8
26	17	e3.5	e6.0	e9.2	e6.1	17	31	32	13	3.4	1.1	1.7
27	16	e5.0	e4.5	e9.2	e6.1	16	31	30	12	3.2	1.0	1.8
28	16	e7.5	e4.0	e9.9	e8.0	15	28	26	11	3.0	.97	1.8
29	15	e7.0	e4.5	e8.7	---	15	27	25	6.4	2.6	.99	1.8
30	14	e7.0	e5.2	e8.2	---	16	27	24	3.1	2.5	1.0	1.9
31	13	---	e6.0	e8.0	---	15	---	24	---	2.5	1.5	---
TOTAL	546	328.0	165.7	235.9	191.5	624	590	1276	560.5	180.0	82.16	51.1
MEAN	17.6	10.9	5.35	7.61	6.84	20.1	19.7	41.2	18.7	5.81	2.65	1.70
MAX	30	14	8.0	9.9	11	31	31	59	31	9.6	4.4	2.1
MIN	13	3.5	4.0	4.0	4.3	14	15	24	3.1	2.5	.97	1.4
AC-FT	1080	651	329	468	380	1240	1170	2530	1110	357	163	101

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1994, BY WATER YEAR (WY)*

MEAN	5.45	4.27	2.79	2.80	3.15	10.2	13.7	37.5	47.6	19.4	9.20	3.88
MAX	17.6	10.9	5.85	7.61	6.84	24.0	24.0	97.2	147	70.7	32.5	17.5
(WY)	1994	1994	1992	1994	1994	1987	1987	1993	1991	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1987 - 1994*	
ANNUAL TOTAL	13364.6		4830.86			
ANNUAL MEAN	36.6		13.2		13.4	
HIGHEST ANNUAL MEAN					34.4	1993
LOWEST ANNUAL MEAN					.98	1989
HIGHEST DAILY MEAN	267	Jun 9	59	May 15	267	Jun 9 1993
LOWEST DAILY MEAN	1.8	Feb 18	.97	Aug 28	.00	Jul 27 1988a
ANNUAL SEVEN-DAY MINIMUM	2.6	Feb 15	1.1	Aug 25	.00	Jul 27 1988
INSTANTANEOUS PEAK FLOW			64	May 16	865	Jun 23 1947b
INSTANTANEOUS PEAK STAGE			5.45	May 16	6.94	Jun 8 1993
ANNUAL RUNOFF (AC-FT)	26510		9580		9680	
10 PERCENT EXCEEDS	100		29		30	
50 PERCENT EXCEEDS	16		9.1		4.6	
90 PERCENT EXCEEDS	3.3		1.9		.08	

e Estimated
* Period using present site and datum only (1987-94). See GAGE.
a No flow for many days in 1988-89.
b Peak occurred during partial year.

CHEYENNE RIVER BASIN

06407500 SPRING CREEK NEAR KEYSTONE, SD--Continued

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Precipitation recorder.

REMARKS.--Records fair.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
2	.00	.00	.02	.00	.00	.00	.00	.17	.35	.00	.02	.00
3	.00	.00	.00	.00	.00	.00	.00	.27	.00	.00	.02	.00
4	.00	.00	.00	.00	.00	.00	.42	.00	.20	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.37	.01	.00	.00	.00
6	.00	.00	.00	.00	.00	.09	.00	.15	.08	.68	.00	.00
7	.01	.00	.00	.00	.00	.00	.03	.00	.10	.00	.02	.00
8	.37	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.03	.00
13	.00	.04	.00	.02	.00	.00	.00	.89	.00	.35	.00	.16
14	.41	.00	.00	.00	.00	.00	.04	.02	.00	.06	.00	.00
15	.04	.00	.00	.00	.00	.00	.00	.00	.17	.60	.06	.00
16	.31	.00	.00	.00	.00	.00	.00	.00	.03	.00	.21	.00
17	.01	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00
18	.03	.00	.00	.00	.00	.00	.00	.00	.00	.01	.06	.00
19	.00	.00	.00	.00	.00	.00	.00	.25	.21	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.03
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.11	.00	.00	.00	.05	.00	.02	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.10	.01	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.32	.00	.00	.02	.00	.00
26	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.03	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.02	.43	---
TOTAL	1.18	0.15	0.02	0.02	0.00	0.14	0.97	2.22	1.17	1.78	0.97	0.20

WTR YR 1994 TOTAL 8.82

CHEYENNE RIVER BASIN

06408500 SPRING CREEK NEAR HERMOSA, SD

LOCATION.--Lat 43°56'31", long 103°09'32", in SE1/4 SE1/4 SE1/4 sec.21, T.1 S., R.8 E., Pennington County, Hydrologic Unit 10120109, at left upstream end of county highway bridge, 0.3 mi upstream from 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	3.7	4.7	4.2	e4.0	e15	2.0	1.4	1.6	.72	.64	.50
2	3.3	3.5	4.2	3.4	e4.0	e7.0	1.9	1.5	1.8	.75	.61	.55
3	3.3	3.3	3.8	3.1	e5.0	3.7	1.8	1.5	2.0	.77	.60	.57
4	3.3	3.4	3.7	3.2	e6.0	3.4	2.1	1.4	1.8	.72	.60	.51
5	3.3	3.2	3.3	2.8	e7.0	3.3	2.0	1.4	1.8	.72	.60	.40
6	3.3	3.2	3.0	e2.7	e6.0	3.0	1.9	1.6	1.7	.80	.62	.40
7	3.3	3.3	3.2	e2.7	e1.6	3.0	1.8	1.6	1.6	1.1	.54	.37
8	3.6	3.3	3.3	e3.0	e1.4	2.8	1.7	1.6	1.5	1.0	.50	.33
9	3.9	3.1	3.3	e3.5	e1.4	2.8	1.6	1.5	1.5	.92	.55	.29
10	3.7	3.3	3.3	e4.6	e5.0	2.8	1.6	1.5	1.4	.86	.60	.28
11	3.6	3.3	3.3	6.1	e4.0	2.8	1.6	1.6	1.3	.84	.64	.28
12	3.1	3.3	3.3	5.4	e4.5	2.7	1.6	1.6	1.3	.79	.71	.30
13	3.0	3.3	3.2	4.9	e5.5	2.7	1.5	1.7	1.3	.86	.60	.35
14	2.8	3.4	3.1	4.9	e7.0	2.7	1.5	2.1	1.2	.93	.54	.32
15	3.0	3.7	3.3	5.4	e9.0	2.7	1.5	2.0	1.2	.98	.45	.26
16	3.0	3.3	3.3	7.0	e8.0	2.8	1.5	2.0	1.1	1.1	.50	.26
17	3.0	3.0	4.0	e2.0	e6.5	2.8	1.5	2.0	1.1	1.1	.53	.27
18	3.0	3.0	4.2	e2.5	5.3	2.7	1.4	1.8	1.1	1.0	.54	.30
19	3.0	3.0	4.4	e3.0	3.4	2.7	1.4	1.7	1.2	1.0	.50	.32
20	3.2	3.0	4.5	e4.0	3.3	2.7	1.4	1.7	1.4	.86	.50	.29
21	3.0	3.4	5.2	e5.0	e3.1	2.7	1.3	2.0	1.2	.86	.50	.28
22	3.0	3.7	5.9	e6.0	e3.0	2.7	1.3	2.0	1.1	.73	.48	.32
23	3.0	e3.8	6.0	e7.0	e3.0	2.5	1.3	2.1	1.2	.88	.45	.34
24	3.0	e3.4	7.0	e5.0	e3.0	2.3	1.2	2.1	1.1	.85	.44	.33
25	3.2	e3.0	5.0	e3.4	e3.0	2.3	1.2	2.1	.95	.73	.42	.31
26	3.3	e3.0	4.3	e2.7	e4.0	2.3	1.8	2.0	.86	.72	.41	.31
27	3.3	e3.8	3.5	e3.0	e5.0	2.1	1.8	2.0	.82	.72	.41	.33
28	3.3	e5.0	4.9	e4.0	e5.0	2.0	1.5	1.8	.72	.66	.39	.36
29	3.3	5.9	5.4	e4.0	---	2.0	1.3	1.6	.72	.66	.40	.37
30	3.5	5.6	5.6	e4.0	---	2.0	1.3	1.6	.75	.58	.38	.36
31	3.7	---	5.2	e4.0	---	2.0	---	1.6	---	.56	.47	---
TOTAL	100.6	106.2	130.4	126.5	127.0	99.0	47.3	54.1	38.32	25.77	16.12	10.46
MEAN	3.25	3.54	4.21	4.08	4.54	3.19	1.58	1.75	1.28	.83	.52	.35
MAX	3.9	5.9	7.0	7.0	9.0	15	2.1	2.1	2.0	1.1	.71	.57
MIN	2.8	3.0	3.0	2.0	1.4	2.0	1.2	1.4	.72	.56	.38	.26
AC-FT	200	211	259	251	252	196	94	107	76	51	32	21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1994, BY WATER YEAR (WY)

MEAN	1.03	1.12	1.00	.88	1.34	1.01	.99	9.56	29.3	8.72	2.01	.96
MAX	3.25	6.54	4.21	4.08	20.8	4.22	5.24	78.5	271	73.2	16.4	3.72
(WY)	1994	1972	1994	1994	1971	1985	1971	1965	1972	1962	1962	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1950 - 1994	
ANNUAL TOTAL	6499.30		881.77			
ANNUAL MEAN	17.8		2.42		4.82a	
HIGHEST ANNUAL MEAN					27.5	1972
LOWEST ANNUAL MEAN					.000	1990
HIGHEST DAILY MEAN	286	Jun 9	15	Mar 1	3300	Jun 10 1972
LOWEST DAILY MEAN	.11	Jan 12	.26	Sep 15,16	.00	Jan 26 1951b
ANNUAL SEVEN-DAY MINIMUM	.12	Jan 8	.28	Sep 15	.00	Jan 26 1951
INSTANTANEOUS PEAK FLOW			15	Mar 1	13400	Jun 10 1972c
INSTANTANEOUS PEAK STAGE			4.08	Mar 1d	13.12	Jun 10 1972f
ANNUAL RUNOFF (AC-FT)	12890		1750		3490	
10 PERCENT EXCEEDS	46		4.9		3.2	
50 PERCENT EXCEEDS	3.3		2.0		.59	
90 PERCENT EXCEEDS	.19		.48		.00	

e Estimated
a Median of annual mean discharges, 1.5 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 Backwater from ice.
e From floodmarks, site and datum then in use.

CHEYENNE RIVER BASIN

06408700 RHOADS FORK NEAR ROCHFORD, SD

LOCATION.--Lat 44°08'12", long 103°51'29", in NW1/4 SE1/4 NE1/4 sec.15, T.2 N., R.2 E., Pennington County, Hydrologic Unit 10120110, Black Hills National Forest, on left bank 1.1 mi upstream from South Fork Rapid Creek and 8.7 mi west of Rochford.

DRAINAGE AREA.--7.95 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.--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.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	4.3	4.3	4.3	4.4	4.5	4.6	4.9	4.9	5.0	4.8	4.8
2	4.2	4.3	4.3	4.4	4.4	4.5	4.6	4.9	4.9	5.0	4.9	4.8
3	4.2	4.4	4.3	4.4	4.4	4.6	4.6	4.9	4.9	5.0	4.8	4.8
4	4.3	4.4	4.3	4.3	4.4	4.6	4.6	4.9	4.9	5.0	4.8	4.8
5	4.2	4.4	4.4	4.3	4.4	4.7	4.6	4.9	5.0	5.0	4.8	4.8
6	4.2	4.3	4.3	4.3	4.4	4.7	4.6	5.0	4.9	5.1	4.8	4.8
7	4.3	4.3	4.3	4.3	4.4	4.7	4.6	4.9	4.9	5.1	4.8	4.8
8	4.3	4.3	4.3	4.3	4.4	4.6	4.6	5.0	5.0	5.1	4.8	4.8
9	4.3	4.3	4.3	4.3	4.4	4.6	4.6	5.0	4.9	5.0	4.8	4.8
10	4.3	4.3	4.3	4.3	4.4	4.6	4.6	4.9	4.9	5.0	4.8	4.8
11	4.3	4.3	4.3	4.3	4.4	4.6	4.6	4.9	4.9	5.0	4.8	4.8
12	4.3	4.4	4.4	4.3	4.4	4.6	4.6	4.9	4.9	5.0	4.8	4.8
13	4.3	4.4	4.4	4.4	4.4	4.6	4.6	5.1	4.9	5.0	4.8	4.8
14	4.4	4.4	4.3	4.4	4.4	4.6	4.7	5.0	5.0	5.0	4.8	4.8
15	4.5	4.4	4.3	4.4	4.4	4.7	4.6	5.0	4.9	5.0	4.8	4.9
16	4.6	4.4	4.3	4.4	4.4	4.7	4.6	5.0	5.0	5.0	4.8	4.9
17	4.5	4.3	4.3	4.4	4.4	4.7	4.7	4.9	4.9	5.0	4.8	4.8
18	4.4	4.3	4.3	4.4	4.5	4.7	4.7	4.9	4.9	5.0	4.8	4.8
19	4.4	4.3	4.3	4.4	4.5	4.8	4.7	5.0	4.9	5.0	4.8	4.8
20	4.3	4.3	4.3	4.4	4.5	4.8	4.7	5.0	4.9	5.0	4.8	4.8
21	4.3	4.3	4.3	4.4	4.4	4.8	4.8	5.0	5.1	5.0	4.8	4.8
22	4.3	4.4	4.3	4.3	4.4	4.8	4.8	4.9	5.1	5.0	4.8	4.8
23	4.3	4.3	4.3	4.3	4.4	4.7	4.9	4.9	5.0	4.9	4.8	4.8
24	4.3	4.3	4.4	4.4	4.4	4.7	4.9	4.9	5.0	4.9	4.8	4.8
25	4.3	4.3	4.4	4.4	4.4	4.6	5.1	4.9	5.0	4.9	4.8	4.8
26	4.3	4.3	4.3	4.4	4.4	4.6	5.1	4.9	5.0	4.9	4.8	4.8
27	4.3	4.3	4.3	4.4	4.5	4.6	5.1	4.9	5.0	4.9	4.8	4.8
28	4.3	4.3	4.3	4.4	4.5	4.5	5.0	4.9	5.0	4.9	4.8	4.8
29	4.3	4.3	4.3	4.4	---	4.6	4.9	4.9	5.0	4.9	4.8	4.9
30	4.3	4.3	4.3	4.4	---	4.5	4.9	4.9	5.0	4.8	4.8	4.9
31	4.3	---	4.3	4.4	---	4.5	---	4.9	---	4.8	4.8	---
TOTAL	133.8	129.9	133.8	135.2	123.7	143.8	142.0	153.0	148.6	154.2	148.9	144.4
MEAN	4.32	4.33	4.32	4.36	4.42	4.64	4.73	4.94	4.95	4.97	4.80	4.81
MAX	4.6	4.4	4.4	4.4	4.5	4.8	5.1	5.1	5.1	5.1	4.9	4.9
MIN	4.2	4.3	4.3	4.3	4.4	4.5	4.6	4.9	4.9	4.8	4.8	4.8
AC-FT	265	258	265	268	245	285	282	303	295	306	295	286

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1994, BY WATER YEAR (WY)

MEAN	5.14	5.02	4.82	4.72	4.76	4.84	4.91	5.07	5.11	5.11	4.99	4.98
MAX	7.74	7.43	6.59	6.54	7.22	7.27	6.97	7.15	6.72	6.88	6.90	6.49
(WY)	1984	1984	1985	1984	1984	1985	1984	1984	1984	1984	1984	1984
MIN	3.66	3.42	3.30	3.25	3.57	3.60	3.77	3.92	3.79	3.82	3.74	3.78
(WY)	1991	1991	1991	1991	1993	1993	1993	1992	1992	1992	1992	1992

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1983 - 1994	
ANNUAL TOTAL	1505.0		1691.3			
ANNUAL MEAN	4.12		4.63		4.96	
HIGHEST ANNUAL MEAN					6.95	1984
LOWEST ANNUAL MEAN					3.69	1991
HIGHEST DAILY MEAN	5.2	Jun 8	5.1	Apr 25a	8.5	Mar 14 1985
LOWEST DAILY MEAN	3.4	Feb 27	4.2	Oct 1b	3.1	Jan 19 1991c
ANNUAL SEVEN-DAY MINIMUM	3.4	Feb 27	4.2	Oct 1	3.1	Jan 18 1991
INSTANTANEOUS PEAK FLOW			7.3	Jun 21	9.7	Mar 16 1985d
INSTANTANEOUS PEAK STAGE			3.96	Jun 21	3.96	Jun 21 1994
ANNUAL RUNOFF (AC-FT)	2990		3350		3590	
10 PERCENT EXCEEDS	4.5		5.0		6.6	
50 PERCENT EXCEEDS	4.3		4.6		4.9	
90 PERCENT EXCEEDS	3.6		4.3		3.7	

a Also Apr. 26, 27, May 13, June 21, 22, July 6-8, Sept. 30.
b Also Oct. 2, 3, 5, 6.
c Also Jan. 20-22, 1991.
d Gage height, 2.00 ft, site and datum then in use.

CHEYENNE RIVER BASIN

06408700 RHOADS FORK NEAR ROCHFORD, SD--Continued

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Shielded precipitation recorder with 8.0-in. orifice and 12-in. capacity.

AVERAGE ANNUAL PRECIPITATION.--11 years, 21.02 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.18	.02	.00	.02	.01	e.00	.22	.00
2	.00	.00	.13	.11	.13	.00	.04	.10	.21	e.00	.00	.03
3	.00	.10	.02	.20	.00	.00	.00	.02	.02	e.20	.04	.00
4	.00	.20	.22	.00	.07	.02	.55	.00	.22	e.00	.00	.02
5	.00	.04	.68	.00	.00	.02	.01	.06	.00	e.00	.00	.00
6	.00	.00	.00	.02	.00	.19	.00	.13	.00	e1.00	.00	.00
7	.03	.04	.00	.09	.05	.07	.26	.00	.18	e.00	.00	.00
8	.28	.02	.00	.03	.16	.00	.07	.00	.03	e.00	.10	.00
9	.00	.00	.05	.00	.00	.00	.00	.00	.00	e.00	.00	.00
10	.02	.00	.00	.00	.00	.00	.01	.00	e.00	e.00	.00	.00
11	.00	.00	.00	.00	.00	.01	.00	.00	e.00	e.00	.00	.00
12	.00	.00	.00	.12	.00	.02	.02	.00	e.00	e.21	.00	.00
13	.12	.09	.00	.50	.00	.00	.00	.86	e.00	.00	.00	.13
14	.47	.02	.00	.29	.00	.00	.06	.00	e.00	.00	.00	.19
15	.05	.00	.00	.20	.00	.00	.01	.00	e.06	.00	.00	.29
16	.70	.00	.17	.07	.00	.00	.00	.00	e.15	.00	.00	.00
17	.01	.00	.08	.16	.00	.00	.00	.00	e.00	.00	.00	.00
18	.00	.15	.00	.07	.02	.02	.00	.00	e.00	.05	.00	.00
19	.06	.00	.09	.06	.01	.15	.00	1.05	e.00	.00	.01	.00
20	.00	.00	.02	.00	.03	.01	.00	.10	e.00	.00	.00	.03
21	.00	.00	.19	.00	.12	.00	.00	.00	e1.28	.00	.00	.11
22	.00	.00	.17	.00	.03	.01	.17	.00	e.00	.00	.00	.00
23	.00	.07	.21	.00	.00	.21	.23	.00	e.00	.00	.00	.00
24	.00	.00	.68	.00	.17	.00	.30	.00	e.00	.00	.00	.00
25	.00	.18	.02	.00	.00	.02	.83	.00	e.00	.13	.00	.00
26	.00	.51	.00	.00	.00	.21	.60	.00	e.00	.00	.00	.00
27	.00	.00	.04	.00	.00	.22	.05	.00	e.00	.00	.05	.00
28	.11	.00	.00	.00	.21	.35	.15	.00	e.00	.00	.00	.00
29	.08	.00	.00	.31	---	.08	.01	.00	e.00	.00	.04	.00
30	.00	.00	.02	.04	---	.01	.00	.00	e.00	.03	.31	.00
31	.00	---	.09	.12	---	.00	---	.00	---	.00	.05	---
TOTAL	1.93	1.42	2.88	2.39	1.18	1.64	3.37	2.34	2.16	1.62	0.82	0.80

CAL YR 1993 TOTAL 30.76
WTR YR 1994 TOTAL 22.55

e Estimated

CHEYENNE RIVER BASIN

06408860 RAPID CREEK NEAR ROCHFORD, SD

LOCATION.--Lat 44°06'17", long 103°38'35", in SW1/4 NE1/4 sec.28, T.2 N., R.4 E., Pennington County, Hydrologic Unit 10120110, on left bank 0.2 mi below confluence of Gimlet Creek.

DRAINAGE AREA.--101 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 5,000 ft above sea level, from topographic map.

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.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	18	15	e12	e9.6	e14	38	110	38	18	15	15
2	17	16	13	e12	e9.7	e15	38	116	41	18	15	15
3	17	17	11	e12	e9.8	18	37	117	42	18	18	14
4	16	17	14	e12	e9.9	21	41	116	38	23	15	13
5	16	14	12	e12	e10	23	37	119	41	19	15	13
6	16	e14	11	e11	e9.8	21	36	126	36	26	14	12
7	16	e14	e10	e10	e9.6	18	40	115	34	32	14	12
8	17	e15	e11	e10	e9.3	e17	45	109	35	25	13	12
9	17	16	e12	e10	e9.0	e15	43	102	32	22	13	12
10	19	16	e13	e11	e9.0	e16	44	96	30	20	17	12
11	18	16	14	e11	e9.0	e17	43	91	29	19	15	11
12	17	e16	15	e11	e9.0	19	47	84	28	19	14	11
13	17	16	13	e10	e9.1	21	52	89	27	24	14	11
14	17	16	e12	e10	e9.5	28	56	98	26	22	13	11
15	24	e16	e11	e11	e10	30	53	79	25	20	13	12
16	29	16	e10	e10	e12	31	59	74	28	19	13	14
17	27	16	e10	e9.5	e14	34	68	68	27	19	13	14
18	24	17	e10	e9.0	e16	34	78	64	26	18	13	13
19	22	12	e10	e9.5	e15	44	87	62	25	17	13	13
20	20	14	e10	e10	e14	49	100	72	24	17	13	12
21	18	16	e10	e11	e13	41	107	62	24	16	13	12
22	18	16	e10	e12	e12	43	113	56	27	16	12	13
23	18	e14	e10	e14	e10	39	121	54	25	15	12	13
24	17	e10	e10	e16	e9.5	41	119	53	23	15	12	13
25	17	e8.0	e11	e15	e9.0	37	141	51	21	15	12	12
26	17	e8.5	e12	e14	e9.0	33	116	48	20	16	11	13
27	16	e9.0	e11	e13	e10	28	114	46	19	15	12	12
28	17	e14	e10	e12	e12	e27	109	43	19	14	12	12
29	13	16	e10	e11	---	e25	98	41	19	14	12	12
30	20	16	e11	e10	---	e30	99	39	18	14	12	13
31	18	---	e11	e9.5	---	38	---	39	---	14	13	---
TOTAL	571	439.5	353	350.5	297.8	867	2179	2439	847	579	416	377
MEAN	18.4	14.6	11.4	11.3	10.6	28.0	72.6	78.7	28.2	18.7	13.4	12.6
MAX	29	18	15	16	16	49	141	126	42	32	18	15
MIN	13	8.0	10	9.0	9.0	14	36	39	18	14	11	11
AC-FT	1130	872	700	695	591	1720	4320	4840	1680	1150	825	748

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	11.0	10.4	9.23	9.75	9.42	17.2	28.8	39.8	37.6	18.4	12.2	10.8
MAX	18.4	14.6	11.4	11.9	12.2	28.0	72.6	78.7	96.3	37.4	21.1	17.0
(WY)	1994	1994	1994	1991	1992	1994	1994	1994	1993	1993	1993	1993
MIN	8.45	7.91	7.15	7.39	7.04	12.8	16.1	15.7	12.7	8.14	8.15	7.71
(WY)	1991	1991	1990	1990	1990	1990	1989	1992	1989	1989	1989	1990

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	9989.8		9715.8			
ANNUAL MEAN	27.4		26.6		17.9	
HIGHEST ANNUAL MEAN					26.6	1994
LOWEST ANNUAL MEAN					11.5	1989
HIGHEST DAILY MEAN	221	Jun 9	141	Apr 25	221	Jun 9 1993
LOWEST DAILY MEAN	5.0	Feb 17	8.0	Nov 25	3.8	Dec 22 1989
ANNUAL SEVEN-DAY MINIMUM	6.1	Feb 15	9.1	Feb 8	4.3	Dec 17 1989
INSTANTANEOUS PEAK FLOW			163	Apr 25	240	Jun 8 1993
INSTANTANEOUS PEAK STAGE			5.67	Apr 25	6.00	Jun 8 1993
ANNUAL RUNOFF (AC-FT)	19810		19270		12970	
10 PERCENT EXCEEDS	56		57		31	
50 PERCENT EXCEEDS	17		16		12	
90 PERCENT EXCEEDS	8.0		10		7.7	

e Estimated

CHEYENNE RIVER BASIN

06408860 RAPID CREEK NEAR ROCHFORD, SD--Continued

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Shielded, 8.0-in. diameter plastic gage, 72 in. tall. Elevation of gage is 4,950 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--6 years, 19.75 in.

REMARKS.--Records poor. Precipitation gage is located 0.2 mi east of streamflow gage. Precipitation gage is read daily by observer at approximately 0800 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	e.03	.00	.00	.00	.00	.00	.00	.20
2	.00	.00	.00	.00	e.06	.00	.00	.00	.00	.00	.00	.00
3	.00	.10	.00	.20	e.00	.00	.00	.70	.70	.10	.00	.00
4	.00	.00	.10	.00	e.00	.00	.40	.00	.00	.00	.00	.00
5	.00	.00	.30	.00	e.00	.00	.10	.00	.60	.00	.00	.00
6	.00	.00	.00	.00	e.06	.10	.00	.30	.00	1.00	.00	.00
7	.00	.00	.00	.00	e.26	.30	.10	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	e.00	.00	e.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	e.00	.00	e.00	.00	.00	.00	.70	.00
10	.00	.00	.00	.00	e.00	.00	e.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	e.02	.00	e.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	e.00	.00	e.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.10	e.00	.00	e.00	.00	.00	.50	.00	.00
14	.00	.00	.00	.00	e.00	.00	e.10	.50	.00	.00	.00	.00
15	.30	.00	.00	.00	e.00	.00	e.00	.00	.00	.00	.00	.00
16	.70	.00	.00	.00	e.00	.00	e.00	.00	.00	.00	.00	.00
17	.00	.00	.20	.00	e.00	.00	e.00	.00	.00	.00	.00	.00
18	.70	.00	.00	.00	e.00	.00	e.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	e.02	.00	e.00	.00	.00	.00	.00	.50
20	.00	.00	.00	.00	e.06	.00	e.00	.10	.00	.00	.00	.00
21	.00	.00	.00	.00	e.00	.00	e.00	.00	.50	.00	.00	.00
22	.00	.20	.00	.00	e.05	.00	e.15	.00	e.40	.00	.00	.00
23	.00	.00	.00	.00	e.00	.50	e.13	.00	e.00	.00	.00	.00
24	.00	.00	.00	.00	e.09	.30	e.57	.00	e.00	.00	.00	.00
25	.00	.00	.00	.00	e.00	.00	e.90	.00	e.00	.00	.00	.00
26	.00	.00	.00	.00	e.00	.00	e.25	.00	e.00	.00	.00	.00
27	.00	.50	.60	.00	e.00	.00	e.07	.00	e.00	.00	.00	.00
28	.00	.00	.00	.00	e.27	.00	e.02	.00	e.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	e.00	.00	e.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	e.00	.00	e.00	.00	.00	.00
31	.00	---	.10	.30	---	.00	---	.00	---	.00	.20	---
TOTAL	1.70	0.80	1.30	0.60	0.92	1.20	2.79	1.60	2.20	1.60	0.90	0.70

CAL YR 1993 TOTAL 26.50
WTR YR 1994 TOTAL 16.31

e Estimated

CHEYENNE RIVER BASIN

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

LOCATION.--Lat 44°00'49", long 103°49'48", in NE1/4 SW1/4 SW1/4 sec.25, T.1 N., R.2 E., Pennington County, Hydrologic Unit 10120110, at downstream end of highway culvert, 330 ft downstream from South Fork Castle Creek, 500 ft upstream from high-water line of Deerfield Reservoir, 2.5 mi southwest of Deerfield Dam, and 14 mi northwest of Hill City.

DRAINAGE AREA.--79.2 mi^2.

WATER-DISCHARGE RECORDS

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. 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. Additional water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	e9.5	12	8.9	e9.0	11	16	33	19	14	13	14
2	12	e10	8.3	8.1	e10	11	16	30	19	14	14	14
3	12	10	8.3	e8.0	e10	12	16	29	19	13	15	14
4	12	9.7	8.7	e7.0	e11	13	16	27	18	14	13	14
5	12	e9.5	6.7	e7.5	e11	13	24	27	18	14	13	13
6	12	e9.0	e6.0	e7.0	e10	12	16	35	17	17	12	13
7	12	e9.0	e7.0	e6.5	e8.5	e10	18	28	17	16	13	13
8	12	e10	e8.0	e7.5	e8.0	e9.0	17	27	18	15	14	13
9	16	e10	8.5	e8.5	e7.0	e10	18	25	17	15	14	13
10	13	e10	8.4	e10	e11	e10	17	25	17	14	15	13
11	13	e11	8.6	10	e11	10	17	24	16	14	14	13
12	13	e11	8.8	10	e9.0	9.9	18	23	16	16	14	12
13	12	10	8.4	10	e10	12	20	29	16	15	14	12
14	14	9.9	e8.0	10	e11	15	19	27	16	15	14	13
15	17	e9.0	e8.0	11	e11	15	19	25	15	14	13	14
16	23	e9.3	e7.0	e10	12	17	21	25	16	14	13	14
17	17	10	e7.0	e9.0	12	16	24	24	15	14	13	13
18	16	9.7	e8.0	e9.0	12	16	24	23	15	14	13	12
19	15	e9.5	e8.0	e10	12	26	25	25	15	14	12	12
20	15	e10	e9.0	e9.0	11	18	26	33	15	14	13	12
21	15	e10	e10	e11	10	18	26	23	17	14	13	12
22	15	9.9	e9.5	e12	e10	16	31	22	18	14	13	12
23	15	e7.5	e9.0	12	e9.0	15	36	22	17	14	13	13
24	15	e5.7	e9.5	12	e9.0	e13	30	21	16	13	13	13
25	15	e5.5	e10	11	e9.0	15	47	20	15	13	13	13
26	15	e7.0	e10	12	e10	16	32	20	15	13	12	13
27	16	e8.0	9.4	11	e11	14	39	20	15	13	12	13
28	14	e10	e7.8	e9.5	e11	e12	31	19	14	13	12	13
29	16	e12	e8.0	e9.5	---	12	29	19	14	13	12	13
30	e10	e12	10	e8.5	---	16	32	19	14	13	12	13
31	e9.0	---	9.7	e8.5	---	18	---	19	---	13	14	---
TOTAL	435.0	283.7	265.6	294.0	285.5	430.9	720	768	489	436	408	389
MEAN	14.0	9.46	8.57	9.48	10.2	13.9	24.0	24.8	16.3	14.1	13.2	13.0
MAX	23	12	12	12	12	26	47	35	19	17	15	14
MIN	9.0	5.5	6.0	6.5	7.0	9.0	16	19	14	13	12	12
AC-FT	863	563	527	583	566	855	1430	1520	970	865	809	772

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1994, BY WATER YEAR (WY)

MEAN	9.63	9.08	8.49	8.14	8.32	10.1	14.8	16.2	13.9	11.1	9.72	9.35
MAX	16.6	14.9	12.4	12.0	12.1	15.9	24.0	31.9	34.8	33.9	20.5	17.2
(WY)	1966	1966	1966	1983	1979	1983	1994	1965	1965	1984	1965	1965
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1949 - 1994	
ANNUAL TOTAL	4979.8		5204.7			
ANNUAL MEAN	13.6		14.3		10.7	
HIGHEST ANNUAL MEAN					16.9	1984
LOWEST ANNUAL MEAN					5.13	1961
HIGHEST DAILY MEAN	71	Jun 8	47	Apr 25	232	May 22 1952
LOWEST DAILY MEAN	5.5	Nov 25	5.5	Nov 25	2.0	Dec 10 1961
ANNUAL SEVEN-DAY MINIMUM	6.9	Feb 14	7.4	Jan 2	2.2	Dec 15 1961
INSTANTANEOUS PEAK FLOW			65	Apr 22a	1120	May 22 1952b
INSTANTANEOUS PEAK STAGE			4.73	Jan 29c	5.81	May 22 1952
ANNUAL RUNOFF (AC-FT)	9880		10320		7780	
10 PERCENT EXCEEDS	21		23		16	
50 PERCENT EXCEEDS	12		13		9.7	
90 PERCENT EXCEEDS	7.8		8.7		6.0	

e Estimated
a Gage height, 3.13 ft.
b From rating curve extended on basis of slope-area measurement.
c Backwater from ice.

CHEYENNE RIVER BASIN

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1963 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: May 1964 to September 1984.
EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 22.0°C, July 17, 1969; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
NOV											
30...	0900	12	478	8.4	3.0	0.5	2.7	608	11.6	101	260
FEB											
10...	0930	11	477	8.4	-5.5	0.0	4.3	609	10.8	93	260
MAY											
17...	0945	24	479	8.5	21.0	9.5	6.0	610	11.3	124	260
AUG											
31...	1015	14	467	8.4	5.0	7.5	2.4	609	9.5	100	260

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	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)
NOV											
30...	0	266	267	K3	K16	56	30	1.5	1	0.0	1.2
FEB											
10...	0	268	266	3	K15	56	28	1.2	1	0.0	1.0
MAY											
17...	0	266	261	12	23	56	28	1.5	1	0.0	1.2
AUG											
31...	1	255	257	600	640	55	29	1.3	1	0.0	1.6

DATE	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)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
NOV										
30...	308	8	6.4	1.5	0.20	8.6	266	267	0.36	8.43
FEB										
10...	308	10	6.0	1.0	0.10	8.3	264	259	0.35	7.76
MAY										
17...	303	11	7.6	1.4	0.20	8.0	264	268	0.36	17.4
AUG										
31...	294	9	5.7	1.1	0.10	8.6	257	257	0.35	9.65

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	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 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)
NOV										
30...	0.020	0.03	<0.20	<0.010	0.190	0.190	0.190	--	0.020	0.010
FEB										
10...	0.020	0.03	0.30	0.020	0.230	0.230	0.210	0.210	0.040	0.010
MAY										
17...	0.020	0.03	0.40	<0.010	0.099	0.099	0.099	--	0.040	<0.010
AUG										
31...	0.020	0.03	<0.20	<0.010	0.100	0.100	0.100	--	0.030	0.020

CHEYENNE RIVER BASIN

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	COBALT, DISSOLVED (UG/L AS CO) (01035)	IRON, DISSOLVED (UG/L AS FE) (01046)	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)
NOV 30...	<0.010	10	53	<3	10	4	6	<10	<1	<1
FEB 10...	<0.010	<10	58	<3	<3	<4	5	<10	<1	<1
MAY 17...	<0.010	<10	53	<3	12	5	12	<10	<1	<1
AUG 31...	<0.010	<10	60	<3	16	<4	7	<10	<1	<1

DATE	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L) (09511)	RA-226 2 SIGMA WATER, DISS, (PCI/L) (76001)	URANIUM NATURAL DISSOLVED (UG/L AS U) (22703)	URANIUM NATURAL 2 SIGMA WATER, DISS, (UG/L) (75990)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 30...	<1.0	67	<6	--	--	--	--	76	2.4	81
FEB 10...	<1.0	62	<6	0.06	0.020	0.08	<1.0	88	2.6	88
MAY 17...	<1.0	66	<6	--	--	--	--	75	4.9	85
AUG 31...	<1.0	64	<6	0.09	0.020	0.82	<1.0	52	2.0	82

CHEYENNE RIVER BASIN

06409500 DEERFIELD RESERVOIR NEAR HILL CITY, SD

LOCATION.--Lat 44°01'41", long 103°47'09", in NE1/4 SW1/4 sec.20, T.1 N., R.3 E., at dam on Castle Creek, Hydrologic Unit 10120110, 0.4 mi upstream from Dutchman Creek and 12.5 mi northwest of Hill City.

DRAINAGE AREA.--95 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, 15,357 acre-ft May 31, 1987 (elevation, 5,907.65 ft); minimum observed, 5 acre-ft, Oct. 2, 1959 (elevation, 5,839.10 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 15,200 acre-ft, Mar. 7, elevation, 5,907.36 ft; minimum, 12,600 acre-ft, Oct. 12, elevation, 5,900.85 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	5,901.58	12,900	-
Oct. 31	5,901.35	12,800	-100
Nov. 30	5,902.73	13,300	+500
Dec. 31	5,904.29	13,900	+600
CAL YR 1993	-	-	-100
Jan. 31	5,905.77	14,500	+600
Feb. 28	5,907.10	15,100	+600
Mar. 31	5,906.05	14,700	-400
Apr. 30	5,907.09	15,100	+400
May 31	5,906.71	14,900	-200
June 30	5,905.41	14,400	-500
July 31	5,903.75	13,700	-700
Aug. 31	5,901.69	12,900	-800
Sept. 30	5,901.25	12,700	-200
WTR YR 1994	-	-	-200

CHEYENNE RIVER BASIN

06410000 CASTLE CREEK BELOW DEERFIELD DAM, SD

LOCATION.--Lat 44°01'45", long 103°46'53", in NW1/4 SE1/4 sec.20, T.1 N., R.3 E., Pennington County, Hydrologic Unit 10120110, on left bank 200 ft upstream from Dutchman Creek, 1,100 ft downstream from Deerfield Dam, and 12.5 mi northwest of Hill City.

DRAINAGE AREA.--96 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.--No estimated daily discharges. Records good. Flow completely regulated by Deerfield Dam, 1,100 ft upstream. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

AVERAGE DISCHARGE.--37 years (water years 1947 to 1983), 11.1 ft^3/s, 8,040 acre-ft/yr.

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, 37 ft^3/s, May 13, gage height, 4.06 ft; maximum gage height, 4.08 ft, Aug. 21-23; minimum daily discharge, 2.2 ft^3/s, Sept. 29-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	2.3	23	33	28	22	21	18
2	---	---	---	---	---	2.3	17	33	29	22	21	17
3	---	---	---	---	---	6.0	17	33	29	22	22	17
4	---	---	---	---	---	11	17	33	29	22	22	17
5	---	---	---	---	---	11	17	33	29	21	23	17
6	---	---	---	---	---	11	17	34	28	22	23	16
7	---	---	---	---	---	17	17	34	28	22	22	13
8	---	---	---	---	---	23	17	34	28	21	23	11
9	---	---	---	---	---	22	17	34	27	21	23	11
10	---	---	---	---	---	22	17	34	25	21	23	11
11	---	---	---	---	---	22	17	33	25	21	26	11
12	---	---	---	---	---	22	17	33	25	21	28	11
13	---	---	---	---	---	22	18	35	24	21	28	11
14	---	---	---	---	---	22	17	34	21	21	28	11
15	---	---	---	---	---	22	17	34	21	21	28	11
16	---	---	---	---	---	22	17	34	21	21	30	11
17	---	---	---	---	---	22	18	33	21	21	29	9.6
18	---	---	---	---	---	22	18	33	21	21	29	9.5
19	---	---	---	---	---	22	17	32	21	21	29	9.5
20	---	---	---	---	---	23	17	32	21	21	29	9.5
21	---	---	---	---	---	22	17	32	21	21	29	10
22	---	---	---	---	---	22	17	29	22	21	29	10
23	---	---	---	---	---	28	17	30	22	22	27	10
24	---	---	---	---	---	32	17	29	21	21	26	10
25	---	---	---	---	---	32	17	29	22	21	26	9.2
26	---	---	---	---	---	32	17	29	22	21	22	9.2
27	---	---	---	---	---	32	17	29	22	21	18	6.6
28	---	---	---	---	---	30	25	29	22	21	19	2.7
29	---	---	---	---	---	27	33	29	22	21	18	2.2
30	---	---	---	---	---	27	33	29	22	21	18	2.2
31	---	---	---	---	---	28	---	28	---	21	17	---
TOTAL	---	---	---	---	---	660.6	559	990	719	658	756	324.2
MEAN	---	---	---	---	---	21.3	18.6	31.9	24.0	21.2	24.4	10.8
MAX	---	---	---	---	---	32	33	35	29	22	30	18
MIN	---	---	---	---	---	2.3	17	28	21	21	17	2.2
AC-FT	---	---	---	---	---	1310	1110	1960	1430	1310	1500	643

CHEYENNE RIVER BASIN

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

LOCATION.--Lat 44°05'05", long 103°34'48", in SW1/4 SE1/4 sec.36, T.2 N., R.4 E., Pennington County, Hydrologic Unit 10120110, on right bank 0.8 mi west of Silver City and 3.0 mi downstream from Slate Creek.

DRAINAGE AREA.--292 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 good except those for estimated daily discharges, which are poor. Flow regulated by Deerfield Dam on Castle Creek since December 1945. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	e27	e30	e21	e16	e20	81	160	87	49	40	39
2	51	26	e28	e20	e16	e26	77	168	90	50	40	39
3	51	27	e26	e20	e16	e32	71	174	96	50	42	37
4	50	27	e25	e20	e16	e40	76	177	91	52	43	37
5	44	24	e24	e19	e16	e35	63	e182	94	50	41	36
6	41	e22	e21	e19	e15	e30	72	e192	87	57	40	36
7	41	e24	e20	e18	e15	e26	72	e182	83	67	39	36
8	42	26	e22	e18	e14	e23	83	168	85	59	39	32
9	41	29	e24	e18	e13	e20	79	162	83	55	39	30
10	45	24	e25	e17	e14	e20	80	153	79	51	45	29
11	43	27	e28	e17	e14	e22	77	149	75	48	42	28
12	43	23	e30	e16	e14	e25	79	144	73	52	46	28
13	36	21	e34	e16	e15	e28	84	151	72	66	46	29
14	33	e20	e30	e16	e15	e30	88	e172	67	55	46	29
15	39	e19	e27	e16	e15	e36	86	147	64	50	45	28
16	47	e20	e25	e14	e16	41	90	136	65	50	44	30
17	46	e21	e24	e14	e17	55	98	125	66	48	44	29
18	38	e22	e22	e14	e18	76	106	123	62	46	44	27
19	35	e21	e20	e14	e20	82	116	124	62	43	44	27
20	38	e22	e20	e14	e19	91	126	133	63	43	43	26
21	40	e23	e20	e15	e19	80	132	125	62	44	43	26
22	40	e22	e19	e16	e18	81	132	114	71	44	42	27
23	40	e20	e19	e17	e18	79	140	109	66	43	42	27
24	39	e18	e20	e19	e18	74	141	107	60	43	40	26
25	38	e17	e20	e20	e17	83	160	106	56	43	40	26
26	38	e17	e22	e20	e16	77	154	102	55	42	40	26
27	34	e18	e22	e19	e17	72	145	98	52	42	36	26
28	35	e19	e21	e18	e18	69	146	95	52	42	34	24
29	30	e20	e20	e18	---	74	150	94	51	41	34	20
30	e29	e25	e21	e17	---	77	148	90	50	40	35	18
31	e28	---	e21	e17	---	80	---	87	---	40	38	---
TOTAL	1245	671	730	537	455	1604	3152	4249	2119	1505	1276	878
MEAN	40.2	22.4	23.5	17.3	16.2	51.7	105	137	70.6	48.5	41.2	29.3
MAX	51	29	34	21	20	91	160	192	96	67	46	39
MIN	28	17	19	14	13	20	63	87	50	40	34	18
AC-FT	2470	1330	1450	1070	902	3180	6250	8430	4200	2990	2530	1740

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1994, BY WATER YEAR (WY)

MEAN	28.9	19.1	15.6	14.8	16.9	28.1	57.8	84.3	84.9	50.2	40.1	36.6
MAX	73.5	36.6	24.3	25.0	34.4	57.3	172	274	291	156	101	73.7
(WY)	1966	1987	1965	1965	1979	1966	1971	1965	1965	1965	1982	1982
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1954 - 1994	
ANNUAL TOTAL	23500.1		18421			
ANNUAL MEAN	64.4		50.5		39.8	
HIGHEST ANNUAL MEAN					91.7	1965
LOWEST ANNUAL MEAN					15.1	1961
HIGHEST DAILY MEAN	434	Jun 8	192	May 6	1330	May 15 1965
LOWEST DAILY MEAN	5.0	Feb 17	13	Feb 9	2.5	Dec 2 1985
ANNUAL SEVEN-DAY MINIMUM	6.4	Feb 11	14	Feb 6	3.6	Nov 27 1985
INSTANTANEOUS PEAK FLOW			196	May 6a	2060	May 15 1965b
INSTANTANEOUS PEAK STAGE			5.83	May 6a	10.44	May 15 1965
ANNUAL RUNOFF (AC-FT)	46610		36540		28860	
10 PERCENT EXCEEDS	154		106		74	
50 PERCENT EXCEEDS	48		39		26	
90 PERCENT EXCEEDS	9.5		17		12	

e Estimated
a Also May 14, 1994.
b From rating curve extended above 1,000 ft^3/s on basis of slope-area measurement of peak flow.

CHEYENNE RIVER BASIN

06411000 PACTOLA RESERVOIR NEAR SILVER CITY, SD

LOCATION.--Lat 44°04'20", long 103°29'17", in NE1/4 SW1/4 sec.2, T.1 N., R.5 E., Pennington County, Hydrologic Unit 10120110, in outlet works of dam on Rapid Creek, 3.8 mi east of Silver City.

DRAINAGE AREA.--319 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, 55,000 acre-ft, June 6, elevation, 4,580.20 ft; minimum, 47,000 acre-ft, Sept. 30, elevation, 4,570.44 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	4,578.52	53,500	-
Oct. 31	4,579.64	54,500	+1,000
Nov. 30	4,579.05	54,000	-500
Dec. 31	4,578.33	53,400	-600
CAL YR 1993	-	-	+14,500
Jan. 31	4,577.60	52,800	-600
Feb. 28	4,576.94	52,200	-600
Mar. 31	4,578.37	53,400	+1,200
Apr. 30	4,579.55	54,400	+1,000
May 31	4,579.87	54,700	+300
June 30	4,579.07	54,000	-700
July 31	4,575.99	51,400	-2,600
Aug. 31	4,572.10	48,300	-3,100
Sept. 30	4,570.44	47,000	-1,300
WTR YR 1994	-	-	-6,500

CHEYENNE RIVER BASIN

06411500 RAPID CREEK BELOW PACTOLA DAM, SD

LOCATION.--Lat 44°04'36", long 103°28'54", in SW1/4 NE1/4 sec.2, T.1 N., R.5 E., Pennington County, Hydrologic Unit 10120110, on right bank 2,000 ft downstream from Pactola Dam, 3.9 mi upstream from Deer Creek, and 13.0 mi west of Rapid City.

DRAINAGE AREA.--320 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. Maximum discharge prior to Sept. 30, 1956, 2,170 ft^3/s, May 22, 1952, gage height, 6.74 ft, site and datum then in use; minimum daily discharge, 6.6 ft^3/s, Nov. 23, 1950. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	28	30	28	25	32	86	151	73	111	91	48
2	32	28	30	28	25	32	86	151	68	112	96	40
3	32	28	31	28	25	30	85	144	68	114	97	40
4	27	27	31	28	25	29	85	156	68	117	95	40
5	21	27	32	28	24	30	85	156	68	107	101	40
6	20	27	31	28	25	30	79	156	83	99	101	38
7	19	27	31	28	24	30	70	156	93	86	101	39
8	19	27	31	28	24	30	69	156	93	78	99	43
9	19	27	32	28	24	30	69	156	93	78	90	45
10	19	27	31	28	25	30	69	156	88	78	83	51
11	19	27	31	28	25	31	69	156	85	82	77	53
12	19	28	31	28	25	31	70	156	85	96	73	51
13	19	27	31	28	25	31	70	156	74	105	71	48
14	19	28	31	28	26	32	70	156	67	101	71	45
15	19	24	31	28	26	31	67	156	67	84	71	42
16	19	23	31	28	28	31	68	157	67	73	71	41
17	19	23	31	28	29	31	68	149	67	73	66	41
18	19	24	30	25	30	31	68	154	67	73	61	41
19	19	28	30	25	30	31	68	154	67	67	61	40
20	24	33	31	25	31	31	68	155	64	57	61	40
21	30	33	31	25	31	49	65	154	66	56	62	40
22	32	33	31	25	32	64	65	154	68	69	68	40
23	33	33	31	25	32	75	66	153	68	95	75	39
24	33	33	30	27	33	83	67	145	78	103	76	39
25	33	33	30	27	32	87	92	126	83	102	77	39
26	33	33	30	27	31	92	163	107	83	85	76	39
27	33	29	30	27	31	93	192	78	85	71	75	35
28	30	30	30	27	31	93	192	61	96	75	74	29
29	28	30	30	27	---	90	181	61	108	88	67	29
30	28	30	29	26	---	86	153	61	113	95	58	30
31	28	---	28	26	---	86	---	70	---	93	55	---
TOTAL	781	855	948	840	774	1512	2705	4257	2353	2723	2400	1225
MEAN	25.2	28.5	30.6	27.1	27.6	48.8	90.2	137	78.4	87.8	77.4	40.8
MAX	37	33	32	28	33	93	192	157	113	117	101	53
MIN	19	23	28	25	24	29	65	61	64	56	55	29
AC-FT	1550	1700	1880	1670	1540	3000	5370	8440	4670	5400	4760	2430

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1994, BY WATER YEAR (WY)*

MEAN	22.8	17.8	16.5	16.1	16.2	21.4	37.4	77.5	82.7	77.6	58.0	41.1
MAX	78.5	46.3	30.6	27.1	38.2	64.2	141	238	415	168	107	75.6
(WY)	1966	1987	1994	1994	1979	1972	1971	1965	1965	1965	1982	1982
MIN	4.40	6.53	6.69	6.21	6.65	6.45	6.50	11.1	4.87	5.15	29.5	18.0
(WY)	1963	1958	1963	1963	1963	1963	1963	1991	1962	1962	1966	1962

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1957 - 1994*	
ANNUAL TOTAL	17338		21373			
ANNUAL MEAN	47.5		58.6		40.6	
HIGHEST ANNUAL MEAN					99.8	1965
LOWEST ANNUAL MEAN					13.0	1962
HIGHEST DAILY MEAN	270	Jun 20	192	Apr 27-28	515	May 20 1965a
LOWEST DAILY MEAN	15	Feb 24	19	Oct 7-19	.00	Oct 11 1962b
ANNUAL SEVEN-DAY MINIMUM	15	Feb 24	19	Oct 7	.00	Oct 11 1962
INSTANTANEOUS PEAK FLOW			195	Apr 27	547	May 19 1965
INSTANTANEOUS PEAK STAGE			8.19	Apr 27	9.00	May 19 1965
ANNUAL RUNOFF (AC-FT)	34390		42390		29380	
10 PERCENT EXCEEDS	105		107		85	
50 PERCENT EXCEEDS	27		40		24	
90 PERCENT EXCEEDS	16		25		10	

* Regulated period only (1957-94). See REMARKS.
a Also May 28, 29, 1965.
b Also Oct. 12-17, 1962.

CHEYENNE RIVER BASIN

06412200 RAPID CREEK ABOVE VICTORIA CREEK, NEAR RAPID CITY, SD

LOCATION.--Lat 44°02'48", long 103°21'06", in SW1/4 NW1/4 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.

DRAINAGE AREA.--355 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 3,570 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Pactola Reservoir 18.0 mi upstream (see station 06411000). Several water-quality samples were collected during the year, and the analytical results will be published in a later report. 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 9, 1972, reached a stage of about 13.0 ft, present datum, discharge not determined; information supplied by local resident.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	30	e40	e37	e33	e30	83	166	81	113	92	56
2	36	30	e39	e36	e34	e38	84	168	73	115	96	44
3	35	29	e37	e36	e28	e45	84	167	73	116	107	44
4	35	29	e37	e34	e29	39	86	166	76	115	101	42
5	26	29	e36	e35	e33	37	82	166	74	111	111	42
6	23	e29	e33	e23	e34	35	82	170	79	102	113	42
7	23	e29	e36	e13	e30	34	68	169	97	94	114	39
8	23	e29	e37	e31	e27	38	68	166	99	79	113	46
9	23	29	e38	e36	e30	50	68	167	99	78	105	47
10	23	29	e36	e37	e33	34	68	168	96	76	95	52
11	22	29	e36	e35	e40	34	68	168	90	77	92	54
12	22	29	e36	e36	e34	34	68	169	89	87	81	54
13	22	29	e36	e38	e35	34	68	174	86	104	79	50
14	22	29	e28	e34	e37	34	68	171	72	102	78	51
15	24	29	e25	e30	e36	33	68	168	71	93	78	44
16	27	24	e41	e36	e38	32	68	169	71	71	78	43
17	25	e24	e38	e27	e38	31	68	165	71	71	75	44
18	24	e24	e33	e23	e41	31	68	163	71	71	65	43
19	24	e24	e35	e30	e40	30	68	165	70	69	65	42
20	23	e38	e37	e34	e38	29	68	162	68	60	65	41
21	30	e40	e37	e33	e32	33	68	159	65	51	67	41
22	35	e39	e33	e36	e31	60	69	159	70	54	70	41
23	35	e31	e36	e38	e32	66	69	156	69	81	79	41
24	36	e22	e38	e37	e38	82	69	156	71	92	80	42
25	36	e27	e42	e33	e27	84	78	142	83	94	79	41
26	36	e34	e39	e33	e35	88	153	123	86	89	79	41
27	36	e38	e37	e34	e34	89	202	100	86	68	79	40
28	35	e44	e30	e33	e33	87	205	68	93	66	79	30
29	30	e42	e36	e34	---	87	204	64	105	75	76	29
30	e30	e41	e38	e27	---	82	167	64	112	90	64	29
31	e30	---	e42	e30	---	82	---	66	---	92	63	---
TOTAL	899	929	1122	1009	950	1542	2737	4604	2446	2656	2618	1295
MEAN	29.0	31.0	36.2	32.5	33.9	49.7	91.2	149	81.5	85.7	84.5	43.2
MAX	48	44	42	38	41	89	205	174	112	116	114	56
MIN	22	22	25	13	27	29	68	64	65	51	63	29
AC-FT	1780	1840	2230	2000	1880	3060	5430	9130	4850	5270	5190	2570

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	18.7	17.7	18.4	18.2	17.5	21.9	30.3	64.3	82.2	81.7	68.2	39.7
MAX	29.0	31.0	36.2	32.5	33.9	49.7	91.2	149	208	148	84.5	66.7
(WY)	1994	1994	1994	1994	1994	1994	1994	1994	1993	1993	1994	1993
MIN	10.7	10.8	12.5	10.2	8.57	11.1	14.0	29.3	30.0	33.6	48.7	22.8
(WY)	1991	1991	1989	1991	1989	1991	1991	1991	1990	1992	1990	1989

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	21159.0		22807			
ANNUAL MEAN	58.0		62.5		40.0	
HIGHEST ANNUAL MEAN					62.5	1994
LOWEST ANNUAL MEAN					26.4	1991
HIGHEST DAILY MEAN	320	Jun 20	205	Apr 28	320	Jun 20 1993
LOWEST DAILY MEAN	7.0	Feb 17	13	Jan 7	5.0	Feb 3 1989
ANNUAL SEVEN-DAY MINIMUM	12	Feb 11	22	Oct 8	6.4	Feb 1 1989
INSTANTANEOUS PEAK FLOW			205	Apr 27	335	Jun 20 1993
INSTANTANEOUS PEAK STAGE			6.22	Apr 27	6.66	Jun 20 1993
ANNUAL RUNOFF (AC-FT)	41970		45240		29000	
10 PERCENT EXCEEDS	129		113		87	
50 PERCENT EXCEEDS	31		42		24	
90 PERCENT EXCEEDS	18		29		12	

e Estimated

CHEYENNE RIVER BASIN

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

LOCATION.--Lat 44°03'10", long 103°18'41", in NW1/4 NW1/4 NW1/4 sec.17, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on left bank between bridges on State Highway 44, at city limits of Rapid City, and 2.9 mi downstream from Victoria Creek.

DRAINAGE AREA.--371 mi^2.

WATER-DISCHARGE RECORDS

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.--No estimated daily discharges. Records good. Flow regulated by Deerfield Reservoir since December 1945 and by Pactola Dam 21.0 mi upstream since August 1956. Maximum discharge prior to Sept. 30, 1956, 2,600 ft^3/s, May 23, 1952, gage height, 10.08 ft, site and datum then in use; no flow at times in 1950-51. 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. National Weather Service telemeter and recording rain gage at station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	25	29	29	25	33	86	161	76	105	82	48
2	30	25	28	28	26	34	86	163	70	106	85	37
3	27	25	27	28	21	34	86	164	69	106	95	34
4	27	24	27	26	22	33	89	159	70	106	89	33
5	20	24	26	27	25	32	86	161	71	103	99	33
6	16	22	23	17	25	31	86	165	73	96	99	32
7	16	25	26	6.6	22	29	72	160	91	91	99	29
8	17	25	27	23	20	28	70	160	94	74	98	33
9	17	25	28	28	22	30	69	159	93	71	91	35
10	17	25	26	29	25	29	69	159	92	69	83	40
11	17	25	26	28	29	30	69	159	85	69	80	42
12	16	25	27	29	26	30	69	158	84	79	69	42
13	16	25	27	31	27	30	69	164	81	95	67	38
14	16	25	19	27	29	30	69	164	65	93	67	38
15	18	25	17	22	28	30	69	161	63	86	66	32
16	20	20	31	28	30	30	68	161	63	66	67	32
17	19	19	28	19	30	30	68	155	63	64	65	32
18	18	19	22	16	33	30	68	155	63	64	55	32
19	17	20	26	23	32	30	68	154	63	62	54	31
20	17	26	27	26	29	30	68	154	62	52	53	31
21	21	29	27	25	25	31	68	154	57	44	55	31
22	26	28	24	29	23	57	68	153	65	47	56	31
23	27	21	27	30	24	64	67	153	64	71	68	30
24	28	13	28	29	29	80	66	150	65	82	69	30
25	28	17	31	27	18	84	73	135	78	85	69	30
26	28	23	29	26	27	91	142	116	79	81	69	30
27	28	30	27	27	32	92	193	98	79	60	68	30
28	28	34	20	26	32	92	194	65	86	59	68	22
29	25	32	25	27	---	92	195	62	97	66	67	21
30	24	31	28	21	---	87	163	61	105	81	53	21
31	25	---	31	23	---	86	---	62	---	82	54	---
TOTAL	689	732	814	780.6	736	1469	2713	4405	2266	2415	2259	980
MEAN	22.2	24.4	26.3	25.2	26.3	47.4	90.4	142	75.5	77.9	72.9	32.7
MAX	40	34	31	31	33	92	195	165	105	106	99	48
MIN	16	13	17	6.6	18	28	66	61	57	44	53	21
AC-FT	1370	1450	1610	1550	1460	2910	5380	8740	4490	4790	4480	1940

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1994, BY WATER YEAR (WY)*

MEAN	18.7	12.6	9.99	9.85	10.6	16.5	33.1	79.0	98.1	78.5	53.2	35.1
MAX	89.7	44.2	26.3	26.7	27.8	62.4	157	266	445	186	107	77.4
(WY)	1966	1987	1994	1985	1979	1966	1971	1978	1965	1965	1982	1982
MIN	1.38	.71	.12	.094	.094	.29	1.36	22.0	20.7	23.1	23.9	14.1
(WY)	1991	1982	1991	1991	1991	1991	1957	1986	1990	1957	1961	1989

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1957 - 1994*	
ANNUAL TOTAL	19105.8		20258.6			
ANNUAL MEAN	52.3		55.5		38.1a	
HIGHEST ANNUAL MEAN					104	1965
LOWEST ANNUAL MEAN					14.7	1958
HIGHEST DAILY MEAN	315	Jun 20	195	Apr 29	2600	Jun 10 1972
LOWEST DAILY MEAN	3.9	Feb 17	6.6	Jan 7	.00	Jan 6 1959b
ANNUAL SEVEN-DAY MINIMUM	7.0	Jan 5	17	Oct 6	.00	Dec 20 1990
INSTANTANEOUS PEAK FLOW			198	Apr 29	31200	Jun 9 1972
INSTANTANEOUS PEAK STAGE			3.15	Apr 29	17.77	Jun 9 1972
ANNUAL RUNOFF (AC-FT)	37900		40180		27580	
10 PERCENT EXCEEDS	133		104		84	
50 PERCENT EXCEEDS	25		32		20	
90 PERCENT EXCEEDS	9.8		21		3.9	

* Regulated period only (1957-94). See REMARKS.
a Median of annual mean discharges, 34 ft^3/s.
b No flow at times in 1957-60, 1962-63, 1981, 1991.

CHEYENNE RIVER BASIN

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

PRECIPITATION RECORDS

PERIOD OF RECORD.--April 1981 to July 1982 published in Open-File Report 87-45, March 1987 to current year.

INSTRUMENTATION.--Precipitation recorder.

REMARKS.--Records poor.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.11
2	.00	.00	.00	.00	.00	.00	.00	.11	.09	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.62	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.35	.00	.45	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.09	.00	.13	.00	.65	.00	.00
7	.00	.00	.00	.00	.00	.00	.03	.00	.13	.05	.02	.00
8	.39	.00	.00	.00	.05	.00	.00	.00	.00	.00	.01	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00
13	.00	.02	.00	.03	.00	.00	.00	.80	.00	.30	.00	.20
14	.29	.01	.00	.02	.00	.00	.07	.00	.00	.00	.00	.01
15	.18	.00	.00	.00	.00	.00	.00	.00	.15	.04	.03	.03
16	.33	.00	.28	.00	.00	.00	.00	.00	.01	.09	.30	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.03	.00	.00	.00	.00	.00	.00	.00	.00	.19	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.32	.01	.01	.00	.00
20	.00	.00	.00	.00	.04	.00	.00	.12	.00	.00	.00	.00
21	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00
23	.00	.04	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.11	.00	.04	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.40	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.01	.41	.00	.00	.00	.00	.00
27	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.01	.00	.00	.01	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.05	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.02	.33	---
TOTAL	1.22	0.07	0.29	0.05	0.24	0.18	1.30	2.22	0.99	1.40	0.75	0.35

CAL YR 1993 TOTAL 21.00
WTR YR 1994 TOTAL 9.06

CHEYENNE RIVER BASIN

06412810 CLEGHORN SPRINGS AT RAPID CITY, SD

LOCATION.--Lat 44°03'32", long 103°17'49", in SE1/4 NW1/4 SE1/4 sec.8, T.1 N, R.7 E., Pennington County, Hydrologic Unit 10120110, on left bank of the outflow of Cleghorn Springs, within Cleghorn Springs Fish Hatchery, and 0.2 mi west of Canyon Lake on State Highway 44.

DRAINAGE AREA.--Indeterminate.

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

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 3,369.1 ft above sea level.

REMARKS.--Records good, including estimated daily discharges. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	12	12	12	12	11	12	13	11	10	9.7	10
2	12	12	12	13	11	12	12	13	11	10	9.9	11
3	12	12	12	12	11	11	13	14	11	10	10	10
4	11	12	12	12	11	11	12	14	11	10	10	10
5	12	12	12	12	11	11	12	14	12	10	10	9.6
6	12	12	12	11	11	11	12	14	11	10	10	9.3
7	12	12	13	12	11	11	12	14	12	11	10	8.8
8	11	12	12	12	11	11	12	14	11	11	10	8.9
9	11	12	12	12	11	12	12	14	11	11	10	9.2
10	11	12	12	12	11	11	12	14	11	10	10	10
11	11	12	12	12	11	11	12	14	11	9.9	10	11
12	11	12	12	12	11	11	12	13	11	9.9	9.9	11
13	12	12	12	12	11	11	12	14	10	11	9.9	10
14	12	12	12	12	11	11	12	14	10	10	9.7	10
15	12	12	12	11	11	11	12	e14	10	10	9.7	10
16	12	12	12	12	11	11	12	e14	10	11	9.8	9.8
17	12	12	12	12	12	11	12	e13	10	10	10	9.7
18	12	12	12	12	12	11	12	e14	11	9.9	10	10
19	12	12	12	11	12	11	12	e13	11	10	9.9	9.8
20	12	12	12	11	11	11	12	e13	10	10	9.9	9.6
21	12	12	12	12	11	11	12	e13	9.9	9.7	9.9	9.6
22	12	12	12	12	11	12	12	e14	10	9.4	9.8	11
23	12	12	12	12	11	12	12	e13	10	9.6	9.8	11
24	12	12	12	11	11	12	12	e13	9.9	9.7	10	9.8
25	12	12	12	12	11	12	12	e13	10	9.8	9.9	9.2
26	12	12	12	12	11	12	13	e13	9.9	9.8	10	9.5
27	12	13	12	11	12	12	13	12	9.7	9.5	10	9.9
28	12	13	12	12	11	12	14	12	10	9.3	10	9.8
29	12	13	12	12	---	12	13	12	10	9.3	9.8	9.7
30	12	13	12	11	---	12	13	11	10	9.6	9.8	9.7
31	12	---	12	11	---	12	---	11	---	9.7	10	---
TOTAL	366	364	373	365	313	353	367	411	315.4	310.1	307.4	296.9
MEAN	11.8	12.1	12.0	11.8	11.2	11.4	12.2	13.3	10.5	10.0	9.92	9.90
MAX	12	13	13	13	12	12	14	14	12	11	10	11
MIN	11	12	12	11	11	11	12	11	9.7	9.3	9.7	8.8
AC-FT	726	722	740	724	621	700	728	815	626	615	610	589

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1994, BY WATER YEAR (WY)

MEAN	11.3	11.0	11.0	11.0	10.8	10.8	11.7	12.2	12.0	11.1	10.6	11.0
MAX	11.8	12.1	12.0	11.8	11.2	11.4	12.2	13.3	13.5	12.3	11.3	12.0
(WY)	1994	1994	1994	1994	1994	1994	1994	1994	1993	1993	1993	1993
MIN	10.8	9.81	9.89	10.3	10.3	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1993 - 1994	
ANNUAL TOTAL	4210.5		4141.8			
ANNUAL MEAN	11.5		11.3		11.2	
HIGHEST ANNUAL MEAN					11.3	1994
LOWEST ANNUAL MEAN					11.1	1993
HIGHEST DAILY MEAN	15	Mar 21	14	Apr 28a	15	Mar 21 1993
LOWEST DAILY MEAN	9.8	Jan 7	8.8	Sep 7	8.8	Sep 7 1994
ANNUAL SEVEN-DAY MINIMUM	9.9	Jan 2	9.4	Sep 3	9.4	Sep 3 1994
ANNUAL RUNOFF (AC-FT)	8350		8220		8120	
10 PERCENT EXCEEDS	13		13		13	
50 PERCENT EXCEEDS	12		12		11	
90 PERCENT EXCEEDS	10		9.9		9.8	

e Estimated
a Also May 3-11, 13-16, 22.

CHEYENNE RIVER BASIN

06412900 RAPID CREEK BELOW CLEGHORN SPRINGS, AT RAPID CITY, SD

LOCATION.--Lat 44°03'33", long 103°17'49", in NW1/4 NE1/4 SE1/4 sec.8, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on right bank 100 ft downstream from confluence of fish hatchery discharge.

DRAINAGE AREA.--378 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 3,358.46 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Pactola Dam approximately 22 mi upstream since August 1956. 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 9, 1972, reached a discharge of 43,800 ft^3/s based on summation of slope-area measurements of peak flow at station 06412500 and miscellaneous site at Cleghorn Canyon.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	43	48	46	43	50	104	188	93	113	99	69
2	48	43	47	47	42	51	105	188	87	113	101	56
3	45	44	47	45	38	50	106	191	85	113	109	53
4	41	43	46	42	38	49	108	185	86	114	104	51
5	36	43	46	45	41	48	106	189	86	113	111	49
6	31	41	43	33	42	47	106	192	87	107	111	48
7	31	43	47	23	37	46	93	188	105	104	111	43
8	32	43	47	39	34	45	92	186	106	90	111	50
9	32	41	48	45	36	48	91	185	103	88	107	51
10	30	42	44	46	40	46	91	185	101	86	100	59
11	29	41	44	45	46	46	90	184	96	86	97	63
12	29	42	45	46	42	46	90	182	95	95	87	63
13	31	41	44	46	43	45	90	187	92	109	86	55
14	32	42	34	42	46	46	91	185	77	107	85	57
15	36	40	32	37	44	46	91	183	76	101	85	49
16	40	38	48	45	46	46	90	181	77	86	86	48
17	37	39	44	35	49	46	91	174	76	83	84	47
18	35	39	38	31	51	47	91	176	77	82	76	48
19	35	40	41	38	50	47	91	173	76	81	75	47
20	33	45	42	41	46	46	91	175	75	71	75	46
21	39	49	44	42	42	48	91	174	69	61	77	46
22	46	48	40	47	39	80	91	172	77	66	77	49
23	45	41	42	47	41	86	91	171	77	89	87	50
24	45	31	45	45	45	100	91	168	77	98	88	47
25	44	35	48	45	33	103	97	156	89	100	87	45
26	47	42	46	44	43	108	168	134	90	97	88	46
27	48	51	43	43	51	110	215	116	90	79	88	47
28	48	53	36	43	50	111	218	84	96	78	88	37
29	44	52	43	45	---	111	217	81	106	84	86	35
30	43	51	46	37	---	105	190	78	112	97	74	35
31	44	---	48	40	---	104	---	78	---	98	75	---
TOTAL	1217	1286	1356	1295	1198	2007	3377	5089	2639	2889	2815	1489
MEAN	39.3	42.9	43.7	41.8	42.8	64.7	113	164	88.0	93.2	90.8	49.6
MAX	61	53	48	47	51	111	218	192	112	114	111	69
MIN	29	31	32	23	33	45	90	78	69	61	74	35
AC-FT	2410	2550	2690	2570	2380	3980	6700	10090	5230	5730	5580	2950

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1994, BY WATER YEAR (WY)

MEAN	24.4	23.3	22.9	22.7	23.4	26.6	36.8	71.8	95.2	92.9	75.0	50.7
MAX	39.3	42.9	43.7	41.8	42.8	64.7	113	164	249	152	90.8	80.9
(WY)	1994	1994	1994	1994	1994	1994	1994	1994	1993	1993	1994	1993
MIN	15.9	15.1	15.9	15.7	17.0	15.3	16.2	45.0	34.5	42.3	55.0	36.2
(WY)	1991	1991	1991	1991	1991	1991	1990	1991	1990	1992	1990	1989

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1988 - 1994	
ANNUAL TOTAL	25359		26657			
ANNUAL MEAN	69.5		73.0		47.3	
HIGHEST ANNUAL MEAN					73.0	1994
LOWEST ANNUAL MEAN					33.4	1990
HIGHEST DAILY MEAN	356	Jun 20	218	Apr 28	356	Jun 20 1993
LOWEST DAILY MEAN	15	Feb 17	23	Jan 7	12	Feb 2 1990
ANNUAL SEVEN-DAY MINIMUM	19	Jan 1	31	Oct 6	13	Apr 13 1990
INSTANTANEOUS PEAK FLOW			220	Apr 28	694	May 11 1991
INSTANTANEOUS PEAK STAGE			6.18	Apr 28	7.76	May 11 1991
ANNUAL RUNOFF (AC-FT)	50300		52870		34250	
10 PERCENT EXCEEDS	139		113		93	
50 PERCENT EXCEEDS	44		50		29	
90 PERCENT EXCEEDS	21		38		17	

06413650 LIME CREEK AT MOUTH, AT RAPID CITY, SD

LOCATION.--Lat 44°04'30", long 103°16'00", in SE1/4 SW1/4 NW1/4 sec.3, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on left bank, 1,500 ft above mouth, and 75 ft downstream from Canyon Lake Drive.

DRAINAGE AREA.--10.0 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.--Records for the 1994 water year will be published in WDR SD-95-1 and are available upon request from the District office.

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.

CHEYENNE RIVER BASIN

06414000 RAPID CREEK AT RAPID CITY, SD

LOCATION.--Lat 44°05'09", long 103°14'31", in NE1/4 SE1/4 SW1/4 sec.35, T.2 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on left bank 1,300 ft upstream from 12th Street in Rapid City and 3.6 mi downstream from Canyon Lake Dam.

DRAINAGE AREA.--410 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, including estimated daily discharges. 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. Maximum discharge prior to regulation, 2,540 ft^3/s, May 23, 1952, gage height, 6.20 ft, datum then in use; minimum daily discharge, 18 ft^3/s, Jan. 20, 25, 1953. 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 May 12, 13, 1920, reached a stage of 14.4 ft present datum, from floodmarks.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	50	51	53	44	65	104	188	90	104	91	e63
2	52	49	50	53	42	57	103	188	86	105	88	57
3	47	49	49	52	42	54	104	229	85	107	99	53
4	42	48	47	50	44	52	113	187	88	107	92	52
5	40	47	49	e46	44	52	108	184	88	105	104	49
6	36	46	45	e28	45	52	107	197	88	119	105	46
7	37	47	52	e14	e41	49	92	187	118	111	102	44
8	41	47	49	e40	e41	47	90	183	121	95	105	43
9	40	45	53	49	e42	49	89	184	119	90	105	44
10	40	46	49	50	e34	49	87	183	117	85	96	47
11	39	45	50	49	46	49	87	180	104	81	93	50
12	38	44	51	50	46	48	86	179	99	82	81	50
13	39	44	49	50	45	49	86	202	94	108	79	50
14	40	46	41	48	49	49	85	192	78	112	76	49
15	46	46	41	44	49	49	85	186	72	105	75	45
16	58	42	52	47	50	49	84	182	81	86	83	45
17	46	42	52	e40	52	49	83	174	79	82	81	45
18	44	42	47	e37	53	49	79	169	79	82	69	44
19	43	42	47	42	51	50	80	177	80	80	65	45
20	41	47	49	46	47	50	82	184	77	70	65	43
21	44	52	50	47	44	49	81	179	67	60	e63	45
22	51	52	48	52	41	70	83	176	74	60	e70	47
23	53	e40	49	51	e38	78	84	175	78	74	e80	46
24	51	e32	49	48	e37	92	81	168	75	86	e81	43
25	51	e35	54	47	e33	98	88	155	82	86	e81	41
26	53	43	52	46	44	108	157	132	82	95	e81	41
27	54	50	50	45	51	111	216	115	82	71	e80	41
28	54	55	43	46	52	112	219	83	86	66	e79	36
29	51	54	47	45	---	113	217	76	92	64	e78	33
30	50	52	50	42	---	107	194	72	101	81	e67	32
31	51	---	52	40	---	106	---	71	---	83	e65	---
TOTAL	1434	1379	1517	1397	1247	2061	3254	5137	2662	2742	2579	1369
MEAN	46.3	46.0	48.9	45.1	44.5	66.5	108	166	88.7	88.5	83.2	45.6
MAX	62	55	54	53	53	113	219	229	121	119	105	63
MIN	36	32	41	14	33	47	79	71	67	60	63	32
AC-FT	2840	2740	3010	2770	2470	4090	6450	10190	5280	5440	5120	2720

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1994, BY WATER YEAR (WY)*

MEAN	35.1	31.2	28.4	26.8	27.7	33.4	50.2	95.4	116	87.5	61.8	48.0
MAX	98.4	65.9	48.9	45.1	48.9	75.7	182	321	487	198	126	95.5
(WY)	1966	1987	1994	1994	1979	1966	1971	1965	1965	1965	1982	1982
MIN	15.4	13.6	11.7	10.5	13.5	15.1	13.0	38.1	28.0	43.2	18.9	24.6
(WY)	1989	1960	1962	1962	1962	1957	1962	1958	1990	1957	1961	1961

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1957 - 1994*	
ANNUAL TOTAL	27555		26778			
ANNUAL MEAN	75.5		73.4		53.6	
HIGHEST ANNUAL MEAN					124	1965
LOWEST ANNUAL MEAN					29.3	1960
HIGHEST DAILY MEAN	376	Jun 21	229	May 3	5600	Jun 10 1972
LOWEST DAILY MEAN	20	Jan 1	14	Jan 7	2.0	Apr 20 1962
ANNUAL SEVEN-DAY MINIMUM	23	Jan 1	38	Sep 24	7.0	Apr 15 1962
INSTANTANEOUS PEAK FLOW			670	May 3	50000	Jun 9 1972a
INSTANTANEOUS PEAK STAGE			6.03	May 3	19.66	Jun 9 1972b
ANNUAL RUNOFF (AC-FT)	54660		53110		38800	
10 PERCENT EXCEEDS	154		116		94	
50 PERCENT EXCEEDS	49		52		37	
90 PERCENT EXCEEDS	26		42		20	

e Estimated
* Regulated period only (1957-94). See REMARKS.
a On basis of slope-area measurement of peak flow.
b From floodmarks.

CHEYENNE RIVER BASIN

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

LOCATION.--Lat 44°01'24", long 103°05'43", in NW1/4 NE1/4 NE1/4 sec.25, T.1 N., R.8 E., Pennington County, Hydrologic Unit 10120110, on right bank 120 ft downstream from sewage treatment plant effluent and 6.7 mi southeast of Rapid City.

DRAINAGE AREA.--452 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.--Records good except those for estimated daily discharges and June 1 to Sept. 30, which are fair. Flow regulated by Pactola Dam 40.9 mi upstream since Aug. 22, 1956. Diversions for irrigation of about 7,000 acres upstream from station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. Gage-height telemeter at station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	57	76	73	64	103	123	220	53	117	62	44
2	67	55	71	72	65	110	122	216	72	107	59	37
3	58	55	73	71	61	87	125	293	66	107	71	31
4	56	55	70	67	58	78	154	224	63	117	62	27
5	48	55	71	70	e52	75	136	199	76	126	73	29
6	40	60	e66	e50	e57	76	137	227	69	164	81	32
7	39	63	72	e39	53	69	127	194	85	162	72	28
8	52	63	68	e60	50	64	121	185	113	112	74	27
9	54	60	77	e68	51	e70	116	181	107	81	80	28
10	51	59	69	e68	63	70	114	173	107	70	70	24
11	49	60	69	69	68	67	114	162	100	62	67	29
12	45	60	70	71	69	68	110	155	90	65	60	32
13	45	60	69	72	63	67	111	185	94	113	49	26
14	56	61	63	67	73	68	110	214	85	144	47	28
15	76	62	58	61	76	66	111	166	71	151	44	26
16	120	57	67	61	82	66	108	161	90	103	39	23
17	60	57	72	e60	86	69	104	152	84	74	71	25
18	53	58	64	e54	89	68	103	134	84	64	41	25
19	53	55	64	57	82	68	98	135	87	82	35	26
20	50	58	68	63	71	67	101	182	90	54	31	25
21	50	69	68	65	66	67	92	154	61	35	32	28
22	60	68	67	71	62	81	92	127	62	27	35	31
23	62	55	65	78	64	99	91	125	74	30	39	33
24	58	e53	72	75	57	113	90	126	64	53	40	31
25	58	52	75	69	e55	122	95	119	69	65	38	27
26	60	55	74	67	e62	129	170	103	82	69	45	23
27	61	69	67	66	e71	131	257	90	87	51	42	26
28	62	78	67	66	e75	136	258	66	86	27	51	25
29	57	78	63	68	---	138	251	46	100	24	52	20
30	54	74	69	62	---	133	237	44	108	30	41	22
31	57	---	73	60	---	128	---	44	---	52	52	---
TOTAL	1793	1821	2137	2020	1845	2753	3978	4802	2479	2538	1655	838
MEAN	57.8	60.7	68.9	65.2	65.9	88.8	133	155	82.6	81.9	53.4	27.9
MAX	120	78	77	78	89	138	258	293	113	164	81	44
MIN	39	52	58	39	50	64	90	44	53	24	31	20
AC-FT	3560	3610	4240	4010	3660	5460	7890	9520	4920	5030	3280	1660

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1994, BY WATER YEAR (WY)

MEAN	41.8	44.6	44.2	45.3	45.6	54.7	68.6	90.8	86.2	71.7	54.9	42.0
MAX	99.3	91.3	68.9	65.2	65.9	88.8	133	237	293	193	153	100
(WY)	1983	1987	1994	1994	1994	1994	1994	1983	1993	1993	1982	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1982 - 1994	
ANNUAL TOTAL	35799		28659			
ANNUAL MEAN	98.1		78.5		57.6	
HIGHEST ANNUAL MEAN					89.7	1993
LOWEST ANNUAL MEAN					35.5	1989
HIGHEST DAILY MEAN	401	Jun 21	293	May 3	636	Jul 25 1982
LOWEST DAILY MEAN	31	Jan 6	20	Sep 29	11	Sep 26 1992a
ANNUAL SEVEN-DAY MINIMUM	33	Jan 1	25	Sep 24	13	Oct 4 1990
INSTANTANEOUS PEAK FLOW			733	May 3	1680	Jul 25 1982
INSTANTANEOUS PEAK STAGE			6.08	May 3	9.12	Jul 25 1982
ANNUAL RUNOFF (AC-FT)	71010		56850		41720	
10 PERCENT EXCEEDS	217		132		104	
50 PERCENT EXCEEDS	68		68		43	
90 PERCENT EXCEEDS	43		35		24	

e Estimated
a Also Sept. 27, 1992.

CHEYENNE RIVER BASIN

06421500 RAPID CREEK NEAR FARMINGDALE, SD

LOCATION.--Lat 43°56'31", long 102°51'12", in SW1/4 SW1/4 SW1/4 sec.19, T.1 S., R.11 E., Pennington County, Hydrologic Unit 10120110, on right bank at downstream side of bridge, 2 mi southeast of Farmingdale, and 4.8 mi downstream from Antelope Creek.

DRAINAGE AREA.--602 mi^2.

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

GAGE.--Water-stage recorder. 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. Crest-stage gage Oct. 1, 1989, to Sept. 30, 1990, 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. 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. Diversions of irrigation of about 10,000 acres upstream from station. Several water-quality samples were collected during the year, and the analytical results will be published in a later report. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. Gage-height telemeter at station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	71	e78	e75	e66	e105	119	236	20	22	11	42
2	72	71	e71	e74	e67	e200	116	227	28	22	8.0	36
3	64	70	e75	e73	e63	e350	115	220	31	24	15	32
4	53	71	e72	e69	e60	e290	121	317	30	26	12	29
5	53	70	e73	e64	e54	249	148	226	32	27	27	24
6	50	73	e68	e52	e59	214	128	218	37	33	26	27
7	49	79	e68	e41	e55	181	129	232	29	59	27	28
8	58	78	e70	e62	e52	140	116	200	100	47	31	24
9	70	74	e79	e70	e53	124	110	196	66	32	30	22
10	64	71	e71	e70	e65	111	108	193	56	24	27	21
11	61	71	e71	e71	e70	97	108	184	62	18	33	15
12	56	72	e72	e73	e71	72	106	175	51	15	33	14
13	52	71	e71	e74	e65	72	103	172	46	17	27	22
14	54	70	e65	e69	e75	70	102	235	51	30	32	19
15	64	69	e60	e63	e78	69	103	194	43	34	30	17
16	86	69	e69	e63	e84	66	102	182	35	43	36	20
17	115	65	e74	e62	e88	66	101	172	41	29	44	17
18	72	64	e66	e56	e91	66	99	162	40	22	26	18
19	60	63	e66	e59	e84	67	98	155	38	20	23	21
20	60	62	e70	e67	e73	66	95	183	38	24	22	22
21	59	63	e70	e67	e68	65	95	172	38	24	18	24
22	60	69	e69	e73	e64	64	89	152	33	18	14	30
23	65	49	e67	e80	e66	82	89	143	29	16	16	35
24	66	46	e77	e77	e59	94	88	134	30	21	20	34
25	65	e45	e77	e71	e57	112	86	123	26	26	18	33
26	67	e40	e76	e69	e55	119	120	100	24	29	17	32
27	67	e60	e69	e68	e60	126	184	77	27	26	20	34
28	71	e80	e69	e68	e77	126	246	64	24	19	29	31
29	71	e80	e65	e69	---	135	245	39	22	12	32	30
30	70	e76	e71	e64	---	133	250	26	24	11	33	29
31	69	---	e75	e62	---	124	---	22	---	11	30	---
TOTAL	2020	2012	2194	2075	1879	3855	3719	5131	1151	781	767.0	782
MEAN	65.2	67.1	70.8	66.9	67.1	124	124	166	38.4	25.2	24.7	26.1
MAX	115	80	79	80	91	350	250	317	100	59	44	42
MIN	49	40	60	41	52	64	86	22	20	11	8.0	14
AC-FT	4010	3990	4350	4120	3730	7650	7380	10180	2280	1550	1520	1550

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1994, BY WATER YEAR (WY)*

MEAN	38.1	44.3	39.9	38.0	43.7	63.3	73.3	99.0	116	62.0	31.7	33.6
MAX	134	100	70.8	72.5	128	134	230	338	543	221	151	99.0
(WY)	1983	1987	1994	1984	1986	1988	1971	1965	1967	1967	1982	1982
MIN	1.07	16.5	15.4	11.7	15.0	18.2	1.33	4.31	7.76	4.17	2.95	2.11
(WY)	1961	1961	1962	1962	1988	1961	1961	1961	1960	1960	1961	1958

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1957 - 1994*	
ANNUAL TOTAL	33357		26366.0			
ANNUAL MEAN	91.4		72.2		56.9	
HIGHEST ANNUAL MEAN					127	1965
LOWEST ANNUAL MEAN					12.5	1961
HIGHEST DAILY MEAN	494	May 9	350	Mar 3	2860	Jun 10 1972
LOWEST DAILY MEAN	25	Jan 17	8.0	Aug 2	.00	Oct 8 1956a
ANNUAL SEVEN-DAY MINIMUM	27	Jan 12	11	Jul 29	.00	Sep 1 1958
INSTANTANEOUS PEAK FLOW			528	May 4b	7320	Jun 10 1972c
INSTANTANEOUS PEAK STAGE			9.06	Mar 2d	11.85	Jun 10 1972
ANNUAL RUNOFF (AC-FT)	66160		52300		41210	
10 PERCENT EXCEEDS	199		134		109	
50 PERCENT EXCEEDS	70		66		39	
90 PERCENT EXCEEDS	32		22		11	

e Estimated
* Regulated period only (1957-94). See REMARKS.
a No flow at times in 1958-63 and 1969-71.
b Gage height, 7.86 ft.
c From floodmarks, from rating curve extended above 400 ft^3/s on basis of contracted-opening and flow-over-road measurement of peak flow.
d Backwater from ice.

CHEYENNE RIVER BASIN

06422500 BOXELDER CREEK NEAR NEMO, SD

LOCATION.--Lat 44°08'38", long 103°27'16", in SE1/4 SE1/4 sec.12, T.2 N., R.5 E., Lawrence County, Hydrologic Unit 10120111, on right bank at ranch 0.2 mi upstream from county line, 0.9 mi downstream from Jim Creek, and 4.5 mi southeast of Nemo.

DRAINAGE AREA.--96 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 Oct. 26 to Nov. 24 and Mar. 9 to Apr. 9, which are fair, and 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. Recording precipitation gage at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1911 reached a stage of about 16 ft, present datum.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	11	e6.0	e5.5	e8.5	e9.0	33	73	29	14	8.2	6.8
2	10	9.0	e5.5	e5.5	e8.5	e10	37	97	31	14	8.3	6.9
3	10	11	e5.5	e5.5	e8.5	e10	29	110	34	13	9.3	6.7
4	10	9.9	e5.5	e5.5	e8.0	e10	35	109	31	16	9.3	6.4
5	9.9	7.5	e5.0	e5.5	e10	e9.5	29	113	42	15	8.2	5.9
6	9.8	10	e4.5	e5.5	e10	e9.5	30	117	33	19	7.9	5.7
7	9.5	12	e4.5	e4.5	e9.0	e9.5	30	101	29	23	7.5	5.4
8	10	11	e4.5	e5.0	e8.0	e10	44	89	32	19	7.3	5.2
9	11	11	e4.5	e6.0	e7.0	e15	38	82	29	16	7.5	5.0
10	13	10	e4.5	e6.5	e8.0	13	39	76	27	14	7.8	4.8
11	13	10	e5.0	e7.0	e9.0	12	36	70	26	13	7.6	4.4
12	11	9.9	e5.5	e7.0	e9.0	12	38	65	26	13	7.0	4.4
13	11	9.3	e5.5	e7.5	e10	13	42	66	25	14	6.9	4.4
14	11	9.1	e5.5	e7.5	e10	25	45	88	23	14	6.6	4.5
15	19	6.8	e5.5	e7.5	e10	30	42	63	22	14	6.4	4.5
16	25	10	e5.0	e7.0	9.7	31	45	57	22	14	6.8	5.7
17	26	11	e5.0	e6.0	10	34	47	51	21	14	7.2	5.8
18	18	8.7	e5.0	e5.5	e9.0	34	49	48	21	13	7.0	5.2
19	17	7.5	e5.0	e6.5	e8.0	40	51	46	20	13	6.3	5.1
20	15	9.6	e5.0	e7.5	e7.0	47	51	46	19	12	6.1	5.3
21	13	9.9	e5.0	e7.5	e7.0	35	50	43	18	12	5.7	5.1
22	12	9.0	e4.5	e8.5	e7.0	39	48	40	25	11	5.4	5.3
23	12	7.9	e5.0	e10	e6.5	35	50	39	24	10	5.0	5.6
24	11	e4.0	e5.5	e10	e6.0	31	53	39	20	10	4.5	5.4
25	11	e3.5	e5.5	e10	e6.5	33	63	40	17	10	4.4	4.7
26	10	e4.5	e5.5	e10	e7.0	26	52	37	16	10	4.3	4.7
27	9.7	e5.5	e5.5	e10	e8.0	16	45	35	15	9.8	3.9	4.8
28	10	e5.5	e5.0	e10	e8.5	23	62	33	15	9.0	4.8	4.6
29	8.1	e6.5	e5.5	e9.0	---	17	51	32	14	8.5	5.1	4.6
30	9.0	e7.0	e6.0	e8.5	---	38	49	30	14	8.2	5.2	4.6
31	10	---	e6.0	e8.5	---	38	---	30	---	7.9	5.9	---
TOTAL	385.0	257.6	161.0	226.0	233.7	714.5	1313	1965	720	403.4	203.4	157.5
MEAN	12.4	8.59	5.19	7.29	8.35	23.0	43.8	63.4	24.0	13.0	6.56	5.25
MAX	26	12	6.0	10	10	47	63	117	42	23	9.3	6.9
MIN	8.1	3.5	4.5	4.5	6.0	9.0	29	30	14	7.9	3.9	4.4
AC-FT	764	511	319	448	464	1420	2600	3900	1430	800	403	312

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1994, BY WATER YEAR (WY)

MEAN	7.16	6.44	4.76	4.20	5.07	10.2	23.5	38.0	52.2	17.6	9.61	6.74
MAX	26.8	22.3	10.5	8.50	10.0	23.0	86.7	126	489	57.5	29.2	14.0
(WY)	1983	1983	1983	1983	1971	1994	1977	1978	1972	1972	1972	1972
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1946, 1967 - 1994	
ANNUAL TOTAL	9253.7		6740.1			
ANNUAL MEAN	25.4		18.5		15.4	
HIGHEST ANNUAL MEAN					55.1	1972
LOWEST ANNUAL MEAN					3.81	1989
HIGHEST DAILY MEAN	188	May 8	117	May 6	6700	Jun 10 1972
LOWEST DAILY MEAN	2.0	Feb 17	3.5	Nov 25	.10	Aug 8 1989
ANNUAL SEVEN-DAY MINIMUM	2.6	Jan 1	4.6	Aug 23	.14	Aug 4 1989a
INSTANTANEOUS PEAK FLOW			125	May 6	30100	Jun 9 1972b
INSTANTANEOUS PEAK STAGE			2.98	May 6	20.40	Jun 9 1972c
ANNUAL RUNOFF (AC-FT)	18350		13370		11160	
10 PERCENT EXCEEDS	62		45		31a	
50 PERCENT EXCEEDS	13		10		7.4a	
90 PERCENT EXCEEDS	3.6		5.0		2.4a	

e Estimated
a Reflects water years 1967-94 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).

CHEYENNE RIVER BASIN

06422500 BOXELDER CREEK NEAR NEMO, SD--Continued

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Precipitation recorder.

AVERAGE ANNUAL PRECIPITATION.--5 years (water years 1989, 1991-94), 15.22 in.

REMARKS.--Records fair.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00
2	.00	.00	.01	.00	.00	.00	.00	.21	.15	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.06	.00	.10	.00	.00
4	.00	.00	.08	.00	.00	.00	.22	.00	.24	.00	.00	.00
5	.00	.00	.05	.00	.00	.00	.00	.12	.00	.03	.06	.00
6	.00	.00	.00	.00	.00	.04	.00	.06	.00	.92	.00	.00
7	.00	.00	.00	.00	.04	.00	.12	.00	.19	.02	.00	.00
8	.17	.00	.00	.00	.09	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.01	.00	.01	.00	.00	.00	.00	.00	.00
12	.03	.01	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00
13	.00	.01	.01	.08	.00	.00	.00	.46	.00	.20	.00	.00
14	.33	.00	.00	.03	.00	.00	.06	.00	.00	.00	.00	.29
15	.14	.00	.00	.00	.00	.00	.00	.00	.02	.00	.09	.10
16	.49	.00	.27	.00	.00	.00	.00	.00	.00	.23	.31	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.10	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00
19	.00	.00	.00	.00	.00	.03	.00	.10	.00	.04	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00
21	.00	.00	.00	.00	.01	.00	.00	.00	.03	.00	.00	.00
22	.00	.01	.00	.00	.00	.00	.06	.00	.18	.00	.00	.00
23	.00	.08	.03	.00	.00	.09	.05	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.04	.00	.08	.04	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.45	.00	.00	.00	.00	.00
26	.00	.06	.00	.00	.00	.04	.44	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.11	.01	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.02	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.01	.00
31	.00	---	.00	.00	---	.01	---	.00	---	.00	.19	---
TOTAL	1.26	0.17	0.45	0.12	0.19	0.35	1.49	1.11	0.84	1.67	0.66	0.39

CAL YR 1993 TOTAL 20.64
WTR YR 1994 TOTAL 8.70

CHEYENNE RIVER BASIN

06422600 BOXELDER CREEK AT CAMP COLUMBUS, NEAR NEMO, SD

WATER-DISCHARGE RECORDS

LOCATION.--Lat 44°07'30", long 103°25'30", in SE1/4 NW1/4 sec.17, T.2 N., R.6 E., Pennington County, Hydrologic Unit 10120111, 0.2 mi southeast of Camp Columbus, 3.4 mi downstream from Jim Creek, and 6.0 mi southeast of Nemo.

PERIOD OF RECORD.--June 1978 to September 1980 (discontinued).

PRECIPITATION RECORDS

PERIOD OF DAILY RECORD.--
PRECIPITATION: October 1988 to current year (seasonal records).

INSTRUMENTATION.--Non-shielded, 4.0-in. diameter plastic gage with 11-in. capacity. Elevation of gage is 4,260 ft above sea level, from topographic map.

REMARKS.--Records poor. Gage is located 0.2 mi northeast of discontinued streamflow gaging station. Precipitation gage is read daily by observer at approximately 0700 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.02	.00	.00	---
2	---	---	---	---	---	---	---	.29	.00	.00	.00	---
3	---	---	---	---	---	---	---	.06	.19	.00	.00	---
4	---	---	---	---	---	---	---	.00	.00	.13	.00	---
5	---	---	---	---	---	---	---	.00	.00	.00	.00	---
6	---	---	---	---	---	---	---	.25	.24	.35	.13	---
7	---	---	---	---	---	---	---	.00	.00	.00	.01	---
8	---	---	---	---	---	---	---	.00	.37	.00	.00	---
9	---	---	---	---	---	---	---	.00	.00	.00	.00	---
10	---	---	---	---	---	---	---	.00	.00	.00	.00	---
11	---	---	---	---	---	---	---	.00	.00	.00	.00	---
12	---	---	---	---	---	---	---	.00	.00	.00	.00	---
13	---	---	---	---	---	---	---	.00	.00	.09	.00	---
14	---	---	---	---	---	---	---	.53	.00	.25	.00	---
15	---	---	---	---	---	---	---	.00	.00	.02	.00	---
16	---	---	---	---	---	---	---	.00	.00	.00	.45	---
17	---	---	---	---	---	---	---	.00	.00	.20	.29	---
18	---	---	---	---	---	---	---	.00	.04	.00	.00	---
19	---	---	---	---	---	---	---	.00	.00	.00	.00	---
20	---	---	---	---	---	---	---	.24	.00	.00	.00	---
21	---	---	---	---	---	---	---	.03	.00	.00	.00	---
22	---	---	---	---	---	---	---	.00	.85	.00	.00	---
23	---	---	---	---	---	---	---	.00	.20	.00	.00	---
24	---	---	---	---	---	---	---	.06	.00	.00	.00	---
25	---	---	---	---	---	---	---	.00	.00	.00	.00	---
26	---	---	---	---	---	---	---	.00	.00	.00	.00	---
27	---	---	---	---	---	---	---	.00	.00	.00	.00	---
28	---	---	---	---	---	---	---	.00	.00	.00	.00	---
29	---	---	---	---	---	---	---	.00	.00	.00	.02	---
30	---	---	---	---	---	---	---	.00	.00	.10	.02	---
31	---	---	---	---	---	---	---	.00	---	.00	.25	---
TOTAL	---	---	---	---	---	---	---	1.46	1.91	1.14	1.17	---

CHEYENNE RIVER BASIN

06423010 BOXELDER CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°07'54", long 103°17'54", in NW1/4 SE1/4 sec.17, T.2 N., R.7 E., Pennington County, Hydrologic Unit 10120111, near center span on downstream side of bridge on State Highway 79, and 4.0 mi northwest of Rapid City.

DRAINAGE AREA.--128 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 poor. 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.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	e1.1	e.19	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	e20	e.19	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	e43	e.19	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	45	e.19	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	49	e.18	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	54	e.18	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	50	e.18	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	38	e.18	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	31	e.18	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	27	e.18	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	21	e.18	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	18	e.17	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	17	e.17	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	27	e.17	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	25	e.17	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	17	e.17	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	8.7	e.17	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	4.9	e.16	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	2.9	e.16	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	2.3	e.16	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	1.2	e.16	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.52	e.16	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.33	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.21	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	e.20	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	e.20	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	e.20	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	e.20	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	e.20	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	e.19	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	e.19	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	505.54	3.84	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	16.3	.13	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	54	.19	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.19	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	1000	7.6	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1994, BY WATER YEAR (WY)

MEAN	.000	.000	.000	.000	.000	.000	.29	4.36	5.88	.53	.24	.020
MAX	.000	.000	.000	.000	.000	.000	4.67	34.7	40.3	7.06	3.82	.33
(WY)	1979	1979	1979	1979	1979	1979	1983	1983	1993	1984	1984	1984
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1979 - 1994	
ANNUAL TOTAL	1277.13		509.38			
ANNUAL MEAN	3.50		1.40		.94	
HIGHEST ANNUAL MEAN					4.06	1984
LOWEST ANNUAL MEAN					.000	1979a
HIGHEST DAILY MEAN	102	Jun 9	54	May 6	114	Jun 7 1991
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1b	.00	Oct 1 1978b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Oct 1 1978
INSTANTANEOUS PEAK FLOW			49	May 3	253	May 18 1978c
INSTANTANEOUS PEAK STAGE			31.40	May 3	31.65	Jun 17 1993
ANNUAL RUNOFF (AC-FT)	2530		1010		684	
10 PERCENT EXCEEDS	.00		.18		.00	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a Also 1980, 1981, 1985-90, 1992.
b For most months in most years.
c Gage height, 31.14 ft, from floodmark.

06423500 CHEYENNE RIVER NEAR WASTA, SD

LOCATION.--Lat 44°04'52", long 102°24'03", in NE1/4 NE1/4 NW1/4 sec.2, T.1 N., R.14 E., Pennington County, Hydrologic Unit 10120111, on left bank at downstream side of highway bridge, 200 ft downstream from railroad bridge, 3.0 mi east of Wasta, and 8.6 mi downstream from Boxelder Creek.

DRAINAGE AREA.--12,800 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 dams on Rapid Creek since August 1956. Prior to October 1956, 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 discharge, 0.8 ft^3/s, July 17, 1954. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. National Weather Service telemeter and U.S. Army Corps of Engineers satellite data-collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1920 reached a stage of 18 ft, present datum, from information by local residents.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	195	226	e260	e298	e135	1510	320	738	89	47	41	95
2	191	226	e275	e300	e130	3300	312	711	85	48	38	96
3	186	226	e300	e300	e120	3870	306	624	84	42	68	102
4	180	227	e320	e300	e115	3270	301	588	94	45	159	113
5	166	219	e340	e290	e118	3270	269	619	87	44	73	105
6	163	208	e350	e280	e110	2230	285	576	91	51	61	95
7	160	215	e345	e260	e102	1970	281	764	131	82	64	74
8	167	230	e340	e250	e100	e1850	302	570	1570	125	73	79
9	179	218	e338	e250	e95	e1700	305	483	1340	96	67	64
10	417	220	e335	e245	e90	1600	244	471	431	82	73	62
11	301	217	e330	e230	e93	1580	236	408	216	68	83	65
12	236	221	e320	e235	e100	1470	243	373	168	53	77	75
13	195	231	e320	e240	e130	1230	257	364	137	479	90	62
14	181	239	e315	e235	e170	1240	258	352	118	85	114	63
15	180	226	e305	e225	e200	1160	271	400	117	64	93	56
16	200	224	e295	e210	e400	791	302	351	114	97	92	56
17	363	227	e285	e200	e1000	693	320	328	104	91	322	55
18	292	253	e260	e190	e4000	631	329	306	108	81	213	59
19	209	321	e250	e185	e2010	584	294	286	112	62	98	61
20	182	311	e255	e180	e1290	548	331	277	110	60	78	67
21	179	279	e260	e175	e860	504	227	324	104	60	67	62
22	181	278	e270	e180	e645	470	218	312	111	58	62	64
23	185	e260	e270	e190	e635	421	217	641	396	51	70	70
24	212	e250	e274	e200	e652	391	209	428	148	41	62	85
25	225	e220	e280	e190	e720	376	242	286	108	40	58	83
26	222	e200	e300	e180	e830	355	256	264	83	48	58	87
27	228	e200	e290	e170	e940	346	284	210	67	56	56	95
28	222	e200	e280	e160	1150	325	644	172	61	60	40	89
29	230	e220	e290	e155	---	318	690	150	54	46	49	82
30	223	e245	e290	e150	---	322	601	122	51	38	67	79
31	221	---	e295	e140	---	320	---	97	---	34	69	---
TOTAL	6671	7037	9237	6793	16940	38645	9354	12595	6489	2334	2635	2300
MEAN	215	235	298	219	605	1247	312	406	216	75.3	85.0	76.7
MAX	417	321	350	300	4000	3870	690	764	1570	479	322	113
MIN	160	200	250	140	90	318	209	97	51	34	38	55
AC-FT	13230	13960	18320	13470	33600	76650	18550	24980	12870	4630	5230	4560

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1994, BY WATER YEAR (WY)*

MEAN	142	130	103	96.7	153	368	377	690	901	335	154	125
MAX	639	235	298	448	669	1247	1595	2527	5270	1739	363	305
(WY)	1983	1994	1994	1974	1974	1994	1970	1978	1967	1962	1979	1986
MIN	44.8	57.7	31.2	5.04	25.1	90.8	54.8	65.8	36.9	34.7	25.4	33.4
(WY)	1961	1961	1962	1991	1991	1981	1961	1989	1989	1960	1989	1961

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1957 - 1994*	
ANNUAL TOTAL	165961		121030			
ANNUAL MEAN	455		332		298a	
HIGHEST ANNUAL MEAN					735	1967
LOWEST ANNUAL MEAN					76.8	1961
HIGHEST DAILY MEAN	8640	May 6	4000	Feb 18	19200	Jun 16 1967
LOWEST DAILY MEAN	40	Feb 18	34	Jul 31	1.0	Jul 27 1961b
ANNUAL SEVEN-DAY MINIMUM	48	Feb 14	45	Jul 27	4.0	Jan 21 1991
INSTANTANEOUS PEAK FLOW			7690	Mar 2c	26900	May 25 1957d
INSTANTANEOUS PEAK STAGE			7.61	Feb 18f	16.25	Mar 5 1982g
ANNUAL RUNOFF (AC-FT)	329200		240100		215800	
10 PERCENT EXCEEDS	1000		637		516	
50 PERCENT EXCEEDS	273		220		113	
90 PERCENT EXCEEDS	77		62		50	

e Estimated
* Regulated period only (1957-94). See REMARKS.
a Median of annual mean discharges, 269 ft^3/s.
b Minimum discharge, 0.6 ft^3/s, July 1961.
c Gage height, 7.00 ft.
d Gage height, 12.42 ft.
f Backwater from ice, from floodmark.
g Backwater from ice.

CHEYENNE RIVER BASIN

06424000 ELK CREEK NEAR ROUBAIX, SD

LOCATION.--Lat 44°17'41", long 103°35'47", in SE1/4 NE1/4 sec.23, T.4 N., R.4 E., Lawrence County, Hydrologic Unit 10120111, on right bank approximately 2.5 mi upstream from mouth of Meadow Creek, 3.0 mi east of Roubaix, and 9.0 mi southwest of Sturgis.

DRAINAGE AREA.--21.5 mi^2.

WATER-DISCHARGE RECORDS

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 poor. Two water-quality samples were collected during the year and analytical results will be published in a later report. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	3.1	e2.5	e2.5	e3.4	e7.0	e24	e45	11	4.8	3.8	3.0
2	2.7	3.3	e2.4	e2.5	e3.4	e10	e26	e50	13	4.6	4.3	3.0
3	2.6	2.9	e2.4	e2.4	e3.4	e15	e26	e58	11	4.9	4.2	2.7
4	2.5	2.6	e2.0	e2.2	e3.6	e18	e30	e64	11	5.7	3.8	2.6
5	2.5	e2.4	e2.0	e2.2	e3.6	e20	e28	e75	11	4.6	3.7	2.5
6	2.5	e2.0	e2.0	e2.0	e3.0	e18	e30	e95	10	8.4	3.5	2.4
7	2.5	e2.2	e1.7	e1.8	e2.5	e18	e30	e70	11	8.2	3.3	2.3
8	2.8	e2.4	e1.9	e2.3	e1.8	e18	e30	e60	11	6.0	3.4	2.3
9	2.9	e2.4	e2.0	e3.0	e1.5	e16	e30	e60	9.5	5.4	3.3	2.4
10	2.9	e2.5	e2.2	e3.4	e2.0	e14	e34	e55	9.0	4.8	3.3	2.3
11	2.7	e2.5	e2.4	e3.6	e3.0	e16	e36	e45	8.6	4.3	3.2	2.3
12	2.6	e2.5	e2.4	e3.8	e3.5	e24	e36	37	8.4	4.5	3.2	2.3
13	2.6	e2.5	e2.3	e3.8	e3.0	e28	e40	45	8.1	5.1	3.0	2.3
14	3.0	e2.4	2.4	e4.0	e4.5	e30	e40	40	7.8	4.9	2.8	2.6
15	4.9	e2.4	2.4	e4.0	e4.5	e30	e45	33	7.7	4.8	2.7	3.6
16	5.1	e2.4	2.4	e4.0	e4.5	e35	e55	30	9.2	4.8	2.7	3.5
17	3.9	e2.4	2.4	e3.8	e4.5	e40	e70	26	8.5	4.5	3.2	2.9
18	3.7	e2.5	2.4	e3.6	e4.5	e45	e75	25	8.0	4.3	2.6	2.8
19	4.0	e2.5	2.4	e4.0	e5.0	e48	e75	24	7.4	4.3	2.6	2.9
20	3.1	e2.5	2.5	e5.0	e4.5	e50	e75	24	7.1	4.1	2.6	2.9
21	2.8	e2.5	2.4	e5.2	e4.5	e50	e75	21	7.4	3.8	2.5	3.6
22	2.9	e2.3	e2.2	e5.2	e4.5	e48	e70	20	9.1	3.6	2.3	3.7
23	2.9	e2.1	e2.4	e5.2	e4.5	e44	e65	18	7.8	3.4	2.2	3.3
24	2.9	e2.0	e2.5	e5.2	e3.5	e40	e65	18	6.5	3.4	2.2	3.1
25	2.9	e2.0	e2.5	e5.0	e3.5	e35	e60	17	5.8	3.5	2.2	3.0
26	2.8	e2.0	e2.5	e5.0	e4.5	e30	e50	16	5.6	3.7	2.2	2.9
27	2.9	e2.4	e2.3	e5.0	e5.0	e28	e45	14	5.2	3.4	2.0	3.0
28	2.9	e2.5	e2.3	e5.0	e5.5	e26	e45	12	5.1	3.3	2.1	3.0
29	2.3	e2.5	e2.3	e5.0	---	e24	e45	12	5.0	3.7	2.2	3.1
30	2.9	e2.5	e2.3	e4.5	---	e24	e45	11	4.8	3.7	2.5	3.3
31	3.7	---	e2.5	e4.0	---	e24	---	11	---	3.8	2.8	---
TOTAL	94.1	73.2	71.3	118.2	105.2	873.0	1400	1131	250.6	142.3	90.4	85.6
MEAN	3.04	2.44	2.30	3.81	3.76	28.2	46.7	36.5	8.35	4.59	2.92	2.85
MAX	5.1	3.3	2.5	5.2	5.5	50	75	95	13	8.4	4.3	3.7
MIN	2.3	2.0	1.7	1.8	1.5	7.0	24	11	4.8	3.3	2.0	2.3
AC-FT	187	145	141	234	209	1730	2780	2240	497	282	179	170

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1994, BY WATER YEAR (WY)

MEAN	2.09	2.03	1.85	2.27	2.34	12.4	20.8	23.2	14.8	6.68	3.23	2.54
MAX	3.04	2.44	2.30	3.81	3.76	28.2	46.7	36.5	31.0	11.7	4.77	3.38
(WY)	1994	1994	1994	1994	1994	1994	1994	1994	1993	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1992 - 1994	
ANNUAL TOTAL	3215.25		4434.9			
ANNUAL MEAN	8.81		12.2		7.89	
HIGHEST ANNUAL MEAN					12.2	1994
LOWEST ANNUAL MEAN					2.99	1992
HIGHEST DAILY MEAN	94	Jun 8	95	May 6	95	May 6 1994
LOWEST DAILY MEAN	.43	Feb 25	1.5	Feb 9	.43	Feb 25 1993
ANNUAL SEVEN-DAY MINIMUM	.69	Feb 21	2.0	Dec 4	.69	Feb 21 1993
INSTANTANEOUS PEAK FLOW			103	May 5	154	Jun 8 1993
INSTANTANEOUS PEAK STAGE			7.70	May 5	7.87	Jun 8 1993
ANNUAL RUNOFF (AC-FT)	6380		8800		5700	
10 PERCENT EXCEEDS	23		40		21	
50 PERCENT EXCEEDS	3.3		3.8		3.1	
90 PERCENT EXCEEDS	.94		2.3		1.1	

e Estimated

CHEYENNE RIVER BASIN

06424000 ELK CREEK NEAR ROUBAIX, SD--Continued

PRECIPITATION RECORDS

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 5,010 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.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.02	.00	.00	.00
2	---	---	---	---	---	---	---	.00	.17	.00	.15	.00
3	---	---	---	---	---	---	---	.02	.00	.38	.00	.00
4	---	---	---	---	---	---	---	.05	.07	.00	.00	.00
5	---	---	---	---	---	---	---	.31	.00	.46	.00	.00
6	---	---	---	---	---	---	---	.02	.00	.45	.00	.00
7	---	---	---	---	---	---	---	.00	.51	.09	.00	.00
8	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
9	---	---	---	---	---	---	---	.00	.07	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
12	---	---	---	---	---	---	---	.00	.00	.23	.06	.00
13	---	---	---	---	---	---	---	.75	.00	.04	.00	.09
14	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.10	.18	.22	.47
16	---	---	---	---	---	---	---	.00	.00	.04	.00	.00
17	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.00	.13	.00	.00
19	---	---	---	---	---	---	---	.03	.00	.04	.00	.00
20	---	---	---	---	---	---	---	.00	.00	.02	.00	.09
21	---	---	---	---	---	---	---	.00	.10	.00	.00	.10
22	---	---	---	---	---	---	---	.00	.37	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
24	---	---	---	---	---	---	---	.11	.00	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.02	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.34	.00
30	---	---	---	---	---	---	---	.00	.00	.00	.24	.00
31	---	---	---	---	---	---	---	.00	---	.00	.03	---
TOTAL	---	---	---	---	---	---	---	1.29	1.41	2.08	1.04	0.75

CHEYENNE RIVER BASIN

06425100 ELK CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°14'25", long 103°09'03", in NE1/4 NE1/4 sec.9, T.3 N., R.8 E., Meade County, Hydrologic Unit 10120110, 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 fair 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	e.72	e.00	e.50	3.6	21	.33	.00	.00	.00
2	.00	.00	.00	e.72	e.00	e7.0	3.7	44	.27	.00	.00	.00
3	.00	.00	.00	e.80	e.00	e78	3.5	33	.20	.00	.00	.00
4	.00	.00	.00	e.83	e.00	e72	3.8	26	.16	.00	.00	.00
5	.00	.00	.00	e.88	e.00	e70	4.0	18	.14	.00	.00	.00
6	.00	.00	.00	e.90	e.00	69	4.0	13	.12	.00	.00	.00
7	.00	.00	.00	e.80	e.00	63	4.2	11	.17	.00	.00	.00
8	.00	.00	.00	e.80	e.00	48	4.6	13	.27	.00	.00	.00
9	.00	.00	.00	e.90	e.00	34	4.6	9.1	.32	.00	.00	.00
10	.00	.00	.00	e.26	e.00	23	4.5	7.0	.31	.00	.00	.00
11	.00	.00	.00	e.26	e.00	19	4.4	5.9	1.0	.00	.00	.00
12	.00	.00	.00	e.17	e.00	14	4.2	5.2	1.1	.00	.00	.00
13	.00	.00	.00	e.16	e.00	14	3.8	4.9	.69	.00	.00	.00
14	.00	.00	.00	e.16	e.00	14	3.7	4.8	.47	.00	.00	.00
15	.00	.00	.00	e.10	e.00	11	3.4	4.4	.28	.00	.00	.00
16	.00	.00	.00	e.00	e.00	10	3.1	4.4	.19	.00	.00	.00
17	.00	.00	.00	e.01	e.00	8.6	3.0	4.3	.14	.00	.00	.00
18	.00	.00	.00	e.00	e.00	6.7	2.9	3.6	.10	.00	.00	.00
19	.00	.00	.00	e.00	e.00	6.0	2.4	3.2	.07	.00	.00	.00
20	.00	.00	.00	e.00	e.00	5.4	2.3	3.1	.02	.00	.00	.00
21	.00	.00	e1.8	e.00	e.00	4.8	2.4	2.7	.00	.00	.00	.00
22	.00	.00	e.80	e.00	e.00	4.4	2.4	2.2	.05	.00	.00	.00
23	.00	.00	e.80	e.00	e.00	4.1	2.6	1.9	.03	.00	.00	.00
24	.00	.00	e.80	e.00	e.00	3.7	2.7	1.7	.00	.00	.00	.00
25	.00	.00	e.80	e.00	e.00	3.5	2.8	1.6	.00	.00	.00	.00
26	.00	.00	e.78	e.00	e.00	3.5	4.1	1.4	.00	.00	.00	.00
27	.00	.00	e.80	e.00	e.00	3.6	4.8	1.1	.00	.00	.00	.00
28	.00	.00	e1.7	e.00	e.00	3.7	5.6	.91	.00	.00	.00	.00
29	.00	.00	e.80	e.00	---	3.4	3.8	.77	.00	.00	.00	.00
30	.00	.00	e.88	e.00	---	3.4	4.6	.57	.00	.00	.00	.00
31	.00	---	e.77	e.00	---	3.5	---	.42	---	.00	.00	---
TOTAL	0.00	0.00	10.73	8.47	0.00	614.80	109.5	254.17	6.43	0.00	0.00	0.00
MEAN	.000	.000	.35	.27	.000	19.8	3.65	8.20	.21	.000	.000	.000
MAX	.00	.00	1.8	.90	.00	78	5.6	44	1.1	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.50	2.3	.42	.00	.00	.00	.00
AC-FT	.00	.00	21	17	.00	1220	217	504	13	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1994, BY WATER YEAR (WY)

MEAN	3.16	1.31	1.18	1.37	4.81	6.09	5.33	19.2	8.70	2.31	.79	.64
MAX	31.9	7.46	5.72	6.78	51.8	19.8	31.4	90.5	89.2	17.4	8.75	5.88
(WY)	1983	1985	1985	1983	1986	1994	1986	1982	1984	1984	1984	1984
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1980 - 1994	
ANNUAL TOTAL	1675.72		1004.10			
ANNUAL MEAN	4.59		2.75		4.58	
HIGHEST ANNUAL MEAN					16.3	1984
LOWEST ANNUAL MEAN					.000	1992
HIGHEST DAILY MEAN	333	May 9	78	Mar 3	1060	May 20 1982
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Oct 1 1979a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Oct 1 1979
INSTANTANEOUS PEAK FLOW			90	Mar 3	1560	May 20 1982b
INSTANTANEOUS PEAK STAGE			8.20	Mar 3c	11.80	Feb 26 1986c
ANNUAL RUNOFF (AC-FT)	3320		1990		3320	
10 PERCENT EXCEEDS	4.3		4.7		7.3	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a No flow for many days in each year.
b Gage height, 10.79 ft.
c Backwater from ice.

CHEYENNE RIVER BASIN

06425500 ELK CREEK NEAR ELM SPRINGS, SD

LOCATION.--Lat 44°14'54", long 102°30'10", in SW1/4 NW1/4 sec.1, T.3 N., R.13 E., Meade County, Hydrologic Unit 10120111, on left bank near downstream end of county highway bridge, 1.4 mi downstream from Hay Draw, 5.0 mi southeast of Elm Springs, and 7.0 mi upstream from mouth.

DRAINAGE AREA.--540 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 fair. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.81	e.25	e.10	.00	e.00	7.4	18	4.8	2.3	.00	.16
2	.01	1.5	e.30	e.20	.00	e4.0	7.1	20	5.2	1.8	.00	.02
3	.03	1.0	e.33	e.40	.00	e1300	7.0	19	5.2	1.4	.14	.00
4	.03	.86	e.37	e.90	.00	e1100	7.6	23	4.9	1.4	.00	.00
5	.06	.45	e.40	e.20	.00	823	8.6	25	4.9	1.3	.02	.00
6	.07	e.06	e.30	e.05	.00	434	9.5	22	5.0	2.5	.00	.00
7	.02	.00	e.18	e.00	.00	227	9.4	20	5.2	2.7	.00	.00
8	.20	.27	e.10	e.00	.00	133	9.0	18	1650	2.1	.00	.00
9	.29	e.20	e.15	.00	.00	98	8.3	15	255	1.6	.00	.00
10	.23	e.14	e.20	.00	.00	81	7.7	13	96	1.4	.00	.00
11	.20	e.10	e.15	.00	.00	72	7.2	11	54	1.0	.93	.00
12	.19	e.07	e.10	.00	.00	65	7.6	11	30	.90	1.0	.00
13	.47	e.04	e.05	.00	.00	59	7.9	11	24	1.4	.31	.00
14	.85	e.02	e.02	.00	.00	54	7.4	12	15	1.2	.12	.00
15	.62	e.00	e.00	.00	.00	53	8.1	12	10	1.3	.00	.00
16	1.0	e.00	e.00	.00	e.04	43	7.7	12	8.1	1.4	.06	.00
17	1.4	e.00	e.00	.00	e.20	38	6.9	11	6.9	1.0	.01	.00
18	1.7	e.00	e.00	.00	e1.0	32	6.4	9.7	6.2	.74	.00	.00
19	1.2	e.00	.00	.00	e.30	27	6.5	9.6	5.7	.72	.00	.00
20	2.1	e.00	.00	.00	e.10	24	6.4	8.5	4.7	.59	.00	.00
21	2.1	e.00	.00	.00	e.03	21	6.1	7.4	4.3	.55	.00	.00
22	.26	e.00	.00	.00	e.00	19	6.1	7.3	4.8	.38	.00	.00
23	.81	.00	.00	.00	e.00	16	6.0	7.9	4.9	.13	.00	.00
24	1.7	.00	.00	.00	e.00	14	5.7	7.4	5.8	.02	.00	.00
25	.99	.00	.00	.00	e.00	12	5.9	6.8	5.8	.00	.00	.00
26	.95	.00	.00	.00	e.00	9.8	7.8	5.9	4.1	.00	.00	.00
27	.74	.00	.00	.00	e.00	8.3	9.2	5.7	2.6	.00	.00	.00
28	1.3	.00	.00	.00	e.00	8.0	10	5.3	2.4	.00	.00	.00
29	.91	e.05	.00	.00	---	8.6	11	4.5	2.4	.00	.00	.00
30	.58	e.20	.00	.00	---	8.2	13	3.2	1.9	.00	.00	.00
31	.24	---	.00	.00	---	7.8	---	3.8	---	.00	.00	---
TOTAL	21.25	5.77	2.90	1.85	1.67	4799.70	234.5	366.0	2239.8	29.83	2.59	0.18
MEAN	.69	.19	.094	.060	.060	155	7.82	11.8	74.7	.96	.084	.006
MAX	2.1	1.5	.40	.90	1.0	1300	13	25	1650	2.7	1.0	.16
MIN	.00	.00	.00	.00	.00	.00	5.7	3.2	1.9	.00	.00	.00
AC-FT	42	11	5.8	3.7	3.3	9520	465	726	4440	59	5.1	.4

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1994, BY WATER YEAR (WY)

MEAN	4.03	1.39	1.09	.84	7.37	39.0	44.2	82.4	61.0	9.03	2.28	1.09
MAX	152	10.5	9.60	6.14	130	327	288	513	708	72.5	20.8	26.8
(WY)	1983	1972	1968	1968	1971	1978	1970	1982	1967	1962	1953	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1950 - 1994	
ANNUAL TOTAL	9811.99		7706.04			
ANNUAL MEAN	26.9		21.1		21.2	
HIGHEST ANNUAL MEAN					96.4	1967
LOWEST ANNUAL MEAN					.000	1961
HIGHEST DAILY MEAN	2170	May 8	1650	Jun 8	3880	May 21 1982
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1a	.00	Oct 1 1949a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Nov 15	.00	Oct 1 1949
INSTANTANEOUS PEAK FLOW			5570	Jun 8	8540	Mar 29 1952b
INSTANTANEOUS PEAK STAGE			14.21	Jun 8	14.21	Jun 8 1994c
ANNUAL RUNOFF (AC-FT)	19460		15280		15350	
10 PERCENT EXCEEDS	38		15		24	
50 PERCENT EXCEEDS	.85		.23		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a No flow for long periods in each year.
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 Backwater from ice.

BELLE FOURCHE RIVER BASIN

06427000 KEYHOLE RESERVOIR NEAR MOORCROFT, WY

LOCATION.--Lat 44°22'55", long 104°46'45", in NW1/4 NW1/4 sec.27, T.51 N., R.66 W., Crook County, Hydrologic Unit 10120201, at reservoir dam on Belle Fourche River, 12 mi northeast of Moorcroft.

DRAINAGE AREA.--2,000 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 capacity below elevation 4,099.3 ft (crest of spillway), 185,800 acre-ft. Siltation has eliminated dead storage. 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, 105,700 acre-ft, May 16, elevation, 4,087.60 ft; minimum, 67,200 acre-ft, Oct. 8, elevation, 4,079.52 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	4,079.58	67,500	-
Oct. 31	4,079.58	67,500	0
Nov. 30	4,079.61	67,600	+100
Dec. 31	4,079.77	68,200	+600
CAL YR 1993	-	-	+50,300
Jan. 31	4,079.98	69,000	+800
Feb. 28	4,082.63	80,300	+11,300
Mar. 31	4,086.92	101,900	+21,600
Apr. 30	4,087.14	103,100	+1,200
May 31	4,087.42	104,700	+1,600
June 30	4,086.70	100,700	-4,000
July 31	4,085.38	93,700	-7,000
Aug. 31	4,083.90	86,300	-7,400
Sept. 30	4,083.57	84,700	-1,600
WTR YR 1994	-	-	+17,200

BELLE FOURCHE RIVER BASIN

06428500 BELLE FOURCHE RIVER AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°44'59", long 104°02'49", in NE1/4 NW1/4 NW1/4 sec.18, T.9 N., R.1 E., Butte County, Hydrologic Unit 10120202, on left bank 0.3 mi downstream from State line, 3.7 mi downstream from Oak Creek, and 11 mi northwest of Belle Fourche, SD.

DRAINAGE AREA.--3,280 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. U.S. Bureau of Reclamation satellite data-collection platform at station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	29	e24	e28	e17	e40	123	493	87	56	90	62
2	24	26	e24	e28	e16	e60	121	527	88	84	92	63
3	24	26	e27	e27	e16	e800	128	474	90	78	95	66
4	25	24	e24	e25	e16	e800	139	399	86	74	93	61
5	24	21	e24	e25	e17	e450	141	341	82	72	93	54
6	24	20	e23	e24	e16	337	148	293	79	133	88	47
7	23	24	e23	e20	e15	254	139	255	76	302	82	49
8	24	24	e24	e20	e14	238	137	224	71	169	75	47
9	25	20	e24	e20	e9.0	277	137	198	72	134	78	45
10	25	23	e25	e20	e9.0	343	141	181	79	119	83	47
11	25	24	e25	e22	e10	281	135	168	96	156	81	46
12	25	26	e26	e26	e11	282	140	157	93	125	86	45
13	26	25	e28	e22	e11	302	136	175	88	117	104	39
14	26	22	e26	e20	e12	509	134	183	86	110	83	33
15	25	20	e23	e18	e11	448	139	184	81	111	76	32
16	25	24	e21	e17	e12	470	144	237	81	111	74	36
17	25	38	e21	e15	e16	487	137	213	93	106	72	26
18	25	32	e20	e16	e60	435	136	173	97	103	73	28
19	25	33	e20	e15	e200	374	148	153	101	104	72	29
20	25	24	e20	e14	e170	333	165	145	95	102	71	29
21	25	28	e20	e15	e100	298	185	137	85	98	75	22
22	27	33	e18	e18	e60	264	197	133	83	97	71	22
23	27	e22	e20	e18	e50	240	202	142	83	99	69	21
24	26	e16	e20	e19	e30	210	203	136	79	99	68	22
25	24	e18	e24	e17	e25	184	214	127	75	93	66	21
26	24	e20	e26	e17	e25	163	243	120	67	93	65	20
27	24	e20	e24	e17	e25	146	261	112	63	91	60	20
28	23	e22	e18	e17	e30	131	270	109	62	87	58	20
29	23	e26	e20	e17	---	127	269	103	57	87	56	19
30	22	e24	e25	e17	---	122	345	97	56	97	59	19
31	22	---	e25	e17	---	120	---	90	---	94	62	---
TOTAL	761	734	712	611	1003.0	9525	5157	6479	2431	3401	2370	1090
MEAN	24.5	24.5	23.0	19.7	35.8	307	172	209	81.0	110	76.5	36.3
MAX	27	38	28	28	200	800	345	527	101	302	104	66
MIN	22	16	18	14	9.0	40	121	90	56	56	56	19
AC-FT	1510	1460	1410	1210	1990	18890	10230	12850	4820	6750	4700	2160

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1994, BY WATER YEAR (WY)*

MEAN	24.2	20.0	15.5	13.8	27.3	141	150	208	182	96.5	75.2	34.2
MAX	118	65.9	41.0	59.4	117	931	823	1104	812	303	271	109
(WY)	1972	1972	1974	1974	1962	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1954 - 1994*	
ANNUAL TOTAL	32800.40		34274.0			
ANNUAL MEAN	89.9		93.9		82.5	
HIGHEST ANNUAL MEAN					229	1978
LOWEST ANNUAL MEAN					7.69	1961
HIGHEST DAILY MEAN	1690	Jun 30	800	Mar 3,4	3760	Jun 18 1962
LOWEST DAILY MEAN	.20	Jan 6	9.0	Feb 9,10	.00	Jul 30 1954a
ANNUAL SEVEN-DAY MINIMUM	.25	Jan 14	10	Feb 9	.00	Jul 30 1954
INSTANTANEOUS PEAK FLOW			800	Mar 3	4550	Jun 30 1993b
INSTANTANEOUS PEAK STAGE			11.01	Mar 3c	15.59	Jun 18 1962
ANNUAL RUNOFF (AC-FT)	65060		67980		59800	
10 PERCENT EXCEEDS	201		218		177	
50 PERCENT EXCEEDS	45		60		33	
90 PERCENT EXCEEDS	.76		18		4.0	

e Estimated
* Regulated period only (1954-94). See REMARKS.
a No flow at times in some years.
b Gage height, 14.03 ft.
c Backwater from ice.

BELLE FOURCHE RIVER BASIN

06429500 COLD SPRINGS CREEK AT BUCKHORN, WY

LOCATION.--Lat 44°09'15", long 104°04'37", in NW1/4 NW1/4 SW1/4 sec.9, T.48 N., R.60 W., Weston County, Hydrologic Unit 10120303, on right bank at downstream end of culvert at U.S. Highway 85 and 0.5 mi northeast of Buckhorn.

DRAINAGE AREA.--19.0 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.--Estimated daily discharges: Oct. 9, Nov. 5-8, 15-17, 19-21, 23-25, Dec. 13, 14, Jan. 4-8, Jan. 10 to Mar. 2, and Mar. 7-10, 24, 26, 30, 31. Records excellent except those for estimated daily discharges which are poor. No diversion upstream from station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	3.6	3.1	2.8	2.3	3.3	3.6	4.4	3.1	3.1	2.9	2.8
2	3.5	3.6	3.4	3.1	2.4	3.4	3.5	4.4	3.1	3.1	3.0	2.8
3	3.5	3.6	3.3	2.6	2.3	3.5	3.5	4.3	3.3	3.2	2.8	2.8
4	3.5	3.6	3.4	2.5	2.4	3.5	3.4	4.2	3.3	3.2	2.8	2.8
5	3.5	2.2	1.7	2.3	2.5	3.5	3.9	4.2	3.3	3.1	2.8	2.8
6	3.5	2.7	2.1	2.2	2.4	3.5	3.7	4.2	3.3	3.4	2.8	2.8
7	3.5	3.0	2.4	2.0	2.3	3.3	3.5	4.2	3.1	3.2	2.8	2.8
8	3.5	3.3	2.7	2.8	2.2	3.1	3.5	4.0	3.2	3.1	2.8	2.8
9	3.3	3.9	3.0	3.5	2.4	3.0	3.5	4.0	3.2	3.1	2.8	2.8
10	3.6	3.7	3.1	3.2	2.5	3.4	3.5	4.0	3.1	3.0	2.8	2.8
11	3.6	4.2	3.2	3.1	2.6	3.5	3.4	4.0	3.1	3.0	2.8	2.8
12	3.6	3.9	3.2	2.8	2.6	3.5	3.4	4.0	3.1	3.1	2.8	2.8
13	3.5	3.5	3.1	2.6	2.7	3.5	3.4	4.0	3.1	3.1	2.8	2.8
14	3.5	3.5	2.8	2.5	2.7	3.5	3.3	3.8	3.1	3.0	2.8	2.8
15	3.6	3.4	2.5	2.3	2.9	3.5	3.3	3.8	3.2	3.0	2.7	3.0
16	3.7	3.0	2.7	2.2	3.1	3.5	3.5	3.8	3.3	3.0	2.7	3.0
17	3.6	3.3	2.7	2.1	3.3	3.5	3.7	3.6	3.1	3.0	2.7	3.0
18	3.5	3.5	2.9	2.1	3.2	3.5	3.7	3.6	3.1	3.0	2.7	3.0
19	3.5	3.1	3.0	2.2	3.1	3.6	3.8	3.5	3.2	3.0	2.7	3.0
20	3.5	3.3	3.1	2.2	3.0	3.5	4.0	3.6	3.3	3.0	2.7	3.0
21	3.3	3.4	2.8	2.3	2.9	3.5	4.2	3.6	3.3	3.0	2.7	3.0
22	3.1	3.5	3.0	2.4	2.9	3.5	4.4	3.6	3.3	3.0	2.8	3.0
23	3.1	1.6	2.2	2.4	2.9	3.3	4.7	3.5	3.3	3.0	2.8	3.0
24	3.1	1.9	2.2	2.5	2.8	3.7	4.7	3.5	3.3	3.0	2.8	3.0
25	3.1	2.1	1.6	2.3	2.7	3.5	4.9	3.5	3.3	3.0	2.8	3.0
26	3.1	2.3	2.4	2.3	2.8	3.5	2.5	3.5	3.1	3.0	2.8	3.0
27	2.5	2.5	2.6	2.4	3.0	3.2	3.8	3.4	3.1	3.0	2.8	3.0
28	1.5	2.7	2.6	2.5	3.2	3.1	4.5	3.3	3.1	2.9	2.8	3.1
29	1.2	2.7	2.7	2.5	---	3.5	4.5	3.2	3.1	2.8	2.8	3.1
30	2.9	2.8	2.8	2.4	---	3.6	4.4	3.1	3.1	2.8	2.8	3.1
31	3.4	---	2.8	2.4	---	3.8	---	3.1	---	2.8	2.8	---
TOTAL	100.8	93.4	85.1	77.5	76.1	106.8	113.7	116.9	95.6	94.0	86.4	87.5
MEAN	3.25	3.11	2.75	2.50	2.72	3.45	3.79	3.77	3.19	3.03	2.79	2.92
MAX	3.7	4.2	3.4	3.5	3.3	3.8	4.9	4.4	3.3	3.4	3.0	3.1
MIN	1.2	1.6	1.6	2.0	2.2	3.0	2.5	3.1	3.1	2.8	2.7	2.8
AC-FT	200	185	169	154	151	212	226	232	190	186	171	174

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1994, BY WATER YEAR (WY)

MEAN	4.24	4.06	4.05	3.90	4.03	4.25	4.54	4.32	4.44	4.34	4.48	4.35
MAX	5.58	5.48	5.59	5.09	5.43	5.54	6.17	5.37	5.55	5.90	5.84	5.63
(WY)	1978	1977	1977	1981	1976	1976	1976	1976	1978	1976	1980	1975
MIN	2.53	2.09	2.06	2.50	2.61	2.91	3.07	3.10	3.19	3.03	2.79	2.92
(WY)	1975	1993	1993	1994	1993	1993	1993	1993	1994	1994	1994	1994

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1975 - 1994	
ANNUAL TOTAL	1127.5		1133.8			
ANNUAL MEAN	3.09		3.11		4.28	
HIGHEST ANNUAL MEAN					5.37	1976
LOWEST ANNUAL MEAN					2.92	1993
HIGHEST DAILY MEAN	4.2	Nov 11	4.9	Apr 25	9.5	Apr 22 1980
LOWEST DAILY MEAN	1.2	Oct 29	1.2	Oct 29	.36	Nov 4 1992
ANNUAL SEVEN-DAY MINIMUM	2.3	Nov 23	2.2	Jan 15	1.2	Nov 2 1992
INSTANTANEOUS PEAK FLOW			6.8a	Apr 5	13b	Apr 1 1981
INSTANTANEOUS PEAK STAGE			3.23c	Nov 23	8.61d	Jan 12 1978
ANNUAL RUNOFF (AC-FT)	2240		2250		3100	
10 PERCENT EXCEEDS	3.5		3.7		5.5	
50 PERCENT EXCEEDS	3.1		3.1		4.4	
90 PERCENT EXCEEDS	2.6		2.4		3.0	

a Gage height, 2.32 ft, release from anchor ice.
b Gage height, 4.98 ft, site and datum then in use.
c Backwater from ice.
d Backwater from ice, site and datum then in use.

BELLE FOURCHE RIVER BASIN

06429900 SAND CREEK AT RANCH A, NEAR BEULAH, WY

WATER-DISCHARGE RECORDS

LOCATION.--Lat 44°29'42", long 104°06'34", in SW1/4 sec.18, T.52 N., R.60 W., Crook County, Hydrologic Unit 10120203, on right bank 0.35 mi downstream from headquarters building of Ranch A Fish Genetics Laboratory, 0.9 mi upstream from Hospital Gulch, and 3.6 mi south of Beulah.

PERIOD OF RECORD.--October 1974 to September 1976.

PRECIPITATION RECORDS

PERIOD OF RECORD.--October 1988 to September 1989, April 1991 to current year.

INSTRUMENTATION.--Shielded, 8.0-in. diameter plastic gage, 48 in. tall. Elevation of gage is 3,800 ft above sea level, from topographic map.

REMARKS.--Records poor. Precipitation gage is read daily by observer at approximately 0800 hours. Daily precipitation is for the previous 24 hours. Precipitation gage is located 0.3 mi south of specified location of streamflow gage.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.15	.05	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.20	.00	.00	.10	.00	.00	.00	.00
4	.00	.00	.00	.00	.15	.00	.20	.00	.15	.00	.00	.00
5	.00	.05	.37	.00	.00	.00	.15	.05	.00	.00	.00	.00
6	.00	.00	.00	.10	.00	.05	.00	.05	.00	.50	.00	.00
7	.00	.00	.00	.00	.05	.10	.00	.00	.00	.80	.00	.00
8	.20	.05	.00	.00	.00	.00	.20	.00	.15	.10	.20	.00
9	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00
13	.00	.00	.00	.10	.00	.00	.00	.05	.00	.10	.00	.00
14	.00	.20	.00	.00	.00	.00	.00	.65	.05	.25	.00	.20
15	.00	.00	.00	.10	.00	.00	.25	.00	.00	.00	.00	.00
16	.30	.00	.00	.00	.00	.00	.10	.35	.30	.00	.00	.40
17	.10	.00	.70	.20	.00	.00	.00	.00	.00	.00	.25	.00
18	.00	.00	.20	.10	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.05	.00	.30	.10	.00	.00	.00	.00	.05	.00	.80
20	.00	.00	.00	.20	.00	.00	.00	.65	.00	.00	.00	e.00
21	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00	.00	e.10
22	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	e.00
23	.00	.07	.10	.00	.00	.10	.00	.00	.00	.00	.00	e.00
24	.00	.00	.00	.00	.00	.25	.15	.10	.00	.00	.00	e.00
25	.00	.08	.00	.00	.25	.00	.70	.00	.00	.00	.00	e.00
26	.00	.43	.00	.00	.00	.00	1.00	.00	.00	.05	.00	e.00
27	.00	.00	.05	.00	.00	.00	.30	.00	.00	.00	.00	e.00
28	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00	.00	e.00
29	.00	.00	.00	.05	---	.20	.05	.00	.00	.00	.00	e.00
30	.00	.00	.00	.05	---	.20	.00	.00	.00	.00	.00	e.00
31	.00	---	.00	.10	---	.00	---	.00	---	.00	.50	---
TOTAL	0.80	0.93	1.42	1.45	0.85	0.90	3.20	2.00	0.65	1.85	1.05	1.50

CAL YR 1993 TOTAL 24.00
WTR YR 1994 TOTAL 16.60

e Estimated

BELLE FOURCHE RIVER BASIN

06429905 SAND CREEK NEAR RANCH A, NEAR BEULAH, WY

LOCATION.--Lat 44°31'07", long 104°04'57", in SE1/4 SE1/4 SW1/4 sec.5, T.52 N., R.60 W., Crook County, Hydrologic Unit 10120303, on right bank 1.0 mi upstream from Bear Gulch and 1.8 mi south of Beulah.

DRAINAGE AREA.--267 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.--Estimated daily discharges: Nov. 24, 25, Dec. 5, 17, Jan. 2, 3, 6, 7, 17-19, 29-31 and Feb. 7-9, 24-26. Records good except those for estimated daily discharges, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 700 ft^3/s, June 15, 1976, gage height, 7.77 ft, site and datum then in use, from slope-area measurement of peak flow at site 3 mi upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	16	17	17	16	16	16	19	19	18	17	17
2	17	16	17	17	16	16	16	19	19	18	17	17
3	17	16	17	17	16	16	16	21	19	18	17	17
4	17	16	17	17	16	16	17	24	19	18	17	17
5	17	16	16	17	16	16	17	26	19	18	17	17
6	17	16	17	16	16	16	17	27	19	20	16	17
7	17	16	17	15	15	16	17	25	19	19	16	17
8	17	16	17	17	13	16	17	20	19	18	16	17
9	17	16	17	17	15	16	17	19	19	18	17	17
10	17	16	17	17	16	16	16	19	19	18	16	17
11	17	16	17	17	16	16	16	19	19	18	17	17
12	17	16	17	17	16	16	16	19	19	18	17	17
13	17	16	18	17	16	16	16	20	19	18	16	17
14	17	16	18	17	16	16	17	19	19	18	16	17
15	17	16	18	17	16	16	17	19	19	18	16	17
16	17	16	18	17	16	16	17	19	19	18	16	17
17	17	16	17	16	16	16	17	19	19	17	16	17
18	16	16	18	15	17	16	17	19	19	17	16	17
19	16	16	18	17	17	16	17	19	19	17	16	17
20	16	16	18	16	16	17	16	20	19	17	16	17
21	16	16	18	16	16	17	16	19	19	17	16	17
22	16	17	18	16	16	17	17	19	19	17	16	17
23	16	17	18	16	16	17	25	20	19	17	16	17
24	16	14	18	16	15	16	26	20	19	17	16	16
25	16	15	18	16	14	16	30	20	19	17	16	16
26	17	17	17	16	15	16	25	20	19	17	16	16
27	17	17	17	16	16	16	19	19	19	17	17	16
28	16	17	17	16	16	17	19	19	18	17	17	16
29	16	18	17	16	---	17	19	19	18	16	17	16
30	16	17	17	15	---	16	19	19	19	16	17	16
31	16	---	17	16	---	16	---	19	---	17	18	---
TOTAL	515	485	538	508	441	502	547	624	568	544	510	503
MEAN	16.6	16.2	17.4	16.4	15.7	16.2	18.2	20.1	18.9	17.5	16.5	16.8
MAX	17	18	18	17	17	17	30	27	19	20	18	17
MIN	16	14	16	15	13	16	16	19	18	16	16	16
AC-FT	1020	962	1070	1010	875	996	1080	1240	1130	1080	1010	998

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1994, BY WATER YEAR (WY)

MEAN	21.2	21.2	20.8	20.1	19.1	19.5	20.7	27.9	24.3	22.6	20.7	20.3
MAX	28.5	28.2	26.3	25.9	25.0	27.0	30.8	53.9	36.3	31.2	28.5	28.3
(WY)	1978	1978	1979	1979	1977	1978	1978	1982	1978	1978	1978	1978
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1977 - 1994	
ANNUAL TOTAL	6089		6285			
ANNUAL MEAN	16.7		17.2		21.8	
HIGHEST ANNUAL MEAN					29.5	1978
LOWEST ANNUAL MEAN					15.7	1992
HIGHEST DAILY MEAN	30	Jun 9	30	Apr 25	322	May 16 1982
LOWEST DAILY MEAN	13	Feb 17	13	Feb 8	12	Mar 10 1992
ANNUAL SEVEN-DAY MINIMUM	14	Feb 15	15	Feb 3	13	Mar 8 1992
INSTANTANEOUS PEAK FLOW			37a	Apr 25	514	May 16 1982
INSTANTANEOUS PEAK STAGE			1.97b	Jan 7	7.35c	May 16 1982
ANNUAL RUNOFF (AC-FT)	12080		12470		15820	
10 PERCENT EXCEEDS	18		19		28	
50 PERCENT EXCEEDS	17		17		20	
90 PERCENT EXCEEDS	15		16		16	

a Gage height, 1.67 ft.
b Backwater from ice.
c Site and datum then in use.

BELLE FOURCHE RIVER BASIN

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

LOCATION.--Lat 44°34'35", long 104°03'20", in SW1/4 SW1/4 sec.7, T.7 N., R.1 E., Butte County, Hydrologic Unit 10120203, on right bank at State line and 12 mi southwest of Belle Fourche, SD.

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

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 estimated daily discharges, which are fair. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	28	.00	e.00	e.00	e.00	e.00	e.00	.00	12	.00	19
2	.19	.22	.00	e.00	e.00	e.00	e.00	e.00	.00	13	.00	20
3	.15	.00	.00	e.00	e.00	e.00	e.00	e.00	5.6	13	.00	20
4	.06	.00	.00	e.00	e.00	e.00	e.00	e.00	7.2	13	.00	21
5	.01	.00	.00	e.00	e.00	e.00	e.00	.00	8.2	13	.00	21
6	.00	.00	.00	e.00	e.00	e.00	e.00	.00	9.9	18	.00	21
7	5.0	.00	.00	e.00	e.00	e.00	e.00	.00	12	18	.00	21
8	7.2	.00	.00	e.00	e.00	e.00	e.00	.00	11	16	.00	25
9	7.3	.00	.00	e.00	e.00	e.00	e.00	.00	11	16	.00	25
10	5.3	.00	.00	e.00	e.00	e.00	e.00	.00	13	18	14	26
11	3.4	.00	.00	e.00	e.00	e.00	e.00	.00	13	19	36	27
12	4.1	.00	.00	e.00	e.00	e.00	e.00	.00	15	20	37	26
13	8.7	.00	.00	e.00	e.00	e.00	e.00	.00	19	14	44	25
14	8.7	.00	e.00	e.00	e.00	e.00	e.00	.00	9.1	12	32	16
15	8.7	.00	e.00	e.00	e.00	e.00	e.00	.00	.66	12	3.7	11
16	8.7	.00	e.00	e.00	e.00	e.00	e.00	.00	6.8	23	8.7	20
17	8.7	.00	e.00	e.00	e.00	e.00	e.00	.00	13	32	8.7	24
18	8.7	.00	e.00	e.00	e.00	e.00	e.00	.00	13	15	8.7	26
19	8.9	.00	e.00	e.00	e.00	e.00	e.00	.00	13	11	8.6	28
20	9.3	.00	e.00	e.00	e.00	e.00	e.00	.00	13	12	8.5	28
21	10	.00	e.00	e.00	e.00	e.00	e.00	.00	13	12	8.5	29
22	12	.00	e.00	e.00	e.00	e.00	e.00	.00	13	12	8.2	30
23	15	.00	e.00	e.00	e.00	e.00	e.00	.00	13	12	9.4	15
24	15	.00	e.00	e.00	e.00	e.00	e.00	.00	15	11	9.4	5.7
25	17	.00	e.00	e.00	e.00	e.00	e.00	.00	12	1.0	9.0	5.5
26	20	.00	e.00	e.00	e.00	e.00	e.00	.00	12	.01	11	5.7
27	22	.00	e.00	e.00	e.00	e.00	e.00	.00	12	.00	12	5.5
28	26	.00	e.00	e.00	e.00	e.00	e.00	.00	14	.00	13	5.5
29	27	.00	e.00	e.00	---	e.00	e.00	.00	14	.00	13	5.5
30	29	.00	e.00	e.00	---	e.00	e.00	.00	12	.00	14	5.5
31	31	---	e.00	e.00	---	e.00	---	.00	---	.00	15	---
TOTAL	327.24	28.22	0.00	0.00	0.00	0.00	0.00	0.00	323.46	368.01	332.40	562.9
MEAN	10.6	.94	.000	.000	.000	.000	.000	.000	10.8	11.9	10.7	18.8
MAX	31	28	.00	.00	.00	.00	.00	.00	19	32	44	30
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.5
AC-FT	649	56	.00	.00	.00	.00	.00	.00	642	730	659	1120

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1994, BY WATER YEAR (WY)

MEAN	7.40	.24	.000	.000	.000	.000	.008	1.59	8.13	10.4	9.60	9.37
MAX	20.6	.94	.000	.000	.000	.000	.054	6.30	13.9	16.4	18.2	18.8
(WY)	1991	1994	1988	1988	1988	1988	1989	1992	1988	1991	1991	1994
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.84	3.71	.80
(WY)	1988	1988	1988	1988	1988	1988	1988	1990	1991	1993	1993	1993

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1988 - 1994	
ANNUAL TOTAL	643.98		1942.23			
ANNUAL MEAN	1.76		5.32		3.92	
HIGHEST ANNUAL MEAN					5.32	1994
LOWEST ANNUAL MEAN					.92	1993
HIGHEST DAILY MEAN	31	Oct 31	44	Aug 13	46	Oct 8 1990
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 6a	.00	Oct 1 1987a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Nov 3	.00	Oct 1 1987
ANNUAL RUNOFF (AC-FT)	1280		3850		2840	
10 PERCENT EXCEEDS	4.3		18		13	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a No flow for many days in each year.

BELLE FOURCHE RIVER BASIN

06430500 REDWATER CREEK AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'26", long 104°02'54", in NW1/4 NW1/4 sec.18 T.7 N., R.1 E., Butte County, Hydrologic Unit 10120203, on left bank 800 ft downstream from State line, 5.7 mi upstream from Crow Creek, and 12 mi southwest of Belle Fourche, SD.

DRAINAGE AREA.--471 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 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). Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	e15	26	25	e22	29	23	39	39	6.0	28	15
2	25	e20	26	25	e23	31	23	46	40	4.5	29	14
3	24	e23	26	25	e22	32	23	64	32	4.4	30	14
4	24	e23	26	25	e20	32	24	73	32	4.5	28	15
5	24	e23	26	26	e22	35	26	78	31	4.5	28	14
6	24	e23	25	e20	e22	34	26	78	33	7.8	28	13
7	20	e23	25	e18	e20	33	26	72	31	5.9	28	15
8	18	e23	24	e20	e17	32	26	62	32	5.1	29	14
9	18	e23	24	25	e15	27	26	51	26	4.9	29	13
10	20	e23	24	26	e20	26	26	47	22	4.7	21	13
11	22	e23	25	25	e22	25	26	42	24	4.8	16	13
12	21	e23	25	25	e26	25	26	40	23	5.2	16	12
13	16	e22	25	24	26	25	26	35	9.8	12	13	12
14	16	e22	24	24	25	25	27	37	26	11	17	13
15	16	e22	23	24	25	25	29	39	42	10	24	16
16	16	e22	23	22	25	26	29	39	34	8.6	17	16
17	16	e22	24	e18	e22	28	28	37	22	6.0	17	15
18	16	e22	24	e20	e22	28	28	37	19	10	17	16
19	16	e22	25	e20	e23	28	29	36	18	11	17	16
20	17	e22	25	e18	e23	27	30	37	19	11	17	16
21	16	e22	25	e20	e23	25	30	37	19	11	18	16
22	17	e22	26	e22	e23	24	30	38	17	11	17	16
23	18	e20	26	e24	25	24	35	37	16	11	13	16
24	18	e18	26	e24	25	24	39	37	12	11	14	16
25	22	e18	26	e24	e23	24	42	36	12	22	11	16
26	22	e20	24	e22	e25	23	47	37	12	23	9.5	17
27	18	e22	25	e22	29	23	42	38	10	25	14	16
28	e16	e24	24	e23	26	23	39	37	7.2	25	14	14
29	e17	26	24	e23	---	23	39	37	7.7	25	14	14
30	e17	26	24	e20	---	23	41	38	7.0	28	15	14
31	e15	---	25	e22	---	23	---	38	---	28	14	---
TOTAL	590	659	770	701	641	832	911	1399	674.7	361.9	602.5	440
MEAN	19.0	22.0	24.8	22.6	22.9	26.8	30.4	45.1	22.5	11.7	19.4	14.7
MAX	25	26	26	26	29	35	47	78	42	28	30	17
MIN	15	15	23	18	15	23	23	35	7.0	4.4	9.5	12
AC-FT	1170	1310	1530	1390	1270	1650	1810	2770	1340	718	1200	873

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1994, BY WATER YEAR (WY)*

MEAN	27.8	31.8	31.7	31.0	31.9	33.2	36.1	50.6	45.3	22.0	21.3	24.5
MAX	45.0	47.9	47.1	46.1	57.8	58.9	60.9	132	128	54.9	58.9	50.4
(WY)	1973	1974	1974	1974	1971	1978	1971	1965	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1955 - 1994*	
ANNUAL TOTAL	8649		8582.1			
ANNUAL MEAN	23.7		23.5		32.3	
HIGHEST ANNUAL MEAN					56.0	1973
LOWEST ANNUAL MEAN					17.9	1961
HIGHEST DAILY MEAN	138	Jun 9	78	May 5,6	732	Jun 15 1976
LOWEST DAILY MEAN	15	Oct 31	4.4	Jul 3	1.3	May 22 1985a
ANNUAL SEVEN-DAY MINIMUM	16	Oct 13	5.2	Jul 2	1.9	May 21 1985
INSTANTANEOUS PEAK FLOW			82	May 6	2440	Aug 22 1973b
INSTANTANEOUS PEAK STAGE			3.66	May 6	12.19	Aug 22 1973
ANNUAL RUNOFF (AC-FT)	17160		17020		23370	
10 PERCENT EXCEEDS	27		37		45	
50 PERCENT EXCEEDS	23		23		30	
90 PERCENT EXCEEDS	19		13		14	

e Estimated
* Period using present site and datum only (1955-94). 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 of gage height, 11.95 ft.

BELLE FOURCHE RIVER BASIN

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

PRECIPITATION RECORDS

LOCATION.--Lat 44°33'31", long 104°00'36", in SW1/4 NW1/4 NW1/4, 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 except those for estimated period, which are poor. Precipitation gage is read daily by observer at approximately 0800 hours. Daily precipitation is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
2	.00	---	---	---	---	---	.00	.04	.03	.00	.13	.16
3	.00	---	---	---	---	---	.00	.00	.00	.01	.00	.00
4	.00	---	---	---	---	---	.21	.00	.00	.00	.00	.13
5	.00	---	---	---	---	---	.00	.11	.00	.00	.00	.00
6	.00	---	---	---	---	---	.00	.00	.16	e1.19	.00	.00
7	.00	---	---	---	---	---	.09	.00	.00	e.00	.00	e.00
8	.30	---	---	---	---	---	.00	.00	.00	.04	.00	.00
9	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
10	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
11	.00	---	---	---	---	---	.00	.00	.00	.00	.14	.00
12	.00	---	---	---	---	---	.00	.53	.00	.19	.00	.00
13	.00	---	---	---	---	---	.00	1.12	.00	1.70	.00	.00
14	.03	---	---	---	---	---	.30	.00	.00	.00	.00	.00
15	.00	---	---	---	---	---	.00	.00	.35	.00	.00	.00
16	.00	---	---	---	---	---	.00	.08	.00	.00	.07	.42
17	.12	---	---	---	---	---	.00	.00	.00	.00	.00	.00
18	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
19	.00	---	---	---	---	---	.00	.00	.00	.17	.00	.00
20	.00	---	---	---	---	---	.02	.00	.00	.00	.00	.00
21	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
22	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
23	.00	---	---	---	---	---	.16	.00	.00	.00	.00	.06
24	.00	---	---	---	---	---	.00	.07	.00	.00	.00	.00
25	.00	---	---	---	---	---	.83	.00	.00	.02	.00	.00
26	.00	---	---	---	---	---	.61	.00	.00	.00	.00	.00
27	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
28	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
29	.00	---	---	---	---	---	.00	.00	.00	.00	.11	.19
30	.00	---	---	---	---	---	.00	.00	.00	.00	.44	.00
31	.00	---	---	---	---	---	---	.00	---	.00	.00	---
TOTAL	0.45	---	---	---	---	---	2.22	1.95	0.54	3.32	0.89	0.96

e Estimated

BELLE FOURCHE RIVER BASIN

06430540 COX LAKE OUTLET NEAR BEULAH, WY

LOCATION.--Lat 44°33'56", long 103°59'37", in SE1/4 NE1/4 SE1/4 sec.16, T.7 N., R.1 E., Lawrence County, Hydrologic Unit 10120203, along left bank at the outlet of Cox Lake and 4 mi east of Beulah.

DRAINAGE AREA.--0.07 mi^2.

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

REVISED RECORDS.--WDR SD-92-1: 1991 daily discharges.

GAGE.--Water-stage recorder and sharp-crested weir. Elevation of gage is 3,415 ft above sea level, from topographic map.

REMARKS.--Records good, including estimated daily discharges. Spring outflow from limestone aquifer. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	4.1	4.3	4.3	4.2	4.2	4.1	e4.2	e4.2	4.2	e4.2	4.1
2	4.1	4.1	4.3	4.3	4.1	4.3	4.1	e4.2	e4.2	4.1	e4.2	4.1
3	4.1	4.1	4.3	4.3	4.1	4.2	4.1	e4.2	e4.2	4.1	e4.2	4.2
4	4.1	4.1	4.3	4.3	4.1	4.1	4.3	e4.2	e4.2	4.1	4.2	4.1
5	4.1	4.1	4.3	4.3	4.1	4.1	4.2	e4.2	e4.2	4.1	4.2	4.1
6	4.1	4.1	4.3	4.2	4.1	4.2	4.1	e4.2	e4.2	4.5	4.2	4.1
7	4.1	4.1	4.3	4.2	4.1	4.2	4.2	e4.2	e4.2	4.4	4.1	4.1
8	4.3	4.1	4.3	4.1	4.1	4.1	4.2	e4.2	e4.2	4.3	4.2	4.1
9	4.2	4.1	4.3	4.1	4.2	4.1	4.1	e4.2	e4.2	4.2	4.2	4.1
10	4.1	4.1	4.3	4.1	4.2	4.1	4.1	e4.2	e4.2	4.1	4.3	4.1
11	4.1	4.1	4.3	4.2	4.2	4.1	4.1	e4.2	e4.2	4.1	4.2	4.1
12	4.1	4.1	4.3	4.2	4.2	4.1	4.1	e4.2	e4.2	4.3	4.2	4.1
13	4.1	4.1	4.3	4.2	4.2	4.1	4.1	e4.5	e4.2	4.9	4.1	4.1
14	4.1	4.1	4.3	4.3	4.1	4.1	4.2	e4.7	e4.2	4.3	4.1	4.1
15	4.1	4.1	4.3	4.3	4.1	4.1	4.2	e4.3	e4.2	4.6	4.1	4.2
16	4.3	4.1	4.3	4.3	4.1	4.1	4.1	e4.5	e4.2	e4.3	4.2	4.1
17	4.2	4.1	4.3	4.3	4.1	4.1	4.1	e4.2	e4.2	e4.2	4.2	4.1
18	4.1	4.2	4.3	4.3	4.4	4.1	4.1	e4.2	e4.2	e4.2	4.1	4.1
19	4.1	4.2	4.3	4.3	4.3	4.2	4.1	e4.2	e4.2	e4.2	4.1	4.1
20	4.1	4.1	4.3	4.3	4.3	4.1	4.1	e4.2	e4.2	e4.2	4.1	4.1
21	4.1	4.1	4.3	4.3	4.1	4.1	4.1	e4.2	e4.2	e4.2	4.1	4.2
22	4.1	4.3	4.3	4.3	4.1	4.1	4.3	e4.2	e4.2	e4.2	4.1	4.1
23	4.1	4.3	4.3	4.3	4.1	4.1	4.2	e4.2	e4.2	e4.2	4.2	4.1
24	4.1	4.3	4.3	4.3	4.3	4.1	4.3	e4.2	e4.2	e4.2	4.1	4.1
25	4.1	4.3	4.3	4.3	4.3	4.1	4.5	e4.2	e4.2	e4.2	4.1	4.1
26	4.1	4.3	4.3	4.3	4.1	4.2	4.5	e4.2	e4.2	e4.2	4.1	4.1
27	4.1	4.3	4.3	4.3	4.1	4.1	4.3	e4.2	e4.2	e4.2	4.1	4.1
28	4.1	4.3	4.3	4.2	4.1	4.2	4.3	e4.2	e4.2	e4.2	4.1	4.1
29	4.1	4.3	4.3	4.3	---	4.1	4.5	e4.2	e4.2	e4.2	4.2	4.1
30	4.1	4.3	4.3	4.3	---	4.1	e4.2	e4.2	e4.2	e4.2	4.1	4.1
31	4.1	---	4.3	4.3	---	4.1	---	e4.2	---	e4.2	4.3	---
TOTAL	127.7	125.0	133.3	132.1	116.5	128.0	125.9	131.4	126.0	131.6	128.9	123.3
MEAN	4.12	4.17	4.30	4.26	4.16	4.13	4.20	4.24	4.20	4.25	4.16	4.11
MAX	4.3	4.3	4.3	4.3	4.4	4.3	4.5	4.7	4.2	4.9	4.3	4.2
MIN	4.1	4.1	4.3	4.1	4.1	4.1	4.1	4.2	4.2	4.1	4.1	4.1
AC-FT	253	248	264	262	231	254	250	261	250	261	256	245

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1994, BY WATER YEAR (WY)

MEAN	4.10	4.17	4.25	4.26	4.24	4.25	4.28	4.25	4.26	4.21	4.13	4.12
MAX	4.14	4.30	4.30	4.30	4.37	4.40	4.38	4.34	4.38	4.35	4.30	4.28
(WY)	1992	1992	1991	1991	1991	1991	1991	1991	1991	1993	1993	1993
MIN	4.00	4.02	4.11	4.16	4.13	4.13	4.20	4.10	4.06	4.07	3.97	3.98
(WY)	1993	1993	1993	1993	1993	1994	1994	1992	1992	1992	1992	1992

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1991 - 1994	
ANNUAL TOTAL	1548.8		1529.7			
ANNUAL MEAN	4.24		4.19		4.21	
HIGHEST ANNUAL MEAN					4.26	1991
LOWEST ANNUAL MEAN					4.18	1992
HIGHEST DAILY MEAN	4.9	Jun 7	4.9	Jul 13	4.9	Jun 7 1993
LOWEST DAILY MEAN	4.1	Jan 4	4.1	Oct 1	3.9	Aug 15 1992
ANNUAL SEVEN-DAY MINIMUM	4.1	Jan 20	4.1	Oct 1	3.9	Aug 14 1992
ANNUAL RUNOFF (AC-FT)	3070		3030		3050	
10 PERCENT EXCEEDS	4.3		4.3		4.4	
50 PERCENT EXCEEDS	4.3		4.2		4.2	
90 PERCENT EXCEEDS	4.1		4.1		4.0	

e Estimated

BELLE FOURCHE RIVER BASIN

06430770 SPEARFISH CREEK NEAR LEAD, SD

LOCATION.--Lat 44°17'56", long 103°52'02", in NE1/4 NW1/4 sec.22, T.4 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on right bank 0.5 mi below confluence of East Spearfish Creek, in the vicinity of Cheyenne Crossing, approximately 5 mi southwest of Lead.

DRAINAGE AREA.--63.5 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 5,310 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Upstream diversions out of drainage basin to Whitewood Creek basin by 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.--Maximum discharge, 673 ft^3/s, May 14, 1965, from contracted opening measurement of peak flow 2.0 mi downstream; minimum not determined.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	23	17	19	e18	16	20	44	29	22	19	22
2	23	26	17	18	e17	16	20	46	29	24	20	21
3	22	27	17	17	e17	17	20	46	28	22	20	22
4	22	26	18	17	e17	17	22	47	27	23	19	22
5	21	24	19	17	e18	17	18	48	27	23	18	23
6	20	24	17	17	e17	17	17	50	27	26	19	21
7	20	22	17	17	e16	16	21	51	26	24	20	20
8	19	22	14	18	e14	16	22	51	28	23	20	19
9	19	21	15	17	e12	16	22	50	27	23	19	19
10	18	21	18	17	e17	16	22	49	26	22	20	19
11	18	21	18	17	19	17	22	50	25	22	19	20
12	17	21	18	e16	17	17	22	49	25	23	20	19
13	17	20	18	e17	18	18	23	49	25	25	19	20
14	16	20	18	e18	18	19	23	49	25	24	20	20
15	19	20	16	e17	17	18	23	46	26	23	19	23
16	20	18	18	e18	17	19	24	45	29	26	20	20
17	20	17	18	e18	17	18	26	41	28	27	21	20
18	23	17	18	e16	16	19	28	40	28	26	18	20
19	23	17	19	e17	17	21	31	38	27	26	20	20
20	22	17	e18	e18	18	22	35	40	26	25	20	20
21	22	17	e18	e19	18	21	39	39	26	26	20	20
22	21	17	e18	e19	17	21	43	36	25	23	20	20
23	20	17	17	e20	17	20	49	34	25	22	19	20
24	20	12	19	e21	16	18	53	33	24	22	20	19
25	20	12	19	e20	19	16	64	34	25	24	19	19
26	19	15	19	e20	18	18	59	33	23	23	20	20
27	19	19	19	e19	18	16	53	33	24	25	19	19
28	19	17	18	e19	17	19	49	32	23	23	20	19
29	18	16	18	e19	---	18	46	32	23	19	20	19
30	18	18	17	e18	---	19	45	31	23	20	20	19
31	18	---	18	e18	---	20	---	29	---	20	22	---
TOTAL	616	584	548	558	477	558	961	1295	779	726	609	604
MEAN	19.9	19.5	17.7	18.0	17.0	18.0	32.0	41.8	26.0	23.4	19.6	20.1
MAX	23	27	19	21	19	22	64	51	29	27	22	23
MIN	16	12	14	16	12	16	17	29	23	19	18	19
AC-FT	1220	1160	1090	1110	946	1110	1910	2570	1550	1440	1210	1200

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	15.3	15.8	14.5	14.1	13.7	14.3	19.1	24.4	21.0	17.3	15.6	15.8
MAX	19.9	19.5	17.7	18.0	17.0	18.0	32.0	41.8	26.9	23.4	20.1	20.8
(WY)	1994	1994	1994	1994	1994	1994	1994	1994	1993	1994	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	6973		8315			
ANNUAL MEAN	19.1		22.8		16.8	
HIGHEST ANNUAL MEAN					22.8	1994
LOWEST ANNUAL MEAN					14.2	1990
HIGHEST DAILY MEAN	44	Jun 8	64	Apr 25	64	Apr 25 1994
LOWEST DAILY MEAN	11	Feb 18	12	Nov 24	7.5	Dec 22 1990
ANNUAL SEVEN-DAY MINIMUM	12	Feb 26	15	Nov 20	9.5	Aug 24 1990
INSTANTANEOUS PEAK FLOW			66	Apr 25	66	Apr 25 1994a
INSTANTANEOUS PEAK STAGE			7.74	Apr 25	7.79	Jan 29 1991b
ANNUAL RUNOFF (AC-FT)	13830		16490		12140	
10 PERCENT EXCEEDS	25		33		23	
50 PERCENT EXCEEDS	19		20		15	
90 PERCENT EXCEEDS	14		17		12	

e Estimated
a Gage height, 7.64 ft.
b Backwater from ice.

BELLE FOURCHE RIVER BASIN

06430800 ANNIE CREEK NEAR LEAD, SD

LOCATION.--Lat 44°19'37", long 103°53'38", in NW1/4 NW1/4 NW1/4 sec.9, T.4 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on left bank 200 ft upstream from mouth and about 6 mi southwest of Lead.

DRAINAGE AREA.--3.55 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 good except those for winter period, Nov. 5 to Mar. 1, which are fair. Two water-quality samples were collected during the year, and the analytical results will be published in a later report. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.38	.41	.31	.29	.35	.42	2.1	7.6	1.7	.69	.48	.42
2	.40	.37	.29	.29	.35	.42	2.3	9.1	1.6	.62	.52	.39
3	.41	.39	.29	.29	.35	.48	2.5	11	1.6	.68	.49	.38
4	.38	.36	.27	.29	.35	.75	2.9	12	1.4	.68	.46	.38
5	.38	e.32	.29	.29	.35	1.2	2.6	12	1.4	.62	.45	.36
6	.36	e.35	.24	.27	.35	1.4	2.6	12	1.3	1.3	.45	.37
7	.35	e.35	.23	.25	.35	1.3	2.7	12	1.2	.94	.38	.35
8	.38	.35	.23	.31	.35	1.2	2.6	11	1.1	.80	.38	.32
9	.40	.36	.23	.31	.36	1.2	2.6	9.8	1.0	.73	.43	.32
10	.42	.36	.23	.26	.38	1.0	2.6	8.8	.99	.67	.49	.31
11	.42	e.33	.24	.26	.38	1.0	2.7	7.9	.94	.62	.43	.29
12	.36	e.30	.29	.26	e.35	1.2	3.1	7.3	.92	.86	.42	.29
13	.34	.29	.29	.26	e.30	1.4	3.8	7.0	.91	.82	e.40	.31
14	.50	.28	.26	.31	e.30	2.0	4.5	6.7	.94	.76	e.40	.36
15	.55	e.27	.25	.32	e.30	2.7	4.6	6.2	.94	.67	e.40	.44
16	.73	e.25	.23	.30	e.32	3.3	5.0	5.4	1.2	.68	e.38	.37
17	.51	e.30	.26	e.26	e.36	3.8	7.1	4.8	.93	.61	.38	.34
18	.48	e.30	.29	e.24	e.36	3.8	12	4.3	.88	.68	.38	.42
19	.46	.31	.29	e.27	e.38	4.7	17	4.0	.88	.69	.38	.37
20	.47	.31	.29	.29	e.40	6.0	20	3.9	.90	.64	.38	.34
21	.42	.31	.29	.31	e.40	5.3	21	3.4	.85	.64	.38	.41
22	.39	.28	.29	.32	e.40	4.7	23	3.2	.90	.62	.38	.40
23	.38	e.15	.31	.29	e.36	4.0	23	2.9	.89	.57	.34	.39
24	.38	e.10	.32	.29	e.36	3.4	20	2.7	.81	.65	.29	.37
25	.38	e.10	.32	.26	e.36	3.0	20	2.5	.85	.66	.21	.39
26	.38	e.20	.32	.26	e.36	2.7	15	2.3	.81	.59	.21	.40
27	.38	e.20	.32	.26	e.40	3.1	11	2.2	.77	.55	.21	.39
28	.38	e.25	.32	.26	e.40	2.8	9.1	2.0	.71	.58	.28	.38
29	.38	e.30	.32	.29	---	3.0	7.7	2.0	.72	.51	.37	.42
30	.46	.40	.32	.33	---	2.3	7.2	1.9	.67	.54	.38	.41
31	.62	---	.32	.35	---	2.0	---	1.8	---	.56	.41	---
TOTAL	13.23	8.85	8.75	8.84	10.03	75.57	262.3	189.7	30.71	21.23	11.94	11.09
MEAN	.43	.29	.28	.29	.36	2.44	8.74	6.12	1.02	.68	.39	.37
MAX	.73	.41	.32	.35	.40	6.0	23	12	1.7	1.3	.52	.44
MIN	.34	.10	.23	.24	.30	.42	2.1	1.8	.67	.51	.21	.29
AC-FT	26	18	17	18	20	150	520	376	61	42	24	22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	.17	.18	.16	.13	.16	.65	2.72	4.58	1.73	.61	.31	.21
MAX	.43	.29	.28	.29	.36	2.44	8.74	6.12	4.65	1.48	.79	.42
(WY)	1994	1994	1994	1994	1994	1994	1994	1994	1993	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	468.72		652.24			
ANNUAL MEAN	1.28		1.79		.97	
HIGHEST ANNUAL MEAN					1.79	1994
LOWEST ANNUAL MEAN					.38	1992
HIGHEST DAILY MEAN	15	Jun 9	23	Apr 22-23	23	Apr 22 1994
LOWEST DAILY MEAN	.00	Jan 6	.10	Nov 24-25	.00	Mar 2 1989a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 6	.18	Nov 22	.00	Jan 6 1993
INSTANTANEOUS PEAK FLOW			25	Apr 22	25	Apr 22 1994b
INSTANTANEOUS PEAK STAGE			5.08	Apr 22	5.18	Mar 17 1993c
ANNUAL RUNOFF (AC-FT)	930		1290		703	
10 PERCENT EXCEEDS	3.8		4.6		2.6	
50 PERCENT EXCEEDS	.42		.41		.25	
90 PERCENT EXCEEDS	.00		.28		.07	

e Estimated
a Also Mar. 3-7, 1989, and Jan. 6 to Mar. 16, 1993.
b Gage height, 4.96 ft.
c Backwater from ice, observed.

BELLE FOURCHE RIVER BASIN

06430850 LITTLE SPEARFISH CREEK NEAR LEAD, SD

LOCATION.--Lat 44°20'58", long 103°56'08", in NE1/4 NW1/4 SE1/4 sec.36, T.5 N., R.1 E., Lawrence County, Hydrologic Unit 10120203, on left bank 0.3 mi upstream from Savoy, 0.4 mi upstream from mouth, 0.6 mi downstream from Roughlock Falls, and 13.6 mi northwest of Lead.

DRAINAGE AREA.--25.8 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 5,020 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.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	13	13	12	13	13	14	17	16	16	16	16
2	13	13	13	12	13	13	14	18	16	16	16	16
3	13	13	13	12	13	13	14	18	16	16	16	15
4	13	13	13	12	13	13	14	17	16	16	15	15
5	13	13	13	12	13	13	14	17	16	16	15	15
6	13	13	12	12	13	13	14	18	16	17	15	15
7	13	13	12	11	13	13	15	17	16	17	15	15
8	13	13	12	12	13	13	14	17	16	16	15	15
9	13	13	12	12	13	13	14	17	16	16	15	15
10	13	13	12	12	13	13	14	17	16	16	15	15
11	13	13	12	12	13	14	14	17	16	16	15	15
12	13	13	12	12	13	13	14	17	16	16	15	16
13	13	13	12	12	13	13	14	17	16	16	15	15
14	13	13	12	12	13	13	14	17	16	16	15	15
15	13	13	12	12	13	14	15	17	16	16	15	16
16	13	13	12	12	13	14	15	17	16	16	15	16
17	13	13	12	12	13	14	15	17	16	16	15	15
18	13	13	12	12	13	14	16	17	16	16	15	15
19	13	13	12	12	13	14	16	17	16	16	15	15
20	13	13	12	12	13	14	17	17	16	16	15	15
21	13	13	12	12	13	14	18	17	16	16	15	16
22	13	13	12	12	13	14	19	16	16	16	15	16
23	13	13	12	12	13	14	20	16	16	15	15	16
24	13	12	12	12	13	13	20	16	16	15	15	16
25	13	12	12	12	12	14	21	16	16	16	15	15
26	13	12	12	12	13	14	20	16	16	16	15	15
27	13	12	12	12	13	14	19	16	16	15	15	16
28	13	13	12	12	13	13	19	16	16	15	15	16
29	13	13	12	12	---	14	18	16	16	15	15	16
30	12	13	12	12	---	14	18	16	16	15	15	16
31	13	---	12	12	---	14	---	16	---	16	16	---
TOTAL	402	386	377	371	363	419	483	520	480	492	469	463
MEAN	13.0	12.9	12.2	12.0	13.0	13.5	16.1	16.8	16.0	15.9	15.1	15.4
MAX	13	13	13	12	13	14	21	18	16	17	16	16
MIN	12	12	12	11	12	13	14	16	16	15	15	15
AC-FT	797	766	748	736	720	831	958	1030	952	976	930	918

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	13.3	12.7	12.3	12.1	12.3	12.8	13.7	14.8	14.6	13.9	13.6	13.4
MAX	14.8	14.3	14.1	14.0	13.7	14.0	16.1	16.8	16.0	15.9	15.1	15.4
(WY)	1989	1989	1989	1989	1989	1989	1994	1994	1994	1994	1994	1994
MIN	12.2	11.1	10.3	9.96	11.0	12.2	12.0	13.1	13.7	12.6	12.9	12.0
(WY)	1992	1993	1993	1993	1993	1991	1993	1992	1990	1992	1992	1991

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	4683.9		5225			
ANNUAL MEAN	12.8		14.3		13.3	
HIGHEST ANNUAL MEAN					14.3	1994
LOWEST ANNUAL MEAN					12.5	1993
HIGHEST DAILY MEAN	18	Jun 8	21	Apr 25	21	Apr 25 1994
LOWEST DAILY MEAN	9.7	Jan 2	11	Jan 7	9.7	Jan 2 1993
ANNUAL SEVEN-DAY MINIMUM	9.8	Jan 1	12	Jan 1	9.8	Dec 30 1992
ANNUAL RUNOFF (AC-FT)	9290		10360		9640	
10 PERCENT EXCEEDS	15		16		15	
50 PERCENT EXCEEDS	13		14		13	
90 PERCENT EXCEEDS	11		12		12	

BELLE FOURCHE RIVER BASIN

06430898 SQUAW CREEK NEAR SPEARFISH, SD

LOCATION.--Lat 44°24'04", long 103°53'35", in NE1/4 NE1/4 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.

DRAINAGE AREA.--6.95 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 4,480 ft above sea level, from topographic map.

REMARKS.--Records good except those for winter period, Nov. 1 to Mar. 31, which are fair. Several water-quality samples were collected during the year, and the analytical results will be published in a later report. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	.61	.53	.81	.74	.76	4.4	12	2.6	1.2	.75	.80
2	.79	e.58	.51	.80	.70	e.70	4.0	16	2.4	1.2	.81	.79
3	.77	.60	.54	.82	.68	e.85	4.2	24	2.4	1.2	.79	.72
4	.74	.57	.57	.82	.74	e1.2	5.4	32	2.3	1.1	.73	.66
5	.74	e.50	.54	.84	.80	e2.0	6.6	35	2.2	1.1	.69	.63
6	.74	e.50	.57	.78	.75	e2.0	5.9	33	2.2	2.5	.70	.64
7	.74	.59	.57	e.70	.74	e2.0	5.6	26	2.2	1.9	.66	.63
8	.83	.52	.57	e.70	.74	e2.5	6.0	21	2.3	1.5	.67	.61
9	.80	.53	.59	.80	.73	e2.5	5.9	18	2.1	1.3	.66	.58
10	.80	.47	.62	.75	.62	2.4	5.9	15	2.0	1.2	.67	.59
11	.80	.47	.62	.74	.55	2.2	6.2	13	2.0	1.1	.65	.59
12	.80	.47	.73	.74	.52	2.2	6.9	11	2.0	1.2	.66	.60
13	.80	.47	.67	.74	.54	2.5	8.8	11	2.0	1.4	.63	.67
14	.86	.50	.66	.77	.55	3.9	11	9.4	2.1	1.2	.61	.71
15	.92	.55	e.65	.77	.54	5.3	11	8.3	2.2	1.2	.62	.92
16	1.8	.47	e.65	.73	.57	5.4	11	7.6	2.7	1.2	.68	.88
17	1.3	.47	e.70	.72	.57	6.7	18	6.9	2.4	1.1	.75	.80
18	1.1	.45	.74	.74	e.55	6.7	40	6.2	2.4	1.1	.64	.80
19	.96	.41	.72	.72	e.55	7.9	61	5.7	2.2	1.1	.65	.79
20	.92	.45	.73	.68	e.70	9.8	68	5.5	2.0	1.1	.68	.74
21	.87	.49	.72	.71	e.70	8.5	73	4.9	1.8	1.0	.66	.92
22	.87	.52	.74	.74	1.0	7.2	72	4.2	1.7	.94	.64	.93
23	.80	e.40	.78	.78	.90	6.3	65	4.0	1.6	.94	.56	.86
24	.76	e.30	.80	.83	.85	7.3	48	3.8	1.4	.93	.54	.80
25	.74	e.20	.80	.80	.80	4.5	42	3.6	1.4	.90	.55	.80
26	.69	e.25	.79	.77	.83	4.2	38	3.4	1.4	.92	.54	.80
27	.68	e.30	.78	.74	.81	e4.0	29	3.2	1.3	.86	.53	.80
28	.73	e.40	.84	.69	.80	e4.0	14	2.9	1.2	.82	.55	.80
29	.59	e.50	.87	.88	---	e4.0	11	2.7	1.2	.80	.57	.80
30	1.1	.57	.84	.99	---	e4.0	11	2.7	1.2	.80	.60	.80
31	.69	---	.82	.79	---	6.2	---	2.6	---	.77	.88	---
TOTAL	26.53	14.11	21.26	23.89	19.57	129.71	698.8	354.6	58.9	35.58	20.32	22.46
MEAN	.86	.47	.69	.77	.70	4.18	23.3	11.4	1.96	1.15	.66	.75
MAX	1.8	.61	.87	.99	1.0	9.8	73	35	2.7	2.5	.88	.93
MIN	.59	.20	.51	.68	.52	.70	4.0	2.6	1.2	.77	.53	.58
AC-FT	53	28	42	47	39	257	1390	703	117	71	40	45

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	.60	.59	.52	.46	.50	1.72	7.88	10.0	3.72	1.31	.62	.57
MAX	1.02	.94	.74	.77	.70	4.18	23.3	12.6	9.78	2.51	1.39	1.01
(WY)	1989	1990	1990	1994	1994	1994	1994	1991	1993	1993	1993	1993
MIN	.35	.39	.32	.34	.32	.57	3.25	2.65	1.31	.93	.38	.32
(WY)	1993	1991	1993	1993	1991	1991	1992	1992	1992	1990	1992	1992

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	1174.56		1425.73			
ANNUAL MEAN	3.22		3.91		2.38	
HIGHEST ANNUAL MEAN					3.91	1994
LOWEST ANNUAL MEAN					.99	1992
HIGHEST DAILY MEAN	57	Jun 8	73	Apr 21	73	Apr 21 1994
LOWEST DAILY MEAN	.20	Nov 25	.20	Nov 25	.20	Dec 28 1988a
ANNUAL SEVEN-DAY MINIMUM	.29	Jan 4	.34	Nov 23	.24	Dec 28 1988
INSTANTANEOUS PEAK FLOW			81	Apr 20	96	Jun 8 1993
INSTANTANEOUS PEAK STAGE			5.12	Apr 20	5.37	Jun 8 1993
ANNUAL RUNOFF (AC-FT)	2330		2830		1730	
10 PERCENT EXCEEDS	7.9		7.7		5.7	
50 PERCENT EXCEEDS	.96		.80		.73	
90 PERCENT EXCEEDS	.39		.55		.34	

e Estimated
a Also Dec. 29, 1988, Jan. 2, 3, 8-10, Feb. 4, 1989, Jan. 15, 1992.

BELLE FOURCHE RIVER BASIN

06430900 SPEARFISH CREEK ABOVE SPEARFISH, SD

LOCATION.--Lat 44°24'06", long 103°53'40", in NW1/4 NE1/4 NE1/4 sec.17, T.5 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on left bank immediately below confluence of Squaw Creek near Maurice and 8.0 mi south of Spearfish.

DRAINAGE AREA.--139 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 4,440 ft above sea level, from topographic map.

REMARKS.--Records good, including estimated daily discharges. Upstream diversions out of drainage basin to Whitewood Creek basin by Homestake Mining Co. average about 12 ft^3/s. Figures of daily discharge do not include diversion by Homestake Mining Co. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	42	46	43	36	41	53	135	71	56	50	56
2	42	42	47	42	41	42	55	145	71	60	49	58
3	42	41	48	42	42	41	54	155	71	56	53	58
4	42	43	46	41	36	44	65	160	73	60	58	63
5	40	42	51	42	40	45	63	161	75	62	50	58
6	41	41	42	34	38	46	61	164	74	68	47	58
7	42	43	44	27	32	44	60	156	70	75	45	55
8	42	42	46	46	31	42	60	147	69	68	45	55
9	44	43	44	44	31	42	60	141	71	67	46	53
10	44	42	46	42	44	44	62	136	67	68	44	55
11	41	41	46	42	47	44	63	130	63	71	45	54
12	41	42	44	42	37	46	67	124	63	64	44	55
13	39	43	45	43	41	45	73	125	65	78	46	57
14	41	43	41	43	41	49	75	120	64	71	47	57
15	46	42	41	42	40	52	73	114	62	70	50	66
16	51	43	45	42	40	53	78	109	65	73	48	65
17	46	42	46	30	40	55	98	104	62	72	56	56
18	44	42	41	31	42	57	137	100	61	73	50	61
19	44	41	46	44	41	61	164	96	60	75	52	62
20	43	42	43	44	42	65	182	100	57	77	55	60
21	43	42	43	44	42	65	190	99	58	73	54	59
22	43	42	43	41	42	63	194	92	62	74	52	57
23	42	37	40	41	37	65	197	87	58	60	53	53
24	42	23	47	43	36	60	191	84	60	62	53	55
25	42	26	44	43	28	62	207	92	54	63	51	54
26	40	34	44	42	42	58	188	88	52	62	52	56
27	43	44	44	41	44	54	163	81	52	58	50	e55
28	42	51	41	41	42	51	146	77	55	50	54	e55
29	41	47	41	42	---	57	141	78	56	48	54	e55
30	42	46	43	35	---	52	132	75	54	49	54	e55
31	43	---	43	37	---	55	---	72	---	47	56	---
TOTAL	1318	1234	1371	1256	1095	1600	3352	3547	1895	2010	1563	1716
MEAN	42.5	41.1	44.2	40.5	39.1	51.6	112	114	63.2	64.8	50.4	57.2
MAX	51	51	51	46	47	65	207	164	75	78	58	66
MIN	39	23	40	27	28	41	53	72	52	47	44	53
AC-FT	2610	2450	2720	2490	2170	3170	6650	7040	3760	3990	3100	3400

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	38.9	39.1	37.8	37.7	38.1	42.5	62.3	77.7	61.1	46.5	40.3	41.1
MAX	43.3	41.7	44.2	41.2	39.2	51.6	112	114	103	64.8	50.4	57.2
(WY)	1989	1989	1994	1989	1989	1994	1994	1994	1993	1994	1994	1994
MIN	35.5	37.2	29.8	31.8	37.0	39.5	44.8	45.3	41.4	37.7	35.9	34.9
(WY)	1993	1991	1992	1992	1993	1993	1992	1992	1992	1990	1992	1991

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	18990		21957			
ANNUAL MEAN	52.0		60.2		46.9	
HIGHEST ANNUAL MEAN					60.2	1994
LOWEST ANNUAL MEAN					38.1	1992
HIGHEST DAILY MEAN	207	Jun 9	207	Apr 25	207	Jun 9 1993
LOWEST DAILY MEAN	23	Nov 24	23	Nov 24	18	Jan 15 1992
ANNUAL SEVEN-DAY MINIMUM	34	Mar 12	35	Nov 20	26	Jan 11 1992
INSTANTANEOUS PEAK FLOW			225	Apr 25	299	Jun 8 1993
INSTANTANEOUS PEAK STAGE			4.91	Apr 25	5.14	Jun 8 1993
ANNUAL RUNOFF (AC-FT)	37670		43550		34010	
10 PERCENT EXCEEDS	83		92		66	
50 PERCENT EXCEEDS	43		51		41	
90 PERCENT EXCEEDS	37		41		35	

e Estimated

BELLE FOURCHE RIVER BASIN

06431500 SPEARFISH CREEK AT SPEARFISH, SD

LOCATION.--Lat 44°28'57", long 103°51'40", in SE1/4 NW1/4 sec.15, T.6 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on right bank in city park in Spearfish, 500 ft downstream from fish hatchery and nearest tributary, and 9.8 mi upstream from mouth.

DRAINAGE AREA.--168 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 except those for estimated daily discharges, which are fair. 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. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	41	43	40	37	37	48	106	e60	50	55	53
2	48	41	43	40	38	39	51	106	e60	51	53	55
3	47	40	42	38	41	41	51	117	e60	49	53	56
4	49	43	42	38	34	44	55	123	e65	50	51	53
5	49	41	45	38	e34	43	53	128	e65	50	51	56
6	47	39	37	36	e34	48	53	129	e65	53	51	56
7	49	40	41	e30	e30	45	54	126	e60	57	55	56
8	50	43	42	40	e30	41	58	125	e60	58	57	56
9	52	41	41	39	e30	40	57	122	e60	55	58	54
10	48	41	42	38	39	43	60	115	e55	55	55	55
11	50	40	43	38	43	42	57	113	e55	56	49	53
12	49	39	43	38	39	44	59	106	e55	52	51	53
13	47	36	43	40	44	44	64	107	e55	59	52	55
14	47	40	37	39	44	45	73	106	e55	58	53	55
15	50	40	37	39	44	51	69	114	e55	59	51	56
16	52	39	42	39	39	51	75	e95	e55	57	53	57
17	48	39	41	e30	39	55	78	e90	e52	58	51	52
18	47	39	38	e32	39	55	93	e85	e50	59	46	53
19	47	40	41	39	40	59	115	e85	e50	59	49	54
20	47	42	42	39	40	68	117	e85	e46	60	49	56
21	45	42	40	43	39	66	119	e85	e48	57	50	58
22	45	44	40	40	40	62	128	e80	e50	57	51	58
23	43	38	37	39	37	63	163	e75	e50	57	51	57
24	45	e25	42	39	e34	55	163	e75	e48	57	53	56
25	43	e28	39	39	e28	55	171	e75	e46	58	53	55
26	41	32	38	39	38	51	169	e75	e46	57	53	57
27	45	39	38	39	43	49	146	e70	e48	57	53	57
28	45	47	37	39	40	47	131	e65	e54	54	51	56
29	43	48	38	43	---	50	118	e65	56	53	52	55
30	40	45	39	37	---	49	109	e65	50	54	54	56
31	43	---	39	35	---	50	---	e60	---	53	56	---
TOTAL	1450	1192	1252	1182	1057	1532	2757	2973	1634	1719	1620	1659
MEAN	46.8	39.7	40.4	38.1	37.7	49.4	91.9	95.9	54.5	55.5	52.3	55.3
MAX	52	48	45	43	44	68	171	129	65	60	58	58
MIN	40	25	37	30	28	37	48	60	46	49	46	52
AC-FT	2880	2360	2480	2340	2100	3040	5470	5900	3240	3410	3210	3290

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1994, BY WATER YEAR (WY)

MEAN	43.0	42.6	40.0	39.3	40.0	42.4	61.6	96.5	73.9	48.9	43.0	41.7
MAX	63.3	65.0	61.1	60.1	64.3	68.8	109	505	185	70.2	71.2	64.4
(WY)	1984	1966	1966	1972	1979	1972	1963	1982	1976	1972	1972	1965
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1947 - 1994	
ANNUAL TOTAL	17078		20027			
ANNUAL MEAN	46.8		54.9		51.1	
HIGHEST ANNUAL MEAN					84.5	1982
LOWEST ANNUAL MEAN					27.1	1961
HIGHEST DAILY MEAN	100	Jun 9	171	Apr 25	1880	May 15 1965
LOWEST DAILY MEAN	24	Jan 4	25	Nov 24	9.0	Dec 2 1959a
ANNUAL SEVEN-DAY MINIMUM	28	Jan 4	33	Feb 4	18	Dec 18 1981
INSTANTANEOUS PEAK FLOW			175	Apr 25	4240	May 15 1965b
INSTANTANEOUS PEAK STAGE			6.90	Apr 25	10.54	Jun 15 1976
ANNUAL RUNOFF (AC-FT)	33870		39720		37030	
10 PERCENT EXCEEDS	69		76		71	
50 PERCENT EXCEEDS	43		50		44	
90 PERCENT EXCEEDS	32		38		31	

e Estimated
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.

06432020 SPEARFISH CREEK BELOW SPEARFISH, SD

LOCATION.--Lat 44°34'48", long 103°53'37", in SW1/4 NE1/4 SE1/4 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.

DRAINAGE AREA.--204 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 3,280 ft above sea level, from topographic map.

REMARKS.--Records good, including estimated daily discharges. Flow is regulated by Homestake Mining Co. power plant, located 10.0 mi upstream. Diversions for irrigation of about 3,200 acres above station. Several water-quality samples were collected during the year, and the analytical results will be published in a later report. 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 15, 1965, reached stage of about 9.0 ft, according to local residents. Flood of June 5, 1904, probably reached a higher stage.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	56	51	56	54	56	61	112	43	6.3	28	42
2	52	56	53	55	e50	58	62	109	36	9.2	17	38
3	50	55	54	56	e50	56	65	112	34	7.7	20	30
4	50	54	52	54	e50	56	68	116	32	9.2	20	28
5	48	55	56	54	e50	58	68	113	32	9.6	21	29
6	52	52	48	62	e45	58	66	116	31	22	20	30
7	52	55	53	e50	e40	56	66	118	32	30	21	29
8	56	55	54	e42	e30	52	67	115	35	27	24	28
9	54	52	54	e46	e22	52	66	110	34	17	25	26
10	58	51	54	56	e30	56	69	108	36	16	28	25
11	56	52	53	52	e40	54	70	105	34	15	29	25
12	59	50	54	54	e50	53	72	104	33	15	30	26
13	60	49	54	54	62	54	73	105	34	32	30	27
14	53	53	49	56	57	55	76	104	32	33	30	27
15	55	50	49	e55	58	60	78	102	31	34	28	31
16	59	51	54	e50	58	61	79	101	39	34	29	38
17	57	51	55	e50	56	62	85	98	36	35	34	42
18	53	49	52	e45	72	63	88	94	35	32	30	48
19	54	50	55	e45	65	64	96	89	28	31	28	48
20	54	52	56	e45	59	69	101	89	25	28	28	44
21	54	50	56	e50	59	69	101	83	25	27	27	52
22	55	49	55	55	e57	68	103	80	24	30	26	58
23	56	49	55	58	e55	69	113	75	21	32	24	57
24	58	e37	56	57	57	65	118	77	15	32	22	55
25	56	e30	58	57	e40	63	125	74	12	33	21	54
26	56	23	57	56	e45	64	132	72	9.8	33	21	54
27	57	27	56	56	e50	60	124	71	9.4	35	23	55
28	57	47	e52	55	54	60	115	63	7.4	41	26	54
29	56	52	57	56	---	63	113	54	8.2	37	28	60
30	54	54	56	57	---	63	113	52	8.2	33	29	63
31	57	---	56	57	---	62	---	48	---	32	40	---
TOTAL	1696	1466	1674	1651	1415	1859	2633	2869	812.0	808.0	807	1223
MEAN	54.7	48.9	54.0	53.3	50.5	60.0	87.8	92.5	27.1	26.1	26.0	40.8
MAX	60	56	58	62	72	69	132	118	43	41	40	63
MIN	48	23	48	42	22	52	61	48	7.4	6.3	17	25
AC-FT	3360	2910	3320	3270	2810	3690	5220	5690	1610	1600	1600	2430

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	44.9	50.1	43.5	41.9	43.7	50.6	59.5	67.4	42.5	21.0	16.9	33.0
MAX	54.7	56.5	54.0	53.3	50.5	60.0	87.8	92.5	80.9	58.5	41.4	44.5
(WY)	1994	1989	1994	1994	1994	1994	1994	1994	1993	1993	1993	1993
MIN	36.8	45.8	32.5	28.0	37.1	44.5	47.2	21.4	16.0	4.48	5.80	22.4
(WY)	1991	1993	1991	1991	1989	1991	1992	1992	1992	1990	1989	1990

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	19649		18913.0			
ANNUAL MEAN	53.8		51.8		42.9	
HIGHEST ANNUAL MEAN					51.8	1994
LOWEST ANNUAL MEAN					35.0	1992
HIGHEST DAILY MEAN	103	May 8	132	Apr 26	132	Apr 26 1994
LOWEST DAILY MEAN	21	Jan 17	6.3	Jul 1	1.0	Jul 3 1990a
ANNUAL SEVEN-DAY MINIMUM	28	Jan 1	8.0	Jun 28	1.3	Jul 2 1990
INSTANTANEOUS PEAK FLOW			140	Apr 26	163	Jun 6 1991b
INSTANTANEOUS PEAK STAGE			5.48	Apr 26	5.86	Feb 9 1989c
ANNUAL RUNOFF (AC-FT)	38970		37510		31060	
10 PERCENT EXCEEDS	77		79		64	
50 PERCENT EXCEEDS	53		53		45	
90 PERCENT EXCEEDS	36		25		12	

e Estimated
a Also July 4, 1990.
b Gage height, 5.31 ft.
c Backwater from ice.

BELLE FOURCHE RIVER BASIN

06433000 REDWATER RIVER ABOVE BELLE FOURCHE, SD

LOCATION.--Lat 44°40'02", long 103°50'20", in NW1/4 SE1/4 sec.11, T.8 N., R.2 E., Butte County, Hydrologic Unit 10120203, on right bank at upstream side of bridge on 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 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	130	e145	140	e122	e200	162	264	152	7.1	45	62
2	104	132	e145	144	e122	e400	163	254	140	6.2	29	71
3	105	128	145	144	e122	325	160	277	145	6.1	23	62
4	105	126	139	144	e122	254	170	293	119	6.3	24	59
5	99	120	150	142	e122	220	172	299	95	6.5	28	55
6	92	121	136	137	e110	206	175	305	95	8.9	48	55
7	90	134	137	103	e94	194	175	306	96	12	29	56
8	92	136	136	144	e80	181	176	288	93	13	27	55
9	91	132	136	152	e70	174	173	269	85	9.8	23	50
10	91	130	137	152	e80	163	171	264	81	8.8	23	51
11	89	134	133	152	e100	157	172	263	80	8.1	24	54
12	91	136	138	149	e118	158	174	263	61	8.1	25	54
13	92	132	143	134	e130	161	176	268	54	165	25	57
14	86	134	148	139	e180	164	182	281	45	72	28	56
15	90	140	142	150	e155	166	185	272	45	54	32	57
16	95	138	142	146	e165	166	183	262	61	55	29	71
17	95	138	e140	e100	e185	170	187	257	59	54	36	73
18	94	130	e130	e90	e200	172	190	247	48	52	43	76
19	94	133	148	e90	e185	177	221	241	46	48	50	80
20	95	134	147	e85	e165	178	241	254	38	48	51	79
21	109	135	146	e90	e155	178	257	252	24	44	48	78
22	123	134	154	e100	e150	173	264	250	18	40	48	83
23	130	124	158	e120	e145	177	280	235	17	36	35	79
24	134	80	158	e120	e140	172	292	221	10	35	32	78
25	135	e70	148	e124	e140	170	313	213	9.5	41	33	74
26	129	e70	148	e124	e142	169	391	204	9.1	49	32	79
27	126	e90	149	e124	e145	164	308	168	8.3	49	28	90
28	125	e125	156	e124	e150	162	292	179	8.1	50	34	90
29	127	e155	180	e122	---	164	270	171	7.8	54	39	96
30	125	e140	140	e121	---	161	267	164	8.0	51	41	100
31	125	---	140	e121	---	165	---	162	---	48	52	---
TOTAL	3280	3761	4494	3927	3794	5841	6542	7646	1757.8	1145.9	1064	2080
MEAN	106	125	145	127	135	188	218	247	58.6	37.0	34.3	69.3
MAX	135	155	180	152	200	400	391	306	152	165	52	100
MIN	86	70	130	85	70	157	160	162	7.8	6.1	23	50
AC-FT	6510	7460	8910	7790	7530	11590	12980	15170	3490	2270	2110	4130

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1994, BY WATER YEAR (WY)

MEAN	125	138	137	130	139	152	171	225	182	53.8	38.6	82.5
MAX	283	209	205	207	219	273	277	966	834	263	135	192
(WY)	1983	1947	1947	1947	1947	1949	1973	1982	1946	1946	1972	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1946 - 1994	
ANNUAL TOTAL	46177		45332.7			
ANNUAL MEAN	127		124		131	
HIGHEST ANNUAL MEAN					227	1946
LOWEST ANNUAL MEAN					57.1	1961
HIGHEST DAILY MEAN	654	Jun 9	400	Mar 2	5790	May 20 1982
LOWEST DAILY MEAN	14	Aug 28	6.1	Jul 3	.00	May 1 1981a
ANNUAL SEVEN-DAY MINIMUM	15	Aug 26	6.9	Jun 29	.56	Jul 30 1960
INSTANTANEOUS PEAK FLOW			460	Mar 3b	16400	Jun 16 1962c
INSTANTANEOUS PEAK STAGE			6.77	Feb 11d	11.69	Jun 16 1962
ANNUAL RUNOFF (AC-FT)	91590		89920		94910	
10 PERCENT EXCEEDS	168		237		201	
50 PERCENT EXCEEDS	130		128		125	
90 PERCENT EXCEEDS	68		31		17	

e Estimated
a No flow at times in 1960, 1968-69, 1981-82, 1988.
b Gage height, 3.65 ft.
c From rating curve extended above 6,000 ft^3/s on basis of slope-area measurement of peak flow.
d Backwater from ice.

BELLE FOURCHE RIVER BASIN

06433500 HAY CREEK AT BELLE FOURCHE, SD

LOCATION.--Lat 44°40'01", long 103°50'46", in NW1/4 SW1/4 sec.11, T.8 N., R.2 E., Butte County, Hydrologic Unit 10120203, on right bank at intersection of Tenth Avenue and Jackson Street in Belle Fourche, 0.5 mi upstream from mouth.

DRAINAGE AREA.--121 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 3,005.18 ft above sea level (City of Belle Fourche bench mark). Prior to Dec. 8, 1953, nonrecording gage at site 300 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Minor diversion to the stream at times from city reservoir overflow, which enters stream upstream from gage. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.03	e.09	e.80	e.04	e6.0	1.7	9.1	1.0	.00	.00	.00
2	.33	.02	e.40	e.75	e.03	e30	1.5	7.8	.86	.00	.00	.00
3	.54	.02	e.55	e.70	e.03	e44	1.5	7.2	.74	.00	.00	.00
4	.37	.02	e.58	e.67	e.02	e28	2.1	6.3	.67	.00	.00	.00
5	.10	.02	e.40	e.67	e.05	18	1.8	6.9	.52	.00	.00	.00
6	.01	.02	e.35	e.55	e.06	13	1.9	6.8	.53	3.3	.00	.00
7	.00	.02	e.30	.52	e.03	7.8	2.0	5.8	.41	.28	.00	.00
8	.37	.02	e.30	.63	e.01	7.5	1.9	4.8	.94	3.0	.00	.00
9	.08	.01	e.28	.55	e.00	5.5	1.8	4.2	.30	1.3	.00	.00
10	.05	.01	.26	.58	e.00	4.4	1.6	3.8	.18	.64	.00	.00
11	.03	.01	.20	.56	e.00	3.8	1.5	3.4	.11	.14	.07	.00
12	.02	.01	.23	e.70	e.00	3.6	1.5	3.1	.10	.65	.01	.00
13	.02	.01	.29	e.60	e.05	3.1	1.5	5.1	.07	10	.00	.00
14	.02	.04	.25	e.60	e.20	3.2	1.7	4.3	.06	42	.00	.00
15	.02	.03	.24	e.56	e.40	2.7	1.6	3.8	.08	9.7	.00	.53
16	.02	.02	.26	e.48	e.60	2.3	1.6	3.1	.27	3.0	.15	.00
17	.02	.02	e.25	e.40	e1.0	2.2	1.5	2.8	.05	1.2	.01	.00
18	.02	.02	e.18	e.33	e10	2.1	1.5	2.6	.02	.66	.00	.00
19	.02	.01	e.18	e.28	e20	2.0	1.4	2.4	.02	.38	.00	.00
20	.02	.02	e.18	e.24	e12	1.9	1.4	2.3	.01	.12	.00	.00
21	.02	.01	e.16	e.20	e9.0	1.7	1.4	2.1	.01	.07	.00	.00
22	.02	.01	e.13	e.30	e7.0	1.6	1.4	1.9	.01	.03	.00	.00
23	.02	.01	e.16	e.40	e5.8	1.8	1.6	1.7	.01	.02	.03	.00
24	.03	.00	e.18	e.35	e4.7	1.7	1.7	1.6	.00	.01	.00	.00
25	.02	.00	e.30	e.30	e3.8	1.6	4.7	1.5	.00	.01	.00	.00
26	.02	.00	e.46	e.26	e3.1	1.6	5.6	1.5	.00	.01	.00	.00
27	.03	.00	e.30	e.20	e2.5	1.5	6.8	1.4	.05	.00	.00	.00
28	.03	e.02	e.18	e.20	e2.0	2.1	9.5	1.3	.00	.00	.00	.00
29	.03	e.04	e.30	e.20	---	1.7	9.4	1.2	.00	.00	.00	.00
30	.03	e.08	e.50	e.20	---	2.3	10	1.0	.00	.00	.00	.00
31	.03	---	e.62	e.19	---	1.8	---	.93	---	.00	.00	---
TOTAL	2.34	0.55	9.06	13.97	82.42	210.5	85.1	111.73	7.02	76.52	0.27	0.53
MEAN	.075	.018	.29	.45	2.94	6.79	2.84	3.60	.23	2.47	.009	.018
MAX	.54	.08	.62	.80	20	44	10	9.1	1.0	42	.15	.53
MIN	.00	.00	.09	.19	.00	1.5	1.4	.93	.00	.00	.00	.00
AC-FT	4.6	1.1	18	28	163	418	169	222	14	152	.5	1.1

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1994, BY WATER YEAR (WY)

MEAN	.43	.15	.099	.17	.83	2.04	2.26	4.86	5.21	.62	.16	.20
MAX	7.99	1.23	.94	1.52	17.4	23.1	14.6	50.0	45.8	4.55	1.51	2.23
(WY)	1983	1987	1973	1974	1971	1978	1973	1982	1972	1962	1984	1957
MIN	.000	.000	.000	.000	.000	.019	.030	.013	.000	.000	.000	.000
(WY)	1959	1955	1957	1957	1956	1961	1959	1959	1956	1960	1954	1958

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1954 - 1994	
ANNUAL TOTAL	848.48		600.01			
ANNUAL MEAN	2.32		1.64		1.42a	
HIGHEST ANNUAL MEAN					5.50	1972
LOWEST ANNUAL MEAN					.012	1961
HIGHEST DAILY MEAN	88	Jun 9	44	Mar 3	610	Jun 19 1972
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1b	.00	Apr 2 1954b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Jun 28	.00	Jul 3 1954
INSTANTANEOUS PEAK FLOW			59	Jul 14c	930	Jun 19 1972
INSTANTANEOUS PEAK STAGE			6.29	Mar 3d	9.15	Jun 19 1972
ANNUAL RUNOFF (AC-FT)	1680		1190		1030	
10 PERCENT EXCEEDS	3.4		4.2		2.2	
50 PERCENT EXCEEDS	.29		.20		.02	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a Median of annual mean discharges, 1.0 ft^3/s.
b No flow for many days in each year.
c Gage height, 5.55 ft.
d Backwater from ice.

BELLE FOURCHE RIVER BASIN

06434500 INLET CANAL NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°42'14", long 103°49'23", in NE1/4 NW1/4 sec.36, T.9 N., R.2 E., Butte County, Hydrologic Unit 10120202, on right bank 0.5 mi downstream from Crow Creek, 0.9 mi downstream from diversion dam on Belle Fourche River, and 2.5 mi northeast of Belle Fourche.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year. Monthly diversions from Inlet Canal between station and reservoir for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,985.22 ft above sea level. Prior to Dec. 10, 1946, nonrecording gage, and Dec. 10, 1946, to Nov. 26, 1949, water-stage recorder at site 0.8 mi upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Records show actual diversions to Belle Fourche Reservoir (see station 06435000), from Belle Fourche River and Crow Creek, except for 6,670 acre-ft which was diverted for irrigation from the canal between the station and reservoir.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	.00	e140	129	e130	e300	120	.00	108	59	116	115
2	94	.00	e145	130	e130	e800	119	.00	91	59	94	128
3	97	.00	e150	132	e130	e1000	119	.00	94	58	97	123
4	97	.00	148	135	e130	e1040	120	.00	99	59	96	117
5	73	.00	135	135	e130	1180	165	.00	91	64	94	112
6	81	.00	127	133	e115	963	193	.00	101	98	89	104
7	85	.00	133	122	e100	704	228	.00	105	570	85	102
8	92	.00	124	e155	e80	546	252	.00	103	385	92	102
9	92	.00	122	e160	e70	540	254	.00	99	225	81	94
10	92	.00	122	e160	e80	642	254	.00	98	145	87	94
11	92	.00	121	e160	e100	342	253	.00	122	143	86	97
12	96	.00	124	e160	e120	57	196	.20	121	136	86	98
13	100	.00	123	e145	e135	55	77	28	114	384	94	100
14	93	.00	120	e150	e185	54	184	2.5	104	271	92	92
15	91	.00	119	e160	e180	55	244	14	100	169	79	88
16	100	.00	119	e155	e190	47	251	66	114	155	74	106
17	113	.00	116	e145	e190	45	250	112	114	148	74	110
18	70	.00	147	e130	e280	39	250	130	117	138	74	109
19	.00	.00	141	e130	e400	35	252	169	115	128	75	103
20	.00	.00	150	e130	e310	34	251	237	114	126	84	96
21	.00	.00	155	e135	e260	31	253	317	96	117	87	93
22	.00	.00	151	e145	e200	30	142	302	86	110	86	99
23	.00	e60	151	e160	e190	18	79	285	83	139	84	96
24	.00	e60	152	e155	e170	67	79	267	73	182	80	92
25	.00	e55	135	e145	e140	114	91	242	66	110	81	87
26	.00	e55	124	e135	e150	114	6.2	220	67	122	82	89
27	.00	e70	125	e135	e160	112	.81	175	51	120	75	89
28	.00	e110	145	e135	e185	111	.00	165	54	120	79	87
29	.00	e140	162	e135	---	110	.00	152	56	126	82	66
30	.00	e135	151	e130	---	117	.00	140	54	122	86	93
31	.00	---	126	e130	---	133	---	133	---	120	101	---
TOTAL	1650.00	685.00	4203	4396	4640	9435	4683.01	3156.70	2810	4908	2672	2981
MEAN	53.2	22.8	136	142	166	304	156	102	93.7	158	86.2	99.4
MAX	113	140	162	160	400	1180	254	317	122	570	116	128
MIN	.00	.00	116	122	70	18	.00	.00	51	58	74	66
AC-FT	3270	1360	8340	8720	9200	18710	9290	6260	5570	9740	5300	5910

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1994, BY WATER YEAR (WY)

MEAN	142	148	147	140	155	228	241	220	196	115	104	114
MAX	389	235	212	221	337	693	711	704	669	288	281	243
(WY)	1983	1973	1974	1974	1971	1978	1950	1982	1962	1981	1980	1951
MIN	22.4	7.23	8.32	86.1	16.5	.000	.000	1.55	2.66	3.82	2.68	17.9
(WY)	1947	1947	1947	1949	1973	1966	1947	1972	1965	1960	1961	1959

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1946 - 1994	
ANNUAL TOTAL	60038.71		46219.71			
ANNUAL MEAN	164		127		162	
HIGHEST ANNUAL MEAN					240	1962a
LOWEST ANNUAL MEAN					69.7	1961
HIGHEST DAILY MEAN	1340	Jun 9	1180	Mar 5	1410	May 16 1982
LOWEST DAILY MEAN	.00	Jul 1	.00	Oct 19b	.00	Mar 29 1946b
ANNUAL SEVEN-DAY MINIMUM	.00	Oct 19	.00	Oct 19	.00	Jun 4 1946
INSTANTANEOUS PEAK FLOW			1250	Mar 5c	1440	Jun 8 1993d
INSTANTANEOUS PEAK STAGE			12.12	Mar 3f	12.12	Mar 3 1994f
ANNUAL RUNOFF (AC-FT)	119100		91680		117600	
10 PERCENT EXCEEDS	340		232		286	
50 PERCENT EXCEEDS	102		110		140	
90 PERCENT EXCEEDS	.00		.00		26	

e Estimated
a Also 1978 water year.
b No flow at times in most years.
c Gage height, 10.66 ft.
d Gage height, 11.48 ft.
f Backwater from ice.

BELLE FOURCHE RIVER BASIN

06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURE: October 1968 to current year.

REMARKS.--Specific conductance and temperature data collected once daily by observer; daily record extremes are not reported for the current year because there was greater than 20 percent missing record and a reasonable chance that the extreme values might have occurred during the missing record periods.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum observed daily, 3,100 microsiemens, Feb. 13, 1969; minimum daily, 335 microsiemens, Feb. 12, 1971.
WATER TEMPERATURE: Maximum observed daily, 30.0°C, Aug. 28-30, 1987, June 19, 1988, June 27, 1990; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
OCT										
12...	1000	93	1420	8.2	7.0	7.5	700	194	200	49
DEC										
21...	1010	165	1390	8.4	-0.5	0.0	730	208	210	51
FEB										
02...	1030	128	1360	8.2	-4.0	0.0	710	215	210	46
MAR										
09...	1015	455	1140	8.4	3.0	1.5	500	141	140	37
APR										
13...	0800	73	1390	8.2	10.0	10.0	650	183	180	49
MAY										
23...	0750	284	1240	8.2	15.5	17.0	610	188	170	45
JUN										
14...	0945	100	1540	8.2	18.5	18.5	770	175	210	60
JUL										
13...	1215	439	908	7.8	19.0	17.5	340	113	91	28
AUG										
16...	1200	74	1310	8.1	35.0	23.0	580	169	150	49

DATE	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)	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, DIS-SOLVED (TONS PER AC-FT) (70303)
OCT										
12...	36	10	0.6	3.6	590	7.9	0.40	10	1020	1.38
DEC										
21...	28	8	0.4	2.3	580	7.3	0.30	11	1020	1.38
FEB										
02...	22	6	0.4	2.8	570	5.9	0.40	11	999	1.36
MAR										
09...	40	15	0.8	6.6	470	5.6	0.40	9.0	797	1.08
APR										
13...	43	12	0.7	4.9	580	7.0	0.40	7.1	982	1.34
MAY										
23...	37	12	0.7	4.7	510	6.1	0.40	9.9	897	1.22
JUN										
14...	52	13	0.8	6.6	720	7.1	0.40	8.1	1170	1.59
JUL										
13...	46	22	1	10	350	9.3	0.40	6.9	612	0.83
AUG										
16...	77	22	1	9.6	540	14	0.50	7.4	949	1.29

BELLE FOURCHE RIVER BASIN

06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)
OCT 12...	256	0.040	0.05	<0.010	0.120	0.120	0.120	--	0.020	0.010
DEC 21...	453	0.030	0.04	<0.010	0.390	0.390	0.390	--	<0.010	<0.010
FEB 02...	345	0.050	0.06	0.010	0.430	0.430	0.420	0.420	0.050	0.010
MAR 09...	979	0.100	0.13	<0.010	0.350	0.350	0.350	--	0.170	0.020
APR 13...	194	0.030	0.04	0.030	0.130	0.130	0.100	0.100	0.030	<0.010
MAY 23...	688	<0.010	--	<0.010	0.130	0.130	0.130	--	0.010	<0.010
JUN 14...	316	0.010	0.01	<0.010	--	<0.050	--	--	0.120	0.010
JUL 13...	725	0.090	0.12	0.020	0.390	0.390	0.370	0.370	0.610	0.110
AUG 16...	189	0.030	0.04	<0.010	--	<0.050	--	--	0.140	0.030

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)
OCT 12...	<0.010	2	100	<1.0	<1	<1	1	<3	<1	33
DEC 21...	0.010	--	110	--	--	--	--	--	--	--
FEB 02...	0.010	--	80	--	--	--	--	--	--	--
MAR 09...	0.010	<1	100	<1.0	<1	<1	2	31	<1	44
APR 13...	<0.010	--	130	--	--	--	--	--	--	--
MAY 23...	0.020	--	130	--	--	--	--	--	--	--
JUN 14...	<0.010	--	180	--	--	--	--	--	--	--
JUL 13...	0.100	--	130	--	--	--	--	--	--	--
AUG 16...	0.030	--	180	--	--	--	--	--	--	--

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CYANIDE TOTAL (MG/L AS CN) (00720)
OCT 12...	67	<0.10	8	1	1	<1.0	2400	1	<3	<0.010
DEC 21...	--	--	--	--	--	--	--	--	--	--
FEB 02...	--	--	--	--	--	--	--	--	--	--
MAR 09...	95	<0.10	3	7	2	<1.0	1800	2	120	--
APR 13...	--	--	--	--	--	--	--	--	--	--
MAY 23...	--	--	--	--	--	--	--	--	--	--
JUN 14...	--	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	--
AUG 16...	--	--	--	--	--	--	--	--	--	--

BELLE FOURCHE RIVER BASIN

06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1430	---	1330	---	---	1290	1410	---	1450	1680	1350	1340
2	---	---	1360	---	---	1000	---	---	1480	1690	1380	1350
3	---	---	1380	1420	1320	600	---	---	1480	---	1410	1360
4	1390	---	---	1440	1310	590	1430	---	1520	1620	1380	---
5	1390	---	---	1430	---	---	1390	---	---	1590	1400	---
6	1440	---	1430	1450	---	870	1380	---	1540	1520	1400	1380
7	1430	---	1460	1380	1340	970	1400	---	1500	1120	---	1370
8	1420	---	1410	---	---	1040	1380	---	1460	930	1410	1360
9	---	---	1400	---	---	---	---	---	1440	1030	1430	1430
10	---	---	1390	1270	1510	1050	---	---	1470	---	1390	---
11	1400	---	---	1350	1410	950	1380	---	---	1270	1400	---
12	1360	---	---	1370	---	---	1360	---	---	1240	1380	1480
13	1340	---	1390	1390	---	---	---	---	1480	950	---	---
14	1380	---	1380	1330	1190	870	1320	---	1490	1070	---	1470
15	1400	---	1410	---	1250	880	---	---	1560	1300	1360	1440
16	---	---	1420	---	1260	---	---	---	1500	---	1360	---
17	---	---	---	---	1290	950	---	1190	1450	---	1390	---
18	1350	---	---	1610	1240	970	1220	---	1440	1380	1430	---
19	---	---	---	---	---	---	1200	1210	---	1390	1430	1350
20	---	---	---	1500	---	---	---	1110	1430	1390	1430	---
21	---	---	---	1440	---	---	1030	---	1430	1390	---	1390
22	---	---	---	---	1240	---	980	---	1420	---	1420	---
23	---	---	---	---	---	1190	---	1250	1440	1400	---	1360
24	---	1280	---	1350	---	1140	---	1270	1470	---	1390	---
25	---	---	---	1350	---	---	930	1290	---	1380	1400	---
26	---	---	---	1360	---	---	---	1330	---	1380	1400	1390
27	---	---	---	1350	---	---	1860	1420	1600	1370	---	---
28	---	---	---	---	1290	1320	---	1410	1630	1360	---	---
29	---	---	---	---	---	1340	---	---	1640	1350	1420	1380
30	---	---	---	---	---	1330	---	---	1650	---	1420	1340
31	---	---	---	---	---	1390	---	1460	---	---	---	---

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	---	.0	---	---	.0	7.5	---	19.0	25.0	26.5	12.5
2	---	---	.0	---	.0	.5	---	---	19.5	18.0	23.5	13.0
3	---	---	.0	3.0	.0	2.5	---	---	18.0	---	25.0	15.5
4	10.5	---	---	.5	.0	.5	7.5	---	19.5	26.5	24.5	---
5	10.0	---	---	.0	---	---	5.0	---	---	24.0	26.5	---
6	12.0	---	.0	.0	---	2.5	5.5	---	21.0	20.5	27.0	21.0
7	10.5	---	.0	.0	.0	1.0	6.0	---	19.0	15.5	---	22.0
8	6.5	---	.0	---	---	.5	6.0	---	19.5	17.0	23.0	22.0
9	---	---	3.0	---	---	---	---	---	18.0	16.5	24.0	24.0
10	---	---	1.0	.0	.0	2.0	---	---	18.5	---	25.5	---
11	6.5	---	---	.0	.0	4.0	6.5	---	---	25.0	24.0	---
12	7.0	---	---	.0	---	---	7.5	---	---	23.5	27.0	17.5
13	8.0	---	2.5	.0	---	---	---	---	21.0	17.0	---	---
14	9.0	---	.0	.0	.0	7.0	10.5	---	---	22.5	---	18.0
15	8.0	---	.0	---	.0	7.5	---	---	17.5	22.5	27.0	15.5
16	---	---	.0	---	.0	---	---	---	15.5	---	25.5	---
17	---	---	---	---	.5	7.0	---	19.0	17.5	---	25.5	---
18	8.5	---	---	.0	1.0	7.5	14.0	---	18.0	27.5	26.0	---
19	---	---	---	---	---	---	14.5	18.5	---	23.5	22.0	20.5
20	---	---	---	.0	---	---	---	19.0	25.5	21.5	26.5	---
21	---	---	---	.0	---	---	12.5	---	27.0	22.5	---	13.0
22	---	---	---	---	---	---	13.5	---	23.0	---	23.0	---
23	---	---	---	---	---	3.5	---	19.5	23.0	24.0	---	10.5
24	---	.0	---	.0	---	3.0	---	20.5	23.0	---	25.0	---
25	---	---	---	.0	---	2.5	13.0	19.0	---	21.5	25.5	---
26	---	---	---	.0	---	---	---	21.0	---	23.5	27.0	10.6
27	---	---	---	.0	---	---	.5	22.5	22.0	24.0	---	---
28	---	---	---	---	.0	.5	---	19.0	19.0	25.5	---	---
29	---	---	---	---	---	.5	---	---	29.5	26.5	24.0	12.5
30	---	---	---	---	---	1.0	---	---	21.5	---	19.5	14.0
31	---	---	---	---	---	4.5	---	20.5	---	---	---	---

BELLE FOURCHE RIVER BASIN

06435000 BELLE FOURCHE RESERVOIR NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°44'12", long 103°40'27", in SW1/4 SE1/4 sec.18, T.9 N., R.4 E., Butte County, Hydrologic Unit 10120202, at dam on Owl Creek, 9.8 mi northeast of Belle Fourche.

PERIOD OF RECORD.--January 1912 to current year (monthend contents only).

GAGE.--Water-stage recorder. 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 06434500) 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, 186,300 acre-ft, May 23, elevation, 2,975.12 ft; minimum, 74,400 acre-ft, Sept. 20, elevation, 2,958.04 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,965.20	114,500	-
Oct. 31	2,965.46	116,100	+1,600
Nov. 30	2,965.61	117,100	+1,000
Dec. 31	2,967.18	127,300	+10,200
CAL YR 1993	-	-	+93,800
Jan. 31	2,968.61	137,100	+9,800
Feb. 28	2,970.53	150,900	+13,800
Mar. 31	2,973.77	175,500	+24,600
Apr. 30	2,975.01	185,400	+9,900
May 31	2,974.31	179,800	-5,600
June 30	2,971.46	157,800	-22,000
July 31	2,966.87	125,200	-32,600
Aug. 31	2,960.77	88,600	-36,600
Sept. 30	2,958.33	75,900	-12,700
WTR YR 1994	-	-	-38,600

BELLE FOURCHE RIVER BASIN

06436000 BELLE FOURCHE RIVER NEAR FRUITDALE, SD

LOCATION.--Lat 44°41'27", long 103°44'14", in NW1/4 NE1/4 sec.3, T.8 N., R.3 E., Butte County, Hydrologic Unit 10120202, on left bank near downstream end of bridge on U.S. Highway 212, 2.5 mi northwest of Fruitdale, and 8.8 mi downstream from point of diversion to Belle Fourche Reservoir.

DRAINAGE AREA.--4,540 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 Feb. 12, 1952, usable capacity, 191,600 acre-ft, 180 mi upstream. Maximum discharge prior to Sept. 30, 1952, 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section. Gage-height telemeter at station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	152	26	6.0	5.9	e7.5	149	1080	15	11	6.8	12
2	43	158	21	5.9	6.2	80	157	1040	38	13	7.1	11
3	44	167	16	5.5	6.1	e900	157	1020	39	14	9.0	11
4	45	163	12	5.4	e7.0	e650	177	915	39	16	11	12
5	59	159	10	5.3	e7.0	68	160	834	35	16	12	10
6	45	148	9.1	e5.3	e7.0	12	123	764	31	11	14	10
7	43	155	8.1	e5.0	e7.0	8.3	111	703	29	13	11	9.7
8	43	160	8.5	e5.0	e6.0	8.3	77	640	30	18	8.8	9.6
9	43	161	8.5	e5.5	e5.5	10	68	581	31	15	11	9.5
10	43	157	8.5	6.4	e5.5	11	62	530	30	12	12	8.8
11	44	158	8.2	6.4	e6.0	116	62	488	28	11	13	8.7
12	44	153	8.3	6.3	e7.0	506	81	446	27	12	14	8.8
13	44	161	8.3	6.1	e7.0	513	229	396	27	21	17	9.3
14	44	163	7.9	6.0	e7.0	662	161	497	25	18	19	9.3
15	43	151	7.7	6.3	e7.0	749	69	458	23	15	20	9.9
16	35	158	7.7	6.6	e7.0	715	70	396	25	12	17	11
17	33	154	e8.0	e6.0	e7.0	742	74	365	27	13	17	11
18	67	167	e8.0	e5.5	e7.5	730	69	263	27	12	17	10
19	131	161	8.1	e6.0	e100	666	83	174	27	9.7	15	9.8
20	131	163	8.0	e7.0	e50	594	127	114	26	8.2	14	9.7
21	141	167	8.1	7.5	e40	552	162	29	24	8.7	16	9.2
22	142	152	8.0	7.6	e10	505	287	16	21	9.0	15	9.3
23	148	119	8.3	7.2	e8.0	465	418	13	20	11	15	9.7
24	150	34	8.2	6.7	e7.0	383	443	12	18	11	15	9.8
25	147	29	7.5	6.1	e6.0	272	471	12	18	13	15	9.4
26	144	35	7.1	6.0	e6.0	244	682	11	18	13	15	9.1
27	140	34	6.6	5.9	e6.0	222	674	13	16	13	14	8.5
28	140	30	6.8	5.8	e7.0	201	741	13	15	12	15	8.9
29	138	30	6.6	6.4	---	194	764	14	16	13	15	18
30	136	28	6.7	6.8	---	180	850	13	15	11	12	14
31	138	---	6.4	6.2	---	176	---	14	---	7.5	12	---
TOTAL	2630	3827	288.2	189.7	358.7	11142.1	7758	11864	760	393.1	424.7	307.0
MEAN	84.8	128	9.30	6.12	12.8	359	259	383	25.3	12.7	13.7	10.2
MAX	150	167	26	7.6	100	900	850	1080	39	21	20	18
MIN	33	28	6.4	5.0	5.5	7.5	62	11	15	7.5	6.8	8.5
AC-FT	5220	7590	572	376	711	22100	15390	23530	1510	780	842	609

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1994, BY WATER YEAR (WY)*

MEAN	11.4	11.7	5.53	4.21	17.1	67.6	106	268	202	41.4	16.9	9.91
MAX	84.8	128	26.0	12.6	222	973	953	1717	1149	525	142	54.4
(WY)	1994	1994	1965	1965	1973	1972	1971	1978	1976	1993	1953	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1953 - 1994*	
ANNUAL TOTAL	37239.0		39942.5			
ANNUAL MEAN	102		109		63.6a	
HIGHEST ANNUAL MEAN					263	1972
LOWEST ANNUAL MEAN					3.00	1961
HIGHEST DAILY MEAN	2980	Jun 30	1080	May 1	9110	Jun 15 1976
LOWEST DAILY MEAN	3.3	Apr 4	5.0	Jan 7	.00	Sep 10 1959b
ANNUAL SEVEN-DAY MINIMUM	3.6	Mar 31	5.3	Jan 3	.00	Jun 4 1961
INSTANTANEOUS PEAK FLOW			1240	May 1c	12700	May 20 1982
INSTANTANEOUS PEAK STAGE			8.83	Mar 3d	14.32	May 20 1982
ANNUAL RUNOFF (AC-FT)	73860		79230		46100	
10 PERCENT EXCEEDS	252		405		50	
50 PERCENT EXCEEDS	19		16		5.7	
90 PERCENT EXCEEDS	6.0		6.6		3.0	

e Estimated
* Regulated period only (1953-94) See REMARKS.
a Median of annual mean discharges, 37 ft^3/s.
b No flow at times in 1959-62, 1977.
c Gage height, 6.18 ft.
d Backwater from ice.

BELLE FOURCHE RIVER BASIN

06436156 WHITETAIL CREEK AT LEAD, SD

LOCATION.--Lat 44°20'36", long 103°45'57", in NE1/4 NE1/4 NW1/4 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 0.25 mi upstream from Kirk Power Plant.

DRAINAGE AREA.--6.15 mi^2.

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

GAGE.--Water-stage recorder and 24-in. Parshall flume. Elevation of gage is 5,080 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several water-quality samples were collected during the year, and the analytical results will be published in a later report. Water temperature and specific conductance measured during the year are compiled in Miscellaneous Temperature Measurements and Field Determination section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.5	e1.5	1.3	1.1	e2.0	e5.2	19	4.5	1.9	1.3	1.1
2	1.4	1.5	e1.5	1.3	1.0	e2.5	e5.5	21	4.5	1.8	1.3	1.1
3	1.4	1.5	e1.5	1.4	.99	e3.0	e5.5	21	4.4	1.7	1.3	1.1
4	1.4	1.5	e1.5	e1.4	.84	e3.7	e6.0	22	4.2	1.6	1.3	1.0
5	1.4	e1.4	e1.2	1.4	.87	e4.6	e6.0	22	4.0	1.6	1.3	.99
6	1.3	e1.0	e1.0	1.3	.91	e4.0	e6.0	22	3.9	5.0	1.2	1.0
7	1.4	e1.2	e1.1	e1.1	.79	e3.0	5.9	22	3.8	3.2	1.2	1.0
8	1.4	1.5	e1.4	e1.1	e.70	e2.8	6.2	21	3.8	2.3	1.2	.98
9	1.4	1.6	e1.5	1.4	e.64	e2.5	6.1	20	3.6	2.0	1.2	.97
10	1.5	1.5	e1.5	1.3	e.80	e2.7	6.2	19	3.4	1.7	1.2	.99
11	1.5	1.5	e1.5	1.3	.91	e3.0	6.4	18	3.3	1.6	1.2	.99
12	1.4	1.5	e1.6	1.2	.88	e3.4	7.1	17	3.2	1.9	1.2	.99
13	1.4	1.5	e1.6	1.3	.83	e4.0	8.5	16	3.1	2.1	1.2	.97
14	2.2	1.5	e1.5	1.3	.86	e5.0	9.9	15	3.0	1.8	1.1	.96
15	2.1	e1.3	e1.6	1.3	.90	e5.0	10	12	2.9	1.9	1.2	1.1
16	2.7	1.4	e1.5	1.3	.94	e6.0	12	12	3.5	1.7	1.2	1.2
17	2.1	1.4	e1.4	e1.0	1.0	e7.0	17	11	3.0	1.6	1.2	1.2
18	1.9	1.4	e1.4	e.85	1.5	e7.8	24	9.8	2.7	1.5	1.1	.98
19	1.8	e1.3	e1.5	e.88	1.5	e8.5	29	10	2.5	1.6	1.1	1.8
20	1.7	e1.2	e1.5	.87	1.3	e9.5	31	10	2.6	1.5	1.1	1.6
21	1.6	e1.1	e1.4	.89	e1.2	e13	34	8.2	2.3	1.4	1.1	2.2
22	1.6	e1.0	e1.5	.92	1.1	e10	35	7.4	2.5	1.4	1.1	2.0
23	1.6	e1.0	1.5	.92	e1.1	e8.0	32	6.9	2.3	1.4	1.1	2.3
24	1.5	e.85	1.6	.99	1.1	e6.5	31	6.7	2.1	1.4	1.0	2.3
25	1.5	e.80	1.5	.94	e1.1	e5.5	31	6.2	2.0	1.4	1.0	1.1
26	1.5	e1.0	1.5	.96	e1.1	e5.0	27	5.9	2.0	1.3	.99	1.4
27	1.5	e1.2	1.5	1.1	e1.3	e4.5	25	5.6	1.9	1.3	1.0	2.4
28	1.5	e1.5	1.6	1.0	e1.7	e4.2	22	5.3	2.1	1.3	1.1	2.0
29	1.5	e1.5	1.5	1.0	---	e4.2	20	5.1	1.9	1.3	1.1	1.9
30	2.4	e1.5	1.4	e.90	---	e4.2	19	4.7	1.9	1.3	1.1	2.0
31	1.6	---	1.4	e.90	---	e4.8	---	4.6	---	1.3	1.2	---
TOTAL	50.7	39.65	45.2	34.82	28.96	159.9	489.5	406.4	90.9	54.8	35.89	41.62
MEAN	1.64	1.32	1.46	1.12	1.03	5.16	16.3	13.1	3.03	1.77	1.16	1.39
MAX	2.7	1.6	1.6	1.4	1.7	13	35	22	4.5	5.0	1.3	2.4
MIN	1.3	.80	1.0	.85	.64	2.0	5.2	4.6	1.9	1.3	.99	.96
AC-FT	101	79	90	69	57	317	971	806	180	109	71	83

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	1.05	1.01	.93	.85	.86	2.14	6.07	10.4	4.99	2.38	1.38	1.11
MAX	1.64	1.32	1.46	1.12	1.03	5.16	16.3	13.1	10.3	4.52	2.55	1.68
(WY)	1994	1994	1994	1994	1994	1994	1994	1994	1993	1993	1993	1993
MIN	.74	.74	.43	.50	.63	1.15	2.87	4.81	2.68	1.53	.97	.74
(WY)	1991	1991	1991	1991	1993	1991	1991	1992	1992	1990	1990	1990

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	1323.66		1478.34			
ANNUAL MEAN	3.63		4.05		2.78	
HIGHEST ANNUAL MEAN					4.05	1994
LOWEST ANNUAL MEAN					1.71	1992
HIGHEST DAILY MEAN	25	May 8	35	Apr 22	35	Apr 22 1994
LOWEST DAILY MEAN	.35	Feb 17	.64	Feb 9	.06	Dec 20 1990
ANNUAL SEVEN-DAY MINIMUM	.53	Feb 12	.79	Feb 4	.14	Dec 20 1990
INSTANTANEOUS PEAK FLOW			38	Apr 22	39	Jul 20 1993a
INSTANTANEOUS PEAK STAGE			3.51	Apr 22	3.60	Jun 5 1991
ANNUAL RUNOFF (AC-FT)	2630		2930		2010	
10 PERCENT EXCEEDS	8.4		10		6.7	
50 PERCENT EXCEEDS	1.7		1.5		1.3	
90 PERCENT EXCEEDS	.70		.99		.73	

e Estimated
a Gage height, 3.56 ft.

BELLE FOURCHE RIVER BASIN

06436170 WHITEWOOD CREEK AT DEADWOOD, SD

LOCATION.--Lat 44°22'48", long 103°43'25", in NW1/4 NE1/4 SW1/4 sec.23, T.5 N., R.3 E., Lawrence County, Hydrologic Unit 10120202, on left bank 1,000 ft downstream from box culvert where stream leaves city and at the junction of lower Main Street and truck route of highways U.S. 85 and A.H. 14 in Deadwood.

DRAINAGE AREA.--40.6 mi^2, approximately.

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

GAGE.--Water-stage recorder. Elevation of gage is 4,500 ft above sea level, from topographic map. Prior to Apr. 25, 1983, at datum 2.00 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Homestake Mining Co. 3.5 mi upstream. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	13	13	12	12	16	42	107	36	12	12	11
2	13	13	13	12	12	17	45	130	36	12	12	11
3	13	13	13	12	11	21	45	157	33	14	12	11
4	12	13	12	12	12	26	48	176	33	12	12	11
5	12	12	12	12	12	31	47	167	34	12	12	9.7
6	13	12	12	10	11	30	47	155	35	40	11	9.3
7	14	14	12	11	11	26	48	138	34	21	11	9.2
8	14	13	12	12	11	23	50	125	33	16	11	9.0
9	13	13	12	11	11	22	50	111	31	13	10	8.5
10	14	13	11	11	12	23	52	102	30	13	11	8.3
11	14	13	12	11	12	24	52	93	30	12	10	9.0
12	14	13	14	11	11	25	56	85	30	14	11	8.8
13	14	13	12	11	13	28	65	84	27	18	9.8	8.4
14	19	13	11	11	13	38	75	77	25	14	11	8.0
15	19	13	12	11	12	44	74	69	25	16	10	11
16	20	13	12	11	12	47	79	64	30	13	11	8.8
17	16	12	12	9.5	13	55	107	60	22	12	11	9.7
18	14	12	12	11	18	56	162	60	22	12	10	9.0
19	14	13	11	12	20	69	201	67	18	12	9.8	9.3
20	14	12	12	12	17	77	226	68	16	11	9.5	8.6
21	13	13	11	11	14	69	237	56	17	12	9.3	11
22	14	11	10	15	14	64	227	54	21	11	9.0	10
23	14	10	9.8	16	13	56	211	51	21	11	9.2	10
24	14	10	12	15	12	49	187	52	18	12	9.1	9.5
25	14	11	12	12	12	45	194	48	15	11	9.6	9.3
26	13	12	12	12	14	41	147	44	16	12	9.5	8.1
27	13	13	11	12	14	37	126	39	14	11	9.4	9.3
28	14	14	11	12	14	36	107	37	14	11	10	9.3
29	13	13	11	11	---	35	96	37	13	11	10	8.5
30	13	12	11	11	---	36	96	35	13	11	10	8.6
31	14	---	11	12	---	37	---	34	---	12	12	---
TOTAL	438	375	363.8	364.5	363	1203	3199	2582	742	424	324.2	282.2
MEAN	14.1	12.5	11.7	11.8	13.0	38.8	107	83.3	24.7	13.7	10.5	9.41
MAX	20	14	14	16	20	77	237	176	36	40	12	11
MIN	12	10	9.8	9.5	11	16	42	34	13	11	9.0	8.0
AC-FT	869	744	722	723	720	2390	6350	5120	1470	841	643	560

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1994, BY WATER YEAR (WY)

MEAN	14.8	13.5	11.0	11.0	11.9	19.4	44.7	90.6	39.7	18.4	14.5	12.8
MAX	44.0	34.7	20.2	17.1	16.0	38.8	107	311	104	30.5	24.3	18.2
(WY)	1983	1983	1983	1983	1983	1994	1994	1982	1993	1993	1983	1983
MIN	8.57	8.22	6.51	4.80	8.54	12.2	20.2	14.7	13.9	10.4	10.3	9.41
(WY)	1982	1982	1982	1982	1982	1985	1992	1985	1985	1985	1992	1994

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1982 - 1994	
ANNUAL TOTAL	10589.0		10660.7			
ANNUAL MEAN	29.0		29.2		25.3a	
HIGHEST ANNUAL MEAN					43.8	1983
LOWEST ANNUAL MEAN					12.5	1985
HIGHEST DAILY MEAN	584	Jun 8	237	Apr 21	1960	May 15 1982
LOWEST DAILY MEAN	8.5	Mar 12	8.0	Sep 14	3.5	Jan 10 1982
ANNUAL SEVEN-DAY MINIMUM	9.0	Jan 4	8.6	Sep 8	4.4	Jan 6 1982
INSTANTANEOUS PEAK FLOW			263	Apr 20	2660	May 15 1982
INSTANTANEOUS PEAK STAGE			4.75	Apr 20	7.54	May 15 1982b
ANNUAL RUNOFF (AC-FT)	21000		21150		18300	
10 PERCENT EXCEEDS	47		67		42	
50 PERCENT EXCEEDS	14		13		14	
90 PERCENT EXCEEDS	9.4		10		9.6	

a Median of annual mean discharges, 20 ft^3/s.
b Present datum.

BELLE FOURCHE RIVER BASIN

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD

LOCATION.--Lat 44°26'32", long 103°37'44", in SE1/4 SE1/4 NE1/4 NE1/4 sec.33, T.6 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on left bank 90 ft downstream from Crook Mountain Road and 1.1 mi south of Whitewood.

DRAINAGE AREA.--56.3 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. Several water-quality samples were collected during the year and the analytical results will be published in a later report.

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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	15	e12	e10	e10	e18	51	113	29	16	14	12
2	14	15	e12	e10	e9.5	e25	55	142	30	16	14	13
3	14	15	e12	e10	e9.5	33	55	172	29	16	14	13
4	14	15	e12	e10	e9.5	37	60	178	29	16	14	12
5	13	e14	e11	e9.0	e9.5	41	58	173	28	16	13	12
6	13	e13	e10	e8.5	e9.5	41	56	173	27	47	13	12
7	14	e14	e10	e8.5	e9.5	37	59	153	26	31	12	11
8	15	16	e10	e9.0	e8.0	34	62	127	28	26	12	10
9	15	15	e11	e10	e8.5	35	60	119	25	21	12	10
10	15	15	e11	e10	e10	34	64	101	25	19	12	10
11	15	15	e11	e10	e11	35	65	89	24	18	12	10
12	15	14	e11	e10	e13	36	68	82	24	19	12	11
13	15	15	e11	e10	e14	38	72	81	23	26	11	10
14	18	14	e11	e10	e14	50	79	77	22	22	12	10
15	21	15	e11	e10	e14	56	77	64	21	22	12	12
16	22	14	e10	e8.5	e16	60	81	61	28	19	11	11
17	19	13	e9.0	e7.5	e18	71	103	56	22	17	13	12
18	17	13	e9.0	e7.5	e18	69	152	54	21	17	12	12
19	16	14	e9.0	e8.5	e18	82	194	48	21	17	12	11
20	16	14	e9.0	e8.5	e16	91	215	57	20	16	12	12
21	15	14	e9.0	e8.5	e15	81	226	43	19	16	11	13
22	16	13	e8.0	e10	e14	77	222	39	21	15	10	13
23	16	e10	e8.0	e12	e13	67	216	38	21	16	10	12
24	15	e8.0	e8.5	e12	e11	58	197	38	19	15	10	11
25	15	e8.0	e8.5	e11	e10	53	207	38	18	15	10	11
26	15	e9.0	e8.5	e11	e10	50	163	35	18	16	11	10
27	14	e10	e8.5	e11	e10	46	129	34	17	15	9.9	11
28	16	e11	e8.5	e11	e12	44	106	32	17	15	10	11
29	15	e12	e8.5	e10	---	43	93	32	16	14	11	10
30	e15	e12	e10	e10	---	45	90	31	16	14	11	10
31	e15	---	e10	e10	---	46	---	30	---	14	15	---
TOTAL	482	395.0	308.0	302.0	340.5	1533	3335	2510	684	582	367.9	338
MEAN	15.5	13.2	9.94	9.74	12.2	49.5	111	81.0	22.8	18.8	11.9	11.3
MAX	22	16	12	12	18	91	226	178	30	47	15	13
MIN	13	8.0	8.0	7.5	8.0	18	51	30	16	14	9.9	10
AC-FT	956	783	611	599	675	3040	6610	4980	1360	1150	730	670

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1994, BY WATER YEAR (WY)

MEAN	14.7	16.3	12.2	11.8	13.7	24.1	49.5	68.3	38.8	19.4	14.8	13.7
MAX	19.5	41.6	20.3	14.5	18.0	49.5	111	150	101	31.4	24.9	19.5
(WY)	1984	1983	1983	1992	1983	1994	1994	1983	1984	1993	1983	1983
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1983 - 1994	
ANNUAL TOTAL	10376.5		11177.4			
ANNUAL MEAN	28.4		30.6		23.1	
HIGHEST ANNUAL MEAN					35.7	1984
LOWEST ANNUAL MEAN					13.8	1985
HIGHEST DAILY MEAN	291	Jun 8	226	Apr 21	470	May 7 1983
LOWEST DAILY MEAN	5.0	Jan 1	7.5	Jan 17,18	5.0	Dec 1 1985a
ANNUAL SEVEN-DAY MINIMUM	5.9	Feb 18	8.4	Dec 22	5.5	Dec 22 1990
INSTANTANEOUS PEAK FLOW			261	Apr 20b	2080	Jun 5 1991
INSTANTANEOUS PEAK STAGE			3.78	Jan 23c	5.68	Jun 5 1991
ANNUAL RUNOFF (AC-FT)	20580		22170		16770	
10 PERCENT EXCEEDS	61		71		47	
50 PERCENT EXCEEDS	16		15		16	
90 PERCENT EXCEEDS	8.0		10		10	

e Estimated
a For many days.
b Gage height, 3.17 ft.
c Backwater from ice.

BELLE FOURCHE RIVER BASIN

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD--Continued

WATER-QUALITY RECORDS

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

REMARKS.--On Dec. 21, 1993, inorganic blank water was processed through the sampling equipment used for this site and then analyzed for quality-control purposes. The results of that equipment blank sample are presented in a table following the water-quality results. Also, on Sept. 7, 1994, a field duplicate sample was collected for quality-control purposes. The analytical results for that duplicate sample are noted in the water-quality results.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)
DEC											
27...	0900	8.5	1200	8.5	-8.0	0.0	670	12.0	94	460	175
FEB											
14...	1010	14	1100	8.4	5.0	0.0	665	11.8	93	390	158
MAR											
15...	1015	54	650	8.5	8.5	3.5	670	11.5	99	250	120
APR											
21...	0745	233	304	8.2	5.0	6.0	670	10.6	98	130	89
MAY											
24...	1110	40	696	8.9	20.5	14.5	670	10.5	117	290	127
JUN											
20...	0945	21	996	8.5	23.0	18.5	661	8.4	104	430	158
JUL											
19...	0900	16	1050	8.4	15.5	17.0	655	9.6	116	450	158
AUG											
17...	1010	12	1210	8.6	23.0	17.0	657	9.4	114	510	129
SEP											
01...	0800	12	1170	8.3	8.0	11.0	660	9.6	102	460	151
07...	0900	11	1280	8.4	12.0	12.5	657	9.2	101	510	149
*07...	0901	11	1280	8.4	12.0	12.5	657	9.2	101	530	149

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	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												
27...	100	52	74	25	1	10	400	29	1.1	9.9	813	826
FEB												
14...	90	41	69	--	2	--	340	--	--	11	--	--
MAR												
15...	59	26	30	--	0.8	--	160	--	--	12	--	--
APR												
21...	32	12	8.5	--	0.3	--	49	--	--	12	--	--
MAY												
24...	64	31	26	--	0.7	--	190	--	--	8.2	--	--
JUN												
20...	92	48	41	--	0.9	--	330	--	--	11	--	--
JUL												
19...	97	51	47	--	1	--	350	--	--	9.1	--	--
AUG												
17...	110	58	59	--	1	--	470	--	--	4.9	--	--
SEP												
01...	100	50	58	--	1	--	400	--	--	9.9	--	--
07...	110	56	71	--	1	--	460	--	--	8.7	--	--
*07...	120	56	70	--	1	--	460	--	--	8.5	--	--

* Field duplicate sample for quality-control purposes

BELLE FOURCHE RIVER BASIN

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	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)
DEC												
27...	1.12	19.0	0.030	0.04	6.90	6.90	6.90	0.091	<10	4	20	15
FEB												
14...	--	--	--	--	--	--	--	--	10	3	24	18
MAR												
15...	--	--	--	--	--	--	--	--	30	2	48	10
APR												
21...	--	--	--	--	--	--	--	--	10	3	150	11
MAY												
24...	--	--	--	--	--	--	--	--	30	2	16	13
JUN												
20...	--	--	--	--	--	--	--	--	60	2	40	19
JUL												
19...	--	--	--	--	--	--	--	--	30	2	28	20
AUG												
17...	--	--	--	--	--	--	--	--	10	2	19	18
SEP												
01...	--	--	--	--	--	--	--	--	10	3	27	20
07...	--	--	--	--	--	--	--	--	20	2	26	25
*07...	--	--	--	--	--	--	--	--	20	2	27	27

DATE	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (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)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
DEC												
27...	57	<0.5	130	<1	<1.0	1	<5	8	<10	<10	330	64
FEB												
14...	49	<0.5	--	<1	2.0	1	<5	4	<10	<10	730	71
MAR												
15...	51	<0.5	--	<1	<1.0	2	<5	<3	20	<10	4600	38
APR												
21...	42	<0.5	--	<1	<1.0	19	<5	<3	50	<10	14000	30
MAY												
24...	64	<0.5	--	<1	<1.0	11	<5	<3	<10	<10	680	26
JUN												
20...	74	<0.5	--	<1	<1.0	3	<5	4	20	<10	3000	64
JUL												
19...	71	<0.5	--	<1	<1.0	1	<5	6	10	<10	810	20
AUG												
17...	75	<0.5	--	<1	<1.0	<1	<5	7	20	<10	290	26
SEP												
01...	61	<0.5	--	<1	<1.0	<1	<5	5	<10	<10	460	29
07...	64	<0.5	--	<1	<1.0	<1	<5	8	<10	<10	280	28
*07...	66	<0.5	--	<1	<1.0	<1	<5	9	<10	<10	270	24

* Field duplicate sample for quality-control purposes

BELLE FOURCHE RIVER BASIN

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)
DEC											
27...	<1	<10	30	80	77	<0.10	<0.1	30	--	<10	2
FEB											
14...	2	<10	26	100	83	<0.10	<0.1	20	6	<10	2
MAR											
15...	8	<10	14	190	65	<0.10	<0.1	<10	8	<10	2
APR											
21...	32	20	4	580	23	0.30	<0.1	<10	39	<10	1
MAY											
24...	1	<10	12	50	21	<0.10	<0.1	<10	5	<10	2
JUN											
20...	5	<10	18	140	23	<0.10	<0.1	<10	13	<10	3
JUL											
19...	3	<10	17	40	4	<0.10	<0.1	<10	5	<10	3
AUG											
17...	1	<10	27	20	3	<0.10	<0.1	10	6	<10	4
SEP											
01...	2	<10	24	30	9	<0.10	<0.1	20	6	<10	4
07...	<1	<10	22	10	5	<0.10	<0.1	<10	6	<10	4
*07...	1	<10	23	10	5	<0.10	<0.1	10	6	<10	4

DATE	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)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	MEDIUM CODE
DEC											
27...	2	<1	<1.0	490	<6	<10	6	0.09	10	0.23	9
FEB											
14...	2	<1	<1.0	560	<6	<10	4	0.14	10	0.37	9
MAR											
15...	2	<1	<1.0	320	<6	40	5	0.07	76	11	9
APR											
21...	<1	<1	<1.0	140	<6	100	5	0.02	344	216	9
MAY											
24...	2	<1	<1.0	290	<6	10	<3	0.02	29	3.1	9
JUN											
20...	2	<1	<1.0	390	<6	40	<3	0.02	46	2.5	9
JUL											
19...	3	<1	<1.0	420	<6	20	<3	0.01	26	1.1	9
AUG											
17...	4	<1	<1.0	500	<6	20	11	0.02	12	0.40	9
SEP											
01...	4	<1	<1.0	450	<6	<10	<3	0.03	13	0.42	9
07...	4	<1	<1.0	480	<6	10	<3	0.02	5	0.15	9
*07...	3	<1	<1.0	490	<6	<10	7	0.02	--	--	R

* Field duplicate sample for quality-control purposes

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD--Continued

The following table presents the analytical results of a quality-control equipment blank.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	ALKA-LINITY 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)
DEC 21...	0700	12	7.5	1.3	<0.02	<0.01	<0.20	<0.10	<0.10	<0.10	<0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	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)
DEC 21...	0.12	1	0.010	0.01	<0.005	<0.001	10	<1	<1	<1

DATE	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (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)
DEC 21...	<2	<0.5	10	<1	<1.0	<1	<5	<3	<10	<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)
DEC 21...	<10	<3	<1	<10	<4	<10	<1	<0.10	<0.1	<10

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)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)
DEC 21...	<10	<1	<1	<1	<1.0	<1	<6	<10	4	<0.01

BELLE FOURCHE RIVER BASIN

06436190 WHITEWOOD CREEK NEAR WHITEWOOD, SD

LOCATION.--Lat 44°32'30", long 103°34'16", in SE1/4 NW1/4 SE1/4 NE1/4 sec.25, T.7 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on right bank 30 ft downstream from county highway bridge and 6.9 mi northeast of Whitewood.

DRAINAGE AREA.--77.4 mi^2, approximately.

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

GAGE.--Water-stage recorder. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	e16	e15	e15	18	32	48	132	32	13	9.5	12
2	15	16	e14	e15	18	57	52	167	34	13	9.2	12
3	15	15	e14	e15	18	74	50	204	33	14	9.9	11
4	15	15	e15	e15	e17	79	54	224	32	16	9.5	10
5	14	15	e16	e14	18	66	53	214	30	14	9.3	9.7
6	14	15	13	e13	19	43	55	197	28	24	8.7	9.7
7	12	14	e14	e10	14	35	56	164	28	24	8.1	8.9
8	13	14	e15	e10	e10	32	61	142	28	18	8.7	8.8
9	13	14	e16	e10	e9.0	34	58	125	25	16	8.2	8.9
10	13	14	e15	e11	14	34	60	108	24	16	8.7	8.7
11	13	14	e14	e12	16	36	61	97	24	16	9.5	9.1
12	14	14	e16	e12	18	37	65	87	23	18	9.5	9.7
13	14	14	e15	e12	19	40	70	81	23	23	8.8	10
14	29	13	14	e13	20	50	78	68	19	20	8.5	9.7
15	18	13	10	14	21	56	74	60	18	20	8.3	10
16	15	13	e10	15	19	56	76	55	26	18	8.1	12
17	15	13	e11	14	19	65	96	e55	20	15	9.1	11
18	15	13	e11	14	26	64	137	54	21	14	7.8	11
19	15	14	e11	14	25	71	184	51	21	14	7.9	10
20	15	15	e11	15	e19	82	202	58	19	13	8.5	10
21	15	17	e11	16	e15	71	223	46	18	13	8.1	11
22	e16	19	e12	20	e12	69	232	42	18	12	7.5	14
23	e16	12	e13	26	e14	61	237	37	21	12	7.3	13
24	e16	12	e14	25	e15	53	218	36	19	11	7.2	13
25	e16	12	e15	22	15	49	237	36	17	11	7.2	12
26	e16	12	e16	19	e15	45	195	34	16	12	7.7	12
27	e15	12	e14	18	e16	41	159	32	16	11	7.3	11
28	e16	15	e10	18	e18	48	129	30	16	10	7.6	10
29	e16	e16	e10	18	---	38	111	35	13	9.1	8.6	e10
30	e16	e15	e12	18	---	40	111	31	13	9.0	9.4	e10
31	e16	---	e12	17	---	43	---	29	---	9.3	12	---
TOTAL	474	426	409	480	477.0	1601	3442	2731	675	458.4	265.7	318.2
MEAN	15.3	14.2	13.2	15.5	17.0	51.6	115	88.1	22.5	14.8	8.57	10.6
MAX	29	19	16	26	26	82	237	224	34	24	12	14
MIN	12	12	10	10	9.0	32	48	29	13	9.0	7.2	8.7
AC-FT	940	845	811	952	946	3180	6830	5420	1340	909	527	631

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1994, BY WATER YEAR (WY)

MEAN	17.9	17.3	13.0	13.5	15.4	24.3	51.8	86.4	40.6	19.0	12.1	12.8
MAX	57.8	44.6	26.7	23.9	20.2	51.6	120	258	105	36.5	27.0	24.5
(WY)	1983	1983	1983	1983	1983	1994	1983	1982	1993	1993	1983	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1982 - 1994	
ANNUAL TOTAL	12065.7		11757.3			
ANNUAL MEAN	33.1		32.2		27.1a	
HIGHEST ANNUAL MEAN					48.1	1983
LOWEST ANNUAL MEAN					14.1	1985
HIGHEST DAILY MEAN	341	Jun 9	237	Apr 23	1840	May 20 1982
LOWEST DAILY MEAN	6.2	Jan 6	7.2	Aug 24,25	2.9	Jul 12 1985
ANNUAL SEVEN-DAY MINIMUM	7.8	Jan 1	7.4	Aug 22	3.3	Jul 8 1985
INSTANTANEOUS PEAK FLOW			261	Apr 23	3050	May 20 1982
INSTANTANEOUS PEAK STAGE			3.76	Apr 23	4.52	May 20 1982
ANNUAL RUNOFF (AC-FT)	23930		23320		19600	
10 PERCENT EXCEEDS	57		69		52	
50 PERCENT EXCEEDS	18		15		16	
90 PERCENT EXCEEDS	11		9.5		8.3	

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

BELLE FOURCHE RIVER BASIN

06436198 WHITEWOOD CREEK ABOVE VALE, SD

LOCATION.--Lat 44°37'04", long 103°28'52", in SE1/4 NW1/4 NE1/4 NW1/4 sec.35, T.8 N., R.5 E., Butte County, Hydrologic Unit 10120202, on right bank at point where South Canal crosses creek, 3.2 mi above mouth, and 3.7 mi west of Vale.

DRAINAGE AREA.--102 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 estimated daily discharges, which are poor. Diversions upstream from station for irrigation of about 800 acres. Several water-quality samples were collected during the year, and the analytical results will be published in a later report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	18	e13	e12	e12	e50	43	137	30	16	7.5	7.3
2	12	16	e13	e12	e13	e90	49	156	30	16	7.1	6.8
3	12	17	e13	e12	13	e88	48	178	29	16	7.1	6.6
4	12	16	e14	e10	13	e80	53	195	29	20	6.6	5.7
5	12	16	e15	e9.0	15	e66	49	187	27	19	6.7	5.0
6	11	13	e14	e8.0	17	e54	54	179	27	29	5.9	4.9
7	11	18	e13	e7.0	e11	49	52	159	25	48	4.7	4.2
8	13	19	e13	e7.0	e8.0	36	59	144	28	24	4.2	4.3
9	14	17	e13	e8.0	e5.5	33	54	129	26	18	5.3	3.8
10	13	17	e13	e9.5	e7.0	32	54	115	24	15	5.3	3.5
11	13	17	14	e9.5	e13	34	53	104	24	14	5.6	3.5
12	13	16	15	e9.5	e15	41	56	96	23	14	6.0	4.2
13	13	17	17	e10	e18	42	63	94	22	22	4.6	4.6
14	14	16	18	e9.0	e20	55	76	103	22	19	4.1	5.2
15	21	17	10	e9.0	e21	66	81	78	20	16	4.1	4.9
16	21	15	e9.5	e8.0	e22	59	81	67	27	19	3.8	8.2
17	21	15	e9.5	e7.0	e23	69	99	62	22	15	5.6	6.9
18	17	15	e9.0	e7.0	e23	72	145	56	19	14	3.6	7.3
19	16	17	e9.0	e7.5	e21	78	188	51	18	14	3.5	6.8
20	16	16	e9.0	e7.5	e18	101	209	65	17	12	3.9	6.6
21	17	16	e9.0	e8.0	e13	93	227	53	16	10	3.4	7.1
22	17	13	e8.5	e8.5	e13	87	225	47	18	10	4.1	9.6
23	17	7.6	e8.5	e11	e12	75	226	43	19	8.4	2.6	9.1
24	16	e5.3	e9.0	e13	e11	62	215	42	16	8.8	2.8	8.8
25	16	e5.3	e10	e13	e12	57	204	42	14	8.2	2.4	8.1
26	16	e6.5	e12	e12	13	51	173	38	15	9.1	2.6	8.4
27	15	e7.0	e7.0	e12	15	42	145	36	16	8.2	2.5	6.8
28	16	e10	e6.0	e12	26	41	129	34	16	7.8	3.0	7.8
29	16	e14	e7.0	e12	---	40	121	34	16	7.5	3.6	7.9
30	14	e13	e8.0	e11	---	37	122	33	16	6.8	4.2	7.9
31	17	---	e11	e11	---	42	---	31	---	6.8	5.6	---
TOTAL	464	425.7	350.0	302.0	423.5	1822	3353	2788	651	471.6	142.0	191.8
MEAN	15.0	14.2	11.3	9.74	15.1	58.8	112	89.9	21.7	15.2	4.58	6.39
MAX	21	19	18	13	26	101	227	195	30	48	7.5	9.6
MIN	11	5.3	6.0	7.0	5.5	32	43	31	14	6.8	2.4	3.5
AC-FT	920	844	694	599	840	3610	6650	5530	1290	935	282	380

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1994, BY WATER YEAR (WY)

MEAN	14.4	14.5	11.7	11.9	15.8	27.3	48.9	69.5	46.6	17.0	8.78	11.0
MAX	28.3	22.2	17.2	17.1	24.0	58.8	112	150	156	40.4	19.3	38.9
(WY)	1984	1987	1987	1987	1986	1994	1994	1984	1984	1993	1993	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1984 - 1994	
ANNUAL TOTAL	12540.9		11384.6			
ANNUAL MEAN	34.4		31.2		24.8a	
HIGHEST ANNUAL MEAN					45.3	1984
LOWEST ANNUAL MEAN					11.8	1985
HIGHEST DAILY MEAN	490	Jun 9	227	Apr 21	604	Jun 10 1984
LOWEST DAILY MEAN	4.6	Jan 1	2.4	Aug 25	.00	Jul 21 1985b
ANNUAL SEVEN-DAY MINIMUM	5.7	Jan 1	2.8	Aug 23	.79	Aug 15 1985
INSTANTANEOUS PEAK FLOW			365	Apr 22c	3680	Sep 24 1986d
INSTANTANEOUS PEAK STAGE			5.02	Mar 2f	5.06	May 5 1993
ANNUAL RUNOFF (AC-FT)	24870		22580		17960	
10 PERCENT EXCEEDS	64		79		51	
50 PERCENT EXCEEDS	17		15		15	
90 PERCENT EXCEEDS	9.3		5.6		6.2	

e Estimated
a Median of annual mean discharges, 22 ft^3/s.
b Also July 22 and Aug. 19, 1985.
c Gage height, 2.14 ft.
d From rating curve extended above 1,300 ft^3/s on basis of slope-area estimate of peak flow; gage height, 4.32 ft.
f Backwater from ice.

BELLE FOURCHE RIVER BASIN

06436198 WHITEWOOD CREEK ABOVE VALE, SD--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
DEC												
28...	0930	6.1	1550	8.2	-12.5	0.0	690	12.1	92	730	212	170
FEB												
15...	0900	21	1340	8.1	-4.0	0.0	690	12.2	93	550	192	130
MAR												
16...	0945	62	920	8.2	13.0	3.5	682	11.4	97	380	147	90
APR												
21...	1300	229	428	8.3	19.0	11.0	691	10.1	101	180	104	45
MAY												
25...	1020	43	902	8.3	20.5	15.5	688	9.2	102	400	167	92
JUN												
21...	0930	16	1270	8.2	25.0	19.0	679	8.3	101	570	174	130
JUL												
20...	0900	12	1230	8.2	19.5	17.0	679	9.0	105	530	138	110
AUG												
18...	0900	4.6	1430	8.1	24.0	19.5	676	7.6	94	640	157	140
SEP												
01...	1015	6.8	1310	8.0	13.0	11.5	682	10.0	103	570	164	130

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	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 AC-FT) (70303)
DEC												
28...	74	69	17	1	9.7	610	30	0.80	7.4	1120	1190	1.62
FEB												
15...	55	66	--	1	--	480	--	--	8.7	--	--	--
MAR												
16...	38	39	--	0.9	--	290	--	--	10	--	--	--
APR												
21...	16	12	--	0.4	--	96	--	--	11	--	--	--
MAY												
25...	40	30	--	0.7	--	270	--	--	6.2	--	--	--
JUN												
21...	59	47	--	0.9	--	480	--	--	5.2	--	--	--
JUL												
20...	62	53	--	1	--	480	--	--	2.2	--	--	--
AUG												
18...	70	64	--	1	--	590	--	--	3.0	--	--	--
SEP												
01...	59	58	--	1	--	480	--	--	6.6	--	--	--

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	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)
DEC											
28...	19.6	0.040	0.05	4.40	4.40	4.40	0.017	<10	4	43	22
FEB											
15...	--	--	--	--	--	--	--	<10	3	45	22
MAR											
16...	--	--	--	--	--	--	--	<10	4	120	16
APR											
21...	--	--	--	--	--	--	--	<10	4	480	22
MAY											
25...	--	--	--	--	--	--	--	<10	3	83	25
JUN											
21...	--	--	--	--	--	--	--	20	3	61	40
JUL											
20...	--	--	--	--	--	--	--	<10	3	47	31
AUG											
18...	--	--	--	--	--	--	--	<10	4	55	45
SEP											
01...	--	--	--	--	--	--	--	<10	4	72	47

BELLE FOURCHE RIVER BASIN

06436198 WHITEWOOD CREEK ABOVE VALE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (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)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
DEC											
28...	32	<0.5	120	<1	<1.0	1	<5	5	<10	<10	640
FEB											
15...	30	<0.5	--	<1	<1.0	<1	<5	4	<10	<10	730
MAR											
16...	38	<0.5	--	<1	<1.0	3	<5	3	20	<10	6700
APR											
21...	26	<0.5	--	<1	<1.0	16	<5	<3	70	<10	49000
MAY											
25...	52	<0.5	--	<1	<1.0	2	<5	<3	<10	<10	3700
JUN											
21...	54	<0.5	--	<1	<1.0	1	<5	<3	10	<10	900
JUL											
20...	45	<0.5	--	<1	<1.0	<1	<5	5	<10	<10	420
AUG											
18...	43	<0.5	--	<1	<1.0	<1	<5	4	10	<10	420
SEP											
01...	34	<0.5	--	<1	<1.0	<1	<5	<3	<10	<10	330

DATE	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)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)
DEC											
28...	62	<1	20	28	300	300	<0.10	<0.1	20	--	<10
FEB											
15...	23	<1	<10	23	220	180	<0.10	<0.1	20	4	<10
MAR											
16...	32	9	<10	21	370	160	0.10	<0.1	<10	8	<10
APR											
21...	24	36	<10	7	1800	48	0.70	<0.1	<10	46	<10
MAY											
25...	41	<1	<10	15	270	100	0.10	<0.1	<10	5	<10
JUN											
21...	120	<1	<10	26	190	130	<0.10	<0.1	<10	3	10
JUL											
20...	110	<1	<10	23	90	83	<0.10	<0.1	<10	2	<10
AUG											
18...	120	<1	<10	29	90	91	<0.10	<0.1	<10	2	<10
SEP											
01...	96	<1	<10	24	70	65	<0.10	<0.1	<10	2	<10

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)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
DEC											
28...	2	2	<1	<1.0	950	<6	<10	<3	0.02	39	0.65
FEB											
15...	2	2	<1	<1.0	760	<6	<10	8	0.03	67	3.8
MAR											
16...	2	2	<1	<1.0	520	<6	40	7	0.04	165	28
APR											
21...	<2	1	1	<1.0	220	<6	150	<3	0.02	1540	950
MAY											
25...	1	1	<1	<1.0	490	<6	20	<3	<0.01	56	6.5
JUN											
21...	2	2	<1	<1.0	700	<6	10	<3	<0.01	23	0.97
JUL											
20...	2	2	<1	<1.0	700	<6	<10	<3	<0.01	10	0.35
AUG											
18...	2	2	<1	<1.0	880	<6	<10	7	0.01	32	0.39
SEP											
01...	2	2	<1	<1.0	730	<6	<10	<3	<0.01	5	0.08

BELLE FOURCHE RIVER BASIN

06436760 HORSE CREEK ABOVE VALE, SD

LOCATION.--Lat 44°39'08", long 103°21'59", in SE1/4 NE1/4 SE1/4 sec.14, T.8 N., R.6 E., Butte County, Hydrologic Unit 10120202, on left bank 2.6 mi upstream from Dry Creek, 5.5 mi upstream from mouth, 3.0 mi northeast of Vale, and 4.5 mi southeast of Newell.

DRAINAGE AREA.--464 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.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	2.0	1.9	2.4	e1.8	e6.0	14	158	46	23	28	35
2	3.4	1.9	1.9	2.4	e1.8	e7.8	13	244	44	31	29	37
3	4.5	1.8	2.1	2.6	e1.8	e10	12	409	55	36	28	43
4	4.2	2.4	2.1	2.8	1.7	e1000	13	298	65	32	33	41
5	3.5	2.0	2.5	2.3	e1.8	e1500	13	167	49	35	41	47
6	3.1	2.0	2.3	e2.0	e2.0	1280	13	93	46	40	39	45
7	2.6	2.1	1.6	e1.5	e1.6	700	13	61	45	61	34	41
8	2.3	2.1	1.5	e1.5	e1.3	442	14	41	48	59	37	40
9	2.2	2.5	1.9	e1.6	e1.0	267	14	31	60	94	42	42
10	2.3	2.9	1.9	e1.6	e1.0	190	13	23	43	63	44	50
11	2.2	2.8	2.6	1.6	e1.1	162	15	18	30	52	41	52
12	2.1	2.8	2.8	1.6	e1.1	149	13	15	24	46	44	51
13	2.1	2.7	2.3	1.8	e1.1	161	12	12	19	65	35	45
14	2.0	2.8	2.0	e1.8	e1.2	226	10	10	13	61	36	51
15	1.9	2.8	2.5	e1.8	e1.2	248	8.5	9.5	8.3	58	37	48
16	1.9	2.5	e2.4	e1.7	e1.2	282	7.3	8.6	5.6	47	40	50
17	1.9	2.5	e2.4	e1.7	e1.3	235	6.8	8.8	4.5	43	59	51
18	1.8	2.6	e2.4	e1.6	e1.5	154	6.1	36	4.2	43	66	52
19	1.7	2.6	e2.4	e1.6	e1.6	115	5.4	35	3.7	31	51	52
20	1.7	2.2	e2.4	e1.6	e1.6	98	5.1	8.1	8.5	32	40	41
21	1.7	2.2	e2.5	e1.6	e1.7	83	5.3	4.8	16	22	34	25
22	1.7	2.3	e2.4	e1.8	e1.7	75	4.6	3.9	23	28	33	22
23	1.7	e2.1	2.5	e2.0	e1.8	65	4.3	3.0	32	27	43	13
24	1.8	e2.0	2.9	e1.8	e1.9	53	3.9	2.7	23	24	33	8.4
25	2.1	1.9	3.2	e1.6	e2.0	43	4.5	2.3	20	27	39	6.5
26	1.8	1.8	3.2	e1.6	e10	34	8.1	1.8	20	32	37	6.7
27	1.8	2.6	3.1	e1.6	e8.5	26	24	13	21	29	33	6.8
28	1.8	2.7	2.5	e1.7	e7.4	21	28	26	25	23	32	7.6
29	1.8	2.4	2.7	e1.8	---	17	23	22	30	25	36	8.9
30	1.7	2.0	2.4	e1.8	---	17	28	27	28	35	35	9.3
31	1.7	---	2.3	e1.8	---	14	---	35	---	28	33	---
TOTAL	71.0	70.0	73.6	56.6	63.7	7680.8	354.9	1827.5	859.8	1252	1192	1028.2
MEAN	2.29	2.33	2.37	1.83	2.27	248	11.8	59.0	28.7	40.4	38.5	34.3
MAX	4.5	2.9	3.2	2.8	10	1500	28	409	65	94	66	52
MIN	1.7	1.8	1.5	1.5	1.0	6.0	3.9	1.8	3.7	22	28	6.5
AC-FT	141	139	146	112	126	15230	704	3620	1710	2480	2360	2040

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1994, BY WATER YEAR (WY)

MEAN	19.6	4.14	3.07	4.77	7.73	65.5	40.9	139	63.8	90.4	53.3	55.5
MAX	169	12.4	8.50	31.7	34.2	251	229	901	252	464	82.6	311
(WY)	1983	1987	1983	1983	1983	1986	1987	1982	1984	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1981 - 1994	
ANNUAL TOTAL	30636.66		14530.1			
ANNUAL MEAN	83.9		39.8		45.9a	
HIGHEST ANNUAL MEAN					113	1982
LOWEST ANNUAL MEAN					10.4	1992
HIGHEST DAILY MEAN	1990	Jul 1	1500	Mar 5	14000	May 21 1982
LOWEST DAILY MEAN	.37	Jan 1	1.0	Feb 9,10	.07	Nov 7 1985
ANNUAL SEVEN-DAY MINIMUM	.85	Jan 1	1.1	Feb 9	.28	Dec 25 1990
INSTANTANEOUS PEAK FLOW			2200	Mar 4	17700	May 21 1982
INSTANTANEOUS PEAK STAGE			14.36	Mar 4b	24.80	May 21 1982
ANNUAL RUNOFF (AC-FT)	60770		28820		33290	
10 PERCENT EXCEEDS	201		59		72	
50 PERCENT EXCEEDS	8.1		8.6		7.6	
90 PERCENT EXCEEDS	1.6		1.7		1.6	

e Estimated
a Median of annual mean discharges, 36 ft^3/s.
b Backwater from ice.

BELLE FOURCHE RIVER BASIN

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD

LOCATION.--Lat 44°30'47", long 103°08'11", in SE1/4 NW1/4 sec.3, T.6 N., R.8 E., Meade County, Hydrologic Unit 10120202, on right bank near upstream end of bridge on State Highway 34, 0.5 mi upstream from Bear Butte Creek, and 20 mi northeast of Sturgis.

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

WATER-DISCHARGE RECORDS

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 February 1952. At a point 75 mi upstream, water is diverted to Belle Fourche Reservoir (see station 06435000), through Inlet Canal (see station 06434500), 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, 1952, 17,900 ft^3/s, May 24, 1946, gage height, 13.86 ft; no flow for many days in 1945 and 1950. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	174	e70	e45	e35	e65	287	1220	173	138	162	233
2	95	181	e68	e45	e34	e180	231	1380	203	129	158	255
3	91	188	e66	e45	e34	e1900	255	1420	215	155	168	266
4	91	194	e60	e45	e34	e3020	258	1350	306	161	167	270
5	90	e192	e60	e48	e34	3660	273	1140	285	166	169	242
6	89	e190	e55	e38	e40	2860	276	1010	272	180	194	232
7	99	e188	e50	e30	e34	1530	237	894	275	297	184	231
8	92	186	e50	e36	e30	907	244	794	441	335	199	211
9	93	191	e50	e38	e26	629	203	709	320	313	224	188
10	96	190	e55	e38	e30	474	184	641	289	282	243	193
11	95	192	e55	e38	e30	449	173	587	244	271	231	211
12	94	186	e55	e40	e40	512	168	540	204	236	224	220
13	95	187	e58	e45	e40	893	166	662	194	222	208	218
14	95	185	e50	e40	e44	962	259	541	165	293	202	219
15	92	196	e36	e35	e44	1160	295	546	142	286	226	211
16	97	193	e38	e35	e48	1090	192	502	126	253	247	232
17	99	191	e40	e30	e50	1060	180	447	118	236	257	257
18	94	189	e40	e26	e60	987	191	409	110	232	286	260
19	85	188	e40	e28	e90	938	226	387	107	225	276	262
20	123	200	e40	e30	e150	833	263	365	114	208	281	267
21	171	187	e40	e35	e200	743	315	282	147	195	265	211
22	179	196	e40	e35	e160	677	364	226	137	191	262	139
23	183	e150	e40	e40	e100	619	444	164	150	179	260	106
24	185	e70	e44	e40	e80	567	543	132	169	180	229	87
25	188	e60	e50	e35	e60	492	563	125	158	173	201	77
26	186	e60	e54	e33	e50	398	642	128	144	190	195	69
27	184	e70	e50	e33	e55	356	738	151	128	201	196	65
28	183	e80	e36	e35	e60	322	774	150	142	198	201	60
29	176	e80	e40	e35	---	304	861	148	137	186	224	54
30	182	e76	e45	e32	---	289	1040	150	135	181	221	52
31	180	---	e45	e32	---	278	---	154	---	175	223	---
TOTAL	3899	4810	1520	1140	1692	29154	10845	17354	5750	6667	6783	5598
MEAN	126	160	49.0	36.8	60.4	940	361	560	192	215	219	187
MAX	188	200	70	48	200	3660	1040	1420	441	335	286	270
MIN	85	60	36	26	26	65	166	125	107	129	158	52
AC-FT	7730	9540	3010	2260	3360	57830	21510	34420	11410	13220	13450	11100

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1994, BY WATER YEAR (WY)

MEAN	100	60.2	37.9	29.4	72.2	275	263	619	575	335	284	222
MAX	529	160	79.5	137	511	1715	1134	3478	2499	1473	625	723
(WY)	1983	1994	1987	1983	1971	1978	1971	1982	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1953 - 1994*	
ANNUAL TOTAL	136283		95212			
ANNUAL MEAN	373		261		240a	
HIGHEST ANNUAL MEAN					566	1978
LOWEST ANNUAL MEAN					27.4	1961
HIGHEST DAILY MEAN	6070	May 9	3660	Mar 5	29700	May 21 1982
LOWEST DAILY MEAN	24	Jan 6	26	Jan 18b	.00	Aug 9 1961
ANNUAL SEVEN-DAY MINIMUM	26	Jan 1	31	Jan 15	.56	Aug 8 1961
INSTANTANEOUS PEAK FLOW			4680	Mar 5c	36400	May 21 1982
INSTANTANEOUS PEAK STAGE			11.72	Mar 3d	19.10	May 21 1982
ANNUAL RUNOFF (AC-FT)	270300		188900		174100	
10 PERCENT EXCEEDS	1010		565		458	
50 PERCENT EXCEEDS	180		183		84	
90 PERCENT EXCEEDS	35		40		24	

e Estimated
* Regulated period only (1953-94). See REMARKS.
a Median of annual mean discharges, 218 ft^3/s.
b Also Feb. 9.
c Gage height, 9.01 ft.
d Backwater from ice.

BELLE FOURCHE RIVER BASIN

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1953 to September 1958, October 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: August 1954 to September 1958, October 1968 to September 1971, October 1973 to current year.

WATER TEMPERATURE: August 1954 to September 1958, October 1968 to September 1971, October 1974 to current year.

REMARKS.--Water temperature and specific conductance samples are collected once daily by an observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 7,000 microsiemens, May 16, 1981; minimum daily, 310 microsiemens, Mar. 7, 1993.

WATER TEMPERATURE: Maximum daily, 30.5°C, July 5, 1981; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum observed daily, 3,320 microsiemens, Jan. 10; minimum observed daily, 710 microsiemens, Mar. 5.

WATER TEMPERATURE: Maximum observed daily, 22.0°C, June 20, July 18, 31; minimum observed daily, 0.0°C, on many days during winter.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)
OCT											
12...	1415	94	2060	8.3	18.0	10.5	--	--	--	1000	--
DEC											
22...	0840	40	2860	8.2	-6.0	0.0	--	--	--	1400	--
FEB											
03...	1015	34	2650	7.8	-12.5	0.0	--	--	--	1200	--
MAR											
10...	1000	501	1230	8.3	3.5	1.5	--	--	--	350	--
APR											
13...	1215	174	1870	8.3	17.0	12.0	--	--	--	770	--
18...	1515	--	1440	8.4	24.0	18.5	700	10.1	118	630	470
MAY											
23...	1215	167	1570	8.3	24.5	22.0	--	--	--	680	--
JUN											
15...	1000	159	1720	8.4	24.0	19.0	--	--	--	760	--
JUL											
14...	0945	303	1700	8.3	20.5	21.5	--	--	--	740	--
AUG											
16...	0845	245	1800	8.1	21.0	22.0	--	--	--	840	--
SEP											
06...	0840	--	1840	8.3	11.5	15.5	690	8.6	96	850	--

DATE	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ALKA-LINITY 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)
OCT											
12...	--	188	240	97	110	19	2	7.8	--	--	930
DEC											
22...	--	367	300	150	220	26	3	9.0	--	--	1400
FEB											
03...	--	296	280	130	190	25	2	8.9	--	--	1300
MAR											
10...	--	92	76	39	110	40	3	8.1	--	--	460
APR											
13...	--	208	180	79	120	25	2	7.3	--	--	820
18...	163	157	150	63	80	21	1	6.1	179	10	610
MAY											
23...	--	160	160	68	89	22	1	7.2	--	--	700
JUN											
15...	--	162	180	76	97	21	2	9.1	--	--	790
JUL											
14...	--	152	180	71	100	22	2	8.9	--	--	770
AUG											
16...	--	168	200	82	110	22	2	11	--	--	860
SEP											
06...	--	168	210	78	100	20	1	9.6	--	--	840

BELLE FOURCHE RIVER BASIN

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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 AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)
OCT										
12...	19	0.60	5.6	1530	--	2.08	389	0.050	0.06	0.010
DEC										
22...	40	0.50	5.2	2360	--	3.21	257	0.080	0.10	0.020
FEB										
03...	35	0.60	7.9	2150	--	2.92	198	0.140	0.18	0.050
MAR										
10...	42	0.30	5.6	805	--	1.09	1090	0.150	0.19	0.030
APR										
13...	31	0.50	5.7	1370	--	1.87	646	0.020	0.03	0.030
18...	22	--	--	1030	1100	1.50	--	--	--	--
MAY										
23...	19	0.50	6.3	1150	--	1.56	517	<0.010	--	<0.010
JUN										
15...	16	0.50	3.5	1270	--	1.73	545	0.010	0.01	<0.010
JUL										
14...	20	0.50	3.7	1250	--	1.70	1020	0.010	0.01	<0.010
AUG										
16...	14	0.50	5.6	1390	--	1.88	917	0.030	0.04	0.010
SEP										
06...	17	--	--	1360	1460	1.99	--	--	--	--

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	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)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BORON, DISSOLVED (UG/L AS B) (01020)
OCT										
12...	1.10	1.10	1.09	1.09	0.020	<0.010	<0.010	--	7	260
DEC										
22...	4.20	4.20	4.18	4.18	<0.010	<0.010	<0.010	--	--	40
FEB										
03...	4.30	4.30	4.25	4.25	<0.010	<0.010	<0.010	--	--	320
MAR										
10...	1.60	1.60	1.57	1.57	0.280	0.020	0.020	--	4	130
APR										
13...	1.40	1.40	1.37	1.37	0.020	<0.010	<0.010	--	--	200
18...	--	--	--	--	--	--	--	<10	10	160
MAY										
23...	0.110	0.110	0.110	--	<0.010	<0.010	0.010	--	--	200
JUN										
15...	0.140	0.140	0.140	--	0.050	<0.010	<0.010	--	--	240
JUL										
14...	0.240	0.240	0.240	--	0.070	<0.010	<0.010	--	--	260
AUG										
16...	0.370	0.370	0.360	0.360	0.070	0.030	<0.010	--	--	260
SEP										
06...	--	--	--	--	--	--	--	10	11	250

BELLE FOURCHE RIVER BASIN

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)
OCT										
12...	<1.0	<1	1	2	48	<1	84	62	<0.10	--
DEC										
22...	--	--	--	--	--	--	--	--	--	--
FEB										
03...	--	--	--	--	--	--	--	--	--	--
MAR										
10...	<1.0	<1	<1	3	44	<1	74	98	<0.10	--
APR										
13...	--	--	--	--	--	--	--	--	--	--
18...	<1.0	<1	--	1	--	<1	--	--	--	<0.1
MAY										
23...	--	--	--	--	--	--	--	--	--	--
JUN										
15...	--	--	--	--	--	--	--	--	--	--
JUL										
14...	--	--	--	--	--	--	--	--	--	--
AUG										
16...	--	--	--	--	--	--	--	--	--	--
SEP										
06...	<1.0	<1	--	1	--	<1	--	--	--	<0.1

DATE	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS-SOLVED (UG/L AS U) (22703)	URANIUM NATURAL 2 SIGMA WATER, DISS, (UG/L) (75990)	CYANIDE TOTAL (MG/L AS CN) (00720)
OCT										
12...	5	3	2	<1.0	2600	<1	10	--	--	<0.010
DEC										
22...	--	--	--	--	--	--	--	--	--	--
FEB										
03...	--	--	--	--	--	--	--	--	--	--
MAR										
10...	<1	4	4	<1.0	730	2	<3	--	--	--
APR										
13...	--	--	--	--	--	--	--	--	--	--
18...	3	--	2	--	--	<1	8	7.2	1.1	--
MAY										
23...	--	--	--	--	--	--	--	--	--	--
JUN										
15...	--	--	--	--	--	--	--	--	--	--
JUL										
14...	--	--	--	--	--	--	--	--	--	--
AUG										
16...	--	--	--	--	--	--	--	--	--	--
SEP										
06...	4	--	4	--	--	1	<3	10	1.5	--

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1910	1620	2080	2940	2490	1760	1500	1500	1960	1790	1790	1770
2	1970	1590	2120	2900	2430	1050	1610	1460	2050	1840	1820	1790
3	2000	1540	2180	2830	2470	800	1690	1240	1760	1850	1800	1790
4	1980	1550	2180	2770	2540	760	1680	1240	1690	1820	1790	1750
5	2000	1520	2150	2800	2520	710	1620	1190	1750	1750	1790	1830
6	2020	1590	2200	2840	2570	800	1600	1070	1760	1770	1820	1820
7	2010	1600	2270	3080	2580	920	1660	1070	1730	1670	1820	1760
8	2000	1570	2380	3200	2710	1030	1680	1060	1590	1660	1840	1760
9	1960	1600	2440	3170	2560	1150	1760	1100	1590	1660	1820	1780
10	1980	1520	2490	3320	2700	1160	1780	1100	1680	1690	1830	1820
11	2000	1530	2540	3140	2490	960	1800	1130	1650	1670	1810	1890
12	2010	1580	2490	3180	2570	1500	1860	1160	1640	1730	1790	1880
13	1960	1590	2400	3150	2640	1520	1840	1140	1630	1700	1810	1810
14	2000	1620	2390	3240	2640	1240	1900	1390	1650	1720	1830	1810
15	2030	1580	2500	3080	2560	1280	1690	1290	1660	1740	1850	1820
16	2040	1590	2500	3010	2670	1210	1430	1310	1680	1730	1810	1840
17	2020	1580	2530	2940	2500	1170	1510	1350	1640	1710	1770	1850
18	2000	1690	2550	---	2550	1090	1400	1360	1700	1680	1770	1810
19	1940	1740	2670	2980	2370	1100	1400	1350	1640	1690	1780	1790
20	1930	1800	2660	3000	2110	1110	1210	1630	1710	1680	1750	1780
21	1940	1660	2760	3060	2220	1140	1020	1690	1750	1700	1730	1760
22	1870	1590	2830	2990	1700	1150	1060	1440	1640	1680	1720	1820
23	1680	1750	2820	2990	1400	1190	1000	1530	1840	1690	1710	1900
24	1660	2030	2800	2970	1360	1230	990	1620	1830	1730	1720	1980
25	1590	2020	2770	3050	1460	1250	930	1630	1740	1770	1700	2020
26	1610	2050	2780	2960	1510	1300	870	1780	1780	1770	1790	2030
27	1640	2040	2770	2920	1630	1390	---	1770	1800	1740	1840	2070
28	1560	2000	2830	2810	1740	1420	1110	2080	1840	1740	1820	2120
29	1560	2140	2880	2660	---	1430	1370	1810	1790	1720	1790	2150
30	1540	---	2860	2560	---	1460	1860	1960	1800	1760	1790	2190
31	1570	---	2860	2610	---	1500	---	1830	---	1760	---	---

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	3.5	1.0	.5	.5	.5	5.5	7.5	17.0	20.0	21.0	13.5
2	8.5	.5	1.0	.5	.5	.5	7.5	10.0	17.0	18.0	21.5	12.5
3	9.0	2.5	1.0	.5	.5	1.0	5.0	11.0	17.0	18.5	21.0	14.0
4	11.0	2.0	1.0	.5	.5	1.0	7.0	14.0	20.0	20.0	21.0	14.0
5	11.5	.0	1.5	.5	.5	1.0	5.0	13.5	20.0	20.5	17.0	14.0
6	12.0	.0	1.0	.5	.5	1.0	5.0	10.5	21.5	19.0	20.5	14.0
7	12.0	.0	1.5	.5	.5	.5	6.0	10.0	19.0	17.5	21.0	15.5
8	7.0	.0	1.5	.5	.5	.5	6.0	11.5	13.5	15.5	19.0	16.0
9	3.0	.5	1.5	.5	.5	.5	5.5	12.0	13.0	18.0	19.0	17.0
10	3.0	.5	1.0	.5	.5	1.0	7.0	13.0	16.0	20.5	20.0	17.0
11	7.0	.5	1.0	.5	.5	2.0	6.5	16.0	17.0	21.0	20.0	16.5
12	7.0	1.0	1.0	.5	.5	4.0	7.0	16.5	19.0	20.5	20.5	17.0
13	7.5	1.0	1.0	.5	.5	4.0	9.0	18.0	19.5	19.5	21.0	17.0
14	10.0	1.0	1.0	.5	.5	6.5	10.5	16.0	20.5	19.5	20.0	19.0
15	10.0	.0	1.0	.5	.5	5.0	7.0	15.5	17.5	21.0	20.0	16.5
16	11.0	.5	1.0	.5	.5	5.0	8.0	16.0	15.0	20.0	21.0	13.0
17	10.0	.5	1.0	.5	.5	6.0	11.0	18.0	17.0	20.0	19.0	14.0
18	19.0	.5	.5	---	.5	6.0	14.5	17.0	19.0	22.0	21.0	15.0
19	8.0	.0	.5	.5	.5	7.0	13.5	19.0	20.0	21.5	19.0	15.5
20	6.5	.0	.5	.5	.5	7.5	13.0	19.5	22.0	19.5	18.0	15.5
21	5.0	.0	.5	.5	.5	6.0	13.0	18.0	21.5	18.0	19.0	13.0
22	5.0	.0	.5	.5	.5	6.0	14.0	18.5	21.5	19.0	20.0	10.0
23	6.0	.0	.5	.5	.5	5.5	15.5	18.5	19.0	20.5	18.0	10.5
24	6.0	.0	.5	.5	.5	2.5	16.0	18.0	21.0	21.0	18.0	11.5
25	7.0	.0	.5	.5	.5	3.0	8.0	19.0	21.0	20.5	19.0	12.5
26	5.0	.0	.5	.5	.5	2.5	6.0	16.5	18.0	18.0	19.5	13.0
27	3.0	.0	---	.5	.5	1.5	---	17.0	17.5	17.5	20.0	13.0
28	5.0	.0	.5	.5	.5	.5	5.5	19.0	17.5	18.5	18.0	12.0
29	.0	.5	.5	.5	---	.5	5.5	17.0	19.0	20.0	18.0	13.0
30	.5	---	.5	.5	---	.5	6.5	18.0	19.5	21.0	18.0	14.0
31	.5	---	.5	.5	---	3.0	---	17.0	---	22.0	16.0	---

BELLE FOURCHE RIVER BASIN

06437020 BEAR BUTTE CREEK NEAR DEADWOOD, SD

LOCATION.--Lat 44°20'08", long 103°38'06", in NE1/4 SE1/4 sec.4, T.4 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on right bank 0.4 mi northeast of Galena, 0.5 mi downstream from Butcher Gulch, and 5.3 mi southeast of Deadwood.

DRAINAGE AREA.--16.6 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 poor. Several water-quality samples were collected during the year, and the analytical results will be published in a later report. Water temperature and specific conductance measured during the year are compiled in Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.5	2.3	e2.1	e2.8	4.8	17	35	6.7	2.2	2.0	1.2
2	1.8	e2.4	2.0	e2.0	e2.8	6.8	18	45	6.8	2.1	2.2	1.1
3	1.8	2.3	2.2	e1.8	e2.8	13	20	52	6.4	2.0	2.2	1.0
4	1.7	e2.0	2.4	e1.7	e2.9	15	23	63	6.0	2.5	2.0	.96
5	1.6	e1.8	e2.0	e1.7	e3.0	14	22	87	5.7	2.1	1.9	.87
6	1.5	e1.5	e1.6	e1.6	e2.6	15	19	70	5.4	6.9	1.7	.83
7	1.5	e1.7	e1.3	e1.4	e2.0	12	21	53	6.0	6.1	1.5	.75
8	1.8	e1.9	e1.5	e1.5	e1.5	e11	22	52	6.3	4.1	1.5	.75
9	1.9	e2.0	e1.5	e1.6	e1.0	e10	22	51	5.3	3.1	1.5	.76
10	2.1	e2.2	1.6	e1.8	e1.5	9.5	23	45	4.9	2.9	1.6	.71
11	2.0	2.4	1.6	e2.0	e2.0	10	24	41	4.7	2.7	1.5	.67
12	1.9	2.4	1.9	e2.6	e2.5	11	25	28	4.6	2.8	1.6	.64
13	2.2	2.1	1.6	3.3	e3.0	15	29	30	4.3	3.4	1.5	.74
14	5.1	e2.0	e2.5	3.5	e3.5	22	31	26	4.0	2.9	1.5	.78
15	7.7	e1.8	1.9	e3.5	e4.0	20	32	21	3.8	3.0	1.1	1.1
16	6.4	e1.8	e1.9	e3.5	e4.6	23	35	19	5.1	3.0	.98	1.2
17	5.0	1.8	e1.8	e3.0	e5.2	29	43	16	4.4	3.0	1.2	.96
18	4.1	1.9	e1.8	e2.7	e6.0	34	62	14	4.0	2.9	.92	.87
19	3.9	e2.0	e1.8	e3.0	e5.2	38	61	13	3.5	3.0	.92	.87
20	3.4	e2.0	e1.7	e3.5	e4.5	41	62	13	3.3	2.8	1.0	.84
21	2.9	2.2	e1.6	4.0	e4.0	38	65	12	3.8	2.7	1.1	1.0
22	2.7	e2.0	e1.5	4.0	e3.4	36	57	10	5.6	2.6	.93	1.1
23	2.6	e1.7	e1.6	4.1	e3.4	33	51	9.9	4.8	2.7	.86	.94
24	2.5	e1.4	e1.8	4.1	e3.0	30	45	9.6	3.4	2.6	.67	.83
25	2.4	e1.2	e2.0	3.9	e3.0	26	47	9.1	2.9	2.5	.66	.75
26	2.3	e1.3	e2.0	e3.7	e3.5	22	39	8.7	2.6	2.4	.63	.75
27	2.4	e1.3	e1.8	e3.5	4.6	19	36	8.2	2.5	2.1	.59	.75
28	2.5	e1.5	e1.6	e3.4	4.6	21	30	7.7	2.3	2.0	.62	.75
29	e2.3	e1.8	e1.7	e3.2	---	17	27	7.5	2.2	2.0	.71	.75
30	e2.5	e2.0	e1.8	e3.0	---	21	28	7.1	2.2	1.9	1.0	.75
31	2.8	---	e2.0	e2.9	---	17	---	6.9	---	1.9	1.2	---
TOTAL	87.1	56.9	56.3	87.6	92.9	634.1	1036	870.7	133.5	88.9	39.29	25.97
MEAN	2.81	1.90	1.82	2.83	3.32	20.5	34.5	28.1	4.45	2.87	1.27	.87
MAX	7.7	2.5	2.5	4.1	6.0	41	65	87	6.8	6.9	2.2	1.2
MIN	1.5	1.2	1.3	1.4	1.0	4.8	17	6.9	2.2	1.9	.59	.64
AC-FT	173	113	112	174	184	1260	2050	1730	265	176	78	52

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	1.34	1.36	1.06	1.19	1.37	5.94	12.1	17.9	15.2	3.42	1.60	1.09
MAX	2.81	2.12	1.82	2.83	3.32	20.5	34.5	28.1	44.7	8.55	3.63	2.35
(WY)	1994	1990	1994	1994	1994	1994	1994	1994	1991	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	2911.22		3209.26			
ANNUAL MEAN	7.98		8.79		5.31	
HIGHEST ANNUAL MEAN					8.79	1994
LOWEST ANNUAL MEAN					2.29	1992
HIGHEST DAILY MEAN	81	Jun 8	87	May 5	188	Jun 6 1991
LOWEST DAILY MEAN	.54	Feb 17	.59	Aug 27	.00	Sep 1 1990a
ANNUAL SEVEN-DAY MINIMUM	.56	Feb 17	.68	Aug 23	.05	Aug 29 1990
INSTANTANEOUS PEAK FLOW			102	May 6	938	Jun 5 1991
INSTANTANEOUS PEAK STAGE			5.17	May 6	7.70	Jun 5 1991
ANNUAL RUNOFF (AC-FT)	5770		6370		3840	
10 PERCENT EXCEEDS	18		28		12	
50 PERCENT EXCEEDS	2.5		2.7		1.7	
90 PERCENT EXCEEDS	.83		1.0		.60	

e Estimated
a Also Sept. 2-4, 1990.

BELLE FOURCHE RIVER BASIN

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD
(National stream-quality accounting network station)

LOCATION.--Lat 44°22'11", long 102°33'56", in NE1/4 NE1/4 sec.29, T.5 N., R.13 E., Meade County, Hydrologic Unit 10120202, on right bank 50 ft downstream from highway bridge, 4.3 mi northwest of Elm Springs, and 4.7 mi downstream from Hay Creek.

DRAINAGE AREA.--7,210 mi^2, approximately.

WATER-DISCHARGE RECORDS

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 good except those for estimated daily discharges, which are poor. Flow regulated by Keyhole Dam, usable capacity, 191,600 acre-ft, 304 mi upstream since Feb. 12, 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 Oct. 1, 1952, 35,700 ft^3/s, June 10, 1941, gage height, 14.30 ft; no flow for many days in 1936-37, 1939-40.

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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	195	e115	e55	e34	e800	341	1570	155	143	170	226
2	85	181	e110	e57	e33	e900	345	1710	165	143	156	238
3	79	190	e105	e58	e32	e2500	289	1750	217	139	158	263
4	75	199	e100	e60	e31	e6000	326	1730	234	156	166	274
5	72	190	e95	e57	e30	e5000	332	1520	343	180	166	281
6	73	e180	e90	e54	e29	e3800	354	1280	313	184	164	255
7	68	e210	e80	e50	e27	e2800	347	1140	305	210	188	245
8	73	231	e70	e49	e24	e2000	310	1020	1370	321	176	247
9	92	206	e68	e48	e20	e1800	302	911	650	346	190	232
10	75	208	e66	e46	e21	e1600	260	827	435	321	220	204
11	82	209	e63	e45	e23	e1400	235	741	355	288	249	203
12	84	211	e60	e45	e24	e1500	227	662	294	272	245	230
13	83	207	e60	e45	e25	e1550	212	676	237	248	219	247
14	81	208	e60	e45	e40	e1600	213	971	216	237	204	249
15	83	206	e58	e44	e80	1690	317	709	186	300	195	245
16	81	212	e57	e42	e200	1650	349	673	164	298	222	240
17	84	217	e55	e41	e500	1440	254	584	139	271	256	265
18	86	214	e53	e40	e1500	1370	235	500	130	251	250	294
19	84	211	e51	e39	e1300	1260	235	471	115	247	273	296
20	71	204	e50	e38	e1000	1150	284	428	112	232	265	298
21	64	220	e50	e39	e920	1010	340	401	104	209	273	310
22	167	221	e50	e40	e870	907	400	315	167	198	261	262
23	177	201	e50	e42	e800	810	447	263	161	187	255	195
24	186	170	e50	e45	e780	728	553	195	187	184	244	155
25	188	e160	e50	e40	e730	672	640	153	199	178	222	128
26	187	e145	e50	e39	e700	567	708	144	175	172	195	109
27	187	e120	e52	e38	e720	473	799	130	160	179	188	96
28	188	e100	e50	e37	e750	426	869	159	132	196	192	84
29	184	e110	e50	e35	---	391	946	153	146	195	200	77
30	178	e120	e51	e35	---	371	1160	147	141	181	219	69
31	191	---	e53	e34	---	355	---	149	---	170	214	---
TOTAL	3510	5656	2022	1382	11243	48520	12629	22082	7707	6836	6595	6517
MEAN	113	189	65.2	44.6	402	1565	421	712	257	221	213	217
MAX	191	231	115	60	1500	6000	1160	1750	1370	346	273	310
MIN	64	100	50	34	20	355	212	130	104	139	156	69
AC-FT	6960	11220	4010	2740	22300	96240	25050	43800	15290	13560	13080	12930

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1994, BY WATER YEAR (WY)

MEAN	112	59.2	36.5	27.7	88.2	407	387	876	778	353	280	222
MAX	732	189	102	112	484	2457	1584	4683	2985	1791	634	768
(WY)	1983	1994	1987	1983	1971	1978	1975	1962	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1953 - 1994*	
ANNUAL TOTAL	191822.0		134699			
ANNUAL MEAN	526		369		303a	
HIGHEST ANNUAL MEAN					724	1962
LOWEST ANNUAL MEAN					28.4	1961
HIGHEST DAILY MEAN	14500	May 9	6000	Mar 4	35200	May 21 1982
LOWEST DAILY MEAN	8.0	Jan 6	20	Feb 9	.00	Jun 5 1961b
ANNUAL SEVEN-DAY MINIMUM	10	Jan 14	23	Feb 7	.00	Aug 9 1961
INSTANTANEOUS PEAK FLOW			6000	Mar 4	45100	Jun 8 1964c
INSTANTANEOUS PEAK STAGE			8.45	Mar 4d	18.22	May 21 1982
ANNUAL RUNOFF (AC-FT)	380500		267200		219600	
10 PERCENT EXCEEDS	1170		909		561	
50 PERCENT EXCEEDS	200		199		90	
90 PERCENT EXCEEDS	14		47		19	

e Estimated
* Regulated period only (1953-94). See REMARKS.
a Median of annual mean discharges, 250 ft^3/s.
b No flow for many days in 1961-62, 1981, 1991.
c Gage height, 15.90 ft.
d Backwater from ice.

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1974 to September 1981.
WATER TEMPERATURE: October 1974 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,000 microsiemens, Jan. 31, Feb. 7-11, 1979; minimum daily, 800 microsiemens, June 19, 1976.
WATER TEMPERATURE: Maximum daily, 33.5°C, June 25, 1977; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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												
28...	1345	49	2880	8.0	7.0	0.0	2.0	705	13.7	102	1300	1100
MAR												
14...	1430	1580	1410	7.5	12.5	10.0	730	700	10.5	102	470	390
APR												
28...	1330	872	1050	8.3	8.0	7.0	85	706	12.6	112	450	310
JUL												
06...	0900	177	1920	7.9	24.0	22.0	1.4	690	9.4	120	850	720
AUG												
31...	1230	215	1810	7.5	15.5	17.5	9.7	--	11.2	--	790	680

DATE	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	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)
DEC												
28...	260	258	K9	K7	290	150	220	26	3	8.8	318	0
MAR												
14...	80	109	K24	K2900	110	47	120	35	2	8.2	97	0
APR												
28...	142	141	920	580	120	37	47	18	1	4.4	157	8
JUL												
06...	131	140	480	250	200	84	130	25	2	10	160	0
AUG												
31...	111	135	97	81	190	76	110	23	2	9.4	136	0

DATE	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 AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
DEC												
28...	1500	42	0.50	4.2	2390	2470	3.36	325	0.060	0.08	0.20	0.020
MAR												
14...	590	23	0.40	6.0	960	1040	1.41	4440	0.180	0.23	1.7	0.020
APR												
28...	390	11	0.30	8.7	707	730	0.99	1720	0.050	0.06	0.50	0.010
JUL												
06...	930	18	0.50	2.7	1590	1610	2.19	769	<0.010	--	0.60	<0.010
AUG												
31...	880	17	0.50	3.6	1360	1480	2.01	859	0.030	0.04	0.40	<0.010

BELLE FOURCHE RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	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)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	COBALT, DISSOLVED (UG/L AS CO) (01035)	IRON, DISSOLVED (UG/L AS FE) (01046)
DEC											
28...	3.20	3.20	3.18	3.18	<0.010	0.030	<0.010	--	--	--	--
MAR											
14...	1.30	1.30	1.28	1.28	0.630	0.020	0.010	<10	26	<3	7
APR											
28...	0.430	0.430	0.420	0.420	0.200	0.010	<0.010	<10	24	<3	<3
JUL											
06...	0.160	0.160	0.160	--	0.080	<0.010	<0.010	20	41	<3	9
AUG											
31...	0.072	0.072	0.072	--	0.030	0.010	<0.010	<10	41	<3	5

DATE	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)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
DEC											
28...	--	--	--	--	--	--	--	--	46	6.0	88
MAR											
14...	92	60	<10	5	3	<1.0	1200	<6	1670	7120	--
APR											
28...	39	5	<10	3	1	<1.0	1300	<6	680	1600	96
JUL											
06...	95	10	<10	3	3	<1.0	2500	<6	84	40	98
AUG											
31...	85	4	10	3	2	<1.0	2400	<6	54	31	99

CHEYENNE RIVER BASIN

06439000 CHERRY CREEK NEAR PLAINVIEW, SD

LOCATION.--Lat 44°44'35", long 102°03'11", in SW1/4 NE1/4 sec.16, T.9 N., R.17 E., Meade County, Hydrologic Unit 10120113, on right upstream wingwall of bridge on State Highway 73, 0.2 mi downstream from small right-bank tributary, 6.2 mi downstream from Red Owl Creek, and 11 mi northeast of Plainview.

DRAINAGE AREA.--1,190 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	5.7	e7.5	e5.6	e1.1	e1.8	57	50	7.2	2.2	.10	.00
2	4.8	5.6	8.5	e5.2	e1.1	e2.0	54	63	7.4	3.1	.07	.00
3	5.1	5.9	9.5	e5.0	e1.0	e600	51	118	7.3	2.8	.04	.00
4	4.9	6.1	10	e4.5	e1.0	e3000	50	216	7.0	2.1	.00	.00
5	4.5	5.9	10	e4.2	e1.0	2560	49	181	7.0	1.4	.02	.00
6	4.7	5.7	8.6	e3.3	e1.0	2780	47	142	6.2	1.7	.22	.00
7	4.4	6.0	9.3	e3.1	e1.0	2980	46	113	15	4.7	.17	.00
8	4.2	6.2	9.5	e3.3	e.60	2260	45	93	46	18	.00	.00
9	4.4	6.1	9.5	e3.6	e.40	1210	43	77	106	61	.00	.00
10	4.7	6.0	8.8	e3.6	e.50	624	41	64	123	31	.06	.00
11	4.7	6.2	8.9	e3.3	e.65	467	40	54	76	19	.09	.00
12	5.0	6.2	9.3	e3.0	e.80	357	39	46	52	13	.07	.00
13	5.1	6.4	8.3	e2.8	e1.0	311	38	40	38	9.8	.00	.00
14	5.4	6.2	8.0	e2.6	e1.0	312	37	37	28	7.4	.00	.00
15	5.8	6.0	e7.7	e2.5	e1.0	335	36	32	21	6.5	.00	.00
16	6.1	6.3	e7.6	e1.8	e1.2	334	35	30	19	5.7	.00	.00
17	6.4	6.1	e7.5	e1.5	e1.5	320	34	27	16	4.3	.00	.00
18	6.4	6.7	e7.5	e1.3	e1.8	280	32	25	14	3.2	.00	.00
19	6.3	6.0	e7.5	e1.3	e1.5	238	31	23	12	2.3	.00	.00
20	5.7	7.0	e7.8	e1.5	e1.0	198	30	20	10	1.4	.00	.00
21	5.6	6.4	e7.8	e1.8	e1.0	175	29	19	8.6	.98	.00	.00
22	5.8	5.5	e7.6	e2.0	e1.0	157	28	17	9.7	.72	.00	.00
23	6.0	e4.8	e7.5	e2.1	e1.0	137	26	16	10	.54	.00	.00
24	6.0	e4.0	e7.2	e1.9	e1.0	118	25	14	8.2	.41	.00	.00
25	5.6	e4.1	e7.0	e1.7	e1.0	106	24	13	6.2	.31	.00	.00
26	5.4	e4.4	e7.0	e1.6	e1.0	93	28	13	4.5	.22	.00	.00
27	5.7	e4.8	e6.8	e1.4	e1.0	82	30	12	3.7	.14	.00	.00
28	6.0	e5.0	e6.5	e1.3	e1.0	74	30	11	3.0	.10	.00	.00
29	5.3	e5.8	e6.2	e1.3	---	68	32	9.2	2.8	.06	.00	.00
30	5.2	e6.6	e6.0	e1.2	---	63	41	8.4	2.1	.05	.00	.00
31	5.7	---	e5.8	e1.1	---	60	---	7.7	---	.02	.00	---
TOTAL	165.8	173.7	246.7	80.4	28.15	20302.8	1128	1591.3	676.9	204.15	0.84	0.00
MEAN	5.35	5.79	7.96	2.59	1.01	655	37.6	51.3	22.6	6.59	.027	.000
MAX	6.4	7.0	10	5.6	1.8	3000	57	216	123	61	.22	.00
MIN	4.2	4.0	5.8	1.1	.40	1.8	24	7.7	2.1	.02	.00	.00
AC-FT	329	345	489	159	56	40270	2240	3160	1340	405	1.7	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1994, BY WATER YEAR (WY)

MEAN	3.34	.34	.36	.53	5.96	149	139	115	111	28.7	8.88	.79
MAX	109	5.79	7.96	16.5	131	1062	2221	1215	793	685	175	16.6
(WY)	1983	1994	1994	1947	1947	1978	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1946 - 1994	
ANNUAL TOTAL	67802.40		24598.74			
ANNUAL MEAN	186		67.4		47.1a	
HIGHEST ANNUAL MEAN					193	1952
LOWEST ANNUAL MEAN					.000	1961
HIGHEST DAILY MEAN	3450	Jul 22	3000	Mar 4	13800	Apr 2 1952
LOWEST DAILY MEAN	.00	Jan 1	.00	Aug 4b	.00	Oct 1 1945b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Aug 13	.00	Oct 1 1945
INSTANTANEOUS PEAK FLOW			5000	Mar 4	17500	Apr 1 1952
INSTANTANEOUS PEAK STAGE			19.05	Mar 4c	22.63	Apr 1 1952
ANNUAL RUNOFF (AC-FT)	134500		48790		34090	
10 PERCENT EXCEEDS	588		70		45	
50 PERCENT EXCEEDS	11		5.8		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a Median of annual mean discharges, 22 ft^3/s.
b No flow for long periods in each year.
c Backwater from ice.

CHEYENNE RIVER BASIN

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD
(National stream-quality accounting network station)

LOCATION.--Lat 44°35'59", long 101°29'51", in SW1/4 NW1/4 sec.5, T.7 N., R.22 E., Ziebach County, Hydrologic Unit 10120112, on left bank at village of Cherry Creek, 500 ft downstream from Cherry Creek, and 2.1 mi upstream from Plum Creek.

DRAINAGE AREA.--23,900 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,702.87 ft above sea level. Prior to Oct. 18, 1960, nonrecording gage and Oct. 19, 1960, to Oct. 29, 1986, at site 0.5 mi downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Angostura Dam 197 mi upstream (see station 06401000) since October 1949 and upstream on Rapid Creek since 1956 and Belle Fourche River since 1952. 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. Additional water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	358	347	e250	e185	e90	e700	e720	1720	375	228	202	227
2	363	355	e240	e175	e95	e1000	e700	2300	358	221	189	248
3	347	390	e250	e175	e90	e2000	e690	2630	342	212	184	278
4	333	389	e260	e160	e95	e3000	e685	2680	345	205	174	302
5	324	387	e260	e140	e100	e5000	e680	2700	360	192	183	315
6	316	395	e250	e120	e95	e15000	e675	2580	378	269	270	314
7	299	383	e250	e105	e90	e14000	e670	2270	502	1260	236	302
8	298	402	e260	e90	e80	e12000	684	2190	e10700	402	200	266
9	302	415	e260	e90	e85	e8000	653	1970	e5420	412	208	248
10	316	426	e270	e92	e90	e6000	649	1750	e2140	573	215	241
11	325	412	e270	e94	e94	e5000	619	1600	1070	538	235	225
12	450	407	e260	e94	e98	e4500	564	1470	e639	465	278	209
13	384	414	e260	e92	e100	e4200	538	1330	e532	432	337	210
14	347	413	e250	e90	e130	e4000	528	1270	e532	486	264	228
15	328	418	e240	e90	e200	e3900	527	1570	559	501	245	224
16	316	416	e250	e90	e400	e3800	537	1360	511	383	232	217
17	318	418	e250	e88	e1000	e3700	625	1320	463	373	224	216
18	332	432	e240	e88	e4000	e3400	588	1180	466	369	250	220
19	434	426	e230	e85	e3000	e3100	534	1090	422	614	437	236
20	360	450	e215	e85	e2000	e2600	525	989	341	356	357	244
21	310	477	e200	e88	e1500	e2200	521	937	315	299	316	248
22	281	459	e190	e90	e1000	e1900	548	891	361	265	285	250
23	283	e350	e175	e92	e700	e1750	585	844	1310	246	276	250
24	345	e250	e180	e92	e550	e1600	622	754	676	231	255	234
25	352	e220	e185	e90	e500	e1400	665	995	576	227	242	202
26	362	e230	e185	e90	e500	e1200	808	649	421	215	234	185
27	364	e240	e175	e90	e520	e1000	914	549	351	206	212	173
28	375	e250	e180	e90	e550	e920	995	499	300	199	193	162
29	365	e240	e185	e88	---	e850	1220	462	262	206	191	155
30	356	e250	e190	e88	---	e800	1600	436	230	217	201	151
31	336	---	e190	e88	---	e750	---	407	---	210	213	---
TOTAL	10579	11061	7050	3214	17752	119270	20869	43392	31257	11012	7538	6980
MEAN	341	369	227	104	634	3847	696	1400	1042	355	243	233
MAX	450	477	270	185	4000	15000	1600	2700	10700	1260	437	315
MIN	281	220	175	85	80	700	521	407	230	192	174	151
AC-FT	20980	21940	13980	6370	35210	236600	41390	86070	62000	21840	14950	13840

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1994, BY WATER YEAR (WY)

MEAN	318	199	129	109	287	1459	1110	2164	2142	852	465	359
MAX	2362	522	388	435	1617	7645	4296	9947	10210	4622	1125	930
(WY)	1983	1987	1987	1974	1971	1978	1986	1982	1967	1993	1993	1986
MIN	32.5	91.2	16.3	.16	34.3	163	77.0	90.8	131	167	55.8	13.0
(WY)	1962	1961	1962	1962	1991	1981	1981	1961	1989	1989	1961	1961

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1961 - 1994	
ANNUAL TOTAL	545339		289974			
ANNUAL MEAN	1494		794		802a	
HIGHEST ANNUAL MEAN					1748	1978
LOWEST ANNUAL MEAN					100	1961
HIGHEST DAILY MEAN	24500	May 10	15000	Mar 6	48400	May 22 1982
LOWEST DAILY MEAN	48	Jan 14	80	Feb 8	.00	Jan 6 1962b
ANNUAL SEVEN-DAY MINIMUM	50	Jan 10	88	Jan 15	.00	Jan 6 1962
INSTANTANEOUS PEAK FLOW			18200	Jun 8	55900	May 22 1982
INSTANTANEOUS PEAK STAGE			12.01	Jun 8c	15.77	May 22 1982
ANNUAL RUNOFF (AC-FT)	1082000		575200		580800	
10 PERCENT EXCEEDS	4140		1730		1590	
50 PERCENT EXCEEDS	452		345		264	
90 PERCENT EXCEEDS	118		100		75	

e Estimated
a Median of annual mean discharges, 720 ft^3/s.
b Also Jan. 7 to Feb. 2, 1962.
c From high-water marks.

CHEYENNE RIVER BASIN

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1971 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976.
SPECIFIC CONDUCTANCE: January 1975 to September 1976.
WATER TEMPERATURE: January 1975 to September 1976, October 1977 to September 1978.

INSTRUMENTATION.--Water-quality monitor June 16, 1977, to September 1979.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 66,000 mg/L, May 25, 1976; minimum daily mean, 80 mg/L, Nov. 15-17, 1972.
SEDIMENT LOAD: Maximum daily, 2,530,000 tons, June 12, 1972; minimum daily, 15 tons, Dec. 14, 1973.
SPECIFIC CONDUCTANCE: Maximum daily, 3,400 microsiemens, Jan. 27, 28, 1975; minimum daily, 620 microsiemens, Apr. 25, 1975.
WATER TEMPERATURE: Maximum daily, 35.0°C, Aug. 26, 1975; minimum daily, 0.0°C on many days during winter periods.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
OCT											
18...	1030	317	2230	8.4	8.0	9.5	88	717	10.9	102	810
JAN											
13...	1230	91	2540	8.2	-10.0	0.0	39	718	12.7	93	1100
APR											
29...	1200	1180	1360	8.0	9.5	7.5	90	721	11.6	103	500
JUL											
06...	1530	203	2320	8.0	24.5	23.5	53	702	8.2	106	890

DATE	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	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)
OCT											
18...	650	162	157	K26	K24	190	81	190	33	3	13
JAN											
13...	850	250	264	K15	89	280	97	260	34	3	10
APR											
29...	340	152	157	K290	340	130	41	94	29	2	5.8
JUL											
06...	760	132	110	220	170	210	88	240	37	4	12

DATE	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)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT											
18...	198	0	970	69	0.50	7.6	1620	1730	2.35	1480	0.030
JAN											
13...	305	0	1100	73	0.50	12	1990	2110	2.87	518	0.030
APR											
29...	185	0	510	28	0.40	7.3	911	962	1.31	3060	<0.010
JUL											
06...	161	0	1200	45	0.50	7.2	1880	2080	2.83	1140	<0.010

CHEYENNE RIVER BASIN

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	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)
OCT											
18...	0.04	0.30	<0.010	0.390	0.390	0.390	--	0.150	<0.010	<0.010	<10
JAN											
13...	0.04	0.30	0.010	1.90	1.90	1.89	1.89	0.110	0.050	0.070	10
APR											
29...	--	0.70	<0.010	0.380	0.380	0.380	--	0.320	<0.010	<0.010	20
JUL											
06...	--	0.50	<0.010	--	<0.050	--	--	0.130	<0.010	<0.010	<10

DATE	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	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)	MERCURY DISSOLVED (UG/L AS HG) (71890)
OCT											
18...	--	100	--	--	<1	--	<10	--	110	20	--
JAN											
13...	--	<100	--	--	<1	--	40	--	150	110	--
APR											
29...	5	22	<10	<1	<3	<10	4	<100	54	4	<0.1
JUL											
06...	3	<100	<10	<1	<1	<10	10	<100	150	20	<0.1

DATE	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)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
18...	3	<1	2	<1.0	2400	4	--	334	286	99
JAN										
13...	2	2	4	<1.0	2700	4	--	271	67	89
APR										
29...	10	2	<5	<1.0	1500	<6	<10	1110	3540	94
JUL										
06...	5	3	2	<1.0	2700	2	<10	164	90	99

CHEYENNE RIVER BASIN

06439430 COTTONWOOD CREEK NEAR CHERRY CREEK, SD

LOCATION.--Lat 44°40'28", long 101°24'16", in NW1/4 NW1/4 NE1/4 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 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.

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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	e10	7.1	e16	.19	1.2	.00	.00
2	.00	.00	.00	.00	.00	e200	7.9	e30	.20	1.0	.00	.00
3	.00	.00	.00	.00	.00	e250	9.2	e35	.20	.79	.00	.00
4	.00	.00	.00	.00	.00	332	9.0	e23	.22	.55	.00	.00
5	.00	.00	.00	.00	.00	318	8.7	e22	.21	.33	.00	.00
6	.00	.00	.00	.00	.00	434	8.1	e16	.21	.87	.00	.00
7	.00	.00	.00	.00	.00	194	7.6	e10	.28	1.7	.00	.00
8	.00	.00	.00	.00	.00	81	7.2	e6.7	221	61	.00	.00
9	.00	.00	.00	.00	.00	70	7.2	4.7	261	32	.00	.00
10	.00	.00	.00	.00	.00	67	6.8	3.5	49	15	.00	.00
11	.00	.00	.00	.00	.00	44	6.5	2.7	22	8.4	.00	.00
12	.00	.00	.00	.00	.00	49	5.6	2.1	13	6.2	.00	.00
13	.00	.00	.00	.00	.00	62	5.3	1.6	8.4	4.8	.00	.00
14	.00	.00	.00	.00	.00	73	4.8	1.4	6.4	3.5	.00	.00
15	.00	.00	.00	.00	.00	84	4.8	1.1	5.0	2.4	.00	.00
16	.00	.00	.00	.00	e.50	73	4.6	1.0	4.2	2.7	.00	.00
17	.00	.00	.00	.00	e10	50	4.6	.87	3.6	2.3	.00	.00
18	.00	.00	.00	.00	e20	56	3.9	.75	6.2	2.0	.00	.00
19	.00	.00	.00	.00	e10	51	3.5	.58	29	1.5	.00	.00
20	.00	.00	.00	.00	e3.0	44	3.3	.48	9.0	.98	.00	.00
21	.00	.00	.00	.00	e.60	39	3.0	.55	5.5	.61	.00	.00
22	.00	.00	.00	.00	e.30	25	2.6	.42	4.3	.35	.00	.00
23	.00	.00	.00	.00	e.17	16	2.4	.31	3.8	e.10	.00	.00
24	.00	.00	.00	.00	e.15	11	2.5	.22	6.4	e.00	.00	.00
25	.00	.00	.00	.00	e.12	8.3	2.6	.18	6.5	e.00	.00	.00
26	.00	.00	.00	.00	e.11	7.0	e4.2	.18	4.9	.00	.00	.00
27	.00	.00	.00	.00	e.10	6.5	e3.3	.18	3.7	.00	.00	.00
28	.00	.00	.00	.00	e.10	8.6	e3.6	.18	2.7	.00	.00	.00
29	.00	.00	.00	.00	---	7.7	e4.9	.18	2.0	.00	.00	.00
30	.00	.00	.00	.00	---	6.7	e6.9	.19	1.5	.00	.00	.00
31	.00	---	.00	.00	---	6.8	---	.18	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	45.15	2684.6	161.7	182.25	680.61	150.28	0.00	0.00
MEAN	.000	.000	.000	.000	1.61	86.6	5.39	5.88	22.7	4.85	.000	.000
MAX	.00	.00	.00	.00	20	434	9.2	35	261	61	.00	.00
MIN	.00	.00	.00	.00	.00	6.5	2.4	.18	.19	.00	.00	.00
AC-FT	.00	.00	.00	.00	90	5320	321	361	1350	298	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1994, BY WATER YEAR (WY)

MEAN	.23	.000	.000	.011	1.80	56.8	16.8	13.3	9.11	2.84	1.80	.009
MAX	2.63	.001	.000	.12	9.29	362	123	113	65.5	20.5	17.1	.11
(WY)	1983	1990	1983	1984	1986	1987	1986	1986	1984	1993	1987	1990
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1983 - 1994	
ANNUAL TOTAL	4982.51		3904.59			
ANNUAL MEAN	13.7		10.7		8.64a	
HIGHEST ANNUAL MEAN					38.6	1987
LOWEST ANNUAL MEAN					.000	1988
HIGHEST DAILY MEAN	570	Mar 8	434	Mar 6	2450	Mar 21 1987
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1b	.00	Oct 1 1982b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Oct 1 1982
INSTANTANEOUS PEAK FLOW			847	Jun 8	3640	Mar 30 1987
INSTANTANEOUS PEAK STAGE			7.81	Jun 8	12.58	Mar 30 1987
ANNUAL RUNOFF (AC-FT)	9880		7740		6260	
10 PERCENT EXCEEDS	23		15		3.7	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a Median of annual mean discharges, 2.0 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 NE1/4 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; minimum since initial filling, 12,071,000 acre-ft, Oct. 30, 1989, Nov. 1, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 20,186,000 acre-ft, Mar. 28; minimum contents, 18,454,000 acre-ft, Sept. 30.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,610.74	19,802,000	-
Oct. 31	1,610.30	19,759,000	-43,000
Nov. 30	1,609.84	19,592,000	-167,000
Dec. 31	1,609.54	19,430,000	-162,000
CAL YR 1993	-	-	+5,025,000
Jan. 31	1,608.18	19,040,000	-390,000
Feb. 28	1,607.56	18,853,000	-187,000
Mar. 31	1,611.59	20,159,000	+1,306,000
Apr. 30	1,610.61	19,850,000	-309,000
May 31	1,610.64	19,828,000	-22,000
June 30	1,610.15	19,679,000	-149,000
July 31	1,610.01	19,644,000	-35,000
Aug. 31	1,608.07	19,033,000	-611,000
Sept. 30	1,606.30	18,454,000	-579,000
WTR YR 1994	-	-	-1,348,000

NOTE.--Lake frozen over Jan. 18 to Mar. 23.

MISSOURI-FORT RANDALL RIVER BASIN

06440000 MISSOURI RIVER AT PIERRE, SD

LOCATION.--Lat 44°22'23", long 100°22'03" in NW1/4 SW1/4 sec.32, T.111 N., R.79 W., Hughes County, Hydrologic Unit 10140101, on left bank downstream from Dakota Minnesota and Eastern Railroad bridge, 1.3 mi upstream from Bad River, 5.8 mi downstream from Oahe Dam, and at mile 1,066.5.

PERIOD OF RECORD.--October 1929 to September 1965, October 1988 to current year.

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 Oahe Reservoir. Gage heights for period of October 1965 to September 1988 in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.26	7.14	6.41	6.88	8.84	7.24	7.29	7.58	8.67	7.69	9.06	8.65
2	6.43	6.52	6.80	7.03	8.80	7.09	6.88	9.05	8.83	7.41	9.05	8.94
3	6.24	6.67	7.02	7.83	8.61	7.54	6.89	8.85	7.90	7.14	8.08	8.47
4	6.82	6.02	6.87	7.96	7.96	7.37	7.80	8.52	8.15	7.15	7.97	8.34
5	7.20	6.57	5.69	8.23	7.65	6.98	7.93	8.57	7.94	8.20	7.93	7.86
6	6.89	6.73	7.73	7.89	7.38	7.07	7.90	8.13	9.13	8.46	6.82	8.59
7	6.74	6.44	7.19	8.53	9.62	7.57	8.20	8.53	9.48	7.20	5.53	8.64
8	6.25	6.99	7.20	7.91	9.04	7.38	7.97	7.64	9.76	7.30	8.39	9.23
9	6.25	7.04	7.18	7.43	e9.73	6.92	8.02	8.44	9.41	7.48	8.91	9.06
10	6.31	7.31	6.85	8.15	8.86	6.83	8.25	8.60	9.84	7.55	8.50	7.86
11	6.39	7.18	7.13	8.42	8.04	6.53	8.38	8.62	8.98	8.13	9.13	5.68
12	6.58	7.26	6.84	7.74	7.70	5.96	7.95	9.13	8.77	8.35	8.93	8.01
13	6.86	6.70	7.34	8.00	7.45	6.11	8.04	8.51	9.41	8.09	8.32	8.62
14	7.00	6.80	7.67	7.88	8.07	5.98	8.23	7.73	9.78	8.19	8.18	8.73
15	6.33	7.49	7.51	8.12	7.95	6.43	7.26	8.07	9.43	8.29	9.01	8.39
16	6.21	7.69	7.58	8.34	8.14	7.10	8.00	9.06	9.44	8.30	9.14	7.88
17	6.29	7.58	7.18	11.26	7.83	6.60	7.64	9.51	9.28	7.97	9.09	7.86
18	6.82	7.40	6.52	11.70	7.29	6.61	7.97	9.33	7.79	9.13	9.22	7.87
19	6.72	6.71	6.13	11.48	8.05	6.51	7.83	9.06	8.36	9.06	8.71	8.45
20	6.06	6.69	7.95	11.51	7.17	6.00	8.31	8.89	8.66	8.94	7.99	8.23
21	6.65	6.71	7.30	10.40	8.89	6.59	8.03	8.63	9.91	9.04	8.07	8.09
22	6.65	8.22	7.17	8.86	9.12	6.53	8.02	8.03	8.35	8.92	9.15	7.93
23	6.20	7.67	7.50	8.11	8.43	6.67	7.42	8.97	8.31	9.07	8.90	7.94
24	6.23	7.29	6.41	9.06	8.08	6.34	7.50	8.89	9.14	7.98	8.76	8.22
25	6.57	6.40	7.04	8.92	8.44	6.37	8.49	8.45	7.85	8.18	8.54	7.72
26	6.87	6.13	6.72	8.77	8.04	5.69	7.71	8.72	7.58	8.21	8.37	8.50
27	6.69	5.79	7.92	9.01	7.31	5.49	7.69	8.60	7.88	8.04	8.88	8.40
28	6.47	6.18	8.08	8.79	7.76	6.85	7.88	8.12	7.65	8.01	8.23	8.24
29	6.39	7.66	7.63	7.99	---	7.09	7.58	7.24	7.81	8.00	8.83	8.45
30	6.51	6.96	7.59	8.33	---	7.27	7.69	6.82	7.91	7.99	8.64	8.45
31	6.36	---	6.54	8.91	---	7.08	---	7.89	---	7.29	8.64	---
MEAN	6.52	6.93	7.12	8.69	8.22	6.70	7.82	8.46	8.71	8.09	8.48	8.24
MAX	7.20	8.22	8.08	11.70	9.73	7.57	8.49	9.51	9.91	9.13	9.22	9.23
MIN	6.06	5.79	5.69	6.88	7.17	5.49	6.88	6.82	7.58	7.14	5.53	5.68

e Estimated

MISSOURI-FORT RANDALL RIVER BASIN

06440200 SOUTH FORK BAD RIVER NEAR COTTONWOOD, SD
(Formerly published as Buffalo Creek near Cottonwood)

LOCATION.--Lat 43°58'08" (revised), long 101°46'00", in NE1/4 SW1/4 SE1/4 sec.7, T.1 S., R.20 E., Jackson County, Hydrologic Unit 10140102, on right bank at upstream side of bridge on old U.S. Highway 16, 1.0 mi above confluence with Cottonwood Creek, and 7.0 mi east of Cottonwood.

DRAINAGE AREA.--250 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1954 to September 1960 (discharge measurements only), October 1988 to current year.

GAGE.--Water-stage recorder. 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 fair except those for estimated daily discharges, which are poor. Additional water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.07	.21	7.9	e.07	e30	.08	e31	1.3	.08	.00	.03
2	.06	.07	.13	9.1	e.06	e200	.06	e31	1.5	.08	.00	12
3	.05	.07	.11	17	e.07	e500	.06	e20	1.6	.05	.00	10
4	.05	.07	.11	44	e.08	e400	.09	e8.4	1.5	.03	.00	5.2
5	.05	.07	.18	27	e.06	e125	.49	e4.9	1.4	.02	.00	3.4
6	.05	.06	.24	e13	e.04	e70	.43	e2.6	1.5	.11	.89	1.3
7	.05	.06	7.2	e6.0	e.03	e45	.43	e2.4	1.9	.15	.47	.31
8	.07	.05	14	e4.0	e.02	e25	.89	e1.1	2.3	28	.12	.06
9	.09	.05	11	e2.8	e.01	e20	2.4	e3.9	278	9.6	.16	.02
10	.09	.05	8.6	e2.0	e.02	e15	3.9	e2.2	373	5.2	.16	.00
11	.09	.05	6.7	e1.6	e.04	12	3.6	e1.7	42	1.5	5.0	.00
12	.08	.06	5.5	e1.0	e.10	9.2	1.7	e1.1	14	.47	38	.00
13	3.6	.09	9.1	e.80	e.30	8.9	.89	e.50	6.7	12	18	.00
14	1.8	.06	11	.50	e1.0	7.9	.37	e1.0	3.2	75	5.4	.00
15	.86	.06	9.6	.21	e20	5.7	.31	e10	1.2	15	1.5	.00
16	.59	.06	9.5	.15	e50	4.7	.15	e8.4	.78	4.9	.48	.00
17	.42	.06	4.1	.08	e70	4.5	.10	e4.9	.54	2.0	.21	.00
18	6.1	.06	1.9	.05	e100	2.6	.08	e3.2	.42	1.3	4.3	.00
19	12	.05	1.0	.05	e60	1.2	.06	e3.2	.31	.60	17	.00
20	3.3	.04	.74	.04	e40	.74	.06	3.1	.33	.33	3.6	.00
21	1.4	.04	.44	.05	e35	.45	.04	3.7	.26	.09	1.1	.00
22	.94	3.9	.23	.06	e30	.74	.05	3.3	.15	.06	.63	.00
23	.43	4.4	.14	.11	e25	.41	.02	2.6	.11	.04	.27	.00
24	.17	2.9	.14	.13	e21	.23	.01	4.4	.09	.02	.12	.00
25	.26	1.9	.29	.14	e18	.31	.01	5.6	.10	.00	.06	.00
26	.16	2.1	.47	e.12	e15	.27	.06	4.2	1.9	.00	.01	.00
27	.13	1.5	.59	e.10	e12	.19	e2.0	3.3	.60	.00	.00	.00
28	.10	.82	1.1	e.10	e10	.16	e18	2.8	.31	.00	.00	.00
29	.09	.46	.85	e.09	---	.10	e48	2.3	.19	.00	.00	.00
30	.09	.28	.64	e.08	---	.10	e44	1.9	.09	.00	.01	.00
31	.08	---	2.6	e.07	---	.08	---	1.4	---	.00	.02	---
TOTAL	33.33	19.51	108.41	138.33	507.90	1490.48	128.34	180.10	737.28	156.63	97.51	32.32
MEAN	1.08	.65	3.50	4.46	18.1	48.1	4.28	5.81	24.6	5.05	3.15	1.08
MAX	12	4.4	14	44	100	500	48	31	373	75	38	12
MIN	.05	.04	.11	.04	.01	.08	.01	.50	.09	.00	.00	.00
AC-FT	66	39	215	274	1010	2960	255	357	1460	311	193	64

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	.36	.98	.68	1.12	4.60	29.6	6.23	60.7	75.5	13.0	9.25	4.02
MAX	1.08	5.23	3.50	4.46	18.1	105	25.5	258	347	31.5	44.7	11.5
(WY)	1994	1992	1994	1994	1994	1993	1993	1991	1991	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	10620.65		3630.14			
ANNUAL MEAN	29.1		9.95		17.2	
HIGHEST ANNUAL MEAN					53.0	1991
LOWEST ANNUAL MEAN					1.98	1989
HIGHEST DAILY MEAN	1100	Mar 7	500	Mar 3	3990	May 31 1991
LOWEST DAILY MEAN	.00	Jan 1	.00	Jul 25a	.00	Oct 2 1988a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Jul 25	.00	Oct 2 1988
INSTANTANEOUS PEAK FLOW			1120	Mar 3	15200	May 31 1991
INSTANTANEOUS PEAK STAGE			11.38	Mar 3	17.89	May 31 1991
ANNUAL RUNOFF (AC-FT)	21070		7200		12480	
10 PERCENT EXCEEDS	61		17		14	
50 PERCENT EXCEEDS	1.6		.43		.07	
90 PERCENT EXCEEDS	.04		.01		.00	

e Estimated
a No flow for many days in each year.

MISSOURI-FORT RANDALL RIVER BASIN

06440200 SOUTH FORK BAD RIVER NEAR COTTONWOOD, SD--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1989 to current year.

REMARKS.--Records fair. Sediment samples collected daily by local observer. No flow for many days.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 39,800 mg/L, Aug. 24, 1990; minimum daily mean, 1 mg/L, Feb. 22, 1992, Jan. 26, 1994.
SEDIMENT LOAD: Maximum daily, 39,900 tons, May 31, 1991; minimum daily, 0 ton on many days each year.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATION: Maximum daily mean, 22,300 mg/L, Sept. 3; minimum daily mean, 1 mg/L, Jan. 26.
SEDIMENT LOAD: Maximum daily, 17,200 tons, June 9; minimum daily, 0 ton on many days.

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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	.08	e25	.01	.07	e280	.05	.21	e62	.04
2	.06	e18	.00	.07	e274	.05	.13	e55	.02
3	.05	e18	.00	.07	e265	.05	.11	e50	.01
4	.05	e16	.00	.07	242	.05	.11	e43	.01
5	.05	e15	.00	.07	205	.04	.18	e40	.02
6	.05	e14	.00	.06	e160	.03	.24	e42	.03
7	.05	e13	.00	.06	e110	.02	7.2	e100	1.9
8	.07	e12	.00	.05	e73	.01	14	e165	6.2
9	.09	e10	.00	.05	e55	.01	11	e125	3.7
10	.09	e10	.00	.05	e45	.01	8.6	e70	1.6
11	.09	e9	.00	.05	e39	.01	6.7	e40	.72
12	.08	e9	.00	.06	e38	.01	5.5	e30	.45
13	3.6	e392	4.4	.09	e45	.01	9.1	e50	1.2
14	1.8	e344	1.7	.06	e45	.01	11	e60	1.8
15	.86	288	.67	.06	e40	.01	9.6	e40	1.0
16	.59	e253	.40	.06	e35	.01	9.5	e35	.90
17	.42	e225	.26	.06	e30	.00	4.1	e15	.17
18	6.1	e510	19	.06	e26	.00	1.9	e10	.05
19	12	e888	29	.05	e22	.00	1.0	e9	.02
20	3.3	e600	5.3	.04	e20	.00	.74	e8	.02
21	1.4	e455	1.7	.04	e18	.00	.44	e7	.01
22	.94	e395	1.0	3.9	e216	4.4	.23	e6	.00
23	.43	e365	.42	4.4	e310	3.7	.14	e5	.00
24	.17	e345	.16	2.9	e270	2.1	.14	e2	.00
25	.26	e330	.23	1.9	e180	.92	.29	e4	.00
26	.16	e320	.14	2.1	e115	.65	.47	e6	.01
27	.13	e315	.11	1.5	e90	.36	.59	e7	.01
28	.10	e308	.08	.82	e80	.18	1.1	e8	.02
29	.09	e302	.07	.46	e72	.09	.85	e9	.02
30	.09	e294	.07	.28	e69	.05	.64	e9	.02
31	.08	e288	.06	---	---	---	2.6	e18	.13
TOTAL	33.33	---	64.78	19.51	---	12.83	108.41	---	20.08

e Estimated

MISSOURI-FORT RANDALL RIVER BASIN

06440200 SOUTH FORK BAD RIVER NEAR COTTONWOOD, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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	7.9	e60	1.3	e.07	0	.00	e30	e110	8.9
2	9.1	e67	1.6	e.06	0	.00	e200	e760	410
3	17	e90	4.1	e.07	0	.00	e500	1020	1380
4	44	e188	22	e.08	0	.00	e400	1660	1790
5	27	e125	9.1	e.06	0	.00	e125	1820	614
6	e13	e98	3.4	e.04	0	.00	e70	1810	342
7	e6.0	e90	1.5	e.03	0	.00	e45	1860	226
8	e4.0	e81	.87	e.02	0	.00	e25	1220	82
9	e2.8	e73	.55	e.01	0	.00	e20	1040	56
10	e2.0	e67	.36	e.02	0	.00	e15	875	35
11	e1.6	e58	.25	e.04	0	.00	12	430	14
12	e1.0	e50	.13	e.10	0	.00	9.2	395	9.8
13	e.80	e42	.09	e.30	e20	.02	8.9	230	5.5
14	.50	e34	.05	e1.0	e68	.18	7.9	295	6.3
15	.21	e25	.01	e20	e130	7.0	5.7	250	3.8
16	.15	e19	.01	e50	e208	28	4.7	170	2.2
17	.08	e18	.00	e70	e340	64	4.5	130	1.6
18	.05	e17	.00	e100	e545	147	2.6	110	.77
19	.05	e15	.00	e60	e400	65	1.2	71	.23
20	.04	e12	.00	e40	e108	12	.74	49	.10
21	.05	e11	.00	e35	e30	2.8	.45	41	.05
22	.06	e10	.00	e30	e20	1.6	.74	38	.08
23	.11	e9	.00	e25	e20	1.3	.41	31	.03
24	.13	e6	.00	e21	e19	1.1	.23	27	.02
25	.14	e4	.00	e18	e18	.87	.31	37	.03
26	e.12	e1	.00	e15	e18	.73	.27	32	.02
27	e.10	0	.00	e12	e12	.39	.19	21	.01
28	e.10	0	.00	e10	e8	.22	.16	23	.01
29	e.09	0	.00	---	---	---	.10	22	.01
30	e.08	0	.00	---	---	---	.10	20	.01
31	e.07	0	.00	---	---	---	.08	19	.00
TOTAL	138.33	---	45.32	507.90	---	332.21	1490.48	---	4988.47
		APRIL			MAY			JUNE	
1	.08	20	.00	e31	8750	732	1.3	190	.67
2	.06	29	.00	e31	4850	406	1.5	210	.85
3	.06	22	.00	e20	1800	97	1.6	e205	.89
4	.09	24	.01	e8.4	400	9.1	1.5	e180	.73
5	.49	21	.03	e4.9	330	4.4	1.4	e142	.54
6	.43	44	.05	e2.6	e225	1.6	1.5	e105	.43
7	.43	27	.03	e2.4	135	.87	1.9	e85	.44
8	.89	22	.05	e1.1	100	.30	2.3	78	.48
9	2.4	25	.16	e3.9	85	.90	278	16700	17200
10	3.9	40	.42	e2.2	78	.46	373	11700	12700
11	3.6	52	.51	e1.7	72	.33	42	7800	885
12	1.7	48	.22	e1.1	48	.14	14	4200	159
13	.89	33	.08	e.50	32	.04	6.7	900	16
14	.37	29	.03	e1.0	50	.13	3.2	290	2.5
15	.31	25	.02	e10	100	2.7	1.2	120	.39
16	.15	22	.01	e8.4	148	3.4	.78	138	.29
17	.10	38	.01	e4.9	90	1.2	.54	95	.14
18	.08	70	.02	e3.2	64	.55	.42	130	.15
19	.06	79	.01	e3.2	80	.69	.31	60	.05
20	.06	57	.01	3.1	80	.67	.33	42	.04
21	.04	62	.01	3.7	80	.80	.26	35	.02
22	.05	73	.01	3.3	70	.62	.15	25	.01
23	.02	75	.00	2.6	80	.56	.11	26	.01
24	.01	76	.00	4.4	114	1.4	.09	32	.01
25	.01	75	.00	5.6	128	1.9	.10	e35	.01
26	.06	73	.01	4.2	105	1.2	1.9	e130	.67
27	e2.0	65	.35	3.3	75	.67	.60	95	.15
28	e18	76	3.7	2.8	e50	.38	.31	68	.06
29	e48	10200	1320	2.3	e42	.26	.19	40	.02
30	e44	15200	1810	1.9	70	.36	.09	50	.01
31	---	---	---	1.4	145	.55	---	---	---
TOTAL	128.34	---	3135.75	180.10	---	1271.18	737.28	---	30969.56

e Estimated

MISSOURI-FORT RANDALL RIVER BASIN

06440200 SOUTH FORK BAD RIVER NEAR COTTONWOOD, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

	JULY			AUGUST			SEPTEMBER		
1	.08	85	.02	.00	0	.00	.03	100	.01
2	.08	90	.02	.00	0	.00	12	14100	786
3	.05	92	.01	.00	0	.00	10	22300	602
4	.03	60	.00	.00	0	.00	5.2	16800	236
5	.02	80	.00	.00	0	.00	3.4	9000	83
6	.11	130	.04	.89	e115	.41	1.3	4500	16
7	.15	135	.05	.47	e85	.11	.31	580	.49
8	28	1970	242	.12	e39	.01	.06	90	.01
9	9.6	13700	355	.16	e30	.01	.02	35	.00
10	5.2	15000	211	.16	e30	.01	.00	0	.00
11	1.5	11300	46	5.0	2180	170	.00	0	.00
12	.47	11000	14	38	13000	1640	.00	0	.00
13	12	11800	454	18	1830	94	.00	0	.00
14	75	14200	2780	5.4	650	9.5	.00	0	.00
15	15	20600	834	1.5	280	1.1	.00	0	.00
16	4.9	20000	265	.48	140	.18	.00	0	.00
17	2.0	e14200	77	.21	70	.04	.00	0	.00
18	1.3	e7000	25	4.3	e2100	234	.00	0	.00
19	.60	2000	3.2	17	13000	597	.00	0	.00
20	.33	200	.18	3.6	e7200	70	.00	0	.00
21	.09	55	.01	1.1	e4600	14	.00	0	.00
22	.06	40	.01	.63	e2800	4.8	.00	0	.00
23	.04	e28	.00	.27	1250	.91	.00	0	.00
24	.02	50	.00	.12	e450	.15	.00	0	.00
25	.00	0	.00	.06	160	.03	.00	0	.00
26	.00	0	.00	.01	100	.00	.00	0	.00
27	.00	0	.00	.00	0	.00	.00	0	.00
28	.00	0	.00	.00	0	.00	.00	0	.00
29	.00	0	.00	.00	0	.00	.00	0	.00
30	.00	0	.00	.01	0	.00	.00	0	.00
31	.00	0	.00	.02	0	.00	---	---	---
TOTAL	156.63	---	5306.54	97.51	---	2836.26	32.32	---	1723.51
YEAR	3630.14		50706.49						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
FEB								
18...	1330	400	158	14.0	0.0	568	613	98
MAR								
03...	1130	686	189	16.5	2.5	1090	2010	96
04...	1015	e500	--	--	--	1640	--	99
SEP								
01...	1130	0.03	3310	12.0	12.5	89	0.01	--

e Estiamted

MISSOURI-FORT RANDALL RIVER BASIN

06441000 BAD RIVER NEAR MIDLAND, SD

LOCATION.--Lat 44°04'01", long 101°09'36", in NE1/4 NW1/4 sec.7, T.1 N., R.25 E., Haakon County, Hydrologic Unit 10140102, on right bank at downstream side of bridge on State Highway 63, 0.4 mi southwest of Midland, 2.0 mi upstream from Mitchell Creek, and 3.7 mi upstream from Ash Creek.

DRAINAGE AREA.--1,460 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. Only daily discharges above 100 ft^3/s are being published. National Weather Service telemeter at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 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, 4,500 ft^3/s at 2100 hours, Mar. 4, gage height, 21.34 ft, from ice jam; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

Daily discharges, in cubic feet per second, above 100 ft^3/s are given herewith:

Feb. 17	e250	Feb. 25	e400	Mar. 4	e4,000	Mar. 11	213
Feb. 18	e800	Feb. 26	e350	Mar. 5	e3,600	Mar. 12	178
Feb. 19	e300	Feb. 27	e600	Mar. 6	2,690	Mar. 13	150
Feb. 20	e1,000	Feb. 28	e450	Mar. 7	1,070	Mar. 14	127
Feb. 21	e750	Mar. 1	e500	Mar. 8	552	Mar. 15	106
Feb. 22	e600	Mar. 2	e1,500	Mar. 9	329	June 11	307
Feb. 23	e500	Mar. 3	e3,300	Mar. 10	261	July 13	307
Feb. 24	e450						

e Estimated

MISSOURI-FORT RANDALL RIVER BASIN

06441110 PLUM CREEK BELOW HAYES, SD

LOCATION.--Lat 44°12'38", long 100°43'34", in NW1/4 NW1/4 NW1/4 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 Fort Pierre.

DRAINAGE AREA.--252 mi^2.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 1,612 ft above sea level, from topographic map.

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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	e100	1.1	.17	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	e500	.61	.09	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	e1050	e.45	.18	.00	.00	.27	.00
4	.00	.00	.00	.00	.00	e1000	.60	.19	.00	.00	e.10	.00
5	.00	.00	.00	.00	.00	e800	e.65	.23	.00	.00	e.00	.00
6	.00	.00	.00	.00	.00	e600	.72	1.1	.00	.40	.00	.00
7	.00	.00	.00	.00	.00	e400	.79	1.0	.00	e.10	.00	.00
8	.00	.00	.00	.00	.00	e200	.73	.70	.00	e.00	.00	.00
9	.00	.00	.00	.00	e.00	e100	.54	.41	.00	.00	.00	.00
10	.00	.00	.00	.00	e.00	e60	.52	.21	.00	.00	.00	.00
11	.00	.00	.00	.00	e.00	e50	.33	.10	.00	.00	.00	.00
12	.00	.00	.00	.00	e.00	e30	.26	e.05	.00	.00	.00	.00
13	.00	.00	e.00	.00	e1.0	e35	.19	e.02	.00	.00	.00	.00
14	.00	.00	e.00	.00	e5.0	e30	.17	.60	.00	.00	.00	.00
15	.00	.00	e.00	.00	e20	e25	.38	.19	.00	.00	.00	.00
16	.00	.00	e.00	.00	e50	e25	.27	e.10	.00	.00	.00	.00
17	.00	.00	e.00	.00	e200	e20	.11	e.04	.00	.00	.00	.00
18	.00	.00	e.20	.00	e250	e15	.02	e.00	.00	.00	.00	.00
19	.00	.00	e.10	.00	e300	e10	.00	.00	.00	.00	.00	.00
20	.00	.00	e.05	.00	e80	e8.0	.00	.00	.00	.00	.00	.00
21	.00	.00	e.00	.00	e1.5	7.0	.00	.00	.00	.00	.00	.00
22	.00	.00	e.00	.00	e3.0	5.5	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	e5.0	4.4	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	e1.5	e3.4	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	e1.0	e2.5	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	e.70	e2.4	.07	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	e.50	e1.8	.32	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	e1.2	e1.5	.19	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	e1.8	.33	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	e1.6	.26	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	1.4	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.35	0.00	920.40	5091.3	9.61	5.38	0.00	0.50	0.37	0.00
MEAN	.000	.000	.011	.000	32.9	164	.32	.17	.000	.016	.012	.000
MAX	.00	.00	.20	.00	300	1050	1.1	1.1	.00	.40	.27	.00
MIN	.00	.00	.00	.00	.00	1.4	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.7	.00	1830	10100	19	11	.00	1.0	.7	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1994, BY WATER YEAR (WY)

MEAN	.000	.005	.003	.23	7.85	55.6	2.72	28.0	35.3	6.94	2.29	.086
MAX	.000	.026	.011	1.06	32.9	164	8.42	132	98.7	24.2	11.4	.43
(WY)	1990	1990	1994	1990	1994	1994	1993	1991	1991	1993	1992	1992
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1990	1991	1991	1991	1991	1991	1992	1992	1994	1990	1990	1990

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1990 - 1994	
ANNUAL TOTAL	6225.71		6027.91			
ANNUAL MEAN	17.1		16.5		11.6	
HIGHEST ANNUAL MEAN					19.6	1991
LOWEST ANNUAL MEAN					2.12	1992
HIGHEST DAILY MEAN	700	Mar 6	1050	Mar 3	3370	May 30 1991
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1a	.00	Oct 1 1989a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Oct 1 1989
INSTANTANEOUS PEAK FLOW			1500	Mar 3	13500	May 30 1991
INSTANTANEOUS PEAK STAGE			18.42	Mar 3b	23.74	May 30 1991
ANNUAL RUNOFF (AC-FT)	12350		11960		8430	
10 PERCENT EXCEEDS	25		1.8		5.0	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a No flow for many days in each year.
b Ice jam.

MISSOURI-FORT RANDALL RIVER BASIN

06441110 PLUM CREEK BELOW HAYES, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1989 to current year.

REMARKS.--Records fair. Sediment samples collected daily by local observer.

EXTREMES FOR PERIOD OF DAILY RECORD.
SEDIMENT CONCENTRATION: Maximum daily mean, 57,000 mg/L, June 16, 1990; minimum daily mean, 2 mg/L, May 15, 16, 1993.
SEDIMENT LOAD: Maximum daily, 304,000 tons, May 30, 1991; minimum daily, 0 ton on many days each year.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATION: Maximum daily mean, 10,800 mg/L, Mar. 5; minimum daily mean, 8 mg/L, May 17.
SEDIMENT LOAD: Maximum daily, 23,300 tons, Mar. 5; minimum daily, 0 ton on many days.

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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	.00	---	.00	.00	---	.00	.00	---	.00
2	.00	---	.00	.00	---	.00	.00	---	.00
3	.00	---	.00	.00	---	.00	.00	---	.00
4	.00	---	.00	.00	---	.00	.00	---	.00
5	.00	---	.00	.00	---	.00	.00	---	.00
6	.00	---	.00	.00	---	.00	.00	---	.00
7	.00	---	.00	.00	---	.00	.00	---	.00
8	.00	---	.00	.00	---	.00	.00	---	.00
9	.00	---	.00	.00	---	.00	.00	---	.00
10	.00	---	.00	.00	---	.00	.00	---	.00
11	.00	---	.00	.00	---	.00	.00	---	.00
12	.00	---	.00	.00	---	.00	.00	---	.00
13	.00	---	.00	.00	---	.00	e.00	---	.00
14	.00	---	.00	.00	---	.00	e.00	---	.00
15	.00	---	.00	.00	---	.00	e.00	---	.00
16	.00	---	.00	.00	---	.00	e.00	---	.00
17	.00	---	.00	.00	---	.00	e.00	---	.00
18	.00	---	.00	.00	---	.00	e.20	e200	.11
19	.00	---	.00	.00	---	.00	e.10	e100	.03
20	.00	---	.00	.00	---	.00	e.05	e25	.00
21	.00	---	.00	.00	---	.00	e.00	---	.00
22	.00	---	.00	.00	---	.00	e.00	---	.00
23	.00	---	.00	.00	---	.00	.00	---	.00
24	.00	---	.00	.00	---	.00	.00	---	.00
25	.00	---	.00	.00	---	.00	.00	---	.00
26	.00	---	.00	.00	---	.00	.00	---	.00
27	.00	---	.00	.00	---	.00	.00	---	.00
28	.00	---	.00	.00	---	.00	.00	---	.00
29	.00	---	.00	.00	---	.00	.00	---	.00
30	.00	---	.00	.00	---	.00	.00	---	.00
31	.00	---	.00	---	---	---	.00	---	.00
TOTAL	0.00	---	0.00	0.00	---	0.00	0.35	---	0.14

e Estimated

MISSOURI-FORT RANDALL RIVER BASIN

06441110 PLUM CREEK BELOW HAYES, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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	.00	---	.00	.00	---	.00	e100	e80	22
2	.00	---	.00	.00	---	.00	e500	1410	1900
3	.00	---	.00	.00	---	.00	e1050	2380	6750
4	.00	---	.00	.00	---	.00	e1000	6400	17300
5	.00	---	.00	.00	---	.00	e800	10800	23300
6	.00	---	.00	.00	---	.00	e600	7610	12300
7	.00	---	.00	.00	---	.00	e400	6000	6480
8	.00	---	.00	.00	---	.00	e200	4970	2680
9	.00	---	.00	e.00	---	.00	e100	4070	1100
10	.00	---	.00	e.00	---	.00	e60	3260	528
11	.00	---	.00	e.00	---	.00	e50	e2800	378
12	.00	---	.00	e.00	---	.00	e30	e2810	228
13	.00	---	.00	e1.0	---	.00	e35	3000	283
14	.00	---	.00	e5.0	---	.00	e30	2960	240
15	.00	---	.00	e20	e700	38	e25	e2400	162
16	.00	---	.00	e50	e1700	229	e25	1800	121
17	.00	---	.00	e200	2240	1210	e20	1750	94
18	.00	---	.00	e250	3070	2070	e15	1110	45
19	.00	---	.00	e300	2930	2370	e10	e680	18
20	.00	---	.00	e80	e1400	302	e8.0	e500	11
21	.00	---	.00	e1.5	e470	1.9	7.0	350	6.6
22	.00	---	.00	e3.0	550	4.5	5.5	e276	4.1
23	.00	---	.00	e5.0	e1000	13	4.4	245	2.9
24	.00	---	.00	e1.5	e290	1.2	e3.4	253	2.3
25	.00	---	.00	e1.0	e90	.24	e2.5	e257	1.7
26	.00	---	.00	e.70	e60	.11	e2.4	e249	1.6
27	.00	---	.00	e.50	e30	.04	e1.8	e233	1.1
28	.00	---	.00	e1.2	e10	.03	e1.5	210	.85
29	.00	---	.00	---	---	---	e1.8	140	.68
30	.00	---	.00	---	---	---	e1.6	e105	.45
31	.00	---	.00	---	---	---	1.4	137	.52
TOTAL	0.00	---	0.00	920.40	---	6240.02	5091.3	---	73962.80
		APRIL			MAY			JUNE	
1	1.1	167	.50	.17	e45	.02	.00	---	.00
2	.61	e159	.26	.09	35	.01	.00	---	.00
3	e.45	140	.17	.18	e49	.02	.00	---	.00
4	.60	e121	.20	.19	e37	.02	.00	---	.00
5	e.65	110	.19	.23	13	.01	.00	---	.00
6	.72	e108	.21	1.1	e41	.12	.00	---	.00
7	.79	e118	.25	1.0	e44	.12	.00	---	.00
8	.73	136	.27	.70	e38	.07	.00	---	.00
9	.54	e136	.20	.41	e30	.03	.00	---	.00
10	.52	e110	.15	.21	e22	.01	.00	---	.00
11	.33	e82	.07	.10	e13	.00	.00	---	.00
12	.26	68	.05	e.05	e10	.00	.00	---	.00
13	.19	e58	.03	e.02	e10	.00	.00	---	.00
14	.17	e50	.02	.60	e64	.10	.00	---	.00
15	.38	e42	.04	.19	e51	.03	.00	---	.00
16	.27	e32	.02	e.10	e27	.01	.00	---	.00
17	.11	e21	.01	e.04	e8	.00	.00	---	.00
18	.02	e9	.00	e.00	---	.00	.00	---	.00
19	.00	---	.00	.00	---	.00	.00	---	.00
20	.00	---	.00	.00	---	.00	.00	---	.00
21	.00	---	.00	.00	---	.00	.00	---	.00
22	.00	---	.00	.00	---	.00	.00	---	.00
23	.00	---	.00	.00	---	.00	.00	---	.00
24	.00	---	.00	.00	---	.00	.00	---	.00
25	.00	---	.00	.00	---	.00	.00	---	.00
26	.07	e23	.00	.00	---	.00	.00	---	.00
27	.32	e147	.13	.00	---	.00	.00	---	.00
28	.19	e90	.05	.00	---	.00	.00	---	.00
29	.33	67	.06	.00	---	.00	.00	---	.00
30	.26	55	.04	.00	---	.00	.00	---	.00
31	---	---	---	.00	---	.00	---	---	---
TOTAL	9.61	---	2.92	5.38	---	0.57	0.00	---	0.00

e Estimated

MISSOURI-FORT RANDALL RIVER BASIN

06441110 PLUM CREEK BELOW HAYES, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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	.00	---	.00	.00	---	.00	.00	---	.00
2	.00	---	.00	.00	---	.00	.00	---	.00
3	.00	---	.00	.27	e204	.15	.00	---	.00
4	.00	---	.00	e.10	e69	.02	.00	---	.00
5	.00	---	.00	e.00	---	.00	.00	---	.00
6	.40	e40	.04	.00	---	.00	.00	---	.00
7	e.10	e140	.04	.00	---	.00	.00	---	.00
8	e.00	---	.00	.00	---	.00	.00	---	.00
9	.00	---	.00	.00	---	.00	.00	---	.00
10	.00	---	.00	.00	---	.00	.00	---	.00
11	.00	---	.00	.00	---	.00	.00	---	.00
12	.00	---	.00	.00	---	.00	.00	---	.00
13	.00	---	.00	.00	---	.00	.00	---	.00
14	.00	---	.00	.00	---	.00	.00	---	.00
15	.00	---	.00	.00	---	.00	.00	---	.00
16	.00	---	.00	.00	---	.00	.00	---	.00
17	.00	---	.00	.00	---	.00	.00	---	.00
18	.00	---	.00	.00	---	.00	.00	---	.00
19	.00	---	.00	.00	---	.00	.00	---	.00
20	.00	---	.00	.00	---	.00	.00	---	.00
21	.00	---	.00	.00	---	.00	.00	---	.00
22	.00	---	.00	.00	---	.00	.00	---	.00
23	.00	---	.00	.00	---	.00	.00	---	.00
24	.00	---	.00	.00	---	.00	.00	---	.00
25	.00	---	.00	.00	---	.00	.00	---	.00
26	.00	---	.00	.00	---	.00	.00	---	.00
27	.00	---	.00	.00	---	.00	.00	---	.00
28	.00	---	.00	.00	---	.00	.00	---	.00
29	.00	---	.00	.00	---	.00	.00	---	.00
30	.00	---	.00	.00	---	.00	.00	---	.00
31	.00	---	.00	.00	---	.00	---	---	---
TOTAL	0.50	---	0.08	0.37	---	0.17	0.00	---	0.00
YEAR	6027.91		80206.70						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
FEB								
18...	1430	156	449	11.0	1.0	3190	1340	100
MAR								
04...	1215	1020	700	13.5	0.5	5290	14600	100
21...	1210	7.1	1390	19.5	6.0	400	7.7	99
MAY								
05...	0715	0.18	4610	9.0	12.5	15	0.01	93

MISSOURI-FORT RANDALL RIVER BASIN

06441500 BAD RIVER NEAR FORT PIERRE, SD

LOCATION.--Lat 44°19'36", long 100°23'02", in NW1/4 NW1/4 sec.10, T.4 N., R.31 E., Stanley County, Hydrologic Unit 10140102, on right bank at downstream side of highway bridge, 2.1 mi south of Fort Pierre, 4.3 mi downstream from Willow Creek, and 6.0 mi upstream from mouth.

DRAINAGE AREA.--3,107 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. 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 good 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	.26	e2.2	e1.3	e1.0	e1500	44	39	6.2	.58	.14	.00
2	2.2	.29	e2.2	e1.2	e1.0	e2000	39	32	6.2	.38	.08	.00
3	1.5	.27	e2.2	e1.3	e1.0	e5000	33	51	5.4	.23	.06	.00
4	e1.2	.36	e2.2	e1.2	e1.1	e6000	33	74	4.0	.23	.03	.00
5	e1.0	.43	e2.2	e1.0	e1.3	8050	31	53	4.0	.21	.01	.00
6	e.80	.47	e2.1	e.80	e1.2	6100	30	45	3.1	1.9	.02	.00
7	e.60	.51	e2.1	e.50	e1.1	4420	27	49	3.1	494	.01	.00
8	e.50	.56	e2.2	e.55	e1.1	2390	30	51	4.3	194	.01	.00
9	e.80	.57	e2.4	e.55	e1.2	1470	27	44	4.8	97	.02	.00
10	e.60	.45	e2.5	e.60	e1.3	999	24	36	3.3	61	.01	.00
11	e.50	.43	e2.6	e.60	e1.4	755	21	28	2.9	32	.00	.00
12	e.40	5.3	e2.7	e.60	e1.5	660	18	19	7.9	17	.00	.00
13	e.38	4.2	e2.6	e.55	e1.6	595	16	16	257	11	.00	.00
14	e.36	3.0	e2.5	e.50	e1.8	545	15	19	108	7.8	.00	.00
15	.36	2.7	e2.3	e.50	e2.0	468	18	32	55	195	.00	.00
16	.36	3.2	e2.2	e.50	e20	386	19	17	35	105	.00	.00
17	.36	3.2	e2.1	e.45	e200	322	18	16	23	45	.00	.00
18	.36	2.8	e2.0	e.45	e2000	277	15	24	20	46	.00	.00
19	.39	2.9	e1.9	e.45	e4500	233	13	19	14	48	.00	.00
20	.47	3.6	e1.8	e.50	e4200	194	12	16	91	26	.00	.00
21	.37	3.5	e1.6	e.60	e3500	165	11	117	18	14	.00	.00
22	.29	e3.5	e1.4	e.80	e2500	142	9.3	66	9.0	10	.00	.00
23	.32	e3.2	e1.3	e1.0	e1700	121	8.4	68	7.5	7.5	.00	.00
24	.29	e2.5	e1.4	e.95	e1600	99	7.3	75	6.5	5.7	.00	.00
25	.37	e2.0	e1.5	e.90	e1500	83	8.1	57	5.2	3.8	.00	.00
26	.39	e2.0	e1.6	e.95	e1400	77	12	37	3.5	2.7	.00	.00
27	.29	e2.1	e1.4	e.95	e1300	71	12	25	2.8	1.4	.00	.00
28	.29	e2.1	e1.5	e1.0	e1300	61	21	17	2.0	.70	.00	.00
29	.29	e2.1	e1.4	e.95	---	56	42	12	1.4	.39	.00	.00
30	.29	e2.2	e1.5	e.90	---	54	47	9.7	.93	.28	.00	.00
31	.24	---	e1.4	e.95	---	50	---	7.9	---	.17	.00	---
TOTAL	20.17	60.70	61.0	24.05	25739.6	43343	661.1	1171.6	715.03	1428.97	0.39	0.00
MEAN	.65	2.02	1.97	.78	919	1398	22.0	37.8	23.8	46.1	.013	.000
MAX	3.6	5.3	2.7	1.3	4500	8050	47	117	257	494	.14	.00
MIN	.24	.26	1.3	.45	1.0	50	7.3	7.9	.93	.17	.00	.00
AC-FT	40	120	121	48	51050	85970	1310	2320	1420	2830	.8	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1994, BY WATER YEAR (WY)

MEAN	16.1	1.20	.58	5.34	67.3	471	394	349	332	72.4	40.3	22.6
MAX	295	18.1	15.8	254	919	3607	7306	6663	2567	561	706	394
(WY)	1983	1987	1987	1931	1994	1978	1952	1942	1967	1937	1930	1938
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1929 - 1994	
ANNUAL TOTAL	58623.99		73225.61			
ANNUAL MEAN	161		201		148a	
HIGHEST ANNUAL MEAN					800	1942
LOWEST ANNUAL MEAN					6.07	1980
HIGHEST DAILY MEAN	4300	Mar 7	8050	Mar 5	27200	May 1 1942
LOWEST DAILY MEAN	.00	Jan 1	.00	Aug 11b	.00	Oct 1 1928b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Aug 11	.00	Oct 1 1928
INSTANTANEOUS PEAK FLOW			11000	Mar 4c	43800	Jun 18 1967
INSTANTANEOUS PEAK STAGE			24.19	Mar 3d	29.55	Jun 18 1967
ANNUAL RUNOFF (AC-FT)	116300		145200		107100	
10 PERCENT EXCEEDS	344		177		180	
50 PERCENT EXCEEDS	15		2.1		.30	
90 PERCENT EXCEEDS	.29		.00		.00	

e Estimated
a Median of annual mean discharges, 102 ft^3/s.
b No flow for long periods in most years.
c Gage height, 22.58 ft, ice jam.
d Ice jam.

MISSOURI-FORT RANDALL RIVER BASIN

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

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 poor. Observer collects samples on a daily basis. Flow affected by ice Nov. 22 to Mar. 4. 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, 23,600 mg/L, July 16; minimum daily mean, 37 mg/L, estimated, Aug. 10.
SEDIMENT LOAD: Maximum daily, 93,000 tons, Mar. 5; minimum daily, 0 ton on many days.

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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	3.6	e37	.36	.26	e100	.07	e2.2	e148	.88
2	2.2	e40	.24	.29	e100	.08	e2.2	e144	.86
3	1.5	42	.17	.27	e100	.07	e2.2	141	.84
4	e1.2	47	.15	.36	123	.12	e2.2	e141	.84
5	e1.0	48	.13	.43	260	.30	e2.2	e142	.84
6	e.80	49	.11	.47	243	.31	e2.1	e143	.81
7	e.60	52	.08	.51	148	.20	e2.1	e147	.83
8	e.50	56	.08	.56	103	.16	e2.2	e148	.88
9	e.80	59	.13	.57	100	.15	e2.4	e150	.97
10	e.60	61	.10	.45	e100	.12	e2.5	e151	1.0
11	e.50	e63	.09	.43	e100	.12	e2.6	e152	1.1
12	e.40	63	.07	5.3	e146	2.1	e2.7	e156	1.1
13	e.38	e63	.06	4.2	e144	1.6	e2.6	e158	1.1
14	e.36	62	.06	3.0	e130	1.1	e2.5	e160	1.1
15	.36	e65	.06	2.7	115	.84	e2.3	e161	1.0
16	.36	69	.07	3.2	e102	.88	e2.2	e162	.96
17	.36	e78	.08	3.2	e100	.86	e2.1	163	.92
18	.36	88	.09	2.8	100	.76	e2.0	165	.89
19	.39	e102	.11	2.9	100	.78	e1.9	165	.85
20	.47	e117	.15	3.6	e100	.97	e1.8	165	.80
21	.37	e131	.13	3.5	100	.94	e1.6	e167	.72
22	.29	142	.11	e3.5	e100	.94	e1.4	e168	.64
23	.32	e130	.11	e3.2	e128	1.1	e1.3	e167	.59
24	.29	e104	.08	e2.5	e181	1.2	e1.4	e164	.62
25	.37	80	.08	e2.0	e177	.96	e1.5	e162	.66
26	.39	79	.08	e2.0	e165	.89	e1.6	e160	.69
27	.29	e84	.07	e2.1	e159	.90	e1.4	e158	.60
28	.29	e90	.07	e2.1	e153	.87	e1.5	e157	.64
29	.29	e95	.07	e2.1	e150	.85	e1.4	e151	.57
30	.29	100	.08	e2.2	e149	.89	e1.5	e145	.59
31	.24	e100	.06	---	---	---	e1.4	e140	.53
TOTAL	20.17	---	3.33	60.70	---	21.13	61.0	---	25.42

e Estimated

MISSOURI-FORT RANDALL RIVER BASIN

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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	e1.3	e135	.47	e1.0	e257	.69	e1500	e3100	12600
2	e1.2	129	.42	e1.0	e237	.64	e2000	e3030	16400
3	e1.3	e126	.44	e1.0	e223	.60	e5000	3090	41700
4	e1.2	e125	.40	e1.1	218	.65	e6000	3700	59900
5	e1.0	e123	.33	e1.3	e222	.78	8050	4280	93000
6	e.80	e121	.26	e1.2	e235	.76	6100	4320	71200
7	e.50	e120	.16	e1.1	e250	.74	4420	4870	58100
8	e.55	e118	.18	e1.1	e263	.78	2390	e4410	28500
9	e.55	113	.17	e1.2	277	.90	1470	e3000	11900
10	e.60	e110	.18	e1.3	378	1.3	999	e1350	3640
11	e.60	e105	.17	e1.4	e478	1.8	755	400	815
12	e.60	100	.16	e1.5	e513	2.1	660	497	886
13	e.55	e121	.18	e1.6	e526	2.3	595	566	909
14	e.50	e171	.23	e1.8	e530	2.6	545	533	784
15	e.50	221	.30	e2.0	e528	2.9	468	495	625
16	e.50	e251	.34	e20	e950	51	386	522	544
17	e.45	e257	.31	e200	e2230	1200	322	578	503
18	e.45	e247	.30	e2000	4070	22000	277	585	438
19	e.45	e232	.28	e4500	4200	51000	233	557	350
20	e.50	218	.29	e4200	3670	41600	194	e529	277
21	e.60	e207	.34	e3500	3490	33000	165	503	224
22	e.80	e205	.44	e2500	e3420	23100	142	479	184
23	e1.0	e212	.57	e1700	e3390	15600	121	e450	147
24	e.95	e237	.61	e1600	e3350	14500	99	e407	109
25	e.90	e283	.69	e1500	e3300	13400	83	e360	81
26	e.95	e313	.80	e1400	e3280	12400	77	e310	64
27	e.95	e322	.83	e1300	e3220	11300	71	e273	52
28	e1.0	325	.88	e1300	e3160	11100	61	e240	40
29	e.95	e320	.82	---	---	---	56	e210	32
30	e.90	e303	.74	---	---	---	54	e182	27
31	e.95	e282	.72	---	---	---	50	e157	21
TOTAL	24.05	---	13.01	25739.6	---	250270.54	43343	---	404052
		APRIL			MAY			JUNE	
1	44	e140	17	39	132	14	6.2	e140	2.3
2	39	e124	13	32	e102	8.8	6.2	e128	2.1
3	33	e109	9.7	51	e97	13	5.4	115	1.7
4	33	93	8.3	74	e119	24	4.0	e109	1.2
5	31	98	8.2	53	104	15	4.0	e107	1.2
6	30	102	8.3	45	100	12	3.1	e106	.89
7	27	102	7.4	49	100	13	3.1	e103	.86
8	30	102	8.3	51	100	14	4.3	e102	1.2
9	27	102	7.4	44	100	12	4.8	e101	1.3
10	24	103	6.7	36	100	9.7	3.3	e101	.90
11	21	104	5.9	28	e100	7.6	2.9	e100	.78
12	18	105	5.1	19	e100	5.1	7.9	e121	2.6
13	16	107	4.6	16	e100	4.3	257	e3880	2690
14	15	108	4.4	19	e100	5.1	108	e2400	700
15	18	108	5.2	32	e275	24	55	e880	131
16	19	108	5.5	17	e320	15	35	e400	38
17	18	107	5.2	16	e293	13	23	e320	20
18	15	106	4.3	24	e271	18	20	e260	14
19	13	106	3.7	19	e251	13	14	e220	8.3
20	12	104	3.4	16	e252	11	91	e1520	373
21	11	103	3.1	117	e520	164	18	e2160	105
22	9.3	101	2.5	66	e497	89	9.0	e1530	37
23	8.4	100	2.3	68	e429	79	7.5	e1130	23
24	7.3	e102	2.0	75	e362	73	6.5	e840	15
25	8.1	e110	2.4	57	298	46	5.2	e620	8.7
26	12	e128	4.1	37	e249	25	3.5	e450	4.3
27	12	e148	4.8	25	e215	15	2.8	e320	2.4
28	21	167	9.5	17	e192	8.8	2.0	e282	1.5
29	42	174	20	12	e179	5.8	1.4	e265	1.0
30	47	162	21	9.7	e165	4.3	.93	e248	.62
31	---	---	---	7.9	e153	3.3	---	---	---
TOTAL	661.1	---	213.3	1171.6	---	764.8	715.03	---	4189.85

e Estimated

MISSOURI-FORT RANDALL RIVER BASIN

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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	.58	e231	.36	.14	e100	.04	.00	---	.00
2	.38	e215	.22	.08	100	.02	.00	---	.00
3	.23	e200	.12	.06	e100	.02	.00	---	.00
4	.23	e185	.11	.03	e100	.01	.00	---	.00
5	.21	e170	.10	.01	e100	.00	.00	---	.00
6	1.9	170	.87	.02	e100	.01	.00	---	.00
7	494	3280	4370	.01	e100	.00	.00	---	.00
8	194	1520	796	.01	e100	.00	.00	---	.00
9	97	440	115	.02	e100	.01	.00	---	.00
10	61	e510	84	.01	e100	.00	.00	---	.00
11	32	310	27	.00	---	.00	.00	---	.00
12	17	e240	11	.00	---	.00	.00	---	.00
13	11	e200	5.9	.00	---	.00	.00	---	.00
14	7.8	e170	3.6	.00	---	.00	.00	---	.00
15	195	18200	9580	.00	---	.00	.00	---	.00
16	105	23600	6690	.00	---	.00	.00	---	.00
17	45	e15600	1900	.00	---	.00	.00	---	.00
18	46	e10400	1290	.00	---	.00	.00	---	.00
19	48	e8100	1050	.00	---	.00	.00	---	.00
20	26	e3200	225	.00	---	.00	.00	---	.00
21	14	e500	19	.00	---	.00	.00	---	.00
22	10	e240	6.5	.00	---	.00	.00	---	.00
23	7.5	e165	3.3	.00	---	.00	.00	---	.00
24	5.7	e125	1.9	.00	---	.00	.00	---	.00
25	3.8	e107	1.1	.00	---	.00	.00	---	.00
26	2.7	e100	.73	.00	---	.00	.00	---	.00
27	1.4	e100	.38	.00	---	.00	.00	---	.00
28	.70	e100	.19	.00	---	.00	.00	---	.00
29	.39	e100	.11	.00	---	.00	.00	---	.00
30	.28	e100	.08	.00	---	.00	.00	---	.00
31	.17	e100	.05	.00	---	.00	---	---	---
TOTAL	1428.97	---	26182.62	0.39	---	0.11	0.00	---	0.00
YEAR	73225.61		685736.11						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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								
14...	1445	0.36	1740	9.5	10.0	48	0.05	40
DEC								
03...	0930	2.2	3290	2.0	0.0	185	1.1	79
JAN								
12...	1502	0.61	4200	-4.0	0.0	190	0.31	91
FEB								
09...	1530	1.2	--	-17.0	0.0	227	0.70	75
MAR								
03...	1635	5680	470	14.0	1.5	3010	46200	99
APR								
04...	1230	34	1980	1.5	6.5	72	6.6	90
MAY								
05...	1300	52	3540	12.0	15.5	150	21	99
JUN								
03...	1206	6.0	2840	23.0	22.0	117	1.9	99
JUL								
06...	0915	0.05	2600	19.5	23.0	165	0.02	92
AUG								
02...	1020	0.08	1800	21.0	26.5	116	0.02	72

MISSOURI-FORT RANDALL RIVER BASIN

06441590 MISSOURI RIVER AT LA FRAMBOISE ISLAND, AT PIERRE, SD

LOCATION.--Lat 44°21'07", long 100°21'31", in NW1/4 SW1/4 NE1/4 sec.34, T.110 N., R.79 W., Hughes County, Hydrologic Unit 10140101, on left bank of La Framboise Island Recreation Area, 0.2 mi downstream from Bad River, 1.5 mi downstream from U.S. Highways 14 and 83, 7.8 mi downstream from Oahe Dam, and at mile 1,064.5.

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

REVISED RECORDS.--WDR SD-90-1: Datum.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft above sea level.

REMARKS.--Records poor. Stage regulated by Oahe Reservoir. Gage heights prior to October 1988 in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.44	21.23	20.64	21.50	22.96	21.50	21.32	21.75	22.47	21.68	22.74	22.63
2	20.62	20.74	20.99	21.77	22.89	21.32	21.01	22.91	22.59	21.49	22.73	22.93
3	20.56	20.86	21.14	22.45	22.71	21.69	21.15	22.71	21.82	21.33	21.83	22.49
4	21.04	20.21	21.04	22.57	22.13	21.48	21.91	22.41	22.07	21.35	21.73	22.43
5	21.35	20.67	20.09	22.81	21.79	21.27	21.95	22.50	21.92	22.19	21.68	22.00
6	21.06	20.90	22.12	22.45	21.64	21.39	21.93	22.04	22.97	22.39	20.65	22.63
7	20.90	20.74	21.68	23.14	23.66	21.70	22.17	22.35	23.37	21.21	19.51	22.62
8	20.46	21.21	21.66	22.71	23.19	21.51	21.80	21.72	23.62	21.26	22.24	23.13
9	20.49	21.21	21.63	22.44	23.65	21.12	22.00	22.36	23.22	21.49	22.85	22.98
10	20.62	21.44	21.34	22.83	23.00	21.08	22.27	22.47	23.60	21.64	22.43	21.94
11	20.65	21.31	21.66	23.04	22.18	20.80	22.40	22.45	22.85	22.12	23.08	20.07
12	20.83	21.39	21.44	22.43	21.83	20.25	22.00	22.88	22.75	22.26	22.87	21.96
13	21.00	20.90	21.80	22.59	21.70	20.43	22.05	22.33	23.31	22.01	22.34	22.56
14	21.12	21.09	22.12	22.06	22.25	20.30	22.20	21.62	23.58	22.04	22.29	22.68
15	20.58	21.65	21.96	22.18	22.10	20.68	21.31	22.05	23.30	22.14	22.99	22.39
16	20.51	21.75	21.98	22.49	22.21	21.30	21.98	22.91	23.28	22.18	23.08	21.93
17	20.62	21.65	21.60	25.26	21.95	20.78	21.79	23.30	23.15	21.97	22.98	21.95
18	21.03	21.43	21.06	25.81	21.44	20.83	22.02	23.09	21.91	22.97	23.10	22.07
19	20.92	20.78	20.82	25.62	22.11	20.81	21.90	22.84	22.39	22.88	22.62	22.54
20	20.27	20.82	22.34	25.64	21.48	20.37	22.32	22.74	22.64	22.70	22.03	22.33
21	20.82	20.96	21.69	24.55	22.94	20.90	22.07	22.46	23.72	22.73	22.24	22.15
22	20.84	22.24	21.62	23.06	23.20	20.80	22.04	22.06	22.37	22.62	23.17	21.99
23	20.52	21.69	21.85	22.32	22.52	20.87	21.49	22.84	22.29	22.75	22.84	22.01
24	20.58	21.30	20.92	23.19	22.21	20.54	21.69	22.75	22.99	21.87	22.78	22.26
25	20.71	20.51	21.51	23.05	22.64	20.64	22.49	22.35	21.84	22.07	22.57	21.93
26	20.93	20.32	21.38	22.87	22.26	19.99	21.74	22.54	21.72	22.04	22.39	22.62
27	20.87	20.07	22.37	23.11	21.63	19.85	21.73	22.46	21.90	21.85	22.80	22.50
28	20.52	20.49	22.48	22.90	22.00	20.98	21.84	22.01	21.66	21.80	22.33	22.35
29	20.51	21.78	22.07	22.13	---	21.12	21.55	21.37	21.84	21.76	22.87	22.50
30	20.68	21.17	22.03	22.54	---	21.31	21.68	20.92	21.88	21.72	22.68	22.49
31	20.69	---	21.20	23.03	---	21.12	---	21.78	---	21.25	22.64	---
MEAN	20.73	21.08	21.56	23.05	22.37	20.93	21.86	22.35	22.63	21.99	22.42	22.30
MAX	21.35	22.24	22.48	25.81	23.66	21.70	22.49	23.30	23.72	22.97	23.17	23.13
MIN	20.27	20.07	20.09	21.50	21.44	19.85	21.01	20.92	21.66	21.21	19.51	20.07

MISSOURI-FORT RANDALL RIVER BASIN

06441595 MISSOURI RIVER AT FARM ISLAND, NEAR PIERRE, SD

LOCATION.--Lat 44°20'03", long 100°15'54", in NW1/4 SW1/4 NE1/4 sec.18, T.110 N., R.79 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 Oahe Reservoir. Gage heights prior to October 1988 in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.03	20.82	20.16	20.00	---	21.08	20.63	21.38	21.26	20.90	21.72	21.35
2	20.25	20.58	20.29	20.67	19.02	20.85	20.50	21.85	21.33	20.88	21.63	21.70
3	20.35	20.61	20.34	21.08	18.80	21.06	20.83	21.69	20.96	20.95	21.01	21.35
4	20.64	19.94	20.35	21.25	22.58	21.03	21.27	21.44	21.03	21.00	20.97	21.52
5	20.76	20.25	19.55	21.28	21.25	21.10	21.18	21.62	21.03	21.23	21.03	21.27
6	20.55	20.55	20.78	21.02	21.19	21.21	21.17	21.14	21.71	21.40	20.13	21.58
7	20.34	20.52	20.72	21.67	22.60	21.33	21.29	21.38	22.00	20.54	19.17	21.51
8	20.02	20.77	20.29	20.50	22.20	21.11	20.70	21.32	22.26	20.42	20.63	21.69
9	20.14	20.87	20.34	20.82	22.38	20.84	21.09	21.56	21.66	20.75	21.44	21.62
10	20.40	21.05	20.12	21.50	22.09	20.79	21.43	21.56	21.93	21.15	21.05	21.02
11	20.32	20.93	20.59	21.60	21.47	20.54	21.55	21.41	21.58	21.40	21.69	19.85
12	20.44	20.62	20.62	21.20	21.20	20.10	21.23	21.73	21.81	21.40	21.41	20.61
13	20.31	20.76	20.59	21.10	21.25	20.26	21.20	21.33	22.30	21.26	21.18	21.12
14	20.53	21.08	20.85	21.00	21.68	20.14	21.24	20.83	22.13	21.10	21.41	21.29
15	20.26	21.47	20.76	21.30	21.50	20.44	20.56	21.41	22.06	21.20	21.94	21.05
16	20.26	21.40	20.67	21.80	21.46	20.87	21.06	22.10	22.06	21.26	21.92	20.78
17	20.42	21.24	20.15	23.10	21.25	20.41	21.19	22.71	21.84	21.43	21.67	20.80
18	20.68	20.70	20.05	22.80	20.86	20.51	21.23	22.16	21.29	22.01	21.74	21.30
19	20.57	20.13	20.06	23.10	21.29	20.58	21.16	21.81	21.52	21.88	21.30	21.48
20	19.99	20.23	21.01	21.46	21.18	20.22	21.44	21.86	21.53	21.67	21.06	21.14
21	20.39	20.55	20.17	22.66	21.95	20.69	21.26	21.38	22.18	21.53	21.70	21.00
22	20.46	21.39	20.38	21.82	22.31	20.51	21.25	21.80	21.38	21.44	22.37	20.90
23	20.34	20.84	20.52	21.61	21.69	20.47	20.82	22.18	21.28	21.54	21.84	20.90
24	20.46	20.48	19.88	22.32	21.47	20.20	21.16	21.66	21.66	21.26	21.94	21.10
25	20.26	19.97	19.55	22.19	22.06	20.36	21.52	21.47	20.91	21.49	22.07	21.18
26	20.32	19.80	19.93	22.03	21.64	19.77	20.83	21.50	21.16	21.33	21.74	21.62
27	20.46	19.67	21.01	22.11	21.29	19.71	20.93	21.47	21.17	21.03	21.39	21.50
28	19.93	20.16	20.94	22.90	21.50	20.48	20.94	21.12	20.90	21.00	21.50	21.42
29	19.89	20.90	20.52	---	---	20.46	20.78	21.00	21.14	20.92	21.88	21.38
30	20.31	20.54	20.54	---	---	20.61	20.96	20.47	21.00	20.88	21.71	21.38
31	20.65	---	20.05	---	---	20.44	---	20.77	---	20.91	21.47	---
MEAN	20.35	20.63	20.38	---	---	20.59	21.08	21.52	21.54	21.20	21.41	21.21
MAX	20.76	21.47	21.01	---	---	21.33	21.55	22.71	22.30	22.01	22.37	21.70
MIN	19.89	19.67	19.55	---	---	19.71	20.50	20.47	20.90	20.42	19.17	19.85

MISSOURI-FORT RANDALL RIVER BASIN

06442700 LAKE SHARPE NEAR FORT THOMPSON, SD

LOCATION.--Lat 44°02'18", long 99°26'45", in SE1/4 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 power- plant 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; minimum since initial filling, 1,448,000 acre-ft, Sept. 17, 1967, affected by wind.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,755,000 acre-ft, Jan. 30; minimum contents, 1,622,000 acre-ft, Aug. 8.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,420.62	1,710,000	-
Oct. 31	1,420.57	1,720,000	+10,000
Nov. 30	1,420.16	1,696,000	-24,000
Dec. 31	1,420.16	1,684,000	-12,000
CAL YR 1993	-	-	-18,000
Jan. 31	1,421.09	1,741,000	+57,000
Feb. 28	1,420.74	1,726,000	-15,000
Mar. 31	1,420.25	1,701,000	-25,000
Apr. 30	1,420.83	1,734,000	+33,000
May 31	1,419.91	1,678,000	-56,000
June 30	1,420.13	1,699,000	+21,000
July 31	1,420.81	1,736,000	+37,000
Aug. 31	1,420.28	1,703,000	-33,000
Sept. 30	1,419.88	1,682,000	-21,000
WTR YR 1994	-	-	-28,000

NOTE.--Lake frozen over Dec. 20 to Apr. 7.

MISSOURI-FORT RANDALL RIVER BASIN

06442718 CAMPBELL CREEK NEAR LEE'S CORNER, SD

LOCATION.--Lat 44°04'39", long 99°22'51", in NW1/4 NE1/4 NW1/4 sec.17, T.107 N., R.71 W., Buffalo County, Hydrologic Unit 10140105, 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. Datum of gage is 1,440.32 ft above sea level.

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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.11	.17	e.32	e.00	e.00	e12	.56	1.1	.07	.01	.00	.00
2	.12	.17	e.32	e.00	e.00	e100	.54	.56	.07	.02	.00	.00
3	.11	.19	e.30	e.00	e.00	e403	.57	.42	.08	.00	.01	.00
4	.12	.13	e.32	e.00	e.00	e355	.97	.33	.08	.00	.01	.00
5	.12	.13	e.31	e.00	e.00	e410	1.7	.23	.31	.00	.00	.00
6	.12	.13	e.33	e.00	e.00	e272	.96	.22	.17	.80	.00	.00
7	.13	.13	e.34	e.00	e.00	e182	.68	.29	.11	11	.00	.00
8	.14	.14	e.35	e.00	e.00	e156	.77	.24	.38	1.4	.00	.00
9	.15	.15	e.37	e.00	e.00	e144	.47	.13	.96	.04	.00	.00
10	.14	.16	e.39	e.00	e.00	e132	.37	.12	.17	.02	.01	.00
11	.15	.16	e.38	e.00	e.00	e129	.34	.11	.05	.01	.00	.00
12	.14	.17	e.40	e.00	e.00	e121	.45	.07	.05	.00	.02	.00
13	.15	.20	e.40	e.00	e.00	e62	.44	.09	.03	.01	.02	.00
14	.15	.18	e.37	e.00	e.05	40	.70	.21	.02	.01	.01	.00
15	.14	.17	e.39	e.00	e.09	32	1.3	.12	.01	.02	.00	.00
16	.15	.17	e.37	e.00	e.13	18	.32	.05	.02	.71	.00	.00
17	.14	.17	e.34	e.00	e.14	18	.35	.06	.33	.02	.00	.00
18	.14	.18	e.34	e.00	e.18	16	.44	.05	.47	.01	.00	.00
19	.14	.18	e.34	e.00	e.20	8.6	.20	.05	.05	.03	.00	.00
20	.14	.19	e.33	e.00	e.10	7.3	.24	.05	.02	.01	.00	.00
21	.15	.19	e.34	e.00	e.00	4.6	.33	.05	.02	.00	.00	.00
22	.15	.19	e.20	e.00	e.00	2.2	.31	.05	.02	.01	.00	.00
23	.15	.18	e.10	e.00	e.00	1.0	.40	.05	.02	.01	.00	.00
24	.15	e.28	e.15	e.00	e.00	5.9	.42	.05	.01	.00	.00	.00
25	.16	e.18	e.10	e.00	e.00	1.8	.38	.06	.00	.00	.00	.00
26	.16	e.13	e.00	e.00	e.10	.86	2.6	.08	.00	.01	.00	.00
27	.17	e.10	e.00	e.00	e.40	.56	.73	.06	.00	.01	.00	.00
28	.17	e.10	e.00	e.00	e2.0	.49	1.0	.08	.00	.00	.00	.00
29	.16	e.10	e.10	e.00	---	.56	5.9	.07	.00	.00	.00	.00
30	.17	e.13	e.15	e.00	---	.93	5.5	.07	.00	.00	.00	.00
31	.17	---	e.10	e.00	---	.61	---	.06	---	.00	.00	---
TOTAL	4.46	4.85	8.25	0.00	3.39	2637.41	29.94	5.18	3.52	14.16	0.08	0.00
MEAN	.14	.16	.27	.000	.12	85.1	1.00	.17	.12	.46	.003	.000
MAX	.17	.28	.40	.00	2.0	410	5.9	1.1	.96	11	.02	.00
MIN	.11	.10	.00	.00	.00	.49	.20	.05	.00	.00	.00	.00
AC-FT	8.8	9.6	16	.00	6.7	5230	59	10	7.0	28	.2	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1994, BY WATER YEAR (WY)

MEAN	.052	.057	.064	.13	2.48	14.7	1.48	13.0	7.21	9.96	.40	.27
MAX	.19	.17	.27	.78	15.3	85.1	6.54	76.7	35.8	57.4	2.41	1.28
(WY)	1993	1993	1994	1992	1992	1994	1993	1991	1991	1993	1992	1992
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1988 - 1994	
ANNUAL TOTAL	2377.51		2711.24			
ANNUAL MEAN	6.51		7.43		4.18	
HIGHEST ANNUAL MEAN					9.61	1991
LOWEST ANNUAL MEAN					.63	1990
HIGHEST DAILY MEAN	683	Jul 25	410	Mar 5	909	May 17 1991
LOWEST DAILY MEAN	.00	Jan 1	.00	Dec 26a	.00	Oct 1 1987a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Jan 1	.00	Oct 1 1987
INSTANTANEOUS PEAK FLOW			840	Mar 3	3260	Jul 24 1993
INSTANTANEOUS PEAK STAGE			10.51	Mar 3b	15.01	Jul 24 1993
ANNUAL RUNOFF (AC-FT)	4720		5380		3030	
10 PERCENT EXCEEDS	5.5		.96		1.6	
50 PERCENT EXCEEDS	.15		.10		.03	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a No flow for long periods in most years.
b Backwater from ice.

MISSOURI-FORT RANDALL RIVER BASIN

06442900 ELM CREEK NEAR GANN VALLEY, SD

LOCATION.--Lat 44°04'38", long 99°09'03", in NW1/4 NE1/4 NE1/4 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 current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,600 ft above sea level, from topographic map.

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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.55	.49	1.6	e1.0	e.42	e1.0	e14	12	.28	.25	1.3	.22
2	.40	.39	1.5	e.98	e.45	e3.0	e13	16	.29	.30	1.2	.21
3	.57	.35	1.4	e.95	e.47	e100	e13	14	.26	.25	1.1	.20
4	.42	.35	1.4	e.90	e.49	e400	e12	13	.22	.27	.95	.20
5	.35	.38	e1.4	e.86	e.50	e500	12	12	.33	.23	.71	.20
6	.30	e.30	e1.3	e.82	e.48	e600	12	10	.25	.18	.70	.18
7	.30	.58	e1.4	e.80	e.40	e460	12	8.4	.26	.35	.65	.18
8	.27	.47	e1.5	e.82	e.35	e370	11	6.9	.43	.30	.51	.18
9	.30	.47	1.6	e.84	e.30	e290	9.2	5.8	.46	.30	.67	.17
10	.42	.52	1.6	e.85	e.32	e230	8.1	4.9	.24	.31	.75	.16
11	.67	.55	1.5	.86	e.36	e180	7.3	4.2	.23	.63	.69	.15
12	.47	.77	1.5	.91	e.39	e227	6.9	3.5	.17	1.2	.65	.16
13	.41	1.2	1.5	.89	e.43	e355	6.2	2.8	.14	1.3	.61	.15
14	.49	1.4	e1.6	.82	e.48	e470	5.8	2.8	.12	1.5	.51	.15
15	.51	1.2	e1.6	.69	e.52	e366	5.9	2.1	.07	1.1	.45	.15
16	.48	1.1	e1.7	.72	e.51	e221	6.0	1.9	.02	16	.46	.15
17	1.0	1.1	e1.6	.64	e.48	e171	5.9	1.6	.07	38	.39	.12
18	.84	1.1	e1.6	.50	e3.0	e121	4.8	1.4	.03	20	.27	.12
19	.49	1.1	e1.5	.44	e50	e100	4.6	1.1	.83	13	.28	.12
20	.49	1.2	e1.4	.43	e40	e78	4.2	.95	.68	7.9	.22	.12
21	.43	1.5	e1.3	.32	e22	e60	3.9	.77	.31	6.6	.23	.09
22	.46	2.0	e1.2	.35	e12	e44	3.7	.68	.19	6.0	.23	.10
23	.55	3.6	e1.1	.45	e6.5	e36	3.5	.67	.15	4.8	.24	.10
24	.55	2.9	e1.0	.53	e3.7	e29	3.7	.59	.48	4.0	.23	.10
25	.52	e2.0	e.95	.80	e2.0	e24	3.4	.56	.66	3.4	.24	.08
26	.35	e1.5	e.90	.77	e1.5	e22	3.9	.54	.42	3.0	.24	.08
27	.37	e1.5	e.85	.72	e1.2	e21	4.2	.59	.31	2.5	.24	.08
28	.39	e1.5	e.80	e.60	e1.1	e20	5.1	.61	.20	2.2	.23	.07
29	.37	e1.6	e.80	e.49	---	e19	6.0	.48	.16	1.9	.24	.07
30	.40	1.6	e.90	e.40	---	e17	8.3	.39	.16	1.6	.23	.07
31	.46	---	e1.0	e.41	---	e16	---	.33	---	1.3	.22	---
TOTAL	14.58	34.72	41.00	21.56	150.35	5551.0	219.6	131.56	8.42	140.67	15.64	4.13
MEAN	.47	1.16	1.32	.70	5.37	179	7.32	4.24	.28	4.54	.50	.14
MAX	1.0	3.6	1.7	1.0	50	600	14	16	.83	38	1.3	.22
MIN	.27	.30	.80	.32	.30	1.0	3.4	.33	.02	.18	.22	.07
AC-FT	29	69	81	43	298	11010	436	261	17	279	31	8.2

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1994, BY WATER YEAR (WY)

MEAN	.078	.19	.20	.69	17.6	45.4	4.08	19.1	20.0	26.5	1.63	.13
MAX	.47	1.16	1.32	4.04	113	179	9.83	98.1	103	161	10.2	.63
(WY)	1994	1994	1994	1992	1992	1994	1993	1991	1991	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1988 - 1994	
ANNUAL TOTAL	7690.87		6333.23			
ANNUAL MEAN	21.1		17.4		11.3	
HIGHEST ANNUAL MEAN					20.8	1993
LOWEST ANNUAL MEAN					2.06	1990
HIGHEST DAILY MEAN	1650	Jul 26	600	Mar 6	1650	Jul 26 1993
LOWEST DAILY MEAN	.00	Jan 1	.02	Jun 16	.00	Oct 1 1987a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.08	Sep 24	.00	Oct 1 1987
INSTANTANEOUS PEAK FLOW			700	Mar 6b	1400c	Jul 25 1993c
INSTANTANEOUS PEAK STAGE			15.26	Mar 5d	17.24	Jul 25 1993
ANNUAL RUNOFF (AC-FT)	15250		12560		8190	
10 PERCENT EXCEEDS	22		15		11	
50 PERCENT EXCEEDS	1.4		.80		.09	
90 PERCENT EXCEEDS	.00		.19		.00	

e Estimated
a No flow at times in most years.
b Gage height, 12.81 ft, backwater from ice.
c Discharge to be determined.
d Backwater from ice.

MISSOURI-FORT RANDALL RIVER BASIN

06442996 LAKE FRANCIS CASE (AMERICAN CREEK BAY) AT CHAMBERLAIN, SD

LOCATION.--Lat 43°48'52", long 099°19'24", in SE1/4 NE1/4 NW1/4 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. Elevation of gage is 1,360 ft above sea level, from topographic map.

REMARKS.--Records good except those for Nov. 2 to Feb. 15, which are fair. Stage regulated by Ft. Randall Reservoir. Gage heights prior to October 1988 in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54.36	---	48.84	---	50.70	53.63	54.68	55.36	55.03	57.22	---	55.77
2	54.02	---	48.61	---	51.38	53.42	54.35	55.47	54.88	56.87	55.82	55.97
3	---	49.93	48.94	---	51.88	53.95	54.19	55.58	54.89	56.42	55.88	55.73
4	---	49.76	48.64	48.95	51.94	54.05	54.03	55.42	54.78	55.66	55.97	55.21
5	---	49.68	---	49.79	50.92	54.08	54.36	55.48	54.28	---	56.33	55.20
6	---	49.35	---	50.81	49.46	54.67	54.55	55.56	54.39	---	56.38	55.42
7	54.07	48.27	49.27	52.03	49.90	55.56	54.80	55.40	54.70	---	56.08	55.63
8	53.82	48.23	49.46	51.39	50.73	56.34	54.66	55.20	55.06	---	55.84	55.83
9	---	48.83	49.31	49.79	50.76	56.64	54.44	55.11	55.10	---	55.88	56.22
10	---	49.52	49.65	49.09	50.68	56.77	54.26	55.30	55.35	---	55.53	56.36
11	---	49.93	48.86	50.67	50.66	56.80	54.34	55.35	55.32	---	55.66	56.19
12	---	50.12	---	51.31	50.28	56.64	54.41	55.63	55.15	---	55.73	55.77
13	---	49.57	---	51.48	49.68	56.55	54.49	55.77	55.40	---	55.35	55.71
14	---	48.27	49.17	51.55	49.97	56.35	54.66	55.37	56.06	---	55.04	55.81
15	---	48.37	49.93	50.74	51.02	56.25	54.56	55.10	56.22	---	55.23	55.62
16	---	49.97	50.36	49.28	51.65	56.40	54.84	55.51	56.19	---	55.52	55.35
17	---	50.52	50.36	49.37	52.03	56.47	54.64	55.87	56.67	---	55.75	55.17
18	---	50.82	49.01	50.30	51.93	56.46	54.70	55.89	56.70	---	56.12	54.77
19	---	50.85	---	51.41	51.51	56.42	54.85	55.87	56.78	---	56.06	54.87
20	---	49.95	---	51.33	50.87	55.85	55.16	56.05	56.63	---	55.92	54.73
21	---	48.38	49.74	50.42	52.34	55.63	55.26	55.63	56.78	---	55.51	54.60
22	---	48.61	49.92	49.47	53.33	55.54	55.58	55.28	57.09	---	55.68	54.47
23	---	49.48	50.07	48.38	53.56	55.25	55.33	55.36	56.98	---	55.70	54.59
24	---	50.09	49.73	---	53.58	55.15	54.85	55.45	57.43	---	55.73	54.25
25	---	49.74	48.38	50.03	53.83	55.24	54.89	55.31	57.25	---	55.96	53.63
26	---	49.68	---	50.50	53.47	54.84	54.87	55.58	56.95	---	55.79	53.91
27	---	48.73	---	51.63	52.90	54.28	55.14	55.77	57.03	---	55.66	53.73
28	---	---	49.61	51.52	53.05	54.42	55.46	55.52	56.88	---	55.16	53.87
29	---	---	50.34	50.27	---	54.38	55.61	55.14	57.08	---	55.34	54.00
30	---	48.94	50.60	48.59	---	54.65	55.54	54.98	57.21	---	55.35	54.04
31	---	---	49.68	49.28	---	54.65	---	54.87	---	---	55.42	---
MEAN	---	---	---	---	51.57	55.40	54.78	55.46	56.01	---	---	55.08
MAX	---	---	---	---	53.83	56.80	55.61	56.05	57.43	---	---	56.36
MIN	---	---	---	---	49.46	53.42	54.03	54.87	54.28	---	---	53.63

06445685 WHITE RIVER NEAR NEBRASKA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 43°00'47", long 102°50'07", in NE1/4 SW1/4 NE1/4 sec.15, T.35 N., R.47 W., Shannon County, Hydrologic Unit 10140201, on left bank 1.0 mi north of Nebraska-South Dakota State line, and 4.3 mi south of Slim Butte.

DRAINAGE AREA.--1,440 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	e36	e40	e75	e40	e170	e40	e61	17	4.8	5.8	2.1
2	e11	e37	e45	e80	e45	e300	e50	e58	21	4.2	5.7	2.2
3	e10	e36	e50	e85	e45	e280	e55	e54	17	3.8	5.2	2.3
4	e10	e40	e70	e89	e50	e270	e57	e47	17	3.9	4.2	2.6
5	e9.6	e41	e80	e95	e50	e220	e55	e43	40	4.4	3.6	2.5
6	9.8	e44	e80	e93	e55	e200	e54	e51	18	4.8	3.1	2.5
7	9.4	e38	e78	e68	e45	e190	e55	e58	16	4.9	3.2	2.4
8	9.5	e44	e75	e35	e35	e180	e59	e58	15	4.7	2.9	4.3
9	9.6	e49	e70	e40	e30	e150	e57	e59	14	4.5	2.6	5.8
10	10	e53	e60	e55	e30	e110	e57	e57	14	4.4	2.2	3.6
11	13	e54	e60	e60	e35	e82	e57	e54	12	5.6	2.1	2.5
12	15	e39	e65	e65	e40	e80	e56	50	11	5.8	33	2.1
13	19	e47	e67	e60	e40	e80	e56	50	11	5.7	70	2.1
14	21	e48	e65	e40	e35	e75	e56	55	9.1	5.7	30	2.0
15	28	e44	e60	e30	e35	e95	e55	81	8.2	6.6	18	2.0
16	54	e42	e48	e27	e100	e90	e54	80	9.3	7.3	14	2.1
17	e56	e68	e40	e20	e200	e85	e53	87	9.1	11	11	2.1
18	e46	e68	e40	e17	e450	e81	e53	70	8.2	20	7.2	1.9
19	e41	e68	e40	e15	e300	e75	e52	365	9.3	36	4.9	1.6
20	e47	e68	e37	e15	e200	e60	e51	62	8.7	26	3.3	1.3
21	e54	e68	e35	e18	e150	e57	e48	49	7.1	14	2.2	.50
22	e44	e65	e32	e40	e100	e58	e35	29	21	9.2	1.8	.51
23	e48	e56	e31	e45	e100	e55	e28	25	16	7.9	1.6	.54
24	e48	e40	e31	e45	e125	e50	e25	26	21	7.1	1.7	.56
25	e46	e35	e40	e40	e90	e47	e87	25	16	5.4	1.6	.66
26	e40	e28	e50	e40	e70	e44	e56	25	16	5.8	1.3	1.4
27	e38	e22	e60	e40	e100	e39	e54	22	20	9.6	1.2	1.6
28	e37	e18	e60	e45	e130	e38	e63	21	12	11	1.2	1.7
29	e36	e25	e60	e45	---	e39	e68	20	8.1	9.5	1.1	2.6
30	e35	e31	e65	e45	---	e40	e60	20	5.9	7.3	1.5	2.3
31	e45	---	e68	e40	---	e40	---	20	---	5.9	1.6	---
TOTAL	910.9	1352	1702	1507	2725	3380	1606	1782	428.0	266.8	248.8	62.37
MEAN	29.4	45.1	54.9	48.6	97.3	109	53.5	57.5	14.3	8.61	8.03	2.08
MAX	56	68	80	95	450	300	87	365	40	36	70	5.8
MIN	9.4	18	31	15	30	38	25	20	5.9	3.8	1.1	.50
AC-FT	1810	2680	3380	2990	5410	6700	3190	3530	849	529	493	124

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1994, BY WATER YEAR (WY)

MEAN	9.96	13.4	15.8	19.4	30.8	89.3	48.3	119	91.0	22.9	10.9	8.97
MAX	29.4	45.1	54.9	48.6	97.3	297	112	514	271	49.7	27.3	24.5
(WY)	1994	1994	1994	1994	1994	1993	1993	1991	1991	1993	1991	1991
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1988 - 1994	
ANNUAL TOTAL	28255.5		15970.87			
ANNUAL MEAN	77.4		43.8		40.0	
HIGHEST ANNUAL MEAN					78.2	1991
LOWEST ANNUAL MEAN					14.2	1989
HIGHEST DAILY MEAN	966	Jun 8	450	Feb 18	1910	May 12 1991
LOWEST DAILY MEAN	6.0	Jan 13	.50	Sep 21	.00	Jul 13 1989a
ANNUAL SEVEN-DAY MINIMUM	6.4	Jan 13	.78	Sep 20	.00	Aug 3 1989
INSTANTANEOUS PEAK FLOW			888	May 19b	3820	May 12 1991
INSTANTANEOUS PEAK STAGE			13.00	Feb 16c	19.07	May 12 1991
ANNUAL RUNOFF (AC-FT)	56040		31680		28990	
10 PERCENT EXCEEDS	151		80		75	
50 PERCENT EXCEEDS	35		39		13	
90 PERCENT EXCEEDS	10		2.5		2.0	

e Estimated
a No flow at times in most years.
b Gage height, 11.55 ft.
c Backwater from ice.

WHITE RIVER BASIN

06445700 WHITE RIVER NEAR SLIM BUTTE, SD

LOCATION.--Lat 43°05'23", long 102°47'52", in SE1/4 SW1/4 SW1/4 sec.13 T.36 N., R.47 W., Shannon County, Hydrologic Unit 10140201, on left bank 1.25 mi downstream from Janis Creek, about 7.5 mi southwest of Oglala, and about 12.25 mi downstream from the Nebraska-South Dakota State line.

DRAINAGE AREA.--1,500 mi^2, approximately.

PERIOD OF RECORD.--July 1962 to September 1970, December 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,000 ft above sea level, from topographic map. Prior to August 1962, nonrecording gage read daily. August 1962 to September 1970, water-stage recorder was operated 1.25 mi upstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Some diversions for irrigation above 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 13, 1962, reached a stage of 20.54 ft, from floodmarks (discharge, 14,400 ft^3/s), from slope-area measurement of peak flow.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	18	44	67	e40	e110	38	58	21	3.0	1.9	1.5
2	8.2	19	45	77	e39	e180	47	55	31	2.1	1.8	1.8
3	8.3	18	52	82	e37	e250	52	51	20	1.4	1.7	1.9
4	9.3	22	72	82	e35	e240	55	44	18	1.1	1.5	1.8
5	9.6	23	80	94	e42	e230	54	40	47	1.0	1.2	1.9
6	9.4	e26	77	e90	e55	e220	53	48	28	1.7	1.0	1.8
7	9.2	20	75	e50	e50	e200	54	55	18	2.4	.78	1.7
8	11	26	72	e30	e47	e180	58	55	17	2.2	.60	1.5
9	13	31	66	e40	e43	e140	55	56	16	1.8	.54	4.7
10	14	35	55	e50	e40	e100	54	54	15	1.7	.57	4.8
11	17	36	51	e60	e65	e85	54	54	13	1.4	.61	3.1
12	23	21	60	e60	e64	e85	53	52	11	2.9	7.0	2.0
13	27	29	63	e60	e50	e80	53	50	10	3.0	68	1.4
14	51	30	62	e60	e47	e75	53	52	8.9	3.3	41	1.2
15	53	e26	60	e20	e60	e95	52	61	6.6	3.1	25	.94
16	52	e24	53	e19	e110	e90	51	74	7.1	3.9	16	.87
17	38	e50	45	e18	e200	e85	50	72	7.5	5.1	17	.74
18	28	e50	37	e17	e350	e85	50	58	6.5	15	10	.64
19	23	e50	37	e16	e450	e75	49	365	6.8	31	7.6	.59
20	29	e50	e36	e16	e350	e70	48	89	6.5	37	4.8	.57
21	36	e50	e32	e15	e250	e60	45	55	6.4	19	3.4	.49
22	26	e60	e30	e45	e190	e60	32	45	19	10	2.3	.42
23	30	e49	e30	e35	e150	55	28	36	17	6.8	1.8	.39
24	31	e38	e30	e34	e120	49	28	35	21	6.0	1.6	.35
25	28	e30	e35	e31	e80	46	84	34	19	4.8	1.6	.33
26	22	e25	e43	e30	e60	43	53	33	12	3.1	1.6	.30
27	20	e19	59	e33	e45	38	51	32	20	2.4	1.4	.26
28	19	e20	57	e37	e70	37	60	28	15	2.0	1.2	.20
29	18	e30	59	e40	---	38	65	26	7.4	3.1	1.2	.19
30	17	43	62	e45	---	36	57	25	4.6	2.9	.99	1.6
31	27	---	64	e41	---	38	---	25	---	2.3	.82	---
TOTAL	715.5	968	1643	1394	3139	3175	1536	1817	456.3	186.5	226.51	39.98
MEAN	23.1	32.3	53.0	45.0	112	102	51.2	58.6	15.2	6.02	7.31	1.33
MAX	53	60	80	94	450	250	84	365	47	37	68	4.8
MIN	8.2	18	30	15	35	36	28	25	4.6	1.0	.54	.19
AC-FT	1420	1920	3260	2760	6230	6300	3050	3600	905	370	449	79

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1970, 1992 - 1994, BY WATER YEAR (WY)

MEAN	12.3	12.8	14.6	14.8	33.4	84.2	50.9	64.1	179	46.6	19.8	9.24
MAX	26.5	32.3	53.0	45.0	112	268	124	398	1012	185	77.0	22.7
(WY)	1963	1994	1994	1994	1994	1993	1970	1991	1967	1969	1966	1991
MIN	1.19	4.82	2.82	1.25	1.61	6.32	11.3	10.5	10.5	6.02	1.86	.11
(WY)	1965	1965	1965	1991	1991	1991	1991	1993	1966	1994	1964	1964

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1963 - 1970, 1992 - 1994	
ANNUAL TOTAL	26090.0		15296.79			
ANNUAL MEAN	71.5		41.9		42.6a	
HIGHEST ANNUAL MEAN					115	1967
LOWEST ANNUAL MEAN					13.1	1964
HIGHEST DAILY MEAN	846	Jun 9	450	Feb 19	6720	Jun 16 1967
LOWEST DAILY MEAN	4.7	May 18	.19	Sep 29	.00	Aug 24 1963b
ANNUAL SEVEN-DAY MINIMUM	5.6	May 14	.29	Sep 23	.00	Sep 4 1964
INSTANTANEOUS PEAK FLOW			644	May 19c	1750	May 13 1991
INSTANTANEOUS PEAK STAGE			13.79	Feb 19f	16.61	May 13 1991d
ANNUAL RUNOFF (AC-FT)	51750		30340		30890	
10 PERCENT EXCEEDS	189		77		70	
50 PERCENT EXCEEDS	24		32		16	
90 PERCENT EXCEEDS	8.7		1.6		2.5	

e Estimated
a Median of annual mean discharges, 39 ft^3/s.
b No flow for many days in some years.
c Gage height, 11.60 ft.
d Occurred during partial-record year.
f Backwater from ice.

WHITE RIVER BASIN

06445980 WHITE CLAY CREEK NEAR OGLALA, SD

LOCATION.--Lat 43°08'46", long 102°40'58", in NW1/4 SE1/4 SE1/4 sec.30, T.37 N., R.45 W., Shannon County, Hydrologic Unit 10140201, on left bank at downstream side of bridge on U.S. Highway 18, 4.3 mi southeast of Oglala, 5.5 mi upstream from Oglala Dam, and 11 mi northwest of Pine Ridge.

DRAINAGE AREA.--340 mi^2, approximately.

PERIOD OF RECORD.--August 1965 to September 1981, October 1987 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,001.54 ft above sea level.

REMARKS.--Records good 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	10	e9.0	30	e6.0	e34	16	20	10	6.4	3.8	2.3
2	6.8	11	e11	27	e7.0	e40	16	20	11	6.0	3.7	3.0
3	6.9	11	e15	30	e8.0	e50	16	19	10	6.0	3.7	3.5
4	e7.0	9.9	e18	27	e8.0	e60	16	18	10	6.2	3.4	3.9
5	e7.0	e10	e20	25	e9.0	e50	16	17	10	5.8	3.4	4.0
6	7.2	e7.0	25	e23	e10	30	16	16	13	5.8	3.4	3.3
7	7.2	e8.0	28	e7.0	e5.0	27	16	16	26	6.3	3.3	2.9
8	9.3	e8.0	29	e7.0	e4.0	30	16	16	19	6.3	3.2	2.7
9	13	e8.0	35	e9.0	e3.0	43	16	15	13	7.1	2.9	2.3
10	11	e10	28	e10	e3.0	45	16	14	13	6.8	2.8	2.1
11	11	e14	33	e29	e4.0	44	15	14	11	6.3	3.0	2.2
12	11	e15	34	28	e5.0	26	15	14	10	6.1	3.3	2.0
13	10	e18	29	25	e6.0	23	15	14	9.8	6.0	3.4	2.1
14	10	e18	26	e23	e9.0	23	15	15	11	5.9	3.3	2.0
15	11	e10	e27	e10	e18	22	15	25	11	6.6	3.5	1.9
16	11	e9.0	e24	e9.0	43	21	15	23	9.8	7.0	3.6	2.6
17	12	e10	e23	e8.0	41	21	15	17	9.4	6.5	3.6	2.3
18	10	e10	e20	e7.0	45	20	15	14	8.8	6.7	3.4	2.2
19	10	e9.0	e20	e7.0	26	20	14	13	8.7	8.1	3.1	2.4
20	9.7	e9.0	e20	e6.0	25	19	14	34	8.8	7.1	3.0	2.4
21	9.5	e10	e20	e6.0	24	18	14	26	8.4	5.7	3.0	2.5
22	9.5	e13	e20	e32	e8.0	18	12	17	9.3	5.0	3.1	2.2
23	9.5	e8.0	e17	e32	e8.0	17	15	15	9.3	4.6	3.0	2.2
24	9.5	e7.0	e17	e26	e16	17	12	14	14	4.6	2.7	2.2
25	9.5	e6.0	e20	e7.0	e10	17	38	14	12	4.6	2.5	2.4
26	9.9	e6.0	e24	e6.0	e9.0	17	25	16	9.3	4.5	2.5	2.5
27	10	e7.0	e25	e6.0	e20	15	22	16	7.8	4.4	2.4	2.7
28	10	e7.0	30	e7.0	27	16	22	13	7.3	4.4	2.3	2.5
29	9.8	e7.50	27	e8.0	---	17	20	11	6.4	4.0	2.3	2.4
30	12	e8.0	31	e6.0	---	16	20	10	6.2	3.8	2.1	2.5
31	11	---	30	e5.0	---	16	---	10	---	3.7	2.1	---
TOTAL	298.3	294.40	735.0	488.0	407.0	832	508	516	323.3	178.3	94.8	76.2
MEAN	9.62	9.81	23.7	15.7	14.5	26.8	16.9	16.6	10.8	5.75	3.06	2.54
MAX	13	18	35	32	45	60	38	34	26	8.1	3.8	4.0
MIN	6.8	6.0	9.0	5.0	3.0	15	12	10	6.2	3.7	2.1	1.9
AC-FT	592	584	1460	968	807	1650	1010	1020	641	354	188	151

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1981, 1988 - 1994, BY WATER YEAR (WY)

MEAN	5.45	6.21	6.80	5.70	8.85	21.9	14.2	13.8	18.3	9.14	6.23	3.21
MAX	15.8	13.1	23.7	15.7	25.4	112	21.6	22.6	109	39.8	19.8	8.74
(WY)	1966	1969	1994	1994	1980	1966	1977	1971	1967	1969	1981	1967
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1966-1981, 1988-1994	
ANNUAL TOTAL	4005.00		4751.30			
ANNUAL MEAN	11.0		13.0		9.99a	
HIGHEST ANNUAL MEAN					20.8	1967
LOWEST ANNUAL MEAN					4.31	1989
HIGHEST DAILY MEAN	43	Jun 9	60	Mar 4	554	Mar 12 1966
LOWEST DAILY MEAN	1.2	Jan 19	1.9	Sep 15	.00	Aug 20 1970b
ANNUAL SEVEN-DAY MINIMUM	1.3	Jan 15	2.1	Sep 9	.00	Aug 20 1970
INSTANTANEOUS PEAK FLOW			250	Mar 4	659	Jun 16 1967c
INSTANTANEOUS PEAK STAGE			11.50	Mar 4d	15.02	Mar 11 1966d
ANNUAL RUNOFF (AC-FT)	7940		9420		7230	
10 PERCENT EXCEEDS	21		27		18	
50 PERCENT EXCEEDS	9.2		10		7.1	
90 PERCENT EXCEEDS	2.5		3.0		1.6	

e Estimated
a Median of annual mean discharges, 8.4 ft^3/s.
b No flow at times in some years.
c Gage height, 14.74 ft.
d Backwater from ice.

WHITE RIVER BASIN

06446000 WHITE RIVER NEAR OGLALA, SD

LOCATION.--Lat 43°15'17", long 102°49'29", in SW1/4 NE1/4 sec.24, T.38 N., R.47 W., Shannon County, Hydrologic Unit 10140201, on right bank at downstream side of bridge, 3.0 mi downstream from Blacktail Creek, and 7.0 mi northwest of Oglala.

DRAINAGE AREA.--2,200 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 fair 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e10	34	e39	20	e28	e80	47	72	26	4.3	1.5	.03
2	e9.5	e30	e37	20	e25	e130	47	72	26	1.6	1.2	.04
3	e8.5	e27	e35	20	e23	e200	53	68	30	.56	.88	.12
4	e8.0	e33	e31	23	e20	e190	62	62	26	.35	.76	.11
5	7.7	e35	e30	32	e30	e180	61	53	26	.26	.62	.16
6	9.8	e38	28	30	e38	e160	61	49	41	.33	.42	.64
7	11	e30	25	e28	e34	135	60	55	37	.36	.41	.55
8	13	e39	23	e25	e30	131	73	64	26	.14	.36	.51
9	16	e42	23	25	e25	119	173	60	22	.58	.35	.46
10	18	e45	23	20	e24	98	190	58	21	.44	.34	.38
11	14	e47	19	13	48	83	161	57	20	.30	.30	3.6
12	15	e30	16	8.4	49	84	188	56	19	.20	.41	5.0
13	19	e40	19	10	34	79	192	56	16	.17	.25	2.1
14	e43	e40	22	11	e31	75	186	54	15	.43	42	1.0
15	e46	e35	20	e7.0	e38	93	184	53	13	1.2	42	.63
16	e49	e30	19	e6.5	e80	92	181	61	11	1.8	28	.34
17	e45	e60	17	e6.0	e160	87	195	75	7.1	1.5	19	.23
18	e37	e60	11	e5.5	e300	89	240	71	9.7	1.6	16	.11
19	e29	e60	7.1	e5.0	e400	76	244	77	8.7	8.5	13	.05
20	e26	e60	3.4	e4.5	e300	68	121	273	7.5	25	8.5	.06
21	e25	e60	e3.2	e4.0	e200	65	81	72	8.1	33	5.5	.08
22	e30	e70	e3.0	29	e150	64	71	57	8.9	21	2.5	.04
23	e28	e60	e3.0	21	e100	64	56	46	11	11	1.0	.00
24	e26	e45	e3.0	20	e95	67	51	36	24	6.3	.53	.00
25	e27	e40	7.4	e18	e60	59	51	36	19	5.4	.31	.00
26	e21	e35	9.6	e16	e40	54	92	35	23	4.6	.16	.00
27	e20	e30	11	e17	e30	54	78	33	17	3.2	.13	.00
28	e18	e35	13	e20	e45	48	71	33	17	1.4	.21	.00
29	e23	e37	15	e28	---	48	75	29	17	1.1	.30	.03
30	23	e39	17	e32	---	48	78	28	9.1	.72	.21	.02
31	40	---	20	e30	---	47	---	26	---	.64	.07	---
TOTAL	715.5	1266	552.7	554.9	2437	2867	3423	1877	562.1	137.98	187.22	16.29
MEAN	23.1	42.2	17.8	17.9	87.0	92.5	114	60.5	18.7	4.45	6.04	.54
MAX	49	70	39	32	400	200	244	273	41	33	42	5.0
MIN	7.7	27	3.0	4.0	20	47	47	26	7.1	.14	.07	.00
AC-FT	1420	2510	1100	1100	4830	5690	6790	3720	1110	274	371	32

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1994, BY WATER YEAR (WY)

MEAN	15.3	17.6	15.0	13.2	32.8	112	73.7	102	150	53.7	26.5	21.4
MAX	63.1	55.8	55.7	37.7	87.0	807	362	583	1037	314	130	181
(WY)	1968	1987	1947	1947	1994	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1944 - 1994	
ANNUAL TOTAL	32767.0		14596.69			
ANNUAL MEAN	89.8		40.0		52.8a	
HIGHEST ANNUAL MEAN					142	1947
LOWEST ANNUAL MEAN					13.0	1985
HIGHEST DAILY MEAN	1200	Jun 9	400	Feb 19	3870	Jun 23 1947
LOWEST DAILY MEAN	3.0	Dec 22	.00	Sep 23b	.00	Sep 25 1952b
ANNUAL SEVEN-DAY MINIMUM	4.3	Dec 19	.00	Sep 23	.00	Sep 25 1952
INSTANTANEOUS PEAK FLOW			1450	Feb 19	5200	Jun 21 1947c
INSTANTANEOUS PEAK STAGE			17.40	Feb 19d	23.61	Jun 16 1967
ANNUAL RUNOFF (AC-FT)	64990		28950		38250	
10 PERCENT EXCEEDS	276		83		95	
50 PERCENT EXCEEDS	30		25		20	
90 PERCENT EXCEEDS	11		.35		3.8	

e Estimated
a Median of annual mean discharges, 44 ft^3/s.
b No flow at times in some years.
c From rating curve extended above 2,800 ft^3/s on basis of velocity-area studies, gage height, 23.50 ft.
d Backwater from ice.

WHITE RIVER BASIN

06446100 WOUNDED KNEE CREEK AT WOUNDED KNEE, SD

LOCATION.--Lat 43°08'38", long 102°21'28", in NE1/4 NE1/4 NW1/4 sec.36, T.37 N., R.43 W., Shannon County, Hydrologic Unit 10140201, on left bank at downstream end of culvert on Tribal road 27 in Wounded Knee, and above the confluence of Spring Creek.

DRAINAGE AREA.--82.5 mi^2.

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

GAGE.--Water-stage recorder. Elevation of gage is 3,200 ft above sea level, from topographic map.

REMARKS.--Records poor. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	e4.3	e3.0	e.22	e.18	e.80	e8.4	12	4.2	.94	e1.6	.17
2	3.0	4.4	e3.0	e.21	e.18	e1.0	e8.2	11	5.4	.72	e1.4	.17
3	2.9	4.3	e3.1	e.20	e.18	e3.0	e8.0	11	7.5	.73	e1.2	.17
4	2.9	4.4	e3.3	e.20	e.19	e10	e7.9	9.8	8.0	.57	e1.0	.17
5	3.0	5.3	e3.5	e.18	e.19	e20	e7.9	e9.7	6.8	.42	e.80	.17
6	3.0	e5.0	e3.4	e.16	e.20	e30	e7.8	e9.7	5.4	.36	e.60	.17
7	2.9	e5.2	e3.2	e.15	e.18	e25	e7.8	e9.6	5.1	.85	e.50	.17
8	3.2	e5.4	e3.0	e.16	e.16	e17	e7.7	e9.6	7.5	1.3	e.40	.17
9	4.3	5.7	e2.9	e.16	e.12	e10	e7.6	e9.5	8.6	1.5	e.30	.17
10	5.5	5.7	e3.0	e.16	e.10	e9.5	e7.5	e9.5	7.9	1.5	.22	.17
11	5.8	5.6	e3.0	e.16	e.11	e9.0	e7.5	e9.5	6.9	1.2	.21	.17
12	5.9	5.4	e3.0	e.18	e.12	e8.0	e7.4	e9.4	5.7	.82	.21	.17
13	7.0	5.4	e2.9	e.17	e.14	e8.4	e7.4	e9.5	4.7	.66	.21	.17
14	7.4	5.4	e2.8	e.16	e.16	e8.7	e7.4	11	4.3	.72	.21	.17
15	5.8	5.5	e2.6	e.15	e.20	e9.0	e7.3	11	3.9	1.1	.32	.17
16	5.7	5.5	e2.4	e.15	e.50	e10	e7.3	10	e3.8	.80	.21	.17
17	6.6	5.4	e2.1	e.14	e1.0	12	e7.2	e9.4	e3.6	2.1	.21	.17
18	5.5	5.2	e1.7	e.12	e4.0	11	e7.1	e8.8	e3.4	2.0	.21	.17
19	5.4	5.3	e1.5	e.11	e9.0	11	e7.0	e8.2	e3.2	e1.6	.19	.17
20	5.2	4.9	e1.2	e.12	e12	9.9	e7.0	e7.4	e3.0	e1.5	.19	.17
21	4.9	4.6	e1.0	e.12	e10	9.5	e7.0	7.0	e2.8	e1.5	.19	.17
22	4.8	e4.5	e.70	e.15	e9.0	9.1	e6.9	7.4	e2.7	e1.5	.19	.17
23	4.6	e4.0	e.50	e.20	e5.0	8.8	e6.9	7.4	e2.5	e1.4	.19	.17
24	4.5	e3.5	e.20	e.50	e2.0	8.8	e7.0	7.0	e2.4	e1.4	.19	.17
25	4.4	e3.0	e.21	e.40	e1.0	8.7	8.9	6.3	e2.2	e1.4	.19	.17
26	4.3	e2.5	e.24	e.20	e.50	8.5	9.7	5.7	e2.0	e1.4	.18	.17
27	4.1	e2.6	e.25	e.19	e.40	8.5	9.9	5.5	e1.7	e1.8	.17	.16
28	4.2	e2.7	e.22	e.19	e.50	8.6	9.5	5.0	e1.5	2.1	.17	.31
29	4.1	e2.7	e.22	e.18	---	8.6	10	4.8	1.4	2.3	.17	.24
30	e4.0	e2.8	e.23	e.17	---	8.5	12	4.7	1.0	e2.0	.17	.24
31	e4.1	---	e.23	e.17	---	e8.4	---	4.4	---	e1.7	.17	---
TOTAL	141.9	136.2	58.60	5.73	57.31	319.30	239.2	260.8	129.1	39.89	12.17	5.37
MEAN	4.58	4.54	1.89	.18	2.05	10.3	7.97	8.41	4.30	1.29	.39	.18
MAX	7.4	5.7	3.5	.50	12	30	12	12	8.6	2.3	1.6	.31
MIN	2.9	2.5	.20	.11	.10	.80	6.9	4.4	1.0	.36	.17	.16
AC-FT	281	270	116	11	114	633	474	517	256	79	24	11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1994, BY WATER YEAR (WY)

MEAN	3.39	4.20	1.77	1.05	3.01	9.55	5.62	7.46	6.67	2.15	1.32	1.61
MAX	4.58	4.54	1.89	1.92	3.98	10.3	7.97	8.41	9.03	3.01	2.25	3.03
(WY)	1994	1994	1994	1993	1993	1994	1994	1994	1993	1993	1993	1993
MIN	2.20	3.85	1.64	.18	2.05	8.81	3.26	6.50	4.30	1.29	.39	.18
(WY)	1993	1993	1993	1994	1994	1993	1993	1993	1994	1994	1994	1994

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1993 - 1994	
ANNUAL TOTAL	1605.00		1405.57			
ANNUAL MEAN	4.40		3.85		3.98	
HIGHEST ANNUAL MEAN					4.12	1993
LOWEST ANNUAL MEAN					3.85	1994
HIGHEST DAILY MEAN	20	Mar 23	30	Mar 6	30	Mar 6 1994
LOWEST DAILY MEAN	.20	Dec 24	.10	Feb 10	.10	Feb 10 1994
ANNUAL SEVEN-DAY MINIMUM	.22	Dec 24	.13	Jan 15	.13	Jan 15 1994
INSTANTANEOUS PEAK FLOW			34	Mar 6	34	Mar 6 1994
INSTANTANEOUS PEAK STAGE			3.54	Mar 6a	3.54	Mar 6 1994
ANNUAL RUNOFF (AC-FT)	3180		2790		2890	
10 PERCENT EXCEEDS	9.0		9.4		9.4	
50 PERCENT EXCEEDS	3.1		2.9		2.8	
90 PERCENT EXCEEDS	2.0		.17		.19	

e Estimated
a From high-water mark.

WHITE RIVER BASIN

06446700 BEAR IN THE LODGE CREEK NEAR WANBLEE, SD

Location.--Lat 43°32'05", long 101°47'30", in NE1/4 SW1/4 SW1/4 sec.12, T.41 N., R.38 W., Jackson County, Hydrologic Unit 10140202, on right bank at downstream side of bridge on State Highway 44, 0.9 mi south of Garner School, 8.2 mi southwest of Wanblee, and 25.3 mi upstream from mouth.

DRAINAGE AREA.--365 mi^2, approximately.

PERIOD OF RECORD.--June 1992 to May 1993 and May to September 1994.

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.--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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period May to September, 193 ft^3/s, June 10, gage height, 6.05 ft; minimum daily discharge, 2.3 ft^3/s, Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	16	10	9.9	4.7
2	---	---	---	---	---	---	---	---	18	10	11	4.9
3	---	---	---	---	---	---	---	---	20	11	10	6.6
4	---	---	---	---	---	---	---	---	21	11	13	8.7
5	---	---	---	---	---	---	---	---	23	11	13	8.7
6	---	---	---	---	---	---	---	---	21	20	21	8.4
7	---	---	---	---	---	---	---	---	23	49	25	6.9
8	---	---	---	---	---	---	---	---	35	44	19	5.6
9	---	---	---	---	---	---	---	---	75	28	12	4.5
10	---	---	---	---	---	---	---	---	126	24	9.7	3.5
11	---	---	---	---	---	---	---	---	61	17	8.5	2.9
12	---	---	---	---	---	---	---	---	79	14	8.1	2.6
13	---	---	---	---	---	---	---	---	38	12	7.5	2.6
14	---	---	---	---	---	---	---	---	28	10	6.9	2.8
15	---	---	---	---	---	---	---	---	24	15	6.2	3.1
16	---	---	---	---	---	---	---	---	21	38	5.7	3.1
17	---	---	---	---	---	---	---	---	19	71	6.8	2.9
18	---	---	---	---	---	---	---	---	18	37	4.5	2.9
19	---	---	---	---	---	---	---	---	17	32	11	2.8
20	---	---	---	---	---	---	---	17	17	52	11	3.1
21	---	---	---	---	---	---	---	22	16	26	7.3	3.2
22	---	---	---	---	---	---	---	22	15	19	5.0	3.1
23	---	---	---	---	---	---	---	25	27	14	4.0	2.9
24	---	---	---	---	---	---	---	24	16	13	3.6	2.9
25	---	---	---	---	---	---	---	24	14	12	2.9	3.1
26	---	---	---	---	---	---	---	22	13	11	2.9	3.3
27	---	---	---	---	---	---	---	19	13	10	2.9	3.5
28	---	---	---	---	---	---	---	17	13	9.7	2.8	3.4
29	---	---	---	---	---	---	---	15	11	9.8	2.6	3.1
30	---	---	---	---	---	---	---	15	11	10	2.3	3.1
31	---	---	---	---	---	---	---	15	---	9.9	3.0	---
TOTAL	---	---	---	---	---	---	---	---	849	660.4	259.1	122.9
MEAN	---	---	---	---	---	---	---	---	28.3	21.3	8.36	4.10
MAX	---	---	---	---	---	---	---	---	126	71	25	8.7
MIN	---	---	---	---	---	---	---	---	11	9.7	2.3	2.6
AC-FT	---	---	---	---	---	---	---	---	1680	1310	514	244

WHITE RIVER BASIN

06447000 WHITE RIVER NEAR KADOKA, SD

LOCATION.--Lat 43°45'09", long 101°31'28", in SE1/4 SE1/4 sec.30, T.3 S., R.22 E., Black Hills meridian, Jackson County, Hydrologic Unit 10140202, on left bank 1,000 ft downstream from bridge on State Highway 73, 5.0 mi upstream from Pass Creek, 5.5 mi downstream from Cottonwood Creek, and 5.8 mi south of Kadoka.

DRAINAGE AREA.--5,000 mi^2, approximately.

PERIOD OF RECORD.--July 1942 to current year.

REVISED RECORDS.--WSP 1279: 1944(M), 1948.

GAGE.--Water-stage recorder. 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 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.

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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	40	e140	e210	e50	e200	399	e548	45	13	17	88
2	51	51	e170	e230	e49	e600	373	e548	46	7.5	16	44
3	43	63	e200	e215	e48	e2000	355	e618	45	4.3	18	32
4	38	95	265	e200	e48	e7000	350	e479	44	4.6	34	26
5	36	95	351	e190	e50	e3000	356	358	124	7.7	16	13
6	32	45	423	e170	e45	e2000	419	e360	74	27	78	12
7	29	42	439	e150	e40	e1700	396	e399	131	771	44	9.9
8	34	57	457	e125	e35	e1440	391	444	2390	607	26	8.3
9	81	58	421	e100	e30	e1840	439	e360	e1930	425	35	7.2
10	110	60	467	e97	e33	e1670	525	231	e1110	187	35	5.0
11	174	47	448	e95	e35	e1430	470	179	627	95	19	3.9
12	219	37	426	e92	e37	e1120	428	164	311	186	956	3.6
13	144	45	425	e90	e40	e994	536	150	239	633	148	3.0
14	104	41	439	e86	e55	e909	e553	e697	150	222	41	3.0
15	89	60	377	e82	e100	e865	e534	e423	98	406	24	2.5
16	77	77	359	e78	e200	e770	e553	182	75	132	19	2.2
17	233	107	320	e74	e1000	e702	e534	152	61	110	100	2.0
18	489	171	262	e70	e600	682	e497	147	78	213	71	2.3
19	276	294	206	e67	e380	697	e479	117	64	185	173	2.3
20	148	262	e180	e63	e280	651	473	110	49	100	167	2.5
21	111	246	e175	e60	e200	643	e502	e597	51	82	79	2.5
22	94	220	e170	e60	e170	598	583	e407	64	84	50	3.5
23	78	165	e165	e65	e165	550	500	e436	76	48	30	5.1
24	67	e140	e168	e70	e155	501	362	e330	253	35	17	6.7
25	58	e100	e170	e60	e150	491	344	412	257	26	12	4.7
26	52	e90	e180	e53	e148	528	292	202	100	40	7.7	3.8
27	55	e80	e190	e47	e145	474	e497	127	60	38	5.1	3.8
28	52	e90	e180	e48	e150	454	e680	95	46	21	3.2	3.8
29	38	e100	e190	e50	---	442	e980	69	40	19	3.1	3.9
30	37	e120	e195	e50	---	425	e702	56	34	20	297	4.1
31	39	---	e200	e48	---	414	---	49	---	19	101	---
TOTAL	3149	3098	8758	3095	4438	35790	14502	9446	8672	4768.1	2642.1	314.6
MEAN	102	103	283	99.8	158	1155	483	305	289	154	85.2	10.5
MAX	489	294	467	230	1000	7000	980	697	2390	771	956	88
MIN	29	37	140	47	30	200	292	49	34	4.3	3.1	2.0
AC-FT	6250	6140	17370	6140	8800	70990	28760	18740	17200	9460	5240	624

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1994, BY WATER YEAR (WY)

MEAN	86.6	57.1	33.5	28.3	141	583	393	585	725	287	169	112
MAX	624	295	283	104	763	2479	1555	2802	3984	986	559	1060
(WY)	1983	1957	1994	1990	1971	1944	1970	1982	1967	1969	1979	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1943 - 1994	
ANNUAL TOTAL	156947.80		98672.8			
ANNUAL MEAN	430		270		267	
HIGHEST ANNUAL MEAN					573	1944
LOWEST ANNUAL MEAN					90.0	1961
HIGHEST DAILY MEAN	5500	Mar 21	7000	Mar 4	16500	Jun 18 1962
LOWEST DAILY MEAN	.00	Jan 18	2.0	Sep 17	.00	Oct 11 1943a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 18	2.3	Sep 15	.00	Aug 3 1946
INSTANTANEOUS PEAK FLOW			7200	Mar 4	21700	Jun 7 1951b
INSTANTANEOUS PEAK STAGE			9.80	Mar 4c	16.18	May 20 1982
ANNUAL RUNOFF (AC-FT)	311300		195700		193400	
10 PERCENT EXCEEDS	1300		597		600	
50 PERCENT EXCEEDS	160		110		58	
90 PERCENT EXCEEDS	.00		15		3.2	

e Estimated
a No flow at times in many years.
b Gage height, 13.83 ft, site then in use, from rating curve extended above 16,000 ft^3/s.
c Backwater from ice, from floodmarks.

WHITE RIVER BASIN

06447230 BLACKPIPE CREEK NEAR BELVIDERE, SD

LOCATION (REVISED).--Lat 43°45'28", long 101°13'40", in NW1/4 NW1/4 sec.27, T.44 N., R.33 W., Black Hills meridian, Jackson County, Hydrologic Unit 10140202, on left bank at downstream side of State Highway 63 bridge, 0.9 mi upstream from Porcupine Creek, 3.7 mi upstream from mouth, and 5.6 mi southeast of Belvidere.

DRAINAGE AREA.--250 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurement and Field Determination section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	2.0	e.70	e.53	e.00	e.60	3.4	12	2.3	1.1	.00	7.4
2	.26	1.9	e.85	e.60	e.00	e1.0	3.7	8.4	2.4	.92	.00	34
3	.20	1.5	e1.0	e.50	e.00	e100	3.7	7.9	2.0	.89	.00	39
4	.14	1.6	e1.0	e.40	e.00	e200	3.7	7.4	1.9	.95	7.6	e82
5	.13	e1.4	e1.0	e.30	e.00	e160	9.0	7.4	3.7	.81	2.8	e31
6	.06	e1.0	e1.0	e.20	e.00	e80	28	7.9	6.9	8.9	20	e15
7	.02	e1.1	e.90	e.10	e.00	46	12	7.9	47	251	13	e9.0
8	1.4	e1.2	e.80	e.00	e.00	20	6.4	8.4	205	42	7.2	e6.0
9	7.7	e1.2	e.80	e.00	e.00	11	5.1	6.9	116	11	3.7	e4.4
10	2.4	e1.3	e.80	e.00	e.00	11	5.1	9.0	50	2.7	9.5	e3.4
11	1.5	e1.4	e.80	e.00	e.00	8.4	3.4	9.0	24	3.6	25	e2.6
12	1.2	e1.5	e.80	e.00	e.00	8.4	7.9	8.4	14	49	89	e1.8
13	1.3	e1.5	e.80	e.00	e.00	8.4	6.9	21	8.0	177	39	e1.1
14	2.1	e1.5	e.75	e.00	e.00	7.9	4.8	51	4.3	34	14	e.80
15	1.9	e1.4	e.70	e.00	e.20	6.0	3.7	21	2.7	14	7.9	e.40
16	1.9	e1.3	e.67	e.00	e20	5.5	6.0	12	1.9	9.6	4.7	.01
17	2.5	e1.3	e.64	e.00	e100	4.4	5.5	8.4	1.7	7.1	38	.07
18	2.0	e1.2	e.60	e.00	e200	4.1	5.5	6.9	2.0	7.3	24	.09
19	1.7	e1.2	e.50	e.00	e300	4.1	6.0	5.1	1.5	5.1	9.9	.15
20	1.5	e1.2	e.48	e.00	e110	3.1	6.7	e12	1.2	3.7	6.2	.04
21	1.6	e1.1	e.46	e.00	e48	3.4	6.7	e203	1.1	2.3	4.1	.00
22	2.0	e1.0	e.44	e.00	e20	3.4	4.4	e127	422	1.6	2.3	.00
23	2.5	e.80	e.42	e.00	e7.0	3.4	3.7	e60	185	.96	1.3	.00
24	2.2	e.60	e.40	e.00	e3.0	5.5	4.1	e35	27	.78	91	.00
25	2.0	e.50	e.43	e.00	e1.7	4.4	4.4	16	8.8	.38	173	.00
26	1.7	e.40	e.47	e.00	e1.0	2.0	14	9.0	4.9	.32	39	.00
27	1.8	e.40	e.50	e.00	e.70	3.7	54	6.4	3.1	.11	22	.00
28	1.5	e.45	e.45	e.00	e.60	4.8	24	4.4	2.6	.03	12	.00
29	1.1	e.50	e.40	e.00	---	4.1	32	3.4	1.9	.00	6.5	.00
30	2.2	e.60	e.44	e.00	---	4.1	22	2.8	1.4	.00	99	.00
31	2.4	---	e.49	e.00	---	3.4	---	2.3	---	.00	11	---
TOTAL	51.01	34.05	20.49	2.63	812.20	732.10	305.8	707.3	1156.3	637.15	782.70	238.26
MEAN	1.65	1.13	.66	.085	29.0	23.6	10.2	22.8	38.5	20.6	25.2	7.94
MAX	7.7	2.0	1.0	.60	300	200	54	203	422	251	173	82
MIN	.02	.40	.40	.00	.00	.60	3.4	2.3	1.1	.00	.00	.00
AC-FT	101	68	41	5.2	1610	1450	607	1400	2290	1260	1550	473

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1994, BY WATER YEAR (WY)

MEAN	.82	1.62	.33	.28	15.0	19.1	29.6	32.7	60.7	27.5	14.7	8.16
MAX	1.65	2.11	.66	.47	29.0	23.6	49.0	42.5	82.8	34.5	25.2	8.39
(WY)	1994	1993	1994	1993	1994	1994	1993	1993	1993	1993	1994	1993
MIN	.000	1.13	.000	.085	.93	14.5	10.2	22.8	38.5	20.6	4.12	7.94
(WY)	1993	1994	1993	1994	1993	1993	1994	1994	1994	1994	1993	1994

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1993 - 1994	
ANNUAL TOTAL	7318.07		5479.99			
ANNUAL MEAN	20.0		15.0		17.5	
HIGHEST ANNUAL MEAN					19.9	1993
LOWEST ANNUAL MEAN					15.0	1994
HIGHEST DAILY MEAN	421	Jul 27	422	Jun 22	422	Jun 22 1994
LOWEST DAILY MEAN	.00	Jan 1	.00	Jan 8a	.00	Oct 1 1992a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Jan 8	.00	Oct 1 1992
INSTANTANEOUS PEAK FLOW			2620	Jun 22b	2620	Jun 22 1994b
INSTANTANEOUS PEAK STAGE			9.30	Jun 22c	9.30	Jun 22 1994c
ANNUAL RUNOFF (AC-FT)	14520		10870		12660	
10 PERCENT EXCEEDS	44		34		38	
50 PERCENT EXCEEDS	2.2		2.0		2.2	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a No flow at times in most years.
b From slope-area measurement of peak discharge.
c From floodmarks.

WHITE RIVER BASIN

06447500 LITTLE WHITE RIVER NEAR MARTIN, SD

LOCATION.--Lat 43°10'00", long 101°37'47", in NW1/4 sec.19, T.37 N., R.36 W., Bennett County, Hydrologic Unit 10140203, on right bank 70 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.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 5, 1932, reached a stage of 13.3 ft, from floodmarks.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e12	21	e23	e22	e9.2	e84	41	34	17	11	12	8.4
2	e12	20	e26	e20	e9.0	e100	40	34	18	11	12	9.3
3	e12	20	30	e18	e9.0	e190	39	34	21	10	12	10
4	e12	20	38	e17	e9.1	e330	38	32	21	10	11	11
5	e12	18	39	e16	e9.3	e600	38	30	19	9.9	11	11
6	e12	e16	35	e15	e9.5	e400	37	29	17	11	11	11
7	e12	e17	31	e14	e9.0	e290	38	29	18	19	11	11
8	e18	e20	e28	e14	e8.5	e200	38	30	37	26	11	10
9	e30	24	e30	e15	e8.0	e160	38	29	94	22	11	9.8
10	e24	25	32	e15	e8.1	120	37	27	128	20	11	8.9
11	e23	25	41	e15	e8.5	87	35	25	100	18	10	8.4
12	e22	27	43	e16	e9.0	82	33	24	49	18	11	8.1
13	e22	32	41	e17	e9.5	86	32	23	35	65	10	8.2
14	22	28	e38	e16	e10	100	31	24	29	150	10	8.1
15	22	e27	e35	e15	e11	106	30	29	24	140	10	8.3
16	22	26	e32	e14	e20	103	29	29	21	191	10	8.2
17	25	27	e30	e13	e32	91	29	30	20	139	10	8.4
18	32	30	e28	e12	e55	76	28	24	19	63	9.5	9.1
19	34	32	e27	e10	e99	72	27	23	19	36	9.6	9.0
20	30	35	e26	e10	e90	73	26	22	18	27	10	8.9
21	27	35	e24	e10	e82	60	26	33	17	22	12	8.5
22	27	e30	e23	e11	e77	53	25	44	16	18	11	8.4
23	25	e26	e21	e12	e70	49	24	32	16	17	10	8.7
24	23	e24	e20	e12	e66	46	24	34	15	16	9.5	9.0
25	21	e20	e20	e13	e60	44	24	28	14	15	8.9	9.4
26	21	e18	e22	e13	e60	43	25	24	13	15	8.6	9.6
27	20	e16	e24	e13	e65	42	28	20	13	14	8.3	9.7
28	19	e17	e22	e12	e70	41	30	19	12	13	8.1	9.7
29	19	e18	e20	e11	---	39	32	18	11	13	7.9	9.6
30	15	e20	e21	e10	---	40	34	17	11	13	7.9	e9.6
31	18	---	e22	e9.5	---	40	---	16	---	12	7.9	---
TOTAL	645	714	892	430.5	982.7	3847	956	846	862	1164.9	313.2	277.3
MEAN	20.8	23.8	28.8	13.9	35.1	124	31.9	27.3	28.7	37.6	10.1	9.24
MAX	34	35	43	22	99	600	41	44	128	191	12	11
MIN	12	16	20	9.5	8.0	39	24	16	11	9.9	7.9	8.1
AC-FT	1280	1420	1770	854	1950	7630	1900	1680	1710	2310	621	550

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939, 1963 - 1994, BY WATER YEAR (WY)

MEAN	12.7	15.3	11.9	9.69	17.3	44.4	35.2	28.1	26.0	14.4	11.8	9.15
MAX	22.5	23.8	28.8	18.2	35.1	157	104	55.9	157	44.5	102	18.0
(WY)	1987	1994	1994	1984	1994	1966	1977	1983	1967	1969	1983	1983
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1939, 1963 - 1994	
ANNUAL TOTAL	9683.1		11930.6			
ANNUAL MEAN	26.5		32.7		19.7	
HIGHEST ANNUAL MEAN					32.7	1994
LOWEST ANNUAL MEAN					10.9	1940
HIGHEST DAILY MEAN	155	Mar 14	600	Mar 5	916	Aug 1 1983
LOWEST DAILY MEAN	7.4	Jan 1	7.9	Aug 29	.60	Aug 14 1940a
ANNUAL SEVEN-DAY MINIMUM	7.5	Jan 1	8.2	Aug 26	.67	Aug 12 1940
INSTANTANEOUS PEAK FLOW			600	Mar 5	1190	Jul 19 1965b
INSTANTANEOUS PEAK STAGE			11.62	Mar 5c	13.21	Mar 11 1966c
ANNUAL RUNOFF (AC-FT)	19210		23660		14240	
10 PERCENT EXCEEDS	46		64		35	
50 PERCENT EXCEEDS	21		21		13	
90 PERCENT EXCEEDS	9.9		9.5		6.0	

e Estimated
a Also Aug. 16, 18, 1940, and no flow part of each day Oct. 19, 20, 22, 1962 (regulation due to construction).
b Gage height, 12.90 ft, from rating curve extended above 340 ft^3/s on basis of computation of peak flow through culvert and flow-over-road measurement of peak flow.
c Backwater from ice.

WHITE RIVER BASIN

06449000 LAKE CREEK BELOW REFUGE, NEAR TUTHILL, SD

LOCATION.--Lat 43°08'46", long 101°30'38", in SW1/4 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	19	27	47	22	43	50	32	46	24	45	21
2	30	19	26	47	16	43	50	32	45	24	44	21
3	30	19	27	46	14	43	49	32	45	24	48	20
4	28	17	27	47	14	44	49	32	45	23	50	20
5	28	e16	28	46	14	44	49	31	46	21	50	18
6	27	15	28	e45	13	44	49	30	47	19	51	16
7	26	15	32	e45	9.5	47	49	30	48	20	e50	16
8	26	16	36	45	8.0	49	48	30	47	19	e48	16
9	26	16	36	45	10	50	44	30	46	19	e46	17
10	26	16	37	44	17	53	44	30	44	19	46	15
11	25	16	37	44	23	56	41	30	42	19	46	9.1
12	21	17	37	43	23	56	39	30	42	20	46	3.3
13	17	17	38	43	23	56	38	30	42	20	46	2.1
14	16	17	38	42	23	57	36	29	43	20	45	3.6
15	12	18	38	42	29	56	35	29	43	30	45	1.4
16	7.4	18	39	41	33	57	34	29	42	36	49	.00
17	7.2	18	40	e40	33	55	34	30	42	37	48	.00
18	7.2	18	40	e40	34	54	34	29	41	37	47	.00
19	6.8	18	40	40	34	61	35	29	40	37	46	.00
20	5.8	18	41	39	34	60	35	30	38	38	44	.00
21	5.5	17	41	39	34	62	35	33	26	38	41	.00
22	5.5	17	41	38	34	56	34	33	e26	40	40	.00
23	5.5	e17	45	38	35	57	35	33	e26	40	46	.00
24	10	e16	48	37	e34	57	34	33	e26	45	42	.00
25	14	e18	48	33	e34	56	32	32	e26	44	39	.00
26	14	e22	48	30	e34	58	32	32	e26	44	37	.00
27	14	e22	48	27	35	57	32	35	e26	43	35	.00
28	16	e20	48	24	39	53	32	40	26	44	31	.00
29	18	19	48	24	---	54	32	46	25	43	28	.61
30	e19	24	48	24	---	52	32	46	25	45	25	.00
31	19	---	47	24	---	51	---	45	---	45	23	---
TOTAL	542.9	535	1202	1209	705.5	1641	1172	1012	1132	977	1327	200.11
MEAN	17.5	17.8	38.8	39.0	25.2	52.9	39.1	32.6	37.7	31.5	42.8	6.67
MAX	30	24	48	47	39	62	50	46	48	45	51	21
MIN	5.5	15	26	24	8.0	43	32	29	25	19	23	.00
AC-FT	1080	1060	2380	2400	1400	3250	2320	2010	2250	1940	2630	397

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1940, 1963 - 1994, BY WATER YEAR (WY)

MEAN	4.41	7.50	13.2	15.9	19.6	30.6	34.7	29.0	27.3	13.9	9.38	6.84
MAX	23.8	37.2	38.8	39.0	39.7	109	96.1	79.3	139	63.4	42.8	35.8
(WY)	1939	1984	1994	1994	1981	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1939 - 1940, 1963 - 1994	
ANNUAL TOTAL	10513.0		11655.51			
ANNUAL MEAN	28.8		31.9		17.7	
HIGHEST ANNUAL MEAN					32.4	1991
LOWEST ANNUAL MEAN					3.09	1940
HIGHEST DAILY MEAN	84	Mar 20	62	Mar 21	424	Mar 25 1987
LOWEST DAILY MEAN	3.0	Jan 17	.00	Sep 16	.00	Mar 25 1939a
ANNUAL SEVEN-DAY MINIMUM	3.2	Jan 15	.00	Sep 16	.00	Mar 25 1939
INSTANTANEOUS PEAK FLOW			72	Mar 21	594	Mar 25 1987b
INSTANTANEOUS PEAK STAGE			3.71	Mar 21	6.46	Mar 12 1988c
ANNUAL RUNOFF (AC-FT)	20850		23120		12800	
10 PERCENT EXCEEDS	48		48		44	
50 PERCENT EXCEEDS	27		33		11	
90 PERCENT EXCEEDS	14		14		.40	

e Estimated
a No flow at times in some years.
b Gage height, 5.57 ft, from rating curve extended above 150 ft^3/s.
c Backwater from ice.

WHITE RIVER BASIN

06449100 LITTLE WHITE RIVER NEAR VETAL, SD

LOCATION.--Lat 43°06'03", long 101°13'49", in NE1/4 NW1/4 sec.17, T.36 N., R.33 W., Bennett County, Hydrologic Unit 10140203, on left bank downstream side of highway culvert, 0.3 mi downstream from small right-bank tributary, 10.8 mi southeast of Vetal, and 15.3 mi upstream from Spring Creek.

DRAINAGE AREA.--590 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	61	e60	107	e55	e60	113	80	87	50	69	48
2	69	58	e65	110	e55	e70	111	81	83	51	68	45
3	68	58	e70	105	e55	e80	110	82	81	54	70	45
4	67	60	77	109	e55	e100	110	83	79	57	69	44
5	66	57	75	107	e54	172	108	84	79	58	69	48
6	64	e54	67	e100	e52	271	108	85	86	58	68	52
7	61	e51	e60	e90	e51	807	108	82	99	66	69	56
8	61	e52	e65	e85	e48	667	106	81	95	54	68	56
9	61	e53	e70	e87	e47	488	105	79	88	61	68	68
10	62	e54	e78	e90	e47	351	102	78	83	75	69	62
11	61	56	89	e88	e48	262	100	78	89	70	68	58
12	60	63	92	e90	e50	192	98	76	100	69	70	53
13	58	59	92	e95	e50	160	95	76	116	65	69	52
14	53	e58	88	e90	e51	149	94	78	114	64	67	46
15	54	58	e80	e80	e54	148	91	73	105	70	67	44
16	53	58	e80	e72	e59	155	89	70	99	112	67	39
17	50	64	e80	e65	e64	157	90	69	96	151	78	39
18	48	65	e79	e60	e70	157	89	70	96	167	74	40
19	48	62	e79	e60	e78	145	83	71	94	166	76	39
20	48	60	e78	e60	e70	135	78	71	91	123	69	36
21	48	64	e78	e61	e64	133	78	101	91	93	65	36
22	50	62	e78	e63	e60	134	78	91	90	83	63	38
23	50	55	e76	e68	e58	128	79	89	90	79	63	34
24	53	e50	e75	e70	e56	123	88	87	85	79	65	33
25	60	e46	e78	e65	e54	123	83	85	81	78	63	32
26	63	e42	e88	e60	e55	120	81	84	79	77	62	31
27	61	e40	e100	e60	e56	120	76	82	76	73	59	31
28	59	e45	e95	e59	e57	121	76	81	69	72	55	31
29	57	e50	e92	e59	---	119	77	87	51	70	54	31
30	59	e54	e100	e57	---	119	78	85	51	70	51	32
31	61	---	110	e55	---	117	---	83	---	69	48	---
TOTAL	1802	1669	2494	2427	1573	6083	2782	2502	2623	2484	2040	1299
MEAN	58.1	55.6	80.5	78.3	56.2	196	92.7	80.7	87.4	80.1	65.8	43.3
MAX	69	65	110	110	78	807	113	101	116	167	78	68
MIN	48	40	60	55	47	60	76	69	51	50	48	31
AC-FT	3570	3310	4950	4810	3120	12070	5520	4960	5200	4930	4050	2580

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1994, BY WATER YEAR (WY)

MEAN	31.2	37.2	37.2	34.5	49.1	95.8	95.9	84.1	78.1	47.1	37.2	29.8
MAX	58.1	58.2	80.5	78.3	91.7	205	273	185	267	156	137	69.4
(WY)	1994	1984	1994	1994	1982	1978	1977	1991	1967	1967	1983	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1960 - 1994	
ANNUAL TOTAL	27808		29778			
ANNUAL MEAN	76.2		81.6		54.8	
HIGHEST ANNUAL MEAN					81.6	1994
LOWEST ANNUAL MEAN					28.2	1981
HIGHEST DAILY MEAN	237	Mar 27	807	Mar 7	1200	May 16 1991
LOWEST DAILY MEAN	23	Jan 1	31	Sep 26-29	9.0	Dec 24 1974
ANNUAL SEVEN-DAY MINIMUM	24	Jan 8	32	Sep 24	9.6	Dec 19 1974
INSTANTANEOUS PEAK FLOW			1040	Mar 8	3540	May 16 1991
INSTANTANEOUS PEAK STAGE			8.76	Mar 8	12.53	May 16 1991
ANNUAL RUNOFF (AC-FT)	55160		59060		39670	
10 PERCENT EXCEEDS	112		110		104	
50 PERCENT EXCEEDS	69		70		39	
90 PERCENT EXCEEDS	45		50		20	

e Estimated

WHITE RIVER BASIN

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD

LOCATION.--Lat 43°15'47", long 100°55'02", in NW1/4 SE1/4 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.

WATER-DISCHARGE RECORDS

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. Additional water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	84	e105	191	e94	e220	177	77	134	78	84	86
2	116	80	e118	166	e91	e400	164	82	e140	82	83	91
3	124	68	e124	169	e89	e700	158	88	e145	82	84	102
4	132	112	e132	161	e88	e800	160	88	148	80	79	96
5	127	95	e140	165	e86	e600	150	92	154	69	74	87
6	136	57	e115	160	e85	411	143	85	151	75	75	80
7	129	58	e110	e155	e80	731	143	80	147	95	76	109
8	e119	71	e110	e150	e75	857	143	100	160	64	76	83
9	e117	62	e115	e145	e70	684	131	85	142	85	84	76
10	e115	87	e130	e145	e75	566	128	97	134	76	98	65
11	e111	97	e145	e147	e83	467	121	96	131	72	96	66
12	e107	81	e160	e148	e85	389	114	98	151	91	101	73
13	123	69	92	e145	e89	337	109	90	166	89	104	68
14	117	70	e80	e140	e97	326	111	104	163	94	103	65
15	110	67	e80	e130	e115	323	96	95	157	99	99	61
16	104	70	e80	e120	e200	335	100	106	e155	109	100	55
17	106	78	e80	e110	e400	340	118	106	e153	137	124	50
18	98	62	e70	e105	e600	341	115	105	e153	165	136	54
19	94	91	73	e103	e700	329	100	113	153	220	149	50
20	98	73	71	e102	e500	308	98	114	159	198	130	49
21	96	66	88	e102	e350	294	122	114	146	156	116	63
22	97	88	93	e110	e300	277	110	113	139	128	110	50
23	104	73	99	e120	e210	267	105	140	125	122	101	46
24	109	e65	116	e130	e200	252	130	138	142	114	108	48
25	114	e60	111	e120	e185	240	109	120	128	107	105	48
26	116	e65	143	e110	e180	229	104	114	113	104	106	52
27	98	e70	153	e101	e175	221	80	113	111	96	100	51
28	93	e80	129	e100	e180	209	82	118	110	91	94	51
29	76	e90	122	e98	---	205	78	118	106	93	117	51
30	69	e105	155	e96	---	189	77	130	85	92	103	56
31	70	---	174	e95	---	185	---	115	---	85	99	---
TOTAL	3354	2294	3513	4039	5482	12032	3576	3234	4201	3248	3114	1982
MEAN	108	76.5	113	130	196	388	119	104	140	105	100	66.1
MAX	136	112	174	191	700	857	177	140	166	220	149	109
MIN	69	57	70	95	70	185	77	77	85	64	74	46
AC-FT	6650	4550	6970	8010	10870	23870	7090	6410	8330	6440	6180	3930

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1994, BY WATER YEAR (WY)

MEAN	78.5	78.6	74.0	79.7	121	178	149	149	136	90.0	86.3	74.1
MAX	108	111	113	130	196	388	239	268	281	186	168	110
(WY)	1994	1984	1994	1994	1994	1994	1987	1983	1991	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1982 - 1994	
ANNUAL TOTAL	50457		50069			
ANNUAL MEAN	138		137		108	
HIGHEST ANNUAL MEAN					137	1994
LOWEST ANNUAL MEAN					74.0	1985
HIGHEST DAILY MEAN	293	Aug 16	857	Mar 8	891	May 17 1991
LOWEST DAILY MEAN	40	Jan 14	46	Sep 23	20	Feb 3 1989
ANNUAL SEVEN-DAY MINIMUM	46	Jan 10	49	Sep 22	27	Dec 3 1992
INSTANTANEOUS PEAK FLOW			1030	Mar 8a	2190	May 16 1991
INSTANTANEOUS PEAK STAGE			7.21	Mar 4b	8.18	May 16 1991c
ANNUAL RUNOFF (AC-FT)	100100		99310		78060	
10 PERCENT EXCEEDS	210		207		180	
50 PERCENT EXCEEDS	130		108		89	
90 PERCENT EXCEEDS	70		70		54	

e Estimated
a Gage height, 4.59 ft.
b Backwater from ice.
c Present datum.

WHITE RIVER BASIN

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
OCT										
19...	1230	94	304	8.4	16.5	11.0	35	691	9.9	99
NOV										
30...	1135	105	305	7.9	8.5	0.5	25	689	11.7	90
JAN										
20...	1145	102	384	8.2	-6.5	0.0	--	710	12.8	94

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	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)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT										
19...	120	144	110	37	5.7	20	25	0.8	8.9	13
NOV										
30...	110	141	K40	34	5.3	19	26	0.8	8.7	13
JAN										
20...	--	--	K5	--	--	--	--	--	--	--

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	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 AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
OCT										
19...	1.9	0.40	177	212	0.29	53.8	100	0.020	0.03	<0.010
NOV										
30...	2.1	0.40	171	220	0.30	62.4	79	0.030	0.04	<0.010
JAN										
20...	--	--	--	--	--	--	--	0.020	0.03	0.010

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT										
19...	0.710	0.710	0.710	--	0.190	0.190	7	30	<10	<1
NOV										
30...	0.750	0.750	0.750	--	0.160	0.170	6	40	<10	2
JAN										
20...	0.770	0.770	0.760	0.760	0.180	0.200	--	--	--	--

DATE	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)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CYANIDE DIS-SOLVED (MG/L AS CN) (00723)	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										
19...	8	<1	2	<0.1	<1	4	<0.01	1460	371	12
NOV										
30...	24	<1	4	<0.1	<1	4	<0.01	531	151	20
JAN										
20...	--	--	--	--	--	--	--	--	--	--

WHITE RIVER BASIN

06449400 ROSEBUD CREEK AT ROSEBUD, SD

LOCATION.--Lat 43°14'14", long 100°51'26", in SW1/4 SW1/4 NE1/4 sec.27, T.38 N., R.30 W., Todd County, Hydrologic Unit 10140203, on left bank 40 ft upstream from bridge on Spotted Tail Lane in town of Rosebud, 0.4 mi downstream from small right bank tributary, and 1.0 mi downstream from Spotted Tail Dam.

DRAINAGE AREA.--50.8 mi^2, approximately.

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,531.91 ft above sea level. October 1963 to September 1970, low-flow partial-record station 0.26 mi^2 upstream at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Spotted Tail Dam and dam forming Indian Scout Lake, combined capacity, about 50 acre-ft, and some small diversions for irrigation of Spotted Tail Golf Course above station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	7.6	7.3	8.3	e6.5	e8.0	5.3	10	6.6	4.7	e5.5	7.1
2	6.6	8.1	7.3	7.7	e6.4	e70	5.0	9.6	5.2	5.7	e5.4	6.7
3	6.5	12	7.9	7.7	e6.4	e50	5.1	9.8	5.2	5.0	e5.4	6.5
4	6.7	9.5	8.2	7.8	e6.4	26	5.6	8.9	5.3	6.9	e5.3	6.4
5	7.3	8.9	9.3	7.6	e6.3	14	5.8	8.4	8.2	6.2	e5.3	5.9
6	7.2	7.5	8.2	e7.5	e6.3	11	5.2	9.8	13	11	e9.1	5.8
7	7.4	8.4	8.3	e7.6	e6.1	8.8	4.9	8.4	22	e25	e7.5	6.1
8	9.6	8.0	8.2	e7.7	e5.9	7.4	6.5	7.2	28	e15	e6.0	5.7
9	9.1	8.5	9.0	8.0	e5.5	7.1	5.0	36	11	e13	e5.8	6.3
10	8.4	8.6	8.4	7.5	e5.8	6.6	5.6	20	7.2	e12	e7.3	6.1
11	7.9	8.8	7.9	6.8	e6.1	6.6	5.6	e1.0	6.8	e11	9.1	6.4
12	8.4	13	8.2	7.4	e6.2	6.3	5.8	e1.0	7.8	e38	8.4	6.2
13	9.5	13	8.1	7.3	6.2	6.1	5.9	5.3	8.1	e21	7.7	6.6
14	8.4	10	7.8	6.5	7.6	5.9	6.6	14	11	e17	7.4	7.1
15	7.7	e9.5	7.7	e6.3	9.6	6.1	7.1	9.8	11	e14	7.0	6.9
16	7.5	e9.2	8.4	e6.3	e18	6.5	6.3	8.7	16	e12	6.5	6.7
17	7.9	e9.0	8.5	e6.4	e50	5.9	6.5	7.7	18	e10	6.7	6.7
18	7.8	e8.9	7.8	e6.5	e35	5.2	6.3	8.2	31	e9.1	5.3	6.8
19	7.0	e8.8	7.7	e6.7	e15	5.4	6.0	8.1	19	e8.3	5.6	6.5
20	7.4	e8.8	7.4	e6.9	8.0	5.4	5.1	7.3	13	e7.8	5.3	5.5
21	7.3	e8.7	7.1	e7.1	e7.3	5.3	5.3	8.5	14	e7.2	5.3	6.2
22	6.6	e8.6	7.1	e7.4	e7.1	5.2	5.0	7.0	13	e7.0	4.9	6.9
23	7.0	e8.5	e7.0	e7.6	e7.0	5.2	6.0	6.7	18	e6.8	4.7	6.6
24	6.6	e8.3	e7.0	8.1	e6.9	5.2	26	5.7	10	e7.3	5.8	6.6
25	6.8	e8.0	e7.0	7.3	e6.9	5.4	11	5.2	7.3	e6.8	6.1	6.2
26	7.0	e8.0	e6.9	7.0	e6.8	5.5	16	5.0	5.9	e6.3	4.5	6.0
27	7.9	e7.8	6.8	e6.8	e6.7	5.6	9.1	4.5	5.4	e6.0	4.3	6.3
28	8.8	e7.6	7.4	e6.7	e6.8	5.7	11	6.6	5.0	e5.8	4.2	6.4
29	8.0	e7.5	7.3	e6.7	---	6.1	11	4.8	4.8	e5.7	7.3	6.5
30	7.7	e7.4	7.5	e6.6	---	5.8	11	4.0	4.9	e5.6	11	6.7
31	7.8	---	8.0	e6.5	---	5.5	---	4.0	---	e5.5	6.1	---
TOTAL	236.5	266.5	240.7	222.3	278.8	328.8	226.6	261.2	341.7	322.7	195.8	192.4
MEAN	7.63	8.88	7.76	7.17	9.96	10.6	7.55	8.43	11.4	10.4	6.32	6.41
MAX	9.6	13	9.3	8.3	50	70	26	36	31	38	11	7.1
MIN	6.5	7.4	6.8	6.3	5.5	5.2	4.9	1.0	4.8	4.7	4.2	5.5
AC-FT	469	529	477	441	553	652	449	518	678	640	388	382

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1994, BY WATER YEAR (WY)

MEAN	7.43	7.63	6.95	6.91	7.69	9.52	8.96	8.86	7.74	6.30	5.82	5.72
MAX	13.7	9.12	8.36	8.88	10.1	21.6	13.5	16.4	11.4	10.4	11.6	7.79
(WY)	1982	1981	1986	1979	1986	1978	1986	1988	1994	1994	1981	1977
MIN	5.30	5.64	4.13	5.05	4.24	6.73	5.69	5.64	3.43	3.96	3.79	1.96
(WY)	1977	1976	1993	1993	1993	1976	1981	1976	1978	1980	1976	1979

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1975 - 1994	
ANNUAL TOTAL	2701.11		3114.0			
ANNUAL MEAN	7.40		8.53		7.46	
HIGHEST ANNUAL MEAN					8.84	1986
LOWEST ANNUAL MEAN					5.70	1976
HIGHEST DAILY MEAN	40	Mar 8	70	Mar 2	126	Mar 18 1978
LOWEST DAILY MEAN	.00	Jul 31	1.0	May 11,12	.00	Apr 21 1982
ANNUAL SEVEN-DAY MINIMUM	.37	Jul 10	4.9	May 25	.08	Aug 31 1979
INSTANTANEOUS PEAK FLOW			160	Mar 2	643	Jul 27 1976
INSTANTANEOUS PEAK STAGE			7.90	Mar 2a	10.34	Jul 27 1976
ANNUAL RUNOFF (AC-FT)	5360		6180		5400	
10 PERCENT EXCEEDS	10		11		10	
50 PERCENT EXCEEDS	7.2		7.1		7.0	
90 PERCENT EXCEEDS	3.5		5.3		4.5	

e Estimated
a Backwater from ice.

WHITE RIVER BASIN

06449500 LITTLE WHITE RIVER NEAR ROSEBUD, SD

LOCATION.--Lat 43°19'32", long 100°53'00", in SW1/4 NW1/4 sec.28, T.39 N., R.30 W., Todd County, Hydrologic Unit 10140203, on left bank at downstream side of bridge on U.S. Highway 18, 0.3 mi downstream from Scabby Creek, 0.7 mi downstream from Soldier Creek, and 6.4 mi north of Rosebud.

DRAINAGE AREA.--1,020 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. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	82	e103	e202	e102	e250	170	e103	139	90	e112	109
2	107	81	e108	e200	e101	e500	169	e103	138	92	e112	110
3	108	81	e114	e197	e100	e1000	166	e106	130	93	e110	108
4	113	83	e117	e195	e98	e900	166	e108	133	93	e108	109
5	116	79	e128	e193	e97	e750	169	e110	142	90	e108	103
6	115	78	134	e190	e96	e550	161	e109	138	95	e108	97
7	113	67	117	e185	e85	709	158	e106	165	141	e106	109
8	111	82	134	e180	e82	958	165	e115	186	106	e108	97
9	102	74	125	e183	e80	733	157	e112	151	97	e110	90
10	101	74	130	e185	e85	584	155	e112	134	98	116	84
11	101	72	143	e187	e93	468	153	e113	127	94	114	87
12	104	83	117	e185	e94	362	151	e116	141	99	117	90
13	114	99	101	e172	e96	282	145	e115	148	144	118	90
14	115	79	93	e160	e115	260	144	e117	156	111	112	87
15	110	84	e91	e150	e210	255	142	e118	150	115	109	80
16	105	71	89	e140	e330	261	134	e119	146	e116	107	71
17	108	71	90	e130	e500	263	131	e120	139	e139	120	69
18	99	73	89	e120	e700	259	131	e121	144	e184	120	70
19	88	77	80	e115	e800	245	131	e125	141	e184	172	70
20	84	72	e80	e112	e600	225	132	e129	132	e146	116	69
21	78	73	e88	e111	e400	216	124	e131	135	e135	108	68
22	78	82	e100	e120	e350	206	123	e140	132	e133	102	69
23	82	84	e110	e130	e260	204	128	e155	133	e133	102	65
24	82	e73	e120	e140	e230	197	141	e152	129	e131	295	67
25	85	e69	e115	e125	e200	194	140	e145	127	e122	142	70
26	86	e66	e150	e115	e190	189	e130	e135	119	e114	109	68
27	84	e65	e160	e109	e190	188	e120	e132	113	e114	114	67
28	85	e70	e140	e107	e195	187	e110	e136	113	e110	111	65
29	80	e80	e170	e106	---	186	e106	e137	107	e116	136	64
30	73	e90	e200	e105	---	180	e104	e139	97	e124	167	65
31	77	---	e204	e103	---	175	---	e141	---	e122	120	---
TOTAL	3013	2314	3740	4652	6479	11936	4256	3820	4085	3681	3809	2467
MEAN	97.2	77.1	121	150	231	385	142	123	136	119	123	82.2
MAX	116	99	204	202	800	1000	170	155	186	184	295	110
MIN	73	65	80	103	80	175	104	103	97	90	102	64
AC-FT	5980	4590	7420	9230	12850	23680	8440	7580	8100	7300	7560	4890

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1994, BY WATER YEAR (WY)

MEAN	78.7	86.0	80.5	77.5	106	194	180	156	142	95.7	77.3	71.2
MAX	118	131	131	150	231	396	401	282	417	228	164	116
(WY)	1947	1992	1992	1994	1994	1949	1977	1983	1967	1944	1983	1991
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1944 - 1994	
ANNUAL TOTAL	53065		54252			
ANNUAL MEAN	145		149		112	
HIGHEST ANNUAL MEAN					154	1944
LOWEST ANNUAL MEAN					78.0	1976
HIGHEST DAILY MEAN	320	Mar 28	1000	Mar 3	1810	May 17 1944
LOWEST DAILY MEAN	60	Jan 1	64	Sep 29	10	Jan 4 1949a
ANNUAL SEVEN-DAY MINIMUM	63	Jan 10	67	Sep 23	16	Jan 18 1962
INSTANTANEOUS PEAK FLOW			2170	Aug 24	4640	Jun 11 1967b
INSTANTANEOUS PEAK STAGE			9.82	Aug 24	14.09	Jun 11 1967
ANNUAL RUNOFF (AC-FT)	105300		107600		81230	
10 PERCENT EXCEEDS	243		201		190	
50 PERCENT EXCEEDS	130		116		90	
90 PERCENT EXCEEDS	79		79		57	

e Estimated
a Also Feb. 20, 1955.
b From rating curve extended above 1,300 ft^3/s.

WHITE RIVER BASIN

06450500 LITTLE WHITE RIVER BELOW WHITE RIVER, SD

LOCATION.--Lat 43°36'05", long 100°44'58", in SW1/4 NW1/4 sec.23, T.42 N., R.29 W., Mellette County, Hydrologic Unit 10140203, on left bank at downstream side of bridge on U.S. Highway 83, 1.3 mi downstream from Pine Creek, and 2.0 mi north of town of White River.

DRAINAGE AREA.--1,570 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. Datum of gage is 1,912.78 ft above sea level. Prior to June 8, 1968, at site 0.8 mi downstream at datum 4.50 ft lower.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	112	e127	e186	e122	e350	219	153	131	106	114	99
2	109	113	e147	e180	e120	841	214	161	137	105	118	113
3	110	117	170	e177	e119	1660	213	167	163	106	112	128
4	114	119	193	e174	e118	1340	210	173	132	108	108	127
5	123	114	196	e165	e117	1060	215	174	328	95	107	125
6	114	89	e174	142	e116	822	207	177	215	93	113	117
7	124	111	e149	126	e115	741	207	178	161	154	111	116
8	133	100	148	e125	e114	1150	213	172	222	157	104	112
9	133	107	184	e125	e113	984	210	171	267	100	113	98
10	119	105	203	e145	e112	799	205	175	159	72	129	70
11	118	115	197	e160	e111	618	203	180	146	53	140	68
12	106	113	216	e162	e110	485	204	145	117	77	103	93
13	104	124	211	e161	e112	409	207	161	158	132	131	74
14	104	135	196	e160	e160	366	217	168	161	117	111	49
15	102	131	e180	e150	e290	351	204	178	144	111	112	57
16	105	135	e170	e143	e475	343	210	145	150	119	112	51
17	104	149	e160	e140	e700	312	205	151	147	122	108	48
18	115	127	e150	e139	e1000	347	230	150	142	158	143	48
19	139	127	e142	e138	1030	317	230	153	134	175	157	50
20	145	127	e138	e138	739	295	234	146	126	173	139	48
21	144	123	e133	e140	528	284	229	156	128	149	130	48
22	135	126	e128	e145	437	277	229	189	168	136	120	52
23	142	116	e123	e155	308	255	227	161	426	117	122	48
24	151	87	e120	e170	251	251	227	164	146	122	93	49
25	155	67	e135	e160	e200	254	264	162	115	129	285	48
26	155	e67	e150	e153	e160	241	196	157	108	128	124	47
27	150	e70	e150	e147	e150	239	144	149	126	125	105	44
28	133	e80	e126	e140	e170	235	185	127	112	119	100	48
29	137	e91	e126	e134	---	236	159	132	87	117	107	44
30	121	e105	e140	e129	---	230	162	128	89	119	118	48
31	112	---	e189	e125	---	226	---	132	---	113	134	---
TOTAL	3863	3302	4971	4634	8097	16318	6279	4935	4845	3707	3823	2167
MEAN	125	110	160	149	289	526	209	159	161	120	123	72.2
MAX	155	149	216	186	1030	1660	264	189	426	175	285	128
MIN	102	67	120	125	110	226	144	127	87	53	93	44
AC-FT	7660	6550	9860	9190	16060	32370	12450	9790	9610	7350	7580	4300

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1994, BY WATER YEAR (WY)

MEAN	79.0	84.2	83.0	81.5	115	247	216	195	197	105	74.8	70.1
MAX	141	125	160	169	289	815	613	614	931	574	143	120
(WY)	1983	1983	1994	1992	1994	1978	1977	1983	1968	1962	1951	1983
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1950 - 1994	
ANNUAL TOTAL	53640		66941			
ANNUAL MEAN	147		183		129a	
HIGHEST ANNUAL MEAN					218	1962
LOWEST ANNUAL MEAN					79.0	1976
HIGHEST DAILY MEAN	1500	Mar 7	1660	Mar 3	7590	Jun 12 1967
LOWEST DAILY MEAN	59	May 28	44	Sep 27	7.0	Jul 31 1952b
ANNUAL SEVEN-DAY MINIMUM	65	Jan 10	47	Sep 23	11	Aug 31 1952
INSTANTANEOUS PEAK FLOW			3220	Mar 3c	13700	Jun 12 1967d
INSTANTANEOUS PEAK STAGE			8.84	Feb 18f	15.46	Jun 7 1968g
ANNUAL RUNOFF (AC-FT)	106400		132800		93390	
10 PERCENT EXCEEDS	219		259		213	
50 PERCENT EXCEEDS	121		139		90	
90 PERCENT EXCEEDS	86		97		51	

e Estimated
a Median of annual mean discharges, 130 ft^3/s.
b Also Aug. 31 and Sept. 1, 1952.
c Gage height, 6.82 ft.
d Gage height, 10.02 ft, site and datum then in use.
f Backwater from ice.
g From floodmark, maximum gage height, site and datum then in use, 11.21 ft.

WHITE RIVER BASIN

06452000 WHITE RIVER NEAR OACOMA, SD
(National stream-quality accounting network station)

LOCATION.--Lat 43°44'54", long 99°33'22", in SE1/4 SW1/4 sec.3, T.103 N., R.73 W., Lyman County, Hydrologic Unit 10140204, on left bank at downstream side of bridge on State Highway 47, 1.5 mi downstream from Wagner Draw, 1.8 mi upstream from high-water line of Lake Francis Case, and 8.8 mi southwest of Oacoma.

DRAINAGE AREA.--10,200 mi^2, approximately.

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 recorder. 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 good except those for estimated daily discharges, which are poor. Additional water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210	146	e75	e172	e116	e800	507	810	302	267	121	184
2	190	139	e75	e187	e113	e1200	487	845	291	272	115	186
3	181	128	e80	e191	e113	e4000	468	941	276	222	134	214
4	169	126	e90	e193	e113	e15000	459	815	259	181	116	385
5	163	131	e110	e194	e113	e12000	456	719	312	170	106	267
6	152	259	e160	e182	e118	e10000	448	673	311	159	111	217
7	144	285	e220	e200	e115	e6800	442	754	343	220	100	190
8	152	149	e280	e185	e120	e4000	434	684	594	185	98	193
9	139	125	e310	e184	e121	e3000	422	583	743	169	169	189
10	141	122	e340	e170	e122	e2600	430	510	1990	542	211	148
11	146	152	e380	e152	e124	e2500	446	472	4130	824	448	127
12	152	155	e420	e128	e122	e2480	407	480	2470	648	362	116
13	134	178	e450	e122	e113	e2540	384	525	1910	534	402	102
14	152	143	e450	e124	e119	e2350	399	471	1400	417	336	90
15	160	137	e420	e134	e124	e1420	438	403	1000	456	292	85
16	220	146	e380	e131	e200	e1250	404	359	793	658	724	84
17	314	141	e334	e122	e500	1010	383	634	672	758	488	82
18	246	128	e306	e120	e1300	871	443	970	605	527	369	66
19	200	133	e315	e115	e3000	823	415	583	546	438	241	66
20	181	144	e303	e105	e7000	756	394	468	482	482	191	63
21	169	166	e267	e104	e6000	709	409	378	456	397	164	62
22	384	162	e234	e99	e5000	657	410	323	438	380	146	64
23	490	159	e215	e91	e4000	624	404	349	414	416	179	60
24	305	109	e206	e85	e3000	588	400	466	445	385	140	59
25	235	103	e187	e95	e3000	568	393	1110	1060	301	188	57
26	218	e100	e179	e112	e2000	537	417	653	1750	237	185	58
27	201	e95	e175	e117	e1400	532	473	545	850	203	171	57
28	189	e90	e178	e119	e1000	512	520	579	543	195	267	56
29	174	e85	e177	e118	---	506	489	539	534	168	358	55
30	186	e80	e164	e116	---	513	958	485	381	145	249	55
31	173	---	e167	e116	---	525	---	377	---	129	192	---
TOTAL	6270	4216	7647	4283	39166	81671	13539	18503	26300	11085	7373	3637
MEAN	202	141	247	138	1399	2635	451	597	877	358	238	121
MAX	490	285	450	200	7000	15000	958	1110	4130	824	724	385
MIN	134	80	75	85	113	506	383	323	259	129	98	55
AC-FT	12440	8360	15170	8500	77690	162000	26850	36700	52170	21990	14620	7210

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1994, BY WATER YEAR (WY)

MEAN	167	129	74.6	63.7	250	1344	964	1214	1211	479	287	179
MAX	1016	433	247	197	1399	5856	4726	13630	5985	3553	1181	926
(WY)	1983	1930	1994	1948	1994	1978	1952	1942	1967	1962	1966	1951
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1929 - 1994	
ANNUAL TOTAL	334935		223690			
ANNUAL MEAN	918		613		531a	
HIGHEST ANNUAL MEAN					1729	1942
LOWEST ANNUAL MEAN					151	1934
HIGHEST DAILY MEAN	10000	Mar 21	15000	Mar 4	44000	Mar 30 1952
LOWEST DAILY MEAN	10	Jan 14	55	Sep 29	.00	Aug 14 1971b
ANNUAL SEVEN-DAY MINIMUM	12	Jan 9	57	Sep 24	.00	Aug 14 1971
INSTANTANEOUS PEAK FLOW			25000	Mar 4	51900	Mar 30 1952c
INSTANTANEOUS PEAK STAGE			24.70	Mar 4d	24.70	Mar 4 1994d
ANNUAL RUNOFF (AC-FT)	664300		443700		384900	
10 PERCENT EXCEEDS	2510		982		1140	
50 PERCENT EXCEEDS	300		259		150	
90 PERCENT EXCEEDS	20		106		30	

e Estimated
a Median of annual mean discharges, 450 ft^3/s.
b No flow for some days in 1971, 1974, 1976, 1980, 1989.
c Gage height, 15.40 ft, site and datum then in use.
d Ice jam.

06452000 WHITE RIVER NEAR OACOMA, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1945 to September 1953, October 1968 to September 1969, October 1971 to current year.
PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1976, October 1977 to Sept. 30, 1981.
WATER TEMPERATURE: October 1974 to September 1976, October 1978 to September 1988.
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976, October 1981 to current year.
REMARKS.--Sediment-discharge records fair. Observer collects samples on a daily basis. Flow affected by ice Nov. 26 to Mar. 11. 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, 28,500 mg/L, July 17; minimum daily mean, 150 mg/L, Feb. 5.
SEDIMENT LOAD: Maximum daily, 293,000 tons, June 11; minimum daily, 46 tons, Feb. 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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												
08...	1210	278	800	8.0	4.5	0.0	480	712	11.7	86	160	0
MAR												
28...	1100	502	677	8.1	6.0	2.5	100	726	12.5	97	170	0
MAY												
19...	1000	591	740	8.0	24.0	20.5	9000	726	7.9	92	90	0
AUG												
05...	1325	99	573	8.6	28.0	22.5	280	725	--	--	94	0
23...	1100	193	479	8.3	25.0	20.5	1900	721	8.8	104	54	0

DATE	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	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)
DEC												
08...	227	231	K400	K1500	52	8.4	110	58	4	6.5	277	0
MAR												
28...	195	187	K38	120	54	7.9	78	49	3	5.9	238	0
MAY												
19...	160	169	2500	4300	30	3.7	110	70	5	8.8	195	0
AUG												
05...	172	186	K250	K450	33	2.7	87	65	4	8.2	188	11
23...	148	165	3200	1100	19	1.5	79	74	5	5.1	159	11

DATE	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 AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
DEC												
08...	160	11	0.40	37	526	522	0.71	392	0.030	0.04	0.80	<0.010
MAR												
28...	140	10	0.40	27	443	455	0.62	617	0.020	0.03	0.70	0.010
MAY												
19...	180	7.3	0.60	25	464	490	0.67	782	<0.010	--	7.6	<0.010
AUG												
05...	100	7.1	0.50	36	378	403	0.55	108	0.020	0.03	1.1	<0.010
23...	65	4.6	0.60	32	298	315	0.43	164	<0.010	--	4.1	<0.010

WHITE RIVER BASIN

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
DEC											
08...	0.900	0.900	0.900	--	1.30	0.070	0.070	--	--	--	--
MAR											
28...	0.390	0.390	0.380	0.380	0.330	0.080	0.080	10	31	<3	13
MAY											
19...	0.420	0.420	0.420	--	13.0	0.060	0.030	20	30	<3	7
AUG											
05...	--	<0.050	--	--	0.570	0.060	0.060	<10	25	<3	5
23...	0.450	0.450	0.450	--	5.10	0.090	0.070	40	16	<3	34

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	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)	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)
DEC											
08...	--	--	--	--	--	--	--	--	1650	1240	99
MAR											
28...	38	9	<10	2	2	<1.0	380	6	816	1110	93
MAY											
19...	43	<1	<10	2	4	<1.0	200	13	22100	35300	99
AUG											
05...	34	2	<10	1	1	<1.0	190	29	678	181	99
23...	30	2	10	2	3	<1.0	100	29	6860	3570	100

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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	210	6540	3710	146	2560	1010	e75	310	63
2	190	6070	3110	139	1170	439	e75	e400	81
3	181	3400	1660	128	820	283	e80	e530	114
4	169	2750	1250	126	770	262	e90	e750	182
5	163	e2400	1060	131	720	255	e110	e980	291
6	152	e2110	866	259	1790	1250	e160	e1240	536
7	144	1900	739	285	2140	1650	e220	e1500	891
8	152	1800	739	149	1160	467	e280	1710	1290
9	139	1890	709	125	730	246	e310	1900	1590
10	141	1200	457	122	800	264	e340	e1910	1750
11	146	1100	434	152	750	308	e380	e1900	1950
12	152	1260	517	155	720	301	e420	e1880	2130
13	134	1100	398	178	730	351	e450	e1850	2250
14	152	e890	365	143	780	301	e450	e1820	2210
15	160	1000	432	137	750	277	e420	e1800	2040
16	220	1400	832	146	720	284	e380	e1770	1820
17	314	e2730	2310	141	730	278	e334	1720	1550
18	246	4270	2840	128	700	242	e306	e1640	1350
19	200	4400	2380	133	750	269	e315	e1570	1340
20	181	e4150	2030	144	670	260	e303	e1480	1210
21	169	e3600	1640	166	510	229	e267	e1380	995
22	384	6250	6480	162	490	214	e234	e1280	809
23	490	9400	12400	159	430	185	e215	e1180	685
24	305	e9050	7450	109	320	94	e206	1070	595
25	235	e11500	7300	103	e330	92	e187	e1010	510
26	218	12800	7530	e100	e340	92	e179	e960	464
27	201	12400	6730	e95	e370	95	e175	e900	425
28	189	8200	4180	e90	e380	92	e178	e850	409
29	174	6110	2870	e85	e360	83	e177	e790	378
30	186	4630	2330	e80	e320	69	e164	e680	301
31	173	2500	1170	---	---	---	e167	610	275
TOTAL	6270	---	86918	4216	---	10242	7647	---	30484

e Estimated

WHITE RIVER BASIN

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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	e172	e750	348	e116	e350	110	e800	e1800	3890
2	e187	e930	470	e113	e310	95	e1200	e1560	5050
3	e191	e1150	593	e113	e270	82	e4000	e1440	15600
4	e193	e1400	730	e113	e220	67	e15000	1390	56300
5	e194	e1630	854	e113	150	46	e12000	3490	113000
6	e182	e1880	924	e118	e230	73	e10000	4990	135000
7	e200	2100	1130	e115	e400	124	e6800	4630	85000
8	e185	e2130	1060	e120	e550	178	e4000	3600	38900
9	e184	e2100	1040	e121	e690	225	e3000	2750	22300
10	e170	e2030	932	e122	e820	270	e2600	3360	23600
11	e152	e1990	817	e124	950	318	e2500	12600	85000
12	e128	e1940	670	e122	e980	323	e2480	12100	81000
13	e122	e1900	626	e113	e1000	305	e2540	e12300	84400
14	e124	e1820	609	e119	e1010	325	e2350	18700	119000
15	e134	e1700	615	e124	e1020	341	e1420	e16000	61300
16	e131	e1580	559	e200	e1170	632	e1250	4150	14000
17	e122	e1470	484	e500	e1510	2040	1010	e2500	6820
18	e120	e1330	431	e1300	e1870	6560	871	e2000	4700
19	e115	e1200	373	e3000	2400	19400	823	1700	3780
20	e105	e1070	303	e7000	e5160	97500	756	2390	4880
21	e104	e920	258	e6000	e5760	93300	709	2720	5210
22	e99	790	211	e5000	e5160	69700	657	2200	3900
23	e91	e650	160	e4000	e4620	49900	624	1430	2410
24	e85	500	115	e3000	e4080	33000	588	1030	1640
25	e95	e460	118	e3000	e3600	29200	568	e990	1520
26	e112	e470	142	e2000	e3120	16800	537	e950	1380
27	e117	e470	148	e1400	e2640	9980	532	e920	1320
28	e119	e460	148	e1000	e2160	5830	512	950	1310
29	e118	e420	134	---	---	---	506	1100	1500
30	e116	e390	122	---	---	---	513	990	1370
31	e116	e370	116	---	---	---	525	830	1180
TOTAL	4283	---	15240	39166	---	436724	81671	---	986260
		APRIL			MAY			JUNE	
1	507	710	972	810	12900	28200	302	4550	3710
2	487	610	802	845	11200	25600	291	4500	3540
3	468	670	847	941	11400	29000	276	7700	5740
4	459	770	954	815	e10100	22200	259	9000	6290
5	456	720	886	719	e7480	14500	312	e9800	8260
6	448	e680	823	673	e5630	10200	311	6800	5710
7	442	700	835	754	5440	11100	343	7000	6480
8	434	e700	820	684	5280	9750	594	10100	16200
9	422	690	786	583	4680	7370	743	e13500	27100
10	430	1070	1240	510	e3800	5230	1990	18800	143000
11	446	1800	2170	472	e3100	3950	4130	26300	293000
12	407	2130	2340	480	2820	3650	2470	25400	169000
13	384	1790	1860	525	4100	5810	1910	26000	134000
14	399	1580	1700	471	6080	7730	1400	23000	86900
15	438	1800	2130	403	6470	7040	1000	e19500	52600
16	404	1790	1950	359	6600	6400	793	e16000	34300
17	383	1460	1510	634	e11100	19000	672	e12300	22300
18	443	e1270	1520	970	e22800	59700	605	e8900	14500
19	415	e1360	1520	583	21500	33800	546	6300	9290
20	394	1340	1430	468	14300	18100	482	6000	7810
21	409	1310	1450	378	9750	9950	456	e6600	8130
22	410	1270	1410	323	e7900	6890	438	e7200	8510
23	404	1200	1310	349	e7200	6780	414	7850	8770
24	400	1200	1300	466	e7800	9810	445	e8500	10200
25	393	1240	1320	1110	e25800	77300	1060	e12700	36300
26	417	1240	1400	653	20900	36800	1750	e23900	113000
27	473	990	1260	545	8650	12700	850	e18800	43100
28	520	e1150	1610	579	8900	13900	543	e13500	19800
29	489	e1400	1850	539	8800	12800	534	9300	13400
30	958	9500	24600	485	8400	11000	381	7500	7720
31	---	---	---	377	7600	7740	---	---	---
TOTAL	13539	---	64605	18503	---	534000	26300	---	1318660

e Estimated

WHITE RIVER BASIN

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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	267	6400	4610	121	1600	523	184	e8600	4270
2	272	6300	4630	115	1800	559	186	e7800	3920
3	222	6400	3840	134	1700	615	214	10100	5840
4	181	6300	3080	116	e1400	438	385	e15600	16200
5	170	6000	2750	106	750	215	267	8400	6060
6	159	6350	2730	111	1300	390	217	6600	3870
7	220	e7500	4450	100	e1500	405	190	6400	3280
8	185	7300	3650	98	e1350	357	193	3700	1930
9	169	e5700	2600	169	e4600	2100	189	e2500	1280
10	542	14500	36100	211	e9200	5240	148	1800	719
11	824	e25300	56300	448	e13300	16100	127	2000	686
12	648	16300	28500	362	e12600	12300	116	2900	908
13	534	e13800	19900	402	e9000	9770	102	2900	799
14	417	e13100	14700	336	e5900	5350	90	3700	899
15	456	e14900	18300	292	e5500	4340	85	e3800	872
16	658	e20500	36400	724	e18300	35800	84	3700	839
17	758	e28500	58300	488	e15200	20000	82	e3500	775
18	527	26000	37000	369	e12100	12100	66	e3300	588
19	438	e20600	24400	241	e9700	6310	66	e3100	552
20	482	e15900	20700	191	e8300	4280	63	e2900	493
21	397	e11800	12600	164	e7500	3320	62	e2600	435
22	380	e9500	9750	146	e7000	2760	64	2400	415
23	416	e8250	9270	179	6800	3290	60	1300	211
24	385	e7100	7380	140	e6600	2490	59	500	80
25	301	e6100	4960	188	e7600	3860	57	e500	77
26	237	5100	3260	185	e7500	3750	58	500	78
27	203	4350	2380	171	e7500	3460	57	510	78
28	195	e3200	1680	267	13300	9590	56	650	98
29	168	1800	816	358	14200	13700	55	480	71
30	145	e1300	509	249	11500	7730	55	e500	74
31	129	e1500	522	192	e9700	5030	---	---	---
TOTAL	11085	---	436067	7373	---	196172	3637	---	56397
YEAR	223690		4171769						

e Estimated

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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								
26...	1530	219	519	4.5	5.0	13000	7690	100
JAN								
24...	1625	82	803	-4.5	0.0	410	91	97
MAR								
07...	1625	7150	486	3.5	0.5	5400	104000	89
MAY								
12...	1240	477	735	21.0	17.0	2810	3620	98
JUN								
14...	1315	1420	604	28.0	25.0	23000	88200	97
JUL								
06...	0915	--	--	--	23.0	165	--	92

MISSOURI-FORT RANDALL RIVER BASIN

06452278 LAKE FRANCIS CASE (FT. RANDALL RESERVOIR) NEAR PLATTE, SD

LOCATION.--Lat 43°23'37", long 99°07'11", in SE1/4 SW1/4 NW1/4 sec.15, T.99 N., R.70 W., Charles Mix County, Hydrologic Unit 10140101, on left bank at Snake Creek Recreation Area, 0.4 mi upstream from Platte-Winner bridge, 3.9 mi west of junction on State Highways 44 and 50, 14.2 mi west of Platte, 38.4 mi upstream from Ft. Randall Reservoir, and at mile 921.

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

GAGE.--Water-stage recorder. Datum of gage is 1,300.00 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1993, at datum 0.64 ft higher.

REMARKS.--Records good except those for Jan. 18, 20, 29-31 and Feb. 1-4, 6-15, which are poor. Stage regulated by Ft. Randall Reservoir. Gage heights prior to October 1988 in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52.32	---	---	41.87	45.90	51.95	53.83	54.40	53.73	56.33	54.24	---
2	52.17	---	---	41.70	46.11	52.14	53.83	54.12	53.74	56.06	54.56	---
3	51.85	---	---	41.21	46.46	52.40	53.36	54.18	53.71	55.43	54.78	---
4	---	---	---	40.92	46.82	52.94	53.18	54.30	53.51	54.89	54.88	---
5	---	41.71	---	41.00	47.17	53.22	53.25	54.37	53.38	54.66	55.00	---
6	---	41.58	---	41.20	47.18	53.67	53.25	54.56	53.03	54.76	55.21	---
7	---	41.11	---	41.40	46.94	54.28	53.27	54.57	53.27	54.93	55.20	---
8	---	40.54	---	41.77	47.03	55.24	53.50	54.30	53.52	54.82	54.86	---
9	---	40.01	---	42.00	47.38	55.84	53.51	54.00	53.83	54.74	54.71	---
10	---	---	---	41.92	47.83	56.08	53.31	54.09	54.07	54.19	54.63	---
11	---	---	40.31	41.92	48.16	56.20	53.21	54.18	54.38	53.73	54.46	---
12	---	---	39.99	42.22	48.46	56.16	53.44	54.35	54.21	53.88	54.53	---
13	---	---	---	42.61	48.43	55.93	53.42	54.50	54.21	53.95	54.57	---
14	---	---	39.56	43.07	48.13	55.78	53.62	54.62	54.73	54.03	54.23	---
15	---	---	39.38	43.49	48.04	55.68	53.84	54.23	55.15	54.13	53.95	---
16	---	---	39.76	43.60	48.24	55.66	53.91	53.87	55.34	54.18	54.22	---
17	---	---	40.20	43.39	48.53	55.81	53.79	53.87	55.69	53.81	54.57	---
18	---	---	40.59	43.51	48.94	55.84	53.76	54.23	55.85	53.59	54.89	---
19	---	---	40.59	43.98	49.39	55.71	53.88	54.40	55.70	53.85	55.17	---
20	---	---	40.25	44.66	49.60	55.40	54.05	54.48	55.68	54.13	55.17	---
21	---	---	40.19	45.26	50.05	54.97	54.19	54.72	55.79	54.57	54.64	---
22	---	---	40.40	45.58	50.82	54.83	54.34	54.39	56.04	54.91	54.21	---
23	---	---	40.68	45.52	51.51	54.74	54.40	54.12	56.13	55.19	54.41	---
24	---	---	40.96	45.17	51.97	54.58	54.17	54.36	56.35	55.06	---	---
25	---	---	41.15	45.08	52.13	54.40	54.01	54.37	56.56	54.77	---	---
26	---	---	40.99	45.19	52.24	54.29	54.30	54.52	56.21	54.89	---	---
27	---	---	40.53	45.46	51.99	53.90	54.41	54.55	56.17	55.10	---	---
28	---	---	40.25	45.86	51.82	53.51	54.61	54.54	56.23	55.19	---	---
29	---	---	40.56	46.17	---	53.62	54.79	54.21	56.19	55.18	---	---
30	---	---	41.01	46.09	---	53.69	54.78	53.98	56.28	55.15	---	---
31	---	---	41.56	45.87	---	53.82	---	53.88	---	54.69	---	---
MEAN	---	---	---	43.51	48.83	54.59	53.84	54.30	54.96	54.67	---	---
MAX	---	---	---	46.17	52.24	56.20	54.79	54.72	56.56	56.33	---	---
MIN	---	---	---	40.92	45.90	51.95	53.18	53.87	53.03	53.59	---	---

MISSOURI-FORT RANDALL RIVER BASIN

06452320 PLATTE CREEK NEAR PLATTE, SD

LOCATION.--Lat 43°19'38", long 98°58'13", in NW1/4 NW1/4 NE1/4 sec.11, T.98 N., R.69 W., Charles Mix County, Hydrologic Unit 10140101, on right bank at upstream side of bridge on State Highway 1804, 0.5 mi above high-water line of Fort Randall Reservoir, and 8.0 mi southwest of Platte.

DRAINAGE AREA.--741 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 estimated daily discharges, which are poor. Flow regulated by 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	2.0	5.1	2.9	e.50	e20	18	25	.91	.24	.15	.03
2	4.6	2.0	5.1	2.9	e.55	e40	17	24	.99	.21	.15	.03
3	4.4	2.0	5.1	2.6	e.60	e98	15	23	1.1	.21	.13	.06
4	3.8	2.7	4.9	2.6	e.70	e220	13	22	2.3	.20	.08	.07
5	3.8	3.1	5.2	2.5	e.70	e160	12	21	2.8	.15	.09	.04
6	3.3	4.0	5.0	2.1	e.70	e150	11	20	2.6	.22	.08	.04
7	3.1	3.8	e4.9	e1.9	e.60	e140	10	19	4.3	2.1	.05	.04
8	3.3	3.6	e4.9	e1.9	e.45	e130	9.4	18	6.5	1.5	.05	.04
9	3.7	3.6	e4.9	e1.9	e.40	123	9.7	17	10	1.7	.06	.03
10	3.6	3.6	e4.9	e2.0	e.40	120	9.1	15	6.2	1.2	.06	.03
11	3.5	3.6	e4.8	e2.1	e.45	119	8.3	14	4.0	.73	.06	.02
12	3.4	4.3	e5.3	e2.1	e.50	118	7.7	13	3.4	.50	.06	.02
13	3.4	6.1	e5.3	e2.0	e.60	104	7.3	12	2.8	.43	.07	.02
14	3.1	6.5	e4.9	e1.8	e.70	95	7.0	12	2.6	.34	.08	.02
15	3.1	5.8	e4.9	e1.6	e1.0	87	7.0	13	2.2	3.3	.07	.02
16	3.1	5.5	e4.8	e1.4	e1.5	80	7.0	10	2.1	18	.06	.02
17	3.1	5.1	e4.7	e1.2	16	74	5.5	8.4	2.2	18	.06	.02
18	3.0	5.1	e4.7	e1.1	40	64	5.2	7.5	2.3	19	.06	.02
19	2.9	5.1	4.5	e1.1	35	55	4.9	6.5	3.2	13	.04	.02
20	2.8	5.1	e4.5	e1.0	e26	50	4.9	5.6	3.1	9.0	.04	.02
21	2.6	5.1	e4.4	e1.0	e16	46	4.4	5.1	3.3	6.7	.04	.02
22	2.8	5.1	4.2	e1.1	e13	42	4.3	4.6	2.4	5.4	.04	.02
23	2.9	4.5	4.0	e1.2	e12	38	3.9	4.3	2.2	3.9	.04	.02
24	2.7	e4.3	4.0	e1.3	e11	35	3.7	3.4	2.2	2.9	.03	.02
25	2.4	4.0	3.7	e1.2	e11	31	3.8	3.1	1.8	2.3	.03	.02
26	2.2	3.4	3.6	e1.0	e11	28	13	2.8	1.2	1.7	.03	.02
27	2.4	3.7	3.5	e.80	e13	26	26	2.5	.85	1.3	.04	.02
28	2.6	4.7	3.2	e.70	e15	24	18	1.8	.67	.97	.04	.02
29	2.2	4.8	3.1	e.60	---	22	18	1.7	.51	.47	.04	.02
30	2.0	4.9	2.9	e.55	---	20	23	1.4	.37	.28	.02	.02
31	2.0	---	3.0	e.50	---	19	---	1.2	---	.21	.02	---
TOTAL	96.6	127.1	138.0	48.65	229.35	2378	307.1	337.9	81.10	116.16	1.87	0.81
MEAN	3.12	4.24	4.45	1.57	8.19	76.7	10.2	10.9	2.70	3.75	.060	.027
MAX	4.8	6.5	5.3	2.9	40	220	26	25	10	19	.15	.07
MIN	2.0	2.0	2.9	.50	.40	19	3.7	1.2	.37	.15	.02	.02
AC-FT	192	252	274	96	455	4720	609	670	161	230	3.7	1.6

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	.68	1.01	.97	.44	1.72	20.8	4.97	14.7	33.2	46.9	7.69	1.29
MAX	3.12	4.24	4.45	1.57	8.19	76.7	10.2	49.0	148	276	45.8	5.88
(WY)	1994	1994	1994	1994	1994	1994	1994	1990	1993	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	17181.55		3862.64			
ANNUAL MEAN	47.1		10.6		11.3	
HIGHEST ANNUAL MEAN					46.2	1993
LOWEST ANNUAL MEAN					.35	1992
HIGHEST DAILY MEAN	603	Jun 17	220	Mar 4	603	Jun 17 1993
LOWEST DAILY MEAN	.01	Feb 14	.02	Aug 30-31, Sep 11-30	.00	Jul 9 1989a
ANNUAL SEVEN-DAY MINIMUM	.01	Feb 14	.02	Sep 11	.00	Aug 21 1989
INSTANTANEOUS PEAK FLOW			257	Mar 4	1600	Jun 17 1993b
INSTANTANEOUS PEAK STAGE			5.98	Mar 4c	7.24	Jun 17 1993
ANNUAL RUNOFF (AC-FT)	34080		7660		8170	
10 PERCENT EXCEEDS	184		22		14	
50 PERCENT EXCEEDS	6.7		3.1		.34	
90 PERCENT EXCEEDS	.04		.04		.00	

e Estimated
a No flow at times in most years.
b From rating curve extended above 450 ft^3/s.
c Backwater from ice.

MISSOURI-FORT RANDALL RIVER BASIN

06452380 ANDES CREEK NEAR ARMOUR, SD

LOCATION.--Lat 43°15'23", long 97°24'08", in SW1/4 NW1/4 sec.3, T.97 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, at bridge 2.8 mi west of U.S. Highway 281 and 4.0 mi south of Armour.

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

REMARKS.--Samples are collected only when discharge exceeds 2 ft^3/s at time of site visit. No water-quality samples were collected this water year; discharge at times of site visits was less than 2 ft^3/s.

MISSOURI-FORT RANDALL RIVER BASIN

06452383 LAKE ANDES TRIBUTARY NO. 3 NEAR ARMOUR, SD

LOCATION.--Lat 43°15'23", long 98°25'58", in SW1/4 NE1/4 sec.5, T.97 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, at bridge 4.3 mi west of U.S. Highway 281 and 4.0 mi south of Armour.

PERIOD OF RECORD.--February 1986 to current year.

REMARKS.--Samples are collected only when discharge exceeds 2 ft^3/s at time of site visit. No water-quality samples were collected this water year; discharge at times of site visits was less than 2 ft^3/s.

MISSOURI-FORT RANDALL RIVER BASIN

06452386 LAKE ANDES TRIBUTARY NO. 2 NEAR LAKE ANDES, SD

LOCATION.--Lat 43°12'43", long 98°26'45", in SE1/4 SE1/4 SE1/4 sec.18, T.97 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, at culvert 3.0 mi north and 4.6 mi east of town of Lake Andes.

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

REMARKS.--Water-quality samples are collected only when discharge exceeds 2 ft^3/s at time of site visit. No water-quality samples were collected this water year; discharge at times of site visits was less than 2 ft^3/s.

MISSOURI-FORT RANDALL RIVER BASIN

06452389 LAKE ANDES TRIBUTARY NO. 1 NEAR LAKE ANDES, SD

LOCATION.--Lat 43°11'25", long 98°27'57", in NE1/4 NE1/4 SE1/4 sec.25, T.97 N., R.65 W., Charles Mix County, Hydrologic Unit 10140101, at culvert 1.0 mi north and 3.0 mi east of town of Lake Andes.

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

REMARKS.--Samples are collected only when discharge exceeds 2 ft^3/s at time of site visit. No water-quality samples collected this water year; discharge at times of site visits less than 2 ft^3/s.

MISSOURI-FORT RANDALL RIVER BASIN

06452390 LAKE ANDES ABOVE RAVINIA, SD

LOCATION.--Lat 43°13'15", long 98°24'55", in SW1/4 SW1/4 NE1/4 sec.16, T.97 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, about 1.5 mi south of mouth of Andes Creek and about 5.5 mi north of Ravinia.

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

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
NOV										
04...	0930	--	856	9.0	12.0	5.5	--	713	12.7	108
DEC										
15...	0930	1.95	1020	8.6	-1.0	5.0	67.2	724	9.8	81
FEB										
16...	1000	2.07	1370	8.5	13.0	4.5	81.6	720	11.3	93
APR										
06...	1030	2.13	860	8.9	4.0	6.0	21.6	725	10.5	89
JUN										
01...	1030	2.04	1240	7.9	18.0	21.5	38.4	724	7.6	91
AUG										
03...	1015	2.14	1190	8.4	26.0	25.0	13.4	718	8.6	111

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	ALKA-LINITY 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)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
04...	360	178	81	39	47	21	1	19	300	23
DEC										
15...	370	197	83	39	46	20	1	23	290	21
FEB										
16...	530	285	120	56	65	20	1	30	390	28
APR										
06...	320	163	74	34	37	19	0.9	22	260	18
JUN										
01...	510	216	120	51	59	19	1	26	410	27
AUG										
03...	430	124	83	55	70	24	1	29	450	34

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)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
NOV										
04...	0.20	10	628	670	0.91	0.130	0.17	0.020	0.059	0.059
DEC										
15...	0.20	11	634	664	0.90	0.060	0.08	0.010	0.160	0.160
FEB										
16...	0.30	17	882	932	1.27	0.260	0.33	0.020	--	<0.050
APR										
06...	0.20	0.90	545	588	0.80	0.030	0.04	0.010	--	<0.050
JUN										
01...	0.30	11	836	890	1.21	0.110	0.14	<0.010	--	<0.050
AUG										
03...	0.30	5.5	802	862	1.17	0.030	0.04	<0.010	--	<0.050

MISSOURI-FORT RANDALL RIVER BASIN

06452390 LAKE ANDES ABOVE RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	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)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)
NOV										
04...	0.039	0.039	0.560	0.460	8	<1.0	--	<1	0.2	<1
DEC										
15...	0.150	0.150	0.650	0.630	8	<1.0	--	<1	<0.1	<1
FEB										
16...	--	--	1.70	1.50	8	<1.0	<1	2	<0.1	<1
APR										
06...	--	--	0.670	0.350	4	<1.0	<1	2	<0.1	1
JUN										
01...	--	--	0.720	0.680	8	<1.0	<1	<1	<0.1	<2
AUG										
03...	--	--	0.310	0.110	13	<1.0	--	<1	<0.1	<2

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)	ALA-CHLOR TOTAL RECOVER (UG/L) (77825)	ALDRIN, TOTAL (UG/L) (39330)
APR												
06...	1030	2.13	860	8.9	4.0	6.0	21.6	725	10.5	89	<0.10	<0.010
JUN												
01...	1030	2.04	1240	7.9	18.0	21.5	38.4	724	7.6	91	<0.10	<0.010

DATE	AME-TRYNE TOTAL (UG/L) (82184)	ATRA-ZINE WATER UNFLTRD REC (UG/L) (39630)	PCB, TOTAL (UG/L) (39516)	CHLOR-DANE, TOTAL (UG/L) (39350)	CYAN-AZINE TOTAL (UG/L) (81757)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN, TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)
APR												
06...	<0.10	1.1	<0.1	<0.1	<0.20	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010
JUN												
01...	--	0.6	<0.1	<0.1	0.20	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010

DATE	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	MIREX, TOTAL (UG/L) (39755)	PARA-THION, TOTAL (UG/L) (39540)	METHYL PARA-THION, TOTAL (UG/L) (39600)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)
APR											
06...	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1
JUN											
01...	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1

DATE	PROME-TONE TOTAL (UG/L) (39056)	PROME-TRYNE TOTAL (UG/L) (39057)	PRO-PAZINE TOTAL (UG/L) (39024)	SILVEX, TOTAL (UG/L) (39760)	SIMA-ZINE TOTAL (UG/L) (39055)	SIME-TRYNE TOTAL (UG/L) (39054)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2, 4-DP TOTAL (UG/L) (82183)	2,4,5-T TOTAL (UG/L) (39740)
APR											
06...	<0.20	<0.10	<0.10	<0.01	0.10	<0.10	<1	<0.01	0.30	<0.01	<0.01
JUN											
01...	<0.20	<0.10	<0.10	<0.01	<0.10	<0.10	<1	<0.01	0.16	<0.01	<0.01

MISSOURI-FORT RANDALL RIVER BASIN

06452390 LAKE ANDES ABOVE RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
12-15-93	0930	44	11	5.6	17	1.3	53000	11
04-06-94	1030	44	11	5.1	17	1.4	55000	12
08-13-94	1015	43	11	4.7	17	1.5	55000	12

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)
550	1	<10	<2	47	52	12	50
540	1	<10	<2	46	61	13	32
520	1	<10	<2	46	59	14	32

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	12	<8	<4	30000	29	22	28
<2	14	<8	<4	32000	29	24	30
<2	15	<8	<4	33000	29	24	29

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)
2000	2	25	40	10	8	3.2	<2	290
1700	<2	22	43	11	9	3.0	<2	280
1900	<2	23	44	14	9	3.6	<2	270

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	10	<5	2100	<100	130	2	19	130
<40	8	<5	2100	<100	140	2	19	130
<40	8	<5	2300	<100	140	2	18	140

MISSOURI-FORT RANDALL RIVER BASIN

06452391 LAKE ANDES NEAR RAVINIA, SD

LOCATION.--Lat 43°11'05", long 98°26'10", in SW1/4 SW1/4 SE1/4 sec.29, T.97 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, about 1.25 mi northeast of the Lake Andes National Wildlife Refuge office and about 3 mi north of Ravinia.

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

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
NOV										
04...	1030	--	2190	8.6	12.0	5.5	--	713	13.8	118
DEC										
15...	1100	1.71	2120	9.1	0.0	2.0	24.5	724	17.0	131
FEB										
16...	1050	2.35	2520	8.7	4.5	2.0	63.6	720	20.1	155
APR										
06...	1200	2.74	1670	8.9	8.0	6.0	21.6	725	11.6	99
JUN										
01...	1135	2.71	1790	8.1	17.5	21.5	44.4	724	7.6	91
AUG										
03...	1050	2.75	1780	8.3	27.0	25.5	11.2	719	5.8	76

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	ALKA-LINITY 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)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
04...	870	209	190	95	150	26	2	53	920	110
DEC										
15...	820	190	170	97	130	24	2	42	810	92
FEB										
16...	1100	231	230	120	170	24	2	67	1000	110
APR										
06...	650	183	140	73	99	23	2	52	650	76
JUN										
01...	700	207	160	74	100	22	2	47	660	78
AUG										
03...	630	106	120	81	120	27	2	52	720	87

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)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
NOV										
04...	0.50	18	1660	1760	2.39	0.030	0.04	<0.010	--	<0.050
DEC										
15...	0.40	13	1470	1590	2.16	0.030	0.04	<0.010	--	<0.050
FEB										
16...	0.50	16	1850	1990	2.71	0.160	0.21	0.010	--	<0.050
APR										
06...	0.30	<0.10	1200	1280	1.74	0.030	0.04	0.010	0.130	0.130
JUN										
01...	0.30	12	1260	1330	1.81	0.140	0.18	<0.010	--	<0.050
AUG										
03...	0.40	7.1	1250	1340	1.82	0.030	0.04	<0.010	--	<0.050

MISSOURI-FORT RANDALL RIVER BASIN

06452391 LAKE ANDES NEAR RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	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)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)
NOV										
04...	--	--	0.560	0.320	11	<1.0	--	<1	<0.1	<1
DEC										
15...	--	--	0.600	0.250	12	<1.0	--	<1	<0.1	<1
FEB										
16...	--	--	0.570	0.450	13	<1.0	<1	<1	<0.1	<1
APR										
06...	0.120	0.120	0.440	0.110	7	<1.0	<1	<1	<0.1	<1
JUN										
01...	--	--	0.690	0.640	10	<1.0	<1	<1	<0.1	<2
AUG										
03...	--	--	0.370	0.090	16	<1.0	--	<1	<0.1	<2

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)	ALA-CHLOR TOTAL RECOVER (UG/L) (77825)	ALDRIN, TOTAL (UG/L) (39330)
APR												
06...	1200	2.74	1670	8.9	8.0	6.0	21.6	725	11.6	99	<0.10	<0.010
JUN												
01...	1135	2.71	1790	8.1	17.5	21.5	44.4	724	7.6	91	<0.10	<0.010

DATE	AME-TRYNE TOTAL (UG/L) (82184)	ATRA-ZINE WATER UNFLTRD REC (UG/L) (39630)	PCB, TOTAL (UG/L) (39516)	CHLOR-DANE, TOTAL (UG/L) (39350)	CYAN-AZINE TOTAL (UG/L) (81757)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN, TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)
APR												
06...	<0.10	0.5	<0.1	<0.1	<0.20	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010
JUN												
01...	--	0.5	<0.1	<0.1	<0.20	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010

DATE	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	MIREX, TOTAL (UG/L) (39755)	PARA-THION, TOTAL (UG/L) (39540)	METHYL PARA-THION, TOTAL (UG/L) (39600)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)
APR											
06...	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1
JUN											
01...	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1

DATE	PROME-TONE TOTAL (UG/L) (39056)	PROME-TRYNE TOTAL (UG/L) (39057)	PRO-PAZINE TOTAL (UG/L) (39024)	SILVEX, TOTAL (UG/L) (39760)	SIMA-ZINE TOTAL (UG/L) (39055)	SIME-TRYNE TOTAL (UG/L) (39054)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2, 4-DP TOTAL (UG/L) (82183)	2,4,5-T TOTAL (UG/L) (39740)
APR											
06...	<0.20	<0.10	<0.10	<0.01	<0.10	<0.10	<1	<0.01	0.18	<0.01	<0.01
JUN											
01...	<0.20	<0.10	<0.10	<0.01	<0.10	<0.10	<1	<0.01	0.14	<0.01	<0.01

MISSOURI-FORT RANDALL RIVER BASIN

06452391 LAKE ANDES NEAR RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
12-15-93	1100	77	14	9.3	14	0.8	46000	17
04-06-94	1200	64	11	5.9	17	1.5	49000	11
08-03-94	1050	64	11	5.6	17	1.5	49000	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)
960	1	<10	<2	37	42	12	23
640	1	<10	<2	45	56	14	29
550	1	<10	<2	43	51	13	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	12	<8	<4	27000	22	10	22
<2	12	<8	<4	27000	27	20	29
<2	14	<8	<4	27000	27	20	27

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)
4700	6	18	53	7	6	1.4	<2	350
1800	<2	21	45	10	8	1.9	<2	460
2100	<2	21	44	12	8	2.1	<2	470

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	1500	<100	130	2	16	96
<40	8	<5	2000	<100	130	2	17	120
<40	7	<5	2000	<100	130	2	16	120

MISSOURI-FORT RANDALL RIVER BASIN

06452403 OWENS BAY NEAR RAVINIA, SD

LOCATION.--Lat 43°09'40", long 98°26'45", in NW1/4 NW1/4 SW1/4 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 1993 TO SEPTEMBER 1994

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)
NOV										
04...	1000	0.54	1840	8.0	12.0	6.0	21.4	713	7.1	61
DEC										
15...	1130	0.53	2110	7.6	4.0	2.0	21.0	724	12.0	92
FEB										
16...	1125	1.31	2720	7.1	7.5	4.5	51.6	720	3.0	25
APR										
06...	1245	0.61	1740	8.0	5.0	6.0	14.4	725	10.9	93
JUN										
01...	1230	0.61	1980	7.1	17.5	20.5	24.0	724	4.3	50
AUG										
03...	1145	0.76	1920	6.3	25.0	26.5	13.2	719	2.6	35

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	ALKA-LINITY 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)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
04...	800	157	220	60	100	21	2	28	700	130
DEC										
15...	900	165	250	68	110	20	2	30	790	140
FEB										
16...	1400	223	390	96	150	19	2	36	1100	180
APR										
06...	730	150	200	55	89	20	1	30	660	120
JUN										
01...	830	148	230	63	100	20	2	27	750	130
AUG										
03...	730	63	180	68	120	25	2	29	760	150

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)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
NOV										
04...	1.4	16	1350	1370	1.86	0.300	0.39	0.020	0.094	0.094
DEC										
15...	1.7	18	1510	1600	2.18	0.040	0.05	<0.010	0.072	0.072
FEB										
16...	2.6	22	2110	2120	2.88	0.500	0.64	0.010	0.090	0.090
APR										
06...	1.8	11	1260	1330	1.81	0.050	0.06	0.020	--	<0.050
JUN										
01...	2.0	5.9	1400	1520	2.07	0.060	0.08	<0.010	--	<0.050
AUG										
03...	2.0	8.0	1350	1420	1.93	0.110	0.14	<0.010	--	<0.050

MISSOURI-FORT RANDALL RIVER BASIN

06452403 OWENS BAY NEAR RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	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)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)
NOV										
04...	0.074	0.074	0.110	0.030	3	<1.0	--	<1	<0.1	<1
DEC										
15...	0.072	--	0.120	<0.010	1	<1.0	--	<1	<0.1	<1
FEB										
16...	0.080	0.080	0.050	<0.010	<1	<1.0	2	<1	<0.1	<1
APR										
06...	--	--	0.100	<0.010	<1	<1.0	<1	<1	<0.1	<1
JUN										
01...	--	--	0.070	<0.010	2	<1.0	<1	<1	<0.1	<1
AUG										
03...	--	--	0.280	0.020	4	<1.0	<1	<1	<0.1	<1

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)	ALA-CHLOR TOTAL RECOVER (UG/L) (77825)	ALDRIN, TOTAL (UG/L) (39330)
APR												
06...	1245	0.61	1740	8.0	5.0	6.0	14.4	725	10.9	93	<0.10	<0.010
JUN												
01...	1230	0.61	1980	7.1	17.5	20.5	24.0	724	4.3	50	--	<0.010

DATE	AME-TRYNE TOTAL (UG/L) (82184)	ATRA-ZINE WATER UNFLTRD REC (UG/L) (39630)	PCB, TOTAL (UG/L) (39516)	CHLOR-DANE, TOTAL (UG/L) (39350)	CYAN-AZINE TOTAL (UG/L) (81757)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDO-SULFAN, TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)
APR												
06...	<0.10	<0.1	<0.1	<0.1	<0.20	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010
JUN												
01...	--	--	<0.1	<0.1	--	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010

DATE	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	MIREX, TOTAL (UG/L) (39755)	PARA-THION, TOTAL (UG/L) (39540)	METHYL PARA-THION, TOTAL (UG/L) (39600)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)
APR											
06...	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1
JUN											
01...	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1

DATE	PROME-TONE TOTAL (UG/L) (39056)	PROME-TRYNE TOTAL (UG/L) (39057)	PRO-PAZINE TOTAL (UG/L) (39024)	SILVEX, TOTAL (UG/L) (39760)	SIMA-ZINE TOTAL (UG/L) (39055)	SIME-TRYNE TOTAL (UG/L) (39054)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2, 4-DP TOTAL (UG/L) (82183)	2,4,5-T TOTAL (UG/L) (39740)
APR											
06...	<0.20	<0.10	<0.10	<0.01	<0.10	<0.10	<1	<0.01	0.07	<0.01	<0.01
JUN											
01...	--	--	--	<0.01	--	--	<1	<0.01	0.04	<0.01	<0.01

MISSOURI-FORT RANDALL RIVER BASIN

06452403 OWENS BAY NEAR RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
12-15-93	1130	51	7.3	14	13	0.8	39000	<10
04-06-94	1245	32	5.8	13	13	0.8	37000	4.6
08-03-94	1145	36	6.3	13	13	0.7	39000	5.2

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)
1100	<1	<10	<2	28	21	9	16
800	<1	<10	<2	24	20	7	6
850	<1	<10	<2	29	20	6	6

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	13000	18	9	10
<2	8	<8	<4	11000	16	10	10
<2	9	<8	<4	12000	19	11	10

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)
3700	<2	14	17	5	3	0.2	<2	410
1600	<2	10	14	5	3	0.3	<2	320
1700	<2	11	15	6	3	0.3	<2	330

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	1000	<100	38	1	11	26
<40	<4	<5	900	<100	32	1	9	23
<40	4	<5	800	<100	36	1	9	30

MISSOURI-FORT RANDALL RIVER BASIN

06452406 LAKE ANDES ABOVE LAKE ANDES, SD

LOCATION.--Lat 43°09'40", long 98°29'10", in NW1/4 NW1/4 SW1/4 sec.1, T.96 N., R.65 W., Charles Mix County, Hydrologic Unit 10140101, about 1.9 mi west southwest of the Lake Andes National Wildlife Refuge office and about 2.5 mi east of Lake Andes.

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

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
NOV										
04...	1100	--	3110	7.8	12.0	7.0	--	713	10.9	97
DEC										
15...	1215	0.85	3560	8.3	1.0	2.0	26.8	724	14.4	111
FEB										
16...	1210	1.49	4170	7.4	4.5	1.5	30.0	720	6.4	49
APR										
06...	1430	3.05	2340	8.6	6.0	6.5	30.0	725	11.0	95
JUN										
01...	1300	2.68	2480	7.7	17.0	21.5	20.4	724	7.2	87
AUG										
03...	1300	2.75	2450	8.2	29.0	26.5	9.40	720	5.8	77

DATE	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	ALKA-LINITY 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)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
NOV										
04...	1500	118	350	150	190	21	2	38	1500	180
DEC										
15...	1500	118	340	160	210	22	2	59	1600	190
FEB										
16...	2100	182	480	210	270	21	3	110	2000	240
APR										
06...	1000	81	220	110	140	--	2	<0.10	1100	130
JUN										
01...	1000	101	230	110	150	23	2	60	1100	130
AUG										
03...	1100	75	230	120	160	24	2	22	1100	130

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)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)
NOV										
04...	1.0	13	2490	2590	3.52	0.770	0.99	0.060	0.110	0.110
DEC										
15...	0.80	23	2660	2800	3.81	1.30	1.7	0.020	0.100	0.100
FEB										
16...	1.1	28	3450	3640	4.95	2.30	3.0	0.030	0.110	0.110
APR										
06...	0.60	6.6	--	1990	--	0.060	0.08	0.020	--	<0.050
JUN										
01...	0.60	5.7	1850	1950	2.65	0.050	0.06	<0.010	--	<0.050
AUG										
03...	0.70	17	1820	1990	2.71	0.050	0.06	<0.010	--	<0.050

MISSOURI-FORT RANDALL RIVER BASIN

06452406 LAKE ANDES ABOVE LAKE ANDES, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	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)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)
NOV										
04...	0.050	0.050	0.100	0.010	6	<1.0	--	<1	0.2	<1
DEC										
15...	0.080	0.080	0.120	<0.010	9	<1.0	--	<1	<0.1	<1
FEB										
16...	0.080	0.080	0.280	0.050	12	<1.0	4	<1	<0.1	<1
APR										
06...	--	--	0.190	<0.010	7	<1.0	<1	<1	<0.1	<1
JUN										
01...	--	--	0.220	0.040	10	<1.0	<1	<1	<0.1	<1
AUG										
03...	--	--	0.220	<0.010	14	<1.0	--	<1	<0.1	<5

DATE	TIME	DEPTH TO BOT. FROM SURFACE AT SAMP LOC. METERS (82903)	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)	ALACHLOR TOTAL RECOVER (UG/L) (77825)	ALDRIN, TOTAL (UG/L) (39330)
APR												
06...	1430	3.05	2340	8.6	6.0	6.5	30.0	725	11.0	95	<0.10	<0.010
JUN												
01...	1300	2.68	2480	7.7	17.0	21.5	20.4	724	7.2	87	--	<0.010

DATE	AMETRYNE TOTAL (UG/L) (82184)	ATRAZINE WATER UNFLTRD REC (UG/L) (39630)	PCB, TOTAL (UG/L) (39516)	CHLORDANE, TOTAL (UG/L) (39350)	CYANAZINE TOTAL (UG/L) (81757)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DIAZINON, TOTAL (UG/L) (39570)	DIELDRIN TOTAL (UG/L) (39380)	ENDOSULFAN, TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)
APR												
06...	<0.10	0.2	<0.1	<0.1	<0.20	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010
JUN												
01...	--	--	<0.1	<0.1	--	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010

DATE	ETHION, TOTAL (UG/L) (39398)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHOXYCHLOR, TOTAL (UG/L) (39480)	MIREX, TOTAL (UG/L) (39755)	PARATHION, TOTAL (UG/L) (39540)	METHYL PARATHION, TOTAL (UG/L) (39600)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)
APR											
06...	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1
JUN											
01...	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1

DATE	PROMETONE TOTAL (UG/L) (39056)	PROMETRYNE TOTAL (UG/L) (39057)	PROPAZINE TOTAL (UG/L) (39024)	SILVEX, TOTAL (UG/L) (39760)	SIMAZINE TOTAL (UG/L) (39055)	SIMETRYNE TOTAL (UG/L) (39054)	TOXAPHENE, TOTAL (UG/L) (39400)	TOTAL TRITHION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2, 4-DP TOTAL (UG/L) (82183)	2,4,5-T TOTAL (UG/L) (39740)
APR											
06...	<0.20	<0.10	<0.10	<0.01	<0.10	<0.10	<1	<0.01	0.20	<0.01	<0.01
JUN											
01...	--	--	--	<0.01	--	--	<1	<0.01	0.14	<0.01	<0.01

MISSOURI-FORT RANDALL RIVER BASIN

06452406 LAKE ANDES ABOVE LAKE ANDES, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
12-15-93	1215	59	9.8	7.2	17	1.2	49000	17
04-06-94	1430	72	11	5.1	16	1.4	51000	9.8
08-03-94	1300	62	12	5.2	18	1.4	54000	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)
570	1	<10	<2	43	44	11	25
530	1	<10	<2	41	54	12	27
580	1	<10	<2	48	58	13	30

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	11	<8	<4	24000	27	17	27
<2	14	<8	<4	28000	27	23	33
<2	15	<8	<4	30000	29	19	32

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)
3600	<2	21	32	10	7	1.4	<2	540
2800	3	20	40	10	8	1.9	<2	630
2000	<2	22	46	13	9	1.4	<2	500

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	9	<5	1800	<100	100	2	17	100
<40	7	<5	1900	<100	120	2	17	120
<40	6	<5	2100	<100	150	2	18	140

06452500 LAKE FRANCIS CASE AT PICKSTOWN, SD

LOCATION.--Lat 43°04'05", long 98°33'15", in SE1/4 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, 5,087,000 acre-ft, June 20, 1962, affected by wind; minimum since initial filling, 1,450,000 acre-ft, Oct. 23, 1956, affected by wind.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,793,000 acre-ft, June 24; minimum contents, 2,391,000 acre-ft, Nov. 16.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,353.09	3,438,000	-
Oct. 31	1,343.87	2,752,000	-686,000
Nov. 30	1,338.80	2,442,000	-310,000
Dec. 31	1,342.50	2,653,000	+211,000
CAL YR 1993	-	-	+48,000
Jan. 31	1,346.57	2,941,000	+288,000
Feb. 28	1,352.38	3,385,000	+444,000
Mar. 31	1,354.44	3,557,000	+172,000
Apr. 30	1,355.33	3,628,000	+71,000
May 31	1,354.48	3,562,000	-66,000
June 30	1,357.15	3,778,000	+216,000
July 31	1,354.99	3,610,000	-168,000
Aug. 31	1,355.11	3,603,000	-7,000
Sept. 30	1,353.50	3,458,000	-145,000
WTR YR 1994	-	-	+20,000

NOTE.--Lake frozen over Dec. 28 to Mar. 24.

MISSOURI-LEWIS AND CLARK RIVER BASIN

06453020 MISSOURI RIVER BELOW GREENWOOD, SD

LOCATION.--Lat 42°54'19", long 98°20'58", in SE1/4 NE1/4 NE1/4 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 good except those for Feb. 16 to Apr. 6 and June 1 to Aug. 2, which are fair. U.S. Army Corps of Engineers satellite data-collection platform at station. Stage regulated by Fort Randall Dam about 17 mi upstream.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.76	25.39	24.10	24.57	26.54	24.86	24.39	25.63	27.14	26.29	26.69	26.83
2	24.78	25.29	24.11	24.49	26.62	24.16	24.50	26.65	26.96	26.33	26.63	26.60
3	24.87	25.67	24.10	24.93	26.48	24.14	24.97	27.88	27.32	26.50	26.71	26.86
4	25.09	25.19	23.83	25.43	26.88	23.45	24.76	27.74	27.10	26.93	26.56	26.85
5	25.02	25.13	23.56	25.98	26.62	22.41	25.09	26.47	27.01	26.83	26.45	26.41
6	25.18	25.20	23.27	27.07	26.36	22.02	26.04	26.29	27.34	26.75	26.68	26.17
7	24.96	25.29	22.71	28.59	26.12	20.82	26.12	26.14	27.20	27.12	26.76	26.55
8	24.73	25.16	22.52	29.13	26.45	20.73	25.88	26.52	26.91	26.31	26.62	26.12
9	24.83	25.49	22.49	29.08	23.11	21.32	26.00	26.95	27.07	26.06	26.68	26.43
10	24.95	25.25	23.18	28.86	26.91	22.66	26.01	26.87	26.56	26.91	26.77	25.92
11	25.03	25.31	22.97	28.46	26.71	23.62	26.02	27.14	26.23	26.49	26.58	26.28
12	24.82	25.56	23.56	28.15	26.62	23.97	25.84	26.57	27.00	26.34	26.77	26.60
13	25.09	25.33	23.68	28.09	26.36	23.77	25.95	26.99	26.32	27.05	26.48	26.80
14	24.76	25.27	23.78	27.77	26.19	23.56	25.40	26.97	25.66	26.87	26.46	26.78
15	25.21	25.12	24.00	27.67	25.79	23.26	25.34	26.71	26.58	26.14	25.93	26.93
16	25.00	24.95	24.02	27.37	25.28	23.18	24.96	27.10	26.14	26.97	26.31	26.67
17	25.15	24.69	24.00	27.50	25.07	23.31	24.84	27.10	25.68	26.53	26.00	26.70
18	24.80	24.68	24.01	27.36	24.54	23.47	24.77	26.84	26.61	26.31	26.53	26.89
19	24.75	24.33	23.66	27.67	24.00	23.89	24.78	27.20	26.44	26.88	26.36	26.80
20	25.10	24.18	23.87	27.58	22.58	24.54	25.03	26.91	26.80	26.05	26.31	27.15
21	25.05	23.92	24.41	27.49	20.49	24.90	25.24	26.63	26.07	25.53	26.48	26.88
22	25.04	23.47	24.56	27.37	21.34	24.96	25.10	27.00	26.95	26.56	26.54	26.83
23	24.73	23.44	24.46	27.06	22.88	25.15	25.33	26.81	25.96	25.77	26.88	26.83
24	25.22	24.03	24.53	27.23	23.69	25.05	25.46	26.66	25.41	25.64	27.07	26.63
25	25.26	23.70	24.52	26.99	25.33	24.65	25.42	27.06	26.43	26.49	26.92	26.73
26	25.08	23.47	24.54	27.16	27.24	24.92	25.49	26.73	25.34	26.32	26.94	26.78
27	25.34	23.99	24.47	27.11	27.12	24.86	25.07	26.85	24.50	26.12	26.82	26.83
28	25.08	24.15	25.06	27.09	25.89	24.83	24.74	27.13	26.07	26.55	26.51	26.80
29	25.08	24.22	25.07	26.86	---	24.36	24.85	27.06	25.53	26.57	26.76	26.94
30	24.85	24.64	25.69	25.77	---	24.41	24.97	26.88	25.21	26.60	26.80	26.96
31	24.68	---	24.90	24.73	---	24.44	---	27.20	---	26.72	26.65	---
MEAN	24.98	24.72	23.99	27.12	25.33	23.73	25.28	26.86	26.38	26.47	26.60	26.68
MAX	25.34	25.67	25.69	29.13	27.24	25.15	26.12	27.88	27.34	27.12	27.07	27.15
MIN	24.68	23.44	22.49	24.49	20.49	20.73	24.39	25.63	24.50	25.53	25.93	25.92

MISSOURI-FORT RANDALL RIVER BASIN

06453120 MISSOURI RIVER ABOVE CHOTEAU CREEK, NEAR VERDEL, NE

LOCATION.--Lat 42°50'40", long 98°11'50", in NE1/4 SW1/4 SE1/4 sec.12, T.33 N., R.8 W., Charles Mix County, Hydrologic Unit 10170101, 2.3 mi upstream from mouth of Choteau Creek and 2.3 mi north of Verdel, NE.

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

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
NOV										
03...	1250	820	8.2	18.5	11.0	31.9	717	10.2	99	240
DEC										
16...	1155	870	8.5	1.5	3.0	45.4	729	12.8	99	230
FEB										
17...	1045	767	8.0	0.0	1.0	--	729	14.6	108	250
APR										
07...	1215	812	8.3	10.0	3.0	36.0	725	13.5	106	240
JUN										
02...	1100	648	7.7	--	14.5	77.4	732	9.5	98	220
AUG										
04...	1100	760	7.9	21.5	23.0	82.8	731	7.6	93	230

DATE	ALKALINITY 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)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
NOV										
03...	158	60	21	77	41	2	5.9	230	12	0.50
DEC										
16...	163	59	21	75	40	2	5.3	230	13	0.50
FEB										
17...	171	61	23	72	38	2	5.0	220	12	0.60
APR										
07...	169	61	22	69	38	2	5.7	220	12	0.60
JUN										
02...	152	57	20	64	38	2	5.2	200	11	0.50
AUG										
04...	160	56	21	70	40	2	5.1	210	12	0.50

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)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)
NOV										
03...	6.2	507	496	0.67	0.020	0.03	<0.010	--	<0.050	--
DEC										
16...	7.9	510	506	0.69	0.020	0.03	<0.010	0.053	0.053	0.053
FEB										
17...	6.3	502	518	0.70	0.010	0.01	<0.010	--	<0.050	--
APR										
07...	5.4	497	506	0.69	0.040	0.05	0.010	0.058	0.058	0.048
JUN										
02...	4.6	454	460	0.63	0.050	0.06	<0.010	--	<0.050	--
AUG										
04...	5.0	476	496	0.67	0.020	0.03	<0.010	--	<0.050	--

MISSOURI-FORT RANDALL RIVER BASIN

06453120 MISSOURI RIVER ABOVE CHOTEAU CREEK, NEAR VERDEL, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	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)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)
NOV									
03...	--	0.020	<0.010	4	<1.0	--	<1	<0.1	2
DEC									
16...	--	0.020	<0.010	2	<1.0	--	<1	<0.1	2
FEB									
17...	--	<0.010	<0.010	2	<1.0	<1	8	<0.1	1
APR									
07...	0.048	0.010	<0.010	2	<1.0	<1	<1	<0.1	1
JUN									
02...	--	0.050	<0.010	2	<1.0	<1	<1	<0.1	<2
AUG									
04...	--	0.010	<0.010	2	<1.0	--	<1	<0.1	<10

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)
12-16-93	1155	16	4.9	11	15	0.5	40000	12
04-07-94	1215	15	2.1	9.3	18	0.5	31000	16
08-04-94	1100	17	10.0	7.7	19	0.6	65000	15

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)
830	<1	<10	<2	37	26	8	5
790	<1	<10	<2	27	11	8	6
700	2	<10	<2	47	61	11	23

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	15000	21	14	13
<2	7	<8	<4	17000	17	17	6
<2	15	<8	<4	28000	29	28	31

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)
460	<2	16	16	4	4	0.3	<2	230
1000	<2	12	22	<4	2	0.8	<2	160
690	<2	20	29	14	9	0.6	<2	190

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	5	<5	1100	<100	42	1	10	37
<40	<4	<5	400	<100	23	<1	10	41
<40	7	<5	2400	<100	120	2	15	91

MISSOURI-LEWIS AND CLARK RIVER BASIN

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 1993 TO SEPTEMBER 1994

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)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
DEC											
16...	0830	<5.0	--	7.9	6.0	0.0	725	13.8	--	1400	320
APR											
07...	0845	13	1750	8.1	2.5	4.5	722	9.6	79	740	170
JUN											
01...	1645	<3.0	2650	7.1	16.5	19.0	724	1.7	20	1200	250

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
DEC											
16...	150	230	26	3	21	435	1300	83	0.20	6.6	2370
APR											
07...	77	100	22	2	18	264	690	35	0.20	1.4	1250
JUN											
01...	150	190	25	2	18	347	1200	57	0.20	25	2100

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
DEC										
16...	2530	3.44	--	0.050	0.06	<0.010	0.095	0.095	0.095	0.450
APR										
07...	1350	1.84	47.4	0.040	0.05	<0.010	0.110	0.110	0.110	0.200
JUN										
01...	2200	2.99	--	0.130	0.17	<0.010	--	<0.050	--	1.40

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	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)
DEC										
16...	0.420	3	<1.0	--	<1	<0.1	<1	--	--	--
APR										
07...	0.190	3	<1.0	<1	<1	<0.1	<1	9	0.32	--
JUN										
01...	1.20	11	<1.0	<1	<1	<0.1	<1	149	--	92

MISSOURI-LEWIS AND CLARK RIVER BASIN

06453200 CHOTEAU CREEK NEAR WAGNER, SD

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
12-16-93	0830	34	10	8.9	17	1.0	53000	17
04-07-94	0845	49	13	5.6	17	1.2	60000	12

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)
880	1	<10	<2	50	48	11	22
600	2	<10	<2	52	74	15	32

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	12	<8	<4	30000	29	17	25
<2	14	<8	<4	35000	32	18	36

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)
2400	3	24	35	10	7	1.9	<2	240
1100	<2	27	42	13	10	1.0	<2	230

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	2100	<100	110	2	17	99
<40	9	<5	2400	<100	180	2	20	140

MISSOURI-LEWIS AND CLARK RIVER BASIN

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 1993 TO SEPTEMBER 1994

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)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)
NOV											
03...	1230	2.3	2940	8.2	17.0	5.0	713	13.4	113	1300	345
DEC											
16...	1045	5.0	3550	8.0	8.0	0.0	725	19.6	143	1500	419
APR											
07...	1130	18	2020	8.2	9.5	5.5	722	13.6	115	840	250
JUN											
02...	1045	2.4	2600	7.8	17.0	18.5	729	9.0	101	1200	236
AUG											
03...	1555	<2.0	2740	7.3	27.0	26.5	721	5.7	76	1200	249

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	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)
NOV											
03...	290	140	200	25	2	22	1200	93	0.40	13	2170
DEC											
16...	330	160	250	27	3	5.4	1400	110	0.30	4.7	2510
APR											
07...	190	89	130	25	2	16	830	52	0.20	0.80	1460
JUN											
02...	260	140	200	26	2	23	1300	76	0.20	2.2	2140
AUG											
03...	250	140	220	28	3	29	1200	100	0.40	8.8	2100

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
NOV										
03...	2240	3.05	13.9	0.030	0.04	<0.010	--	<0.050	--	0.260
DEC										
16...	2720	3.70	36.7	0.050	0.06	<0.010	0.160	0.160	0.160	0.410
APR										
07...	1580	2.15	76.8	0.040	0.05	<0.010	--	<0.050	--	0.190
JUN										
02...	--	2.91	13.9	0.040	0.05	<0.010	--	<0.050	--	0.210
AUG										
03...	2230	3.03	--	0.070	0.09	<0.010	--	<0.050	--	0.340

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	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										
03...	0.240	6	<1.0	--	<1	<0.1	2	166	1.0	72
DEC										
16...	0.350	3	<1.0	--	<1	<0.1	2	288	3.9	67
APR										
07...	0.180	3	<1.0	<1	<1	<0.1	1	94	4.6	88
JUN										
02...	0.130	7	<1.0	<1	<1	<0.1	3	122	0.79	74
AUG										
03...	0.110	11	<1.0	--	6	<0.1	<5	60	--	97

MISSOURI-LEWIS AND CLARK RIVER BASIN

06453252 CHOTEAU CREEK NEAR DANTE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
12-16-93	1045	48	11	7.7	16	1.8	53000	17
04-07-94	1130	64	11	10	15	1.2	48000	20
08-03-94	1555	78	13	13	15	1.2	48000	21

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)
640	1	<10	<2	48	50	12	26
730	1	<10	<2	40	40	13	18
810	1	<10	2	34	30	13	15

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	12	<8	<4	30000	29	33	27
<2	13	<8	<4	24000	25	16	19
<2	18	<8	<4	24000	21	37	15

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)
2400	<2	23	35	9	8	3.0	<2	260
4300	<2	19	34	6	5	1.7	<2	290
6200	2	14	34	9	4	1.4	<2	330

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	2000	<100	130	2	18	110
<40	6	<5	1400	<100	100	1	15	110
<40	<4	<5	1200	<100	85	2	13	71

06453255 CHOTEAU CREEK NEAR AVON, SD

LOCATION.--Lat 42°55'24", long 98°06'21", in NW1/4 NW1/4 NW1/4 sec.31, T.94 N., R.61 W., Bon Homme County, Hydrologic Unit 10170101, on left bank at downstream side of highway bridge, 6.3 mi southwest of Avon, 0.7 mi downstream from Dry Choteau Creek, and 12.7 mi upstream from mouth.

DRAINAGE AREA.--602 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	5.5	5.6	4.1	e.80	e60	72	111	5.3	4.3	2.4	1.3
2	11	5.4	5.7	4.3	e.90	e80	71	110	5.4	4.4	2.1	1.5
3	10	5.5	5.7	e4.3	e.90	533	70	107	5.0	5.3	2.8	1.7
4	9.3	5.7	5.7	4.3	e1.0	790	69	107	4.9	4.7	2.4	3.3
5	8.7	6.2	5.7	4.2	e1.0	696	67	103	7.3	5.5	2.0	2.3
6	8.0	5.9	e5.8	e4.0	e1.0	842	67	92	5.9	4.9	2.2	2.1
7	7.6	5.6	5.8	e4.0	e1.0	972	69	87	20	6.6	3.4	1.7
8	7.7	5.5	5.9	e4.0	e.80	710	70	79	34	4.8	3.0	1.5
9	13	5.1	5.9	e4.0	e.50	508	68	73	56	3.9	3.9	1.5
10	13	4.8	6.2	e4.0	e.60	380	70	64	53	3.8	4.1	1.4
11	14	4.6	e6.0	4.2	e.80	237	64	53	51	3.5	4.7	1.3
12	16	4.7	6.9	4.1	e1.0	200	63	36	47	3.4	4.5	1.2
13	16	6.7	6.8	3.8	e1.0	171	67	26	36	3.8	4.1	1.0
14	16	7.3	e7.4	3.5	e1.5	144	66	24	26	3.5	4.2	.90
15	17	6.2	7.4	e3.0	e1.5	130	64	27	17	6.4	3.6	.90
16	15	6.4	6.8	e3.0	e1.5	119	63	25	16	20	3.2	.90
17	15	6.8	7.8	e2.5	e5.0	110	62	18	17	11	3.0	.80
18	15	6.5	7.6	e2.0	e150	105	56	14	18	6.0	2.7	.87
19	14	6.4	e7.4	e2.0	e200	103	53	11	9.5	9.3	2.4	.80
20	13	6.4	e6.8	e2.0	e80	95	54	9.4	11	8.6	1.9	.70
21	13	6.2	e6.4	e2.0	e80	95	53	8.0	8.7	7.6	1.7	.80
22	12	7.1	e6.4	e2.0	e100	93	53	8.2	92	7.5	1.6	.80
23	11	e6.5	6.4	e2.5	e150	89	50	10	83	7.4	1.6	.80
24	10	e6.5	5.8	e2.5	e300	87	48	11	25	7.2	1.6	.80
25	10	5.9	e5.5	e2.0	e300	85	48	9.5	16	5.1	2.0	.80
26	7.7	e5.9	5.2	e2.0	e250	85	62	8.3	10	4.6	1.9	.80
27	7.1	e5.6	5.3	e1.5	e200	84	82	6.5	8.5	3.9	1.7	.80
28	7.0	5.6	4.6	e1.0	e100	87	84	6.2	6.3	3.4	1.5	.80
29	6.1	5.6	4.5	e1.0	---	83	80	5.4	5.2	3.1	1.5	.70
30	6.2	5.3	4.2	e.90	---	78	102	5.3	4.6	2.7	1.7	.70
31	5.8	---	4.2	e.80	---	75	---	5.0	---	2.6	1.3	---
TOTAL	347.2	177.4	187.4	89.50	1930.80	7926	1967	1259.8	704.6	178.8	80.7	35.47
MEAN	11.2	5.91	6.05	2.89	69.0	256	65.6	40.6	23.5	5.77	2.60	1.18
MAX	17	7.3	7.8	4.3	300	972	102	111	92	20	4.7	3.3
MIN	5.8	4.6	4.2	.80	.50	60	48	5.0	4.6	2.6	1.3	.70
AC-FT	689	352	372	178	3830	15720	3900	2500	1400	355	160	70

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1994, BY WATER YEAR (WY)

MEAN	6.81	4.09	3.58	2.48	22.7	177	170	97.9	127	72.0	12.2	13.4
MAX	42.0	14.5	10.4	6.79	103	914	653	339	910	502	89.4	98.2
(WY)	1987	1987	1987	1987	1983	1987	1986	1986	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1983 - 1994	
ANNUAL TOTAL	37515.81		14884.67			
ANNUAL MEAN	103		40.8		59.2a	
HIGHEST ANNUAL MEAN					168	1984
LOWEST ANNUAL MEAN					1.13	1992
HIGHEST DAILY MEAN	1860	May 8	972	Mar 7	5020	Mar 27 1987
LOWEST DAILY MEAN	.01	Jan 21	.50	Feb 9	.00	Aug 23 1991b
ANNUAL SEVEN-DAY MINIMUM	.01	Jan 21	.77	Sep 24	.00	Aug 23 1991
INSTANTANEOUS PEAK FLOW			1080	Mar 7	7280	Jun 12 1984
INSTANTANEOUS PEAK STAGE			6.85	Mar 7	13.93	Jun 12 1984
ANNUAL RUNOFF (AC-FT)	74410		29520		42860	
10 PERCENT EXCEEDS	265		92		116	
50 PERCENT EXCEEDS	15		6.2		3.6	
90 PERCENT EXCEEDS	.04		1.3		.31	

e Estimated
a Median of annual mean discharges, 30 ft^3/s.
b Also Aug. 24 to Sept. 10, 15-18, 1991, and Sept. 26-30, 1992.

MISSOURI-LEWIS AND CLARK RIVER BASIN

06453300 CHOTEAU CREEK BELOW AVON, SD

LOCATION.--Lat 42°51'40", long 98°08'25", in SW1/4 SW1/4 NE1/4 sec.23, T.93 N., R.62 W., Charles Mix County, Hydrologic Unit 10170101, at bridge over Choteau Creek, 1.4 mi upstream from mouth, and 11.0 mi south-southwest of Avon.

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

REMARKS.--Bottom sediments analyzed by USGS Geologic Division in Denver, Colorado.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)
NOV											
03...	1545	7.5	2010	8.2	18.5	6.0	715	18.8	162	950	305
DEC											
16...	1500	11	2570	8.2	6.0	0.0	729	14.3	103	1200	268
FEB											
17...	1015	5.6	1870	7.6	12.0	0.0	728	14.8	107	800	239
APR											
07...	1450	26	2000	8.1	17.5	9.0	725	12.6	116	850	249
JUN											
02...	1330	8.1	2030	7.6	18.0	20.5	732	12.0	140	1000	414
AUG											
04...	1425	5.7	1790	7.4	28.0	23.5	731	8.7	108	800	234

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	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)
NOV											
03...	240	85	110	20	2	16	900	42	0.40	17	1590
DEC											
16...	280	110	130	19	2	17	1000	56	0.30	15	1770
FEB											
17...	220	62	60	14	0.9	17	680	18	0.30	23	1230
APR											
07...	210	80	100	20	1	17	790	44	0.20	6.5	1400
JUN											
02...	260	96	110	18	1	18	940	35	0.30	14	1720
AUG											
04...	200	74	87	19	1	18	780	30	0.30	19	1350

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
NOV											
03...	1670	2.27	33.8	0.030	0.04	<0.010	--	<0.050	--	--	0.110
DEC											
16...	1930	2.62	57.3	0.020	0.03	<0.010	0.070	0.070	0.070	--	<0.010
FEB											
17...	1330	1.81	20.1	0.280	0.36	0.030	0.950	0.950	0.920	0.920	0.260
APR											
07...	1500	2.04	105	0.050	0.06	0.010	--	<0.050	--	--	0.110
JUN											
02...	1680	2.28	36.7	0.040	0.05	<0.010	--	<0.050	--	--	0.080
AUG											
04...	1440	1.96	22.2	0.030	0.04	<0.010	--	<0.050	--	--	0.110

MISSOURI-LEWIS AND CLARK RIVER BASIN

06453300 CHOTEAU CREEK BELOW AVON, SD

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	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										
03...	<0.010	2	<1.0	--	<1	<0.1	4	206	4.2	85
DEC										
16...	<0.010	1	<1.0	--	<1	<0.1	5	198	5.9	65
FEB										
17...	0.190	2	<1.0	<1	<1	<0.1	7	118	1.8	68
APR										
07...	0.040	2	<1.0	<1	<1	<0.1	3	168	12	76
JUN										
02...	<0.010	2	<1.0	<1	<1	<0.1	3	28	0.61	94
AUG										
04...	<0.010	2	<1.0	--	<1	<0.1	<5	138	2.1	85

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)
12-16-93	1500	70	7.3	12	15	1.1	40000	20
04-07-94	1450	42	7.6	13	16	0.7	38000	8.4
08-04-94	1425	81	14.0	12	14	0.9	40000	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)
1100	<1	<10	<2	34	22	13	14
700	<1	<10	<2	23	14	8	7
2200	<1	<10	<2	28	28	11	11

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	21000	22	14	11
<2	9	<8	<4	15000	15	14	8
<2	19	<8	<4	27000	18	12	10

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)
7100	4	15	34	5	4	2.2	<2	330
3000	<2	11	18	<4	2	0.7	<2	230
9300	3	10	34	7	4	1.7	<2	330

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	<4	<5	800	<100	78	1	14	72
<40	<4	<5	500	<100	30	<1	9	38
<40	<4	<5	900	<100	74	1	13	64

MISSOURI-LEWIS AND CLARK RIVER BASIN

06453305 MISSOURI RIVER BELOW CHOTEAU CREEK, NEAR VERDEL, NE

LOCATION.--Lat 42°50'05", long 98°08'20", in NW1/4 SW1/4 NW1/4 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 1993 TO SEPTEMBER 1994

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)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
NOV												
03...	1215	820	8.3	14.5	11.0	35.4	717	10.1	98	240	158	60
DEC												
16...	1115	870	8.5	1.0	3.0	53.2	729	13.2	102	240	164	60
FEB												
17...	0955	763	7.9	3.0	1.0	--	729	14.5	107	240	171	58
APR												
07...	1100	813	8.2	9.0	3.5	36.0	725	13.4	106	240	168	60
JUN												
02...	1030	651	7.8	--	14.5	83.4	731	9.4	97	230	153	58
AUG												
04...	1005	766	7.8	22.0	23.0	36.0	735	7.6	92	230	160	57

DATE	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)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	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 AC-FT) (70303)
NOV												
03...	21	76	40	2	5.5	220	11	0.50	6.1	495	490	0.67
DEC												
16...	21	76	41	2	5.2	230	13	0.50	7.8	512	521	0.71
FEB												
17...	22	71	39	2	4.9	220	12	0.60	5.9	497	510	0.69
APR												
07...	22	70	38	2	5.7	220	12	0.60	5.3	496	502	0.68
JUN												
02...	20	63	37	2	5.3	200	11	0.50	4.4	454	462	0.63
AUG												
04...	21	71	40	2	5.1	220	12	0.50	5.0	488	504	0.69

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)
NOV												
03...	0.030	0.04	<0.010	<0.050	<0.010	<0.010	4	<1.0	--	<1	<0.1	2
DEC												
16...	0.020	0.03	<0.010	<0.050	0.020	<0.010	2	<1.0	--	<1	0.1	2
FEB												
17...	0.020	0.03	<0.010	<0.050	0.010	<0.010	2	<1.0	<1	22	<0.1	1
APR												
07...	0.030	0.04	<0.010	<0.050	<0.010	<0.010	2	<1.0	<1	<1	<0.1	1
JUN												
02...	0.040	0.05	<0.010	<0.050	0.030	<0.010	2	<1.0	<1	<1	<0.1	<2
AUG												
04...	0.030	0.04	<0.010	<0.050	0.020	<0.010	2	<1.0	--	<1	<0.1	<2

06453305 MISSOURI RIVER BELOW CHOTEAU CREEK, NEAR VERDEL, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
11-03-93	1215	42	11	7.9	18	1.0	60000	18
04-07-94	1130	45	11	6.0	18	1.1	62000	19
08-04-94	1005	51	11	6.5	18	1.0	63000	21

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)
730	1	<10	<2	55	56	14	33
630	2	<10	2	53	70	15	39
830	2	<10	<2	58	59	27	50

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	14	<8	<4	29000	32	15	32
<2	15	<8	<4	33000	32	19	36
<2	27	<8	<4	34000	34	24	32

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)
1900	<2	29	42	10	8	3.4	<2	270
2500	2	26	49	13	9	6.1	<2	250
10000	3	25	100	14	9	2.4	<2	340

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	11	<5	2300	<100	140	2	19	110
<40	9	<5	2400	<100	180	2	21	130
<40	8	<5	2300	<100	160	2	24	170

NIOBRARA RIVER BASIN

06464100 KEYA PAHA RIVER NEAR KEYAPAHA, SD

LOCATION.--Lat 43°07'45", long 100°06'24", in NW1/4 SW1/4 SW1/4 sec.17, T.96 N., R.78 W., Tripp County, Hydrologic Unit 10150006, on left bank at downstream side of highway bridge, 2.0 mi northeast of Keyapaha, and 2.0 mi upstream from Sand Creek.

DRAINAGE AREA.--466 mi^2, approximately.

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

GAGE.--Water-stage recorder. 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. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	20	e21	e20	e14	e60	49	67	24	24	14	26
2	15	24	e22	e19	e14	e100	49	73	24	24	14	24
3	16	22	e22	e18	e14	e300	47	71	24	24	14	23
4	16	21	e22	e17	e13	e750	47	68	23	23	15	24
5	19	21	e23	e16	e12	651	49	64	25	22	17	23
6	18	e22	e23	e14	e11	429	45	60	25	20	21	22
7	16	e24	e24	e15	e9.5	275	44	57	30	25	21	21
8	17	e26	e24	e15	e10	206	44	54	39	25	18	20
9	20	25	e24	e15	e11	170	43	51	48	24	18	19
10	21	25	e25	e14	e12	143	40	48	48	23	21	17
11	21	25	e27	e14	e13	124	38	45	43	22	25	16
12	20	27	e26	e13	e12	115	36	42	42	22	26	16
13	19	30	e25	e12	e13	110	36	40	38	24	25	15
14	19	30	e23	e11	e13	107	35	40	35	23	25	16
15	19	29	e23	e10	e13	104	34	39	33	25	23	16
16	19	30	e23	e10	e25	96	34	37	30	25	21	15
17	19	30	e22	e11	e150	91	34	37	30	24	21	15
18	20	31	e21	e11	e250	85	33	36	34	22	20	14
19	20	31	e21	e12	e300	80	31	34	39	22	18	14
20	19	30	e20	e13	e150	76	29	34	37	21	16	14
21	19	30	e20	e15	e100	71	30	33	36	19	16	14
22	18	29	e21	e15	e80	66	29	31	37	18	16	15
23	18	e25	e22	e16	e70	62	29	32	41	18	15	15
24	17	e18	e21	e15	e60	59	30	31	39	17	15	15
25	17	e18	e19	e15	e55	56	31	29	35	17	15	15
26	17	e19	e19	e15	e50	54	41	28	31	17	15	15
27	17	e19	e20	e14	e45	53	49	27	29	16	15	15
28	17	e20	e20	e14	e45	51	53	26	28	15	15	15
29	17	e20	e19	e14	---	50	57	24	26	15	15	15
30	18	e21	e19	e13	---	51	60	23	24	14	23	15
31	18	---	e20	e13	---	50	---	22	---	14	26	---
TOTAL	561	742	681	439	1564.5	4695	1206	1303	997	644	579	519
MEAN	18.1	24.7	22.0	14.2	55.9	151	40.2	42.0	33.2	20.8	18.7	17.3
MAX	21	31	27	20	300	750	60	73	48	25	26	26
MIN	15	18	19	10	9.5	50	29	22	23	14	14	14
AC-FT	1110	1470	1350	871	3100	9310	2390	2580	1980	1280	1150	1030

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1994, BY WATER YEAR (WY)

MEAN	18.9	21.0	17.5	14.8	43.2	86.0	65.1	66.1	50.4	28.1	18.1	16.0
MAX	43.7	38.7	30.8	28.9	152	158	155	158	131	59.1	32.4	28.6
(WY)	1983	1983	1983	1984	1982	1988	1987	1983	1982	1983	1992	1986
MIN	10.6	11.9	5.54	3.51	10.7	37.0	24.3	17.5	11.3	16.8	10.1	9.78
(WY)	1990	1986	1986	1991	1989	1990	1990	1992	1985	1985	1989	1990

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1982 - 1994	
ANNUAL TOTAL	13164.5		13930.5			
ANNUAL MEAN	36.1		38.2		37.1a	
HIGHEST ANNUAL MEAN					57.0	1983
LOWEST ANNUAL MEAN					18.5	1989
HIGHEST DAILY MEAN	450	Mar 8	750	Mar 4	750	Mar 4 1994
LOWEST DAILY MEAN	6.0	Jan 14	9.5	Feb 7	2.4	Jan 6 1991
ANNUAL SEVEN-DAY MINIMUM	6.4	Jan 10	11	Jan 13	2.5	Jan 1 1991
INSTANTANEOUS PEAK FLOW			780	Mar 4	820	May 3 1983b
INSTANTANEOUS PEAK STAGE			9.23	Mar 4c	9.45	Feb 20 1982c
ANNUAL RUNOFF (AC-FT)	26110		27630		26840	
10 PERCENT EXCEEDS	74		60		74	
50 PERCENT EXCEEDS	22		23		22	
90 PERCENT EXCEEDS	13		14		11	

e Estimated
a Median of annual mean discharges, 38 ft^3/s.
b Gage height, 7.95 ft.
c Backwater from ice.

NIOBRARA RIVER BASIN

06464500 KEYA PAHA RIVER AT WEWELA, SD

LOCATION.--Lat 43°01'44", long 99°46'49", in NW1/4 SW1/4 SE1/4 sec.24, T.95 N., R.76 W., Tripp County, Hydrologic Unit 10150006, on right bank at downstream side of bridge on U.S. Highway 183, 1.0 mi north of Wewela, 4.5 mi upstream from Holt Creek, and 11.5 mi downstream from Lost Creek.

DRAINAGE AREA.--1,070 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. 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	48	e46	e44	e28	e300	104	173	48	51	30	49
2	43	49	e50	e40	e29	e350	102	169	49	57	31	51
3	44	52	e52	e40	e30	e500	99	164	49	58	29	50
4	42	54	e52	e36	e30	e1200	98	178	49	55	29	52
5	46	53	e53	e35	e30	e1800	98	175	52	52	29	49
6	47	45	e52	e33	e29	1140	98	160	52	49	36	47
7	50	48	e51	e33	e25	637	98	144	65	55	41	44
8	54	54	e52	e34	e20	414	96	131	97	61	40	42
9	57	57	e60	e35	e21	320	92	118	143	62	42	41
10	53	56	e58	e35	e25	279	90	107	114	58	41	37
11	52	56	e60	e35	e28	251	88	99	95	53	42	34
12	50	59	e65	e33	e27	233	88	90	84	49	46	32
13	49	70	e63	e30	e27	216	86	85	86	62	45	32
14	47	77	e60	e27	e29	210	84	100	79	76	44	32
15	47	76	e58	e25	e33	201	87	108	71	63	42	33
16	46	75	e56	e24	e40	189	84	95	68	58	39	32
17	46	71	e56	e23	e150	178	82	83	66	55	37	32
18	45	70	e56	e24	e400	168	81	77	70	50	35	31
19	44	69	e55	e25	e600	159	78	71	99	49	34	31
20	44	66	e53	e27	e1000	152	77	64	115	45	33	31
21	43	65	e50	e30	e1500	141	75	63	96	42	31	32
22	43	63	e49	e32	e1100	134	74	62	85	40	31	34
23	44	e40	e47	e32	e800	127	73	67	157	37	30	34
24	43	e30	e48	e34	e650	119	71	70	163	35	30	35
25	43	e35	e52	e32	e600	112	75	69	148	32	37	35
26	42	e42	e48	e32	e500	110	98	62	108	32	38	35
27	42	e43	e45	e31	e400	109	117	60	83	32	36	35
28	43	e44	e46	e30	e350	106	125	57	67	30	33	34
29	43	e46	e48	e30	---	108	130	55	61	29	33	33
30	42	e46	e48	e29	---	106	156	53	56	28	38	33
31	43	---	e47	e28	---	105	---	50	---	27	44	---
TOTAL	1421	1659	1636	978	8501	10174	2804	3059	2575	1482	1126	1122
MEAN	45.8	55.3	52.8	31.5	304	328	93.5	98.7	85.8	47.8	36.3	37.4
MAX	57	77	65	44	1500	1800	156	178	163	76	46	52
MIN	42	30	45	23	20	105	71	50	48	27	29	31
AC-FT	2820	3290	3250	1940	16860	20180	5560	6070	5110	2940	2230	2230

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1994, BY WATER YEAR (WY)

MEAN	34.9	39.6	31.5	26.3	57.8	179	151	122	92.6	60.2	33.2	27.8
MAX	82.2	77.6	64.5	85.5	304	598	605	358	512	607	143	69.5
(WY)	1983	1983	1983	1983	1994	1960	1952	1962	1962	1962	1962	1986
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1939 - 1994	
ANNUAL TOTAL	31018		36537			
ANNUAL MEAN	85.0		100		71.4a	
HIGHEST ANNUAL MEAN					175	1962
LOWEST ANNUAL MEAN					19.5	1976
HIGHEST DAILY MEAN	1400	Mar 8	1800	Mar 5	4930	Mar 30 1952
LOWEST DAILY MEAN	12	Jan 14	20	Feb 8	.00	Jan 10 1949b
ANNUAL SEVEN-DAY MINIMUM	13	Jan 10	25	Feb 7	.00	Jan 10 1949
INSTANTANEOUS PEAK FLOW			2000	Mar 4c	5430	Mar 31 1952d
INSTANTANEOUS PEAK STAGE			9.67	Mar 4c	13.50	Mar 25 1950c
ANNUAL RUNOFF (AC-FT)	61520		72470		51710	
10 PERCENT EXCEEDS	164		159		140	
50 PERCENT EXCEEDS	53		52		38	
90 PERCENT EXCEEDS	32		30		14	

e Estimated
a Median of annual mean discharges, 58 ft^3/s.
b Also Jan. 11 to Feb. 15, 1949, and Aug. 19 to Sept. 14, 1976.
c Backwater from ice.
d Gage height, 13.08 ft.

NIOBRARA RIVER BASIN

06464900 KEYA PAHA RIVER NEAR NAPER, NE

LOCATION.--Lat 42°55'00", long 99°05'50", in SE1/4 SE1/4 sec.17, T.34 N., R.15 W., Boyd County, Hydrologic Unit 10150006, on left upstream bank near highway bridge abutment, 3.3 mi south of Naper, and 8.8 mi upstream from mouth.

DRAINAGE AREA (REVISED).--1,690 mi^2.

PERIOD OF RECORD.--October 1957 to current year.

REVISED RECORDS.--WSP 1709: 1959(M).

GAGE.--Water-stage recorder. Elevation of gage is 1,680 ft above sea level, from topographic map. Prior to May 2, 1958, nonrecording gage at same site and datum.

REMARKS.--Records good, except for period of estimated record, which is poor. Minor diversions for irrigation above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	78	e118	e118	e70	e130	189	400	65	98	53	81
2	75	80	e116	e108	e70	e200	183	388	67	121	52	101
3	75	83	e116	e96	e68	e400	175	359	68	111	54	109
4	75	88	e114	e100	e68	e900	173	326	67	120	56	353
5	76	95	e120	e90	e70	e3000	182	312	75	307	48	399
6	79	96	e116	e82	e72	2590	180	302	71	136	51	330
7	77	93	e114	e70	e58	1160	175	285	139	217	54	204
8	88	89	e120	e72	e49	649	180	261	213	172	55	152
9	118	102	e135	e76	e42	444	178	224	235	131	64	127
10	124	100	e150	e78	e47	330	177	205	254	112	412	112
11	122	101	e135	e76	e56	277	169	198	209	99	610	97
12	120	117	e155	e76	e64	254	165	185	174	87	324	80
13	122	160	e165	e74	e62	240	158	226	154	90	183	69
14	116	158	e155	e60	e69	260	160	1440	137	86	137	66
15	112	164	e145	e56	e72	232	168	432	120	105	113	64
16	110	153	e145	e56	e74	204	167	282	105	149	102	60
17	105	150	e145	e50	e76	206	165	220	99	120	91	58
18	97	150	e145	e45	e80	189	161	171	107	98	80	57
19	98	154	e140	e47	e100	246	147	144	167	85	72	56
20	100	138	e141	e49	e86	273	143	115	190	78	63	53
21	97	133	e135	e50	e82	250	135	104	215	71	60	50
22	99	124	e130	e60	e80	237	134	101	248	66	58	54
23	98	109	e125	e76	e76	234	134	108	265	64	52	57
24	98	e96	e114	e86	e74	205	132	119	229	67	50	59
25	94	e88	e118	e78	e80	186	130	111	248	66	69	61
26	87	e90	e125	e74	e82	166	219	111	217	61	79	60
27	88	e94	e120	e72	e90	156	276	102	182	55	77	60
28	88	e100	e106	e72	e100	160	297	87	141	53	68	59
29	82	e108	e112	e70	---	164	295	82	117	52	61	60
30	81	e108	e114	e66	---	154	366	74	105	50	56	60
31	79	---	e116	e68	---	175	---	67	---	48	59	---
TOTAL	2956	3399	4005	2251	2017	14271	5513	7541	4683	3175	3363	3208
MEAN	95.4	113	129	72.6	72.0	460	184	243	156	102	108	107
MAX	124	164	165	118	100	3000	366	1440	265	307	610	399
MIN	75	78	106	45	42	130	130	67	65	48	48	50
AC-FT	5860	6740	7940	4460	4000	28310	10940	14960	9290	6300	6670	6360

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1994, BY WATER YEAR (WY)

MEAN	68.4	77.5	65.0	57.3	113	325	285	233	192	130	62.5	50.5
MAX	151	155	137	128	278	1087	919	662	945	1538	420	131
(WY)	1983	1963	1963	1987	1984	1960	1984	1962	1962	1962	1962	1986
MIN	14.7	17.3	20.4	7.00	22.4	80.3	71.9	58.5	20.8	1.97	1.18	8.05
(WY)	1977	1977	1977	1977	1979	1981	1976	1981	1976	1976	1976	1975

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1958 - 1994	
ANNUAL TOTAL	70299		56382			
ANNUAL MEAN	193		154		138	
MEDIAN OF ANNUAL MEANS					119	
HIGHEST ANNUAL MEAN					389	1962
LOWEST ANNUAL MEAN					44.5	1976
HIGHEST DAILY MEAN	1800	Mar 9	3000	Mar 5	6500	Mar 24 1960
LOWEST DAILY MEAN	38	Jan 10	42	Feb 9	.00	Jul 22 1976
ANNUAL SEVEN-DAY MINIMUM	41	Jan 9	50	Jan 15	.00	Jul 22 1976
INSTANTANEOUS PEAK FLOW			e5980	Mar 5	9280	Jul 1 1962
INSTANTANEOUS PEAK STAGE			12.76a	Mar 5	13.34a	Mar 23 1960
ANNUAL RUNOFF (AC-FT)	139400		111800		100200	
10 PERCENT EXCEEDS	433		252		290	
50 PERCENT EXCEEDS	117		108		74	
90 PERCENT EXCEEDS	59		59		24	

e Estimated.
a Ice jam.

MISSOURI-LEWIS AND CLARK RIVER BASIN

06466700 LEWIS AND CLARK LAKE AT SPRINGFIELD, SD

LOCATION.--Lat 42°51'21", long 97°53'06", in SW1/4 NE1/4 SW1/4 sec.24, T.93 N., R.60 W., Bon Homme County, Hydrologic Unit 10170101, on left bank at east edge of Springfield at mile 832.20.

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above 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, IN FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.33	7.67	7.60	9.55	8.79	8.84	7.12	7.16	8.61	8.06	8.24	8.68
2	7.44	7.76	7.77	9.37	8.78	8.96	7.08	7.53	8.63	8.29	8.28	8.79
3	7.44	7.84	7.95	9.04	8.78	9.06	7.12	8.24	8.58	8.43	8.31	8.70
4	7.52	7.80	8.09	8.71	8.76	9.64	7.31	8.91	8.70	8.42	8.37	8.86
5	7.65	7.80	7.97	8.76	8.87	9.76	7.25	8.98	8.66	8.57	8.30	8.93
6	7.64	7.90	8.20	8.64	8.85	8.68	7.45	8.60	8.63	8.60	8.24	8.87
7	7.68	7.89	8.18	8.21	8.84	8.15	7.83	8.42	8.88	8.69	8.33	8.78
8	7.75	7.95	8.08	8.14	8.75	7.85	7.77	8.31	8.95	8.85	8.37	8.78
9	7.77	7.96	7.79	8.47	8.74	7.38	7.79	8.42	8.84	8.65	8.40	8.64
10	7.84	8.05	7.56	8.63	8.72	7.01	7.83	8.56	8.89	8.49	8.38	8.60
11	7.90	8.01	7.55	8.68	8.87	7.04	7.89	8.63	8.62	8.59	8.61	8.40
12	7.96	8.29	7.41	8.64	8.91	7.25	8.00	8.70	8.53	8.48	8.63	8.37
13	7.98	8.16	7.39	8.61	8.91	7.35	8.00	8.53	8.77	8.58	8.64	8.40
14	7.96	8.26	7.47	8.66	8.91	7.31	7.89	8.65	8.44	8.84	8.57	8.49
15	7.95	8.31	7.53	8.64	8.99	7.31	7.66	8.81	8.26	8.78	8.59	8.51
16	8.04	8.35	7.62	8.64	9.05	7.15	7.63	8.79	8.49	8.67	8.44	8.54
17	7.96	8.37	7.58	8.54	9.08	6.85	7.52	8.85	8.31	8.89	8.41	8.52
18	7.88	8.31	7.60	8.53	9.25	6.71	7.31	8.79	8.29	8.76	8.36	8.52
19	7.88	8.14	7.60	8.56	9.87	6.71	7.28	8.65	8.78	8.65	8.41	8.58
20	7.76	8.03	7.54	8.69	9.96	6.74	7.36	8.77	8.82	8.74	8.37	8.57
21	7.84	7.84	7.46	8.69	9.38	6.96	7.47	8.62	8.87	8.46	8.34	8.66
22	7.86	7.74	8.18	8.71	8.53	7.10	7.45	8.47	8.55	8.23	8.40	8.67
23	7.79	7.30	9.53	8.71	7.86	7.26	7.37	8.56	9.06	8.39	8.36	8.70
24	7.74	7.27	10.01	8.71	7.65	7.26	7.43	8.47	9.07	8.10	8.50	8.67
25	7.71	7.77	10.12	8.81	7.68	7.26	7.48	8.37	8.76	7.94	8.66	8.57
26	7.73	8.65	10.11	8.84	7.74	7.10	7.47	8.56	9.02	8.18	8.70	8.59
27	7.78	8.09	9.82	8.96	8.30	7.19	7.33	8.42	8.75	8.13	8.73	8.61
28	7.76	7.52	9.45	8.98	8.68	7.29	7.18	8.40	8.18	8.03	8.68	8.66
29	7.73	7.38	9.49	8.96	---	7.27	7.07	8.55	8.54	8.19	8.61	8.67
30	7.78	7.50	9.42	8.91	---	7.16	7.11	8.52	8.32	8.17	8.62	8.74
31	7.75	---	9.60	8.82	---	7.11	---	8.44	---	8.15	8.62	---
MEAN	7.77	7.93	8.31	8.74	8.77	7.57	7.48	8.51	8.66	8.45	8.47	8.64
MAX	8.04	8.65	10.12	9.55	9.96	9.76	8.00	8.98	9.07	8.89	8.73	8.93
MIN	7.33	7.27	7.39	8.14	7.65	6.71	7.07	7.16	8.18	7.94	8.24	8.37

MISSOURI-LEWIS AND CLARK RIVER BASIN

06467000 LEWIS AND CLARK LAKE NEAR YANKTON, SD

LOCATION.--Lat 42°50'56", long 97°28'54", in SW1/4 sec.7, T.33 N., R.1 W., Cedar County, NE, Hydrologic Unit 10170101, in powerhouse of Gavins Point Dam on Missouri River, 3.75 mi southwest of Yankton, 13.6 mi upstream from James River, 32.5 mi downstream from Niobrara River, and at mile 811.0.

DRAINAGE AREA.--279,500 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; minimum since initial filling, 61,950 acre-ft, Apr. 23, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 445,000 acre-ft, Feb. 20; minimum contents, 356,000 acre-ft, May 2.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

Date	Elevation	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,206.60	394,000	-
Oct. 31	1,206.70	396,000	+2,000
Nov. 30	1,206.65	394,000	-2,000
Dec. 31	1,206.27	384,000	-10,000
CAL YR 1993	-	-	-7,000
Jan. 31	1,207.16	408,000	+24,000
Feb. 28	1,205.44	362,000	-46,000
Mar. 31	1,206.00	377,000	+15,000
Apr. 30	1,205.83	373,000	-4,000
May 31	1,205.60	368,000	-5,000
June 30	1,206.83	400,000	+32,000
July 31	1,205.88	374,000	-26,000
Aug. 31	1,206.90	402,000	+28,000
Sept. 30	1,206.70	396,000	-6,000
WTR YR 1994	-	-	+2,000

NOTE.--Lake frozen over Dec. 23 to Mar. 23.

06467500 MISSOURI RIVER AT YANKTON, SD

LOCATION.--Lat 42°51'58", long 97°23'37", in SW1/4 SW1/4 sec.18, T.93 N., R.55 W., Yankton County, Hydrologic Unit 10170101, 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 1930 to current year. 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 except those for estimated daily discharges, which are fair. 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. The last main-stem reservoir to reach maximum pool elevation was Oahe Reservoir on Aug. 22, 1975. Maximum discharge prior to Sept. 30, 1975, 480,000 ft^3/s, Apr. 13, 1952, maximum gage height, 35.5 ft, Apr. 13, 14, 1952 (present datum); minimum daily discharge, 2,700 ft^3/s, Nov. 15, 16, 1940. 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 50.5 ft, Apr. 5, 1881, ice jam, present datum.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20200	22100	15400	16500	e18000	17400	18600	24800	31100	29100	28000	31700
2	20300	22200	15500	16600	e18000	17800	19500	29000	31100	29000	28100	31700
3	20600	22200	15400	17300	e18000	17900	19600	30700	31100	29200	28000	32100
4	20700	22100	15500	17700	e18000	18100	20300	30800	31100	29000	28000	31600
5	20700	22100	15200	e18000	e18000	18100	23100	29700	31000	29100	27900	31100
6	21000	22100	15200	e18000	e18000	18100	25400	27900	31000	29100	28000	31200
7	21100	22100	12500	e18000	e18000	17900	25700	28100	31200	27500	28000	31500
8	21100	22200	15500	e18000	e18000	17900	26000	28000	31100	27200	28000	31700
9	21100	22300	15400	e18000	e18000	18100	25400	30600	31000	29000	28000	31700
10	20900	22600	15400	e18000	e18000	18200	25300	30700	30900	29100	28000	31600
11	20800	23200	15500	e18000	e18000	18100	25500	30900	30900	29000	28100	31900
12	21100	23600	15500	e18000	e18000	18000	25500	31000	31100	29000	27800	32000
13	21100	22400	15400	e18000	e18000	18000	25200	31100	29500	29200	27100	31900
14	21100	22400	15600	e18000	e18100	18000	25200	31100	26300	29000	26700	31800
15	21100	21600	16400	e18000	e18200	18000	24800	31000	27200	29100	26600	31600
16	22500	20800	16500	e18000	e18200	18000	22200	31200	30100	28700	26700	31700
17	24300	20800	16500	e18000	e18200	18000	22100	31300	26200	28500	27000	32000
18	20900	21200	16300	e18000	e18200	18000	21500	31200	26900	28300	27900	31900
19	20600	21100	16300	e18000	e18200	18000	20900	31200	31000	27900	28500	32200
20	21100	21200	16700	e18000	e18200	18700	21000	31300	31000	27200	28600	32400
21	21700	21300	17400	e18000	e18200	18900	21500	31100	31000	27000	28700	32100
22	21900	19700	e17500	e18000	e18200	19000	22000	31100	29100	27100	29000	32100
23	21900	15800	e17500	e18000	e18200	19000	22000	31100	26400	27100	29500	32200
24	22300	15200	e17000	e18000	e18200	18800	22600	31200	27500	27200	30100	32200
25	22200	15000	e17000	e18000	e18200	18900	22600	31100	27000	27200	30400	31600
26	22000	15400	e17000	e18000	e18200	18800	22200	31000	24200	27000	30500	31400
27	21700	15400	e17000	e18000	e18000	18900	22400	31000	26400	27100	30500	31300
28	21700	15400	e17000	e18000	17600	18700	22500	31000	27700	27100	30600	31300
29	21700	15500	e17000	e18000	---	18300	22600	31100	26200	27400	31200	31400
30	21900	15500	e17000	e18000	---	18300	22500	31100	27500	27900	31500	31700
31	21900	---	16800	e18000	---	18400	---	31000	---	28100	31400	---
TOTAL	663200	604500	499900	554100	506100	566300	685700	943400	873800	873400	888400	952600
MEAN	21390	20150	16130	17870	18070	18270	22860	30430	29130	28170	28660	31750
MAX	24300	23600	17500	18000	18200	19000	26000	31300	31200	29200	31500	32400
MIN	20200	15000	12500	16500	17600	17400	18600	24800	24200	27000	26600	31100
AC-FT	1315000	1199000	991600	1099000	1004000	1123000	1360000	1871000	1733000	1732000	1762000	1889000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1994, BY WATER YEAR (WY)*

MEAN	35400	30810	20220	17430	17230	18680	25060	28560	29290	31590	33060	33860
MAX	62570	62180	36790	26490	24320	31630	36470	38490	40900	46970	52120	51940
(WY)	1976	1976	1987	1987	1976	1976	1976	1979	1979	1978	1978	1978
MIN	17960	7723	12390	11510	10300	10930	11500	17520	17100	9006	11040	19200
(WY)	1993	1993	1991	1990	1991	1991	1993	1993	1984	1993	1993	1993

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1976 - 1994*	
ANNUAL TOTAL	5554670		8611400			
ANNUAL MEAN	15220		23590		26800	
HIGHEST ANNUAL MEAN					38220	1976
LOWEST ANNUAL MEAN					13640	1993
HIGHEST DAILY MEAN	24300	Oct 17	32400	Sep 20	63400	Nov 5 1975
LOWEST DAILY MEAN	5810	Jul 7	12500	Dec 7	5070	Mar 6 1992
ANNUAL SEVEN-DAY MINIMUM	6370	Mar 30	15000	Dec 1	5740	Mar 1 1992
INSTANTANEOUS PEAK FLOW			32800	Sep 4a	63700	Nov 5 1975b
INSTANTANEOUS PEAK STAGE			17.03	Jan 18c	23.17	Oct 6 1975
ANNUAL RUNOFF (AC-FT)	11020000		17080000		19420000	
10 PERCENT EXCEEDS	21800		31200		38700	
50 PERCENT EXCEEDS	15400		22200		27800	
90 PERCENT EXCEEDS	8470		17000		13000	

e Estimated
* Period of record since main-stem reservoirs reached maximum pool elevation (1976-94). See REMARKS.
a Gage height, 15.49 ft.
b Gage height, 23.07 ft.
c Backwater from ice.

JAMES RIVER BASIN

06470875 JAMES RIVER AT DAKOTA LAKE DAM NEAR LUDDEN, ND

LOCATION.--Lat 45°56'52", long 98°10'29", in SE1/4 NE1/4 NE1/4 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 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 those for periods of estimated daily discharges, which are poor. Flow regulated by upstream reservoirs, Jamestown Reservoir (station 06469000), Pipestem Lake, capacity 147,000 acre-ft, and Lake LaMoure.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	910	e820	e240	e68	e39	e29	1470	913	608	283	405	e160
2	892	e815	e240	e67	e38	e28	1470	914	591	245	392	e155
3	886	e810	e235	e65	e38	e30	1470	860	564	205	389	e150
4	888	e810	e230	e63	e38	e36	1460	942	548	293	386	e150
5	e890	e810	e220	e62	e36	e40	1450	984	589	348	342	e160
6	e893	e810	e210	e62	e35	e45	1430	986	586	365	330	e170
7	e891	e810	e190	e60	e34	e52	1420	958	586	483	364	e180
8	e886	e810	e196	e59	e33	e56	1390	956	531	577	371	e195
9	e884	e815	e182	e58	e32	e60	1420	978	473	599	364	185
10	e880	e810	e160	e57	e31	e56	1370	938	532	626	363	137
11	e882	e810	e152	e57	e31	e50	1310	946	562	667	345	182
12	e878	e800	e140	e55	e30	e47	1260	925	546	695	343	261
13	e875	e700	e134	e53	e29	e47	1160	834	531	734	384	234
14	e872	e600	e128	e52	e30	e49	1110	815	523	763	372	208
15	e870	e510	e120	e51	e30	57	1130	e810	539	741	349	168
16	e870	e450	e115	e51	e31	62	1070	e805	559	733	364	333
17	e868	e390	e110	e50	e32	70	1030	e805	546	707	374	257
18	e865	e340	e108	e50	e34	87	1050	e795	531	679	345	233
19	e862	e350	e105	e49	e35	150	1020	e790	494	684	374	246
20	e860	e280	e98	e48	e36	313	1010	802	520	670	333	267
21	e858	e260	e96	e48	e37	473	999	846	480	690	283	303
22	e856	e240	e94	e47	e35	602	966	868	461	653	215	328
23	e855	e215	e91	e46	e33	721	936	860	445	615	264	315
24	e852	e190	e89	e46	e32	823	1010	847	413	572	257	342
25	e850	e180	e86	e45	e32	929	1090	836	391	555	e240	388
26	e846	e170	e84	e44	e31	1070	1140	800	363	521	e220	365
27	e842	e170	e81	e42	e30	1250	976	741	310	476	e210	387
28	e840	e180	e77	e41	e29	1400	939	696	370	442	e195	382
29	e834	e200	e73	e40	---	1490	927	695	310	419	e185	403
30	e828	e220	e71	e39	---	1510	913	679	276	409	e180	411
31	e824	---	e70	e39	---	1490	---	650	---	426	e170	---
TOTAL	26887	15375	4225	1614	931	13122	35396	26274	14778	16875	9708	7655
MEAN	867	512	136	52.1	33.2	423	1180	848	493	544	313	255
MAX	910	820	240	68	39	1510	1470	986	608	763	405	411
MIN	824	170	70	39	29	28	913	650	276	205	170	137
AC-FT	53330	30500	8380	3200	1850	26030	70210	52110	29310	33470	19260	15180

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1994, BY WATER YEAR (WY)

MEAN	124	82.5	29.8	13.6	14.5	250	445	235	161	175	167	138
MAX	867	512	136	52.1	51.6	800	1180	848	493	713	1143	910
(WY)	1994	1994	1994	1994	1987	1987	1994	1994	1994	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1982 - 1994	
ANNUAL TOTAL	145467.65		172840			
ANNUAL MEAN	399		474		153	
HIGHEST ANNUAL MEAN					474	1994
LOWEST ANNUAL MEAN					10.3	1990
HIGHEST DAILY MEAN	1650	Aug 3	1510	Mar 30	2210	Mar 28 1987
LOWEST DAILY MEAN	.41	Jan 20	28	Mar 2	.00	Oct 8 1981
ANNUAL SEVEN-DAY MINIMUM	.46	Jan 16	30	Feb 25	.00	Jul 10 1985
INSTANTANEOUS PEAK FLOW			1520	Mar 30	a2300	Mar 28 1987
INSTANTANEOUS PEAK STAGE			13.22	Mar 30	13.76	Mar 28 1987
ANNUAL RUNOFF (AC-FT)	288500		342800		111100	
10 PERCENT EXCEEDS	960		957		461	
50 PERCENT EXCEEDS	179		372		32	
90 PERCENT EXCEEDS	4.8		41		.00	

a About.
e Estimated.

JAMES RIVER BASIN

06470878 JAMES RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'10", long 98°10'26", in SE1/4 SE1/4 sec. 34, T.129 N., R.60 W., Dickey County, Hydrologic Unit 10160003, at bridge on North Dakota-South Dakota state line road 6.5 mi south, and 1 mi west from Ludden.

DRAINAGE AREA.--5,480 mi^2, approximately, revised, of which about 3,300 mi^2 is probably noncontributing.

GAGE HEIGHT RECORDS

PERIOD OF RECORD.--October 1981 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is 1,200 ft above sea level.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed, 93.60 ft, Mar. 28, 1987; minimum observed, 86.45 ft, Oct. 3, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 92.42 ft, Apr. 14; minimum daily gage height recorded, 88.13 ft, Sept. 13.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92.03	91.88	---	---	---	---	---	---	90.92	90.08	90.26	88.42
2	92.00	91.90	---	---	---	---	---	---	90.87	89.99	90.16	88.38
3	91.98	91.92	---	---	---	---	---	---	90.81	89.88	90.09	88.38
4	92.01	92.03	---	---	---	---	---	---	90.76	89.94	90.04	88.35
5	91.95	92.11	---	---	---	---	---	---	90.82	90.10	89.85	88.32
6	91.94	91.95	---	---	---	---	---	---	90.83	90.15	89.74	88.32
7	92.11	91.96	---	---	---	---	---	---	90.83	90.42	89.79	88.28
8	92.15	91.98	---	---	---	---	---	---	90.71	90.89	89.84	88.24
9	91.98	91.98	---	---	---	---	---	---	90.57	90.87	89.78	88.21
10	91.89	91.97	---	---	---	---	---	---	90.68	90.89	89.80	88.20
11	91.91	91.93	---	---	---	---	---	---	90.76	90.91	89.78	88.16
12	91.93	91.86	---	---	---	---	---	---	90.73	90.98	89.74	88.20
13	91.91	91.77	---	---	---	---	---	---	90.70	91.03	89.79	88.22
14	91.93	91.64	---	---	---	---	---	---	90.67	91.09	89.78	88.15
15	91.94	91.49	---	---	---	---	---	---	90.71	91.11	89.68	88.13
16	91.96	91.29	---	---	---	---	---	---	90.75	91.09	89.62	88.44
17	91.94	91.08	---	---	---	---	---	---	90.74	91.05	89.64	88.54
18	91.95	90.91	---	---	---	---	---	---	90.70	90.98	89.57	88.39
19	91.95	90.77	---	---	---	---	---	---	90.63	90.98	89.50	88.28
20	91.99	90.59	---	---	---	---	---	91.35	90.63	90.97	89.42	88.25
21	91.99	90.44	---	---	---	---	---	91.45	90.61	90.98	89.22	88.32
22	91.96	90.10	---	---	---	---	91.95	91.51	90.56	90.93	89.07	88.44
23	91.94	---	---	---	---	---	91.88	91.48	90.55	90.86	88.99	88.49
24	91.95	---	---	---	---	---	92.18	91.43	90.48	90.78	88.95	88.60
25	91.96	---	---	---	---	---	92.29	91.41	90.43	90.73	88.86	88.85
26	92.03	---	---	---	---	---	92.37	91.33	90.38	90.66	88.81	89.02
27	91.93	---	---	---	---	---	91.98	91.18	90.26	90.58	88.71	89.07
28	91.99	---	---	---	---	---	---	91.10	90.28	90.46	88.63	89.19
29	92.08	---	---	---	---	---	---	91.12	90.25	90.37	88.53	89.24
30	91.99	---	---	---	---	---	---	91.08	90.10	90.30	88.53	89.34
31	91.89	---	---	---	---	---	---	91.01	---	90.32	88.51	---
MEAN	91.97	---	---	---	---	---	---	---	90.62	90.66	89.44	88.48
MAX	92.15	---	---	---	---	---	---	---	90.92	91.11	90.26	89.34
MIN	91.89	---	---	---	---	---	---	---	90.10	89.88	88.51	88.13

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD

LOCATION.--Lat 45°36'13", long 98°18'36", in NW1/4 NW1/4 sec.33, T.125 N., R.62 W., Brown County, Hydrologic Unit 10160003, on left bank 20 ft downstream from highway bridge, 0.6 mi south of Columbia, 0.9 mi downstream from Chicago and North Western Transportation Company 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.

WATER-DISCHARGE RECORDS

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 estimated daily discharges from Nov. 25 to Mar. 18, 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. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1050	925	e980	e180	e51	e33	e730	1220	673	370	405	351
2	1030	922	e920	e160	e47	e33	e725	1220	656	365	406	335
3	1010	919	e880	e140	e45	e34	e720	1200	635	355	408	330
4	995	926	e830	e120	e44	e36	e750	1220	607	353	415	322
5	975	936	e800	e100	e43	e38	801	1210	593	354	412	315
6	965	941	e770	e90	e40	e41	875	1200	575	362	406	303
7	965	933	e730	e80	e39	e40	926	1180	563	400	398	289
8	985	921	e680	e75	e35	e35	981	1150	557	450	405	263
9	990	915	e630	e75	e30	e30	1040	1130	548	460	434	246
10	965	910	e590	e71	e35	e25	1070	1090	540	390	504	233
11	945	910	e550	e70	e34	e20	1100	1070	522	340	526	219
12	925	907	e510	e65	e33	e20	1130	1050	501	330	532	214
13	920	926	e480	e65	e33	e15	1150	1010	491	410	529	233
14	920	927	e450	e65	e32	e10	1170	1010	478	460	525	250
15	920	921	e430	e65	e33	e5.0	1220	1010	472	470	513	240
16	910	917	e420	e65	e33	e.00	1220	969	482	499	499	232
17	905	911	e400	e65	e34	e-300	1210	902	490	501	489	223
18	910	904	e380	e65	e36	e-800	1230	878	490	490	484	205
19	920	905	e350	e65	e38	e-1200	1220	880	485	484	480	195
20	930	894	e330	e60	e36	e-1000	1210	863	475	479	477	193
21	930	885	e310	e60	e36	e-700	1200	858	465	469	471	193
22	925	850	e290	e60	e35	e-400	1190	862	445	460	463	196
23	925	887	e260	e60	e35	e-200	1170	861	440	453	451	205
24	925	943	e255	e60	e34	e1.0	1180	852	435	444	444	202
25	935	e980	e250	e60	e33	e50	1220	844	425	438	440	201
26	942	e1000	e245	e60	e32	e200	1300	842	420	435	437	200
27	933	e1000	e240	e60	e32	e400	1300	812	410	431	428	197
28	944	e1010	e230	e60	e32	e720	1270	772	400	425	414	193
29	947	e1000	e220	e55	---	e725	1260	748	385	418	393	190
30	942	e990	e210	e55	---	e730	1240	723	375	406	377	195
31	930	---	e200	e55	---	e740	---	706	---	403	369	---
TOTAL	29413	27915	14820	2386	1020	-619.00	32808	30342	15033	13104	13934	7163
MEAN	949	930	478	77.0	36.4	-20.0	1094	979	501	423	449	239
MAX	1050	1010	980	180	51	740	1300	1220	673	501	532	351
MIN	905	850	200	55	30	-1200	720	706	375	330	369	190
AC-FT	58340	55370	29400	4730	2020	-1230	65070	60180	29820	25990	27640	14210

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1994, BY WATER YEAR (WY)*

MEAN	110	122	51.2	10.8	9.63	26.0	357	354	159	182	160	121
MAX	949	930	478	77.0	43.7	247	1113	1501	666	1173	950	1084
(WY)	1994	1994	1994	1994	1984	1987	1987	1979	1979	1975	1993	1993
MIN	.000	.000	.000	.000	.000	-118	.014	.000	.000	.000	.000	.000
(WY)	1977	1977	1977	1977	1977	1978	1977	1977	1977	1977	1977	1976

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1975 - 1994*	
ANNUAL TOTAL	158261.5		187319.00			
ANNUAL MEAN	434		513		139	
HIGHEST ANNUAL MEAN					513	1994
LOWEST ANNUAL MEAN					.063	1977
HIGHEST DAILY MEAN	1160	Aug 31	1300	Apr 26	2310	May 3 1979
LOWEST DAILY MEAN	-20	Mar 17	-1200	Mar 19a	-1200	Mar 19 1994a
ANNUAL SEVEN-DAY MINIMUM	-4.6	Mar 12	-657	Mar 17a	-657	Mar 17 1994a
INSTANTANEOUS PEAK FLOW			1350	Apr 26b	2340	May 3 1979c
INSTANTANEOUS PEAK STAGE			17.17	Mar 23a	17.17	Mar 23 1994a
ANNUAL RUNOFF (AC-FT)	313900		371500		100700	
10 PERCENT EXCEEDS	1060		1020		484	
50 PERCENT EXCEEDS	245		460		13	
90 PERCENT EXCEEDS	3.5		35		.00	

e Estimated
* Regulated period only (1975-94). See REMARKS.
a Backwater from Elm River.
b Gage height, 15.57 ft, backwater from downstream tributaries.
c Gage height, 16.15 ft.

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1948 to September 1964, October 1966 to September 1994 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1966 to September 1981; April 1986 to September 1994 (seasonal records only) (discontinued).
pH: December 1987 to September 1994 (seasonal records only) (discontinued).
WATER TEMPERATURE: October 1966 to September 1981; April 1986 to September 1994 (seasonal records only) (discontinued).
DISSOLVED OXYGEN: November 1987 to September 1994 (seasonal records only) (discontinued).

REMARKS.--Daily records of specific conductance, pH, water temperature, and dissolved oxygen were determined from data recorded at hourly intervals by a water-quality monitor. The water-quality monitor was shut off from Mar. 1 to May 11. Other interruptions in record were due to malfunction of the sensors or recording instruments. Several daily values published in WDR SD-93-1 for the following parameters have been revised: dissolved oxygen and pH. For these values, consult the Water-Quality File, which reflects the updates.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 3,080 microsiemens, Nov. 11, 1991; minimum recorded, 240 microsiemens, Mar. 17, 1972.
WATER TEMPERATURE: Maximum recorded, 36.5°C, June 21, 1988; minimum recorded, 0.0°C on many days during winter periods.
pH: Maximum recorded, 9.9, Mar. 18, 1988; minimum recorded, 6.2, May 28, 29, 1994.
DISSOLVED OXYGEN: Maximum recorded, 19.8 mg/L, Apr. 20, 1989; minimum recorded, 0.0 mg/L, June 2, 1988, July 4-21, 1991.

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25°CELSIUS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	710	700	700	690	680	680	720	710	720	1060	1040	1050
2	710	700	700	680	670	680	720	710	720	1060	1050	1060
3	710	690	700	680	670	680	720	710	720	1080	1060	1070
4	710	700	710	680	670	680	730	710	720	1100	1080	1090
5	700	690	700	690	680	680	730	720	730	1110	1090	1100
6	710	690	700	700	680	700	740	720	730	1110	1100	1110
7	720	700	700	710	690	700	760	740	750	1120	1100	1110
8	710	690	700	710	690	700	780	750	770	1140	1110	1130
9	720	690	700	710	690	700	790	770	780	1160	1120	1150
10	700	690	700	700	690	690	790	770	780	1170	1150	1170
11	710	690	700	710	690	700	810	760	790	1180	1160	1180
12	700	680	690	700	690	690	820	810	810	1200	1180	1190
13	700	690	700	700	690	690	810	800	810	1220	1200	1210
14	700	680	690	700	690	690	810	800	810	1230	1210	1230
15	700	680	690	700	680	690	820	800	820	1250	1230	1250
16	700	680	700	700	690	690	820	810	820	1290	1250	1270
17	700	680	690	700	690	700	820	810	820	1320	1290	1300
18	700	690	690	700	680	690	820	810	820	1340	1310	1320
19	690	680	680	690	680	690	840	810	820	1370	1340	1350
20	690	680	680	690	680	690	850	830	840	1400	1370	1390
21	690	670	680	690	680	690	880	850	860	1430	1400	1410
22	680	670	680	700	680	700	910	870	890	1440	1420	1430
23	680	670	680	710	690	710	940	900	920	1450	1430	1440
24	690	670	680	710	700	710	960	930	950	1450	1430	1440
25	680	670	680	720	700	710	960	950	950	1470	1450	1460
26	680	670	670	720	710	710	960	950	960	1470	1460	1470
27	680	660	670	720	710	710	970	950	960	1490	1470	1480
28	690	670	680	720	710	710	990	960	980	1500	1480	1490
29	690	680	680	720	710	710	1010	990	1000	1500	1490	1500
30	690	680	680	720	710	710	1030	1000	1020	1520	1490	1510
31	690	680	680	---	---	---	1050	1030	1040	1560	1510	1530
MONTH	720	660	690	720	670	700	1050	710	840	1560	1040	1290

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25°CELSIUS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1590	1550	1570	---	---	---	---	---	---	---	---	---
2	1600	1580	1590	---	---	---	---	---	---	---	---	---
3	1610	1590	1600	---	---	---	---	---	---	---	---	---
4	1620	1600	1610	---	---	---	---	---	---	---	---	---
5	1640	1620	1630	---	---	---	---	---	---	---	---	---
6	1660	1640	1650	---	---	---	---	---	---	---	---	---
7	1670	1650	1660	---	---	---	---	---	---	---	---	---
8	1680	1660	1680	---	---	---	---	---	---	---	---	---
9	1710	1680	1700	---	---	---	---	---	---	---	---	---
10	1730	1710	1720	---	---	---	---	---	---	---	---	---
11	1720	1710	1720	---	---	---	---	---	---	---	---	---
12	1730	1710	1730	---	---	---	---	---	---	820	780	790
13	1740	1690	1730	---	---	---	---	---	---	800	790	790
14	1740	1730	1740	---	---	---	---	---	---	800	780	790
15	1750	1730	1740	---	---	---	---	---	---	800	790	790
16	1740	1680	1720	---	---	---	---	---	---	800	790	790
17	1750	1700	1730	---	---	---	---	---	---	800	790	800
18	1760	1740	1750	---	---	---	---	---	---	810	800	800
19	1750	1730	1740	---	---	---	---	---	---	820	800	810
20	1740	1720	1720	---	---	---	---	---	---	840	820	830
21	1720	1700	1710	---	---	---	---	---	---	850	830	840
22	1770	1710	1730	---	---	---	---	---	---	850	830	840
23	1810	1770	1790	---	---	---	---	---	---	850	840	840
24	1840	1810	1820	---	---	---	---	---	---	860	840	850
25	1840	1830	1830	---	---	---	---	---	---	860	840	850
26	1850	1830	1840	---	---	---	---	---	---	850	840	840
27	1870	1850	1860	---	---	---	---	---	---	850	830	840
28	1890	1870	1880	---	---	---	---	---	---	850	830	840
29	---	---	---	---	---	---	---	---	---	860	840	850
30	---	---	---	---	---	---	---	---	---	860	850	850
31	---	---	---	---	---	---	---	---	---	870	850	860
MONTH	1890	1550	1720	---	---	---	---	---	---	---	---	---

		JUNE			JULY			AUGUST			SEPTEMBER	
1	870	850	860	820	800	810	810	790	800	850	840	840
2	870	850	860	820	800	810	810	800	810	850	830	840
3	870	860	870	820	800	810	820	800	810	850	830	840
4	880	870	870	810	800	810	820	800	810	860	840	850
5	900	870	880	820	810	820	830	810	810	---	---	---
6	920	890	910	820	800	810	830	810	820	---	---	---
7	920	890	900	810	750	770	830	820	830	---	---	---
8	900	880	890	760	710	730	830	820	830	---	---	---
9	890	870	890	740	710	720	830	780	810	---	---	---
10	940	890	900	750	730	740	790	780	780	---	---	---
11	940	910	920	750	730	750	790	770	780	---	---	---
12	910	890	900	760	750	750	820	790	810	---	---	---
13	900	880	890	770	750	760	830	810	820	---	---	---
14	910	890	900	760	740	750	840	820	830	---	---	---
15	890	840	860	760	750	760	840	800	840	---	---	---
16	840	820	830	770	750	760	860	810	840	---	---	---
17	830	810	820	760	750	760	860	820	850	---	---	---
18	830	810	820	770	750	760	860	810	850	---	---	---
19	850	820	840	770	760	770	870	810	850	---	---	---
20	850	830	840	780	740	760	850	840	850	---	---	---
21	860	830	840	750	740	750	860	840	860	---	---	---
22	860	840	850	750	740	750	870	800	860	---	---	---
23	850	840	850	760	740	750	870	860	860	---	---	---
24	860	840	840	770	750	760	880	840	870	---	---	---
25	840	810	820	780	740	760	880	810	850	---	---	---
26	820	800	810	760	750	750	830	810	820	---	---	---
27	820	810	820	760	750	750	820	800	810	---	---	---
28	820	810	810	770	750	760	840	800	810	---	---	---
29	830	810	820	790	760	770	860	810	830	---	---	---
30	820	810	810	790	740	770	860	840	850	---	---	---
31	---	---	---	800	780	790	850	840	850	---	---	---
MONTH	940	800	860	820	710	770	880	770	830	---	---	---

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	12.5	10.5	11.5	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
2	11.5	10.0	10.5	2.5	1.0	1.5	.0	.0	.0	.0	.0	.0
3	12.5	10.0	11.5	2.5	2.0	2.5	.0	.0	.0	.0	.0	.0
4	13.0	11.0	12.0	2.5	1.0	2.5	.0	.0	.0	.0	.0	.0
5	13.0	11.5	12.0	1.0	.0	.5	.0	.0	.0	.0	.0	.0
6	14.0	12.0	13.0	1.0	.0	.5	.0	.0	.0	.5	.0	.0
7	14.0	10.5	12.0	.5	.5	.5	.0	.0	.0	.5	.0	.5
8	10.5	7.0	8.5	.5	.0	.5	.0	.0	.0	.5	.0	.0
9	7.5	6.0	7.0	1.0	.5	.5	.0	.0	.0	.5	.0	.0
10	7.5	6.0	7.0	.5	.5	.5	.0	.0	.0	.0	.0	.0
11	8.5	6.5	7.5	1.0	.5	.5	.0	.0	.0	.5	.0	.0
12	8.5	7.0	7.5	.5	.5	.5	.0	.0	.0	.0	.0	.0
13	8.5	7.0	8.0	1.0	.0	.5	.0	.0	.0	.0	.0	.0
14	9.0	7.5	8.0	1.0	.5	.5	.0	.0	.0	.5	.0	.0
15	8.5	8.0	8.0	1.0	.5	1.0	.0	.0	.0	.5	.0	.5
16	8.5	8.0	8.0	1.0	.5	.5	.0	.0	.0	.0	.0	.0
17	8.5	8.0	8.0	1.0	.5	1.0	.0	.0	.0	.5	.0	.5
18	9.5	8.5	9.0	1.5	.5	1.0	.0	.0	.0	.5	.0	.5
19	10.5	8.5	9.5	1.5	.5	1.0	.0	.0	.0	.5	.0	.0
20	10.0	9.0	9.5	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
21	9.0	7.0	8.0	2.5	1.5	2.0	.0	.0	.0	.0	.0	.0
22	8.5	6.5	7.5	1.5	.0	.5	.0	.0	.0	.0	.0	.0
23	9.0	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	10.0	8.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	9.5	8.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	8.5	6.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	6.5	5.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	5.5	3.5	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	3.5	1.0	2.0	.0	.0	.0	.0	.0	.0	.5	.0	.0
30	1.5	.5	1.0	.0	.0	.0	.0	.0	.0	.5	.0	.0
31	1.5	.5	1.0	---	---	---	.0	.0	.0	.5	.0	.0
MONTH	14.0	.5	8.1	2.5	.0	.7	.0	.0	.0	.5	.0	.1
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	---	---	---	---	---	---	---	---	---
2	.0	.0	.0	---	---	---	---	---	---	---	---	---
3	.5	.0	.0	---	---	---	---	---	---	---	---	---
4	.5	.0	.0	---	---	---	---	---	---	---	---	---
5	.0	.0	.0	---	---	---	---	---	---	---	---	---
6	.5	.0	.0	---	---	---	---	---	---	---	---	---
7	.5	.0	.5	---	---	---	---	---	---	---	---	---
8	.5	.0	.5	---	---	---	---	---	---	---	---	---
9	.5	.0	.5	---	---	---	---	---	---	---	---	---
10	.0	.0	.0	---	---	---	---	---	---	---	---	---
11	.0	.0	.0	---	---	---	---	---	---	---	---	---
12	.0	.0	.0	---	---	---	---	---	---	18.0	16.5	17.5
13	.0	.0	.0	---	---	---	---	---	---	18.5	16.0	17.0
14	.0	.0	.0	---	---	---	---	---	---	19.5	17.5	18.5
15	.0	.0	.0	---	---	---	---	---	---	20.5	17.0	18.5
16	.0	.0	.0	---	---	---	---	---	---	19.5	17.5	18.5
17	.0	.0	.0	---	---	---	---	---	---	20.5	18.0	19.0
18	.0	.0	.0	---	---	---	---	---	---	21.5	18.5	20.0
19	.0	.0	.0	---	---	---	---	---	---	22.5	20.0	21.0
20	.0	.0	.0	---	---	---	---	---	---	22.0	20.0	21.0
21	.0	.0	.0	---	---	---	---	---	---	22.5	20.0	21.0
22	.0	.0	.0	---	---	---	---	---	---	23.0	20.0	21.5
23	.0	.0	.0	---	---	---	---	---	---	24.5	21.0	22.5
24	.0	.0	.0	---	---	---	---	---	---	23.5	22.0	23.0
25	.0	.0	.0	---	---	---	---	---	---	23.0	20.5	21.5
26	.0	.0	.0	---	---	---	---	---	---	20.5	18.0	19.5
27	.0	.0	.0	---	---	---	---	---	---	21.0	19.0	20.0
28	.0	.0	.0	---	---	---	---	---	---	21.5	19.0	20.5
29	---	---	---	---	---	---	---	---	---	23.0	19.5	21.0
30	---	---	---	---	---	---	---	---	---	22.5	20.5	21.5
31	---	---	---	---	---	---	---	---	---	21.5	18.5	20.0
MONTH	.5	.0	.1	---	---	---	---	---	---	---	---	---

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	21.0	19.0	19.5	24.0	21.0	22.0	28.0	25.0	26.5	17.5	14.5	16.0
2	20.0	18.0	19.0	23.0	19.0	21.0	28.5	25.5	27.0	16.5	14.0	14.5
3	22.0	18.0	20.0	22.0	19.5	20.5	28.5	25.5	27.5	17.0	13.5	14.5
4	22.0	19.5	21.0	25.5	20.0	22.0	28.0	23.0	25.0	21.5	16.5	18.0
5	25.0	21.0	22.5	25.0	22.5	23.5	24.0	21.0	22.0	21.5	16.5	18.5
6	25.5	22.5	24.0	24.5	22.0	23.0	23.5	19.0	21.0	22.5	15.5	18.5
7	25.0	21.5	22.5	23.0	16.0	19.0	25.0	21.5	23.0	23.5	17.0	20.0
8	21.5	19.0	20.0	16.0	14.0	14.5	23.5	19.0	20.5	25.0	19.0	22.0
9	19.0	17.0	18.0	20.0	14.0	16.5	21.0	17.5	19.0	25.0	21.0	23.0
10	19.5	16.5	18.0	23.0	18.0	20.0	18.5	16.5	17.5	24.5	20.0	22.5
11	20.5	16.5	18.5	25.0	21.0	23.0	19.5	17.5	18.5	24.5	20.5	22.5
12	20.5	18.5	19.5	26.0	22.5	24.0	21.5	19.0	19.5	24.0	20.5	22.0
13	23.5	19.0	21.0	25.5	23.5	24.5	21.5	19.5	21.0	22.5	19.5	21.0
14	25.5	22.0	23.5	25.5	22.5	24.0	22.5	18.5	20.5	24.0	21.0	22.0
15	24.0	22.0	23.0	25.5	23.0	24.0	23.5	19.5	21.5	24.0	21.0	22.5
16	22.0	18.0	19.0	25.0	23.0	24.0	24.5	20.5	22.5	21.0	17.0	18.5
17	20.5	17.0	18.5	26.0	23.0	24.5	26.5	22.0	24.0	21.0	15.5	18.0
18	20.5	18.5	19.5	26.5	24.0	25.0	26.0	23.5	24.5	21.5	17.5	19.5
19	25.5	19.5	22.0	25.5	23.5	24.0	25.0	21.0	22.5	21.5	17.5	19.5
20	26.5	23.0	25.0	23.5	22.0	23.0	24.0	19.5	21.5	22.0	18.5	20.5
21	28.0	20.0	24.5	23.0	20.5	21.5	25.0	20.5	22.5	21.0	13.5	17.0
22	27.0	24.0	25.5	24.0	19.5	21.0	24.5	20.5	22.5	13.5	10.5	12.0
23	28.0	23.5	25.5	25.0	22.0	23.5	25.0	21.0	23.0	15.0	10.5	12.5
24	28.0	23.5	26.0	25.5	22.5	24.0	26.5	21.0	23.5	18.0	13.0	15.0
25	26.5	24.0	25.5	25.5	22.5	24.0	24.5	21.5	23.0	18.0	14.5	16.0
26	25.0	21.5	23.0	24.0	20.5	22.0	24.5	21.0	23.0	16.5	12.5	14.5
27	24.0	21.0	22.5	23.5	20.0	22.0	24.0	22.0	23.0	15.5	12.5	13.5
28	23.0	18.5	20.5	24.5	21.5	23.0	22.5	17.0	20.0	15.0	10.0	12.5
29	22.0	20.0	21.0	24.5	21.5	23.5	24.0	18.0	20.5	16.5	12.5	14.5
30	25.5	22.0	24.5	26.0	22.0	23.5	24.0	18.0	20.5	15.5	12.0	13.5
31	---	---	---	27.5	24.0	25.5	18.5	14.5	16.5	---	---	---
MONTH	28.0	16.5	21.7	27.5	14.0	22.4	28.5	14.5	22.0	25.0	10.0	17.8

PH, IN STANDARD UNITS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	8.1	7.8	---	---	---	---	---	---	---	---
13	---	---	7.9	7.9	---	---	---	---	---	---	---	---
14	---	---	7.9	7.9	---	---	---	---	---	---	---	---
15	---	---	7.9	7.9	---	---	---	---	---	---	---	---
16	---	---	7.9	7.9	---	---	---	---	---	---	---	---
17	---	---	7.9	7.9	---	---	---	---	---	---	---	---
18	---	---	7.9	7.9	---	---	---	---	---	---	---	---
19	---	---	7.9	7.9	---	---	---	---	---	---	---	---
20	---	---	8.0	7.9	---	---	---	---	---	---	---	---
21	---	---	8.0	7.9	---	---	---	---	---	---	---	---
22	---	---	8.0	8.0	---	---	---	---	---	---	---	---
23	---	---	8.0	8.0	---	---	---	---	---	---	---	---
24	---	---	8.0	8.0	---	---	---	---	---	---	---	---
25	---	---	8.0	8.0	---	---	---	---	---	---	---	---
26	---	---	8.0	8.0	---	---	---	---	---	---	---	---
27	---	---	8.0	8.0	---	---	---	---	---	---	---	---
28	---	---	8.0	8.0	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

PH, IN STANDARD UNITS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	---	---	7.8	7.2	7.7	7.1	---	---
2	---	---	---	---	---	---	8.1	7.2	7.6	7.1	---	---
3	---	---	---	---	---	---	7.9	7.4	7.6	7.1	---	---
4	---	---	---	---	---	---	---	---	7.7	7.1	---	---
5	---	---	---	---	---	---	---	---	7.7	7.1	---	---
6	---	---	---	---	---	---	---	---	7.7	7.1	---	---
7	---	---	---	---	---	---	---	---	7.7	7.2	---	---
8	---	---	---	---	---	---	---	---	7.7	7.1	---	---
9	---	---	---	---	---	---	---	---	7.6	7.1	---	---
10	---	---	---	---	---	---	---	---	7.2	6.9	---	---
11	---	---	---	---	---	---	---	---	7.2	6.9	---	---
12	---	---	---	---	---	---	---	---	7.2	6.9	---	---
13	---	---	---	---	---	---	---	---	7.5	6.9	---	---
14	---	---	---	---	---	---	---	---	7.4	7.0	---	---
15	---	---	---	---	---	---	---	---	7.5	7.0	---	---
16	---	---	---	---	---	---	7.8	7.4	7.5	7.0	---	---
17	---	---	---	---	---	---	7.7	7.4	7.5	7.0	---	---
18	---	---	---	---	---	---	7.8	7.5	7.4	7.0	---	---
19	---	---	---	---	---	---	7.7	7.4	---	---	---	---
20	---	---	---	---	---	---	7.8	7.4	---	---	---	---
21	---	---	---	---	---	---	7.8	7.5	---	---	---	---
22	---	---	---	---	---	---	7.8	7.5	---	---	---	---
23	---	---	---	---	---	---	7.9	7.4	---	---	---	---
24	---	---	---	---	---	---	7.9	7.4	---	---	---	---
25	---	---	---	---	---	---	7.9	7.4	---	---	---	---
26	---	---	---	---	---	---	8.0	7.4	---	---	---	---
27	---	---	---	---	---	---	8.0	7.4	---	---	---	---
28	---	---	---	---	---	---	8.0	7.4	---	---	---	---
29	---	---	---	---	---	---	8.0	7.3	---	---	---	---
30	---	---	---	---	7.7	7.6	7.9	7.3	---	---	---	---
31	---	---	---	---	---	---	7.9	7.3	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	8.8	6.3	7.6
2	---	---	---	---	---	---	---	---	---	8.9	6.1	7.6
3	---	---	---	---	---	---	---	---	---	9.2	5.4	7.3
4	---	---	---	---	---	---	---	---	---	8.3	4.5	6.4
5	---	---	---	---	---	---	---	---	---	7.3	3.7	5.4
6	---	---	---	---	---	---	---	---	---	5.2	2.3	3.7
7	---	---	---	---	---	---	---	---	---	4.8	2.1	3.4
8	---	---	---	---	---	---	---	---	---	3.4	.9	2.1
9	---	---	---	---	---	---	12.5	9.4	11.0	4.1	.9	2.5
10	---	---	---	---	---	---	11.6	7.8	9.1	4.8	1.2	3.0
11	---	---	---	---	---	---	12.2	9.4	10.5	5.6	.7	3.2
12	---	---	---	---	---	---	13.3	10.3	11.6	5.0	.7	2.9
13	---	---	---	---	---	---	12.3	9.7	11.0	4.5	.6	2.6
14	---	---	---	---	---	---	12.5	9.1	10.7	4.7	.5	2.5
15	---	---	---	---	---	---	12.4	9.0	10.6	---	---	---
16	---	---	---	---	---	---	11.1	8.3	9.8	---	---	---
17	---	---	---	---	---	---	10.5	6.9	8.7	---	---	---
18	---	---	---	---	---	---	10.3	6.3	8.3	---	---	---
19	---	---	---	---	---	---	12.0	8.6	9.9	---	---	---
20	---	---	---	---	---	---	11.2	8.6	9.9	---	---	---
21	---	---	---	---	---	---	10.1	7.1	8.7	---	---	---
22	---	---	---	---	---	---	9.4	6.9	8.0	---	---	---
23	---	---	---	---	---	---	8.0	4.8	6.5	---	---	---
24	---	---	---	---	---	---	9.8	6.9	8.1	---	---	---
25	---	---	---	---	---	---	9.7	6.6	8.3	---	---	---
26	---	---	---	---	---	---	9.6	6.4	8.0	---	---	---
27	---	---	---	---	---	---	9.2	5.5	7.6	---	---	---
28	---	---	---	---	---	---	8.0	5.4	6.8	---	---	---
29	---	---	---	---	---	---	9.0	4.9	6.8	---	---	---
30	---	---	---	---	---	---	8.8	5.8	7.3	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	4.9	2.7	4.0	---	---	---	---	---	---
3	---	---	---	3.9	1.6	2.6	---	---	---	---	---	---
4	---	---	---	4.2	1.2	2.5	---	---	---	---	---	---
5	9.6	5.7	7.5	4.6	2.5	3.6	---	---	---	---	---	---
6	8.3	5.6	7.0	4.6	2.7	3.6	---	---	---	---	---	---
7	8.0	3.8	5.0	3.5	1.8	2.4	---	---	---	---	---	---
8	6.9	2.7	4.2	2.2	1.3	1.7	---	---	---	---	---	---
9	6.9	3.6	5.2	3.0	1.2	2.0	---	---	---	---	---	---
10	7.9	3.6	5.6	2.3	.8	1.5	---	---	---	---	---	---
11	7.2	2.4	4.6	3.4	.6	1.8	---	---	---	---	---	---
12	8.7	2.8	5.3	2.8	1.1	1.9	---	---	---	---	---	---
13	8.2	2.5	5.2	1.8	.9	1.3	---	---	---	---	---	---
14	6.4	2.7	4.5	---	---	---	---	---	---	---	---	---
15	5.8	3.5	4.5	---	---	---	---	---	---	---	---	---
16	5.2	3.1	4.0	---	---	---	---	---	---	---	---	---
17	5.4	2.7	3.8	---	---	---	---	---	---	---	---	---
18	5.1	3.0	4.1	---	---	---	---	---	---	---	---	---
19	7.0	3.4	5.0	---	---	---	---	---	---	---	---	---
20	6.9	3.1	4.9	---	---	---	---	---	---	---	---	---
21	5.7	1.8	3.9	---	---	---	---	---	---	---	---	---
22	4.7	1.2	3.0	---	---	---	---	---	---	---	---	---
23	4.3	1.6	2.9	---	---	---	---	---	---	---	---	---
24	4.3	1.3	2.8	---	---	---	---	---	---	---	---	---
25	6.1	2.2	3.9	---	---	---	---	---	---	---	---	---
26	5.5	2.8	4.2	---	---	---	---	---	---	---	---	---
27	4.9	1.8	3.5	---	---	---	---	---	---	---	---	---
28	4.7	1.9	3.3	---	---	---	---	---	---	---	---	---
29	4.2	2.0	2.8	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	8.9	7.4	8.3
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	9.6	6.1	8.0	---	---	---	10.1	10.2	10.4	---	---	---
2	9.5	7.6	8.4	---	---	---	10.5	10.0	10.3	---	---	---
3	9.3	7.2	8.2	---	---	---	10.2	9.9	10.1	---	---	---
4	9.2	7.3	8.2	---	---	---	9.9	9.5	9.7	---	---	---
5	8.8	6.3	7.5	---	---	---	9.6	9.0	9.3	---	---	---
6	8.1	6.4	7.3	---	---	---	9.8	8.9	9.3	---	---	---
7	8.6	6.9	7.9	---	---	---	10.5	9.7	10.1	---	---	---
8	10.2	8.3	9.2	---	---	---	10.4	9.1	9.7	---	---	---
9	11.5	9.5	10.1	---	---	---	9.1	7.8	8.3	---	---	---
10	11.3	9.8	10.6	---	---	---	7.8	7.0	7.4	---	---	---
11	11.6	9.8	10.7	---	---	---	7.7	6.7	7.2	---	---	---
12	11.5	10.0	10.8	17.4	16.8	17.1	8.0	7.0	7.5	---	---	---
13	11.3	9.4	10.4	17.2	16.1	16.7	7.6	6.7	7.1	---	---	---
14	11.6	9.5	10.5	17.3	16.1	16.7	7.3	6.3	6.8	---	---	---
15	11.0	9.5	10.2	17.5	16.1	16.8	8.6	6.8	7.6	---	---	---
16	10.0	8.7	9.3	17.8	16.5	17.2	8.3	7.2	7.8	---	---	---
17	9.0	7.8	8.4	18.1	16.7	17.4	7.6	5.6	6.5	---	---	---
18	9.0	7.3	8.1	17.9	16.7	17.2	5.6	4.9	5.2	---	---	---
19	---	---	---	17.6	16.4	17.0	5.9	4.9	5.4	---	---	---
20	---	---	---	17.7	16.5	17.1	---	---	---	---	---	---
21	---	---	---	17.5	16.2	16.8	---	---	---	---	---	---
22	---	---	---	17.1	16.1	16.6	---	---	---	---	---	---
23	---	---	---	16.9	16.2	16.6	---	---	---	---	---	---
24	---	---	---	16.2	14.6	15.6	---	---	---	---	---	---
25	---	---	---	14.6	12.7	13.8	---	---	---	---	---	---
26	---	---	---	12.7	11.3	11.9	---	---	---	---	---	---
27	---	---	---	11.3	10.8	11.0	---	---	---	---	---	---
28	---	---	---	11.0	10.6	10.7	---	---	---	---	---	---
29	---	---	---	10.9	10.5	10.7	---	---	---	---	---	---
30	---	---	---	10.9	10.4	10.6	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	9.4	7.1	8.7
13	---	---	---	---	---	---	---	---	---	9.7	7.0	8.2
14	---	---	---	---	---	---	---	---	---	9.4	6.9	8.0
15	---	---	---	---	---	---	---	---	---	8.6	6.0	7.1
16	---	---	---	---	---	---	---	---	---	9.4	5.8	7.4
17	---	---	---	---	---	---	---	---	---	8.8	6.1	7.4
18	---	---	---	---	---	---	---	---	---	9.9	6.1	7.7
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	11.8	4.2	8.4	8.6	1.4	4.9	7.5	2.3	4.7
2	---	---	---	14.0	4.1	9.1	7.9	1.1	4.3	6.5	3.1	4.7
3	---	---	---	11.1	5.3	8.2	7.9	.9	4.2	7.2	3.0	4.9
4	---	---	---	13.9	4.2	9.0	9.1	1.9	5.1	6.5	2.9	4.6
5	---	---	---	11.9	3.8	7.8	8.6	2.6	5.8	7.3	1.8	4.5
6	---	---	---	11.9	3.3	7.6	8.9	3.2	6.0	6.1	1.8	3.9
7	---	---	---	8.6	5.4	6.9	8.5	3.3	5.8	4.9	1.2	3.0
8	---	---	---	11.9	7.7	9.3	8.3	3.0	5.3	4.0	.8	2.4
9	---	---	---	14.9	7.7	11.1	7.6	4.2	5.0	3.3	.5	1.8
10	9.9	6.9	8.6	13.7	6.9	10.7	6.3	3.1	4.4	3.9	1.3	2.5
11	10.1	6.7	8.6	13.4	5.1	9.5	6.1	3.4	4.7	3.7	1.6	2.5
12	9.8	6.4	7.9	12.5	4.2	8.6	5.2	2.4	3.8	3.5	.7	1.9
13	9.6	4.6	6.7	10.2	3.2	6.9	6.4	2.7	4.6	3.5	.9	1.9
14	---	---	---	9.8	3.4	6.7	6.1	3.5	4.9	3.3	.5	1.3
15	---	---	---	8.9	4.4	6.6	---	---	---	5.2	.9	2.7
16	---	---	---	7.9	3.3	5.4	---	---	---	6.4	2.3	4.2
17	---	---	---	7.4	3.3	5.3	---	---	---	6.7	1.3	3.5
18	---	---	---	6.7	2.5	4.6	---	---	---	6.8	1.0	3.6
19	---	---	---	5.4	1.3	2.9	---	---	---	5.9	.7	2.2
20	---	---	---	8.2	1.4	5.1	---	---	---	---	---	---
21	---	---	---	8.1	4.2	6.0	---	---	---	---	---	---
22	---	---	---	10.1	3.8	6.3	---	---	---	---	---	---
23	---	---	---	10.9	4.1	7.3	---	---	---	---	---	---
24	---	---	---	10.9	3.6	7.1	---	---	---	---	---	---
25	---	---	---	10.5	3.5	6.9	---	---	---	---	---	---
26	---	---	---	10.4	3.8	7.0	8.4	1.3	4.5	---	---	---
27	---	---	---	11.2	4.0	7.4	8.1	1.5	4.1	---	---	---
28	---	---	---	10.9	3.4	7.1	9.0	2.6	5.6	---	---	---
29	---	---	---	10.1	3.1	6.6	8.8	1.7	5.2	---	---	---
30	13.3	9.1	11.8	10.3	3.2	6.6	7.6	2.2	4.5	---	---	---
31	---	---	---	9.9	2.4	6.0	8.1	2.7	5.2	---	---	---
MONTH	---	---	---	14.9	1.3	7.2	---	---	---	---	---	---

JAMES RIVER BASIN

06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'20", long 98°27'08", in SW1/4 SE1/4 sec.33, T.129 N., R.62 W., Dickey County, ND, Hydrologic Unit 10160004, on left bank 0.4 mi upstream from State line, 7.8 mi northeast of Frederick, SD, and 15.7 mi upstream from mouth.

DRAINAGE AREA.--716 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 and crest-stage gages. 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 poor. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	.26	e3.2	e.70	e.40	e1.2	188	166	11	.42	12	.22
2	16	.25	e2.8	e.70	e.40	e1.2	195	168	11	.35	11	.34
3	13	.27	e2.5	e.65	e.40	e1.3	245	162	10	.29	8.0	.38
4	10	e.20	e2.0	e.60	e.35	e1.5	356	157	10	.34	5.5	.40
5	7.5	e.15	e1.8	e.55	e.30	e1.5	364	136	9.5	.37	3.0	.36
6	6.5	.10	e1.5	e.50	e.25	e1.3	310	113	8.2	.34	4.4	.27
7	10	e.12	e1.3	e.45	e.25	e1.3	251	97	7.0	2.1	4.8	.23
8	11	e.15	e1.2	e.45	e.20	e1.2	213	88	5.5	6.8	2.1	.20
9	6.8	e.18	e1.2	e.50	e.15	e1.1	188	76	4.8	18	2.0	.17
10	4.4	e.22	e1.3	e.55	e.20	e1.0	165	66	4.2	37	2.3	.13
11	3.2	e.22	e1.4	e.55	e.30	e1.0	175	61	3.9	235	1.8	.14
12	2.5	e.25	e1.5	e.50	e.40	e1.2	169	53	3.4	406	1.5	.14
13	2.6	e.27	e1.6	e.45	e.45	e1.4	e137	47	3.2	380	2.0	.11
14	2.1	e.25	e1.6	e.40	e.50	e1.8	143	45	3.0	304	1.3	.10
15	1.8	e.20	e1.5	e.45	e.55	e2.0	132	40	2.6	217	1.0	.10
16	1.8	e.20	e1.5	e.40	e.70	e3.0	115	e30	2.7	157	.99	.19
17	1.6	e.25	e1.4	e.35	e.80	e6.5	104	22	2.6	115	.69	.11
18	1.4	e.28	e1.6	e.35	e.70	e10	102	25	2.4	87	.57	.10
19	1.4	e.28	e1.5	e.40	e.60	e500	89	24	2.1	69	.68	.09
20	1.5	e.28	e1.2	e.50	e.50	e1100	79	20	2.1	53	.61	.09
21	1.3	e.30	e.90	e.60	e.45	e2000	70	20	1.8	42	.59	.14
22	.83	e.20	e.80	e.65	e.45	1720	61	19	1.7	34	.53	.17
23	.58	e.18	e.80	e.70	e.45	938	60	17	1.6	28	.57	.11
24	.47	e.15	e.80	e.75	e.60	714	62	16	1.4	24	.44	.10
25	.45	e.15	e.80	e.75	e.80	472	61	16	1.2	21	.75	.11
26	.44	e.20	e.70	e.60	e1.0	323	68	15	.94	19	.66	.06
27	.35	e.50	e.60	e.50	e1.2	299	63	16	.85	19	.52	.06
28	.46	e1.0	e.55	e.35	e1.2	239	58	15	.73	19	.37	.02
29	.26	e2.5	e.60	e.30	---	208	79	15	.60	17	.29	.02
30	.25	e3.5	e.70	e.30	---	181	138	14	.52	15	.33	.02
31	.19	---	e.70	e.35	---	180	---	12	---	13	.26	---
TOTAL	127.68	13.06	41.55	15.85	14.55	8913.5	4440	1771	120.54	2340.01	71.55	4.68
MEAN	4.12	.44	1.34	.51	.52	288	148	57.1	4.02	75.5	2.31	.16
MAX	17	3.5	3.2	.75	1.2	2000	364	168	11	406	12	.40
MIN	.19	.10	.55	.30	.15	1.0	58	12	.52	.29	.26	.02
AC-FT	253	26	82	31	29	17680	8810	3510	239	4640	142	9.3

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1994, BY WATER YEAR (WY)

MEAN	1.15	.45	.30	.085	.30	73.2	83.6	21.9	16.6	32.1	6.82	1.59
MAX	18.3	6.37	4.16	1.16	4.47	419	788	106	131	446	142	16.1
(WY)	1987	1987	1987	1987	1984	1966	1969	1986	1964	1962	1966	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1957 - 1994	
ANNUAL TOTAL	12913.39		17873.97			
ANNUAL MEAN	35.4		49.0		19.9a	
HIGHEST ANNUAL MEAN					70.5	1969
LOWEST ANNUAL MEAN					.000	1959b
HIGHEST DAILY MEAN	691	Jul 21	2000	Mar 21	5500	Apr 11 1969
LOWEST DAILY MEAN	.00	Jan 1	.02	Sep 28-30	.00	Oct 1 1956c
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.06	Sep 24	.00	Oct 1 1956
INSTANTANEOUS PEAK FLOW			2400	Mar 21	5930	Apr 11 1969
INSTANTANEOUS PEAK STAGE			11.36	Mar 21d	16.05	Apr 11 1969d
ANNUAL RUNOFF (AC-FT)	25610		35450		14440	
10 PERCENT EXCEEDS	103		140		25	
50 PERCENT EXCEEDS	7.2		1.3		.00	
90 PERCENT EXCEEDS	.00		.20		.00	

e Estimated
a Median of annual mean discharges, 12 ft^3/s.
b Also 1988 and 1990.
c No flow for long periods in most years.
d Backwater from ice.

JAMES RIVER BASIN

06471500 ELM RIVER AT WESTPORT, SD

LOCATION.--Lat 45°39'22", long 98°29'48", in SW1/4 NW1/4 sec.12, T.125 N., R.64 W., Brown County, Hydrologic Unit 10160004, on right bank 12 ft downstream from highway bridge, 0.5 mi north of Westport, 0.7 mi upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad 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 and crest-stage gage. 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 fair. Flow regulated for Aberdeen municipal water supply by dam forming Elm Lake and other small reservoirs upstream, combined capacity, about 16,000 acre-ft. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	4.7	e7.5	e1.8	e1.5	e1.4	407	254	17	3.8	20	2.4
2	9.1	4.7	e6.0	e1.8	e1.5	e1.7	434	295	16	3.8	17	2.5
3	9.0	4.7	e5.0	e1.7	e1.4	e2.5	443	303	15	3.7	15	2.8
4	8.7	4.7	e4.5	e1.6	e1.3	e3.0	492	295	13	3.9	13	3.1
5	8.4	e4.0	e4.0	e1.5	e1.2	e3.0	568	273	14	3.5	12	3.3
6	8.5	4.2	e3.5	e1.5	e1.0	e2.7	580	247	13	3.3	11	3.1
7	9.2	4.0	e3.0	e1.5	e.80	e2.5	523	219	12	5.6	11	2.8
8	8.7	e3.8	e3.0	e1.6	e.60	e2.5	476	187	11	5.5	9.2	2.8
9	7.7	e3.8	e3.0	e1.7	e.70	e2.7	426	161	11	19	13	2.7
10	7.6	e3.5	e3.2	e1.8	e1.0	e3.0	386	142	9.5	20	31	2.5
11	7.1	e3.5	e3.5	e1.8	e1.0	e3.5	348	123	8.7	122	21	2.2
12	6.7	e3.7	e3.6	e1.7	e1.2	e4.0	336	104	7.4	362	15	2.1
13	6.3	e4.0	e3.5	e1.7	e1.3	e4.0	337	93	7.8	500	12	2.2
14	6.2	e3.5	e3.2	e1.7	e1.5	e7.0	316	84	7.9	470	10	2.3
15	6.3	e3.5	e3.0	e1.6	e1.6	e15	291	79	6.5	395	8.9	2.5
16	6.3	e3.5	e3.0	e1.6	e1.8	e50	262	72	7.3	321	8.2	4.1
17	6.3	e3.6	e3.2	e1.5	e1.7	e1900	243	64	7.5	263	7.7	4.5
18	6.0	e3.8	e3.2	e1.5	e1.6	e2800	218	55	6.8	216	7.4	5.5
19	6.0	e4.0	e3.0	e1.6	e1.4	e2600	194	48	6.6	172	7.6	5.7
20	6.3	e4.0	e2.5	e1.7	e1.3	e2200	181	42	6.2	139	6.7	5.5
21	5.7	e4.5	e2.0	e1.7	e1.3	e2500	159	37	4.9	113	6.3	4.8
22	5.5	e3.0	e2.0	e1.8	e1.2	3170	142	37	4.5	93	5.8	4.4
23	5.9	e3.0	e2.0	e1.8	e1.2	e2200	128	36	4.5	77	5.9	3.4
24	6.4	e2.5	e2.0	e2.0	e1.1	1350	116	32	3.9	66	5.3	3.1
25	6.8	e2.0	e1.8	e2.0	e1.1	1090	110	31	3.9	52	4.4	3.1
26	6.3	e2.0	e1.7	e1.6	e1.0	833	121	29	3.7	42	4.1	2.8
27	5.5	e2.5	e1.6	e1.4	e1.3	639	173	27	2.8	34	3.9	2.7
28	7.3	e3.5	e1.5	e1.3	e1.3	547	156	24	3.0	30	3.6	2.7
29	5.3	e5.0	e1.5	e1.3	---	484	158	22	2.3	26	2.5	2.5
30	4.7	e7.0	e1.6	e1.4	---	432	174	20	1.8	25	2.4	5.5
31	4.7	---	e1.8	e1.5	---	405	---	18	---	23	2.4	---
TOTAL	215.5	114.2	93.9	50.7	34.90	23258.5	8898	3453	239.5	3613.1	303.3	99.6
MEAN	6.95	3.81	3.03	1.64	1.25	750	297	111	7.98	117	9.78	3.32
MAX	11	7.0	7.5	2.0	1.8	3170	580	303	17	500	31	5.7
MIN	4.7	2.0	1.5	1.3	.60	1.4	110	18	1.8	3.3	2.4	2.1
AC-FT	427	227	186	101	69	46130	17650	6850	475	7170	602	198

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1994, BY WATER YEAR (WY)

MEAN	6.16	4.76	3.65	3.14	4.29	135	215	55.7	51.2	51.1	15.2	6.85
MAX	21.9	9.58	8.55	19.9	24.7	904	2399	464	584	606	197	54.6
(WY)	1987	1987	1985	1946	1984	1966	1969	1950	1964	1962	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1946 - 1994	
ANNUAL TOTAL	21480.59		40374.20			
ANNUAL MEAN	58.9		111		46.1a	
HIGHEST ANNUAL MEAN					222	1969
LOWEST ANNUAL MEAN					4.17	1957
HIGHEST DAILY MEAN	896	Jul 22	3170	Mar 22	11900	Apr 10 1969
LOWEST DAILY MEAN	.50	Jan 30	.60	Feb 8	.00	Jan 27 1946b
ANNUAL SEVEN-DAY MINIMUM	.71	Jan 30	.90	Feb 5	.00	Jan 27 1946
INSTANTANEOUS PEAK FLOW			3290	Mar 22c	12600	Apr 10 1969
INSTANTANEOUS PEAK STAGE			15.75	Mar 18d	22.11	Apr 10 1969
ANNUAL RUNOFF (AC-FT)	42610		80080		33370	
10 PERCENT EXCEEDS	191		295		50	
50 PERCENT EXCEEDS	7.3		5.3		4.9	
90 PERCENT EXCEEDS	1.8		1.5		1.0	

e Estimated
a Median of annual mean discharges, 28 ft^3/s.
b No flow for many days in most years prior to 1960.
c Gage height, 13.62 ft.
d Backwater from ice.

JAMES RIVER BASIN

06471550 JAMES RIVER BELOW COLUMBIA, SD

LOCATION.--Lat 45°36'17", long 98°18'15", in SW1/4 SE1/4 SW1/4 sec.28, T.125 N., R.62 W., Brown County, Hydrologic Unit 10160003, on left bank 0.46 mi below mouth of Elm River and approximately 0.5 mi southeast of Columbia.

DRAINAGE AREA.--7,393 mi^2, of which 3,820 mi^2 is probably noncontributing.

PERIOD OF RECORD.--September 1988 to September 1994 (discontinued).

REVISED RECORDS.--WDR SD-91-1: 1990 maximum gage height.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 1,274.11 ft above sea level.

REMARKS.--Records fair except those for estimated daily discharges, and Oct. 13-27, Nov. 5-21, and July 6-20, 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, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1050	930	e980	e180	e55	e35	1060	1430	676	371	567	378
2	1030	931	e920	e160	e50	e35	1050	1430	657	368	562	364
3	1010	922	e880	e140	e45	e36	1040	1410	638	359	557	360
4	995	932	e830	e120	e45	e37	1090	1450	610	356	553	350
5	974	940	e800	e100	e45	e38	1150	1450	598	357	546	341
6	965	945	e770	e90	e40	e40	1240	1440	584	362	535	331
7	966	935	e730	e80	e35	e45	1300	1420	572	396	524	319
8	988	920	e680	e75	e35	e50	1350	1380	567	452	523	298
9	990	915	e630	e75	e30	e60	1410	1350	562	461	537	282
10	966	913	e590	e71	e35	e70	1430	1290	553	442	590	271
11	949	916	e550	e70	e35	e80	1440	1270	536	434	608	258
12	927	915	e510	e65	e35	e90	1450	1230	517	456	608	250
13	920	930	e480	e65	e35	e100	1460	1160	509	544	594	259
14	920	930	e450	e65	e35	e110	1470	1150	496	652	582	273
15	920	925	e430	e65	e35	e150	1520	1140	488	699	566	264
16	910	920	e420	e65	e35	e170	1510	1090	490	767	550	256
17	907	915	e400	e65	e35	e210	1490	986	501	794	537	249
18	911	910	e380	e65	e40	e600	1490	943	498	788	526	242
19	920	910	e350	e65	e40	e1200	1460	943	490	788	518	236
20	933	900	e330	e60	e39	e1600	1430	920	477	798	510	232
21	930	890	e310	e60	e38	e1850	1420	918	465	767	500	229
22	925	e850	e290	e60	e35	e1950	1360	938	450	738	489	231
23	925	e890	e260	e60	e35	e2060	1300	941	446	710	477	236
24	927	e945	e255	e60	e35	e2020	1310	926	436	685	468	235
25	936	e980	e250	e60	e35	e1740	1350	911	427	665	459	230
26	942	e1000	e245	e60	e35	1490	1470	912	423	652	452	227
27	933	e1000	e240	e60	e35	1330	1500	869	412	636	443	225
28	951	e1010	e230	e60	e35	1200	1470	810	403	618	432	219
29	952	e1000	e220	e55	---	1150	1470	775	388	596	413	215
30	947	e990	e210	e55	---	1120	1440	734	376	580	398	213
31	935	---	e200	e55	---	1100	---	714	---	572	390	---
TOTAL	29454	28009	14820	2386	1062	21766	40930	34330	15245	17863	16014	8073
MEAN	950	934	478	77.0	37.9	702	1364	1107	508	576	517	269
MAX	1050	1010	980	180	55	2060	1520	1450	676	798	608	378
MIN	907	850	200	55	30	35	1040	714	376	356	390	213
AC-FT	58420	55560	29400	4730	2110	43170	81180	68090	30240	35430	31760	16010

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	166	162	82.1	13.9	8.69	160	431	228	106	223	294	243
MAX	950	934	478	77.0	37.9	702	1364	1107	508	607	1215	1154
(WY)	1994	1994	1994	1994	1994	1994	1994	1994	1994	1993	1993	1993
MIN	.011	.22	.27	.096	.11	2.16	2.06	1.75	1.29	1.20	1.02	.055
(WY)	1989	1989	1989	1989	1989	1991	1991	1990	1990	1990	1990	1991

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	181118.5		229952			
ANNUAL MEAN	496		630		177	
HIGHEST ANNUAL MEAN					630	1994
LOWEST ANNUAL MEAN					1.44	1990
HIGHEST DAILY MEAN	1370	Aug 19	2060	Mar 23	2060	Mar 23 1994
LOWEST DAILY MEAN	3.0	Feb 24	30	Feb 9	.00	Oct 1 1988a
ANNUAL SEVEN-DAY MINIMUM	3.4	Feb 18	34	Feb 7	.00	Oct 1 1988
INSTANTANEOUS PEAK FLOW			2100	Mar 23	2100	Mar 23 1994
INSTANTANEOUS PEAK STAGE			15.52	Mar 23b	15.52	Mar 23 1984b
ANNUAL RUNOFF (AC-FT)	359200		456100		128300	
10 PERCENT EXCEEDS	1160		1350		909	
50 PERCENT EXCEEDS	276		553		3.8	
90 PERCENT EXCEEDS	5.0		55		.10	

e Estimated
a Some days in most years.
b Backwater from ice.

JAMES RIVER BASIN

06473000 JAMES RIVER AT ASHTON, SD

LOCATION.--Lat 44°59'54", long 98°28'50", in NW1/4 NW1/4 NE1/4 sec.36, T.118 N., R.64 W., Spink County, Hydrologic Unit 10160006, on right bank 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 good except those for May 18 to June 28, July 11 to Aug. 23, and Sept. 21-30, which are fair, and 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1180	1020	e1050	e400	e150	e105	2290	1530	1100	681	721	659
2	1160	1020	e1050	e350	e140	e105	2350	1550	1090	666	715	662
3	981	1010	e1050	e350	e140	e105	2380	1550	1080	652	709	657
4	957	1010	e1000	e350	e130	e105	2390	1560	1070	639	701	654
5	941	1010	e1000	e300	e130	e105	2350	1570	1070	626	691	647
6	920	1010	e1000	e300	e120	e105	2280	1570	1050	621	684	638
7	964	1010	e900	e250	e120	e105	2210	1580	1040	e950	678	629
8	997	1000	e900	e250	e110	e105	2140	1570	1020	e960	668	619
9	1050	1000	e900	e250	e100	e120	2070	1570	1010	e910	684	610
10	1040	1000	e800	e250	e100	e140	1980	1550	992	e870	718	598
11	1040	999	e800	e250	e90	e160	1890	1540	978	829	729	585
12	1050	1000	e800	e240	e100	e170	1810	1520	963	800	731	571
13	1050	1010	e750	e240	e100	e170	1730	1500	948	801	731	561
14	1040	1010	e750	e240	e100	e180	1670	1490	933	841	732	553
15	1080	1010	e750	e230	e100	e180	1620	1470	916	852	735	544
16	1080	1010	e750	e230	e100	e190	1570	1450	900	869	736	532
17	1080	1010	e700	e230	e100	e200	1520	1420	900	859	737	520
18	1070	1010	e700	e220	e100	e210	1480	1400	892	849	737	507
19	1070	1000	e700	e220	e120	e300	1450	1360	881	873	739	493
20	1070	1000	e650	e210	e130	e320	1430	1320	865	860	738	483
21	1060	1000	e650	e210	e120	e350	1420	1290	848	834	738	467
22	1060	998	e600	e200	e120	e900	1400	1260	833	809	736	456
23	1050	1010	e600	e190	e120	e1350	1390	1240	824	788	734	445
24	1050	e1030	e600	e190	e110	e1500	1380	1210	809	770	726	436
25	1050	e1050	e550	e180	e110	e1600	1380	1190	792	757	719	430
26	1040	e1050	e550	e170	e110	e1700	1400	1170	773	750	710	419
27	1040	e1060	e500	e160	e110	e1800	1430	1160	752	746	702	409
28	1030	e1050	e450	e160	e110	e1900	1450	1140	731	741	692	401
29	1030	e1050	e450	e160	---	e2100	1490	1130	714	736	683	392
30	1020	e1050	e450	e150	---	2150	1510	1120	697	734	676	386
31	1020	---	e400	e150	---	2210	---	1110	---	727	666	---
TOTAL	32270	30497	22800	7280	3190	20740	52860	43090	27471	24400	22096	15963
MEAN	1041	1017	735	235	114	669	1762	1390	916	787	713	532
MAX	1180	1060	1050	400	150	2210	2390	1580	1100	960	739	662
MIN	920	998	400	150	90	105	1380	1110	697	621	666	386
AC-FT	64010	60490	45220	14440	6330	41140	104800	85470	54490	48400	43830	31660

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1994, BY WATER YEAR (WY)

MEAN	55.3	62.2	44.3	14.3	8.09	75.0	433	553	338	234	173	90.7
MAX	1041	1017	735	235	114	669	2321	2984	2440	938	1123	1275
(WY)	1994	1994	1994	1994	1994	1994	1969	1950	1950	1950	1993	1993
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1950	1950	1946	1950	1948	1956	1959	1959	1959	1959	1959	1958

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1946 - 1994	
ANNUAL TOTAL	196858.5		302657			
ANNUAL MEAN	539		829		174a	
HIGHEST ANNUAL MEAN					829	1994
LOWEST ANNUAL MEAN					.000	1959
HIGHEST DAILY MEAN	1380	Sep 9	2390	Apr 4	5670	Apr 24 1969
LOWEST DAILY MEAN	4.0	Feb 23	90	Feb 11	-2100	Apr 9 1969b
ANNUAL SEVEN-DAY MINIMUM	4.7	Feb 17	99	Feb 9	-876	Apr 6 1969b
INSTANTANEOUS PEAK FLOW			2410	Apr 2c	5680	Apr 24 1969d
INSTANTANEOUS PEAK STAGE			17.95	Mar 23b	21.17	Apr 13 1969b
ANNUAL RUNOFF (AC-FT)	390500		600300		126000	
10 PERCENT EXCEEDS	1160		1510		613	
50 PERCENT EXCEEDS	344		800		18	
90 PERCENT EXCEEDS	6.5		140		.00	

e Estimated
a Median of annual mean discharges, 110 ft^3/s.
b Backwater from Snake Creek.
c Gage height, 16.23 ft, backwater.
d Gage height, 12.92 ft, backwater.

JAMES RIVER BASIN

06476000 JAMES RIVER AT HURON, SD

LOCATION.--Lat 44°21'49", long 98°11'56", in SW1/4 SE1/4 NE1/4 sec.6, T.110 N., R.61 W., Beadle County, Hydrologic Unit 10160006, on right bank 15 ft upstream from city dam at Huron, 135 ft downstream from Chicago and North Western Transportation Co. bridge, and 165 ft upstream from bridge on business loop U.S. Highway 14.

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, and those for Oct. 1-18 and Mar. 17 to Apr. 11, which are fair. 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. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1310	1020	e437	e650	e270	e150	4210	2160	1190	780	1040	777
2	1300	1050	508	e620	e280	e140	4030	2170	1190	748	992	810
3	1270	1030	632	e590	e290	e140	3780	2180	1130	688	967	816
4	1260	1080	719	e560	e300	e150	3760	2230	934	730	948	859
5	1210	1070	784	e530	e300	e180	3650	2220	1200	738	878	879
6	1220	986	822	e490	e300	e300	3580	2210	1190	702	847	836
7	1250	1020	846	e450	e260	e730	3540	2210	1140	918	869	785
8	1230	1020	864	e450	e240	e800	3430	2200	1090	1380	860	749
9	1190	1020	885	e450	e240	e620	3400	2190	1110	1650	829	723
10	1160	1010	905	e450	e240	e600	3210	2140	1100	2030	1060	659
11	1180	1040	911	e420	e230	e700	3080	2140	1080	2150	1030	662
12	1170	1050	911	e400	e220	e1000	2850	2060	1060	2070	1000	679
13	1150	1110	911	e380	e220	e1500	2640	1950	1040	1890	1020	669
14	1160	1070	903	e350	e220	e2500	2490	2120	997	1860	1050	638
15	1140	1050	883	e300	e220	e3300	2400	2040	1030	1850	1060	602
16	1140	1060	869	e320	e210	e3800	2280	1850	1060	1910	1080	610
17	1120	1050	858	e300	e200	4160	2200	1750	1110	1930	1100	568
18	1110	1060	844	e320	e200	4650	2190	1820	1130	1890	1070	537
19	1100	1090	823	e330	e200	5450	2120	1800	1100	1970	1070	501
20	1140	1050	802	e330	e200	6250	2020	1690	1110	1970	1030	503
21	1090	1060	784	e330	e200	7680	1990	1660	1090	1950	987	523
22	1090	1060	776	e340	e190	8100	1900	1580	1020	1850	920	507
23	1090	e789	777	e350	e180	7730	1890	1500	1060	1730	947	451
24	1090	e600	811	e340	e180	6900	1940	1470	1020	1590	937	443
25	1120	e700	e800	e330	e170	6670	1870	1420	990	1490	905	451
26	1090	e660	e750	e310	e170	6150	1940	1360	941	1380	893	427
27	1030	e640	e700	e300	e170	5890	1940	1300	873	1300	864	417
28	1120	e600	e700	e300	e160	5550	1970	1260	885	1210	850	404
29	1060	e600	e720	e290	---	5070	2040	1300	817	1140	797	390
30	1010	e600	e700	e270	---	4740	2120	1260	773	1090	854	399
31	988	---	e700	e260	---	4460	---	1230	---	1090	811	---
TOTAL	35588	28245	24335	12110	6260	106060	80460	56470	31460	45674	29565	18274
MEAN	1148	941	785	391	224	3421	2682	1822	1049	1473	954	609
MAX	1310	1110	911	650	300	8100	4210	2230	1200	2150	1100	879
MIN	988	600	437	260	160	140	1870	1230	773	688	797	390
AC-FT	70590	56020	48270	24020	12420	210400	159600	112000	62400	90590	58640	36250

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1994, BY WATER YEAR (WY)

MEAN	60.6	59.5	50.8	28.3	25.9	401	847	689	467	305	226	107
MAX	1148	941	785	391	224	3421	5510	3617	2834	1478	2204	1514
(WY)	1994	1994	1994	1994	1994	1994	1969	1986	1950	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1929-1932, 1944-1994	
ANNUAL TOTAL	297023		474501			
ANNUAL MEAN	814		1300		263a	
HIGHEST ANNUAL MEAN					1300	1994
LOWEST ANNUAL MEAN					.51	1959
HIGHEST DAILY MEAN	3410	Jul 30	8100	Mar 22	8940	Apr 12 1969
LOWEST DAILY MEAN	15	Mar 4	140	Mar 2	.00	Oct 12 1944b
ANNUAL SEVEN-DAY MINIMUM	17	Feb 26	154	Feb 26	.00	Sep 29 1945c
INSTANTANEOUS PEAK FLOW			8100	Mar 22	9000	Apr 13 1969
INSTANTANEOUS PEAK STAGE			16.17	Mar 22	16.70	Apr 13 1969
ANNUAL RUNOFF (AC-FT)	589100		941200		190500	
10 PERCENT EXCEEDS	1660		2210		820c	
50 PERCENT EXCEEDS	700		1020		39c	
90 PERCENT EXCEEDS	24		300		.00c	

e Estimated
a Median of annual mean discharges, 140 ft^3/s.
b No flow for long periods in most years.
c Reflects water years 1944-94 only.

JAMES RIVER BASIN

06477000 JAMES RIVER NEAR FORESTBURG, SD

LOCATION.--Lat 43°58'26", long 98°04'14", in SW1/4 SW1/4 NW1/4 sec.20, T.106 N., R.60 W., Sanborn County, Hydrologic Unit 10160011, on right bank 5.0 ft downstream from highway bridge, 3.8 mi southeast of Forestburg, 5.4 mi downstream from Chicago, Milwaukee, St. Paul and Pacific Railroad 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. 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.

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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1420	e1050	e660	e690	e280	e260	5440	2280	1230	890	1080	824
2	1410	e1050	e550	e670	e280	e280	5110	2330	1210	875	1040	817
3	1390	e1050	e550	e660	e270	e300	4730	2370	1190	851	1010	834
4	1360	e1060	e650	e640	e270	e340	4440	2420	1150	831	976	860
5	1340	e1090	e750	e620	e270	e500	4250	2450	1160	827	948	867
6	1320	e1070	e800	e600	e270	e650	4050	2470	1190	825	912	869
7	1300	e1040	e840	e580	e270	e800	3850	2490	1210	852	885	853
8	1300	e1040	e860	e560	e260	e950	3720	2500	1180	944	875	827
9	1290	e1040	e880	e540	e260	e1100	3710	2490	1160	1150	876	803
10	1270	e1030	e900	e520	e260	e1250	3650	2470	1140	1380	890	784
11	1240	e1040	e920	e500	e250	e1400	3560	2450	1130	1610	957	764
12	1220	e1060	e930	e480	e250	e1600	3470	2410	1110	1780	996	755
13	1210	e1070	e930	e460	e250	e2200	3330	2350	1110	1870	987	752
14	1200	e1100	e930	e440	e250	e2800	3180	2330	1080	1890	986	740
15	1190	e1070	e920	e420	e240	3260	3080	2320	1060	1860	997	716
16	1180	e1080	e900	e400	e250	3450	2940	2270	1050	1840	1010	683
17	1170	e1070	e890	e380	e260	3830	2820	2190	1060	1830	1030	661
18	e1160	e1080	e880	e360	e270	4390	2720	2110	1110	1840	1040	639
19	e1150	e1100	e860	e340	e280	4940	2610	2050	1140	1860	1040	606
20	e1130	e1070	e840	e320	e300	5480	2510	1990	1140	1870	1030	574
21	e1130	e1080	e820	e300	e280	6000	2420	1930	1140	1880	1010	561
22	e1130	e1080	e800	e300	e270	6620	2320	1850	1130	1880	980	565
23	e1120	e1070	e800	e300	e260	7410	2240	1750	1110	1840	949	550
24	e1120	e800	e800	e300	e260	7950	2190	1650	1120	1770	936	513
25	e1100	e650	e780	e290	e260	7950	2130	1570	1110	1660	931	490
26	e1090	e820	e780	e290	e250	7650	2120	1500	1090	1550	912	480
27	e1080	e770	e770	e290	e250	7330	2120	1430	1050	1430	893	471
28	e1070	e710	e770	e280	e250	6870	2140	1360	1010	1330	871	459
29	e1070	e700	e750	e280	---	6400	2180	1310	973	1230	850	449
30	e1060	e690	e730	e280	---	6070	2230	1290	932	1170	832	442
31	e1050	---	e710	e280	---	5770	---	1260	---	1120	834	---
TOTAL	37270	29630	24950	13370	7370	115800	95260	63640	33475	44535	29563	20208
MEAN	1202	988	805	431	263	3735	3175	2053	1116	1437	954	674
MAX	1420	1100	930	690	300	7950	5440	2500	1230	1890	1080	869
MIN	1050	650	550	280	240	260	2120	1260	932	825	832	442
AC-FT	73930	58770	49490	26520	14620	229700	188900	126200	66400	88340	58640	40080

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1994, BY WATER YEAR (WY)

MEAN	79.5	75.7	61.9	35.6	31.4	501	1059	791	547	357	263	138
MAX	1202	988	805	431	263	3735	6284	5396	2920	2196	2599	1651
(WY)	1994	1994	1994	1994	1994	1994	1969	1986	1962	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1951 - 1994	
ANNUAL TOTAL	375574		515071			
ANNUAL MEAN	1029		1411		329	
HIGHEST ANNUAL MEAN					1411	1994
LOWEST ANNUAL MEAN					4.75	1959
HIGHEST DAILY MEAN	3430	Aug 6	7950	Mar 24	12200	Apr 10 1969
LOWEST DAILY MEAN	16	Jan 18	240	Feb 15	.00	Jul 10 1959b
ANNUAL SEVEN-DAY MINIMUM	16	Jan 18	250	Feb 10	.00	Aug 9 1959
INSTANTANEOUS PEAK FLOW			8180	Mar 24	12500	Apr 9 1969
INSTANTANEOUS PEAK STAGE			15.73	Mar 24	17.16	Apr 9 1969
ANNUAL RUNOFF (AC-FT)	745000		1022000		238500	
10 PERCENT EXCEEDS	2280		2650		885	
50 PERCENT EXCEEDS	900		1050		47	
90 PERCENT EXCEEDS	25		296		2.0	

e Estimated
a Median of annual mean discharges, 190 ft^3/s.
b No flow at times in some years.

JAMES RIVER BASIN

06477500 FIRESTEEL CREEK NEAR MOUNT VERNON, SD

LOCATION.--Lat 43°46'30", long 98°14'33", in SW1/4 SW1/4 sec.26, T.104 N., R.62 W., Davison County, Hydrologic Unit 10160011, 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 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	1.7	4.5	e1.7	e1.5	e20	15	52	1.5	3.7	.67	.33
2	4.0	1.9	4.9	e1.7	e1.5	e9.5	14	64	1.9	3.7	.48	.74
3	3.9	1.9	5.3	e1.7	e1.6	e20	12	68	1.8	3.6	.54	.75
4	3.5	2.0	6.0	e1.7	e1.7	e100	12	59	1.8	3.9	.60	1.5
5	3.1	2.2	6.0	e1.7	e1.8	e800	11	50	18	3.5	.50	1.2
6	3.1	1.9	5.5	e1.7	e1.8	e800	11	44	230	3.1	.56	.63
7	2.9	2.0	6.1	e1.7	e1.6	e650	10	39	181	6.1	.69	.52
8	2.9	2.1	5.6	e1.6	e1.5	e600	11	35	142	22	.57	.41
9	3.1	2.1	5.4	e1.6	e1.5	e500	11	31	114	21	.67	.38
10	3.0	2.2	5.5	e1.6	e1.5	e380	11	28	114	11	1.2	.30
11	4.1	2.1	5.2	e1.7	e1.6	e250	11	26	87	7.1	.84	.33
12	3.8	3.2	5.1	e1.8	e1.8	e160	11	22	51	4.8	.93	.35
13	3.2	9.0	5.2	e1.8	e2.0	125	10	19	34	3.7	.92	.44
14	2.9	10	4.1	e1.7	e2.0	106	10	17	27	3.3	.74	.33
15	2.9	9.5	5.4	e1.6	e2.5	85	11	26	22	2.6	.63	.33
16	2.8	7.8	5.1	e1.5	e3.0	69	11	32	18	2.2	.52	.39
17	2.7	7.2	5.0	e1.5	e3.5	57	10	23	17	1.9	.60	.22
18	2.5	6.7	e4.9	e1.5	e4.0	51	10	16	16	1.9	.57	.13
19	2.5	6.5	e4.5	e1.5	e70	45	8.8	13	15	1.9	.50	.15
20	2.5	5.8	e4.0	e1.6	e200	39	7.5	9.7	13	1.9	.49	.10
21	2.4	5.5	e3.5	e1.7	e250	35	7.3	7.5	12	1.7	.40	.09
22	2.2	5.4	e3.0	e1.8	e300	31	6.9	6.2	11	1.4	.26	.13
23	2.2	4.5	e3.0	e2.0	e350	28	7.2	5.2	11	1.2	.14	.13
24	2.3	4.1	e2.5	e2.0	e100	23	7.0	4.5	10	.99	.16	.12
25	2.3	3.9	e2.5	e2.0	e50	23	6.4	4.0	8.5	.74	.17	.21
26	2.1	3.1	e2.0	e1.8	e40	20	10	3.7	7.0	.70	.24	.16
27	1.8	4.0	e1.9	e1.7	e40	18	15	3.5	7.4	.63	.25	.13
28	1.9	4.3	e1.8	e1.6	e30	17	23	3.0	7.5	.54	.24	.14
29	2.0	4.3	e1.8	e1.6	---	17	31	2.6	5.6	.45	.21	.12
30	1.8	4.4	e1.7	e1.5	---	17	46	1.8	4.2	.43	.27	.14
31	1.6	---	e1.7	e1.5	---	17	---	1.4	---	.51	.19	---
TOTAL	86.4	131.3	128.7	52.1	1466.4	5112.5	378.1	717.1	1190.2	122.19	15.75	10.90
MEAN	2.79	4.38	4.15	1.68	52.4	165	12.6	23.1	39.7	3.94	.51	.36
MAX	4.4	10	6.1	2.0	350	800	46	68	230	22	1.2	1.5
MIN	1.6	1.7	1.7	1.5	1.5	9.5	6.4	1.4	1.5	.43	.14	.09
AC-FT	171	260	255	103	2910	10140	750	1420	2360	242	31	22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1994, BY WATER YEAR (WY)

MEAN	1.62	.56	.39	.99	5.65	82.2	69.4	47.8	71.4	24.7	8.17	.93
MAX	39.2	5.01	4.15	23.3	75.1	455	623	514	1097	623	124	13.8
(WY)	1983	1983	1994	1973	1973	1960	1969	1962	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1956 - 1994	
ANNUAL TOTAL	36603.70		9411.64			
ANNUAL MEAN	100		25.8		26.2a	
HIGHEST ANNUAL MEAN					203	1962
LOWEST ANNUAL MEAN					.033	1980
HIGHEST DAILY MEAN	1830	Jul 5	800	Mar 5	5820	Apr 4 1969
LOWEST DAILY MEAN	.30	Jan 1	.09	Sep 21	.00	Oct 1 1955b
ANNUAL SEVEN-DAY MINIMUM	.46	Jan 1	.12	Sep 18	.00	Oct 8 1955
INSTANTANEOUS PEAK FLOW			1000	Mar 5	6610	Apr 4 1969c
INSTANTANEOUS PEAK STAGE			10.45	Mar 5d	17.12	Apr 3 1969d
ANNUAL RUNOFF (AC-FT)	72600		18670		18970	
10 PERCENT EXCEEDS	326		44		20	
50 PERCENT EXCEEDS	9.5		3.3		.10	
90 PERCENT EXCEEDS	.80		.45		.00	

e Estimated
a Median of annual mean discharges, 10 ft^3/s.
b No flow for many days in most years.
c Gage height, 15.34 ft.
d Backwater from ice.

JAMES RIVER BASIN

06478500 JAMES RIVER NEAR SCOTLAND, SD
(National stream-quality accounting network station)

LOCATION.--Lat 43°11'09", long 97°38'07", in SW1/4 SW1/4 sec.30, T.97 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 5.0 ft downstream from highway bridge, 0.3 mi upstream from Dawson Creek, and 5.2 mi northeast of Scotland.

DRAINAGE AREA.--20,653 mi^2, of which 4,148 mi^2 is probably noncontributing.

WATER-DISCHARGE RECORDS

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. National Weather Service gage-height telemeter and 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1700	1080	e1180	e770	e200	e900	7010	2710	1490	1050	1490	848
2	1660	1080	e1180	e720	e200	e820	6700	2710	1430	1020	1380	848
3	1630	1070	e1190	e680	e200	e980	6490	2690	1380	985	1280	865
4	1600	1060	e1200	e650	e200	e1800	6230	2640	1330	947	1200	910
5	1570	1060	e1180	e620	e190	e2700	6030	2590	1330	934	1120	908
6	1530	1050	e1100	e600	e180	e3050	5890	2590	1340	918	1060	903
7	1510	1040	e1000	e590	e170	e3300	5730	2580	1420	928	1010	885
8	1520	1050	e900	e570	e160	e3450	5440	2580	1530	944	984	879
9	1560	1060	e840	e550	e150	e3500	5190	2580	1520	967	950	876
10	1520	1060	e830	e530	e160	e3500	4970	2570	1500	966	925	859
11	1470	1050	e860	e520	e160	e3400	4760	2560	1490	981	917	832
12	1440	1050	e900	e500	e160	e3300	4630	2530	1480	1040	913	809
13	1420	1110	e960	e480	e160	e3400	4550	2510	1500	1140	919	795
14	1390	1170	e980	e470	e160	e3500	4430	2510	1440	1260	956	790
15	1370	1220	e1000	e440	e160	e3600	4300	2520	1350	1410	984	777
16	1350	1230	e1020	e400	e170	e3640	4210	2510	1300	1540	989	766
17	1330	1220	e1060	e390	e170	3750	4080	2450	1260	1590	992	753
18	1310	1210	e1100	e360	e400	3890	3950	2380	1220	1620	999	724
19	1290	1190	e1100	e320	e1800	4020	3820	2320	1180	1650	1000	695
20	1280	1170	e1090	e310	e2300	4160	3660	2270	1150	1670	1010	668
21	1270	1160	e1060	e300	e2200	4350	3440	2220	1160	1690	1020	642
22	1240	1140	e1030	e270	e2250	4540	3290	2180	1170	1700	1020	624
23	1230	1130	e1020	e250	e2300	4810	3140	2140	1320	1720	1010	600
24	1210	e1100	e1000	e220	e2200	5240	3000	2090	1450	1730	1010	569
25	1190	e1100	e980	e220	e1950	5750	2870	2040	1390	1730	992	555
26	1180	e1100	e930	e220	e1700	6230	2820	1990	1310	1730	969	549
27	1170	e1110	e900	e220	e1350	6890	2730	1920	1250	1730	957	523
28	1140	e1130	e870	e220	e1000	7300	2680	1820	1190	1720	940	498
29	1140	e1150	e850	e220	---	7370	2690	1740	1140	1690	919	481
30	1130	e1180	e830	e210	---	7330	2700	1660	1100	1640	893	465
31	1110	---	e810	e200	---	7190	---	1570	---	1580	874	---
TOTAL	42460	33530	30950	13020	22400	127660	131430	72170	40120	42220	31682	21896
MEAN	1370	1118	998	420	800	4118	4381	2328	1337	1362	1022	730
MAX	1700	1230	1200	770	2300	7370	7010	2710	1530	1730	1490	910
MIN	1110	1040	810	200	150	820	2680	1570	1100	918	874	465
AC-FT	84220	66510	61390	25830	44430	253200	260700	143100	79580	83740	62840	43430

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1994, BY WATER YEAR (WY)

MEAN	98.0	87.6	70.1	45.2	95.4	744	1417	973	908	574	299	160
MAX	1370	1118	998	420	800	4118	8188	7302	7585	8582	4154	1981
(WY)	1994	1994	1994	1994	1994	1994	1969	1986	1984	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1929 - 1994	
ANNUAL TOTAL	813606		609538			
ANNUAL MEAN	2229		1670		457a	
HIGHEST ANNUAL MEAN					2042	1986
LOWEST ANNUAL MEAN					13.8	1934
HIGHEST DAILY MEAN	17500	Jul 6	7370	Mar 29	27600	Jun 23 1984
LOWEST DAILY MEAN	38	Jan 14	150	Feb 9	.00	Jul 28 1934b
ANNUAL SEVEN-DAY MINIMUM	39	Jan 9	159	Feb 8	.00	Jul 28 1934
INSTANTANEOUS PEAK FLOW			7370	Mar 28	29400	Jun 23 1984
INSTANTANEOUS PEAK STAGE			16.47	Mar 28	20.45	Jun 23 1984
ANNUAL RUNOFF (AC-FT)	1614000		1209000		330800	
10 PERCENT EXCEEDS	5200		3620		1190	
50 PERCENT EXCEEDS	1350		1170		70	
90 PERCENT EXCEEDS	59		468		8.0	

e Estimated
a Median of annual mean discharges, 220 ft^3/s.
b No flow for many days in some years.

JAMES RIVER BASIN

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1955 to September 1964, October 1966 to September 1973, October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1981; June 1985 to September 1988 (seasonal records only).
pH: June to August 1985.
WATER TEMPERATURE: January 1953 to September 1969, October 1974 to September 1983; June 1985 to September 1988 (seasonal records only).
DISSOLVED OXYGEN: June to August 1985.
SUSPENDED-SEDIMENT DISCHARGE: October 1981 to September 1983.

REMARKS.--Prior to October 1969, continuous temperature thermograph at station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,660 microsiemens, Jan. 9, 1977; minimum daily, 300 microsiemens, Mar. 19, 1977.
WATER TEMPERATURE: Maximum, 32.5°C, Aug. 1, 2, 1987; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATION: Maximum daily mean, 953 mg/L, June 21, 1983; minimum daily mean, 12 mg/L, Nov. 8, 1982.
SEDIMENT LOAD: Maximum daily, 5,890 tons, June 21, 1983; minimum daily, 1.7 tons, Oct. 2, 11, 1981.
pH: Maximum daily, 8.6, June 17, 19, 20, 1985; minimum daily, 7.5, June 30, 1985, July 2, 1985.
DISSOLVED OXYGEN: Maximum daily, 16.3 mg/L, June 30, 1985; minimum daily, 1.0 mg/L, June 27, 1985.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DISCHARGE, IN CUBIC FEET PER SECOND (00060)	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE AIR (DEG C) (00020)	TEMPERATURE WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS TOTAL (MG/L AS CACO3) (00900)
NOV												
10...	1100	1060	--	1100	8.4	9.0	3.0	6.0	733	14.4	112	350
MAR												
25...	1015	--	5730	730	7.9	6.0	4.5	13	733	12.5	101	230
MAY												
04...	0935	--	2640	1140	8.3	13.5	11.5	30	732	9.5	91	420
AUG												
16...	1130	--	984	1080	8.2	23.5	25.0	44	728	10.0	127	350

DATE	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	ALKALINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ALKALINITY LAB (MG/L AS CACO3) (90410)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	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)
NOV												
10...	61	291	291	K10	K14	78	38	65	28	2	16	330
MAR												
25...	92	138	138	K32	220	54	23	48	29	1	17	168
MAY												
04...	200	216	220	170	25	95	44	74	27	2	16	244
AUG												
16...	90	261	262	86	120	73	41	93	35	2	18	309

DATE	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)	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 AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
NOV												
10...	12	180	27	0.20	15	595	622	0.85	1780	0.020	0.03	1.0
MAR												
25...	0	190	22	0.10	13	456	488	0.66	7550	0.320	0.41	1.5
MAY												
04...	10	340	39	0.20	3.2	743	800	1.09	5700	0.020	0.03	1.6
AUG												
16...	5	260	47	0.30	13	703	756	1.03	2010	0.030	0.04	1.6

JAMES RIVER BASIN

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
NOV												
10...	<0.010	--	<0.050	--	--	0.330	0.210	0.210	<10	47	<3	9
MAR												
25...	0.050	0.910	0.910	0.860	0.860	0.450	0.340	0.330	60	33	<3	56
MAY												
04...	0.010	--	<0.050	--	--	0.360	0.160	0.120	20	46	<3	11
AUG												
16...	<0.010	--	<0.050	--	--	0.490	0.200	0.180	<10	57	3	<3

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	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)	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											
10...	49	110	<10	3	<1	<1.0	470	<6	72	206	78
MAR											
25...	31	72	<10	5	<1	<1.0	290	<6	82	1270	98
MAY											
04...	55	100	<10	4	<1	<1.0	540	<6	81	577	95
AUG											
16...	58	2	<10	5	<1	<1.0	500	7	213	566	99

JAMES RIVER BASIN

06478513 JAMES RIVER NEAR YANKTON, SD

LOCATION.--Lat 42°59'45", long 97°22'10", in NE1/4 NW1/4 sec.5, T.94 N., R.55 W., Yankton County, Hydrologic Unit 10160011, on left bank at downstream side of highway bridge, 3.9 mi upstream from Beaver Creek, 17.2 mi upstream from mouth, and 9.0 mi northeast of Yankton.

DRAINAGE AREA.--20,942 mi^2, of which 4,148 mi^2 is probably noncontributing.

PERIOD OF RECORD.--October 1981 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 1,153.38 ft above sea level.

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 caused by Beaver Creek. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1750	1250	e1290	e850	e230	e1100	7450	2760	e1550	1140	1550	e900
2	1700	1230	e1290	e800	e230	e1100	7310	2760	e1500	1110	1470	e900
3	1660	1240	e1300	e750	e220	e1200	6930	2750	e1450	1080	1360	e920
4	1620	1220	e1310	e730	e220	e1900	6640	2720	e1400	1050	1270	e960
5	1590	1160	e1290	e700	e220	e2300	6260	e2720	e1400	1030	1200	e960
6	1560	1170	e1210	e690	e220	e2500	5940	e2680	e1400	1010	1150	e950
7	1550	1170	e1100	e670	e210	e2800	5510	e2660	e1500	1020	1110	e930
8	1580	1170	e1000	e650	e210	e3100	5340	e2650	e1600	1000	1060	e920
9	1700	1170	e960	e630	e210	e3300	5120	e2650	e1600	1020	1040	e920
10	1640	1180	e950	e600	e200	e3500	4860	e2640	e1590	1040	1000	e910
11	1550	e1160	e970	e570	e200	e3300	4660	e2640	e1570	1040	980	e890
12	1500	e1160	e1000	e550	e200	e3400	4580	e2620	e1560	1060	e970	e870
13	1470	e1220	e1070	e520	e200	e3500	4500	e2600	e1550	1120	e980	e860
14	1440	e1280	e1090	e530	e200	e3700	4410	e2590	e1500	1190	e1010	e850
15	1420	e1330	e1110	e500	e200	3820	4310	e2590	e1400	1330	e1040	e840
16	1410	e1340	e1120	e480	e220	3770	4070	e2580	e1350	1540	e1050	e830
17	e1390	e1330	e1160	e460	e250	3810	3950	e2520	e1300	1600	e1050	e820
18	e1370	e1320	e1160	e420	e800	3800	3910	e2450	e1280	1610	e1050	e800
19	e1350	e1300	e1200	e400	e2200	3820	3770	e2400	e1260	1620	e1050	e780
20	e1340	e1280	e1200	e370	e2300	3910	3620	e2350	e1240	1640	e1060	e750
21	e1330	e1270	e1200	e350	e2400	3990	3510	e2300	1220	1660	e1070	e720
22	e1310	e1250	e1200	e320	e2450	4120	3450	e2250	1210	1680	e1070	e690
23	e1300	e1240	e1150	e290	e2500	4200	3330	e2200	1540	1700	e1060	e670
24	e1290	e1210	e1100	e280	e2400	4370	3180	e2150	1490	1710	e1060	e640
25	e1280	e1210	e1100	e270	e2200	4580	3070	e2100	1480	1720	e1040	e620
26	1270	e1210	e1050	e260	e1900	4910	2980	e2050	1400	1710	e1020	e610
27	1280	e1220	e1000	e270	e1500	5330	2900	e2000	1320	1740	e1010	e580
28	1270	e1240	e980	e270	e1100	6010	2820	e1900	1260	1730	e990	e560
29	1280	e1260	e950	e260	---	6580	2820	e1800	1210	1700	e970	e540
30	1270	e1290	e930	e250	---	7250	2810	e1700	1180	1670	e950	e520
31	1270	---	e900	e240	---	7330	---	e1650	---	1630	e930	---
TOTAL	44740	37080	34340	14930	25390	118300	134010	74430	42310	42900	33620	23710
MEAN	1443	1236	1108	482	907	3816	4467	2401	1410	1384	1085	790
MAX	1750	1340	1310	850	2500	7330	7450	2760	1600	1740	1550	960
MIN	1270	1160	900	240	200	1100	2810	1650	1180	1000	930	520
AC-FT	88740	73550	68110	29610	50360	234600	265800	147600	83920	85090	66690	47030

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1994, BY WATER YEAR (WY)

MEAN	280	234	193	105	199	1201	2383	1667	1546	1339	568	402
MAX	1443	1236	1108	482	907	3816	7756	8083	7806	8259	4048	2046
(WY)	1994	1994	1994	1994	1994	1994	1986	1986	1984	1993	1993	1993
MIN	5.97	4.79	15.6	9.10	27.3	40.1	24.1	67.9	108	21.9	16.9	10.2
(WY)	1982	1982	1982	1991	1990	1990	1990	1992	1992	1988	1989	1989

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1982 - 1994	
ANNUAL TOTAL	815250		625760			
ANNUAL MEAN	2234		1714		845a	
HIGHEST ANNUAL MEAN					2084	1986
LOWEST ANNUAL MEAN					56.5	1990
HIGHEST DAILY MEAN	15200	Jul 8	7450	Apr 1	26000	Jun 24 1984
LOWEST DAILY MEAN	50	Jan 15	200	Feb 10-15	.78	Oct 4 1981
ANNUAL SEVEN-DAY MINIMUM	54	Jan 12	201	Feb 9	2.2	Oct 1 1981
INSTANTANEOUS PEAK FLOW			7490	Apr 1	26400	Jun 23 1984
INSTANTANEOUS PEAK STAGE			16.87	Apr 1	24.34	Jun 23 1984
ANNUAL RUNOFF (AC-FT)	1617000		1241000		611900	
10 PERCENT EXCEEDS	4630		3730		2400	
50 PERCENT EXCEEDS	1440		1270		188	
90 PERCENT EXCEEDS	86		526		21	

e Estimated
a Median of annual mean discharges, 430 ft^3/s.

MISSOURI-LEWIS AND CLARK RIVER BASIN

06478515 MISSOURI RIVER NEAR GAYVILLE, SD

LOCATION.--Lat 42°51'01", long 97°13'12", in SW1/4 NW1/4 sec.27, T.93 N., R.54 W., Yankton County, Hydrologic Unit 10170101, 3.8 mi southwest of Gayville, 4.1 mi downstream from James River, and at mile 796.0.

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft above sea level (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for Nov. 19, Dec. 27, Jan. 5, May 4, 12, 18, 19, and June 10 to July 29, which are fair. Stage regulated by Gavins Point Dam 15.0 mi upstream. U.S. Army Corps of Engineers data-collection platform at station. Gage heights for period of October 1969 to September 1980 in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47.00	47.12	46.14	46.19	49.53	48.32	47.44	47.58	48.33	48.02	48.08	47.97
2	47.01	47.15	46.05	46.12	49.53	47.51	47.51	48.07	48.32	48.03	48.07	47.98
3	47.05	47.17	46.06	46.51	49.59	46.98	47.55	48.46	48.33	48.07	48.07	48.01
4	47.01	47.16	46.05	46.43	49.54	46.80	47.51	48.45	48.35	48.04	48.05	47.99
5	47.04	47.06	46.08	46.37	49.51	46.81	47.73	48.33	48.33	48.02	48.02	47.86
6	47.13	47.10	45.97	46.78	49.48	46.76	48.12	48.03	48.30	48.02	48.04	47.82
7	47.27	47.12	45.58	47.40	49.25	46.78	48.13	48.06	48.32	47.97	48.04	47.86
8	47.26	47.12	45.99	48.87	49.35	46.81	48.06	48.07	48.31	47.71	47.97	47.85
9	47.28	47.14	46.03	50.09	49.67	47.09	47.99	48.32	48.31	48.04	47.98	47.86
10	47.29	47.18	46.01	50.02	49.78	47.23	47.96	48.45	48.32	48.05	47.98	47.89
11	47.25	47.24	46.06	49.71	49.59	47.31	47.91	48.42	48.31	48.05	47.94	47.93
12	47.24	47.31	46.12	49.60	49.51	47.20	47.95	48.41	48.34	48.04	47.86	47.98
13	47.25	47.18	46.08	49.02	49.46	47.07	47.91	48.45	48.24	48.04	47.72	47.95
14	47.27	47.14	46.08	49.14	49.41	47.06	47.90	48.46	47.87	48.03	47.62	47.96
15	47.18	47.11	46.29	49.30	49.32	46.99	47.85	48.42	47.75	48.05	47.64	47.95
16	47.26	46.99	46.30	49.63	49.28	46.95	47.57	48.47	48.26	48.15	47.58	47.92
17	47.46	46.95	46.31	49.84	49.20	46.95	47.47	48.51	47.77	48.12	47.60	47.99
18	47.11	47.04	46.26	50.21	49.24	46.91	47.39	48.47	47.74	48.16	47.66	47.99
19	46.92	46.96	46.28	50.22	49.34	46.96	47.27	48.45	48.28	48.08	47.73	48.03
20	46.98	46.99	46.29	50.16	49.01	47.06	47.24	48.46	48.31	47.94	47.74	48.08
21	47.08	47.02	46.47	50.12	48.90	47.17	47.28	48.44	48.30	47.86	47.75	48.05
22	47.11	46.76	46.52	50.09	48.73	47.07	47.36	48.40	48.18	47.89	47.78	48.04
23	47.12	46.32	47.06	49.77	48.82	47.10	47.40	48.42	47.74	47.97	47.85	48.13
24	47.12	45.96	47.23	49.49	48.89	47.08	47.40	48.42	47.81	48.04	47.86	48.13
25	47.17	45.85	47.04	49.38	48.59	47.15	47.41	48.39	47.95	48.04	47.93	48.04
26	47.14	46.27	47.26	49.31	49.26	47.19	47.40	48.39	47.47	47.96	47.92	48.07
27	47.10	46.23	47.46	49.34	49.07	47.24	47.32	48.39	47.61	47.94	47.96	48.13
28	47.05	46.15	47.81	49.52	48.71	47.31	47.36	48.43	47.96	47.98	47.90	48.07
29	47.04	46.13	48.04	49.48	---	47.26	47.36	48.37	47.68	48.03	47.95	48.07
30	47.04	46.09	47.97	49.41	---	47.34	47.36	48.37	47.78	48.13	47.97	48.10
31	47.11	---	46.47	49.55	---	47.41	---	48.33	---	48.08	47.96	---
MEAN	47.14	46.83	46.50	48.94	49.27	47.12	47.60	48.34	48.09	48.02	47.88	47.99
MAX	47.46	47.31	48.04	50.22	49.78	48.32	48.13	48.51	48.35	48.16	48.08	48.13
MIN	46.92	45.85	45.58	46.12	48.59	46.76	47.24	47.58	47.47	47.71	47.58	47.82

MISSOURI-LEWIS AND CLARK RIVER BASIN

06478530 LAKE THOMPSON NEAR OLDHAM, SD

LOCATION.--Lat 44°13'24", long 97°26'46", in SW1/4 SE1/4 SW1/4 sec.21, T.109 N., R.55 W., Kingsbury County, Hydrologic Unit 10170103, on right bank 8.9 river miles upstream from the stage station Lake Thompson near Ramona, SD (discontinued October 1988) and 6.75 mi west of Oldham.

DRAINAGE AREA.--472 mi^2.

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

GAGE.--Water-stage recorder. Datum of gage is 1,683.25 ft above sea level.

REMARKS.--Published records good except those for Nov. 30 to July 10, which are fair. Because of the large surface area of the lake, wind conditions have a drastic affect on stage at this location; such as a northerly wind increasing the stage and a southerly wind decreasing the stage.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	6.62	6.86	6.97	7.15	7.74	8.12	8.13	8.25	8.06	7.84
2	---	---	6.63	6.83	6.98	7.15	7.75	8.13	8.13	8.23	8.04	7.88
3	---	---	6.62	6.83	6.98	7.15	7.77	8.13	8.11	8.21	8.04	7.88
4	---	---	6.64	6.85	6.99	7.16	7.80	8.15	8.09	8.22	8.04	7.93
5	---	---	6.64	6.85	6.99	7.18	7.82	8.16	8.16	8.21	8.01	7.95
6	---	---	6.65	6.86	6.99	7.20	7.83	8.17	8.18	8.21	7.98	7.92
7	---	---	6.67	6.88	7.00	7.21	7.85	8.17	8.13	8.25	7.98	7.91
8	---	---	6.67	6.89	7.02	7.22	7.85	8.16	8.13	8.28	7.99	7.89
9	---	---	6.68	6.89	7.02	7.23	7.87	8.18	8.16	8.25	8.00	7.88
10	---	---	6.70	6.89	7.03	7.24	7.88	8.17	8.17	8.24	8.12	7.82
11	---	---	6.70	6.88	7.04	7.24	7.90	8.18	8.17	8.23	8.12	7.78
12	---	---	6.70	6.89	7.04	7.24	7.91	8.18	8.15	8.24	8.13	7.82
13	---	---	6.72	6.91	7.03	7.26	7.92	8.16	8.15	8.23	8.14	7.82
14	---	---	6.73	6.91	7.03	7.28	7.95	8.20	8.13	8.22	8.12	7.81
15	6.46	---	6.73	6.92	7.03	7.31	7.96	8.22	8.19	8.21	8.10	7.81
16	---	---	6.74	6.92	7.02	7.33	7.98	8.18	8.18	8.21	8.10	7.82
17	---	6.52	6.74	6.92	7.05	7.36	7.97	8.15	8.19	8.20	8.11	7.79
18	---	6.52	6.75	6.91	7.07	7.38	7.98	8.17	8.19	8.17	8.09	7.76
19	---	6.55	6.76	6.92	7.09	7.40	7.99	8.17	8.19	8.18	8.11	7.72
20	---	6.55	6.75	6.93	7.10	7.43	7.99	8.16	8.20	8.18	8.07	7.73
21	6.40	6.55	6.78	6.93	7.12	7.46	8.01	8.16	8.21	8.17	8.02	7.67
22	---	6.57	6.78	6.95	7.12	7.48	7.99	8.18	8.22	8.16	7.93	7.87
23	---	6.59	6.79	6.95	7.13	7.51	7.98	8.17	8.26	8.15	7.93	7.68
24	---	---	6.80	6.93	7.13	7.54	8.03	8.19	8.26	8.14	7.95	7.68
25	---	---	6.80	6.94	7.14	7.56	8.04	8.19	8.27	8.13	7.92	7.68
26	---	---	6.80	6.94	7.13	7.59	8.07	8.19	8.26	8.12	7.94	7.65
27	---	---	6.82	6.96	7.13	7.63	8.08	8.17	8.24	8.12	7.89	7.63
28	---	---	6.83	6.97	7.15	7.65	8.11	8.14	8.25	8.09	7.91	7.62
29	---	---	6.83	6.97	---	7.68	8.12	8.15	8.24	8.07	7.86	7.59
30	---	6.62	6.84	6.96	---	7.70	8.12	8.14	8.23	8.05	7.87	7.63
31	---	---	6.84	6.96	---	7.72	---	8.14	---	8.06	7.86	---
MEAN	---	---	6.73	6.91	7.05	7.38	7.94	8.17	8.19	8.18	8.01	7.78
MAX	---	---	6.84	6.97	7.15	7.72	8.12	8.22	8.27	8.28	8.14	7.95
MIN	---	---	6.62	6.83	6.97	7.15	7.74	8.12	8.09	8.05	7.86	7.59

06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD
(Hydrologic bench-mark station)

LOCATION.--Lat 43°47'39", long 97°22'02", in SW1/4 sec.19, T.104 N., R.54 W., McCook County, Hydrologic Unit 10170102, on right bank near downstream end of culvert on county 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 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	.98	e.50	e.10	.00	e5.0	6.8	28	.00	.70	.00	.00
2	2.0	1.1	e.50	e.05	.00	e4.0	6.3	27	.00	.44	.08	.00
3	1.9	1.2	e.50	e.01	.00	e5.0	5.7	21	.00	.27	.08	.00
4	1.7	1.2	e.40	.00	.00	e40	5.9	17	.00	.28	.00	.00
5	1.5	.98	e.40	.00	.00	e150	5.2	13	4.7	.26	.00	.00
6	1.4	.77	e.40	.00	.00	e250	5.9	13	12	.20	.00	.00
7	1.4	.87	e.30	.00	.00	e150	5.5	15	13	2.8	.00	.00
8	1.5	1.1	e.30	.00	.00	e60	5.9	13	6.7	2.8	.00	.00
9	1.7	1.1	e.30	.00	.00	e65	5.1	10	4.3	3.4	.00	.00
10	1.7	1.2	e.30	.00	.00	e75	4.6	7.0	3.0	2.7	.00	.00
11	1.6	1.2	e.30	.00	.00	e100	4.1	4.8	2.2	1.9	.00	.00
12	1.5	1.2	e.30	.00	.00	137	4.2	3.3	1.8	1.3	.00	.00
13	1.4	2.1	e.30	.00	.00	132	4.0	2.7	1.6	.93	.00	.00
14	1.3	2.2	e.30	.00	.00	116	3.7	3.5	1.2	.68	.00	.00
15	1.4	1.9	e.30	.00	.00	109	6.6	2.8	1.4	.48	.00	.00
16	1.5	1.9	e.30	.00	.00	75	5.9	2.3	1.7	.36	.00	.00
17	1.5	2.1	e.30	.00	.00	55	8.3	1.9	1.7	.23	.00	.00
18	1.5	2.1	e.30	.00	e.02	43	8.2	1.6	2.0	.10	.00	.00
19	1.5	1.9	e.20	.00	e35	39	5.0	1.2	5.7	.00	.00	.00
20	1.4	1.9	e.20	.00	e40	35	3.7	.87	4.8	.00	.00	.00
21	1.2	1.9	e.20	.00	e35	35	3.4	.71	3.0	.00	.00	.00
22	1.3	1.7	e.20	.00	e25	34	2.9	.72	2.4	.00	.00	.00
23	1.4	1.4	e.20	.00	e20	29	2.6	.60	2.8	.00	.00	.00
24	1.4	1.2	e.20	.00	e15	20	2.5	.50	2.5	.00	.00	.00
25	1.4	1.0	e.20	.00	e15	18	2.2	.45	2.8	.00	.00	.00
26	1.2	.71	e.20	.00	e10	15	3.2	.43	3.9	.00	.00	.00
27	1.1	e.70	e.20	.00	e7.0	12	4.2	.29	2.9	.00	.00	.00
28	1.2	e.60	e.20	.00	e6.0	11	5.6	.16	2.0	.00	.00	.00
29	.94	e.50	e.15	.00	---	9.7	13	.04	1.5	.00	.00	.00
30	.85	e.50	e.15	.00	---	8.3	20	.00	1.1	.00	.00	.00
31	.89	---	e.15	.00	---	7.8	---	.00	---	.00	.00	---
TOTAL	44.58	39.21	8.75	0.16	208.02	1844.8	170.2	192.87	92.70	19.83	0.16	0.00
MEAN	1.44	1.31	.28	.005	7.43	59.5	5.67	6.22	3.09	.64	.005	.000
MAX	2.3	2.2	.50	.10	40	250	20	28	13	3.4	.08	.00
MIN	.85	.50	.15	.00	.00	4.0	2.2	.00	.00	.00	.00	.00
AC-FT	88	78	17	.3	413	3660	338	383	184	39	.3	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1994, BY WATER YEAR (WY)

MEAN	1.27	.99	.27	.038	2.39	19.2	14.5	5.72	16.3	17.2	3.01	3.17
MAX	21.5	14.2	4.08	.91	40.7	80.3	87.5	74.9	186	430	50.3	63.0
(WY)	1987	1983	1983	1983	1983	1993	1984	1993	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1967 - 1994	
ANNUAL TOTAL	26447.64		2621.28			
ANNUAL MEAN	72.5		7.18		7.02a	
HIGHEST ANNUAL MEAN					73.4	1993
LOWEST ANNUAL MEAN					.000	1968b
HIGHEST DAILY MEAN	2500	Jul 4	250	Mar 6	2500	Jul 4 1993
LOWEST DAILY MEAN	.00	Jan 8	.00	Jan 4c	.00	Oct 1 1966c
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 8	.00	Jan 4	.00	Oct 1 1966
INSTANTANEOUS PEAK FLOW			270	Mar 6	3300	Jul 4 1993
INSTANTANEOUS PEAK STAGE			8.38	Mar 6d	11.95	Jul 4 1993
ANNUAL RUNOFF (AC-FT)	52460		5200		5090	
10 PERCENT EXCEEDS	235		14		6.6	
50 PERCENT EXCEEDS	2.6		.71		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

e Estimated
a Median of annual mean discharges, 2.6 ft^3/s.
b Also 1975 and 1981 water years.
c No flow for many days in each year.
d Backwater from ice.

06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD

LOCATION.--Lat 43°24'55", long 97°12'18", in NE1/4 NE1/4 sec.10, T.99 N., R.54 W., Turner County, Hydrologic Unit 10170102, on right bank 10 ft downstream from bridge, 3.7 mi northwest of Parker, and 13.9 mi upstream from confluence with East Fork Vermillion River.

DRAINAGE AREA.--377 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	6.2	8.7	3.7	e3.1	e45	37	130	4.5	12	1.3	1.1
2	16	7.1	8.7	e3.5	e3.2	e38	36	110	4.0	10	1.1	1.6
3	14	7.3	8.7	e3.4	e3.2	e100	35	86	3.4	8.2	1.3	1.5
4	14	7.2	8.4	e3.4	e3.2	e750	32	69	3.3	7.2	1.6	5.4
5	13	6.0	8.5	e3.4	e3.2	e1400	32	60	33	6.6	1.3	3.1
6	13	6.7	9.1	e3.3	e3.1	e1400	30	93	202	5.1	1.5	1.5
7	12	6.9	8.8	e3.2	e2.9	e1000	31	101	134	8.3	1.4	.95
8	12	10	8.4	e3.3	e2.8	757	32	84	78	25	1.4	.83
9	19	11	8.4	e3.5	e2.6	584	33	68	52	21	1.4	.87
10	16	10	8.6	e3.7	e2.5	528	29	52	37	14	1.6	.90
11	14	10	7.9	e4.0	e2.8	435	26	45	28	10	1.5	.90
12	14	11	7.9	e3.8	e3.0	418	29	37	21	7.5	1.8	.85
13	13	19	7.9	e3.5	e3.4	379	42	36	14	6.1	1.5	.79
14	13	16	7.6	e3.2	e3.6	344	38	86	11	5.1	1.4	.78
15	13	12	7.5	e3.0	e3.8	332	41	62	9.0	4.2	1.2	.85
16	13	12	7.5	e2.8	e4.0	283	45	53	8.0	4.5	1.2	.90
17	11	11	e7.4	e2.8	e5.0	246	38	41	7.0	4.0	1.5	.79
18	8.1	11	e7.4	e2.8	e15	187	34	33	6.3	3.2	1.2	.72
19	7.8	10	e7.4	e2.9	e200	160	30	23	6.2	2.7	1.3	.68
20	8.4	10	e7.4	e3.4	e190	133	29	17	5.9	2.3	1.2	.69
21	7.6	10	7.4	e3.8	e170	114	26	14	5.9	2.1	1.2	.72
22	7.6	9.8	7.3	e3.9	e140	103	24	13	79	1.9	1.1	.74
23	8.3	7.7	6.1	e3.8	e120	93	22	12	558	1.6	1.1	.78
24	8.9	7.2	5.2	e3.6	e95	80	22	11	152	1.7	.98	.81
25	7.6	9.2	5.7	e3.5	e85	75	20	8.5	74	1.5	1.1	.78
26	6.6	8.2	5.1	e3.4	e75	66	24	7.2	65	1.5	1.1	.77
27	6.6	6.7	5.3	e3.3	e65	63	34	7.5	51	1.3	1.0	.72
28	6.7	6.9	4.8	e3.2	e45	54	35	6.8	33	1.3	1.0	.72
29	6.2	8.1	4.6	e3.1	---	49	42	6.0	20	1.2	.98	.72
30	6.0	8.4	4.9	e3.1	---	45	108	5.5	16	1.2	.97	.68
31	6.2	---	4.2	e3.1	---	41	---	5.1	---	1.3	1.1	---
TOTAL	340.6	282.6	222.8	104.4	1255.4	10302	1036	1382.6	1721.5	183.6	39.33	33.14
MEAN	11.0	9.42	7.19	3.37	44.8	332	34.5	44.6	57.4	5.92	1.27	1.10
MAX	19	19	9.1	4.0	200	1400	108	130	558	25	1.8	5.4
MIN	6.0	6.0	4.2	2.8	2.5	38	20	5.1	3.3	1.2	.97	.68
AC-FT	676	561	442	207	2490	20430	2050	2740	3410	364	78	66

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1994, BY WATER YEAR (WY)

MEAN	4.08	5.39	2.07	1.00	18.4	126	97.2	44.2	86.3	53.1	9.01	12.9
MAX	40.5	105	27.9	9.05	267	453	698	509	1345	1081	144	324
(WY)	1987	1983	1983	1983	1983	1983	1984	1993	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1962 - 1994	
ANNUAL TOTAL	90659.10		16903.97			
ANNUAL MEAN	248		46.3		38.3a	
HIGHEST ANNUAL MEAN					249	1993
LOWEST ANNUAL MEAN					.019	1981
HIGHEST DAILY MEAN	4110	May 8	1400	Mar 5	4110	May 8 1993
LOWEST DAILY MEAN	.90	Feb 17	.68	Sep 19	.00	Oct 6 1961b
ANNUAL SEVEN-DAY MINIMUM	1.4	Feb 13	.73	Sep 17	.00	Nov 4 1961
INSTANTANEOUS PEAK FLOW			1700	Mar 5	6300	May 8 1993
INSTANTANEOUS PEAK STAGE			10.18	Mar 5c	13.14	May 8 1993
ANNUAL RUNOFF (AC-FT)	179800		33530		27770	
10 PERCENT EXCEEDS	890		89		52	
50 PERCENT EXCEEDS	31		7.6		.68	
90 PERCENT EXCEEDS	2.0		1.2		.00	

e Estimated
a Median of annual mean discharges, 9.5 ft^3/s.
b No flow for many days in most years.
c Backwater from ice.

MISSOURI-LEWIS AND CLARK RIVER BASIN

06479010 VERMILLION RIVER NEAR VERMILLION, SD

LOCATION.--Lat 42°49'02", long 96°55'26", in NE1/4 SE1/4 SE1/4 (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, 1993-94).

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 effected by East Vermillion Lake Reservoir, capacity, 550 acres, located about 54 mi upstream.

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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	282	169	146	e125	e40	e600	390	660	207	360	107	41
2	265	168	149	e115	e50	e600	335	817	201	304	102	37
3	250	169	154	e100	e50	e700	306	828	198	246	98	39
4	240	169	166	e70	e50	e1500	290	780	196	224	100	64
5	231	164	190	e60	e50	e2000	277	694	212	214	101	104
6	225	157	176	e50	e50	1980	271	694	244	201	101	111
7	220	146	e200	e44	e60	2140	269	779	367	204	100	113
8	218	144	e200	e30	e50	2250	328	878	628	214	89	116
9	241	166	e207	e33	e40	2420	383	844	734	210	74	125
10	251	164	e191	e44	e30	2450	344	720	643	214	72	123
11	256	160	e190	e50	e25	2400	315	615	549	252	66	97
12	253	164	e200	e55	e25	2360	322	530	489	272	75	66
13	239	197	e195	e60	e30	2250	420	475	396	260	73	54
14	230	227	e189	e50	e35	2150	595	458	331	255	72	43
15	226	258	e190	e50	e35	1940	682	465	296	217	70	35
16	225	275	196	e60	e40	1700	667	536	269	265	66	32
17	223	261	199	e60	e45	1550	629	575	249	301	96	28
18	221	261	206	e50	e100	1310	567	505	239	370	103	25
19	219	253	213	e50	e1800	1090	506	433	232	301	96	26
20	219	241	212	e60	e1750	966	456	393	221	241	71	25
21	215	229	207	e65	e1700	859	410	370	210	203	59	25
22	213	221	e190	e70	e1500	781	372	342	203	183	51	33
23	211	212	e180	e70	e1400	710	362	308	328	169	46	35
24	210	188	e170	e70	e1000	642	359	296	765	159	53	78
25	204	e170	e165	e70	e800	583	346	280	1090	149	106	91
26	199	e150	e160	e60	e700	542	341	264	1060	104	119	91
27	192	e140	e150	e50	e650	635	351	249	683	129	108	85
28	196	e140	e140	e50	e600	645	378	243	595	129	77	83
29	191	e140	e135	e50	---	622	442	251	500	126	56	82
30	179	e140	e130	e45	---	594	568	225	413	121	47	79
31	169	---	e130	e40	---	485	---	214	---	113	42	---
TOTAL	6913	5643	5526	1856	12705	41454	12281	15721	12748	6710	2496	1986
MEAN	223	188	178	59.9	454	1337	409	507	425	216	80.5	66.2
MAX	282	275	213	125	1800	2450	682	878	1090	370	119	125
MIN	169	140	130	30	25	485	269	214	196	104	42	25
AC-FT	13710	11190	10960	3680	25200	82220	24360	31180	25290	13310	4950	3940

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1994, BY WATER YEAR (WY)

MEAN	161	102	69.8	37.8	99.1	580	1063	624	947	750	213	182
MAX	643	307	178	67.7	454	1337	4405	2021	6062	5920	1434	754
(WY)	1987	1993	1994	1987	1994	1994	1984	1993	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1984 - 1994	
ANNUAL TOTAL	506792		126039			
ANNUAL MEAN	1388		345		403a	
HIGHEST ANNUAL MEAN					1416	1993
LOWEST ANNUAL MEAN					27.9	1991
HIGHEST DAILY MEAN	9990	Jul 15	2450	Mar 10	20200	Jun 23 1984
LOWEST DAILY MEAN	35	Feb 25	25	Feb 11b	3.6	Oct 10 1991c
ANNUAL SEVEN-DAY MINIMUM	42	Feb 22	28	Sep 16	4.5	Oct 6 1991
INSTANTANEOUS PEAK FLOW			2480	Mar 9d	21400	Jun 23 1984
INSTANTANEOUS PEAK STAGE			16.04	Feb 19f	31.77	Jun 23 1984
ANNUAL RUNOFF (AC-FT)	1005000		250000		291800	
10 PERCENT EXCEEDS	3530		726		964	
50 PERCENT EXCEEDS	373		207		75	
90 PERCENT EXCEEDS	60		50		8.9	

e Estimated
a Median of annual mean discharges, 280 ft^3/s.
b Also Feb. 12 and Sept. 18, 20, 21.
c Also Oct. 18, 1991.
d Gage height, 16.02 ft.
f Backwater from ice.

06479215 BIG SIOUX RIVER NEAR FLORENCE, SD

LOCATION.--Lat 45°10'51", long 97°11'09", in NE1/4 NE1/4 NE1/4 sec.17, T.120 N., R.52 W., Grant County, Hydrologic Unit 10170202, on right bank near downstream side of county highway bridge, 11.0 mi northeast of Florence, and 2.2 mi upstream from Indian Creek.

DRAINAGE AREA.--638 mi^2, of which 570 mi^2 is partly or entirely noncontributing.

PERIOD OF RECORD.--June 6, 1984, to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,780 ft above sea level, from topographic map.

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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	4.1	4.7	e4.5	e2.5	2.4	38	74	4.5	2.5	4.6	3.1
2	5.0	4.0	4.9	e3.5	e2.6	2.2	46	73	4.1	2.2	4.4	4.3
3	4.7	4.3	e5.0	e3.5	2.6	2.5	43	63	3.7	1.9	4.0	5.7
4	4.4	4.5	e5.0	e3.5	2.6	2.1	44	52	3.5	1.8	3.6	7.9
5	4.0	4.0	e5.0	e3.5	2.7	e2.5	38	43	3.3	1.7	3.2	9.2
6	3.9	4.8	e5.5	e3.0	2.9	e3.0	35	37	3.2	1.5	3.0	9.4
7	3.7	4.5	e6.0	e3.0	2.4	e2.9	32	33	3.3	408	2.9	8.7
8	3.9	4.5	e7.0	e2.7	e2.0	e2.5	31	29	3.0	290	2.6	7.5
9	4.2	4.5	7.0	e3.0	e1.8	2.7	40	25	2.7	363	4.8	6.4
10	4.8	4.4	6.6	3.4	e2.0	2.9	38	21	2.7	214	11	5.9
11	6.5	e4.4	6.7	e3.4	2.4	3.1	37	19	2.6	127	19	5.7
12	6.3	e4.2	6.8	e3.0	2.2	3.5	38	16	2.8	78	22	5.1
13	6.0	e4.0	6.3	e2.5	2.2	4.4	34	13	3.3	45	22	4.3
14	5.3	e4.0	5.9	e2.5	e2.2	e6.0	31	36	3.0	37	21	3.9
15	4.7	e4.2	5.9	e2.0	e2.2	e20	47	57	2.7	60	17	3.7
16	5.0	e4.5	5.9	e2.0	e2.2	e80	48	53	4.2	74	14	3.5
17	6.0	e4.6	5.8	e1.7	2.2	e140	42	40	20	82	12	3.5
18	6.3	e4.7	e5.8	e1.5	e2.2	e200	39	28	47	60	9.9	3.5
19	6.4	e4.7	e5.8	e1.5	e2.2	e500	33	20	30	56	8.3	3.2
20	6.3	e5.0	e5.5	e1.7	e2.2	944	32	15	20	110	7.6	2.9
21	7.1	e5.0	e5.0	e2.0	e2.4	528	38	12	16	185	7.4	2.9
22	6.9	e5.0	e4.8	e2.4	2.5	275	35	9.8	16	119	6.7	3.2
23	6.7	e4.7	e4.5	2.3	2.5	140	32	11	21	74	5.8	3.3
24	6.3	e4.5	e4.5	2.3	2.5	88	30	9.2	22	44	5.2	3.8
25	5.8	e4.2	e4.2	e2.3	e2.5	106	33	9.3	15	29	4.2	4.3
26	5.5	e4.0	e4.0	e2.5	e2.5	78	56	10	9.6	20	3.4	4.4
27	5.1	e4.0	e4.0	e2.5	e2.5	61	86	10	6.4	16	3.0	4.5
28	5.0	e4.5	e4.5	e2.5	2.4	47	87	9.2	4.7	12	2.8	4.4
29	4.0	e4.7	e5.0	e2.0	---	44	71	7.3	3.6	9.2	2.7	4.1
30	4.6	e4.7	e6.0	e2.0	---	36	82	6.2	2.9	6.4	3.1	4.0
31	4.2	---	e6.0	e2.5	---	37	---	5.3	---	4.9	3.1	---
TOTAL	164.2	133.2	169.6	80.7	66.1	3366.7	1316	846.3	286.8	2535.1	244.3	146.3
MEAN	5.30	4.44	5.47	2.60	2.36	109	43.9	27.3	9.56	81.8	7.88	4.88
MAX	7.1	5.0	7.0	4.5	2.9	944	87	74	47	408	22	9.4
MIN	3.7	4.0	4.0	1.5	1.8	2.1	30	5.3	2.6	1.5	2.6	2.9
AC-FT	326	264	336	160	131	6680	2610	1680	569	5030	485	290

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1994, BY WATER YEAR (WY)

MEAN	2.93	1.95	1.31	.58	1.17	47.0	28.2	12.1	14.9	30.4	7.26	5.39
MAX	10.4	4.69	5.47	2.60	3.88	111	115	36.8	61.1	169	37.9	20.6
(WY)	1987	1985	1994	1994	1985	1986	1986	1986	1986	1993	1991	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1985 - 1994	
ANNUAL TOTAL	11394.33		9355.3			
ANNUAL MEAN	31.2		25.6		12.8a	
HIGHEST ANNUAL MEAN					30.8	1986
LOWEST ANNUAL MEAN					.62	1988
HIGHEST DAILY MEAN	884	Mar 28	944	Mar 20	1140	Mar 30 1986
LOWEST DAILY MEAN	.49	Jan 7	1.5	Jan 18	.00	Aug 9 1985b
ANNUAL SEVEN-DAY MINIMUM	.49	Jan 7	1.8	Jan 15	.00	Dec 16 1989
INSTANTANEOUS PEAK FLOW			1140	Mar 19	1810	Mar 29 1986c
INSTANTANEOUS PEAK STAGE			8.79	Mar 19	9.18	Jul 25 1993
ANNUAL RUNOFF (AC-FT)	22600		18560		9310	
10 PERCENT EXCEEDS	63		54		25	
50 PERCENT EXCEEDS	5.9		5.0		1.3	
90 PERCENT EXCEEDS	.68		2.4		.04	

e Estimated
a Median of annual mean discharges, 8.6 ft^3/s.
b No flow Aug. 9-11, 1985, Dec. 16 to Mar. 5, 1990, and Feb. 16-25, 1991.
c Gage height, 9.08 ft.

BIG SIOUX RIVER BASIN

06479438 BIG SIOUX RIVER NEAR WATERTOWN, SD

LOCATION.--Lat 45°00'22", long 97°09'53", in NE1/4 NE1/4 NE1/4 sec.16, T.118 N., R.52 W., 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.--1,220 mi^2, of which 566 mi^2 is probably noncontributing (213 mi^2 formerly noncontributing began contributing in 1994 water year).

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.

GAGE.--Water-stage recorder and crest-stage gage. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	18	e18	e17	e9.0	e9.0	119	258	30	50	30	20
2	24	18	e18	e15	e9.0	e9.5	130	239	28	45	28	22
3	23	17	e18	e12	e10	e10	154	198	26	41	27	28
4	22	17	e18	e12	e10	e10	142	172	25	39	25	37
5	22	17	e19	e12	e9.0	e10	124	147	26	37	23	41
6	21	17	e19	e10	e8.0	e9.5	112	129	26	36	23	43
7	20	17	e20	e10	e7.5	e9.5	100	114	26	87	21	41
8	20	17	e22	e9.5	e7.0	e9.0	92	99	25	434	20	37
9	19	17	e23	e10	e6.0	e8.5	96	86	24	794	29	35
10	20	17	e24	e12	e7.5	e9.0	116	76	23	625	75	32
11	20	17	e23	e12	e9.0	e10	119	68	22	453	131	30
12	20	e16	e23	e11	e10	e60	103	61	21	288	113	28
13	21	e16	e22	e9.0	e11	e40	95	55	21	199	83	29
14	21	e16	e21	e8.0	e11	e80	89	65	21	190	66	30
15	21	e16	e19	e8.0	e12	e200	102	104	21	202	56	28
16	21	e17	e19	e7.0	e12	e600	154	153	26	165	48	27
17	21	e17	e19	e7.0	e13	e500	156	128	94	145	44	26
18	20	e18	e19	e6.0	e14	e600	122	99	586	133	39	24
19	21	e19	e18	e6.0	e15	e1000	102	75	328	122	36	23
20	21	e20	e18	e7.5	e14	1890	88	60	230	105	33	22
21	21	e20	e17	e9.0	e13	1430	87	53	145	133	31	22
22	21	e19	e16	e10	e12	917	98	48	127	172	29	23
23	21	e18	e15	e13	e12	567	98	44	824	176	28	23
24	21	e17	e15	e13	e11	281	86	50	622	129	26	23
25	21	e16	e14	e12	e10	278	83	63	316	88	24	22
26	20	e16	e14	e12	e10	277	133	62	186	65	23	22
27	19	e16	e14	e11	e9.0	216	328	52	118	53	23	22
28	18	e17	e15	e10	e9.0	178	265	47	84	46	22	22
29	17	e17	e16	e8.0	---	151	217	42	67	41	20	21
30	17	e18	e17	e8.0	---	136	217	37	57	37	20	21
31	17	---	e18	e9.0	---	120	---	33	---	33	20	---
TOTAL	637	518	571	316.0	290.0	9625.0	3927	2917	4175	5163	1216	824
MEAN	20.5	17.3	18.4	10.2	10.4	310	131	94.1	139	167	39.2	27.5
MAX	26	20	24	17	15	1890	328	258	824	794	131	43
MIN	17	16	14	6.0	6.0	8.5	83	33	21	33	20	20
AC-FT	1260	1030	1130	627	575	19090	7790	5790	8280	10240	2410	1630

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1994, BY WATER YEAR (WY)

MEAN	5.66	5.96	3.18	1.44	4.62	103	92.2	33.1	43.0	44.4	15.7	9.24
MAX	33.0	19.0	18.4	10.2	36.7	321	403	170	157	467	120	49.6
(WY)	1987	1987	1994	1994	1984	1986	1986	1986	1991	1993	1991	1986
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1973 - 1994	
ANNUAL TOTAL	35342.1		30179.0			
ANNUAL MEAN	96.8		82.7		30.2a	
HIGHEST ANNUAL MEAN					96.6	1986
LOWEST ANNUAL MEAN					2.22	1981
HIGHEST DAILY MEAN	2500	Mar 28	1890	Mar 20	4300	Mar 30 1986
LOWEST DAILY MEAN	2.0	Jan 1	6.0	Jan 18,19, Feb 9	.00	Feb 1 1974b
ANNUAL SEVEN-DAY MINIMUM	2.0	Jan 1	7.1	Jan 14	.00	Feb 1 1974
INSTANTANEOUS PEAK FLOW			2110	Mar 20	4970	Mar 30 1986c
INSTANTANEOUS PEAK STAGE			9.86	Mar 20	11.13	Jun 21 1991d
ANNUAL RUNOFF (AC-FT)	70100		59860		21880	
10 PERCENT EXCEEDS	229		177		57	
50 PERCENT EXCEEDS	23		23		3.2	
90 PERCENT EXCEEDS	3.0		10		.03	

e Estimated
a Median of annual mean discharges, 19 ft^3/s.
b No flow at times in 1988-91.
c Gage height, 11.08 ft.
d Backwater.

BIG SIOUX RIVER BASIN

06479450 LAKE KAMPESKA (INLET/OUTLET) NEAR WATERTOWN, SD

LOCATION.--Lat 44°56'56", long 097°10'30", in NE1/4 SW1/4 NE1/4 sec.15, T.117 N., R.53 W., Codington County, Hydrologic unit 10170202, on left bank 50 ft downstream from State Highway 20 bridge, 8.8 mi upstream from Willow Creek, and 4.6 mi northwest of Watertown.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--October 1993 to September 1994.

GAGE.--Water-stage recorder and acoustic velocity meter. Datum of gage is 1,697.89 ft above sea level.

REMARKS.--Stage records good. Mean daily discharges have been computed on a provisional basis and are available upon request. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	17.93	17.95	---	17.80	17.73	---	18.88	18.17	18.75	18.36	17.90
2	---	17.93	17.95	---	17.79	17.72	---	18.92	18.14	18.68	18.33	17.91
3	---	17.92	---	---	17.79	17.72	---	18.94	18.13	18.63	18.30	17.92
4	---	17.90	---	---	17.78	17.72	---	18.91	18.11	18.59	18.24	17.98
5	---	17.89	---	---	17.78	17.71	19.18	18.91	18.17	18.55	18.20	17.98
6	---	17.90	---	---	17.77	17.72	19.13	18.89	18.16	18.49	18.16	17.96
7	---	17.89	---	---	17.76	17.71	19.08	18.88	18.14	18.66	18.11	17.95
8	---	17.89	---	---	17.76	17.70	19.04	18.84	18.11	18.70	18.05	17.94
9	---	17.88	---	---	17.77	17.71	18.99	18.79	18.13	18.82	18.16	17.94
10	---	17.87	17.91	---	17.76	17.72	18.95	18.76	18.09	18.94	18.32	17.94
11	---	17.87	17.91	---	17.76	17.73	18.91	18.71	18.04	19.03	18.36	17.92
12	---	17.86	17.90	17.85	17.76	17.74	18.88	18.66	18.00	19.05	18.40	17.89
13	---	17.93	---	17.85	17.76	17.76	18.85	18.63	17.99	19.04	18.39	17.87
14	---	17.92	---	17.85	17.76	17.81	18.82	18.66	18.00	19.05	18.38	17.87
15	---	17.94	---	17.82	17.75	17.93	18.85	18.65	17.95	19.02	18.37	17.88
16	---	17.93	---	17.84	17.74	18.19	18.81	18.63	17.99	18.99	18.35	17.82
17	---	17.92	---	17.84	17.74	18.46	18.80	18.63	18.20	18.96	18.32	17.79
18	---	17.93	---	17.84	17.74	18.73	18.78	18.60	18.39	18.92	18.31	17.78
19	---	17.93	---	17.82	17.74	19.02	18.75	18.57	18.62	18.88	18.28	17.76
20	---	17.92	17.92	17.82	17.73	19.49	18.72	18.53	18.69	18.85	18.24	17.74
21	---	17.91	17.91	17.81	17.72	19.94	18.70	18.48	18.71	18.79	18.22	17.72
22	---	17.85	---	17.81	17.72	20.13	18.69	18.45	18.74	18.75	18.19	17.69
23	---	17.89	---	17.80	17.73	20.18	18.68	18.42	18.88	18.73	18.16	17.67
24	---	17.92	---	17.80	17.73	20.12	18.61	18.41	19.04	18.71	18.12	17.67
25	---	17.97	---	17.79	17.75	20.02	18.56	18.38	19.12	18.67	18.08	17.65
26	---	17.97	---	17.79	17.74	19.93	18.59	18.36	19.09	18.62	18.05	17.64
27	---	17.97	---	17.81	17.73	19.85	18.66	18.34	19.07	18.57	18.04	17.63
28	---	17.97	---	17.82	17.73	19.77	18.74	18.32	18.98	18.53	17.99	17.61
29	17.95	17.96	---	17.81	---	---	18.84	18.28	18.89	18.49	17.96	17.60
30	17.94	17.95	---	17.81	---	---	18.85	18.26	18.83	18.45	17.95	17.56
31	17.94	---	---	17.80	---	---	---	18.21	---	18.40	17.92	---
MAX	---	17.97	---	---	17.80	---	---	18.94	19.12	19.05	18.40	17.98
MIN	---	17.85	---	---	17.72	---	---	18.21	17.95	18.40	17.92	17.56

BIG SIOUX RIVER BASIN

06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD

LOCATION.--Lat 44°43'54", long 97°02'39", in SW1/4 SW1/4 sec.26, T.115 N., R.52 W., Hamlin County, Hydrologic Unit 10170202, on right bank at upstream side of 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.--2,210 mi^2, of which 1,214 mi^2 is probably noncontributing (213 mi^2 formerly noncontributing began contributing in 1994 water water).

PERIOD OF RECORD.--October 1976 to current year.

REVISED RECORDS.--WDR SD-84-1: 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 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	71	e58	e55	e42	e95	655	383	125	318	180	104
2	144	72	e58	e50	e42	e90	652	397	118	284	170	119
3	136	e72	e60	e45	e45	e90	642	391	113	257	166	138
4	131	e72	e60	e45	e45	e90	613	399	112	245	158	177
5	122	e72	e60	e45	e42	e100	585	391	191	231	145	204
6	119	72	e62	e42	e40	e200	566	381	203	218	142	188
7	115	69	e65	e40	e35	e300	557	387	195	342	137	161
8	104	e69	e68	e38	e32	e500	540	379	179	435	126	148
9	100	e69	e73	e40	e30	e450	544	352	170	575	151	140
10	110	e70	e73	e45	e33	e300	510	332	162	468	1010	132
11	114	e70	e69	e45	e37	e250	482	320	147	427	1160	128
12	109	e70	e65	e42	e40	e225	450	291	131	411	584	119
13	100	e68	e62	e40	e40	e230	420	279	121	387	398	110
14	100	e67	e60	e35	e42	e270	409	300	116	429	323	107
15	99	e65	e60	e32	e47	e500	456	294	115	631	280	109
16	100	e65	e60	e32	e47	e920	489	278	111	533	253	109
17	100	e65	e60	e30	e50	e1200	427	263	241	456	234	94
18	102	66	e58	e28	e60	e1000	387	251	779	419	214	88
19	100	e70	e58	e30	e65	e900	358	236	718	410	203	83
20	103	e72	e55	e35	e60	e1150	336	223	444	386	188	80
21	103	e72	e55	e40	e55	1170	317	210	359	378	171	97
22	100	e70	e52	e45	e50	935	316	199	326	335	162	105
23	92	e60	e50	e50	e55	843	315	191	405	307	156	89
24	92	e55	e47	e50	e55	757	297	189	482	289	148	86
25	91	e50	e45	e47	e60	714	252	182	452	271	136	84
26	97	e50	e45	e45	e70	721	255	170	430	253	128	76
27	89	e50	e45	e45	e85	710	293	163	407	239	124	76
28	92	e52	e47	e42	e100	702	300	158	416	222	122	74
29	88	e55	e50	e40	---	689	315	153	376	213	111	68
30	76	e55	e55	e40	---	673	356	142	339	202	113	63
31	76	---	e60	e42	---	662	---	137	---	192	108	---
TOTAL	3252	1955	1795	1280	1404	17436	13094	8421	8483	10763	7701	3356
MEAN	105	65.2	57.9	41.3	50.1	562	436	272	283	347	248	112
MAX	148	72	73	55	100	1200	655	399	779	631	1160	204
MIN	76	50	45	28	30	90	252	137	111	192	108	63
AC-FT	6450	3880	3560	2540	2780	34580	25970	16700	16830	21350	15270	6660

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1994, BY WATER YEAR (WY)

MEAN	26.8	22.5	15.2	8.65	15.8	132	232	116	107	84.2	66.2	44.4
MAX	105	72.4	57.9	41.3	53.4	562	1310	613	380	419	375	187
(WY)	1994	1987	1994	1994	1984	1994	1986	1986	1984	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1977 - 1994	
ANNUAL TOTAL	70987.0		78940			
ANNUAL MEAN	194		216		72.6a	
HIGHEST ANNUAL MEAN					250	1986
LOWEST ANNUAL MEAN					8.15	1990
HIGHEST DAILY MEAN	1200	Mar 29	1200	Mar 17	2020	Mar 30 1986
LOWEST DAILY MEAN	6.0	Feb 17	28	Jan 18	.00	Dec 30 1976b
ANNUAL SEVEN-DAY MINIMUM	6.7	Feb 17	32	Jan 14	.00	Dec 30 1976
INSTANTANEOUS PEAK FLOW			1440	Aug 10c	2250	Mar 30 1986
INSTANTANEOUS PEAK STAGE			11.21	Mar 16d	11.73	Mar 30 1986
ANNUAL RUNOFF (AC-FT)	140800		156600		52630	
10 PERCENT EXCEEDS	480		493		182	
50 PERCENT EXCEEDS	135		122		15	
90 PERCENT EXCEEDS	9.0		45		.84	

e Estimated
a Median of annual mean discharges, 49 ft^3/s.
b No flow for many days in some years.
c Gage height, 10.71 ft.
d Backwater from ice.

BIG SIOUX RIVER BASIN

06479928 BATTLE CREEK NEAR NUNDA, SD

LOCATION.--Lat 44°09'10", long 96°53'18", in SE1/4 SE1/4 SE1/4 sec.13, T.108 N., R.51 W., Lake County, Hydrologic Unit 10170202, on left bank 21 ft from downstream bridge abutment, and 6.0 mi east of Nunda.

DRAINAGE AREA.--163 mi^2, of which 4.8 mi^2 probably is noncontributing.

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,590 ft above sea level, from topographic map.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	8.5	e6.0	e2.1	e1.6	e8.0	60	80	9.2	71	13	2.8
2	7.9	8.2	e6.0	e2.2	e1.6	e10	57	75	9.7	61	11	5.0
3	7.4	7.9	e5.5	e2.1	e1.8	e15	53	65	9.8	54	11	8.5
4	7.3	8.0	e5.5	e1.9	e1.9	e25	51	60	9.5	52	9.5	9.0
5	8.0	8.5	e5.5	e1.7	e2.0	e100	47	52	12	50	9.2	10
6	7.6	8.2	e5.5	e1.6	e1.7	e400	51	51	14	45	8.3	8.9
7	8.1	8.2	e5.0	e1.5	e1.5	e340	50	52	17	163	7.7	9.6
8	8.0	8.2	e5.0	e1.5	e1.3	e200	51	51	17	282	6.9	7.3
9	7.6	8.2	e5.0	e1.7	e1.2	e200	49	45	16	200	7.0	6.4
10	7.7	8.2	e5.4	e2.2	e1.5	e250	45	38	14	125	47	6.1
11	7.9	8.2	e5.0	e2.5	e2.0	e300	42	31	12	86	35	5.6
12	8.1	8.1	e5.0	e2.2	e3.0	e280	40	25	11	68	33	6.1
13	7.9	e8.0	e5.5	e1.8	e3.5	e250	39	21	11	57	26	4.7
14	8.2	e9.0	e6.0	e1.7	e4.0	287	38	21	10	51	20	4.5
15	8.9	e8.0	e6.5	e1.5	e4.5	238	64	23	9.8	44	16	4.7
16	9.1	e6.0	e7.0	e1.5	e4.5	213	79	22	9.7	40	12	3.0
17	9.1	e6.2	e7.0	e1.5	e6.0	183	69	19	17	35	11	2.4
18	9.3	e6.5	e6.5	e1.5	e10	163	58	16	59	31	10	1.9
19	9.4	e6.5	e5.5	e1.8	e20	146	50	14	62	29	11	1.9
20	9.6	e6.5	e4.5	e2.2	e18	138	45	12	51	27	9.8	1.9
21	9.3	e6.5	e3.5	e2.7	e10	143	44	11	42	25	8.8	1.6
22	9.0	e7.0	e3.0	e3.0	e8.5	133	40	11	46	24	7.0	2.4
23	8.8	e5.0	e3.0	e2.5	e8.0	117	36	11	416	23	6.3	2.3
24	8.4	e4.2	e2.5	e2.0	e7.0	97	34	11	638	22	5.0	2.2
25	8.3	e4.0	e2.0	e2.0	e6.0	89	29	11	696	20	4.2	2.3
26	8.9	e3.0	e2.0	e2.0	e6.0	85	32	11	400	19	3.8	1.9
27	7.8	e3.5	e1.7	e2.0	e7.0	82	38	12	235	18	3.7	1.8
28	8.1	e4.0	e1.5	e1.8	e8.0	76	40	11	152	17	3.5	1.2
29	7.7	e5.0	e1.5	e1.7	---	72	45	8.8	111	16	3.0	.79
30	8.4	e5.5	e1.7	e1.5	---	65	66	8.2	88	17	2.9	.77
31	8.5	---	e2.0	e1.5	---	63	---	7.4	---	13	3.0	---
TOTAL	259.0	202.8	137.3	59.4	152.1	4768.0	1442	886.4	3204.7	1785	365.6	127.56
MEAN	8.35	6.76	4.43	1.92	5.43	154	48.1	28.6	107	57.6	11.8	4.25
MAX	9.6	9.0	7.0	3.0	20	400	79	80	696	282	47	10
MIN	7.3	3.0	1.5	1.5	1.2	8.0	29	7.4	9.2	13	2.9	.77
AC-FT	514	402	272	118	302	9460	2860	1760	6360	3540	725	253

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	4.12	5.89	1.82	.45	7.77	64.4	51.9	42.3	113	94.1	13.5	7.31
MAX	16.2	27.7	6.03	1.92	38.6	154	243	186	400	459	48.5	26.2
(WY)	1993	1993	1993	1994	1992	1994	1993	1993	1993	1993	1993	1992
MIN	.000	.000	.000	.000	.000	.053	.10	.59	.083	.018	.000	.000
(WY)	1989	1990	1990	1989	1989	1990	1990	1989	1989	1989	1989	1989

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1989 - 1994	
ANNUAL TOTAL	46211.26		13389.86			
ANNUAL MEAN	127		36.7		34.0	
HIGHEST ANNUAL MEAN					129	1993
LOWEST ANNUAL MEAN					3.16	1989
HIGHEST DAILY MEAN	2200	Jul 4	696	Jun 25	2200	Jul 4 1993
LOWEST DAILY MEAN	.15	Jan 12	.77	Sep 30	.00	Oct 1 1988a
ANNUAL SEVEN-DAY MINIMUM	.19	Jan 9	1.6	Sep 24	.00	Oct 1 1988
INSTANTANEOUS PEAK FLOW			788	Jun 25b	3400	Jul 4 1993e
INSTANTANEOUS PEAK STAGE			10.12	Mar 6c	12.99	Jul 4 1993d
ANNUAL RUNOFF (AC-FT)	91660		26560		24620	
10 PERCENT EXCEEDS	378		81		63	
50 PERCENT EXCEEDS	9.3		8.9		1.8	
90 PERCENT EXCEEDS	1.0		1.9		.00	

e Estimated
a No flow at times in most years.
b Gage height, 9.16 ft.
c Backwater from ice.
d Backwater.

BIG SIOUX RIVER BASIN

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD

LOCATION.--Lat 44°10'48", long 96°44'55", in NW1/4 NW1/4 sec.8, T.108 N., R.49 W., Moody County, Hydrologic Unit 10170203, on right bank 3 ft downstream from highway bridge, 2.2 mi downstream from Medary Creek, and 9.5 mi southeast of Brookings.

DRAINAGE AREA.--4,111 mi^2, of which 1,266 mi^2 is probably noncontributing (213 mi^2 formerly noncontributing began contributing in 1994 water year).

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

REVISED RECORDS.--WDR SD-84-1: 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	787	428	e340	e180	e100	e130	1670	1520	575	1620	531	447
2	731	425	e340	e170	e100	e140	1620	1590	558	1390	522	487
3	696	429	e340	e170	e100	e150	1560	1600	537	1210	520	564
4	665	432	e340	e160	e100	e150	1530	1560	518	1090	503	682
5	638	436	e330	e160	e100	e160	1490	1490	565	998	483	803
6	615	402	e330	e160	e100	e240	1510	1450	644	924	475	876
7	592	394	e320	e160	e100	e300	1500	1420	727	984	463	902
8	573	424	e320	e150	e95	e500	1450	1390	884	1260	448	862
9	558	450	e320	e160	e90	e700	1420	1340	1110	1470	438	750
10	545	431	e310	e170	e90	e1300	1370	1270	1310	1570	673	647
11	539	426	e310	e170	e90	e1500	1340	1210	1220	1560	1080	582
12	536	431	e310	e170	e90	e1700	1310	1130	1060	1460	1410	534
13	533	472	e300	e160	e95	e1800	1280	1070	863	1320	1740	500
14	525	524	e290	e150	e100	e2000	1270	1030	770	1190	2060	472
15	521	549	e280	e150	e100	2400	1390	984	762	1080	2170	455
16	523	552	e280	e140	e100	2910	1550	961	821	997	2020	438
17	523	541	e280	e140	e100	3290	1640	966	912	948	1690	426
18	524	530	e280	e130	e100	3370	1620	938	1880	930	1330	411
19	523	522	e270	e130	e100	3310	1520	887	2480	919	1060	391
20	519	513	e270	e130	e100	3310	1430	837	3450	882	888	374
21	510	504	e260	e120	e110	3280	1350	793	3850	844	781	363
22	504	495	e250	e120	e110	3310	1280	774	3600	808	716	374
23	498	e450	e230	e120	e120	3310	1220	749	4270	782	659	378
24	492	e340	e200	e110	e120	3080	1170	772	4490	751	603	376
25	482	e220	e180	e110	e120	2940	1120	784	5290	718	561	366
26	472	e250	e170	e110	e120	2630	1170	783	5550	682	529	357
27	463	e300	e160	e100	e130	2340	1230	764	4740	656	499	343
28	461	e350	e160	e100	e130	2140	1280	725	3540	626	472	334
29	451	e350	e160	e100	---	1980	1350	686	2610	604	453	328
30	439	e350	e170	e100	---	1840	1440	644	2000	585	439	321
31	425	---	e180	e100	---	1740	---	608	---	561	432	---
TOTAL	16863	12920	8280	4300	2910	57950	42080	32725	61586	31419	26648	15143
MEAN	544	431	267	139	104	1869	1403	1056	2053	1014	860	505
MAX	787	552	340	180	130	3370	1670	1600	5550	1620	2170	902
MIN	425	220	160	100	90	130	1120	608	518	561	432	321
AC-FT	33450	25630	16420	8530	5770	114900	83470	64910	122200	62320	52860	30040

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1994, BY WATER YEAR (WY)

MEAN	101	82.9	46.5	23.9	46.6	490	745	398	521	306	161	140
MAX	767	431	267	179	270	2037	4445	2804	3432	3269	1553	1693
(WY)	1987	1994	1994	1987	1983	1985	1969	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1954 - 1994	
ANNUAL TOTAL	451908		312824			
ANNUAL MEAN	1238		857		256a	
HIGHEST ANNUAL MEAN					1174	1993
LOWEST ANNUAL MEAN					15.5	1959
HIGHEST DAILY MEAN	11300	Jul 5	5550	Jun 26	31200	Apr 9 1969
LOWEST DAILY MEAN	30	Jan 7	90	Feb 9-12	.00	Jan 18 1956c,b
ANNUAL SEVEN-DAY MINIMUM	35	Jan 5	93	Feb 7	.00	Jan 18 1956
INSTANTANEOUS PEAK FLOW			5660	Jun 25	33900	Apr 9 1969
INSTANTANEOUS PEAK STAGE			12.08	Jun 25	14.77	Apr 9 1969
ANNUAL RUNOFF (AC-FT)	896400		620500		185100	
10 PERCENT EXCEEDS	2750		1720		633	
50 PERCENT EXCEEDS	748		537		50	
90 PERCENT EXCEEDS	50		120		4.0	

e Estimated
a Median of annual mean discharges, 160 ft^3/s.
b No flow at times in 1956, 1976, 1977, 1982.

BIG SIOUX RIVER BASIN

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD

LOCATION.--Lat 43°47'25", long 96°44'42", in NW1/4 NW1/4 sec.29, T.104 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on left bank at downstream side of highway bridge, 0.2 mi downstream from confluence of divided channels, and 3.0 mi southwest of Dell Rapids.

DRAINAGE AREA.--4,696 mi^2, of which 1,249 mi^2 is probably noncontributing (213 mi^2 formerly noncontributing began contributing in 1994 water year).

PERIOD OF RECORD.--May 1948 to current year.

REVISED RECORDS.--WDR SD-84-1: 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. National 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.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1050	460	e460	e250	e140	e280	2120	1980	684	3220	827	590
2	966	458	e440	e240	e150	e280	2030	2040	654	2450	803	614
3	911	458	e420	e240	e150	e350	1960	2040	617	1960	785	666
4	854	458	e400	e230	e150	e375	1920	2010	592	1700	808	814
5	810	458	e400	e230	e150	e1500	1870	1950	676	1540	784	925
6	774	456	e400	e230	e150	e2000	1840	1890	787	1400	778	1060
7	747	434	e400	e220	e140	e2100	1830	1840	938	1380	754	1130
8	706	422	e410	e200	e140	e2000	1860	1790	955	1380	730	1160
9	681	430	e420	e210	e130	e1900	1840	1720	994	1480	720	1150
10	659	467	e420	e220	e140	e1900	1800	1650	1120	1650	835	1080
11	645	483	e420	e220	e140	e2100	1750	1560	1260	1770	1100	960
12	623	473	e430	e210	e140	e2300	1710	1460	1410	1830	1470	859
13	616	535	e430	e200	e150	e2500	1710	1370	1430	1810	1710	794
14	612	587	e420	e190	e150	e2700	1680	1310	1090	1710	1860	736
15	609	643	e410	e180	e150	e3700	1860	1240	920	1570	2010	724
16	602	685	e410	e180	e150	4640	2000	1190	863	1450	2190	668
17	585	698	e410	e170	e150	4210	2020	1140	869	1350	2280	631
18	585	690	e400	e170	e160	3760	2030	1090	926	1280	2260	604
19	585	664	e390	e160	e400	3900	1990	1070	1500	1230	2010	582
20	585	653	e380	e160	e300	4050	1930	1020	2420	1210	1620	553
21	585	640	e370	e160	e300	4050	1840	956	2770	1180	1340	516
22	585	618	e350	e160	e290	4100	1740	920	2930	1150	1170	493
23	577	594	e330	e160	e280	4000	1670	883	3290	1110	1050	485
24	569	e500	e310	e150	e280	3870	1600	880	3840	1070	967	498
25	553	e400	e290	e150	e270	3800	1550	918	4540	1040	896	509
26	534	e350	e280	e150	e260	3530	1540	1020	4830	1000	827	500
27	523	e400	e270	e150	e260	3250	1580	943	4670	968	781	482
28	507	e470	e260	e150	e260	2940	1620	898	4690	934	730	471
29	493	e480	e250	e150	---	2630	1700	844	4580	907	689	455
30	487	e470	e250	e140	---	2380	1860	787	4050	880	653	442
31	477	---	e250	e140	---	2230	---	725	---	856	624	---
TOTAL	20095	15534	11480	5770	5530	83325	54450	41134	60895	44465	36061	21151
MEAN	648	518	370	186	197	2688	1815	1327	2030	1434	1163	705
MAX	1050	698	460	250	400	4640	2120	2040	4830	3220	2280	1160
MIN	477	350	250	140	130	280	1540	725	592	856	624	442
AC-FT	39860	30810	22770	11440	10970	165300	108000	81590	120800	88200	71530	41950

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1994, BY WATER YEAR (WY)

MEAN	133	114	69.2	35.3	71.4	676	1213	558	661	442	228	192
MAX	1090	587	370	220	584	2813	6756	3699	5392	5362	1914	2541
(WY)	1987	1983	1994	1987	1983	1985	1969	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1949 - 1994	
ANNUAL TOTAL	630143		399890			
ANNUAL MEAN	1726		1096		366a	
HIGHEST ANNUAL MEAN					1654	1993
LOWEST ANNUAL MEAN					23.1	1959
HIGHEST DAILY MEAN	14100	Jul 5	4830	Jun 26	35000	Apr 10 1969
LOWEST DAILY MEAN	60	Jan 29	130	Feb 9	.00	Aug 25 1976b
ANNUAL SEVEN-DAY MINIMUM	63	Jan 25	140	Feb 6	.00	Aug 25 1976
INSTANTANEOUS PEAK FLOW			4880	Mar 16c	41300	Apr 9 1969
INSTANTANEOUS PEAK STAGE			12.82	Jun 26d	16.47	Apr 9 1969
ANNUAL RUNOFF (AC-FT)	1250000		793200		265300	
10 PERCENT EXCEEDS	4060		2150		868	
50 PERCENT EXCEEDS	920		774		79	
90 PERCENT EXCEEDS	80		196		10	

e Estimated
a Median of annual mean discharges, 210 ft^3/s.
b No flow Aug. 25 to Oct. 17, 1976.
c Gage height, 12.28 ft.
d Discharge, 4,870 ft^3/s, backwater.

BIG SIOUX RIVER BASIN

06481500 SKUNK CREEK AT SIOUX FALLS, SD

LOCATION.--Lat 43°32'01", long 96°47'26", in NW1/4 SW1/4 sec.24, T.101 N., R.50 W., Minnehaha County, Hydrologic Unit 10170203, on left bank 5 ft downstream from bridge on Marion Road, 1.3 mi upstream from mouth, 1.8 mi downstream from small right-bank tributary, and 4.0 mi southwest of Sioux Falls.

DRAINAGE AREA.--622 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 and crest-stage gage. 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. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	70	78	e42	e23	e55	241	709	50	100	22	9.8
2	126	75	76	e38	e23	e63	232	575	50	94	21	20
3	121	76	76	e35	e25	e250	222	488	49	89	30	19
4	114	75	77	e32	e25	e2500	219	421	45	89	29	43
5	113	77	80	e28	e26	2920	195	380	409	90	26	48
6	109	65	83	e27	e28	1440	195	486	544	90	20	37
7	104	74	84	e25	e26	948	251	467	443	110	17	29
8	103	75	78	e25	e23	692	248	406	374	155	16	24
9	98	76	76	e26	e20	748	226	339	275	140	20	20
10	92	74	76	e28	e22	722	214	282	218	128	19	17
11	93	71	72	e30	e26	700	198	239	168	115	23	14
12	89	78	74	e33	e30	724	222	202	131	102	47	13
13	92	167	74	e32	e30	801	377	174	120	93	47	12
14	91	220	74	e28	e32	679	331	179	147	85	38	11
15	92	149	74	e25	e35	617	437	207	102	87	31	13
16	95	163	74	e23	e40	537	469	179	88	78	27	32
17	96	150	78	e22	e200	498	389	151	86	72	25	29
18	97	147	e78	e22	e500	469	328	128	84	63	22	22
19	99	142	e75	e23	e700	448	284	110	82	59	20	17
20	99	130	e75	e25	e500	439	253	96	80	55	17	15
21	99	123	e72	e28	e200	428	231	88	78	50	15	12
22	95	115	e68	e32	e120	415	205	89	102	48	14	13
23	93	100	e65	e35	e80	401	190	88	822	45	12	12
24	90	e90	e58	e35	e70	350	181	80	517	41	11	14
25	89	e80	e50	e32	e60	340	175	87	279	37	12	13
26	87	70	e42	e30	e55	324	277	87	195	35	10	12
27	83	77	e37	e27	e50	317	520	84	182	33	10	11
28	81	80	e35	e25	e50	298	446	76	157	29	9.8	10
29	76	79	e35	e23	---	282	421	68	132	27	9.1	12
30	70	78	e40	e23	---	258	671	60	115	27	9.1	10
31	72	---	e45	e22	---	250	---	53	---	25	8.7	---
TOTAL	2993	3046	2079	881	3019	19913	8848	7078	6124	2291	637.7	563.8
MEAN	96.5	102	67.1	28.4	108	642	295	228	204	73.9	20.6	18.8
MAX	135	220	84	42	700	2920	671	709	822	155	47	48
MIN	70	65	35	22	20	55	175	53	45	25	8.7	9.8
AC-FT	5940	6040	4120	1750	5990	39500	17550	14040	12150	4540	1260	1120

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1994, BY WATER YEAR (WY)

MEAN	26.7	23.1	12.6	6.13	30.3	194	233	113	138	118	42.9	40.4
MAX	405	316	126	50.2	321	869	1530	931	1903	2915	655	798
(WY)	1987	1983	1983	1987	1983	1983	1984	1993	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1949 - 1994	
ANNUAL TOTAL	226435		57473.5			
ANNUAL MEAN	620		157		81.5a	
HIGHEST ANNUAL MEAN					625	1993
LOWEST ANNUAL MEAN					1.55	1981
HIGHEST DAILY MEAN	7610	Jul 11	2920	Mar 5	11500	Jun 17 1957
LOWEST DAILY MEAN	15	Feb 17	8.7	Aug 31	.00	Jan 26 1951b
ANNUAL SEVEN-DAY MINIMUM	20	Feb 13	9.5	Aug 26	.00	Jan 26 1951
INSTANTANEOUS PEAK FLOW			3740	Mar 5	29400	Jun 17 1957c
INSTANTANEOUS PEAK STAGE			6.98	Mar 5	17.78	Jun 17 1957c
ANNUAL RUNOFF (AC-FT)	449100		114000		59060	
10 PERCENT EXCEEDS	1490		421		158	
50 PERCENT EXCEEDS	167		78		6.6	
90 PERCENT EXCEEDS	30		20		.50	

e Estimated
a Median of annual mean discharges, 36 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.

BIG SIOUX RIVER BASIN

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD

LOCATION.--Lat 43°34'01", long 96°42'39", in SW1/4 NW1/4 sec.10, T.101 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on right bank 20 ft downstream from bridge on North Cliff Avenue and 4.1 mi upstream from Slip Up Creek.

DRAINAGE AREA.--5,429 mi^2, of which 1,249 mi^2 is probably noncontributing (213 mi^2 formerly noncontributing began contributing in 1994 water year).

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.

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 estimated daily discharges, which are poor, and those for June 21 to Sept. 30, which are fair. 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. National 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 of Apr. 10, 1969, reached a stage of 27.45 ft, discharge, 40,700 ft^3/s.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1110	593	556	e410	e165	378	2540	2910	1080	4030	1040	967
2	1040	589	577	e360	e160	371	2390	2850	1080	3120	1010	1020
3	1000	592	589	e350	e160	461	2280	2740	1050	2540	1010	1020
4	951	599	597	e330	e160	1180	2230	2650	1030	2210	1020	1250
5	908	594	603	e310	e165	2410	2150	2460	1510	1990	1000	1180
6	880	572	601	e300	e170	3090	2070	2590	1590	1820	979	1260
7	857	571	601	e290	e170	2960	2080	2540	1550	1810	963	1320
8	860	554	596	e280	e170	2680	2110	2410	1570	1780	941	1350
9	818	563	592	e270	e170	2560	2090	2250	1470	1850	1000	1350
10	793	575	579	e270	e170	2360	2030	2080	1500	2010	995	1300
11	781	603	558	e270	e170	2420	1970	1910	1570	2080	1080	1220
12	766	634	562	e270	e165	2660	2050	1770	1640	2120	1510	1130
13	750	753	545	e265	e150	2850	2320	1650	1840	2170	1630	1050
14	745	788	535	e260	e165	2990	2130	1640	1570	2070	1800	991
15	746	778	545	e260	e175	3610	2360	1570	1360	1980	1930	949
16	745	788	541	e255	e185	4060	2630	1480	1270	1860	2120	916
17	736	801	546	e245	e175	4780	2560	1390	1260	1710	2280	873
18	735	793	543	e235	e290	4330	2490	1330	1400	1630	2320	831
19	730	784	e520	e230	e1300	4170	2360	1300	e1800	1570	2150	793
20	727	767	e500	e220	e1100	4280	2270	1280	e2300	1540	1830	759
21	718	752	e500	e220	e750	4320	2140	1240	e2800	1510	1580	729
22	710	737	478	e220	e700	4320	2000	1220	3010	1480	1410	707
23	707	718	477	e215	e550	4290	1880	1200	4370	1440	1300	679
24	698	624	457	e210	e500	4160	1810	1210	4270	1390	1230	669
25	689	e550	429	e200	e450	4080	1790	1220	4440	1360	1200	657
26	666	456	420	e200	e400	3990	1850	1290	4920	1320	1140	634
27	648	425	e420	e200	e410	3760	2140	1280	4960	1290	1090	607
28	647	437	e420	e190	391	3500	2130	1230	4700	1230	1060	594
29	624	466	e410	e180	---	3070	2230	1200	4680	1160	1020	579
30	614	513	e410	e175	---	2880	2620	1160	4600	1110	999	554
31	601	---	e390	e170	---	2710	---	1100	---	1080	975	---
TOTAL	24000	18969	16097	7860	9686	95680	65700	54150	72190	56260	41612	27938
MEAN	774	632	519	254	346	3086	2190	1747	2406	1815	1342	931
MAX	1110	801	603	410	1300	4780	2630	2910	4960	4030	2320	1350
MIN	601	425	390	170	150	371	1790	1100	1030	1080	941	554
AC-FT	47600	37630	31930	15590	19210	189800	130300	107400	143200	111600	82540	55420

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1994, BY WATER YEAR (WY)

MEAN	268	235	148	79.1	151	1153	1523	947	1097	890	410	399
MAX	1580	1009	519	289	798	3479	6543	4516	6880	8612	2528	3468
(WY)	1987	1983	1994	1987	1983	1985	1986	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1972 - 1994	
ANNUAL TOTAL	869063		490142			
ANNUAL MEAN	2381		1343		610a	
HIGHEST ANNUAL MEAN					2312	1993
LOWEST ANNUAL MEAN					50.4	1981
HIGHEST DAILY MEAN	17700	Jul 7	4960	Jun 27	20700	Jun 22 1984
LOWEST DAILY MEAN	105	Feb 26	150	Feb 13	.81	Feb 13 1982
ANNUAL SEVEN-DAY MINIMUM	109	Feb 24	164	Jan 31	1.3	Feb 8 1982
INSTANTANEOUS PEAK FLOW			5050	Jun 27	21600	Jun 22 1984
INSTANTANEOUS PEAK STAGE			15.33	Jun 27	25.40	Jun 22 1984
ANNUAL RUNOFF (AC-FT)	1724000		972200		441600	
10 PERCENT EXCEEDS	6340		2690		1600	
50 PERCENT EXCEEDS	1040		1030		151	
90 PERCENT EXCEEDS	120		268		22	

e Estimated
a Median of annual mean discharges, 390 ft^3/s.

BIG SIOUX RIVER BASIN

06483500 ROCK RIVER NEAR ROCK VALLEY, IA

LOCATION.--Lat 43°12'52", long 96°17'39", in SW1/4 SW1/4 sec.16, T.97 N., R.46 W., Sioux County, Hydrologic Unit 10170204, on left bank 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 encoder. 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.--Estimated daily discharges: Nov. 24 to Dec. 17, Dec. 21 to Mar. 6, Mar. 8, Apr. 18-22, June 1-6, 25-27, and Sept. 18-26. 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, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	587	e760	e440	e270	e540	828	2410	e776	1360	330	318
2	967	599	e660	e390	e290	e600	812	2900	e820	1280	311	335
3	925	607	e580	e360	e280	e800	772	2280	e800	1200	295	352
4	898	608	e500	e400	e300	e3000	766	1870	e780	1160	294	457
5	866	592	e460	e420	e380	e8000	745	1670	e1000	1140	276	589
6	850	516	e460	e370	e330	e11000	734	1750	e1300	1110	262	667
7	836	481	e450	e260	e300	8370	780	1780	1850	1130	249	601
8	834	567	e420	e270	e300	e4900	826	1700	4350	1140	238	512
9	891	553	e450	e300	e270	2930	839	1570	4320	1100	247	451
10	957	527	e420	e330	e280	2010	810	1460	2130	1050	312	407
11	950	536	e390	e300	e300	1650	763	1380	1670	1010	780	376
12	923	545	e430	e320	e290	1620	808	1310	1520	964	1740	357
13	881	921	e470	e280	e300	1630	1050	1250	8940	971	2510	350
14	853	1440	e470	e260	e320	1690	1350	1220	20800	1030	2290	328
15	843	1460	e450	e250	e350	1830	1570	1210	10300	984	1490	313
16	836	1160	e540	e270	e400	1760	1930	1180	3960	962	1220	295
17	818	1050	e700	e260	e390	1540	1930	1130	2760	914	1080	284
18	803	984	723	e250	e480	1420	e1610	1080	2290	846	973	e270
19	793	947	714	e290	e1400	1340	e1500	1040	2020	777	854	e250
20	774	903	631	e280	e2200	1290	e1400	1010	1800	731	765	e240
21	769	869	e520	e300	e1800	1250	e1350	977	2400	704	692	e240
22	754	832	e390	e350	e1300	1200	e1300	962	2450	664	618	e270
23	744	800	e400	e450	e1100	1150	1230	946	7790	618	554	e270
24	732	e600	e420	e370	e480	1100	1200	1060	13800	569	501	e260
25	721	e170	e360	e320	e500	1040	1180	1060	e8030	524	473	e250
26	695	e180	e340	e300	e480	1020	1980	1090	e4720	491	444	245
27	668	e400	e220	e280	e500	996	2000	1060	e2540	454	478	239
28	664	e600	e230	e290	e520	965	2030	989	1910	421	415	233
29	641	e700	e330	e270	---	918	1730	943	1630	393	382	228
30	607	e800	e430	e250	---	858	1800	877	1470	367	357	222
31	563	---	e500	e260	---	841	---	807	---	345	336	---
TOTAL	25076	21534	14818	9740	16110	69258	37623	41971	120926	26409	21766	10209
MEAN	809	718	478	314	575	2234	1254	1354	4031	852	702	340
MAX	1020	1460	760	450	2200	11000	2030	2900	20800	1360	2510	667
MIN	563	170	220	250	270	540	734	807	776	345	238	222
AC-FT	49740	42710	29390	19320	31950	137400	74630	83250	239900	52380	43170	20250
CFSM	.51	.45	.30	.20	.36	1.40	.79	.85	2.53	.54	.44	.21
IN.	.59	.50	.35	.23	.38	1.62	.88	.98	2.83	.62	.51	.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1994, BY WATER YEAR (WY)

MEAN	192	217	119	63.9	203	940	1167	557	879	585	255	175
MAX	1232	2039	676	432	1059	3421	6507	3728	6495	9088	2251	1319
(WY)	1993	1980	1983	1983	1966	1983	1969	1993	1993	1993	1993	1993
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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1948 - 1994	
ANNUAL TOTAL	945665		415440			
ANNUAL MEAN	2591		1138		446	
HIGHEST ANNUAL MEAN					2656	1993
LOWEST ANNUAL MEAN					31.0	1968
HIGHEST DAILY MEAN	22300	Jul 12	20800	Jun 14	35400	Apr 7 1969
LOWEST DAILY MEAN	120	Feb 24	170	Nov 25	.00	Feb 20 1959
ANNUAL SEVEN-DAY MINIMUM	139	Feb 23	240	Sep 24	.00	Feb 27 1959
INSTANTANEOUS PEAK FLOW			23100	Jun 14	40400	Apr 7 1969
INSTANTANEOUS PEAK STAGE			18.27	Jun 14	17.32a	Apr 7 1969
ANNUAL RUNOFF (AC-FT)	1876000		824000		323300	
ANNUAL RUNOFF (CFSM)	1.63		.71		.28	
ANNUAL RUNOFF (INCHES)	22.10		9.71		3.81	
10 PERCENT EXCEEDS	7690		1890		1050	
50 PERCENT EXCEEDS	1050		766		107	
90 PERCENT EXCEEDS	223		280		14	

e Estimated
a Former site and datum in use prior to May 5, 1976.

BIG SIOUX RIVER BASIN

06485500 BIG SIOUX RIVER AT AKRON, IA
(National stream-quality accounting network station)

LOCATION.--Lat 42°50'14", long 96°33'41", in SW1/4 SE1/4 SW1/4 sec.30, T.93 N., R.48 W., Plymouth County, Hydrologic Unit 10170203, on left bank 15 ft downstream from Iowa Highway 403 bridge, 0.5 mi northwest of Akron, and 2.9 mi upstream from Union Creek.

DRAINAGE AREA.--8,637 mi^2, of which 1,274 mi^2 is probably noncontributing (213 mi^2 of noncontributing began contributing in 1994 water year).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929(M), 1931-33(M), 1936(M), 1938(M), 1940(M). WSP 1389: Drainage area. WDR SD-84-1: Drainage area.

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. Additional water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2820	1690	e1700	e1300	e500	e1200	4170	5540	2120	6600	1450	1210
2	2690	1690	e1800	e1260	e500	e1000	3980	6600	2030	6270	1410	1170
3	2570	1690	e1800	e1200	e500	e1400	3800	7400	1970	5680	1360	1170
4	2470	1700	e1800	e1190	e450	e3000	3660	6680	1910	4760	1310	1320
5	2380	1710	e1800	e1170	e450	e4000	3540	5980	1920	4140	1270	1420
6	2310	1690	e1800	e1080	e450	e8500	3460	5670	3280	4220	1280	1610
7	2260	1640	e1700	e1000	e450	e14000	3370	5680	4220	3560	1250	1640
8	2230	1580	e1600	e960	e450	e16000	3370	5700	4360	3360	1210	1660
9	2250	1630	e1600	e940	e400	12500	3410	5410	5990	3390	1170	1670
10	2260	1620	e1600	e930	e390	8700	3420	5030	5970	3230	1160	1640
11	2260	1620	e1600	e900	e400	6980	3340	4650	4460	3130	1220	1600
12	2220	1630	e1600	e830	e400	5760	3330	4280	3940	3140	1700	1530
13	2180	1790	e1600	e760	e400	5650	3430	3980	4020	3210	3170	1460
14	2130	2160	e1700	e650	e400	5760	3940	3760	7150	3260	3980	1370
15	2100	2880	e1700	e650	e400	5960	4690	3630	15400	3250	4020	1290
16	2070	2980	e1700	e640	e400	6190	4890	3550	17200	3120	3420	1220
17	2060	2620	e1800	e630	e500	6470	5650	3390	7160	3060	3130	1180
18	2040	2470	e1800	e620	e600	6530	5700	3230	4900	2870	3030	1150
19	2010	2410	e1800	e620	e2400	6410	5060	3030	4300	2610	3000	1120
20	2010	2340	e1750	e600	e4300	6410	4730	2850	4000	2440	2900	1090
21	1990	2270	e1600	e560	e4200	6140	4440	2710	4060	2320	2670	1060
22	1980	2210	e1100	e550	e4000	6140	4210	2600	5090	2220	2350	1070
23	1970	2150	e900	e550	e3000	6080	4000	2510	5910	2150	2070	1070
24	1950	2100	e1000	e540	e2200	5950	3830	2440	8300	2060	1860	1040
25	1930	1860	e1200	e530	e1800	5790	3670	2510	13500	1970	1720	1030
26	1900	e1150	e1300	e530	e1600	5600	3630	2590	13800	1870	1610	1010
27	1860	e950	e1300	e540	e1400	5450	4720	2590	9720	1790	1520	1010
28	1840	e1300	e1300	e500	e1300	5280	5170	2620	7890	1710	1480	1000
29	1800	e1800	e1300	e480	---	5040	5550	2520	7400	1630	1380	989
30	1770	e1700	e1300	e480	---	4750	5240	2380	6920	1570	1320	973
31	1730	---	e1300	e480	---	4340	---	2250	---	1500	1260	---
TOTAL	66040	57030	47850	23670	34240	192980	125400	123760	188890	96090	61680	37772
MEAN	2130	1901	1544	764	1223	6225	4180	3992	6296	3100	1990	1259
MAX	2820	2980	1800	1300	4300	16000	5700	7400	17200	6600	4020	1670
MIN	1730	950	900	480	390	1000	3330	2250	1910	1500	1160	973
AC-FT	131000	113100	94910	46950	67920	382800	248700	245500	374700	190600	122300	74920

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1994, BY WATER YEAR (WY)

MEAN	467	435	291	180	477	2346	2973	1556	2016	1409	702	660
MAX	4039	3022	1967	841	2399	8866	20690	9499	15820	21740	6200	7313
(WY)	1987	1980	1983	1983	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

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1929 - 1994	
ANNUAL TOTAL	2296680		1055402			
ANNUAL MEAN	6292		2892		1126a	
HIGHEST ANNUAL MEAN					6271	1993
LOWEST ANNUAL MEAN					120	1931
HIGHEST DAILY MEAN	50600	Jul 13	17200	Jun 16	77500	Apr 9 1969
LOWEST DAILY MEAN	520	Jan 26	390	Feb 10	4.0	Jan 17 1977
ANNUAL SEVEN-DAY MINIMUM	524	Jan 26	399	Feb 9	4.4	Jan 15 1977
INSTANTANEOUS PEAK FLOW			20400	Jun 16	80800	Apr 9 1969b
INSTANTANEOUS PEAK STAGE			21.08	Jun 16	23.05	May 10 1993c
ANNUAL RUNOFF (AC-FT)	4555000		2093000		816100	
10 PERCENT EXCEEDS	15800		5840		2560	
50 PERCENT EXCEEDS	2810		2060		332	
90 PERCENT EXCEEDS	600		716		68	

e Estimated
a Median of annual mean discharges, 770 ft^3/s.
b Gage height, 22.99 ft.
c From high-water mark.

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1966 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1981.
WATER TEMPERATURE: October 1974 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,310 microsiemens, Jan. 20, 1977; minimum daily, 260 microsiemens, Mar. 20, 23, 1978.
WATER TEMPERATURE: Maximum daily, 31.0°C, Feb. 19, 1975, July 23, 1976, July 11, 1981; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

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)
JAN												
13...	1245	760	1320	7.9	-12.0	0.0	2.1	737	12.0	85	550	--
MAR												
24...	1315	5810	740	8.0	14.0	6.0	56	735	12.5	104	340	140
JUN												
23...	1020	5980	1020	8.0	20.5	23.0	150	--	8.6	--	300	0
SEP												
08...	1200	1630	1200	8.4	30.0	22.0	34	734	11.5	137	380	140

DATE	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	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)
JAN												
13...	--	339	180	63	130	54	30	11	0.6	5.4	--	--
MAR												
24...	201	204	200	890	84	32	15	9	0.4	6.2	246	0
JUN												
23...	522	200	--	4900	72	29	14	9	0.4	4.5	637	0
SEP												
08...	239	239	K1200	280	85	41	25	12	0.6	7.8	262	15

DATE	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 AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
JAN												
13...	230	31	0.50	20	743	786	1.07	1610	0.160	0.21	0.60	0.050
MAR												
24...	150	13	0.30	14	450	481	0.65	7550	0.130	0.17	1.2	0.040
JUN												
23...	110	13	0.40	15	594	420	0.57	6780	<0.010	--	2.0	0.040
SEP												
08...	180	21	0.30	14	528	461	0.63	2030	0.020	0.03	1.9	0.020

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
JAN											
13...	8.50	8.50	8.45	8.45	0.160	0.150	0.160	10	100	<3	11
MAR											
24...	3.00	3.00	2.96	2.96	0.350	0.150	0.140	<10	63	<3	11
JUN											
23...	4.90	4.90	4.86	4.86	0.660	0.160	0.170	<10	81	<3	5
SEP											
08...	2.10	2.10	2.08	2.08	0.420	0.090	0.080	<10	75	<3	<3

BIG SIOUX RIVER BASIN

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	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)	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)
JAN											
13...	38	42	<10	2	4	<1.0	500	<6	186	382	40
MAR											
24...	19	7	<10	3	2	<1.0	270	<6	322	5050	99
JUN											
23...	20	1	10	3	2	<1.0	260	<6	650	10500	97
SEP											
08...	29	2	<10	3	<2	<1.0	340	<6	203	893	98

BIG SIOUX RIVER BASIN

06485696 BRULE CREEK NEAR ELK POINT, SD

LOCATION.--Lat 42°48'32", long 96°41'11", in SW1/4 SW1/4 sec.6, T.92 N., R.49 W., Union County, Hydrologic Unit 10170203, on right bank 10 ft upstream from county highway bridge, 8.8 mi upstream from mouth, and 8.5 mi north of Elk Point.

DRAINAGE AREA.--204 mi^2.

REVISED RECORDS.--WDR SD-84-1: Drainage area.

PERIOD OF RECORD.--October 1982 to Sept. 30, 1994 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,150 ft above sea level, from topographic map.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	e33	e43	e34	e16	e130	57	134	28	35	17	9.8
2	30	33	e45	e30	e16	e120	57	104	27	33	16	10
3	29	34	e47	e28	e15	e160	54	87	27	32	16	10
4	30	34	e49	e27	e14	e250	53	78	27	32	15	18
5	30	34	e49	e24	e14	e320	54	73	34	34	15	16
6	29	e28	e50	e24	e14	e325	52	113	43	40	13	15
7	29	e33	e48	e23	e14	e350	57	149	128	35	13	12
8	32	e33	e53	e23	e14	e370	56	115	108	34	11	11
9	57	e31	e50	e22	e12	e375	53	91	58	32	12	10
10	67	31	e47	e22	e11	e360	50	75	46	31	13	9.7
11	51	31	e44	e22	e12	e320	48	67	38	28	13	9.4
12	47	34	e41	e22	e12	e280	60	62	35	28	16	9.5
13	44	114	e40	e22	e12	e240	109	58	48	35	37	9.8
14	42	142	e40	e21	e13	e200	190	60	41	58	28	9.4
15	42	83	e40	e20	e13	e190	156	69	32	44	17	8.9
16	46	70	e42	e20	e15	e180	120	64	28	38	14	8.4
17	46	70	e43	e19	e20	e170	92	54	28	40	13	8.2
18	45	67	e45	e19	e60	e150	80	47	33	35	13	8.0
19	44	65	e48	e18	e700	e140	74	43	30	31	12	8.0
20	41	60	e46	e18	e400	e120	68	41	27	28	12	8.0
21	41	56	e45	e19	e350	e100	66	39	24	27	12	8.2
22	42	55	e45	e20	e300	e90	64	38	23	25	11	10
23	41	52	e40	e20	e250	e75	60	36	111	24	11	10
24	42	e35	e37	e20	e200	e65	60	36	151	23	11	9.9
25	42	e33	e37	e20	e200	e60	56	34	77	22	11	9.9
26	e39	e33	e37	e19	e180	e55	58	36	88	21	12	9.6
27	e37	e32	e37	e19	e160	e55	77	35	62	21	11	9.3
28	35	e37	e36	e18	e150	e50	74	32	48	20	10	9.5
29	35	e39	e35	e18	---	e53	82	35	41	20	9.6	9.0
30	32	e41	e35	e18	---	54	144	32	37	19	10	8.9
31	31	---	e35	e17	---	56	---	30	---	17	9.8	---
TOTAL	1229	1473	1329	666	3187	5463	2281	1967	1528	942	434.4	303.4
MEAN	39.6	49.1	42.9	21.5	114	176	76.0	63.5	50.9	30.4	14.0	10.1
MAX	67	142	53	34	700	375	190	149	151	58	37	18
MIN	29	28	35	17	11	50	48	30	23	17	9.6	8.0
AC-FT	2440	2920	2640	1320	6320	10840	4520	3900	3030	1870	862	602

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1994, BY WATER YEAR (WY)

MEAN	37.0	28.1	20.5	13.3	37.7	160	144	86.2	145	68.7	26.6	29.7
MAX	136	57.4	42.9	28.7	114	412	597	298	696	331	112	97.9
(WY)	1993	1993	1994	1986	1994	1993	1984	1984	1983	1993	1993	1985
MIN	2.16	3.21	1.79	1.58	4.41	10.7	7.75	8.06	3.49	5.74	4.67	2.94
(WY)	1992	1990	1990	1990	1990	1991	1990	1989	1989	1988	1990	1991

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1983 - 1994	
ANNUAL TOTAL	46077.0		20802.8			
ANNUAL MEAN	126		57.0		66.5a	
HIGHEST ANNUAL MEAN					160	1984
LOWEST ANNUAL MEAN					8.63	1991
HIGHEST DAILY MEAN	1910	Mar 27	700	Feb 19	5520	Jun 28 1983
LOWEST DAILY MEAN	3.5	Feb 18	8.0	Sep 18	.43	Oct 22 1991
ANNUAL SEVEN-DAY MINIMUM	4.3	Feb 17	8.2	Sep 15	.77	Dec 18 1989
INSTANTANEOUS PEAK FLOW			750	Feb 19	6290	Jun 28 1983
INSTANTANEOUS PEAK STAGE			12.86	Feb 19b	22.39	Jun 28 1983
ANNUAL RUNOFF (AC-FT)	91390		41260		48160	
10 PERCENT EXCEEDS	265		123		130	
50 PERCENT EXCEEDS	58		35		22	
90 PERCENT EXCEEDS	14		11		3.6	

e Estimated
a Median of annual mean discharges, 49 ft^3/s.
b Backwater from ice.

MISSOURI-LITTLE SIOUX RIVER BASIN

06486000 MISSOURI RIVER AT SIOUX CITY, IA

LOCATION.--Lat 42°29'09", long 96°24'49", in NW1/4 SE1/4 sec.16, T.29 N., R.9 E., sixth principal meridian, Dakota County, Nebraska, Hydrologic Unit 10230001, on right bank on upstream side of bridge on U.S. Highway 20 and 77 at South Sioux City, Nebraska, 1.9 mi downstream from Big Sioux River, and at mile 732.2.

DRAINAGE.--314,600 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 encoder. 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.--Estimated daily discharges: Jan. 10-13, 16-31, and Feb. 12-14, 21-23, 25, 26. Records good except those for estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. 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, 7.83 ft Jan. 9, 1989.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25600	26700	18600	23500	20200	23400	31800	32500	36500	37000	31900	32000
2	25500	27000	18600	21100	20400	23900	31600	34500	36400	38700	31800	32100
3	25400	27100	18400	19800	20200	25000	31400	39200	35700	37900	31800	32200
4	25300	27100	18400	19700	20300	29200	31000	44000	35200	37100	31700	33200
5	25300	27200	18500	21000	20300	35000	30700	43200	35500	35800	31200	32800
6	25300	26700	18700	20200	20100	37700	31700	41900	34800	35400	31000	31600
7	25500	26500	19300	14200	19800	37400	34500	39000	36300	35500	31000	31500
8	25800	26500	18600	13200	19100	39300	34300	38700	37600	34500	31100	31500
9	26700	26300	19800	17500	18300	40800	34200	38000	38200	32100	30800	31300
10	26300	26100	20300	e19600	19000	39300	34200	39500	39200	34100	30800	31400
11	26100	25900	19400	e20400	20000	37000	34000	40600	39000	34100	30500	31400
12	26000	26400	20200	e20900	e20400	35900	34800	40400	37500	34700	30800	31700
13	25700	27300	20300	e21100	e20200	36100	35200	40100	37600	35400	31500	32500
14	25500	27000	19800	20400	e19500	33400	34100	40000	37900	35700	31500	31900
15	25400	27000	20500	17800	19000	31500	35300	40000	37600	35400	31600	31600
16	25300	27400	21100	e18000	19300	31100	35300	39200	41600	35900	31300	31300
17	25400	26400	21300	e18400	19500	31100	33500	39200	49200	35800	30700	31000
18	27200	26100	21500	e18900	22100	31200	33600	38800	42900	34800	30600	31300
19	26000	26300	21200	e19400	33900	30900	33200	38100	35700	34400	31100	31000
20	24700	26200	21100	e20100	35200	31000	31800	37500	37200	33500	31600	31200
21	24900	25900	20300	e20800	e30700	31900	30900	37000	36800	32200	31600	31800
22	25400	25700	20300	e21400	e30200	32200	30600	36700	36500	31600	31200	32800
23	25600	24600	18300	e21900	e28600	31800	30400	35900	39000	31400	31100	32900
24	25500	21400	18900	e22000	25700	31800	30300	36200	38100	31200	31200	32200
25	25700	18000	19000	e21500	e24300	31100	30000	35600	38800	31300	31600	32000
26	26100	18000	19100	e20500	e21800	31300	30300	35700	44400	31400	32400	31300
27	26200	17000	18600	e20000	23500	31500	30100	35700	41500	31100	31800	31000
28	26100	17600	18600	e19800	24500	32100	31000	36000	39600	30900	31600	31000
29	26100	17600	18400	e19700	---	32300	32500	37100	40000	30800	31400	30900
30	26200	17700	19300	e19800	---	31700	32100	36900	36900	31000	31800	31200
31	26500	---	21700	e19700	---	31800	---	36900	---	31600	31900	---
TOTAL	798300	736700	608100	612300	636100	1009700	974400	1184100	1153200	1052300	971900	951600
MEAN	25750	24560	19620	19750	22720	32570	32480	38200	38440	33950	31350	31720
MAX	27200	27400	21700	23500	35200	40800	35300	44000	49200	38700	32400	33200
MIN	24700	17000	18300	13200	18300	23400	30000	32500	34800	30800	30500	30900
AC-FT	1583000	1461000	1206000	1214000	1262000	2003000	1933000	2349000	2287000	2087000	1928000	1887000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1994, BY WATER YEAR (WY)

MEAN	35040	30340	18460	15870	16790	22060	32490	32420	33930	35450	35850	35690
MAX	63260	62930	36770	27720	27730	36270	50970	46250	54190	53720	63090	63290
(WY)	1976	1976	1987	1987	1983	1983	1969	1986	1971	1975	1975	1975
MIN	14350	6951	8271	7316	6293	10130	23480	23820	23270	26890	24270	25790
(WY)	1962	1962	1962	1964	1963	1958	1961	1962	1960	1958	1993	1962

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1958 - 1994a	
ANNUAL TOTAL	9630000		10688700			
ANNUAL MEAN	26380		29280		28740	
HIGHEST ANNUAL MEAN					40750	1972
LOWEST ANNUAL MEAN					20030	1962
HIGHEST DAILY MEAN	71300	Jul 15	49200	Jun 17	103000	Jun 25 1984
LOWEST DAILY MEAN	9600	Jan 1	13200	Jan 8	3000	Dec 11 1961
ANNUAL SEVEN-DAY MINIMUM	13000	Jan 1	17800	Nov 25	5430	Feb 22 1963
INSTANTANEOUS PEAK FLOW			50600	Jun 7	101000	Apr 3 1960
INSTANTANEOUS PEAK STAGE			22.24	Jun 7	30.65	Feb 19 1971
INSTANTANEOUS LOW FLOW			11200	Jan 7		
ANNUAL RUNOFF (AC-FT)	19100000		21200000		20820000	
10 PERCENT EXCEEDS	39300		37800		43400	
50 PERCENT EXCEEDS	25800		31100		29900	
90 PERCENT EXCEEDS	14400		19500		11900	

e Estimated
a Post-regulation period.

DISCHARGE AT PARTIAL-RECORD STATIONS

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 for each water year is 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.

Maximum discharge at crest-stage partial-record stations

Station name and number	Location and drainage area	Period of record	Water year 1994 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								
Spring Creek near Herreid, SD (06354860)	Lat 45°58'52", long 100°06'28", in SW1/4 sec.13, T.127 N., R.77 W., Campbell County, Hydrologic Unit 10130102, on left bank 0.5 mi upstream from county highway bridge, 2.4 mi southwest of Herreid, and 13.2 mi upstream from high-water line of Lake Oahe. Datum of gage is 1,653.80 ft above sea level. Drainage area is 440 mi^2, of which 220 mi^2 is probably noncontributing.	1962-86‡, 1989-94	4- 1-94	10.82	929	7-27-93	12.56	1,570
BELLE FOURCHE RIVER BASIN								
Bear Butte Creek near Sturgis, SD (06437500)	Lat 44°28'53", long 103°16'31", in NW1/4 SE1/4 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. Drainage area is 192 mi^2.	1945-62, 1962-72‡, 1990-94	(a)	8.64	754	6-16-62	12.45	12,700
MISSOURI-OAHE RIVER BASIN								
Chantier Creek near Hayes, SD (06439960)	Lat 44°31'20", long 100°42'13", in NE1/4 NE1/4 SW1/4 sec.35, T.7 N., R.28 E., Stanley County, Hydrologic Unit 10130105, at bridge on State Highway 1806, 1.7 mi upstream from mouth, 18 mi northeast of Hayes, and 23 mi northwest of Pierre. Elevation of gage is 1,670 ft above sea level, from topographic map. Drainage area is 21.5 mi^2.	1990-94	2-18-94	4.12	1,250	7-13-93	14.81	[b]8,000
MISSOURI-FORT RANDALL RIVER BASIN								
Medicine Creek near Philip, SD (06440850)	Lat 44°03'17", long 101°29'12", in SE1/4 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. Elevation of gage is 2,040 ft above sea level, from topographic map. Drainage area is 56.5 mi^2.	1989-94	7-12-94	7.75	268	7-12-94	7.75	268

DISCHARGE AT PARTIAL-RECORD STATIONS

Maximum discharge at crest-stage partial-record stations

Station name and number	Location and drainage area	Period of record	Water year 1994 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						
Plum Creek near Hayes, SD (06441100)	Lat 44°20'41", long 101°07'40", in SW1/4 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. Drainage area is 24.5 mi^2.	1989-94	2-18-94	5.10	400	2-18-94	5.10	400
Medicine Knoll Creek near Blunt, SD (06442000)	Lat 44°33'46", long 99°54'50", in NW1/4 sec.31, T.11 N., R.75 W., Sully County, Hydrologic Unit 10140103, on left downstream wingwall of bridge, 4.8 mi northeast of Blunt, and 5.5 mi upstream from South Fork Medicine Knoll Creek. Datum of gage is 1,611.08 ft above sea level. Drainage area is 317 mi^2.	1950-90‡, 1991-94	3- 5-94	12.29	1,240	6- 5-91	12.98	6,370
Medicine Creek at Kennebec, SD (06442500)	Lat 43°54'17", long 99°52'35", in NW1/4 NE1/4 sec.18, T.105 N., R.75 W., Lyman County, Hydrologic Unit 10140104, on right downstream wingwall of bridge, 0.5 mi west of Kennebec, and 0.5 mi downstream from small right-bank tributary. Datum of gage is 1,659.64 ft above sea level. Drainage area is 464 mi^2.	1954-90‡, 1991-94	3- 4-94	13.30	2,740	6- 4-91	19.11	16,100
		NIOBRARA RIVER BASIN						
Antelope Creek near Mission, SD (06463900)	Lat 43°16'26", long 100°40'56", in SE1/4 SW1/4 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. Drainage area is 71.3 mi^2.	1990-94	5- 3-94	6.23	61	5- 3-94	6.23	61
Snatch Creek near Tabor, SD (06466715)	Lat 42°54'30", long 97°46'33", in NE1/4 NW1/4 NE1/4 NE1/4 sec.2, T.93 N., R.59 W., Bon Homme County, Hydrologic Unit 10170101, at right upstream wingwall of highway bridge, 5 mi southwest of Tabor and 2 mi upstream from mouth. Elevation of gage is 1,330 ft above sea level, from topographic map. Drainage is about 44 mi^2.	1993-94	3- 3-94	[c]7.07	500	3- 3-94	[c]7.07	500

DISCHARGE AT PARTIAL-RECORD STATIONS

Maximum discharge at crest-stage partial-record stations

Station name and number	Location and drainage area	Period of record	Water year 1994 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
		JAMES RIVER BASIN						
Turtle Creek near Tulare, SD (06474000)	Lat 44°44'06", long 98°35'09", in SE1/4 SE1/4 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. Drainage area is 1,124 mi^2.	1953-56, 1965-81‡, 1984-89‡, 1990-94	3- 7-94	[c]15.16	2,000	4- 5-69	[c]18.51	6,000
James River near Redfield, SD (06475000)	Lat 44°54'38", long 98°28'18", in NW1/4 NW1/4 NW1/4 sec.31, T.177 N., R.63 W., Spink County, Hydrologic Unit 10160001, on downstream side of county highway bridge, 2.8 mi northeast of Redfield, and 0.7 mi downstream from Turtle Creek. Datum of gage is 1,239.50 ft above sea level. Drainage area is 13,911 mi^2, of which 4,118 mi^2 is probably noncontributing.	1950-90‡, 1991-94	3-23-94	20.12	4,100	4-13-69	24.93	7,310
Sand Creek near Alpena, SD (06476500)	Lat 44°09'15", long 98°26'06", in NE1/4 NE1/4 sec.19, T.108 N., R.63 W., Jerauld County, Hydrologic Unit 10160006, at downstream left wingwall of bridge, 4 mi southwest of Alpena, 7.0 mi upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, and 10.5 mi upstream from interlink with Cain Creek. Elevation of gage is 1,315 ft above sea level, by barometer. Drainage area is 261 mi^2.	1950-89‡, 1990-94	3- 6-94	[d]13.10	600	3-28-60	[e]13.35	2,240
Rock Creek near Fulton, SD (06477150)	Lat 43°45'39", long 97°54'25", in NW1/4 NW1/4 sec.3, T.103 N., R.59 W., Hanson County, Hydrologic Unit 10160011, at right downstream wingwall of highway bridge, 4.9 mi northwest of Fulton, and 9.5 mi upstream from mouth. Elevation of gage is 1,235 ft above sea level, from topographic map. Prior to 1989 at same site and different datum. Drainage area is 240 mi^2.	1966-72‡, 1972-79, 1989-94	4-27-94	12.60	1,080	4- 7-69	[f]10.21	2,040
Enemy Creek near Mitchell, SD (06478052)	Lat 43°38'33", long 97°59'09", in NW1/4 NW1/4 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. Drainage area is 163 mi^2.	1975-87‡, 1989-94	3- 4-94	[d]11.32	500	6-22-84	15.15	4,280

Maximum discharge at crest-stage partial-record stations

Station name and number	Location and drainage area	Period of record	Water year 1994 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						
Dry Creek near Parkston, SD (06478300)	Lat 43°22'18", long 97°49'23", in SE1/4 sec.21, T.99 N., R.59 W., Hutchinson County, Hydrologic Unit 10160011, at left downstream wingwall on county highway bridge and 8.5 mi southeast of Parkston. Elevation of gage is 1,265 ft above sea level, from topographic map. Prior to 1989 at same site and different datum. Drainage area is 97.2 mi^2.	1955-80, 1989-94	3- 4-94	[d]7.72	900	3-27-60	[g]12.70	4,210
Wolf Creek near Clayton, SD (06478390)	Lat 43°22'18", long 97°36'12", in NW1/4 NE1/4 sec.29, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, at left downstream pier on highway bridge, 4.1 mi upstream from mouth, and 5.6 mi southeast of Clayton. Elevation of gage is 1,210 ft above sea level, from topographic map. Drainage area is 396 mi^2.	1975-88‡, 1989-94	3- 6-94	[d]10.79	1,050	6-21-84	18.01	6,520
		MISSOURI-LEWIS AND CLARK RIVER BASIN						
Vermillion River near Wakonda, SD (06479000)	Lat 42°59'27", long 96°57'49", in SW1/4 NW1/4 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). Drainage area is 2,170 mi^2, of which 494 mi^2 is usually noncontributing.	1945-83‡, 1989-94	3- 9-94	16.51	2,500	6-23-84	17.62	17,000
		BIG SIOUX RIVER BASIN						
Hidewood Creek near Estelline, SD (06479640)	Lat 44°36'42", long 96°54'17", in SW1/4 NW1/4 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. Drainage area is 164 mi^2.	1968-85‡, 1990-94	8-11-94	[h]8.04	780	6-16-92	[i]13.10	[j]17,300
Medary Creek near Brookings, SD (06479980)	Lat 44°13'27", long 96°46'06", in NE1/4 NE1/4 NE1/4 sec.25, T.109 N., R.50 W., Brookings County, Hydrologic Unit 10170202, on right bank 400 ft downstream from county highway bridge, 5.2 mi downstream from Deer Creek, 4.1 mi upstream from mouth, and 6.1 mi southeast of Brookings. Datum of gage is 1,570.20 ft above sea level. Drainage area is 200 mi^2.	1981-90‡, 1992-94	6-20-94	[i]10.57	1,900	7- 4-93	11.78	3,710

DISCHARGE AT PARTIAL-RECORD STATIONS

Maximum discharge at crest-stage partial-record stations

Station name and number	Location and drainage area	Period of record	Water year 1994 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								
Flandreau Creek above Flandreau, SD (06480650)	Lat 44°03'45", long 96°29'15", in SE1/4 NE1/4 NE1/4 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. Drainage area is 100 mi^2.	1981-91‡, 1992-94	6-19-94	[k]9.04	1,080	6-20-84	11.02	2,650
Split Rock Creek at Corson, SD (06482610)	Lat 43°36'59", long 96°33'54", in NE1/4 NW1/4 sec.26, T.102 N., R.48 W., Minnehaha County, Hydrologic Unit 10170203, at right downstream side of bridge, 0.3 mi east of Corson, and 3.4 mi upstream from mouth. Datum of gage is 1,304.22 ft above sea level (levels by Corps of Engineers). Drainage area is 464 mi^2.	1951-65, 1965-89‡, 1990-94	6-13-94	10.48	4,700	5- 8-93	17.58	18,900
Beaver Creek at Canton, SD (06482848)	Lat 43°17'12", long 96°35'46", in SW1/4 SW1/4 SE1/4 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. Drainage area is 124 mi^2.	1982-89‡, 1990-94	3- 5-94	[c]8.20	[c]1,250	6- 7-93	[l]12.93	[m]3,680

‡ Operated as a continuous-record gaging station.
a Sometime between May 5-6.
b Discharge determined by slope-area indirect measurement; peak resulted from stock dam failure.
c Backwater from ice.
d Backwater from ice, from floodmark.
e Maximum gage height, 14.1 ft, Mar. 28, 1950, backwater from ice.
f At different datum; maximum gage height at current datum, 14.34 ft, July 6, 1993.
g At different datum.
h Maximum gage height, 8.83 ft, Mar. 17, backwater from ice, from floodmark.
i From floodmark.
j Based on contracted opening and flow-over-road indirect measurement of peak flow, 1.1 mi north of gage.
k Maximum gage height, 9.50 ft, Mar. 6, backwater from ice, from floodmark.
l Maximum gage height, 14.61 ft, June 20, 1983, backwater.
m Estimated.

DAILY PRECIPITATION STATIONS

The following daily precipitation stations are listed in alphabetical order.

BELLE FOURCHE RIVER BASIN

441859103385600 ADAMS RANCH NEAR LEAD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°18'59", long 103°38'56", in NW1/4 SE1/4 SW1/4 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.--Shielded precipitation recorder with 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.--11 years, 23.09 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.00	.00	.00	.18	.00	.00	.00	.03	.02	.00	.00
2	.00	.00	.20	.11	.27	.00	.02	.20	.09	.00	.11	.00
3	.00	.05	.07	.05	.00	.00	.00	.00	.02	.19	.00	.00
4	.00	.40	.00	.00	.00	.01	.62	.11	.02	.02	.00	.00
5	.00	.11	.52	.01	.00	.01	.02	.15	.10	.00	.00	.00
6	.00	.00	.00	.03	.00	.17	.01	.13	.00	.18	.00	.00
7	.07	.05	.00	.09	.07	.02	.28	.00	e.00	.12	.00	.00
8	.31	.02	.00	.03	.08	.01	.00	.00	e.63	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.03	.00	e.13	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00
12	.03	.00	.00	.08	.00	.02	.00	.00	.00	.24	.00	.00
13	.08	.02	.00	.40	.00	.00	.00	.61	.00	.00	.00	.00
14	.94	.07	.00	.30	.00	.02	.35	.00	.02	.00	.00	.02
15	.02	.00	.00	.14	.00	.00	.00	.00	.08	.10	.00	.38
16	.38	.00	.39	.10	.00	.02	.00	.00	.26	.00	.14	.00
17	.04	.00	.38	.19	.09	.00	.00	.00	.01	.00	.00	.00
18	.08	.27	.00	.04	.00	.00	.00	.00	.00	.07	.00	.00
19	.09	.00	.12	.07	.00	.08	.00	.02	.00	.00	.04	.00
20	.03	.00	.00	.00	.00	.03	.00	.01	.00	.03	.00	.00
21	.01	.00	.15	.00	.05	.00	.02	.00	.38	.00	.00	.23
22	.02	.00	.15	.00	.00	.00	.08	.00	.41	.00	.00	.00
23	.00	.08	.21	.03	.00	.29	.00	.02	.04	.00	.00	.00
24	.00	.00	.00	.00	.10	.02	.10	.08	.00	.00	.00	.00
25	.00	.33	.18	.00	.00	.00	.68	.00	.00	.05	.00	.00
26	.00	.68	.00	.00	.02	.20	1.44	.00	.00	.00	.00	.00
27	.00	.00	.02	.00	.00	.42	.03	.00	.00	.00	.00	.00
28	.19	.00	.00	.01	.00	.59	.05	.00	.03	.00	.00	.00
29	.07	.00	.00	.62	---	.17	.00	.00	.00	.00	.29	.00
30	.00	.00	.00	.07	---	.01	.00	.00	.00	.00	.02	.00
31	.00	---	.09	.14	---	.00	---	.00	---	.00	.23	---
TOTAL	2.42	2.08	2.48	2.51	0.86	2.14	3.73	1.33	2.25	1.02	0.83	0.63

CAL YR 1993 TOTAL 31.39
WTR YR 1994 TOTAL 22.28

e Estimated

CHEYENNE RIVER BASIN

433758103353300 PRECIP AT BEAVER VALLEY NEAR PRINGLE, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°37'58", long 103°35'33", in NE1/4 NW1/4 SE1/4 NW1/4 sec.12, T.5 S., R.4 E., Custer County, Hydrologic Unit 10120109, 1.7 mi north of Pringle and 8.8 mi south of Custer.

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

INSTRUMENTATION.--Shielded precipitation recorder with 8.0-in. orifice and 12-in. capacity. Elevation of gage is 5,000 ft above sea level, from topographic map.

REMARKS.--Records fair.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.00	.00	.00	.00	.02	.00	.02	.00	.00	.00	.10
2	.02	.00	.12	.00	.04	.00	.02	.00	.08	.00	.60	.02
3	.00	.00	.02	.00	.00	.00	.00	.14	.00	.00	.25	.00
4	.00	.00	.00	.02	.02	.00	.18	.00	1.10	.00	.00	.02
5	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.02	.00
6	.00	.00	.02	.00	.00	.33	.00	.20	.00	.10	.00	.02
7	.00	.00	.00	.00	.27	.13	.15	.00	.34	.04	.00	.00
8	1.08	.00	.00	.00	.10	.00	.02	.00	.12	.04	.00	.00
9	.08	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00
10	.00	.00	.00	.00	.06	.00	.02	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00	.02	.00
12	.00	.70	.00	.00	.00	.00	.00	.00	.12	.00	.02	.02
13	.00	.20	.00	.00	.02	.00	.00	.80	.04	.04	.00	.54
14	.11	.09	.00	.00	.00	.00	.20	.04	.02	.02	.00	.12
15	.00	.00	.00	.00	.00	.00	.02	.00	.04	.00	.00	.00
16	.11	.02	.45	.00	.00	.00	.00	.00	.12	.00	.04	.00
17	.09	.00	.02	.19	.00	.00	.00	.00	.00	.00	.00	.02
18	.23	.00	.00	.04	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.10	.15	.00	.00	.24	.16	.00	.00	.00
20	.02	.00	.00	.00	.27	.13	.02	.02	.14	.00	.00	.00
21	.00	.00	.00	.02	.08	.00	.00	.04	.02	.00	.00	.00
22	.00	.00	.00	.00	.04	.02	.02	.00	.46	.00	.00	.00
23	.02	.24	.02	.00	.00	.18	.00	.00	.04	.00	.00	.00
24	.00	.00	.00	.00	.27	.02	.18	.00	.00	.00	.00	.00
25	.00	.05	.00	.00	.02	.00	.33	.00	.00	.02	.00	.00
26	.00	.02	.00	.00	.00	.02	.36	.00	.00	.02	.00	.00
27	.00	.00	.05	.00	.00	.00	.10	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.02	.00	.14	.00	.00	.00	.02	.00
29	.00	.00	.00	.04	---	.02	.00	.00	.00	.02	.02	.00
30	.00	.00	.02	.04	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.17	---
TOTAL	1.78	1.32	0.72	0.45	1.40	0.87	1.76	1.54	2.80	0.30	1.16	0.86

CAL YR 1993 TOTAL 30.30
WTR YR 1994 TOTAL 14.96

CHEYENNE RIVER BASIN

434732103305500 PRECIP AT BISMARK LAKE NEAR CUSTER, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°47'32", long 103°30'55", in NW1/4 NE1/4 SW1/4 NW1/4 sec.15, T.3 S., R.5 E., Custer County, Hydrologic Unit 10120109, 300 ft northeast of U.S. Forest Service Road 345, 1.0 mi north of Bismark Lake, and 3.7 mi east of Custer.

PERIOD OF RECORD.--May 1989 to current year (seasonal record).

INSTRUMENTATION.--Non-shielded, 4.0-in. diameter plastic gage with 11-in. capacity. Elevation of gage is 5,280 ft above sea level, from topographic map.

REMARKS.--Records fair except those for estimated periods, which are poor. Precipitation gage is read daily by observer at approximately 0700 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	.00	.07
2	---	---	---	---	---	---	---	.03	.00	.00	.88	.00
3	---	---	---	---	---	---	---	.41	.39	.00	.17	.00
4	---	---	---	---	---	---	---	.00	.57	.00	.00	.00
5	---	---	---	---	---	---	---	.42	.00	.20	.00	.00
6	---	---	---	---	---	---	---	.00	.00	.16	.00	.00
7	---	---	---	---	---	---	---	.00	.00	.02	.02	.00
8	---	---	---	---	---	---	---	.00	.00	.00	.51	.00
9	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.08	e.00	.00
11	---	---	---	---	---	---	---	.00	.00	.00	e.32	.00
12	---	---	---	---	---	---	---	.00	.00	.00	.35	.18
13	---	---	---	---	---	---	---	.71	.00	.58	.00	.32
14	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.00	.06	.00	.00
16	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
17	---	---	---	---	---	---	---	.00	.16	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.06	1.06	.00	.00	.00
20	---	---	---	---	---	---	---	.05	.00	.00	.00	.00
21	---	---	---	---	---	---	---	.00	.09	.00	.00	.06
22	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
24	---	---	---	---	---	---	---	.03	.00	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.00	.19	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	---	.00	.00	e.00	.35	.00
31	---	---	---	---	---	---	---	.00	---	e.10	.16	---
TOTAL	---	---	---	---	---	---	---	1.71	2.27	1.39	2.76	0.63

e Estimated

BELLE FOURCHE RIVER BASIN

442343103363900 PRECIP AT BOULDER PARK NEAR STURGIS, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°23'43", long 103°36'39", in SE1/4 SE1/4 NE1/4 sec.15 T.5 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, 0.1 mi north of U.S. Highway 14A, 0.5 mi west of Boulder Park School, and 5.0 mi west of Sturgis.

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

INSTRUMENTATION.--Shielded, 8.0-in. diameter plastic gage, 48 in. tall. Elevation of gage is 4,075 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.-- 6 years, 24.58 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.20
2	.00	.00	.00	.00	.80	e.00	.20	.00	.00	.00	.00	.00
3	.00	.00	e.23	.00	e.00	e.00	.00	.10	.00	.00	.00	.00
4	.00	.00	e.00	.00	e.00	e.00	1.00	.10	.10	.00	.00	.00
5	.00	.40	e.47	.00	e.00	e.00	.00	.30	.00	.00	.00	.00
6	.00	.00	.00	.00	e.00	e.08	.00	.10	.10	.50	.00	.00
7	.00	.00	.00	.00	e.10	e.17	.00	.00	.00	.60	.00	.00
8	.60	.00	.00	.60	e.10	e.00	.00	.00	.10	.00	.00	.00
9	.00	.00	.00	.00	e.00	e.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	e.00	e.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	e.00	e.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	e.00	e.17	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	e.00	e.00	.00	.00	.00	.90	.00	.00
14	.00	.10	.00	.10	e.00	e.00	.00	.80	.00	.20	.00	.50
15	.10	.00	.00	.00	.00	e.00	.20	.00	.00	.20	.00	.00
16	.00	.00	.00	.00	.00	e.00	.10	.00	.50	.00	.00	.00
17	e.40	.00	1.00	.00	.00	e.00	.00	.00	.00	.00	.20	.00
18	e.00	.00	.00	.00	.00	e.08	.00	.00	.00	.20	.00	.00
19	.00	.00	.40	.30	.00	e.00	.00	.00	.00	.20	.00	.00
20	.00	.00	.00	.00	.00	e.17	.00	.00	.00	.00	.00	.30
21	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.20	.00	.00	e.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	e.08	.00	.00	.40	.00	.00	.00
24	.00	.00	.40	.00	.00	e.17	.10	.00	.00	.00	.00	.00
25	.00	.00	.30	.00	.10	e.00	e.68	.20	.00	.00	.00	.00
26	.50	e.98	.10	.00	.00	e.00	e1.44	.00	.00	.00	.00	.00
27	.00	e.42	.00	.00	.00	e.50	e.03	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	e.08	e.05	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	e.41	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	1.00	---	e.00	.00	.00	.00	.00	.10	.00
31	.00	---	.00	.00	---	e.00	---	.00	---	.00	.20	---
TOTAL	1.60	1.90	3.10	2.00	1.10	1.91	3.80	1.60	1.20	2.80	0.50	1.00

CAL YR 1993 TOTAL 35.37
WTR YR 1994 TOTAL 22.51

e Estimated

CHEYENNE RIVER BASIN

434939103272800 PRECIP AT CAMP REMINGTON NEAR HAYWARD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°49'39", long 103°27'28", in NW1/4 NW1/4 SW1/4 SW1/4 sec.31, T.2 S. R.6 E., Custer County, Hydrologic Unit 10120201, 100 ft east of U.S. Forest Service Road 345 within Camp Remington, 0.2 mi north of Custer State Park, and 7.0 mi southwest of Hayward.

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

INSTRUMENTATION.--Shielded precipitation recorder with 8.0-in. orifice and 12-in. capacity. Elevation of gage is 5,010 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--5 years, 24.72 in.

REMARKS.--Records for period May 30 to July 2, 1991, poor. Records for 1994 water year good except those for estimated periods, which are poor.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
SUMMATION VALUES

May	30	e0.02	June	8	e0.02	June	17	e0.00	June	26	e0.00
	31	e.01		9	e.00		18	e.00		27	e.00
June	1	e.66		10	e.00		19	e.01		28	e.54
	2	e.21		11	e.00		20	e.07		29	e.15
	3	e.71		12	e.00		21	e.03		30	e.00
	4	e.09		13	e.15		22	e.82	July	1	e.02
	5	e.78		14	e.07		23	e.00		2	e.00
	6	e.23		15	e.02		24	e.00			
	7	e.00		16	e.00		25	e.00			

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	e.00	e.00	.02	.00	.00	.00	.00	.00	.01	.14
2	.00	.00	e.09	e.00	.05	.00	.00	.06	.67	.00	.53	.00
3	.00	.00	e.00	e.00	.00	.00	.00	.47	.00	.00	1.27	.00
4	.00	.00	e.03	e.00	.00	.00	.35	.01	.70	.00	.00	.00
5	.00	.00	e.00	.00	.01	.21	.00	.22	.00	.23	.00	.03
6	.00	.00	e.00	.00	.13	.30	.00	.30	.00	.42	.00	.00
7	.00	.00	e.00	.00	.11	.09	.10	.00	.00	.04	.01	.00
8	.75	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.02	.00
9	.01	.00	e.00	.00	.01	.00	.00	.00	.00	.00	.27	.00
10	.00	.00	e.10	.00	.08	.00	.00	.01	.00	.16	.00	.00
11	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.37	.00
12	.00	.31	e.00	.00	.01	.00	.00	.00	.00	.01	.00	.14
13	.13	.11	e.00	.07	.00	.00	.00	.69	.00	.05	.00	.31
14	1.31	.07	e.00	.07	.00	.00	.00	.00	.00	.01	.02	.02
15	.06	.00	e.00	.00	.00	.00	.00	.04	.00	.13	.01	.00
16	.23	e.00	e.58	.01	.00	.00	.00	.03	.11	.06	.55	.00
17	.13	e.00	e.03	.14	.00	.00	.00	.00	.00	.00	.00	.00
18	.38	e.00	e.00	.02	.00	.00	.00	.00	.02	.05	.00	.00
19	.00	e.00	e.00	.09	.02	.00	.00	.32	.52	.01	.00	.00
20	.00	e.00	e.00	.00	.13	.04	.00	.10	.00	.00	.00	.08
21	.00	e.00	e.00	.00	.14	.00	.00	.03	.00	.00	.00	.11
22	.00	e.20	e.00	.00	.00	.02	.08	.00	.04	.00	.00	.00
23	.00	e.18	e.00	.00	.00	.14	.00	.00	.00	.00	.00	.00
24	.00	e.00	e.00	.00	.21	.02	.15	.06	.00	.00	.00	.00
25	.00	e.00	e.00	.00	.00	.05	.58	.00	.00	.08	.00	.00
26	.00	e.03	e.00	.00	.00	.00	.60	.00	.00	.00	.00	.00
27	.00	e.00	e.00	.00	.04	.00	.11	.00	.00	.00	.00	.00
28	.00	e.00	e.00	.00	.00	.07	.15	.00	.00	.00	.00	.00
29	.00	e.00	e.00	.00	---	.03	.00	.00	.00	.35	.00	.00
30	.00	e.07	e.00	.03	---	.00	.00	.00	.00	.00	.38	.03
31	.00	---	e.00	.00	---	.00	---	.00	---	.04	.34	---
TOTAL	3.00	0.97	0.83	0.43	0.96	0.97	2.12	2.34	2.06	1.64	3.78	0.86

CAL YR 1993 TOTAL 31.01
WTR YR 1994 TOTAL 19.96

e Estimated

CHEYENNE RIVER BASIN

434807103235400 PRECIP AT CENTER LAKE NEAR HAYWARD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°48'07", long 103°23'54", in SW1/4 NW1/4 NW1/4 SW1/4, sec.10, T.3 S., R.6 E., Custer County, Hydrologic Unit 10120109, 100 ft downstream from mouth of South Fork Bear Gulch, 0.8 mi east of Center Lake, and approximately 5 mi southwest of Hayward.

PERIOD OF RECORD.--June 1989 to current year. Published as Precip at Bear Gulch at Center Lake, near Hayward, SD, from June to September 1989.

INSTRUMENTATION.--Shielded precipitation recorder with 8.0-in. orifice and 12-in. capacity. Elevation of gage is 4,635 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--5 years, 22.91 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.03	.00	.22
2	.00	e.00	e.10	e.00	.06	.00	.00	.00	.06	.00	.80	.07
3	.00	e.00	e.00	e.00	.02	.00	.15	.15	.00	.00	1.04	.00
4	.00	e.00	e.00	.02	.00	.00	.05	.00	.18	.00	.00	.00
5	.00	e.00	e.00	.00	.02	.05	.00	.43	.00	.00	.00	.00
6	.00	e.00	e.00	.00	.04	.32	.00	.05	.00	.14	.00	.00
7	.05	e.00	e.00	.00	.13	.02	.00	.08	.00	.00	.00	.00
8	.67	e.00	e.00	.00	.08	.00	.21	.05	.18	.09	.04	.00
9	.00	e.00	e.00	.00	.00	.00	.00	.00	.00	.00	.14	.00
10	.00	e.00	e.05	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	e.00	e.00	.00	.08	.00	.00	.00	.00	.00	.35	.00
12	.00	e.28	e.00	.00	.00	.00	.00	.03	.00	.08	.05	.00
13	e.12	e.10	e.00	.06	.00	.00	.00	.42	.00	.52	.00	.08
14	e1.19	e.06	e.00	.06	.00	.00	.00	.00	.00	.00	.00	.54
15	e.05	e.00	e.00	.00	.00	.00	.00	.00	.12	.66	.11	.19
16	e.03	e.00	e.36	.03	.00	.00	.00	.00	.01	.00	.31	.00
17	e.12	e.00	e.06	.15	.00	.02	.00	.07	.05	.00	.02	.00
18	e.35	e.00	e.05	.02	.00	.08	.00	.00	.00	.00	.00	.00
19	e.00	e.00	e.00	.07	.03	.03	.00	.06	.20	e.10	.00	.00
20	e.00	e.00	e.00	.00	.15	.00	.00	.16	.00	e.00	.00	.00
21	e.00	e.00	e.00	.00	.15	.00	.00	.00	.00	e.00	.00	.02
22	e.00	e.04	e.00	.00	.03	.00	.00	.00	.00	e.00	.00	.00
23	e.00	e.14	e.00	.00	.00	.03	.00	.00	.00	e.00	.00	.00
24	e.00	e.03	e.00	.00	.25	.00	.03	.10	.00	e.00	.00	.00
25	e.00	e.04	e.00	.00	.02	.00	.13	.00	.09	e.16	.00	.00
26	e.00	e.00	e.00	.00	.00	.15	.01	.00	.06	e.00	.00	.00
27	e.00	e.00	e.00	.00	.00	.03	.31	.03	.00	e.00	.16	.00
28	e.00	e.00	e.00	.00	.00	.08	.09	.00	.00	e.00	.00	.00
29	e.00	e.00	e.00	.04	---	.00	.10	.00	.00	.00	.00	.00
30	e.00	e.00	e.00	.04	---	.00	.46	.00	.00	.00	.42	.00
31	e.00	---	e.00	.01	---	.00	---	.00	---	.00	.30	---
TOTAL	2.58	0.69	0.62	0.50	1.06	0.81	1.54	1.63	0.95	1.78	3.74	1.12

CAL YR 1993 TOTAL 29.73
WTR YR 1994 TOTAL 17.02

e Estimated

CHEYENNE RIVER BASIN

441832103523200 PRECIP AT CHEYENNE CROSSING NEAR LEAD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°18'32", long 103°52'32", in NE1/4 SE1/4 SE1/4 NE1/4, sec.16, T.4 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, 0.1 mi southwest of State Highway 14A, 0.9 mi northwest of Cheyenne Crossing, and 5.5 mi southwest of Lead.

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

INSTRUMENTATION.--Non-shielded precipitation recorder with 8.0-in. orifice. Elevation of gage is 5,280 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--6 years, 17.72 in.

REMARKS.--Records poor.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.41	.00	.00	.00	.01	.00	.00	.00
2	.00	.00	.30	.12	.51	.00	.00	.12	.04	.00	.06	.00
3	.00	.05	.01	.03	.01	.00	.00	.00	.01	.04	.00	.00
4	.00	.09	.07	.00	.00	.00	.38	.00	.00	.00	.00	.00
5	.00	.00	.34	.12	.00	.00	.00	.04	.00	.00	.00	.00
6	.00	.00	.02	.00	.00	.09	.00	.10	.00	1.48	.00	.00
7	.05	.00	.00	.00	.00	.00	.18	.00	.13	.01	.00	.00
8	.15	.00	.00	.00	.07	.00	.00	.00	.07	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
11	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.01	.05	.00	.00	.00	.00	.00	.98	.00	.06
13	.00	.02	.00	.20	.00	.00	.00	.32	.00	.06	.00	.11
14	.68	.00	.00	.26	.00	.00	.16	.00	.00	.00	.00	.00
15	.00	.00	.00	.18	.00	.00	.00	.01	.21	.00	.00	.26
16	.59	.00	.12	.05	.00	.00	.00	.00	.13	.01	.16	.00
17	.00	.00	.40	.02	.00	.02	.00	.00	.00	.00	.00	.00
18	.06	.12	.00	.10	.07	.00	.00	.00	.00	.41	.00	.00
19	.11	.00	.10	.07	.00	.09	.00	.33	.00	.03	.00	.00
20	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.15
22	.00	.00	.06	.00	.00	.01	.03	.00	.01	.00	.00	.00
23	.00	.00	.43	.00	.00	.03	.00	.00	.00	.00	.00	.00
24	.00	.00	.29	.00	.03	.00	.25	.12	.00	.00	.00	.00
25	.00	.05	.00	.00	.02	.00	.33	.00	.00	.02	.00	.00
26	.00	.55	.00	.00	.00	.06	.06	.00	.00	.00	.00	.00
27	.00	.01	.01	.00	.00	.22	.00	.00	.00	.00	.00	.00
28	.09	.00	.00	.00	.00	.36	.00	.00	.00	.00	.00	.00
29	.00	.00	.01	.89	---	.14	.00	.00	.00	.00	.11	.00
30	.00	.00	.00	.02	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.10	---	.00	---	.00	---	.00	.10	---
TOTAL	1.73	0.89	2.18	2.21	1.19	1.02	1.39	1.04	0.61	3.05	0.43	0.58

CAL YR 1993 TOTAL 22.60
WTR YR 1994 TOTAL 16.32

CHEYENNE RIVER BASIN

433212104010300 PRECIP AT DEWEY, SD
(Formerly published as Precip near Dewey, SD, near Mule Creek Junction, WY)

PRECIPITATION RECORDS

LOCATION.--Lat 43°32'12", long 104°01'03", in SE1/4 SW1/4 SE1/4 SE1/4, sec.10, T.6 S., R.1 E., Custer County, Hydrologic Unit 10120107, 0.75 mi northeast of Dewey, SD, 16.3 mi northeast of Mule Creek Junction, WY, and 18.7 mi northwest of Edgemont, SD.

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

INSTRUMENTATION.--Shielded precipitation recorder with 8.0-in. orifice and 12-in. capacity. Elevation of gage is 3,840 ft above sea level, from topographic map.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	e.00	.00	.02	.10	.00	.00	.00	.00	e.00	.00	.02
2	.00	e.00	.00	.00	.02	.00	.00	.00	.26	e.00	.14	.06
3	.00	e.00	.04	.07	.00	.00	.00	.00	.04	e.00	.06	.00
4	.00	e.00	.00	.00	.00	.00	.18	.00	.00	e.00	.08	.00
5	.00	e.03	.02	.00	.00	.00	.10	.00	.00	e.00	.00	.00
6	.00	e.00	.00	.00	.00	.24	.00	.12	.00	e.26	.00	.02
7	.00	e.00	.00	.00	.00	.00	.44	.02	.02	e.00	.00	.00
8	1.37	e.00	.00	.04	.02	.02	.06	.00	.16	e.17	.02	.00
9	.09	e.00	.00	.00	.00	.02	.00	.00	.00	e.00	.00	.00
10	.00	e.00	.00	.02	.10	.02	.02	.00	.00	e.00	.10	.00
11	.02	e.00	.00	.00	.02	.00	.00	.00	.00	e.04	.10	.00
12	.00	e.00	.00	.00	.00	.02	.02	.04	.00	e.02	.02	.00
13	.00	e.02	.02	.02	.02	.00	.00	.58	.00	e.08	.00	.00
14	.00	e.09	.00	.06	.00	.00	.00	.04	.00	e.02	.00	.00
15	.09	e.00	.00	.10	.00	.00	.02	.00	.02	.00	.00	.02
16	.05	e.00	.31	.04	.02	.00	.00	.00	.00	.04	.00	.00
17	.02	e.00	.04	.10	.00	.00	.02	.00	.00	.00	.02	.00
18	e.06	.07	.02	.06	.02	.00	.00	.06	.00	.00	.00	.00
19	e.01	.05	.00	.08	.00	.06	.00	.56	.00	.00	.00	.00
20	e.00	.00	.00	.08	.06	.00	.00	.06	.04	.00	.00	.00
21	e.00	.02	.00	.02	.00	.02	.00	.00	.00	.00	.00	.00
22	e.00	.02	.00	.02	.02	.00	.00	.00	.48	.00	.00	.00
23	e.00	.15	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00
24	e.00	.00	.05	.00	.02	.00	.26	.00	.02	.00	.00	.00
25	e.00	.00	.04	.02	.02	.00	.68	.00	e.01	.58	.00	.00
26	e.00	.11	.00	.00	.06	.00	.40	.00	e.01	.04	.00	.00
27	e.00	.04	.00	.00	.06	.00	.00	.00	e.13	.00	.00	.00
28	e.00	.00	.00	.00	.12	.02	.12	.00	e.01	.00	.00	.00
29	e.00	.00	.00	.04	---	.00	.00	.02	e.00	.00	.02	.00
30	e.00	.02	.00	.00	---	.00	.06	.00	e.00	.00	.00	.00
31	e.00	---	.02	.00	---	.02	---	.00	---	.00	.04	---
TOTAL	1.71	0.62	0.56	0.79	0.68	0.44	2.38	1.50	1.24	1.25	0.60	0.12

CAL YR 1993 TOTAL 23.24
WTR YR 1994 TOTAL 11.89

e Estimated

BELLE FOURCHE RIVER BASIN

442745103434500 PRECIP AT ELKHORN PEAK NEAR WHITEWOOD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°27'45", long 103°43'45", in NE1/4 SE1/4 SE1/4 sec.22, T.6 N., R.3 E., Lawrence County, Hydrologic Unit 10120203, along Polo Creek, 0.2 mi west of U.S. Highway 85, 2.0 mi southwest of Elkhorn Peak, and 4.5 mi west of Whitewood.

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

INSTRUMENTATION.--Shielded, 8.0-in. diameter plastic gage, 48 in. tall. Elevation of gage is 3,835 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--6 years, 19.09 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	1.00	e.00	.10	.00	.00	.00	.00	.10
4	.00	.00	.00	.20	.00	e.00	.00	.10	.20	.00	.00	.00
5	.00	.10	.00	.00	.00	e.00	.60	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	e.04	.00	.10	.00	.60	.00	.00
7	.00	.00	.00	.00	.00	e.08	.00	.10	.00	.50	.00	.00
8	.00	.20	.00	.00	.00	e.00	.00	.00	.00	.20	.00	.00
9	.30	.00	.60	.00	.00	e.00	.00	.00	.00	.10	.00	.00
10	.10	.00	.00	.20	.00	e.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	e.00	.10	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.30	.00
13	.00	.00	.00	.00	.00	e.00	.00	.00	.10	.70	.00	.00
14	.00	.10	.00	.00	.00	e.00	.00	.50	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
16	.40	.00	.00	.00	.00	e.00	.30	.00	.30	.10	.00	.30
17	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.10	.30	.00
18	.00	.00	.60	.40	.00	e.00	.00	.00	.00	.00	.10	.10
19	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.20	.00	e.00	.00	.20	.00	.00	.00	.00
21	.00	.00	.00	.60	.00	e.00	.00	.00	.00	.00	.00	.20
22	.00	.00	.00	.00	.00	e.00	.10	.10	.00	.00	.00	.10
23	.00	.00	.00	.00	.00	e.08	.00	.00	.10	.00	.00	.00
24	.00	.00	.00	.00	.00	e.19	.00	.00	.10	.00	.00	.10
25	.00	.00	.70	.00	.00	e.00	.40	.00	.00	.00	.00	.00
26	.00	.70	.00	.00	.00	e.00	.60	.00	.00	.00	.00	.00
27	.00	.30	.00	.00	.00	e.00	.30	.00	.00	.10	.00	.00
28	.00	.00	.00	.00	.30	e.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	e.15	.50	.00	.00	.00	.00	.00
30	.10	.00	.00	.00	---	e.16	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	e.00	---	.00	---	.00	.50	---
TOTAL	0.90	1.40	1.90	1.60	1.30	0.70	3.00	1.10	0.80	2.40	1.20	0.90

CAL YR 1993 TOTAL 28.30
WTR YR 1994 TOTAL 17.20

e Estimated

BELLE FOURCHE RIVER BASIN

441852103594800 PRECIP AT HEADWATERS LITTLE SPEARFISH CREEK NEAR LEAD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°18'52", long 103°59'48", in NE1/4 NE1/4 NE1/4 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.--Shielded, 8.0-in. diameter plastic gage, 72 in. tall. Elevation of gage is 5,710 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--6 years, 24.29 in.

REMARKS.--Records poor. Precipitation gage is read daily by observer at approximately 0730 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.10	.30	.00	.00	.00	.00	.00	.20	.00
2	.10	.00	.00	.00	.20	.00	.00	.00	.00	.00	.30	.00
3	.00	.00	.30	.20	.00	.00	.00	.20	.00	.00	.00	.00
4	.00	.10	.00	.00	.00	.00	.40	.00	.00	.00	.00	.00
5	.00	.45	.60	.00	.00	.00	.30	.00	.00	.00	.00	.00
6	.00	.00	.00	.20	.00	.10	.00	.00	.00	.60	.00	.00
7	.00	.00	.00	.00	.10	.20	.00	.00	.00	1.20	.00	.00
8	.00	.10	.00	.30	.10	.00	.20	.00	.20	.20	.00	.00
9	.30	.00	.00	.00	.00	.00	.00	.00	.30	.00	.10	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.20	.00	.00	.00	.00	.00	.00
13	.05	.00	.10	.30	.00	.00	.00	.10	.00	.30	.00	.00
14	.00	.10	.00	.40	.00	.00	.00	.20	.00	.00	.00	.10
15	.15	.00	.00	.10	.00	.00	.40	.00	.00	.00	.00	.30
16	.60	.00	.00	.00	.00	.00	.00	.00	.50	.00	.15	.20
17	.30	.00	.30	.30	.00	.00	.00	.00	.00	.00	.20	.00
18	.00	.00	.00	.10	.00	.10	.00	.00	.00	.00	.00	.00
19	.00	.00	.10	.00	.10	.00	.00	.50	.00	.20	.00	.00
20	.00	.00	.00	.00	.00	.20	.00	.40	.00	.10	.00	.10
21	.00	.00	.10	.20	.00	.00	.00	.00	.00	.00	.00	.10
22	.00	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00	.10
23	.00	.10	.30	.00	.00	.10	.10	.00	.00	.00	.00	.00
24	.00	.00	1.00	.00	.00	.20	.00	.30	.00	.00	.00	.00
25	.00	.00	.20	.00	.30	.00	.60	.00	.00	.00	.00	.00
26	.00	.60	.00	.00	.00	.00	.80	.00	.00	.20	.00	.00
27	.00	.60	.00	.00	.00	.60	.40	.00	.00	.00	.00	.00
28	.10	.00	.10	.00	.00	.10	.00	.00	.00	.00	.00	.00
29	.05	.00	.00	.50	---	.50	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.50	---	.00	.00	.00	.00	.00	.35	.00
31	.00	---	.10	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	1.65	2.05	3.40	3.20	1.10	2.30	3.20	1.70	1.00	2.80	1.30	0.90

CAL YR 1993 TOTAL 30.35
WTR YR 1994 TOTAL 24.60

CHEYENNE RIVER BASIN

431806103351800 PRECIP AT HIGHLAND CEMETERY NEAR HOT SPRINGS, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°18'06", long 103°35'18", in NW1/4 NE1/4 sec.1, T.9 S., R.4 E., Fall River County, Hydrologic Unit 10120106, 0.2 mi south of Highland Cemetery, 2.8 mi southwest of Cascade Springs, and 10 mi southwest of Hot Springs.

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 3,380 ft above sea level, from topographic map.

REMARKS.--Records fair. Precipitation gage is read daily by observer at approximately 0700 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
2	---	---	---	---	---	---	---	.00	.04	.00	.00	.00
3	---	---	---	---	---	---	---	.07	.00	.00	.10	.12
4	---	---	---	---	---	---	---	.00	.00	.00	.12	.00
5	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
6	---	---	---	---	---	---	---	.00	.00	.03	.00	.00
7	---	---	---	---	---	---	---	.00	1.41	.28	.00	.00
8	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
9	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.08	.00	.00
12	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
13	---	---	---	---	---	---	---	.91	.00	.46	.00	.11
14	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
16	---	---	---	---	---	---	---	.00	.26	.44	.00	.00
17	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.35	.00	.00	.00	.00
20	---	---	---	---	---	---	---	.08	.10	.00	.00	.00
21	---	---	---	---	---	---	---	.00	.00	.00	.00	.14
22	---	---	---	---	---	---	---	.00	.41	.00	.00	.24
23	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
24	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.20	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.00	.15	.00
31	---	---	---	---	---	---	---	.00	---	.00	.07	---
TOTAL	---	---	---	---	---	---	---	1.41	2.22	1.49	0.44	0.61

CHEYENNE RIVER BASIN

434358103494800 PRECIP AT JEWEL CAVE NEAR CUSTER, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°43'58", long 103°49'87", in SW1/4 SE1/4 NW1/4, sec.1, T.4 S., R.2 E., Custer County, Hydrologic Unit 10120107, Jewel Cave National Monument, 11 mi west of Custer, and 18.9 mi southeast of Newcastle, WY.

PERIOD OF RECORD.--October 1990 to current year (seasonal record).

INSTRUMENTATION.--Non-shielded, metal can with 8.0-in. diameter orifice and 24-in. capacity. Elevation of gage is 5,550 ft above sea level, from topographic map.

REMARKS.--Records fair except those for estimated periods, which are poor. Precipitation gage is read daily by observer at approximately 0800 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.00	.00	.00	.00	.09	.00	.00	.00	.02	.00	.00	.06
2	.00	.00	.00	.00	.07	.00	e.00	.00	.04	.00	e.00	.02
3	.00	.00	.19	.06	.06	.00	.00	.00	.11	.00	.64	.00
4	.00	e.00	.00	.00	.00	.00	.00	.00	e.13	.00	e.00	.06
5	.00	e.05	.15	.00	.00	.00	.17	.00	e.00	.00	.18	.00
6	.00	.00	.00	.00	.00	.40	.00	.02	.00	.28	.00	.00
7	.33	e.00	.02	.00	.16	.10	.00	.00	.00	.00	.00	.00
8	e.35	.00	.00	.02	.11	.00	.27	.00	.33	.18	.00	.00
9	e.00	.00	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00
10	e.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.01	.00	.00	.00	.13	.00	.00	.00	.00	.04	.69	.00
12	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.02	.24	.00
13	.00	.03	.00	.14	.00	e.00	.00	.06	.00	.09	.00	.00
14	.11	e.17	.00	.18	.00	.00	.00	.10	.00	.02	.00	.04
15	.39	e.00	.00	.04	.00	.00	.00	.00	.00	e.00	.00	.04
16	.07	.00	.00	.04	.00	.00	.00	.00	.02	.00	.02	.04
17	.37	.00	.18	.15	.00	.00	.00	1.60	.00	.00	.00	.00
18	.11	.00	.00	.07	.00	.00	.00	.00	.00	.00	.00	.00
19	.02	.01	.00	.00	.05	.00	.00	e.14	.00	e.00	.00	.00
20	.00	.00	.01	.00	.20	.00	.00	e.50	.01	.00	.00	.00
21	.00	.00	.00	.00	.05	.00	.00	.05	.01	.00	e.00	.00
22	.00	.00	.04	.00	.00	.00	.00	.00	.14	.00	.00	.00
23	.00	.25	e.03	.00	.05	.07	.00	.00	.01	.00	.00	.00
24	e.00	.00	e.11	.00	.00	.00	e.02	e.16	.01	.00	e.00	.00
25	.00	e.00	e.08	.00	.30	.00	e.16	e.00	.00	.80	.00	.00
26	.00	.05	e.00	.00	.00	.00	.58	e.00	.00	.11	e.00	.00
27	.00	.00	e.08	.00	.00	e.00	.00	.00	.00	e.00	.00	.00
28	.00	.00	e.00	.02	.00	.16	.16	.00	.00	.00	.00	.00
29	.00	.00	.00	.04	---	.00	.06	e.00	.00	.00	.12	.00
30	.00	.00	.00	.04	---	.00	.00	.00	.00	.91	.00	.00
31	.00	---	.00	.01	---	.00	---	.00	---	.08	.17	---
TOTAL	1.77	0.56	0.89	0.81	1.27	0.73	1.42	2.63	0.99	2.53	2.06	0.26

CAL YR 1993 TOTAL 27.07
WTR YR 1994 TOTAL 15.92

e Estimated

CHEYENNE RIVER BASIN

440501103262300 PRECIP AT JOHNSON SIDING NEAR RAPID CITY, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°05'01", long 103°26'23", in NW1/4 SE1/4 SW1/4 SE1/4 sec.31, T.2 N., R.6 E., Pennington County, Hydrologic Unit 10120110, 0.1 mi west of U.S. Forest Service Road 166, 0.1 mi east of Rapid Creek, and 100 ft north of State Highway 44 at Johnson Siding, approximately 7.5 mi west of Canyon Lake in Rapid City.

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

INSTRUMENTATION.--Non-shielded, metal can with 8.0-in. diameter orifice and 24-in. capacity. Elevation of gage is 4,290 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--6 years, 19.02 in.

REMARKS.--Records fair. Precipitation gage is read daily by observer at approximately 1800 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00	.00	.06
2	.00	.00	.00	.00	.00	.00	.00	.29	.10	.00	.00	.01
3	.00	.00	.00	.00	.00	.00	.00	.46	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.28	.08	.00	.00
5	.00	.00	.05	.00	.00	.00	.46	.01	.05	.00	.00	.00
6	.00	.00	.00	.00	.00	.13	.00	.35	.00	.51	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.05	.04	.00	.00
8	.51	.00	.00	.00	.20	.00	.00	.00	.13	.00	.02	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.50	.00	.00
13	.00	.00	.00	.03	.00	.00	.00	.49	.00	.00	.00	.00
14	.06	.06	.00	.18	.00	.00	.00	.19	.00	.00	.00	.58
15	.43	.00	.00	.00	.00	.00	.00	.00	.00	.12	.25	.08
16	.64	.00	.31	.00	.00	.00	.00	.00	.00	.23	.00	.00
17	.00	.00	.00	.07	.00	.00	.00	.00	.00	.00	.16	.00
18	.04	.00	.00	.03	.00	.00	.00	.00	.01	.02	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00
20	.00	.00	.00	.00	.05	.00	.00	.24	.00	.00	.00	.00
21	.00	.00	.00	.00	.08	.00	.00	.04	.00	.00	.00	.00
22	.00	.00	.00	.00	.01	.00	.00	.00	.26	.00	.00	.00
23	.00	.11	.01	.00	.00	.12	.00	.00	.00	.00	.00	.00
24	.00	.00	.04	.00	.16	.00	.00	.00	.00	.00	.00	.00
25	.00	.01	.00	.00	.00	.00	.26	.00	.00	.00	.00	.00
26	.00	.16	.00	.00	.00	.00	.97	.00	.00	.00	.00	.00
27	.00	.00	.06	.00	.00	.08	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00
29	.02	.00	.00	.02	---	.14	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.48	---
TOTAL	**1.70**	**0.34**	**0.47**	**0.33**	**0.53**	**0.47**	**1.75**	**2.07**	**0.88**	**1.54**	**1.02**	**0.73**

CAL YR 1993 TOTAL 22.74
WTR YR 1994 TOTAL 11.83

CHEYENNE RIVER BASIN

435827104032500 PRECIP AT LITTLE BEAR RUN NEAR NEWCASTLE, WY

PRECIPITATION RECORDS

LOCATION.--Lat 43°58'27", long 104°03'25", in NW1/4 SW1/4 SW1/4 sec.10, T.46 N., R.61 W., Weston County, Hydrologic Unit 10120107, 1.2 mi northwest of Moon, 3.2 mi south-southeast of Four Corners, and 4.2 mi northeast of Newcastle.

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

INSTRUMENTATION.--Shielded precipitation recorder with 8.0-in. orifice and 12-in. capacity. Elevation of gage is 6,250 ft above sea level, from topographic map.

REMARKS.--Records fair.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.07	.00	.00	.03	.12	.00	.30	.06
2	.00	.00	.22	.05	.10	.00	.02	.06	.28	.00	.23	.03
3	.00	.01	.03	.10	.00	.00	.11	.00	.01	.07	.00	.06
4	.00	.09	.22	.00	.00	.00	.35	.00	.01	.00	.00	.00
5	.00	.02	.34	.01	.00	.11	.01	.56	.00	.00	.00	.00
6	.00	.01	.02	.01	.13	.27	.00	.21	.00	.92	.01	.00
7	.02	.03	.01	.13	.15	.06	.46	.00	.26	.07	.02	.00
8	.17	.00	.00	.02	.02	.00	.03	.00	.06	.01	.00	.00
9	.05	.00	.00	.00	.00	.00	.00	.00	.00	.01	.12	.00
10	.01	.00	.03	.00	.13	.00	.00	.00	.00	.01	.01	.00
11	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00
12	.03	.00	.00	.17	.00	.00	.00	.05	.00	.13	.00	.00
13	.00	.17	.00	.43	.00	.00	.00	.59	.00	.09	.00	.06
14	.26	.01	.03	.20	.00	.00	.11	.00	.00	.00	.00	.00
15	.11	.00	.00	.10	.00	.00	.01	.00	.21	.00	.00	.36
16	.17	.00	.02	.06	.00	.00	.01	.00	.00	.55	.08	.00
17	.07	.00	.00	.09	.00	.00	.00	.00	.00	.01	.01	.03
18	.17	.05	.00	.07	.00	.00	.00	.00	.00	.01	.00	.00
19	.04	.01	.09	.04	.14	.07	.00	.29	.00	.00	.00	.00
20	.02	.00	.01	.01	.09	.01	.00	.08	.00	.00	.00	.00
21	.01	.00	.06	.00	.17	.00	.00	.00	.47	.01	.00	.00
22	.00	.06	.15	.00	.04	.00	.31	.00	.00	.00	.00	.00
23	.00	.07	.08	.01	.00	.29	.02	.00	.01	.00	.00	.00
24	.00	.02	.43	.00	.30	.01	1.06	.06	.00	.00	.00	.05
25	.00	.10	.02	.00	.00	.00	.69	.00	.01	.07	.00	.00
26	.00	.33	.00	.00	.00	.08	.14	.00	.00	.03	.00	.00
27	.00	.00	.02	.01	.00	.06	.16	.00	.01	.00	.00	.00
28	.01	.00	.00	.13	.12	.21	.08	.00	.00	.00	.00	.00
29	.01	.00	.00	.20	---	.03	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.02	---	.01	.00	.00	.00	.00	.00	.00
31	.00	---	.06	.16	---	.00	---	.02	---	.00	.43	---
TOTAL	1.15	0.98	1.84	2.02	1.48	1.21	3.57	1.95	1.45	1.99	1.21	0.65

CAL YR 1993 TOTAL 26.60
WTR YR 1994 TOTAL 19.50

CHEYENNE RIVER BASIN

435355103432800 PRECIP AT MEDICINE MOUNTAIN NEAR CUSTER, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°53'55", long 103°43'28", in SW1/4 SW1/4 SE1/4 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.--Shielded, 8.0-in. diameter plastic gage, 48 in. tall. Elevation of gage is 6,070 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--5 years (water years 1989-90, 1990-94), 20.08 in.

REMARKS.--Records poor. Precipitation gage is read daily by observer at approximately 0900 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	e.02	e.00	.00	e.02	e.01	e.00	e.19	e.00
2	.00	.00	.00	.00	e.01	e.00	.00	e.09	e.18	e.00	e.00	e.02
3	.00	.00	.20	.00	e.00	e.00	.00	e.02	e.02	e.17	e.03	e.00
4	.00	.00	.00	.00	e.01	e.00	.00	e.00	e.19	e.00	e.00	e.01
5	.00	.00	.10	.00	e.00	e.00	.00	e.05	e.00	e.00	e.00	e.00
6	.00	.00	.00	.00	e.00	e.02	.00	e.11	e.00	e.87	e.00	e.00
7	.00	.00	.00	.00	e.01	e.01	e1.89	e.00	e.16	e.00	e.00	e.00
8	.10	.00	.00	.00	e.02	e.00	e.51	e.00	e.03	e.00	e.09	e.00
9	.40	.00	.00	.10	e.00	e.00	.00	e.00	e.00	e.00	e.00	e.00
10	.00	.00	.00	.00	e.00	e.00	.00	e.00	e.00	e.00	e.00	e.00
11	.00	.00	.00	e.00	e.00	e.00	.00	e.00	e.00	e.00	e.00	e.00
12	.00	.00	.00	e.05	e.00	e.00	.00	e.00	e.00	e.15	e.00	e.00
13	.00	.10	.00	e.22	e.00	e.00	.00	e.75	e.00	e.00	e.00	e.09
14	.00	.40	.00	e.13	e.00	e.00	.20	e.00	e.00	e.00	e.00	e.14
15	.20	.00	.00	e.09	e.00	e.00	.30	e.00	e.05	e.00	e.00	e.21
16	.40	.00	.30	e.03	e.00	e.00	.00	e.00	e.13	e.00	e.00	e.00
17	.00	.00	.00	e.07	e.00	e.00	.00	e.00	e.00	e.00	e.00	e.00
18	.30	.00	.00	e.03	e.00	e.00	.00	e.00	e.00	e.04	e.00	e.00
19	.20	.00	.00	e.03	e.00	e.02	.00	e.92	e.00	e.00	e.01	e.00
20	.00	.00	.00	e.00	e.00	e.10	.00	e.09	e.00	e.00	e.00	e.02
21	.00	.00	.00	e.00	e.01	e.00	.30	e.00	e1.12	e.00	e.00	e.08
22	.00	.00	.00	e.00	e.00	e.00	e.17	e.00	e.00	e.00	e.00	e.00
23	.00	.00	e.11	e.00	e.00	e.02	e.23	e.00	e.00	e.00	e.00	e.00
24	.00	.00	e.36	e.00	e.02	e.00	e.30	e.00	e.00	e.00	e.00	e.00
25	.00	.20	e.01	e.00	e.00	e.00	.30	e.00	e.00	e.11	e.00	e.00
26	.00	.00	e.00	e.00	e.00	e.02	.00	e.00	e.00	e.00	e.00	e.00
27	.00	.00	e.02	e.00	e.00	e.02	.00	e.00	e.00	e.00	e.04	e.00
28	.00	.00	.00	e.00	e.02	e.04	.00	e.00	e.00	e.00	e.00	e.00
29	.00	.00	.00	e.13	---	e.01	.00	e.00	e.00	e.00	e.03	e.00
30	.00	.00	.00	e.02	---	e.00	.40	e.00	e.00	e.00	e.22	e.00
31	.00	---	.00	.00	---	e.00	---	e.00	---	e.00	e.04	---
TOTAL	1.60	0.70	1.10	0.90	0.12	0.26	4.60	2.05	1.89	1.34	0.65	0.57

CAL YR 1993 TOTAL 25.80
WTR YR 1994 TOTAL 15.78

e Estimated

CHEYENNE RIVER BASIN

434928103214800 PRECIP AT NORTH FARM AT CUSTER STATE PARK, NEAR HAYWARD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°49'28", long 103°21'48", in NW1/4 NW1/4 NE1/4 NE1/4 sec.2, T.3 S., R.6 E., Custer County, Hydrologic Unit 10120109, 3.5 mi southwest of Hayward on Spokane Creek, 0.1 mi east of U.S. Highway 16A, and 0.1 mi south of north boundary of Custer State Park.

PERIOD OF RECORD.--May 1989 to current year (seasonal record).

INSTRUMENTATION.--Non-shielded, 4.0-in. diameter plastic gage with 11-in. capacity. Elevation of gage is 4,220 ft above sea level, from topographic map.

REMARKS.--Records fair except those for estimated periods, which are poor. Precipitation gage is read daily by observer at approximately 0700 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	e.00	.25
2	---	---	---	---	---	---	---	.00	.37	.00	e.62	.00
3	---	---	---	---	---	---	---	.11	.00	.00	e.00	.00
4	---	---	---	---	---	---	---	.00	.25	.00	e.33	.00
5	---	---	---	---	---	---	---	.02	.00	.00	e.00	.00
6	---	---	---	---	---	---	---	.52	.00	.61	e.00	.00
7	---	---	---	---	---	---	---	.00	.00	.00	e.00	.00
8	---	---	---	---	---	---	---	.00	.13	.00	e.02	.00
9	---	---	---	---	---	---	---	.00	.00	.00	e.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	e.03	.00
11	---	---	---	---	---	---	---	.00	.00	.00	e.32	.00
12	---	---	---	---	---	---	---	.00	.00	.00	e.02	.04
13	---	---	---	---	---	---	---	.59	.00	.00	e.00	.52
14	---	---	---	---	---	---	---	.00	.00	.18	e.19	.00
15	---	---	---	---	---	---	---	.00	.00	.26	e.00	.00
16	---	---	---	---	---	---	---	.00	.20	.00	.60	.00
17	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.22	.71	.00	.00	.00
20	---	---	---	---	---	---	---	.00	.04	.00	.00	.00
21	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
22	---	---	---	---	---	---	---	.00	.17	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
24	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.15	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.00	.45	.00
31	---	---	---	---	---	---	---	.00	---	.00	.33	---
TOTAL	---	---	---	---	---	---	---	1.46	1.87	1.20	2.91	0.81

e Estimated

BELLE FOURCHE RIVER BASIN

441207104012700 PRECIP AT O'NEIL PASS NEAR LEAD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°12'07", long 104°01'27", in NW1/4 SW1/4 SE1/4 sec.20, T.3 N., R.1 E., Lawrence County, Hydrologic Unit 10120203, 1.0 mi west of O'Neil Pass and 16 mi southwest of Lead on the north side of U.S. Highway 85, approximately 1.5 mi east of the South Dakota-Wyoming State line.

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

INSTRUMENTATION.--Shielded precipitation recorder with 8.0-in. orifice and 12-in. capacity. Elevation of gage is 6,520 ft above sea level, from topographic map. Prior to May 5, 1989, a non-shielded, 8.0-in. diameter plastic gage, 72 in. tall.

AVERAGE ANNUAL PRECIPITATION.--6 years, 23.30 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	e.00	.15	.00	.01	.00	e.01	e.00	e.23	.02
2	.06	.00	.24	e.17	.24	.00	.07	.04	e.22	e.00	e.00	.00
3	.00	.05	.22	e.25	.04	.00	.00	.19	e.02	e.21	.21	.00
4	.00	.13	.00	e.00	.00	.00	.63	.00	e.23	e.00	.01	.00
5	.00	.00	1.01	e.05	.00	.00	.00	.00	e.00	e.00	.00	.00
6	.00	.11	.00	e.06	.00	.18	.00	.00	e.00	e1.04	.00	.00
7	.02	.04	.00	e.00	.10	.03	.34	.00	e.19	e.00	.00	.00
8	.40	.05	.00	e.26	.15	.00	.05	.00	e.03	e.00	.00	.00
9	.08	.00	.00	e.03	.00	.00	.00	.00	e.00	e.00	.00	.00
10	.00	.00	.00	e.00	.00	.00	.00	.30	e.00	e.00	.00	.00
11	.00	.00	.00	.00	.08	.00	.00	.00	e.00	e.00	.00	.00
12	.01	.00	.02	.19	.00	.00	.00	.00	e.00	e.18	.00	.00
13	.02	.01	.02	.63	.00	.00	.00	.01	e.00	e.00	.00	.18
14	.61	.07	.00	.35	.00	.00	.11	.00	e.00	e.00	.00	.00
15	.12	.01	.00	.23	.00	.00	.01	.00	e.06	e.00	.00	.75
16	.96	.00	.07	.06	.00	.00	.00	.00	e.16	e.00	.03	.00
17	.04	.00	.15	.17	.00	.05	.00	.60	e.00	e.05	.00	.00
18	.03	.10	.00	.19	.00	.00	.00	.00	e.00	e.00	.00	.00
19	.10	.00	.25	.03	.00	.04	.00	.00	e.00	e.00	.00	.00
20	.00	.00	.00	.00	.05	.02	.00	.00	e.00	e.00	.00	.00
21	.00	.00	.18	.00	.10	.00	.00	.04	e1.33	e.00	.00	.15
22	.00	.00	.05	.00	.02	.01	.10	.00	e.00	e.00	.00	.00
23	.00	.05	.09	.00	.00	.24	.03	.00	e.00	e.00	.00	.00
24	.00	.04	e1.03	.00	.14	.01	.02	.00	e.00	e.13	.00	.00
25	.02	.13	e.06	.00	.00	.04	.98	.00	e.00	e.00	.00	.00
26	.00	.61	e.00	.00	.00	.12	.83	.00	e.00	e.00	.00	.00
27	.00	.02	e.00	.00	.00	.19	.09	.00	e.00	e.00	.00	.00
28	.14	.00	e.00	.04	.00	.40	.07	.00	e.00	e.00	.00	.00
29	.06	.00	e.00	.48	---	.05	.01	e.06	e.00	e.00	.03	.00
30	.00	.00	e.00	.05	---	.03	.00	e.00	e.00	e.00	.26	.00
31	.00	---	e.15	.20	---	.00	---	e.00	---	e.00	.09	---
TOTAL	2.67	1.42	3.54	3.44	1.07	1.41	3.35	1.24	2.25	1.61	0.86	1.10

CAL YR 1993 TOTAL 32.43
WTR YR 1994 TOTAL 23.96

e Estimated

CHEYENNE RIVER BASIN

432343103421500 PRECIP AT PARKER PEAK NEAR EDGEMONT, SD
(Formerly published as Precip at Parker Peak near Minnekahta, SD)

PRECIPITATION RECORDS

LOCATION.--Lat 43°23'43", long 103°42'15", in SW1/4 NW1/4 NW1/4 SE1/4, 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.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	.00	---
2	---	---	---	---	---	---	---	.00	.00	.00	.32	---
3	---	---	---	---	---	---	---	.00	.00	.00	.10	---
4	---	---	---	---	---	---	---	.00	.00	.00	.00	---
5	---	---	---	---	---	---	---	.00	.00	.00	.00	---
6	---	---	---	---	---	---	---	.35	.00	.08	.00	---
7	---	---	---	---	---	---	---	.00	.00	.20	.00	---
8	---	---	---	---	---	---	---	.00	1.00	.00	.00	---
9	---	---	---	---	---	---	---	.00	.00	.00	.00	---
10	---	---	---	---	---	---	---	.00	.00	.00	.00	---
11	---	---	---	---	---	---	---	.00	.00	.00	.60	---
12	---	---	---	---	---	---	---	.00	.00	.40	.00	---
13	---	---	---	---	---	---	---	.70	.00	.30	.00	---
14	---	---	---	---	---	---	---	.00	.00	.00	.00	---
15	---	---	---	---	---	---	---	.00	.00	.00	.00	---
16	---	---	---	---	---	---	---	.00	.00	.21	.00	---
17	---	---	---	---	---	---	---	.00	.00	.00	.00	---
18	---	---	---	---	---	---	---	.08	.00	.00	.00	---
19	---	---	---	---	---	---	---	.58	.00	.00	.00	---
20	---	---	---	---	---	---	---	.00	.23	.00	.00	---
21	---	---	---	---	---	---	---	.00	.00	.00	.00	---
22	---	---	---	---	---	---	---	.00	.20	.00	.00	---
23	---	---	---	---	---	---	---	.00	.47	.00	.00	---
24	---	---	---	---	---	---	---	.00	.00	.00	.00	---
25	---	---	---	---	---	---	---	.00	.00	.23	.00	---
26	---	---	---	---	---	---	---	.00	.00	.00	.00	---
27	---	---	---	---	---	---	---	.00	.00	.00	.00	---
28	---	---	---	---	---	---	---	.00	.00	.00	.00	---
29	---	---	---	---	---	---	---	.00	.00	.00	.32	---
30	---	---	---	---	---	---	---	.00	.00	.00	.00	---
31	---	---	---	---	---	---	---	.00	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	1.71	1.90	1.42	1.34	---

CHEYENNE RIVER BASIN

434002103214500 PRECIP AT RACETRACK BUTTE, NEAR FAIRBURN, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°40'02", long 103°21'45", in SW1/4 SE1/4 SE1/4 sec.26, T.4 S., R.6 E., Custer County, Hydrologic Unit 10120109, 100 ft east of Wildlife Loop Road CSP #1, 0.8 mi southeast of Racetrack Butte, and 7.0 mi west of Fairburn.

PERIOD OF RECORD.--October 1983 to current year. Published as Custer State Park from October 1983 to September 1987, and as Precip at Custer State Park at Racetrack Butte, near Fairburn, SD, from October 1987 to September 1989.

INSTRUMENTATION.--Shielded precipitation recorder with 8.0-in. orifice and 12-in. capacity. Elevation of gage is 3,970 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--11 years, 16.05 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.00	e.00	e.00	.00	.00	.00	.00	.00	.00	.02	.19
2	.00	.00	e.05	e.04	.06	.00	.00	.00	.04	.00	.45	.00
3	.00	.00	e.00	e.00	.00	.00	.00	.22	.03	.00	.10	.00
4	.00	.00	e.02	.00	.00	.00	.13	.01	.05	.00	.00	.00
5	.00	.00	e.00	.00	.00	.06	.00	.01	.00	.07	.00	.00
6	.00	.00	e.00	.00	.03	.23	.00	.17	.03	.12	.00	.00
7	.00	.00	e.00	.00	.15	.00	.00	.00	.00	.00	.02	.00
8	.43	.00	e.00	.00	.11	.00	.00	.00	.00	.00	.00	.00
9	.25	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	e.00	.05	.05	.00	.00	.00	.00	.00	.33	.00
12	.00	.40	e.00	.00	.00	.00	.00	.01	.04	.02	.00	.00
13	.00	.05	e.00	.00	.00	.00	.00	.41	.01	.83	.00	.31
14	.03	.07	e.00	.01	.00	.00	.07	.00	.00	.02	.00	.00
15	.14	.00	e.00	.00	.00	.00	.00	.00	.00	.27	.02	.00
16	.22	.00	e.33	.02	.00	.00	.00	.00	.09	.02	.01	.00
17	.17	.00	e.01	.15	.00	.00	.00	.00	.00	.02	.00	.00
18	.00	.00	e.00	.02	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	e.00	.07	.03	.03	.00	.01	.00	.01	.00	.00
20	.00	.00	e.00	.00	.32	.11	.00	.39	.00	.00	.00	.02
21	.00	.00	e.00	.00	.08	.00	.00	.02	.00	.00	.00	.05
22	.00	e.11	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	e.10	e.00	.00	.00	.14	.00	.02	.00	.03	.00	.00
24	.00	e.00	e.00	.00	.25	.00	.12	.21	.00	.00	.00	.00
25	.00	e.00	e.00	.00	.00	.00	.32	.06	.06	.04	.00	.00
26	.00	e.01	e.00	.00	.00	.00	.19	.01	.00	.00	.00	.00
27	.00	e.00	e.00	.00	.00	.00	.05	.19	.00	.00	.00	.00
28	.00	e.00	e.00	.00	.00	.00	.10	.00	.00	.00	.02	.00
29	.00	e.00	e.00	.00	---	.06	.00	.03	.00	.00	.02	.00
30	.00	e.04	e.00	.04	---	.03	.00	.00	.00	.00	.07	.01
31	.00	---	e.00	.00	---	.00	---	.05	---	.00	.19	---
TOTAL	1.30	0.78	0.41	0.40	1.08	0.66	0.98	1.82	0.35	1.45	1.25	0.58

CAL YR 1993 TOTAL 22.60
WTR YR 1994 TOTAL 11.06

e Estimated

CHEYENNE RIVER BASIN

434751104005100 PRECIP AT REDBIRD CANYON NEAR NEWCASTLE, WY

PRECIPITATION RECORDS

LOCATION.--Lat 43°47'51", long 104°00'51", in SW1/4 SW1/4 SW1/4, 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.--Shielded precipitation recorder with 8.0-in. orifice and 12-in. capacity. Elevation of gage is 4,760 ft above sea level, from topographic map.

REMARKS.--Records poor.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00	.04
2	.00	.00	.10	.02	.12	.00	.00	.00	.00	.00	1.06	.00
3	.00	.00	.06	.06	.00	.00	.00	.00	.00	.06	.00	.04
4	.00	.00	.08	.00	.00	.00	.04	.00	.00	.00	.00	.00
5	.00	.02	.29	.00	.00	.12	.02	.00	.00	.00	.00	.00
6	.00	.00	.04	.02	.00	.26	.00	.14	.00	.84	.00	.00
7	.00	.00	.02	.04	.16	.02	.32	.00	.14	.06	.02	.00
8	.48	.02	.00	.00	.10	.00	.04	.00	.05	.01	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
10	.02	.00	.00	.00	.02	.00	.00	.00	.00	.01	.00	.00
11	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.12	.02	.00
13	.00	.06	.00	.22	.00	.00	.00	.10	.00	.04	.06	.28
14	.36	.06	.00	.18	.00	.00	.00	.00	.00	.02	.00	.00
15	.00	.00	.00	.04	.00	.00	.00	.02	.19	.00	.00	.12
16	.10	.00	.06	.04	.00	.00	.00	.00	.00	.04	.02	.02
17	.00	.02	.02	.12	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.06	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.02	.00	.22	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.10	.00	.00	.00	.43	.00	.00	.00
22	.00	.06	.06	.00	.04	.00	1.34	.00	.00	.00	.00	.00
23	.00	.10	.04	.00	.00	.02	.00	.00	.01	.00	.00	.00
24	.00	.00	.16	.00	.26	.00	.14	.00	.00	.30	.00	.00
25	.00	.04	.02	.00	.00	.00	.98	.00	.01	.06	.00	.00
26	.00	.04	.00	.00	.00	.04	.28	.00	.00	.00	.00	.00
27	.00	.02	.02	.00	.00	.00	.04	.00	.01	.02	.00	.00
28	.00	.00	.00	.00	.00	.04	.04	.00	.00	.00	.06	.00
29	.00	.00	.00	.10	---	.02	.00	.00	.01	.02	.00	.00
30	.00	.00	.00	.00	---	.00	.02	.00	.00	.00	.00	.00
31	.00	---	.02	.12	---	.00	---	.00	---	.00	.12	---
TOTAL	0.96	0.44	1.01	1.06	1.12	0.52	3.26	0.26	0.85	1.61	1.36	0.50

CAL YR 1993 TOTAL 24.60
WTR YR 1994 TOTAL 12.95

CHEYENNE RIVER BASIN

440242103520600 PRECIP AT REYNOLDS PRAIRIE NEAR HILL CITY, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°02'42", long 103°52'06", in NW1/4 NE1/4 SW1/4, 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.--6 years, 20.12 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.10	.00	.00	.00	.00	.00	.00	.20	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.50	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.10	.00	.20	.00	.00	1.00	.00	.00	.00	.00	.00
6	.00	.00	.50	.50	.10	.00	.00	.20	.00	.20	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.60	.00	.00
8	.00	.00	.00	.00	.10	.00	.00	.00	.20	.00	.40	.00
9	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.10	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.10	.00	.10	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.30	.00	.00	.00	.40	.00	.70	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.50	.00	.20	.20	.40
15	.00	.20	.00	.60	.00	.00	1.00	.00	.00	.00	.00	.00
16	.40	.00	.10	.00	.00	.00	.00	.00	.30	.00	.00	.00
17	.00	.00	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.10	.30	.00	.00	1.20	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00	.40
21	.00	.20	.10	.00	.00	.00	.00	.10	.00	.00	.00	.00
22	.00	.00	.00	.00	.30	.00	.00	.00	.20	.00	.00	.00
23	.00	.00	.10	.00	.00	.40	.40	.00	.30	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.30	.00	.00	.00	.30	.00	.00	.00	.00	.00
26	.00	.30	.00	.00	.00	.00	.00	.00	.00	.40	.00	.00
27	.00	.00	.00	.00	.00	.00	1.00	.00	.00	.00	.00	.00
28	.00	.00	.20	.00	.30	.00	.20	.00	.00	.00	.00	.00
29	.50	.00	.00	.10	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.10	.10	---	.00	---	.00	---	.00	.10	---
TOTAL	0.90	0.90	1.50	2.20	1.30	0.40	3.90	2.50	1.10	2.10	1.40	0.80

CAL YR 1993 TOTAL 27.20
WTR YR 1994 TOTAL 19.00

CHEYENNE RIVER BASIN

434638103253500 PRECIP AT ROAD CAMP AT CUSTER STATE PARK, NEAR CUSTER, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°46'38", long 103°25'35", in NE1/4 NW1/4 SW1/4 NE1/4, sec.20, T.3 S., R.6 E., Custer County, Hydrologic Unit 10120109, 0.1 mi north of U.S. Highway 16A at Road Camp, 2.2 mi northwest of Custer State Park Headquarters, and 8.0 mi east of Custer.

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

INSTRUMENTATION.--Shielded, 8.0-in. diameter plastic gage, 48 in. tall. Elevation of gage is 4,660 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--5 years, 21.27 in.

REMARKS.--Records poor. Precipitation gage is read daily by observer at approximately 1100 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.00	.00	e.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00
2	e.00	.00	e.06	e.04	e.00	.00	.00	.00	.00	.00	.00	.30
3	e.00	.00	e.00	e.00	e.00	.00	.00	.00	.40	.00	.50	.00
4	e.00	.00	e.02	e.00	e.00	.00	.00	.30	.00	.00	.40	.00
5	e.00	.00	e.00	e.00	e.00	.00	.25	.00	.30	.00	.00	.00
6	e.00	.00	e.00	e.00	e.03	.00	.00	.00	.00	.10	.00	.00
7	e.00	.00	e.00	e.00	e.12	.00	.00	.00	.00	.10	.00	.00
8	e.75	.00	e.00	e.00	e.09	.00	.00	.00	.00	.00	.00	.00
9	e.01	.00	e.00	e.00	e.00	.00	.00	.00	.00	e.00	.00	.00
10	e.00	.00	e.00	e.00	e.00	.40	.00	.00	.00	e.17	.20	.00
11	e.00	.00	e.00	e.00	e.06	.00	.00	.00	.00	e.00	.00	.00
12	e.00	.00	e.00	e.00	e.00	.00	.00	.00	.00	e.00	.70	.00
13	e.11	.00	e.00	e.02	e.00	.00	.00	.00	.00	e.00	.00	.00
14	e1.16	.00	e.00	e.02	e.00	.00	.00	.00	.00	e.30	.00	1.00
15	e.05	.50	e.00	e.00	e.00	.00	.00	1.05	.20	e.61	.00	.00
16	e.03	.00	e.36	e.02	e.00	.00	.00	.00	.00	e.11	.00	.00
17	e.11	.00	e.02	e.12	e.00	.00	.00	.00	.00	e.00	.25	.00
18	e.34	.00	e.00	e.00	e.00	.00	.00	.00	.10	e.09	.00	.00
19	e.00	.00	e.00	e.08	e.09	.00	.00	.00	.00	e.00	.00	.00
20	e.00	.00	e.00	e.00	e.13	.00	.00	.40	.20	e.00	.00	.20
21	e.00	.00	e.00	e.00	e.10	.00	.00	.00	.00	e.00	.00	.00
22	e.00	.00	e.00	e.00	e.00	.00	.00	.00	.10	e.00	.00	.00
23	e.00	.20	e.00	e.00	e.00	.00	.00	.15	.00	e.00	.00	.00
24	e.00	.00	e.00	e.00	e.23	.00	.00	.00	.00	e.00	.00	.00
25	e.00	.00	e.00	e.00	e.00	.00	.35	.00	.00	e.00	.00	.00
26	e.00	.00	e.00	e.00	e.00	.00	.80	.00	.00	e.22	.00	.00
27	e.00	.00	e.00	e.00	e.00	.10	.05	.00	.00	e.00	.00	.00
28	e.00	.00	e.00	e.00	e.00	.00	.00	.00	.00	e.00	.00	.00
29	e.00	.20	e.00	e.02	---	.00	.30	.00	.00	e.22	.00	.00
30	e.00	.00	e.00	e.00	---	.00	.00	.00	.00	e.00	.00	.00
31	e.00	---	e.00	e.00	---	.25	---	.00	---	e.09	.38	---
TOTAL	2.56	0.90	0.46	0.32	0.85	0.75	1.75	1.90	1.30	2.01	2.43	1.50

CAL YR 1993 TOTAL 27.79
WTR YR 1994 TOTAL 16.73

e Estimated

CHEYENNE RIVER BASIN

433848103443200 PRECIP AT S & G CANYON NEAR PRINGLE, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°38'48", long 103°44'32", in NW1/4 SE1/4 NE1/4, 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.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
2	---	---	---	---	---	---	---	.00	.00	.00	.40	.00
3	---	---	---	---	---	---	---	.00	.00	.00	.32	.00
4	---	---	---	---	---	---	---	.00	.13	.00	.00	.00
5	---	---	---	---	---	---	---	.00	.71	.00	.00	.00
6	---	---	---	---	---	---	---	.00	.00	.02	.00	.00
7	---	---	---	---	---	---	---	.00	.29	.00	.00	.00
8	---	---	---	---	---	---	---	.00	.27	.00	.00	.00
9	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.08	.00
11	---	---	---	---	---	---	---	.00	.00	.00	.03	.00
12	---	---	---	---	---	---	---	.10	.00	.15	.00	.00
13	---	---	---	---	---	---	---	1.20	.00	.00	.13	.08
14	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.20	.00	.00	.00
16	---	---	---	---	---	---	---	.00	.00	.06	.00	.03
17	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.26	.15	.00	.00	.00
20	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
21	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
22	---	---	---	---	---	---	---	.00	.11	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
24	---	---	---	---	---	---	---	.13	.00	.25	.00	.00
25	---	---	---	---	---	---	---	.09	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.05	.05	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.04	.00	.00
31	---	---	---	---	---	---	---	.00	---	.00	.21	---
TOTAL	---	---	---	---	---	---	---	1.78	1.86	0.57	1.22	0.11

CHEYENNE RIVER BASIN

440022103195200 PRECIP AT SHERIDAN LAKE ROAD NEAR RAPID CITY, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°00'22", long 103°19'52", in SW1/4 SW1/4 NW1/4 NW1/4 sec.31, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, 0.2 mi south of Sheridan Lake Road, 6.5 mi northeast of Sheridan Lake, and 4.0 mi southwest of Canyon Lake in Rapid City.

PERIOD OF RECORD.--March 1989 to current year (seasonal record).

INSTRUMENTATION.--Non-shielded, 4.0-in. diameter plastic gage with 11-in. capacity. Elevation of gage is 4,265 ft above sea level, from topographic map.

REMARKS.--Records fair except those for estimated periods, which are poor. Precipitation gage is read daily by observer at approximately 0700 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	.02	.25
2	---	---	---	---	---	---	---	.00	.04	.00	.00	.14
3	---	---	---	---	---	---	---	.63	.14	.00	.00	.03
4	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
5	---	---	---	---	---	---	---	.00	.12	.00	e.00	.00
6	---	---	---	---	---	---	---	.00	.05	.27	e.00	.00
7	---	---	---	---	---	---	---	.00	.00	1.05	e.05	.00
8	---	---	---	---	---	---	---	.00	.12	.02	e.00	.00
9	---	---	---	---	---	---	---	.00	.00	.00	e.02	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
12	---	---	---	---	---	---	---	.00	.00	.00	e.03	.00
13	---	---	---	---	---	---	---	1.58	.00	.07	e.00	.00
14	---	---	---	---	---	---	---	.00	.00	.14	e.00	.16
15	---	---	---	---	---	---	---	.00	.00	.00	e.07	.00
16	---	---	---	---	---	---	---	.00	.13	.32	e.24	.31
17	---	---	---	---	---	---	---	.00	.12	.02	e.00	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.50	.02	.04	.03	.00
20	---	---	---	---	---	---	---	.13	.13	.00	.00	.00
21	---	---	---	---	---	---	---	.00	.00	.00	.00	.06
22	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.10	.00	.00	.00
24	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.00	.02	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	---	.00	.02	.00	.00	.00
31	---	---	---	---	---	---	---	.00	---	.00	.32	---
TOTAL	---	---	---	---	---	---	---	2.84	0.99	1.95	0.78	0.95

e Estimated

CHEYENNE RIVER BASIN

440756103450300 PRECIP AT TELEGRAPH GULCH ABOVE ROCHFORD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°07'56", long 103°45'03", in SW1/4 NW1/4 NE1/4 SW1/4 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.--4 years, 21.25 in.

REMARKS.--Records fair. Precipitation gage is read daily by observer at approximately 0730 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.12	.15	.04	.00	.00	.00	.32	.00	.33	.00
3	.00	.00	.00	.00	.00	.00	.27	.00	.02	.28	.00	.00
4	.00	.00	.48	.00	.00	.00	.09	.00	.23	.00	.00	.00
5	.00	.15	.02	.00	.00	.12	.00	.23	.00	.49	.00	.00
6	.00	.00	.00	.00	.04	.00	.00	.00	.00	.49	.00	.00
7	.00	.00	.00	.06	.17	.00	.09	.00	.17	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00
9	.43	.00	.00	.00	.00	.00	.00	.00	.00	.00	.67	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00
11	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.12	.00	.00	.00	.00	.00	.31	.00	.00
13	.00	.00	.00	.34	.00	.00	.00	.71	.00	.17	.00	.00
14	.00	.08	.00	.03	.00	.00	.09	.00	.00	.00	.00	.19
15	.30	.00	.00	.10	.00	.00	.00	.00	.13	.00	.00	.00
16	.58	.00	.14	.05	.00	.00	.00	.00	.00	.25	.00	.30
17	.09	.00	.05	.11	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.06	.04	.00	.01	.04	.00	.12	.00	.03	.00	.00
20	.00	.00	.04	.00	.04	.00	.00	.02	.00	.00	.00	.00
21	.00	.00	.09	.00	.00	.00	.00	.00	.32	.00	.00	.00
22	.00	.00	.15	.00	.03	.00	.14	.00	.00	.00	.06	.40
23	.00	.09	.15	.00	.00	.11	.12	.03	.00	.00	.00	.00
24	.00	.00	.30	.00	.06	.00	.52	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.82	.00	.00	.00	.00	.00
26	.00	.00	.03	.00	.00	.24	.23	.00	.00	.00	.00	.00
27	.00	.39	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00
28	.08	.00	.00	.04	.18	.34	.02	.00	.00	.00	.00	.00
29	.00	.00	.00	.21	---	.02	.00	.00	.00	.00	.07	.00
30	.00	.00	.00	.01	---	.00	.00	.00	.00	.00	.31	.00
31	.00	---	.00	.12	---	.00	---	.00	---	.00	.03	---
TOTAL	1.48	0.77	1.62	1.34	0.60	0.87	2.45	1.11	1.23	2.12	1.47	0.89

CAL YR 1993 TOTAL 26.63
WTR YR 1994 TOTAL 15.95

BELLE FOURCHE RIVER BASIN

442104103414400 PRECIP AT TWO BIT GULCH NEAR DEADWOOD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°21'04", long 103°41'44", in NW1/4 NE1/4 NW1/4 SE1/4 sec.36, T.5 N., R.3 E., Lawrence County, Hydrologic Unit 10120202, 0.1 mi west of U.S. Forest Service Road 540 and 2.0 mi southeast of Deadwood.

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 5,140 ft above sea level, from topographic map.

REMARKS.--Records fair. Precipitation gage is read daily by observer at approximately 0830 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	.00	.03
2	---	---	---	---	---	---	---	.00	.03	.00	.06	.00
3	---	---	---	---	---	---	---	.00	.13	.00	.00	.00
4	---	---	---	---	---	---	---	.02	.12	.10	.00	.00
5	---	---	---	---	---	---	---	.00	.01	.00	.00	.00
6	---	---	---	---	---	---	---	.20	.03	.86	.00	.00
7	---	---	---	---	---	---	---	.02	.00	1.13	.00	.00
8	---	---	---	---	---	---	---	.00	.25	.17	.00	.00
9	---	---	---	---	---	---	---	.00	.05	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
12	---	---	---	---	---	---	---	.00	.00	.29	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.00	.00	.05
14	---	---	---	---	---	---	---	.42	.00	.09	.00	.02
15	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
16	---	---	---	---	---	---	---	.02	.64	.32	.00	.48
17	---	---	---	---	---	---	---	.00	.00	.05	.19	.00
18	---	---	---	---	---	---	---	.00	.02	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.00	.09	.00	.00
20	---	---	---	---	---	---	---	.03	.00	.00	.00	.03
21	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
22	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.12	.00	.00	.32
24	---	---	---	---	---	---	---	.02	.29	.00	.00	.00
25	---	---	---	---	---	---	---	.09	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.16	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.00	.14	.00
31	---	---	---	---	---	---	---	.00	---	.00	.30	---
TOTAL	---	---	---	---	---	---	---	0.82	1.69	3.26	0.69	0.93

CHEYENNE RIVER BASIN

441810104062300 PRECIP AT WAGON CANYON NEAR SUNDANCE, WY

PRECIPITATION RECORDS

LOCATION.--Lat 44°18'10", long 104°06'23", in SW1/4 NE1/4 SW1/4 sec.19, T.50 N., R.60 W., Crook County, Hydrologic Unit 10120101, in Wagon Canyon 15 mi southeast of Sundance, 17 mi south of Beulah, and 2.5 mi west of the South Dakota-Wyoming State line.

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

INSTRUMENTATION.--Shielded, 8.0-in. diameter plastic gage, 72 in. tall. Elevation of gage is 5,650 ft above sea level, from topographic map.

REMARKS.--Records poor. Precipitation gage is read daily by observer at approximately 0900 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	e.00	e.23	.00
2	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	e.00	e.35	.00
3	.00	.00	.00	.30	.00	.00	.00	e.23	e.00	e.00	e.00	e.20
4	.00	.50	.00	.00	.00	.00	.00	e.00	e.00	e.00	e.00	e.00
5	.00	.00	.15	.10	.00	.00	.00	e.00	e.00	e.00	e.00	e.00
6	.00	.00	.00	.00	.00	.00	.50	e.00	e.00	e.70	e.00	e.00
7	.00	.00	.00	.00	.00	.00	.50	e.00	e.00	e1.40	e.00	e.00
8	.65	.00	.00	.00	1.00	.00	.00	e.00	e.23	e.23	e.00	.00
9	.00	.00	.00	.00	.00	.00	.00	e.00	e.35	e.00	e.12	.00
10	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	e.00	e.00	.00
11	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	e.00	e.00	.00
12	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	e.00	e.00	.00
13	.00	.20	.00	.00	.00	.00	.00	e.12	e.00	e.35	e.00	.10
14	.30	.00	.00	.00	.00	.00	.10	e.23	e.00	e.00	e.00	.20
15	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	e.00	e.00	.10
16	.30	.00	.00	1.50	.00	.00	.00	e.00	e.58	e.00	e.17	.50
17	.00	.00	.15	.00	.00	.00	.00	e.00	e.00	e.00	e.00	.00
18	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	e.00	e.00	.00
19	.00	.00	.00	.00	.00	.00	.00	e.58	e.00	e.00	e.00	.00
20	.00	.00	.00	.00	.00	.40	.00	e.47	e.00	e.00	e.00	.00
21	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	e.23	e.00	.10
22	.00	.00	1.80	.50	.00	.00	.00	e.00	e.00	e.12	e.00	.10
23	.00	e.20	.30	.00	.00	.30	1.20	e.00	e.00	e.00	.00	.00
24	.00	e.00	.00	.00	.00	.00	.00	e.35	e.00	e.00	.00	.00
25	.00	e.00	.20	.00	.00	.00	.00	e.00	e.00	e.00	.00	.00
26	.00	e.65	.10	.00	.00	.00	.00	e.00	e.00	e.23	.00	.00
27	.00	e.65	.10	.00	.00	.40	.40	e.00	e.00	e.00	.00	.00
28	.00	.00	.00	.00	.20	.40	.00	e.00	e.00	e.00	.00	.00
29	.00	.00	.00	.00	---	.30	.00	e.00	e.00	e.00	.00	.00
30	.00	.00	.00	.50	---	.00	.20	e.00	e.00	e.00	.10	.00
31	.00	---	.00	.10	---	.00	---	e.00	---	e.00	.00	---
TOTAL	1.25	2.20	2.80	3.00	1.20	1.80	2.90	1.98	1.16	3.26	0.97	1.30

WTR YR 1994 TOTAL 23.82

e Estimated

CHEYENNE RIVER BASIN

434645103240700 PRECIP AT WATER TREATMENT PLANT AT CUSTER STATE PARK, NEAR CUSTER, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°46'45", long 103°24'07", in NE1/4 SW1/4 NE1/4 NE1/4 sec.21, T.3 S., R.6 E., Custer County, Hydrologic Unit 10120109, 0.7 mi northwest of Custer State Park Headquarters at Water Treatment Plant, 0.1 mi north of U.S. Highway 16A, and 9.0 mi east of Custer.

PERIOD OF RECORD.--May 1989 to current year (seasonal record).

INSTRUMENTATION.--Non-shielded, 4.0-in. diameter plastic gage with 11-in. capacity. Elevation of gage is 4,400 ft above sea level, from topographic map.

REMARKS.--Records fair except those for estimated periods, which are poor. Precipitation gage is read daily by observer at approximately 1430 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	.00	.22
2	---	---	---	---	---	---	---	.00	.38	.00	1.33	.00
3	---	---	---	---	---	---	---	.23	.00	.00	.00	.10
4	---	---	---	---	---	---	---	.00	.00	.00	.70	.00
5	---	---	---	---	---	---	---	.02	.26	.00	.00	.00
6	---	---	---	---	---	---	---	.43	.02	.21	.00	.00
7	---	---	---	---	---	---	---	.00	.04	.23	.00	.00
8	---	---	---	---	---	---	---	.00	.10	.00	.05	.00
9	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.08	.06	.00
11	---	---	---	---	---	---	---	.00	.00	.00	.69	.00
12	---	---	---	---	---	---	---	.00	.00	.00	.05	.09
13	---	---	---	---	---	---	---	.56	.00	.00	.00	.00
14	---	---	---	---	---	---	---	.00	.00	.14	.40	.46
15	---	---	---	---	---	---	---	.00	.15	.28	.00	.00
16	---	---	---	---	---	---	---	.00	.00	.05	.00	.00
17	---	---	---	---	---	---	---	.00	.03	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.06	.04	.00	.00
19	---	---	---	---	---	---	---	e.00	.14	.00	.00	.00
20	---	---	---	---	---	---	---	e.37	.00	.00	.00	.09
21	---	---	---	---	---	---	---	e.00	.00	.00	.00	.11
22	---	---	---	---	---	---	---	e.00	.16	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
24	---	---	---	---	---	---	---	.02	.03	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.10	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.10	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
31	---	---	---	---	---	---	---	.00	---	.04	.53	---
TOTAL	---	---	---	---	---	---	---	1.63	1.37	1.27	3.81	1.07

e Estimated

BELLE FOURCHE RIVER BASIN

441632103482400 PRECIP NEAR ENGLEWOOD NEAR LEAD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°16'32", long 103°48'24", in SW1/4 SE1/4 NE1/4 SW1/4 sec.30, T.4 N., R.3 E., Lawrence County, Hydrologic Unit 10120202, 0.1 mi west of U.S. Forest Service Road 205, 0.5 mi south of the Englewood Cemetery, and 5.0 mi south of Lead.

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 5,840 ft above sea level, from topographic map.

REMARKS.--Records fair. Precipitation gage is read daily by observer at approximately 0830 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	.38	.00
2	---	---	---	---	---	---	---	.24	.35	.00	.00	.00
3	---	---	---	---	---	---	---	.00	.00	.15	.00	.00
4	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
5	---	---	---	---	---	---	---	.13	.00	.00	.00	.00
6	---	---	---	---	---	---	---	.25	.00	2.07	.00	.00
7	---	---	---	---	---	---	---	.00	.22	.07	.00	.00
8	---	---	---	---	---	---	---	.00	.06	.00	.00	.00
9	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
12	---	---	---	---	---	---	---	.00	.00	.65	.00	.00
13	---	---	---	---	---	---	---	.47	.00	.06	.00	.10
14	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.44	.00	.00	.48
16	---	---	---	---	---	---	---	.00	.00	.03	.10	.00
17	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.00	.11	.00	.00
19	---	---	---	---	---	---	---	.73	.00	.05	.00	.00
20	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
21	---	---	---	---	---	---	---	.00	.19	.00	.00	.00
22	---	---	---	---	---	---	---	.00	.08	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
24	---	---	---	---	---	---	---	.28	.00	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.05	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.00	.32	.00
31	---	---	---	---	---	---	---	.00	---	.00	.07	---
TOTAL	---	---	---	---	---	---	---	2.10	1.34	3.19	0.92	0.58

CHEYENNE RIVER BASIN

433702103411200 PRECIP NEAR HOPKINS FLATS NEAR PRINGLE, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°37'02", long 103°41'12", in NW1/4 SW1/4 NE1/4, sec.18, T.5 S., R.4 E., Custer County, Hydrologic Unit 10120106, 1.5 mi north of Hopkins Flats, 5.0 mi west of Pringle, and 10.6 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 5,020 ft above sea level, from topographic map.

REMARKS.--Records fair except those for estimated periods, which are poor. Precipitation gage is read daily by observer at approximately 0800 hours. Daily precipitation record is for the previous 24 hours.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	e.00	.00
2	---	---	---	---	---	---	---	.00	.13	.00	e.22	.00
3	---	---	---	---	---	---	---	.00	.00	.00	e.17	.13
4	---	---	---	---	---	---	---	.00	.69	.00	.00	.00
5	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
6	---	---	---	---	---	---	---	.12	.00	.09	.00	.00
7	---	---	---	---	---	---	---	.00	.19	.00	.00	.00
8	---	---	---	---	---	---	---	.00	.35	.00	.00	.00
9	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
12	---	---	---	---	---	---	---	.00	.11	.00	.00	.23
13	---	---	---	---	---	---	---	.52	e.00	.30	.00	.26
14	---	---	---	---	---	---	---	.00	e.00	.06	.00	.00
15	---	---	---	---	---	---	---	.00	e.13	.00	.00	.00
16	---	---	---	---	---	---	---	.00	e.00	.05	.00	.00
17	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.22	.00	.00	.00
20	---	---	---	---	---	---	---	.28	.00	.00	.00	.00
21	---	---	---	---	---	---	---	.00	.00	.00	.00	.05
22	---	---	---	---	---	---	---	.00	.25	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
24	---	---	---	---	---	---	---	.00	.00	.15	.00	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
27	---	---	---	---	---	---	---	.00	.00	e.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	e.00	.04	.00
29	---	---	---	---	---	---	---	.00	.00	e.00	.00	.00
30	---	---	---	---	---	---	---	.00	.00	e.00	.12	.00
31	---	---	---	---	---	---	---	.00	---	e.00	.00	---
TOTAL	---	---	---	---	---	---	---	0.92	2.07	0.65	0.55	0.67

e Estimated

CHEYENNE RIVER BASIN

434534103290500 PRECIP NEAR MT. COOLIDGE NEAR CUSTER, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°45'34", long 103°29'05", in NW1/4 NE1/4 NW1/4 SE1/4 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.--Shielded precipitation recorder with 8.0-in. orifice and 12-in. capacity. Elevation of gage is 5,010 ft above sea level, from topographic map.

AVERAGE ANNUAL PRECIPITATION.--5 years, 21.91 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.11
2	.00	e.00	.07	.05	.00	.00	.00	.01	.00	.00	1.16	.00
3	.00	e.00	.00	.00	.00	.00	.00	.00	.30	.00	.19	.00
4	.00	e.00	.02	.00	.00	.00	.32	.87	.05	.00	.00	.00
5	.00	e.00	.00	.00	.00	.21	.00	.01	.27	.10	.00	.00
6	.00	e.00	.00	.00	.04	.27	.05	.08	.00	.18	.00	.00
7	.00	e.00	.00	.00	.14	.07	.03	.18	.03	.00	.00	.00
8	.64	e.00	.00	.00	.11	.00	.00	.00	.00	.00	.01	.00
9	.09	e.00	.00	.00	.00	.00	.00	.00	.08	.00	.28	.00
10	.00	e.00	.00	.00	.00	.00	.00	.01	.03	.03	.02	.00
11	.00	e.00	.00	.00	.07	.00	.00	.02	.00	.00	.09	.00
12	e.00	e.18	.00	.00	.00	.00	.00	.01	.03	.03	.00	.16
13	e.07	e.06	.00	.02	.00	.00	.00	.00	.00	.72	.00	.44
14	e.75	e.04	.00	.02	.00	.00	.00	.53	.00	.04	.00	.00
15	e.03	e.00	.00	.00	.00	.00	.00	.01	.00	.35	.02	.00
16	e.02	.00	.43	.02	.00	.00	.00	.00	.00	.07	.02	.00
17	e.07	.00	.02	.14	.00	.00	.00	.01	.10	.00	.00	.00
18	e.22	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00
19	e.00	.00	.00	.10	.11	.00	.00	.00	.00	.00	.00	.00
20	e.00	.00	.00	.00	.15	.07	.08	.21	.10	.00	.00	.00
21	e.00	.00	.00	.00	.12	.00	.00	.04	.00	.00	.00	.00
22	e.00	.15	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00
23	e.00	.13	.00	.00	.00	.14	.12	.01	.00	.00	.00	.00
24	e.00	.00	.00	.00	.27	.00	.00	.02	.00	.00	.00	.00
25	e.00	.00	.00	.00	.00	.03	.16	.00	.00	.10	.00	.00
26	e.00	.02	.00	.00	.00	.00	.52	.00	.00	.00	.00	.00
27	e.00	.00	.00	.00	.02	.00	.41	.00	.00	.00	.00	.00
28	e.00	.00	.00	.00	.00	.04	.11	.00	.00	.00	.20	.00
29	e.00	.00	.00	.02	---	.06	.14	.00	.00	.02	.00	.00
30	e.00	.05	.00	.00	---	.02	.00	.00	.02	.00	.25	.00
31	e.00	---	.00	.00	---	.00	---	.00	---	.02	.23	---
TOTAL	1.93	0.63	0.54	0.37	1.03	0.93	1.94	2.03	1.01	1.66	2.47	0.71

CAL YR 1993 TOTAL 26.61
WTR YR 1994 TOTAL 15.25

e Estimated

CHEYENNE RIVER BASIN

432933103511000 PRECIP NEAR PILGER MOUNTAIN NEAR EDGEMONT, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°29'33", long 103°51'10", in SW1/4 SE1/4 SW1/4 SW1/4, sec.26, T.6 S., R.2 E., Custer County, Hydrologic Unit 10120106, 2.3 mi east of Pilger Mountain, 9.0 mi southeast of Dewey, and 13 mi north of Edgemont.

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 4,900 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.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
2	---	---	---	---	---	---	---	.00	.09	.00	.00	.02
3	---	---	---	---	---	---	---	.00	.00	.00	.29	.06
4	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
5	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
6	---	---	---	---	---	---	---	.26	.00	.05	.00	.00
7	---	---	---	---	---	---	---	.00	.00	.03	.00	.00
8	---	---	---	---	---	---	---	.00	.55	.00	.00	.00
9	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.04	.00
11	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
12	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
13	---	---	---	---	---	---	---	.06	.00	.10	.00	.00
14	---	---	---	---	---	---	---	.94	.00	.07	.00	.00
15	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
16	---	---	---	---	---	---	---	.00	.00	.09	.00	.00
17	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
20	---	---	---	---	---	---	---	.19	.02	.00	.00	.00
21	---	---	---	---	---	---	---	.03	.22	.00	.00	.00
22	---	---	---	---	---	---	---	.00	.24	.00	.00	.31
23	---	---	---	---	---	---	---	.00	.53	.00	.00	.00
24	---	---	---	---	---	---	---	.02	.00	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.20	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.01	.00
30	---	---	---	---	---	---	---	.00	.00	.09	.30	.00
31	---	---	---	---	---	---	---	.00	---	.00	.05	---
TOTAL	---	---	---	---	---	---	---	1.50	1.65	0.63	0.69	0.39

CHEYENNE RIVER BASIN

440001103300200 PRECIP NEAR SHERIDAN LAKE NEAR HILL CITY, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°00'01", long 103°30'02", in NE1/4 SE1/4 NW1/4 SE1/4 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.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	.00	.55
2	---	---	---	---	---	---	---	.00	.00	.00	.03	.03
3	---	---	---	---	---	---	---	.00	.49	.00	.00	.00
4	---	---	---	---	---	---	---	.15	.00	.00	.00	.00
5	---	---	---	---	---	---	---	.00	.10	.00	.00	.00
6	---	---	---	---	---	---	---	.54	.00	.40	.00	.00
7	---	---	---	---	---	---	---	.00	.00	.22	.00	.00
8	---	---	---	---	---	---	---	.00	.19	.00	.00	.00
9	---	---	---	---	---	---	---	.00	.00	.00	.10	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.00	.48	.00
12	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.07	.00	.65
14	---	---	---	---	---	---	---	.89	.00	.05	.00	.00
15	---	---	---	---	---	---	---	.00	.00	.00	.24	.04
16	---	---	---	---	---	---	---	.00	.03	.08	.10	.00
17	---	---	---	---	---	---	---	.00	.02	.03	.00	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.00	.02	.00	.00
20	---	---	---	---	---	---	---	.12	.07	.03	.00	.05
21	---	---	---	---	---	---	---	.06	.00	.00	.00	.04
22	---	---	---	---	---	---	---	.00	.04	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
24	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
25	---	---	---	---	---	---	---	.11	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.11	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.00	.02	.00
31	---	---	---	---	---	---	---	.00	---	.04	.55	---
TOTAL	---	---	---	---	---	---	---	1.87	0.94	1.05	1.52	1.36

MISCELLANEOUS WATER QUALITY DATA

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).

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.04	.00	.00	.00	<.01	.16	.17	<.01	.10
2	.00	.00	.00	.03	.00	.00	.00	<.01	.02	.00	.00	.55
3	.00	<.01	.00	.00	.00	.00	.00	<.01	.00	---	<.01	.85
4	.00	.05	.00	.00	.00	.00	.16	.00	1.52	---	.00	<.01
5	.00	.00	.05	.00	.00	.01	.00	<.01	.28	.00	<.01	.00
6	.00	.00	.00	.00	.00	.00	.00	.10	.08	1.29	.00	.00
7	.00	.00	.00	.00	---	.00	.00	.00	.03	.13	<.01	.00
8	.54	<.01	.00	.00	---	<.01	.06	.00	.02	.07	<.01	.00
9	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.72	<.01
10	.00	<.01	.00	.00	---	.00	.00	<.01	.02	.00	.06	.00
11	.00	.00	.00	.00	---	.00	.00	.00	.16	<.01	.02	<.01
12	.00	1.07	.00	.00	---	.00	.00	.00	---	.02	.00	.00
13	.00	.02	.00	.03	---	.00	.00	.70	---	.30	<.01	.05
14	.00	.00	.00	.00	---	.00	.42	.26	.01	<.01	.00	.00
15	.08	.00	.00	.00	.00	.00	.00	.00	.73	.16	.00	.07
16	.00	.00	.04	.00	.00	.00	.00	.00	.49	<.01	.00	.00
17	.00	.00	.10	.00	.00	<.01	.00	.00	.88	<.01	.00	<.01
18	.00	.00	.00	.00	.01	.00	.00	.00	.00	.57	<.01	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.46	.20	.00	.00
20	<.01	.00	.00	.00	.00	.10	.08	.00	<.01	.00	.00	.00
21	.00	.00	.14	.00	.00	.00	.00	.07	<.01	.00	.00	.10
22	.00	.00	.00	---	.16	.00	.00	.00	.94	.00	.00	.00
23	.00	.07	.00	---	.01	.00	.00	.00	.00	.00	.00	.00
24	.00	.21	.10	---	.05	.00	<.01	.01	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.83	.11	.03	.00	.00	.00
26	.00	.02	.00	.03	.00	.00	.70	.00	<.01	.00	.00	.00
27	.00	.00	.00	.17	.00	.08	<.01	.00	.00	.00	.00	.00
28	.00	.00	.00	.04	.00	.00	.23	.00	.00	.00	<.01	<.01
29	.00	.00	<.01	.00	---	.02	.00	.00	.00	.00	.18	<.01
30	.00	.00	.02	.00	---	.00	.00	.00	.24	.04	<.01	<.01
31	.00	---	.00	.00	---	.00	---	.00	---	.00	<.01	---
TOTAL	0.63	1.47	0.46	---	---	0.23	2.50	1.30	---	---	1.08	1.79

< Actual value is known to be less than the value shown

MISCELLANEOUS WATER QUALITY DATA

00430061 HURON WELL FIELD--Continued

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, Champaigne, Illinois. The records of precipitation and precipitation water-quality presented below are reported exactly as they are received from the CAL and are not reviewed for accuracy or consistency by the South Dakota District of the USGS.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TOTAL PRECIP-ITATION FOR DEFINED PERIOD (IN) (00193)	VOLUME ATM DEP WET (L) (83177)	COL-LECTOR EFFI-CIENCY WET DEPOS. PERCENT (82284)	SPEC. CONDUC-TANCE CK.SOL. ATM DEP WET TOT (US/CM) (83152)	SPEC. CONDUC-TANCE FIELD ATM DEP WET TOT (US/CM) (83154)	SPEC. CONDUC-TANCE LAB ATM DEP WET TOT (US/CM) (83156)	PH CK.SOL. ATM DEP WET T (UNITS) (83105)	PH FIELD ATM DEP WET T (UNITS) (83106)	PH LAB ATM DEP WET T (UNITS) (83107)
OCT 05-12	0.54	0.931	100	21.4	6.6	5.4	4.30	5.39	6.03
OCT 12-19	0.08	0.131	95	21.3	5.7	6.3	4.32	5.71	6.44
OCT 19-26	--	0.00	--	--	--	2.9	4.31	--	5.97
OCT 26-NOV 02	0.0	0.00	--	--	--	3.0	4.32	--	6.35
NOV 02-09	0.05	0.015	17	--	--	23.1	--	--	7.20
NOV 09-16	1.09	1.872	100	21.5	7.4	3.4	4.35	5.24	5.60
NOV 16-23	0.02	0.002	5.5	--	--	--	4.30	--	--
NOV 23-30	0.28	0.008	1.6	--	--	25.0	4.31	--	6.27
NOV 30-DEC 07	0.05	0.00	--	--	--	1.9	4.30	--	5.82
DEC 07-14	0.0	0.00	--	--	--	1.9	4.32	--	5.95
DEC 14-21	0.28	0.169	35	21.0	17.3	15.2	4.31	4.71	4.94
DEC 21-28	0.05	0.010	12	--	--	16.0	4.30	--	6.52
DEC 28 1993-JAN 04 1994	0.09	0.006	4.0	--	--	--	4.31	--	--
JAN 04-11	0.0	0.00	--	--	--	2.4	4.28	--	5.44
JAN 11-18	0.03	0.047	91	--	--	11.0	4.30	--	4.92
JAN 18-25	0.0	0.00	--	--	--	2.1	4.31	--	5.61
JAN 25-FEB 01	0.24	0.056	14	--	--	19.0	4.32	--	4.42
FEB 01-08	--	0.098	--	21.2	6.2	5.7	4.31	5.10	5.08
FEB 08-15	--	0.00	--	--	--	2.1	4.31	--	5.45
FEB 15-23	0.18	0.005	1.7	--	--	18.3	4.30	--	5.95
FEB 23-MAR 01	0.05	0.00	15	--	--	14.8	4.30	--	5.46
MAR 01-08	0.01	0.015	87	--	--	36.0	4.30	--	6.69
MAR 08-15	--	0.00	--	--	--	1.9	4.32	--	5.75
MAR 15-22	0.10	0.145	84	22.2	19.6	17.3	4.33	5.59	6.40
MAR 22-29	0.06	0.012	12	--	--	12.4	4.31	--	6.53
MAR 29-APR 05	0.16	0.121	44	22.7	12.3	11.6	4.32	6.14	6.36
APR 05-12	0.06	0.102	99	22.6	16.1	14.3	4.30	6.07	6.54
APR 12-19	0.42	0.700	97	22.3	11.9	9.9	4.33	6.56	6.68
APR 19-26	1.14	2.062	105	22.4	13.2	12.2	4.34	6.28	6.58
APR 26-MAY 03	0.70	1.208	100	22.4	9.1	12.4	4.34	6.39	6.45
MAY 03-10	0.10	0.00	71	22.3	19.4	17.9	4.34	5.86	6.89
MAY 10-17	0.94	1.595	98	22.2	4.9	4.8	4.33	6.17	5.77
MAY 17-24	0.07	0.146	121	22.4	31.1	30.4	4.35	6.64	6.36
MAY 24-31	0.12	0.207	100	22.1	9.9	9.6	4.34	5.85	5.87
MAY 31-JUN 07	2.09	0.004	101	22.6	7.9	8.1	4.33	5.98	5.97

MISCELLANEOUS WATER QUALITY DATA

00430061 HURON WELL FIELD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	CALCIUM ATM DEP WET DIS (MG/L) (82932)	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)	PHOS-PHORUS ORTHO ATM DEP WET DIS AS PO4 (MG/L) (83111)
OCT 05-12	0.190	0.026	0.038	0.019	0.64	0.05	0.73	0.340	<0.020
OCT 12-19	0.310	0.092	0.089	0.011	0.48	0.11	0.83	0.220	<0.020
OCT 19-26	0.090	0.025	0.154	0.014	0.16	0.19	0.33	0.050	<0.020
OCT 26-NOV 02	0.240	0.058	0.125	0.013	0.04	0.14	0.22	<0.020	<0.020
NOV 02-09	1.69	0.218	1.53	0.082	1.50	1.23	2.32	1.16	<0.140
NOV 09-16	0.050	0.014	0.032	<0.003	0.35	0.06	0.49	0.220	<0.020
NOV 16-23	--	--	--	--	--	--	--	--	--
NOV 23-30	1.27	0.142	0.668	<0.061	1.01	0.81	2.83	<0.400	<0.400
NOV 30-DEC 07	0.030	0.010	0.156	0.024	0.12	0.20	0.28	0.090	<0.003
DEC 07-14	0.020	0.006	0.060	0.005	0.05	0.10	0.17	0.040	0.011
DEC 14-21	0.240	0.041	0.067	0.021	1.55	0.13	3.05	0.850	0.012
DEC 21-28	0.270	0.076	0.581	0.088	2.27	0.88	2.02	0.380	<0.038
DEC 28 1993-JAN 04 1994	--	--	--	--	--	--	--	--	--
JAN 04-11	0.050	0.013	0.123	0.015	0.14	0.10	0.26	0.090	0.003
JAN 11-18	0.430	0.106	0.193	0.032	0.61	0.24	2.55	0.590	0.005
JAN 18-25	0.060	0.006	0.089	0.006	0.07	0.12	0.23	0.070	<0.003
JAN 25-FEB 01	0.150	0.035	0.133	0.016	0.89	0.14	2.31	0.170	<0.003
FEB 01-08	0.100	0.028	0.097	0.009	0.25	0.12	0.98	0.110	<0.003
FEB 08-15	0.020	0.008	0.109	0.016	0.10	0.05	0.11	0.060	<0.003
FEB 15-23	--	--	--	--	--	--	--	--	--
FEB 23-MAR 01	--	--	--	--	--	--	--	--	--
MAR 01-08	--	--	--	--	--	--	--	--	--
MAR 08-15	0.070	0.021	0.148	0.033	0.05	0.16	0.22	0.110	0.004
MAR 15-22	0.570	0.072	0.190	0.041	1.59	0.18	2.04	1.48	0.007
MAR 22-29	--	--	--	--	--	--	--	--	--
MAR 29-APR 05	0.490	0.077	0.069	0.041	1.18	0.11	1.92	0.910	<0.003
APR 05-12	0.520	0.057	0.067	0.096	1.31	0.09	1.59	1.19	0.006
APR 12-19	0.570	0.075	0.124	0.025	0.91	0.09	0.70	0.710	<0.003
APR 19-26	0.580	0.054	0.061	0.051	1.16	0.07	1.47	1.04	<0.003
APR 26-MAY 03	0.550	0.045	0.030	0.062	0.89	0.04	0.93	0.560	0.004
MAY 03-10	0.760	0.158	0.083	0.030	1.41	0.10	2.42	1.58	<0.003
MAY 10-17	0.060	0.015	0.016	0.007	0.54	<0.03	0.64	0.460	<0.003
MAY 17-24	2.02	0.155	0.111	0.180	3.91	0.22	5.23	1.88	<0.003
MAY 24-31	0.340	0.065	0.042	0.021	1.10	0.07	1.61	0.750	<0.003
MAY 31-JUN 07	0.190	0.031	0.049	0.027	0.93	0.06	1.38	0.750	<0.003

MISCELLANEOUS WATER QUALITY DATA

00430061 HURON WELL FIELD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TOTAL PRECIP-ITATION FOR DEFINED PERIOD (IN) (00193)	VOLUME ATM DEP WET (L) (83177)	COL-LECTOR EFFI-CIENCY WET DEPOS. PERCENT (82284)	SPEC. CONDUC-TANCE CK.SOL. ATM DEP WET TOT (US/CM) (83152)	SPEC. CONDUC-TANCE FIELD ATM DEP WET TOT (US/CM) (83154)	SPEC. CONDUC-TANCE LAB ATM DEP WET TOT (US/CM) (83156)	PH CK.SOL. ATM DEP WET T (UNITS) (83105)	PH FIELD ATM DEP WET T (UNITS) (83106)	PH LAB ATM DEP WET T (UNITS) (83107)
JUN 07-14	0.20	0.375	109	22.5	16.8	16.6	4.35	6.49	6.47
JUN 14-21	2.57	4.396	99	22.5	13.0	13.6	4.33	6.60	6.22
JUN 21-28	0.97	1.730	103	22.3	6.3	6.8	4.33	5.79	5.52
JUN 28-JUL 05	--	0.747	--	22.4	7.6	7.5	4.32	5.50	5.56
JUL 05-12	1.49	2.505	97	22.6	5.3	6.0	4.32	5.71	5.50
JUL 12-19	1.31	2.274	101	22.6	7.4	7.4	4.34	5.85	5.92
JUL 19-26	0.0	0.00	--	23.3	--	2.1	4.32	--	5.71
JUL 26-AUG 02	0.04	0.075	109	22.5	19.1	18.2	4.31	5.91	6.06
AUG 02-09	0.67	1.211	105	23.9	11.5	6.9	4.35	4.85	5.61
AUG 09-16	0.13	0.244	109	22.8	13.7	13.7	4.33	5.75	5.74
AUG 16-23	--	0.022	--	22.7	--	29.5	4.33	--	6.19
AUG 23-30	0.18	0.312	100	22.7	12.7	9.0	4.32	5.04	6.15
AUG 30-SEP 06	1.50	2.544	98	22.3	6.8	7.4	4.33	5.72	5.90
SEP 06-13	--	0.00	--	22.7	--	2.3	4.35	--	5.51
SEP 13-20	0.12	0.187	90	22.6	68.2	84.5	4.32	7.50	7.44
SEP 20-27	0.10	0.171	99	22.8	5.3	6.0	4.30	5.65	5.85
SEP 27-OCT 04	0.61	1.051	100	23.2	7.1	6.4	4.30	5.35	5.96

DATE	CALCIUM ATM DEP WET DIS (MG/L) (82932)	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)	PHOS-PHORUS ORTHO ATM DEP WET DIS AS PO4 (MG/L) (83111)
JUN 07-14	0.470	0.066	0.073	0.074	1.43	0.13	3.07	1.52	0.004
JUN 14-21	0.550	0.061	0.148	0.093	1.24	0.15	1.97	0.960	0.005
JUN 21-28	0.090	0.014	0.021	0.004	0.66	0.04	1.11	0.530	<0.003
JUN 28-JUL 05	0.250	0.039	0.061	0.037	0.66	0.10	1.39	0.460	<0.003
JUL 05-12	0.140	0.021	0.075	0.013	0.53	0.11	0.92	0.340	<0.003
JUL 12-19	0.200	0.032	0.037	0.034	0.73	0.06	1.22	0.620	<0.003
JUL 19-26	0.130	0.033	0.069	0.013	<0.03	0.03	0.05	0.060	<0.003
JUL 26-AUG 02	0.810	0.113	0.173	0.143	1.40	0.33	2.90	1.33	0.013
AUG 02-09	0.180	0.027	0.011	0.012	0.69	0.03	1.06	0.480	0.004
AUG 09-16	0.350	0.038	0.078	0.043	1.63	0.13	2.58	1.15	<0.003
AUG 16-23	1.06	0.162	0.402	0.216	2.58	0.30	5.22	2.40	<0.018
AUG 23-30	0.350	0.068	0.036	0.055	0.80	0.08	1.32	0.680	<0.003
AUG 30-SEP 06	0.260	0.022	0.021	0.023	0.79	0.04	1.14	0.560	<0.003
SEP 06-13	0.080	0.015	0.031	0.010	0.07	<0.03	0.22	0.040	<0.003
SEP 13-20	2.29	0.203	0.512	1.66	3.41	1.19	2.70	8.64	3.68
SEP 20-27	0.180	0.037	0.037	0.030	0.68	0.06	0.65	0.370	<0.003
SEP 27-OCT 04	0.200	0.038	0.010	0.022	0.74	0.04	0.88	0.520	0.006

MISCELLANEOUS WATER QUALITY DATA

The following water-quality data are for a sewage lagoon and a reservoir at EROS Data Center, and private wells downgradient of EROS Data Center near Garretson, South Dakota. Water samples are routinely collected one time per year as part of a monitoring program with the EROS Data Center.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

STATION NUMBER	DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE AIR (DEG C) (00020)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) (00340)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)
LAGOON 1	434415096371501	05-12-94	1300	1010	7.7	21.5	16.5	721	54	641
EROS LAKE	434405096365501	05-12-94	1430	890	7.7	22.5	16.0	720	280	563
103N48W 5CACA2	434508096372701	05-11-94	1615	1070	7.0	24.5	8.5	718	24	716
103N48W 9CCDA	434400096362201	05-12-94	1120	1300	7.1	21.5	9.0	724	23	843
103N48W17ACCC2	434332096371501	05-11-94	1415	880	7.1	26.0	9.5	719	24	527

	DATE	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	NITROGEN, NITRATE DISSOLVED (MG/L AS N) (00618)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4) (71846)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)
LAGOON 1	05-12-94	0.960	2.24	2.24	3.20	3.20	13.0	17	4.10	40
EROS LAKE	05-12-94	<0.010	0.200	--	0.200	0.200	0.040	0.05	0.040	10
103N48W 5CACA2	05-11-94	<0.010	20.0	--	20.0	20.0	0.010	0.01	0.020	340
103N48W 9CCDA	05-12-94	<0.010	40.0	--	40.0	40.0	0.010	0.01	0.020	<10
103N48W17ACCC2	05-11-94	<0.010	--	--	--	<0.050	0.180	0.23	0.020	<10

	DATE	BORON, TOTAL RECOVERABLE (UG/L AS B) (01022)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	CYANIDE TOTAL (MG/L AS CN) (00720)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)
LAGOON 1	05-12-94	480	15	5	0.030	470	0.066	11	4.0	60
EROS LAKE	05-12-94	360	2.6	1	<0.010	40	0.050	<1	<1.0	460
103N48W 5CACA2	05-11-94	110	0.12	<1	<0.010	2500	0.004	<1	<1.0	370
103N48W 9CCDA	05-12-94	60	0.26	<1	<0.010	20	0.008	<1	<1.0	50
103N48W17ACCC2	05-11-94	280	0.070	<1	<0.010	120	0.008	<1	<1.0	<10

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

The following discharge measurements were made at current streamflow and crest-stage partial-record stations. Sites are listed in downstream order.

WATER QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	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 11 56W)					
OCT 1993					
06...	1130	0.18	13.0	24.0	1340
DEC					
08...	1125	0.89	0.0	-0.5	1180
MAR 1994					
07...	1310	2.2	0.0	-0.5	1190
APR					
12...	1215	11	5.0	12.0	560
MAY					
17...	1105	2.7	16.5	23.0	890
JUN					
28...	1115	0.02	18.5	20.0	1430
AUG					
10...	1540	0.19	18.0	20.0	1190
05289985 BIG COULEE CR NEAR PEEVER SD (LAT 45 29 14N LONG 097 57 34W)					
OCT 1993					
06...	1350	0.76	13.5	34.0	1390
DEC					
08...	1415	1.5	0.0	5.5	1340
MAR 1994					
07...	1605	25	0.5	3.0	750
15...	1310	15	1.0	3.0	810
APR					
12...	1425	10	0.0	12.0	860
MAY					
17...	1345	4.8	20.0	26.0	1090
JUN					
28...	1255	0.24	20.0	23.0	1270
AUG					
10...	0950	2.6	14.0	16.0	1230
05292704 NORTH FORK YELLOW BANK RIVER NEAR ODESSA, MN (LAT 45 11 21N LONG 096 24 54W)					
OCT 1993					
28...	1550	22	--	--	--
DEC					
15...	1130	31	0.0	2.0	--
JAN 1994					
11...	1205	18	0.5	-15.0	811
MAR					
08...	0940	470	1.0	-8.0	430
15...	1020	1140	0.0	0.0	485
APR					
13...	0840	62	7.0	4.5	900
MAY					
17...	1650	63	20.0	24.5	1030
JUN					
28...	1530	69	21.0	25.0	980
AUG					
11...	1805	118	20.0	22.5	1030

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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 1993					
07...	1345	14	15.0	20.0	930
DEC					
10...	1230	11	0.0	-7.0	960
JAN 1994					
12...	1540	5.7	0.5	-10.0	543
MAR					
10...	1110	166	0.5	-6.0	530
APR					
14...	1455	22	10.0	17.0	810
MAY					
19...	1510	16	22.0	28.5	920
JUN					
29...	1530	88	22.0	24.0	680
AUG					
12...	1405	166	18.5	22.0	530
06334500 LITTLE MISSOURI R AT CAMP CROOK SD (LAT 45 32 49N LONG 103 58 23W)					
OCT 1993					
05...	1100	9.2	13.0	23.0	1630
NOV					
09...	1310	10	2.0	9.5	1830
DEC					
20...	1215	11	0.5	-4.0	1580
FEB 1994					
14...	1340	9.2	0.0	5.5	2660
MAR					
02...	1215	99	1.0	11.5	3440
APR					
25...	1350	45	7.0	2.0	1380
JUL					
11...	1715	124	28.0	30.0	1830
AUG					
22...	0945	5.5	21.0	31.0	1860
06354882 OAK CR NEAR WAKPALA SD (LAT 45 42 43N LONG 100 33 32W)					
OCT 1993					
12...	1820	0.04	8.5	13.5	898
NOV					
16...	1515	1.4	1.0	5.5	958
JAN 1994					
11...	1225	1.7	0.0	-7.0	1060
FEB					
15...	0945	1.5	0.0	--	1090
MAR					
16...	1035	34	0.0	6.0	2810
APR					
04...	1350	98	4.0	5.5	466
MAY					
10...	1045	24	14.5	19.0	707
JUN					
09...	0945	22	16.0	16.5	1000
JUL					
13...	0735	3.7	21.0	20.5	808
AUG					
19...	0800	0.06	19.0	17.5	940

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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 1993					
05...	1730	4.0	17.5	26.5	--
NOV					
08...	1605	5.4	2.0	5.0	2820
DEC					
20...	1805	1.3	0.0	-1.0	3620
FEB 1994					
15...	1135	2.2	0.0	0.0	4110
MAY					
12...	1315	51	19.0	25.0	2360
JUL					
12...	1650	17	28.5	27.5	2760
AUG					
22...	1900	2.2	27.0	30.5	2450
06356000 SOUTH FORK GRAND R AT BUFFALO SD (LAT 45 34 34N LONG 103 32 38W)					
OCT 1993					
05...	1310	2.6	15.0	25.0	1910
NOV					
09...	1120	4.7	1.0	5.0	1970
DEC					
20...	1400	6.3	0.5	-7.0	1050
FEB 1994					
14...	1540	2.7	0.0	2.5	1720
MAR					
02...	1445	280	1.0	12.0	167
MAY					
12...	0820	3.0	16.5	16.0	668
JUL					
11...	1210	7.7	20.0	22.0	664
AUG					
22...	1315	1.5	23.5	34.0	1960
06356500 SOUTH FORK GRAND R NEAR CASH SD (LAT 45 38 56N LONG 102 38 27W)					
OCT 1993					
05...	1535	15	29.0	15.0	2410
NOV					
09...	0910	13	0.0	0.0	2290
DEC					
20...	1658	19	-5.0	0.5	2650
FEB 1994					
15...	0940	7.9	-2.0	0.0	2570
MAY					
12...	1110	32	23.0	16.5	1957
JUL					
12...	1925	193	27.5	25.5	965
AUG					
22...	1635	8.7	33.0	23.5	2540

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06357800 GRAND R AT LITTLE EAGLE SD (LAT 45 39 28N LONG 100 49 04W)					
OCT 1993					
12...	1605	56	11.0	19.0	1720
NOV					
16...	1215	86	0.0	10.0	1630
JAN 1994					
04...	1555	50	0.0	-12.0	1740
FEB					
15...	1440	49	0.0	-2.0	1730
MAR					
16...	1322	2140	3.5	11.5	435
APR					
04...	1200	582	7.0	5.0	1020
MAY					
10...	1315	332	17.5	30.0	1220
JUN					
08...	1405	115	17.0	16.0	1530
JUL					
13...	1100	232	21.0	22.0	780
AUG					
19...	1045	55	21.0	24.5	1690
06359500 MOREAU R NEAR FAITH SD (LAT 45 11 52N LONG 102 09 22W)					
OCT 1993					
06...	1000	16	13.0	18.5	--
NOV					
08...	1355	23	3.0	9.0	3330
DEC					
20...	1420	20	0.0	-6.0	2570
FEB 1994					
15...	1540	13	0.0	3.0	2910
MAR					
03...	1355	1080	0.5	17.0	476
MAY					
12...	1525	87	20.0	27.5	1480
JUL					
12...	1305	42	26.0	30.0	1940
AUG					
23...	0915	2.1	18.5	13.0	2580
06360500 MOREAU R NEAR WHITEHORSE SD (LAT 45 15 21N LONG 100 50 33W)					
OCT 1993					
12...	1235	22	8.0	12.0	2290
NOV					
16...	0935	25	0.0	7.5	2360
JAN 1994					
04...	1130	9.9	0.0	-6.0	3350
FEB					
14...	1340	3.6	0.0	1.0	4130
MAR					
10...	1300	3120	1.0	4.5	617
15...	1500	2540	6.0	10.0	540
APR					
05...	1100	237	3.5	-6.5	1240
MAY					
16...	1120	134	18.5	--	1520
JUN					
08...	1120	31	18.5	16.5	2250
JUL					
13...	1405	245	22.5	26.0	870
AUG					
18...	1035	5.8	--	--	1910

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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 1993					
06...	0810	17	8.5	8.0	6380
NOV					
29...	1115	6.8	0.0	11.0	6050
FEB 1994					
14...	1240	9.0	0.0	11.0	5510
MAR					
24...	1335	113	6.0	6.0	2680
APR					
19...	0920	42	15.0	12.5	4790
JUN					
24...	0945	5.4	22.0	25.0	5500
AUG					
24...	1355	0.06	29.0	32.0	6120
SEP					
08...	1425	0.06	24.0	33.5	7090
06400000 HAT CR NEAR EDGEMONT SD (LAT 43 14 24N LONG 103 35 16W)					
OCT 1993					
06...	1045	1.9	13.5	26.0	4080
NOV					
29...	1330	3.9	0.0	10.0	2530
FEB 1994					
14...	1500	4.5	0.5	12.5	1410
MAR					
24...	0910	6.7	3.0	0.0	2300
MAY					
10...	1045	3.5	16.5	19.0	2560
JUN					
24...	1145	15	24.5	29.0	2600
06400497 CASCADE SPRINGS NEAR HOT SPRINGS SD (LAT 43 20 10N LONG 103 33 07W)					
OCT 1993					
06...	1310	19	20.5	29.0	2640
NOV					
29...	1505	19	19.0	6.0	2640
FEB 1994					
14...	1635	19	20.5	8.0	2620
MAR					
24...	1100	18	20.0	4.0	2580
MAY					
10...	1310	20	20.5	26.0	2640
JUN					
27...	1220	19	21.0	25.0	2600
AUG					
25...	1350	19	22.0	37.0	2340
06400875 HORSEHEAD CR AT OELRICHS SD (LAT 43 11 17N LONG 103 13 34W)					
NOV 1993					
30...	1430	0.18	0.0	14.0	2690
FEB 1994					
18...	1445	24	0.0	15.5	666
MAR					
23...	1300	2.6	6.5	1.0	1000
MAY					
09...	1540	0.57	20.0	27.0	1940

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06401500 CHEYENNE R BELOW ANGOSTURA DAM SD (LAT 43 20 42N LONG 103 26 12W)					
OCT 1993					
08...	0850	4.3	6.0	0.0	1750
FEB 1994					
18...	1250	2.3	6.0	18.0	2270
MAR					
25...	0900	58	4.0	5.0	1830
MAY					
10...	1550	125	28.5	12.0	2010
JUN					
27...	1000	3.5	19.0	17.0	2080
AUG					
25...	1610	2.8	28.0	35.0	1870
06402000 FALL R AT HOT SPRINGS SD (LAT 43 25 50N LONG 103 28 33W)					
OCT 1993					
04...	1230	22	24.0	18.0	1320
DEC					
02...	1320	24	21.0	8.5	1290
FEB 1994					
14...	1755	22	22.0	6.5	1290
MAR					
24...	1625	24	22.0	4.0	1300
MAY					
10...	0820	21	23.5	18.5	1310
JUN					
27...	1600	22	26.0	27.0	1280
AUG					
24...	1030	21	27.0	31.0	1150
06402430 BEAVER CREEK NEAR PRINGLE, SD (LAT 43 34 53N LONG 103 28 34W)					
OCT 1993					
07...	0820	1.2	8.0	5.0	598
NOV					
18...	0950	1.5	2.5	6.0	552
JAN 1994					
25...	1120	1.4	0.5	0.0	560
MAR					
21...	0930	2.2	3.0	9.0	547
MAY					
12...	0945	1.9	12.0	17.0	541
JUN					
23...	0930	1.2	15.0	26.0	540
SEP					
01...	1135	0.63	10.0	13.5	533
06402470 BEAVER CREEK ABOVE BUFFALO GAP, SD (LAT 43 31 20N LONG 103 21 23W)					
OCT 1993					
07...	1050	9.9	14.0	5.0	2400
NOV					
18...	1200	9.6	12.0	11.5	2340
JAN 1994					
24...	1554	9.5	10.0	-8.0	1340
MAR					
21...	1245	12	14.0	19.0	2390
MAY					
11...	1240	9.8	18.5	23.0	2360
12...	1140	9.1	17.5	23.0	2360
JUN					
23...	1135	9.7	19.5	29.0	2370
SEP					
01...	0915	9.3	15.5	8.0	2380

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06402500 BEAVER CR NEAR BUFFALO GAP SD (LAT 43 28 00N LONG 103 18 20W)					
OCT 1993					
07...	1240	4.9	10.5	5.0	2460
NOV					
18...	1340	8.7	6.0	12.0	2380
JAN 1994					
24...	1323	8.1	5.0	-5.0	1620
MAR					
21...	1445	9.1	11.0	21.0	2450
MAY					
11...	1120	1.6	16.5	24.0	2640
12...	1305	1.7	18.5	27.5	2610
JUN					
23...	1315	0.73	21.0	27.5	2920
AUG					
25...	1100	0.44	20.0	27.0	2550
06402995 FRENCH CREEK ABOVE STOCKADE LAKE NEAR CUSTER, SD (LAT 43 46 10N LONG 103 32 10W)					
OCT 1993					
07...	1140	2.7	10.0	15.0	392
NOV					
18...	1120	3.4	1.0	9.0	455
DEC					
29...	1450	1.6	0.0	1.5	445
FEB 1994					
10...	1145	0.41	0.0	1.0	561
MAR					
04...	1125	44	0.5	15.0	217
APR					
12...	1500	6.4	9.0	17.5	351
MAY					
16...	1710	14	20.0	26.0	317
JUL					
01...	0900	0.23	15.5	20.0	404
AUG					
26...	1450	0.15	24.0	29.5	399
06403300 FRENCH CR ABOVE FAIRBURN SD (LAT 43 43 02N LONG 103 22 03W)					
OCT 1993					
05...	1315	5.8	10.0	26.5	--
NOV					
19...	1150	3.0	1.0	4.5	308
DEC					
28...	1350	4.0	0.0	3.0	320
FEB 1994					
11...	1230	2.8	0.0	-1.0	307
APR					
12...	1040	10	5.0	14.5	289
MAY					
16...	1310	24	17.5	30.0	313
JUL					
01...	1145	3.0	19.0	18.5	313
AUG					
26...	1110	1.2	19.0	28.5	332

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06404000 BATTLE CR NEAR KEYSTONE SD (LAT 43 52 21N LONG 103 20 10W)					
OCT 1993					
01...	0900	3.0	8.0	9.0	385
NOV					
19...	1040	5.9	0.0	5.0	357
JAN 1994					
05...	1130	3.3	0.5	3.5	345
25...	1510	4.8	0.5	-3.0	385
MAR					
28...	1330	7.1	1.0	2.0	287
MAY					
13...	1516	12	16.0	20.0	216
31...	1545	5.5	20.0	23.0	275
JUN					
22...	1345	3.3	23.0	27.0	297
AUG					
30...	0945	0.06	19.0	19.0	395
06404800 GRACE COOLIDGE CREEK NEAR HAYWARD, SD (LAT 43 48 07N LONG 103 26 03W)					
OCT 1993					
05...	1550	0.63	12.0	20.0	93
NOV					
18...	1350	0.86	3.5	8.0	--
DEC					
28...	1550	0.54	0.0	-2.0	92
FEB 1994					
10...	1430	0.29	0.0	-1.5	101
APR					
12...	1635	0.89	9.5	14.5	83
JUN					
29...	1010	0.50	13.0	23.5	101
AUG					
17...	1545	0.28	20.0	26.0	103
30...	0750	0.17	13.0	14.5	110
06404998 GRACE COOLIDGE CR NR GAME LODGE NR CUSTER SD (LAT 43 45 40N LONG 103 21 49W)					
OCT 1993					
05...	1000	4.6	10.0	22.0	--
NOV					
17...	1400	4.7	3.0	10.5	193
DEC					
29...	1230	2.8	0.0	-1.5	201
FEB 1994					
14...	1510	3.6	0.0	7.0	206
APR					
13...	1240	3.1	10.0	17.5	197
JUN					
01...	1420	3.2	17.0	19.0	--
29...	1220	1.5	22.0	27.0	209
AUG					
30...	1350	0.70	18.0	15.0	231
06405800 BEAR GULCH NEAR HAYWARD, SD (LAT 43 47 31N LONG 103 20 49W)					
OCT 1993					
07...	0930	0.24	9.5	6.0	164
NOV					
17...	1030	0.73	2.5	11.5	143
DEC					
29...	0950	0.23	0.0	-3.0	154
FEB 1994					
11...	1515	0.20	0.0	0.0	149
APR					
13...	1030	0.16	8.0	14.5	143

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06406000 BATTLE CR AT HERMOSA SD (LAT 43 49 41N LONG 103 11 44W)					
OCT 1993					
01...	1100	18	11.0	13.5	543
NOV					
17...	1320	18	5.0	11.0	526
JAN 1994					
26...	1058	11	0.5	5.0	678
MAR					
28...	1145	13	3.0	4.5	522
MAY					
13...	1146	13	15.0	25.0	450
JUN					
22...	1215	10	21.0	24.0	515
AUG					
05...	0915	6.2	18.0	25.0	550
22...	1446	6.5	22.0	30.0	695
06406500 BATTLE CR BELOW HERMOSA SD (LAT 43 43 30N LONG 102 54 15W)					
OCT 1993					
01...	1300	16	12.0	14.0	644
NOV					
17...	1110	21	0.0	10.0	628
JAN 1994					
24...	1018	16	0.5	-5.0	488
MAR					
28...	0930	15	2.5	6.0	650
MAY					
13...	0926	13	18.0	25.0	651
JUN					
22...	1020	12	22.0	21.0	637
JUL					
20...	1045	4.0	19.5	28.0	679
AUG					
05...	1100	3.0	19.0	27.0	648
22...	1128	1.4	28.0	30.0	920
30...	1140	1.3	19.0	21.5	736
06406920 SPRING CREEK ABOVE SHERIDAN LAKE NEAR KEYSTONE, S(LAT 43 57 39N LONG 103 29 18W)					
OCT 1993					
01...	1420	9.8	9.0	10.5	347
NOV					
12...	1045	10	0.0	4.0	360
DEC					
13...	1210	9.9	0.0	1.5	358
JAN 1994					
11...	1135	7.0	0.0	2.0	381
FEB					
09...	1150	3.2	0.0	0.0	414
MAR					
30...	1400	13	2.5	11.0	335
MAY					
06...	1245	52	10.0	7.0	289
JUN					
23...	1035	13	11.5	18.0	310
JUL					
26...	1045	4.1	15.0	19.0	351

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06407500 SPRING CR NEAR KEYSTONE SD (LAT 43 58 45N LONG 103 20 25W)					
OCT 1993					
01...	1255	13	11.0	14.0	273
NOV					
12...	1220	12	0.5	1.5	280
DEC					
14...	0910	4.6	0.0	-9.0	298
JAN 1994					
11...	1335	8.3	0.0	8.0	296
FEB					
11...	0920	6.6	0.0	-2.0	318
MAR					
30...	1210	17	0.0	-2.0	288
MAY					
06...	1100	44	8.0	8.5	281
16...	1040	56	14.0	23.5	288
JUN					
23...	0905	16	12.5	16.5	290
JUL					
26...	0830	3.6	16.0	12.0	303
AUG					
29...	1145	0.99	21.0	28.5	--
06408500 SPRING CR NEAR HERMOSA SD (LAT 43 56 31N LONG 103 09 32W)					
OCT 1993					
12...	1045	3.1	7.5	12.0	984
NOV					
17...	0850	3.0	1.0	2.0	1000
JAN 1994					
26...	0908	2.7	0.0	-6.0	1260
MAR					
25...	1200	2.3	3.0	5.0	1040
MAY					
12...	1510	1.6	20.0	28.0	1090
JUN					
22...	0750	1.1	21.0	20.0	1080
AUG					
22...	1554	0.44	25.0	30.0	1320
06408700 RHOADS FORK NEAR ROCHFORD SD (LAT 44 08 12N LONG 103 51 29W)					
OCT 1993					
13...	1640	4.3	9.0	12.0	453
DEC					
02...	1335	4.3	5.5	1.0	447
FEB 1994					
17...	1047	4.4	5.0	9.0	427
MAY					
04...	1225	4.9	10.0	14.0	385
JUL					
12...	1710	5.0	8.5	19.0	413
06408860 RAPID CREEK NEAR ROCHFORD, SD (LAT 44 06 17N LONG 103 38 35W)					
OCT 1993					
06...	1025	15	7.5	19.5	399
DEC					
03...	1150	14	0.5	0.0	416
JAN 1994					
04...	1310	13	0.5	3.5	420
FEB					
15...	1230	11	0.0	8.0	425
MAR					
17...	1045	34	2.0	9.0	333
MAY					
04...	1515	120	7.5	13.0	256
JUN					
28...	0840	19	12.0	13.0	377
SEP					
28...	1200	12	10.0	30.0	410

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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 1993					
01...	0920	12	4.0	4.0	470
MAR 1994					
01...	1310	11	2.5	1.5	473
JUN					
22...	1130	17	11.5	19.5	475
JUL					
18...	1030	14	12.0	20.0	464
06410000 CASTLE CR BELOW DEERFIELD DAM SD (LAT 44 01 45N LONG 103 46 53W)					
OCT 1993					
01...	1110	28	12.0	8.0	375
MAR 1994					
01...	1035	2.2	3.5	4.5	435
30...	1255	26	3.5	7.5	430
MAY					
17...	1350	34	6.0	24.5	405
JUN					
22...	0950	22	6.5	19.0	399
JUL					
18...	0905	21	8.0	19.0	409
AUG					
31...	0900	17	9.5	3.0	410
06410500 RAPID CR ABOVE PACTOLA RES AT SILVER CITY, SD (LAT 44 05 05N LONG 103 34 48W)					
OCT 1993					
06...	1310	41	9.0	24.0	375
NOV					
19...	1545	21	0.5	0.0	390
JAN 1994					
04...	1550	22	0.0	2.5	388
FEB					
15...	1635	16	0.0	7.0	404
APR					
11...	1535	76	7.0	12.5	347
MAY					
04...	1010	177	5.5	8.0	289
JUN					
28...	1050	51	--	26.5	369
06411500 RAPID CR BELOW PACTOLA DAM SD (LAT 44 04 36N LONG 103 28 54W)					
OCT 1993					
06...	1535	20	11.0	24.5	340
DEC					
03...	1440	31	5.0	5.0	342
30...	1600	30	3.0	3.5	345
FEB 1994					
16...	1330	30	3.0	9.0	357
APR					
11...	1740	69	4.5	12.0	348
29...	1440	196	5.0	1.0	346
MAY					
04...	1200	158	17.5	5.5	345
JUN					
28...	1245	101	7.0	19.0	340

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06412200 RAPID CREEK AB VICTORIA CR NR RAPID CITY, SD (LAT 44 02 48N LONG 103 21 06W)					
OCT 1993					
06...	1200	23	12.0	29.0	370
NOV					
09...	1155	30	2.0	9.0	360
DEC					
10...	1340	32	1.0	--	359
JAN 1994					
12...	1120	36	0.0	11.0	356
FEB					
11...	1245	40	0.0	2.0	386
MAR					
29...	1515	87	2.0	2.0	355
MAY					
02...	0950	163	7.0	9.0	349
JUN					
21...	1510	65	17.5	23.5	345
JUL					
28...	0800	68	12.5	14.0	351
SEP					
15...	1540	44	13.5	19.5	344
06412500 RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD (LAT 44 03 04N LONG 103 18 47W)					
OCT 1993					
06...	1030	15	11.5	27.0	372
NOV					
09...	1025	25	2.0	11.0	365
DEC					
13...	0820	28	1.5	2.0	359
JAN 1994					
12...	0905	29	0.0	-2.5	334
24...	0700	30	0.0	-3.5	359
24...	1100	30	0.0	-2.0	359
24...	1500	30	0.5	-4.0	357
24...	1900	30	0.5	-2.5	356
24...	2300	30	0.0	-5.0	356
25...	0300	30	0.0	-4.5	358
MAR					
29...	1355	96	2.0	0.0	354
MAY					
02...	0815	162	7.0	9.0	351
JUN					
21...	1345	59	17.5	27.0	347
JUL					
25...	1550	86	14.0	21.0	343
AUG					
22...	0745	54	14.0	20.5	353
29...	0930	72	13.0	20.0	350
06412810 CLEGHORN SPRINGS AT RAPID CITY, SD (LAT 44 03 32N LONG 103 17 49W)					
OCT 1993					
04...	1315	11	12.5	23.0	377
NOV					
20...	1220	12	10.5	15.0	380
DEC					
30...	1340	13	11.0	12.5	374
FEB 1994					
16...	1040	11	11.0	14.0	369
APR					
11...	0940	8.4	11.0	9.5	312
JUN					
13...	1050	10	12.5	25.0	331
SEP					
09...	1530	9.3	12.5	34.0	373

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06412900 RAPID CREEK BLW CLEGHORN SPGS AT RAPID CITY SD (LAT 44 03 33N LONG 103 17 49W)					
OCT 1993					
06...	0825	32	11.5	17.0	379
NOV					
09...	0755	41	--	-2.0	378
DEC					
10...	1110	49	3.0	5.0	368
JAN 1994					
11...	1525	47	3.0	6.5	370
FEB					
11...	1500	48	5.0	1.0	371
MAR					
29...	1155	111	4.5	3.5	362
MAY					
06...	1500	189	7.0	11.0	350
JUN					
21...	1215	71	16.0	27.0	353
JUL					
25...	1400	101	14.5	21.0	354
AUG					
29...	0800	91	13.0	13.5	357
06413650 LIME CREEK AT MOUTH AT RAPID CITY, SD (LAT 44 04 30N LONG 103 16 00W)					
OCT 1993					
04...	1445	1.7	12.5	17.5	1210
DEC					
07...	1220	1.6	5.0	5.5	1190
JAN 1994					
05...	1140	1.6	4.5	1.5	1170
FEB					
16...	1605	2.4	7.5	8.5	--
MAR					
01...	1610	10	13.0	13.0	--
01...	1650	8.2	13.0	13.0	--
APR					
11...	1115	1.7	6.5	10.0	945
MAY					
13...	1900	26	15.0	12.5	380
AUG					
16...	2050	34	--	--	--
16...	2115	27	--	--	1060
06414000 RAPID CR AT RAPID CITY SD (LAT 44 05 09N LONG 103 14 31W)					
OCT 1993					
05...	1455	40	16.5	26.5	540
NOV					
08...	1405	46	--	--	536
DEC					
10...	0930	45	1.0	2.0	518
JAN 1994					
05...	1355	48	3.5	9.0	526
FEB					
14...	0855	48	2.5	-1.0	523
MAR					
29...	1020	114	3.0	--	541
MAY					
10...	0815	183	10.5	13.0	405
JUN					
20...	1615	76	18.5	28.0	--
JUL					
25...	1020	86	17.0	22.5	400
AUG					
17...	1125	80	--	--	417

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06418900 RAPID CR BL SEWAGE TREATMENT PL NR RAPID CITY, S(LAT 44 01 24N LONG 103 05 43W)					
OCT 1993					
05...	0930	50	14.5	12.5	916
NOV					
08...	0820	58	4.0	3.5	792
DEC					
07...	0820	57	3.0	-6.0	902
JAN 1994					
05...	0825	60	1.5	-7.0	849
FEB					
07...	0910	50	2.0	-21.0	815
MAR					
30...	0810	124	3.0	-1.0	881
MAY					
04...	0940	193	9.0	18.5	--
JUN					
21...	0830	50	18.5	19.5	--
JUL					
25...	0830	69	--	13.5	895
AUG					
24...	0730	46	19.0	13.5	800
06421500 RAPID CR NEAR FARMINGDALE SD (LAT 43 56 31N LONG 102 51 12W)					
OCT 1993					
05...	1135	54	13.0	23.0	866
NOV					
08...	1020	87	0.5	6.0	958
DEC					
07...	1030	68	0.0	-0.5	897
JAN 1994					
05...	1020	66	0.0	-5.5	835
FEB					
07...	1200	57	0.0	-19.0	872
MAR					
30...	0955	136	2.0	3.5	630
MAY					
04...	1400	524	11.0	17.0	594
JUN					
21...	1020	37	18.5	24.0	909
JUL					
28...	1145	23	21.0	27.5	921
SEP					
15...	1240	15	17.5	13.5	1110
06422500 BOXELDER CR NEAR NEMO SD (LAT 44 08 38N LONG 103 27 16W)					
OCT 1993					
01...	0950	10	8.5	8.0	330
NOV					
12...	0840	9.5	0.5	7.0	334
DEC					
13...	1000	4.8	0.0	1.0	329
JAN 1994					
11...	0830	7.4	0.0	-4.0	341
FEB					
09...	0915	7.7	0.0	-23.0	342
MAR					
17...	0935	34	4.5	11.5	222
MAY					
03...	0820	111	6.0	6.0	172
JUN					
22...	0900	29	18.0	16.0	297
JUL					
26...	1300	10	18.0	23.0	318
AUG					
30...	0830	5.1	14.5	13.5	350

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06423010 BOXELDER CR NEAR RAPID CITY SD (LAT 44 07 54N LONG 103 17 54W)					
MAY 1994					
03...	1215	48	12.0	17.0	237
16...	1524	17	18.5	28.0	281
JUN					
22...	1215	0.16	16.0	22.0	413
06423500 CHEYENNE RIVER NEAR WASTA, SD (LAT 44 04 52N LONG 102 24 03W)					
OCT 1993					
04...	0935	174	12.0	16.0	1830
NOV					
10...	1045	220	1.0	7.0	1870
DEC					
06...	1345	359	0.0	-0.5	1430
JAN 1994					
04...	1440	297	0.0	1.5	1500
FEB					
10...	1315	95	0.0	4.0	1990
MAR					
03...	1055	3150	--	--	--
04...	1640	2940	3.0	18.0	921
28...	1245	306	4.0	4.0	1700
APR					
20...	1445	228	18.0	23.0	1650
MAY					
13...	1000	364	19.0	22.0	1510
JUN					
20...	1145	104	23.5	27.0	1860
JUL					
22...	0915	54	18.5	24.0	2170
AUG					
23...	1020	52	22.0	28.0	2070
06424000 ELK CR NEAR ROUBAIX SD (LAT 44 17 41N LONG 103 35 47W)					
OCT 1993					
22...	1145	3.6	4.0	19.0	362
NOV					
23...	1205	2.3	0.0	-10.0	391
JAN 1994					
05...	1315	2.3	0.5	3.5	366
FEB					
22...	1135	4.8	0.0	-5.5	--
MAY					
05...	1145	65	6.0	7.5	191
11...	1155	38	12.5	17.5	242
JUN					
01...	1215	11	14.0	17.0	320
JUL					
28...	1105	3.6	16.5	27.5	355
AUG					
29...	0730	2.0	13.5	23.0	352
06425100 ELK CR NR RAPID CITY SD (LAT 44 14 25N LONG 103 09 03W)					
JAN 1994					
05...	1215	0.83	0.0	4.5	1760
MAR					
29...	0825	3.5	1.0	-0.5	1450
MAY					
10...	1305	6.8	18.0	--	1360
JUN					
20...	1335	0.01	24.0	29.0	1610

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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 1993					
04...	1110	0.09	10.5	15.5	5270
NOV					
10...	1330	0.14	1.5	14.0	5490
DEC					
06...	0945	0.31	0.0	-3.0	5320
JAN 1994					
04...	0945	0.87	--	--	5100
MAR					
03...	1305	1430	--	--	--
28...	0915	9.1	1.5	2.0	2160
MAY					
13...	1300	11	22.0	24.0	--
JUN					
09...	1002	264	15.5	--	1080
20...	0950	4.6	24.0	25.0	2710
JUL					
22...	1030	0.01	23.0	29.0	--
06428500 BELLE FOURCHE R AT WY-SD STATE LINE (LAT 44 44 59N LONG 104 02 49W)					
OCT 1993					
04...	1205	25	13.0	17.5	2070
NOV					
02...	1010	34	1.0	9.0	2160
DEC					
14...	1010	26	0.0	-5.0	2170
JAN 1994					
31...	0935	17	0.0	-5.5	2200
MAR					
11...	1100	288	1.0	13.5	806
APR					
12...	0905	140	8.5	4.0	1520
18...	1020	--	15.0	21.0	1410
MAY					
03...	1055	509	13.5	16.5	944
13...	1025	183	17.0	17.0	1390
JUN					
10...	1007	79	16.5	19.0	1690
JUL					
12...	1230	123	23.5	23.0	1230
AUG					
15...	1400	75	25.5	32.5	1280
SEP					
06...	1430	--	21.0	26.5	1510
26...	1150	20	15.0	19.5	2000
06429997 MURRAY DITCH AB HEADGATE AT WY-SD STATE LINE (LAT 44 34 35N LONG 104 03 20W)					
OCT 1993					
18...	1415	8.7	10.5	19.5	1430
JUN 1994					
29...	1215	15	17.5	31.0	1500
AUG					
19...	1420	8.4	19.5	28.0	1440
06430500 REDWATER CR AT WY-SD STATE LINE (LAT 44 34 26N LONG 104 02 54W)					
OCT 1993					
18...	1530	15	10.5	17.5	1490
DEC					
14...	1400	25	3.5	3.0	1510
JAN 1994					
03...	1535	25	5.0	3.0	1520
FEB					
16...	1550	25	6.5	10.0	1510
MAY					
04...	1145	74	11.5	19.0	989
JUN					
29...	1325	7.9	21.5	34.0	1710
AUG					
19...	1535	17	21.0	25.5	1490

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06430540 COX LAKE OUTLET NEAR BEULAH, WY (LAT 44 33 56N LONG 103 59 37W)					
OCT 1993					
18...	1245	--	17.5	12.0	1264
DEC					
14...	1430	--	0.0	7.5	1291
JAN 1994					
03...	1215	--	--	7.0	1292
MAR					
09...	1040	--	4.0	8.0	1257
APR					
21...	1545	--	22.0	15.5	1300
JUN					
29...	1415	--	34.0	20.5	1260
AUG					
23...	1430	--	28.0	20.0	1228
06430770 SPEARFISH CREEK NEAR LEAD, SD (LAT 44 17 56N LONG 103 52 02W)					
OCT 1993					
12...	1605	18	7.0	13.0	450
NOV					
16...	1450	19	4.0	1.5	448
DEC					
22...	1410	19	2.0	-2.0	450
FEB 1994					
10...	1515	17	2.0	6.5	454
APR					
06...	1500	21	4.0	5.0	455
JUN					
27...	1150	25	10.5	20.0	445
AUG					
15...	1550	20	11.0	22.5	440
06430800 ANNIE CREEK NEAR LEAD, SD (LAT 44 19 37N LONG 103 53 38W)					
OCT 1993					
13...	1115	0.45	3.5	19.5	453
15...	1140	0.51	--	--	--
APR 1994					
06...	1600	2.7	4.5	6.0	236
JUN					
01...	1315	--	10.0	22.0	329
AUG					
29...	1200	--	13.0	28.5	508
06430850 LITTLE SPEARFISH CREEK NEAR LEAD, SD (LAT 44 20 58N LONG 103 56 08W)					
OCT 1993					
13...	1420	13	8.5	15.5	471
NOV					
24...	1200	12	4.0	-10.0	480
DEC					
30...	1145	12	4.0	6.0	483
FEB 1994					
11...	1325	13	5.0	-2.5	477
APR					
07...	1625	15	5.5	5.0	471
JUN					
27...	1345	16	12.0	22.0	462
AUG					
16...	1300	15	11.0	30.0	469

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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 1993					
13...	1525	0.77	6.0	16.5	354
NOV					
18...	1245	0.48	0.0	13.5	367
DEC					
30...	1330	0.90	0.5	1.5	416
FEB 1994					
11...	1500	0.47	0.0	-1.0	504
APR					
07...	1315	5.2	3.0	15.5	176
JUN					
03...	1330	2.5	10.5	10.5	334
AUG					
16...	1105	0.64	16.0	30.0	479
29...	1330	0.56	17.0	29.0	465
06430900 SPEARFISH CREEK ABOVE SPEARFISH, SD (LAT 44 24 06N LONG 103 53 40W)					
OCT 1993					
15...	1315	39	7.0	13.5	444
NOV					
18...	1355	43	4.5	9.5	441
DEC					
30...	1445	41	2.5	6.0	450
FEB 1994					
11...	1655	51	2.0	-3.0	444
APR					
07...	1450	57	6.0	14.0	421
MAY					
10...	1105	139	7.0	21.0	393
JUN					
27...	1515	58	14.0	25.0	427
AUG					
18...	1530	48	14.0	28.0	428
06431500 SPEARFISH CR AT SPEARFISH SD (LAT 44 28 57N LONG 103 51 40W)					
OCT 1993					
15...	1500	43	7.0	12.5	431
NOV					
18...	1055	28	4.5	13.5	446
DEC					
30...	1615	39	2.5	4.0	446
FEB 1994					
16...	1120	39	1.5	9.0	449
APR					
07...	1100	55	3.0	11.0	418
MAY					
10...	1550	117	10.0	32.0	--
JUN					
28...	1430	59	11.5	29.0	434
AUG					
23...	1125	49	11.5	23.5	441
06432020 SPEARFISH CREEK BELOW SPEARFISH, SD (LAT 44 34 48N LONG 103 53 37W)					
OCT 1993					
18...	1125	53	8.5	16.0	639
NOV					
24...	1400	34	0.0	-10.0	765
JAN 1994					
03...	1105	54	4.0	8.5	622
FEB					
16...	1315	60	4.0	13.5	606
APR					
21...	1300	106	11.0	18.0	730
JUN					
29...	0930	9.2	14.0	28.0	736
AUG					
23...	1350	24	17.5	29.0	760

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06433000 REDWATER RIVER ABOVE BELLE FOURCHE SD (LAT 44 40 02N LONG 103 50 20W)					
OCT 1993					
04...	1420	104	13.0	19.5	1150
NOV					
02...	1215	135	4.5	9.5	1140
DEC					
14...	1245	140	2.0	0.0	1180
JAN 1994					
31...	1155	121	0.0	-1.0	1260
MAR					
02...	1140	262	4.0	18.0	1030
11...	1330	153	7.0	9.0	1260
APR					
08...	1245	177	7.5	8.0	1160
MAY					
06...	1300	309	--	--	815
JUN					
14...	1405	45	20.5	22.0	1210
JUL					
12...	1025	7.5	20.5	28.0	1570
AUG					
10...	1125	24	21.0	25.0	1390
06433500 HAY CR AT BELLE FOURCHE SD (LAT 44 40 01N LONG 103 50 46W)					
OCT 1993					
05...	0905	0.12	9.0	9.5	1330
NOV					
04...	1245	0.02	2.5	-1.5	2820
09...	1415	0.01	3.0	7.5	2770
DEC					
09...	1115	0.28	0.0	10.5	3660
JAN 1994					
04...	0955	0.67	0.0	-3.0	3910
31...	1350	0.19	0.0	3.5	3960
MAR					
02...	1350	28	0.5	15.0	934
14...	1045	3.3	7.0	11.0	2480
APR					
08...	1400	1.8	7.5	11.0	3150
MAY					
06...	1110	7.0	--	10.0	1580
JUN					
17...	1100	0.05	18.5	22.0	2490
JUL					
12...	0840	0.03	18.0	21.0	1170
13...	1420	12	18.5	19.5	1350
AUG					
10...	0950	0.01	20.0	24.5	3120
06434500 INLET CANAL NEAR BELLE FOURCHE (LAT 44 42 14N LONG 103 49 23W)					
NOV 1993					
04...	1120	0.0	--	-3.0	--
AUG 1994					
04...	1025	93	21.0	24.0	1350
SEP					
23...	1140	98	12.5	14.0	1350

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06436000 BELLE FOURCHE R NEAR FRUITDALE SD (LAT 44 41 27N LONG 103 44 14W)					
OCT 1993					
05...	1055	46	12.5	15.5	1510
NOV					
02...	1415	163	4.0	9.5	1410
DEC					
14...	1425	7.9	0.0	-3.0	--
FEB 1994					
04...	1050	7.2	0.0	-3.5	1840
MAR					
11...	0820	12	3.5	2.5	1580
APR					
08...	1100	79	7.0	8.5	1460
MAY					
02...	1520	962	12.0	15.5	1110
18...	1340	262	20.0	26.5	1210
JUN					
17...	1245	27	18.0	25.0	1720
JUL					
15...	1300	15	25.0	29.5	1680
AUG					
10...	1305	11	23.5	26.5	1860
06436156 WHITETAIL CREEK AT LEAD, SD (LAT 44 20 36N LONG 103 45 57W)					
OCT 1993					
12...	1300	1.4	7.0	16.0	466
NOV					
16...	1150	1.4	1.5	5.0	469
DEC					
22...	1130	1.4	0.0	-2.0	472
FEB 1994					
10...	1125	1.3	0.5	-1.0	463
APR					
06...	1115	5.6	3.0	6.0	475
JUN					
01...	1130	4.6	11.0	16.0	397
AUG					
15...	1305	1.2	17.0	27.5	455
29...	1045	1.2	13.5	24.0	463
06436170 WHITEWOOD CREEK AT DEADWOOD (LAT 44 22 48N LONG 103 43 25W)					
OCT 1993					
22...	1600	14	11.0	21.5	1200
NOV					
23...	1500	11	0.5	-10.0	1520
JAN 1994					
04...	1250	12	7.0	6.5	1280
MAR					
09...	1300	32	4.0	3.5	--
MAY					
03...	1245	151	8.0	14.0	354
JUN					
28...	1250	14	18.0	25.0	1100
AUG					
15...	1055	10	18.0	34.0	1320
06436180 WHITEWOOD CR ABOVE WHITEWOOD, SD (LAT 44 26 32N LONG 103 37 44W)					
OCT 1993					
06...	0940	13	11.5	24.5	1300
NOV					
03...	0900	15	5.0	14.5	1280
MAR 1994					
22...	1230	76	5.0	7.0	514

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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 1993					
06...	1125	13	13.0	17.5	1320
NOV					
03...	1035	15	6.5	17.0	1380
DEC					
15...	1040	9.6	0.5	-2.5	1400
FEB 1994					
14...	1350	21	1.0	2.5	1220
MAR					
14...	1355	47	11.0	12.5	881
APR					
12...	1325	65	9.5	16.5	690
MAY					
18...	1135	57	16.0	27.0	697
JUN					
20...	1325	21	24.0	29.5	1100
JUL					
11...	1035	16	20.0	24.5	1140
AUG					
12...	1310	8.8	24.5	32.0	1210
06436198 WHITEWOOD CR ABOVE VALE SD (LAT 44 37 04N LONG 103 28 52W)					
OCT 1993					
06...	1315	12	14.0	21.0	1460
NOV					
03...	1340	17	8.0	13.0	1430
06436760 HORSE CR ABOVE VALE SD (LAT 44 39 08N LONG 103 21 59W)					
OCT 1993					
05...	1250	3.6	14.0	26.5	3390
NOV					
04...	1000	2.7	2.5	-3.5	4350
DEC					
15...	0855	2.0	0.0	-4.5	5380
FEB 1994					
04...	1345	1.7	0.0	1.0	5400
MAR					
10...	1430	174	2.5	14.0	1580
APR					
12...	1150	13	9.5	13.0	2980
18...	1315	--	17.0	23.0	3180
MAY					
03...	1415	411	13.0	21.0	1760
16...	1335	7.7	20.5	26.5	3140
JUN					
17...	1525	4.7	25.0	24.0	2210
JUL					
15...	0950	64	22.0	21.5	1620
AUG					
12...	1130	48	22.0	28.0	1810
SEP					
06...	1130	--	16.5	23.0	1820
06437000 BELLE FOURCHE R NEAR STURGIS SD (LAT 44 30 47N LONG 103 08 11W)					
NOV 1993					
04...	0805	199	2.5	-2.5	1580
MAR 1994					
04...	1325	2760	--	--	--
SEP					
06...	0840	--	15.5	11.5	1840

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06437020 BEAR BUTTE CREEK NEAR DEADWOOD, SD (LAT 44 20 08N LONG 103 38 06W)					
OCT 1993					
22...	1335	2.8	5.0	13.5	323
NOV					
23...	1345	1.8	0.0	-10.0	452
JAN 1994					
04...	1430	1.8	0.5	8.0	341
FEB					
22...	1345	3.5	0.5	-5.5	--
MAY					
03...	1025	48	5.5	12.5	176
JUN					
01...	1000	6.7	12.0	17.5	249
AUG					
15...	0830	1.5	13.5	26.5	340
29...	0900	0.77	13.5	18.0	324
06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS (LAT 44 22 11N LONG 102 33 56W)					
OCT 1993					
27...	1340	194	6.0	20.5	1340
DEC					
10...	1330	66	0.5	9.5	2330
MAR 1994					
03...	1330	2100	--	--	--
JUN					
09...	1205	680	15.0	25.0	2060
06439000 CHERRY CR NEAR PLAINVIEW SD (LAT 44 44 35N LONG 102 03 11W)					
OCT 1993					
06...	1200	4.7	17.0	31.0	2650
NOV					
08...	1140	6.2	1.5	10.0	2550
DEC					
20...	1130	7.9	-2.0	0.0	3010
MAY 1994					
12...	1715	45	21.5	30.0	2620
JUL					
12...	0920	14	23.5	26.0	1820
06439300 CHEYENNE RIVER AT CHERRY CREEK,SD (LAT 44 35 59N LONG 101 29 51W)					
OCT 1993					
18...	1030	317	9.5	8.0	2230
NOV					
17...	0905	393	0.0	4.5	2220
JAN 1994					
13...	1230	91	0.0	-10.0	2540
MAR					
07...	1545	14600	--	--	669
APR					
07...	1225	668	9.5	14.5	--
29...	1200	1180	7.5	9.5	1360
JUN					
15...	1405	559	22.5	21.5	1740
AUG					
10...	1330	220	21.5	25.0	--
06439430 COTTONWOOD CR NR CHERRY CR SD (LAT 44 40 28N LONG 101 24 16W)					
FEB 1994					
23...	1005	0.17	0.0	-12.0	1130
MAR					
11...	0925	66	0.0	4.0	695
MAY					
09...	1010	4.9	13.5	20.0	1140
JUN					
10...	0915	54	15.5	20.0	842

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06440200 SOUTH FORK BAD R NEAR COTTONWOOD SD (LAT 43 53 08N LONG 101 46 00W)					
OCT 1993					
15...	1040	0.84	11.0	14.0	714
NOV					
17...	1330	0.06	7.0	13.0	2200
DEC					
28...	1045	1.0	0.5	11.0	1200
JAN 1994					
25...	1005	0.12	0.0	-7.0	1670
MAY					
13...	1040	0.40	--	--	--
19...	1640	0.50	--	--	--
JUN					
27...	1055	0.60	20.0	28.0	881
AUG					
09...	0905	0.20	--	--	--
06440850 MEDICINE CREEK NEAR PHILLIP, SD (LAT 44 03 17N LONG 101 29 12W)					
FEB 1994					
18...	1628	24	0.0	10.5	--
MAR					
03...	1412	260	3.0	18.0	261
06441000 BAD R NEAR MIDLAND SD (LAT 44 04 01N LONG 101 09 36W)					
FEB 1994					
18...	1445	891	0.5	19.0	456
MAR					
04...	1320	3500	--	--	375
MAY					
04...	1610	37	17.5	20.0	2640
06441110 PLUM CREEK BELOW HAYES, SD (LAT 44 12 38N LONG 100 43 34W)					
APR 1994					
01...	1215	1.2	12.5	22.0	2280
06441500 BAD R NEAR FORT PIERRE SD (LAT 44 19 36N LONG 100 23 02W)					
FEB 1994					
18...	1720	2340	1.0	8.5	498
MAR					
07...	1740	3910	1.0	8.0	--
06442718 CAMPBELL C NR LEE'S CORNER (LAT 44 04 39N LONG 099 22 51W)					
NOV 1993					
02...	1040	0.18	2.5	9.5	3310
DEC					
14...	1100	0.37	0.0	-2.0	3310
MAR 1994					
04...	1730	375	2.0	16.0	--
14...	1345	40	--	--	--
APR					
05...	1315	0.79	6.0	4.5	2700
MAY					
31...	1205	0.09	17.0	24.0	3500

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06442900 ELM CR NEAR GANN VALLEY SD (LAT 44 04 38N LONG 099 09 03W)					
NOV 1993					
02...	0935	0.38	2.5	7.5	--
DEC					
14...	0910	1.6	0.0	-4.0	1650
FEB 1994					
15...	1110	0.54	0.0	9.5	2560
MAR					
02...	1605	2.4	0.0	9.5	1740
04...	1515	391	2.0	13.0	--
14...	1610	420	--	--	--
APR					
05...	1145	12	5.0	2.5	960
MAY					
31...	1045	0.35	18.5	22.0	1850
AUG					
01...	1240	1.1	25.0	28.0	1840
06445685 WHITE R NR NE-SD STATE LINE (LAT 43 00 47N LONG 102 50 07W)					
OCT 1993					
05...	0850	9.6	12.0	14.5	974
NOV					
30...	1100	31	0.0	8.0	859
FEB 1994					
15...	1025	34	0.0	9.5	870
MAR					
22...	1300	58	9.5	16.5	758
MAY					
09...	1350	56	17.5	23.0	793
JUN					
28...	0845	13	19.0	18.0	813
AUG					
30...	1310	2.0	22.0	27.0	1320
06445700 WHITE RIVER NEAR SLIM BUTTE, SD (LAT 43 05 23N LONG 102 47 52W)					
OCT 1993					
05...	1015	9.9	13.0	16.0	1000
NOV					
30...	1245	30	0.0	10.0	981
FEB 1994					
15...	1200	43	0.0	10.0	710
MAR					
22...	1020	58	6.5	12.0	775
MAY					
09...	1220	56	16.0	22.0	885
JUN					
28...	1015	17	20.0	25.0	1390
AUG					
30...	1445	0.93	20.0	27.0	980
06445980 WHITE CLAY CR NEAR OGLALA SD (LAT 43 08 46N LONG 102 40 58W)					
OCT 1993					
05...	1310	7.1	12.5	26.0	499
DEC					
01...	1245	8.0	0.0	8.0	542
FEB 1994					
15...	1345	11	0.0	14.5	561
MAR					
23...	1005	17	5.0	0.0	500
MAY					
09...	1030	16	14.0	17.5	519
JUN					
28...	1300	7.3	21.0	28.0	461
AUG					
30...	1615	2.2	22.0	27.0	541

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06446000 WHITE R NEAR OGLALA SD (LAT 43 15 17N LONG 102 49 29W)					
OCT 1993					
05...	1530	7.5	14.0	30.0	1040
DEC					
01...	0945	39	0.0	3.0	1190
FEB 1994					
15...	1610	28	0.0	11.5	771
MAR					
22...	1540	64	8.0	15.0	755
MAY					
09...	0840	59	14.0	12.5	1130
JUN					
28...	1445	21	24.0	32.0	1630
AUG					
30...	1110	0.23	20.5	27.0	740
06446100 WOUNDED KNEE CREEK AT WOUNDED KNEE, SD (LAT 43 08 38N LONG 102 21 28W)					
MAR 1994					
17...	1200	12	9.5	12.0	360
MAY					
20...	1455	7.1	22.5	30.0	368
JUN					
07...	1435	4.6	22.0	30.0	386
29...	1035	1.4	18.0	29.0	375
AUG					
10...	1720	0.22	21.0	23.0	386
06446700 BEAR IN THE LODGE CR NEAR WANBLEE SD (LAT 43 32 05N LONG 101 47 30W)					
MAY 1994					
20...	1108	17	18.5	24.0	386
JUN					
07...	1145	16	18.5	30.0	568
JUL					
06...	1600	10	21.5	22.0	660
AUG					
08...	1145	20	21.0	20.5	597
06447000 WHITE R NEAR KADOKA SD (LAT 43 45 09N LONG 101 31 28W)					
OCT 1993					
13...	1050	151	11.5	17.5	580
NOV					
17...	1150	109	1.0	10.0	609
DEC					
28...	1340	200	0.0	6.0	622
JAN 1994					
25...	1245	66	0.0	-6.5	1260
MAR					
08...	1205	933	3.0	4.0	386
MAY					
24...	1515	253	24.0	22.0	750
JUN					
27...	1245	56	24.0	28.0	597
JUL					
06...	0955	24	20.0	19.5	855
27...	1315	38	27.0	28.0	581
AUG					
31...	1555	61	14.5	11.0	398

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06447230 BLACKPIPE CR NR BELVIDERE, SD (LAT 43 45 28N LONG 101 31 40W)					
OCT 1993					
27...	1515	2.5	10.0	15.5	--
MAY 1994					
24...	1130	35	24.0	23.5	500
JUN					
22...	1830	2620	--	--	--
27...	1420	3.2	24.0	31.0	954
JUL					
27...	1145	0.21	25.0	28.0	1100
SEP					
01...	0900	6.2	12.5	11.0	472
06447500 LITTLE WHITE R NEAR MARTIN SD (LAT 43 10 00N LONG 101 37 47W)					
OCT 1993					
14...	1100	22	10.0	17.0	254
NOV					
29...	1320	18	0.5	6.0	420
DEC					
30...	0955	25	0.0	2.0	527
JAN 1994					
26...	1000	13	0.0	-1.5	440
MAY					
25...	1545	28	22.5	22.0	375
JUN					
29...	0835	11	21.0	--	350
AUG					
10...	1530	10	23.0	24.0	310
31...	0845	7.7	17.0	11.5	292
06449000 LAKE CR BELOW REFUGE NEAR TUTHILL SD (LAT 43 08 46N LONG 101 30 38W)					
OCT 1993					
14...	0910	16	11.5	16.0	385
NOV					
29...	1540	19	0.5	6.0	415
DEC					
30...	1130	48	0.5	5.0	390
JAN 1994					
25...	1515	30	0.0	-4.5	440
MAY					
25...	1120	32	19.0	19.5	312
JUN					
28...	1650	26	26.0	30.0	354
AUG					
10...	1400	46	25.0	22.0	345
31...	1050	23	15.0	12.0	370
06449100 LITTLE WHITE R NEAR VETAL SD (LAT 43 06 03N LONG 101 13 49W)					
OCT 1993					
13...	1645	57	14.0	18.5	345
DEC					
01...	1550	61	0.5	5.0	348
29...	1700	92	0.5	-1.0	408
JAN 1994					
26...	1215	61	0.0	-5.0	428
MAR					
10...	1020	356	3.5	10.0	215
MAY					
25...	0920	85	19.0	21.0	368
JUN					
28...	1450	71	26.0	30.0	358
AUG					
10...	1150	69	22.0	22.0	335
31...	1305	52	15.0	12.0	358

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06449300 LITTLE WHITE R ABV ROSEBUD SD (LAT 43 15 47N LONG 100 55 02W)					
DEC 1993					
29...	1420	110	1.0	2.0	380
FEB 1994					
17...	1100	166	0.5	14.0	293
MAR					
09...	1640	700	4.0	7.0	219
JUN					
01...	1305	142	20.0	18.5	330
28...	1255	111	24.0	28.0	334
AUG					
09...	1730	101	26.5	24.5	313
06449400 ROSEBUD CR AT ROSEBUD SD (LAT 43 14 14N LONG 100 51 26W)					
OCT 1993					
19...	0925	7.0	9.0	11.0	350
DEC					
01...	1005	7.3	2.0	5.5	356
29...	1210	6.2	2.0	-3.0	409
FEB 1994					
16...	1635	12	3.0	5.0	341
JUN					
01...	1450	8.0	20.0	17.5	321
28...	1110	5.5	23.5	22.5	314
AUG					
10...	0825	5.8	--	20.0	320
06449500 LITTLE WHITE R NEAR ROSEBUD SD (LAT 43 19 32N LONG 100 53 00W)					
OCT 1993					
18...	1820	97	12.0	12.5	310
DEC					
01...	1150	99	0.5	7.0	311
29...	1040	173	0.0	-5.0	392
FEB 1994					
16...	1500	300	0.0	9.0	290
MAR					
09...	1340	672	3.0	4.0	227
JUN					
01...	1050	139	19.5	20.0	334
28...	0935	116	22.0	25.0	337
AUG					
10...	1355	122	21.5	18.5	315
06450500 LITTLE WHITE R BELOW WHITE RIVER SD (LAT 43 36 05N LONG 100 44 58W)					
OCT 1993					
18...	1550	74	12.5	19.0	331
DEC					
01...	0830	118	0.5	5.5	381
28...	1610	119	0.0	5.0	400
MAR 1994					
08...	1620	1160	--	5.0	264
JUN					
02...	1010	143	18.5	20.5	371
27...	1650	108	27.0	22.0	402
AUG					
09...	1350	135	24.5	31.5	329

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06452000 WHITE R NEAR OACOMA SD (LAT 43 44 54N LONG 099 33 22W)					
OCT 1993					
26...	1530	219	5.0	4.5	519
JAN 1994					
24...	1625	82	0.0	-4.5	803
MAR					
07...	1625	7150	0.5	3.5	486
MAY					
12...	1240	477	17.0	21.0	735
JUN					
14...	1315	1420	25.0	28.0	604
JUL					
06...	0915	--	23.0	--	--
06452320 PLATTE CREEK NEAR PLATTE, SD (LAT 43 19 38N LONG 098 58 13W)					
NOV 1993					
04...	1315	2.7	6.0	4.5	1840
DEC					
14...	1615	4.8	0.0	-0.5	2510
FEB 1994					
15...	1400	0.86	0.0	13.0	--
MAR					
04...	1115	229	1.0	15.5	--
18...	1410	63	8.0	18.0	590
APR					
05...	1750	12	8.0	5.5	1000
MAY					
31...	1710	1.1	25.0	26.0	1980
AUG					
02...	1400	0.14	27.5	31.0	1760
06453255 CHOTEAU CR NR AVON SD (LAT 42 55 24N LONG 098 06 21W)					
OCT 1993					
27...	1420	7.7	6.5	15.0	2010
DEC					
09...	0930	5.8	0.5	5.0	2540
MAR 1994					
03...	1640	760	6.0	15.0	270
MAY					
03...	0915	107	10.5	10.0	2090
JUN					
22...	1405	5.8	28.5	32.0	1940
AUG					
04...	1815	2.2	25.0	21.0	1700
06464100 KEYA PAHA R NEAR KEYAPAHA SD (LAT 43 07 45N LONG 100 06 24W)					
OCT 1993					
21...	1005	19	3.5	3.0	441
DEC					
07...	1235	24	0.0	0.5	485
JAN 1994					
25...	1005	15	0.0	-8.0	513
MAR					
08...	1025	211	0.5	-2.0	286
APR					
19...	1210	31	12.0	13.5	455
MAY					
11...	1130	46	18.0	22.0	521
JUN					
13...	1155	40	24.5	27.5	463
AUG					
11...	0830	24	19.0	18.5	392

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06464500 KEYA PAHA R AT WEWELA SD (LAT 43 01 44N LONG 099 46 49W)					
OCT 1993					
21...	1145	44	5.5	8.5	439
DEC					
07...	1525	51	0.0	2.5	482
JAN 1994					
25...	1325	32	0.0	-7.0	465
MAR					
08...	1350	404	0.5	3.5	312
APR					
19...	1440	77	15.0	--	456
MAY					
11...	1405	96	21.5	24.5	518
JUN					
13...	1345	91	27.0	29.5	442
AUG					
11...	1335	42	22.0	26.0	427
06467500 MISSOURI R AT YANKTON SD (LAT 42 51 58N LONG 097 23 37W)					
OCT 1993					
27...	1115	22600	11.0	18.0	721
DEC					
09...	1620	15100	2.0	8.0	790
JAN 1994					
12...	1525	18000	1.0	0.0	820
FEB					
24...	1325	18200	1.0	-5.0	620
MAR					
31...	1130	18400	8.5	15.5	930
MAY					
05...	1025	31100	9.5	9.5	750
JUN					
22...	1050	32300	23.0	27.5	740
JUL					
27...	1230	27200	23.0	27.0	765
AUG					
10...	1655	28700	24.0	23.5	746
SEP					
09...	1005	31600	22.5	28.5	770
06471000 JAMES R AT COLUMBIA SD (LAT 45 36 13N LONG 098 18 36W)					
OCT 1993					
01...	1200	1050	11.0	9.0	710
13...	1245	919	8.0	13.0	710
27...	1240	937	5.5	8.0	670
NOV					
22...	1100	853	0.5	-6.0	690
JAN 1994					
10...	1700	73	--	-10.0	870
FEB					
28...	1445	32	0.0	0.0	1880
MAR					
19...	1210	-1240	1.0	6.0	540
20...	0840	-1000	2.0	3.0	420
23...	1745	220	0.5	-4.0	520
28...	1430	718	1.0	1.5	510
31...	1125	738	2.5	8.0	681
APR					
04...	1200	749	5.0	2.0	950
13...	1230	1150	9.0	15.0	570
25...	1230	1220	--	5.5	660
MAY					
11...	1145	1070	16.0	21.0	760
JUN					
09...	1040	546	17.0	17.5	850
30...	0930	381	21.0	29.0	842
JUL					
15...	1050	458	24.5	25.0	778
AUG					
25...	1530	465	23.0	26.0	850

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06471200 MAPLE R AT ND-SD STATE LINE (LAT 45 56 20N LONG 098 27 08W)					
OCT 1993					
14...	1055	2.3	7.0	5.5	1350
DEC					
01...	1030	3.7	0.5	6.0	1600
MAR 1994					
01...	1000	1.2	0.0	-3.5	1740
17...	1200	6.4	0.5	7.5	800
19...	1535	669	2.0	13.0	540
20...	1405	1120	3.0	7.0	470
23...	1155	933	1.0	-2.0	900
29...	1000	214	1.0	-3.5	670
APR					
14...	0800	152	9.0	3.0	780
MAY					
17...	1325	22	20.0	27.0	1470
JUN					
29...	1150	0.62	22.5	29.0	1370
AUG					
24...	1420	0.48	28.5	30.0	1160
06471500 ELM R AT WESTPORT SD (LAT 45 39 22N LONG 098 29 48W)					
OCT 1993					
14...	1345	6.5	10.0	18.5	1050
DEC					
01...	1320	8.0	1.0	4.5	1340
MAR 1994					
01...	1345	1.4	0.0	0.0	1940
17...	1615	1980	1.0	13.0	680
18...	1500	2820	4.0	9.0	510
23...	1505	2180	0.5	-3.0	500
29...	1255	479	3.0	-1.0	630
APR					
14...	1140	313	10.0	13.0	800
MAY					
17...	1525	62	22.0	28.0	1370
AUG					
24...	1515	4.9	26.0	27.0	1100
06471550 JAMES RIVER BELOW COLUMBIA, SD (LAT 45 36 17N LONG 098 18 15W)					
OCT 1993					
01...	1200	1050	11.0	10.0	710
13...	1245	919	8.0	14.0	710
27...	1240	937	5.5	8.0	670
NOV					
22...	1100	853	0.5	-7.0	690
JAN 1994					
10...	1210	71	--	-10.0	--
FEB					
28...	1220	36	0.0	3.5	1650
MAR					
18...	0930	450	0.5	3.0	1240
19...	0930	1150	1.0	4.0	590
24...	1145	2030	1.5	-2.0	490
28...	1705	1180	1.5	2.0	540
31...	1315	1120	3.5	11.0	668
APR					
04...	1025	1090	6.0	9.0	700
13...	1045	1460	9.0	16.0	830
25...	1410	1350	12.0	7.5	690
MAY					
11...	1305	1280	17.0	22.0	800
JUN					
09...	1230	555	18.0	--	880
30...	1100	385	23.5	25.0	1350
JUL					
20...	1450	784	23.5	25.0	796
AUG					
25...	0930	438	23.0	23.0	860

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06473000 JAMES R AT ASHTON SD (LAT 44 59 54N LONG 098 28 50W)					
OCT 1993					
15...	1245	1090	9.0	12.5	750
JAN 1994					
21...	1050	209	1.0	-2.0	1220
MAR					
01...	1745	106	0.0	-0.5	1690
18...	0940	200	0.5	4.0	--
21...	1100	328	3.0	15.5	820
23...	1440	1360	2.0	2.5	630
29...	1655	2140	2.5	1.5	790
APR					
04...	1135	2400	6.0	3.0	690
18...	1150	1490	15.0	32.0	790
MAY					
04...	1045	1570	11.5	10.5	750
18...	1130	1400	--	25.0	--
JUN					
28...	1015	736	23.0	26.0	933
JUL					
11...	1020	830	22.0	24.0	860
AUG					
23...	1450	734	24.0	30.0	936
06474000 TURTLE CR NEAR TULARE SD (LAT 44 44 06N LONG 098 35 09W)					
MAR 1994					
08...	1140	1140	2.0	-3.0	291
16...	1140	995	--	7.0	320
06475000 JAMES R NEAR REDFIELD SD (LAT 44 54 33N LONG 098 27 34W)					
MAR 1994					
23...	1000	4090	4.0	1.0	630
06476000 JAMES R AT HURON SD (LAT 44 21 49N LONG 098 11 56W)					
OCT 1993					
04...	1425	1260	13.5	17.0	850
NOV					
09...	1200	1010	3.0	13.5	840
JAN 1994					
21...	1545	332	1.0	-3.0	1190
MAR					
01...	1215	148	0.5	9.5	1620
15...	1310	3260	1.0	9.0	500
21...	1655	7660	5.0	16.0	490
25...	1200	6670	--	4.0	--
31...	1030	4580	4.0	11.0	740
APR					
04...	1515	3780	6.5	3.0	860
19...	1040	2140	13.0	18.0	850
MAY					
04...	1525	2240	12.0	20.0	1000
18...	1550	1780	21.0	27.0	1130
JUN					
21...	1300	1080	26.0	29.0	1070
SEP					
07...	1210	787	21.5	27.0	1000
06476500 SAND CR NEAR ALPENA SD (LAT 44 09 15N LONG 098 26 06W)					
MAR 1994					
07...	0930	497	0.0	-2.0	290

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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 1993					
18...	1505	1160	11.5	22.0	810
JAN 1994					
21...	1050	299	0.0	-2.0	530
MAR					
04...	1650	343	0.5	15.0	--
11...	1140	1440	1.0	3.0	650
15...	1520	3290	4.0	11.0	970
22...	1140	6520	6.0	13.0	600
25...	1545	8070	1.5	5.5	610
APR					
01...	1355	5520	7.5	21.5	790
11...	1430	3580	9.0	16.0	730
MAY					
16...	1005	2290	19.0	25.0	1140
JUN					
27...	0905	1070	23.5	22.5	1110
JUL					
28...	1320	1320	23.5	29.5	1000
06477500 FIRESTEEL CR NEAR MOUNT VERNON SD (LAT 43 46 30N LONG 098 14 33W)					
OCT 1993					
18...	1150	2.6	12.0	16.0	1750
DEC					
02...	1540	5.1	0.5	3.0	2280
MAR 1994					
02...	1255	9.4	0.0	--	885
07...	1350	529	0.0	2.0	410
15...	1155	77	5.0	8.0	550
APR					
11...	1025	11	8.0	10.0	1570
MAY					
16...	1245	33	20.5	25.0	1950
JUN					
27...	1110	6.8	22.0	27.0	1360
JUL					
28...	1030	0.53	20.5	21.5	1550
06478052 ENEMY CR NEAR MITCHELL SD (LAT 43 38 33N LONG 097 59 09W)					
MAR 1994					
04...	1545	443	0.5	19.0	500
06478300 DRY CR NEAR PARKSTON SD (LAT 43 22 18N LONG 097 49 23W)					
MAR 1994					
04...	1230	350	2.0	17.5	290
MAY					
02...	1430	11	11.0	17.0	2730
06478390 WOLF CR NEAR CLAYTON SD (LAT 43 22 18N LONG 097 36 12W)					
MAR 1994					
07...	1705	505	0.0	1.5	580

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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 1993					
26...	1020	1180	9.5	18.5	928
JAN 1994					
14...	1620	469	0.0	-10.0	1420
MAR					
10...	1505	3510	--	1.5	600
18...	1550	3890	4.0	12.0	660
APR					
01...	1035	7050	7.0	14.5	650
JUN					
21...	1230	1160	26.0	28.0	1010
AUG					
12...	1040	909	21.5	22.0	1150
06478513 JAMES RIVER NR YANKTON SD (LAT 42 59 45N LONG 097 22 10W)					
OCT 1993					
26...	1410	1240	10.0	14.5	955
DEC					
10...	1200	953	0.0	-4.0	1110
MAR 1994					
10...	1125	3440	0.0	-0.5	690
18...	0942	3730	5.5	--	740
31...	1515	7380	10.0	15.0	740
MAY					
03...	1535	2750	11.0	17.5	1160
JUN					
21...	1600	1220	27.5	31.0	1120
AUG					
11...	1520	976	23.0	25.0	1190
06478540 LITTLE VERMILLION R NEAR SALEM SD (LAT 43 47 39N LONG 097 22 02W)					
OCT 1993					
29...	1235	0.90	0.0	0.0	1200
DEC					
08...	0930	0.29	0.0	1.0	1970
MAR 1994					
03...	1055	4.7	0.5	4.0	1380
08...	1100	65	0.0	-16.0	610
15...	1136	110	2.0	8.0	720
APR					
20...	0915	3.7	11.0	17.0	1500
MAY					
18...	1115	1.8	19.0	24.0	1860
JUN					
06...	1525	17	27.5	30.5	--
29...	1430	1.4	26.5	27.5	1520
06478690 WEST FORK VERMILLION R NEAR PARKER SD (LAT 43 24 55N LONG 097 12 18W)					
OCT 1993					
29...	1000	5.5	1.0	-2.0	1800
DEC					
09...	1105	7.8	0.0	5.0	2780
MAR 1994					
03...	1120	44	4.0	7.0	930
08...	1435	581	0.0	0.0	560
16...	1638	279	6.0	4.5	800
APR					
20...	1105	27	12.0	14.0	1300
MAY					
18...	0850	34	18.0	19.0	1820
JUN					
29...	1150	21	23.0	23.5	1100
AUG					
17...	1120	1.5	20.5	24.0	1440

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06479000 VERMILLION R NEAR WAKONDA SD (LAT 42 59 27N LONG 096 57 49W)					
MAR 1994					
17...	1148	1350	--	--	1080
JUN					
24...	1100	901	23.5	25.0	1440
06479010 VERMILLION RIVER NR VERMILLION SD (LAT 42 49 02N LONG 096 55 26W)					
OCT 1993					
29...	0950	192	5.0	12.0	1550
DEC					
08...	1610	195	2.0	9.0	1870
JAN 1994					
14...	1045	49	0.0	-14.0	1770
MAR					
09...	1555	2470	1.0	3.0	660
MAY					
06...	0915	682	11.0	8.5	1680
JUN					
24...	0825	723	21.5	20.5	1280
AUG					
08...	1520	87	23.0	26.0	1460
06479215 BIG SIOUX RIVER NR FLORENCE SD (LAT 45 10 51N LONG 097 11 09W)					
OCT 1993					
06...	1545	3.9	19.0	32.0	580
DEC					
08...	1620	7.1	0.0	1.5	800
MAR 1994					
08...	1620	2.6	1.0	7.0	730
16...	1215	79	0.5	3.0	300
17...	1010	136	0.0	2.0	300
20...	1130	966	0.5	4.0	230
APR					
12...	1720	38	7.0	11.0	540
MAY					
18...	0930	30	16.0	20.5	630
JUN					
29...	1025	3.7	18.0	18.0	630
AUG					
09...	0935	3.2	14.0	11.0	600
06479438 BIG SIOUX R NEAR WATERTOWN SD (LAT 45 00 22N LONG 097 09 53W)					
OCT 1993					
07...	0840	20	13.0	8.0	670
DEC					
09...	1055	23	0.0	3.0	820
JAN 1994					
12...	0930	11	0.0	-10.0	540
MAR					
09...	0925	8.6	0.5	-5.0	670
16...	1415	620	1.0	3.0	305
20...	1420	2110	0.5	6.0	270
APR					
13...	1510	95	8.5	13.5	620
MAY					
18...	1320	100	20.0	24.0	680
JUN					
24...	1450	556	24.0	28.5	400
29...	1230	67	20.5	22.0	730
AUG					
08...	1740	19	20.0	16.0	690

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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 NR WATERTOWN, SD (LAT 44 56 56N LONG 097 10 30W)					
MAR 1994					
16...	1630	823	0.0	3.0	310
17...	1550	993	0.5	6.0	310
21...	1020	1060	0.5	4.0	290
23...	1140	248	2.0	0.0	340
28...	1105	-202	3.0	2.5	460
APR					
14...	1000	-48	4.0	12.0	400
22...	1025	-703	9.0	12.0	460
MAY					
05...	1150	13	10.0	6.5	480
19...	1045	-149	18.0	23.0	490
JUN					
24...	1315	279	23.5	28.0	400
AUG					
12...	1040	-112	20.0	19.0	550
06479525 BIG SIOUX R NEAR CASTLEWOOD SD (LAT 44 43 54N LONG 097 02 39W)					
OCT 1993					
07...	1110	119	13.0	13.0	770
DEC					
09...	1430	73	0.0	2.0	860
MAR 1994					
16...	1810	918	0.5	1.0	340
20...	1745	1160	1.0	5.0	440
APR					
14...	1230	410	9.5	19.0	600
MAY					
19...	1300	239	20.5	26.0	750
JUN					
29...	1800	368	24.0	25.0	620
AUG					
09...	1425	142	16.0	14.0	640
06479640 HIDEWOOD CR NEAR ESTELLINE SD (LAT 44 36 42N LONG 096 54 17W)					
MAR 1994					
17...	1830	370	0.5	8.0	520
AUG					
11...	0905	452	16.0	20.0	410
06479928 BATTLE CR NEAR NUNDA SD (LAT 44 09 10N LONG 096 53 18W)					
OCT 1993					
27...	1005	7.3	4.5	3.0	1340
DEC					
10...	1100	5.4	0.0	-10.0	2030
JAN 1994					
13...	1010	1.8	0.0	-15.0	1690
MAR					
07...	1645	339	1.0	-0.5	710
18...	1055	166	2.0	5.0	1160
APR					
22...	1100	39	11.0	18.0	1650
MAY					
16...	1350	22	19.0	27.0	1760
JUN					
30...	1335	87	24.0	28.5	1480
AUG					
15...	1440	15	23.0	25.5	1560
06479980 MEDARY CR NEAR BROOKINGS, SD (LAT 44 13 27N LONG 096 46 06W)					
MAR 1994					
07...	1430	596	1.0	-0.5	365
JUN					
20...	1345	1100	24.5	24.5	460

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06480000 BIG SIOUX RIVER NEAR BROOKINGS SD (LAT 44 10 48N LONG 096 44 55W)					
OCT 1993					
08...	0945	580	12.0	5.0	1000
JAN 1994					
13...	1245	158	0.5	-15.0	1130
MAR					
10...	1515	1280	0.5	0.0	660
16...	1640	2940	2.0	9.0	640
APR					
15...	1030	1370	8.0	8.0	780
MAY					
20...	1015	843	20.0	22.0	950
JUN					
20...	1525	3600	24.5	21.5	590
30...	1135	2050	23.0	26.0	900
AUG					
18...	1320	1360	23.5	27.0	830
06480650 FLANDREAU CR ABOVE FLANDREAU SD (LAT 44 03 45N LONG 096 29 14W)					
MAR 1994					
07...	1215	452	1.0	-2.0	309
06481000 BIG SIOUX R NEAR DELL RAPIDS SD (LAT 43 47 25N LONG 096 44 42W)					
OCT 1993					
27...	1525	520	7.0	10.5	950
JAN 1994					
14...	1640	188	0.0	-13.0	936
MAR					
04...	0920	375	0.5	5.0	760
14...	1510	2730	1.0	10.0	570
16...	1300	4880	1.0	6.0	580
APR					
21...	0940	1850	11.0	8.0	910
MAY					
17	0850	1150	18.5	20.0	950
JUN					
21...	1140	2840	23.0	28.0	570
28...	1120	4690	22.5	22.0	700
AUG					
16...	1140	2200	21.5	23.0	610
06481500 SKUNK CR AT SIOUX FALLS SD (LAT 43 32 01N LONG 096 47 26W)					
OCT 1993					
28...	0920	85	6.0	5.5	1070
DEC					
09...	0850	72	0.0	-1.0	1620
JAN 1994					
11...	1410	30	0.0	-4.0	1750
MAR					
02...	1645	63	0.5	11.0	1370
15...	1825	601	2.5	--	975
APR					
20...	1525	251	12.0	14.0	1250
MAY					
17...	1815	145	22.0	27.0	1260
JUN					
29	0925	130	21.5	20.0	1370
AUG					
17...	1755	25	25.5	28.5	1060

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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)
06482020 BIG SIOUX R AT NORTH CLIFF AVE AT SIOUX FALLS SD (LAT 43 34 01N LONG 096 42 39W)					
OCT 1993					
28...	1245	657	7.0	6.5	970
DEC					
08...	1500	598	1.0	4.0	1340
MAR 1994					
03...	1525	431	1.5	13.0	1100
16...	1138	3970	--	--	670
APR					
21...	1310	2140	13.0	22.0	980
MAY					
17...	1245	1390	19.5	27.0	980
JUN					
28...	1550	4660	23.0	27.5	740
AUG					
17...	1600	2320	23.0	31.0	655
06482848 BEAVER CR AT CANTON SD (LAT 43 17 12N LONG 096 35 46W)					
MAR 1994					
08...	1645	20	0.0	1.0	1030
06485500 BIG SIOUX R AT AKRON IA (LAT 42 50 14N LONG 096 33 41W)					
OCT 1993					
28...	1430	1820	8.0	12.5	910
MAR 1994					
09...	1335	12600	2.0	7.0	430
17...	1527	6610	--	--	660
MAY					
05...	1430	5920	12.5	8.0	980
JUN					
16...	1415	17100	24.5	26.0	870
23...	1020	5980	23.0	20.5	650
AUG					
09...	1445	1130	22.0	23.5	845
SEP					
08...	1200	1630	22.0	30.0	820
06485696 BRULE CREEK NR ELK POINT SD (LAT 42 48 32N LONG 096 41 11W)					
OCT 1993					
28...	1105	35	7.0	17.0	1080
DEC					
08...	1145	53	0.0	8.0	1230
MAR 1994					
03...	1030	134	0.0	8.0	670
30...	1650	54	6.5	9.0	1250
MAY					
05...	1635	73	12.5	8.0	1140
JUN					
23...	1720	144	23.5	25.5	1090
AUG					
09...	1100	12	19.5	18.0	1010

MISCELLANEOUS DISCHARGE MEASUREMENTS

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)
432121103252600 CHEYENNE R .75 MI DOWNSTREAM ANGOSTURA DAM, SD (LAT 43 21 21N LONG 103 25 26W)					
APR 1994					
19...	1220	41	11.0	23.5	2000
SEP					
09...	0830	3.1	19.0	19.0	2250
433012103042000 CHEYENNE R NR CUSTER CO. BRIDGE 656, SD (LAT 43 30 12N LONG 103 04 20W)					
APR 1994					
20...	0930	92	14.5	16.0	2260
SEP					
08...	1030	54	18.5	30.0	2550
434244103205400 FRENCH CREEK BLW MADISON OUTCROP NEAR FAIRBURN, SD (LAT 43 42 44N LONG 103 20 54W)					
OCT 1993					
05...	1430	0.0	--	23.5	--
APR 1994					
12...	1200	0.0	--	--	--
MAY					
16...	1547	9.2	20.5	30.5	320
JUL					
01...	1250	0.0	--	--	--
AUG					
26...	1230	0.0	--	--	--
06403700 CHEYENNE RIVER NR FAIRBURN, SD (LAT 43 42 00N LONG 102 54 35W)					
APR 1994					
20...	1145	117	16.5	21.0	2320
SEP					
08...	0820	60	17.0	13.5	2620
435224103203900 IRON CREEK NEAR KEYSTONE (LAT 43 52 24N LONG 103 20 39W)					
JAN 1994					
05...	0900	1.2	0.0	-4.5	173
435337103253100 BATTLE CREEK AT KEYSTONE (LAT 43 53 37N LONG 103 25 31W)					
JAN 1994					
06...	1250	0.67	0.0	-15.0	345
06405400 GRACE COOLIDGE CR NEAR FAIRBURN SD (LAT 43 46 13N LONG 103 20 28W)					
OCT 1993					
05...	0850	0.0	--	--	--
NOV					
17...	1200	0.0	--	--	--
APR 1994					
13...	1115	0.0	--	--	--
JUN					
29...	1200	0.0	--	--	--
AUG					
30...	1410	0.0	--	--	--

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)
434843103153000 GRACE COOLIDGE CREEK 3.5 MILES SW OF HERMOSA, SD (LAT 43 48 43N LONG 103 15 30W)					
NOV 1993					
17...	1530	10	8.5	13.0	408
APR 1994					
13...	1500	7.0	13.0	21.0	406
JUN					
29...	1355	5.5	18.0	22.0	411
AUG					
30...	1525	2.5	18.0	20.0	521
06405500 GRACE COOLIDGE CR NEAR HERMOSA SD (LAT 43 46 29N LONG 103 19 42W)					
NOV 1993					
17...	1625	8.5	6.5	10.5	424
APR 1994					
13...	1610	5.7	14.5	20.0	405
JUN					
29...	1510	3.9	14.5	27.0	--
AUG					
30...	1605	1.8	18.5	18.0	537
06408000 SPRING CREEK NEAR RAPID CITY (LAT 43 59 20N LONG 103 15 55W)					
MAR 1994					
04...	0840	0	--	--	--
MAY					
06...	0925	0	--	--	--
16...	0930	14.5	14.0	24.0	311
JUN					
23...	0830	0	--	--	--
JUL					
26...	0710	0	--	--	--
AUG					
29...	1020	0	--	--	--
440251103204100 VICTORIA CREEK AT MOUTH NEAR RAPID CITY SD (LAT 44 02 51N LONG 103 20 41W)					
MAY 1994					
02...	0850	0.0	--	--	--
JUN					
21...	1405	0.0	--	--	--
JUL					
26...	1450	0.0	--	--	--
AUG					
17...	1410	0.0	--	--	--
06412300 TITTLE SPRINGS AT RAPID CITY, SD (LAT 44 02 42N LONG 103 19 37W)					
OCT 1993					
04...	1425	1.8	11.5	18.0	374
NOV					
09...	1230	1.7	9.0	12.0	380
DEC					
10...	1145	1.7	6.0	12.5	396
JAN 1994					
12...	0930	1.9	4.0	-1.0	378
FEB					
09...	1310	1.7	3.0	1.0	420
MAR					
29...	1540	1.9	4.0	1.0	369
MAY					
02...	1045	1.9	7.0	6.0	366
JUN					
21...	1530	1.9	9.0	23.5	368
JUL					
25...	1500	2.1	11.0	21.0	370
AUG					
17...	1520	2.3	11.5	27.0	370

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)
06413600 CITY SPRINGS AT RAPID CITY, SD (LAT 44 05 24N LONG 103 17 32W)					
NOTE: Miscellaneous measurements for water years 1989-93 also published.					
DEC 1988					
19...	0930	0.10a	--	--	--
FEB 1989					
24...	1330	0.0	--	--	--
APR					
25...	0900	0.0	--	--	--
SEP					
26...	1605	0.0	--	--	--
27...	--	0.0	--	--	--
28...	0805	0.0	--	--	--
NOV					
14...	1150	0.0	--	--	--
DEC					
29...	0935	0.0	--	-1.0	--
JAN 1990					
22...	1551	0.0	--	9.0	--
MAR					
07...	1505	0.0	--	0.5	--
APR					
05...	1520	1.4b	--	--	--
12...	0850	1.3b	--	--	--
MAY					
18...	1800	0.0	--	--	--
31...	1220	0.02b	--	--	--
JUN					
18...	1445	0.02b	--	--	--
JUL					
12...	1130	1.7b	--	--	--
AUG					
20...	1415	0.0	--	--	--
OCT					
02...	1415	0.0	--	--	--
DEC					
31...	1225	0.0	--	--	--
APR 1991					
04...	0700	0.0	--	--	--
MAY					
08...	0925	0.0	--	--	--
10...	1315	0.0	--	--	--
15...	1153	0.26c	--	--	--
22...	1140	0.79c	--	--	--
JUN					
13...	1235	0.96d	19.5	25.0	759
28...	0938	0.73d	--	--	--
JUL					
01...	0915	0.62c	--	--	--
AUG					
07...	1415	0.45c	11.5	22.0	450
SEP					
30...	0915	0.09c	--	--	--
OCT					
24...	0830	0.06b	12.0	2.0	358
DEC					
31...	1530	0.04b	11.5	-3.5	352
JAN 1992					
23...	1550	0.03b	11.0	9.0	--
MAR					
11...	1445	0.03b	11.0	10.0	353
MAY					
28...	1125	0.0	--	--	--
JUL					
27...	--	0.0	--	--	--
SEP					
16...	1115	0.0	--	--	--
OCT					
19...	1030	0.0	--	--	--
JAN 1993					
16...	1430	0.0	--	4.0	--

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)
06413600 CITY SPRINGS AT RAPID CITY, SD (LAT 44 05 24N LONG 103 17 32W)--Continued					
MAR 1993					
09...	1500	0.0	--	--	--
MAY					
03...	--	0.0	--	--	--
06...	--	0.50c	--	--	--
AUG					
03...	1530	0.76a	11.0	18.5	533
26...	1005	0.54a	11.0	--	--
SEP					
03...	1530	0.45a	--	--	--
09...	0815	0.47a	12.5	26.0	--
OCT					
22...	0940	0.47a	--	--	--
NOV					
20...	1310	0.40a	10.0	15.0	474
DEC					
28...	1340	0.29	--	--	--
JAN 1994					
04...	0855	0.34a	9.0	0.0	445
FEB					
16...	1500	0.36a	10.5	11.0	427
MAR					
29...	0800	0.38a	10.0	-1.0	344
JUL					
08...	1340	0.54a	--	--	--
AUG					
22...	1110	0.34a	--	--	--
SEP					
28...	1350	0.18a	12.0	29.5	428
440126103054701 RAPID CR AB SEWAGE TREATMENT PLANT NR RC, SD (LAT 44 01 26N LONG 103 05 47W)					
JAN 1994					
26...	1240	49	0.0	-4.5	630
AUG					
24...	1345	25	22.5	30.0	622
440756103244400 BOXELDER CREEK BLW NORRIS PEAK NEAR RAPID CITY, SD (LAT 44 07 56N LONG 103 24 44W)					
MAY 1994					
03...	0930	102	7.0	13.0	175
JUN					
22...	1005	29	18.0	16.5	294
JUL					
26...	1405	8.6	21.0	21.5	310
AUG					
30...	0935	4.6	15.0	17.0	--
06422650 BOXELDER CR AT DOTY SCHOOL NEAR BLACKHAWK SD (LAT 44 07 03N LONG 103 21 54W)					
MAY 1994					
03...	1030	84	9.0	14.0	197
JUN					
22...	1020	0.0	--	--	--
JUL					
26...	1425	0.0	--	--	--
AUG					
30...	0700	0.0	--	--	--
441557103244600 ELK CREEK AT I-90 NEAR TILFORD, SD (LAT 44 15 57N LONG 103 24 46W)					
MAY 1994					
11...	1315	8.4	19.0	22.0	292

a Discharge entirely from springflow.
b Discharge entirely from Rapid City municipal well #6.
c Source(s) of discharge not determined.
d Discharge from both springflow and Rapid City municipal well #6.

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)
06429920 BEAR GULCH NEAR MAURICE, SD (LAT 44 25 14N LONG 104 02 26W)					
OCT 1993					
25...	1150	0.50	7.0	7.5	269
NOV					
17...	1205	0.42	0.0	10.0	264
JUL 1994					
28...	1555	0.39	28.0	32.5	264
AUG					
19...	1215	0.22	22.0	23.5	249
SEP					
02...	1230	0.24	19.0	14.5	264
06430520 BEAVER CREEK NEAR MAURICE, SD (LAT 44 22 57N LONG 104 00 13W)					
OCT 1993					
13...	1250	0.59	7.5	16.5	268
NOV					
18...	1510	0.72	1.5	2.5	254
JUL 1994					
28...	1330	0.40	21.0	29.0	267
AUG					
18...	1245	0.12	22.0	30.5	269
SEP					
02...	0845	0.49	11.5	15.5	272
06430525 MC NENNY STATE FISH HATCHERY REARING POND OUTLET NR BEULAH, WY (LAT 44 33 30N LONG 104 00 34W)					
OCT 1993					
01...	1500	0.90	--	--	--
08...	1500	0.90	--	--	--
15...	1500	0.90	--	--	--
22...	1500	0.90	--	--	--
25...	1540	1.2	10.5	10.5	677
29...	1500	0.90	--	--	--
NOV					
05...	1500	0.90	--	--	--
12...	1500	0.90	--	--	--
19...	1500	0.90	--	--	--
26...	1500	0.90	--	--	--
DEC					
03...	1500	0.90	--	--	--
10...	1500	0.90	--	--	--
17...	1500	0.90	--	--	--
24...	1500	0.90	--	--	--
31...	1500	0.90	--	--	--
JAN 1994					
03...	1620	1.2	10.0	2.0	659
07...	1500	0.90	--	--	--
14...	1500	0.90	--	--	--
21...	1500	0.90	--	--	--
28...	1500	0.90	--	--	--
FEB					
04...	1500	0.90	--	--	--
11...	1500	0.90	--	--	--
18...	1500	0.90	--	--	--
25...	1500	0.90	--	--	--
MAR					
04...	1500	0.90	--	--	--
09...	1100	1.2	10.0	10.0	649
11...	1500	0.90	--	--	--
18...	1500	0.90	--	--	--
25...	1500	0.90	--	--	--
APR					
01...	1500	0.90	--	--	--
08...	1500	0.90	--	--	--
15...	1500	0.90	--	--	--
22...	1500	0.90	--	--	--
29...	1500	0.90	--	--	--

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)
06430525 MC NENNY STATE FISH HATCHERY REARING POND OUTLET NR BEULAH, WY (LAT 44 33 30N LONG 104 00 34W)--Continued					
MAY 1994					
04...	1235	1.2	17.0	17.5	--
06...	1500	0.90	--	--	--
13...	1500	0.90	--	--	--
20...	1500	0.90	--	--	--
27...	1500	0.90	--	--	--
JUN					
03...	1500	0.90	--	--	--
10...	1500	0.90	--	--	--
17...	1500	0.90	--	--	--
24...	1500	0.90	--	--	--
JUL					
01...	1500	0.90	--	--	--
08...	1500	0.90	--	--	--
15...	1500	0.90	--	--	--
22...	1500	0.90	--	--	--
28...	1445	1.2	15.7	31.5	645
29...	1500	0.90	--	--	--
AUG					
23...	1535	0.80	12.7	27.5	648
SEP					
02...	1500	0.90	--	--	--
09...	1500	0.90	--	--	--
16...	1500	0.90	--	--	--
23...	1500	0.90	--	--	--
30...	1500	0.90	--	--	--
06430528 MC NENNY STATE FISH HATCHERY VIEWING POND OUTLET NR BEULAH, WY (LAT 44 33 31N LONG 104 00 36W)					
OCT 1993					
01...	1500	1.1	--	--	--
08...	1500	1.1	--	--	--
15...	1500	1.1	--	--	--
22...	1500	1.1	--	--	--
25...	1515	--	10.5	10.5	697
29...	1500	1.1	--	--	--
NOV					
05...	1500	1.1	--	--	--
12...	1500	1.1	--	--	--
19...	1500	1.1	--	--	--
26...	1500	1.1	--	--	--
DEC					
03...	1500	1.1	--	--	--
10...	1500	1.1	--	--	--
17...	1500	1.1	--	--	--
24...	1500	1.1	--	--	--
31...	1500	1.1	--	--	--
JAN 1994					
03...	1615	0.80	10.0	2.0	695
07...	1500	1.1	--	--	--
14...	1500	1.1	--	--	--
21...	1500	1.1	--	--	--
28...	1500	1.1	--	--	--
FEB					
04...	1500	1.1	--	--	--
11...	1500	1.1	--	--	--
18...	1500	1.1	--	--	--
25...	1500	1.1	--	--	--
MAR					
04...	1500	1.1	--	--	--
09...	1110	0.80	10.0	10.0	672
11...	1500	1.1	--	--	--
18...	1500	1.1	--	--	--
25...	1500	1.1	--	--	--
APR					
01...	1500	1.1	--	--	--
08...	1500	1.1	--	--	--
15...	1500	1.1	--	--	--
22...	1500	1.1	--	--	--
29...	1500	1.1	--	--	--

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)
06430528 MC NENNY STATE FISH HATCHERY VIEWING POND OUTLET NR BEULAH, WY (LAT 44 33 31N LONG 104 00 36W)--Continued					
MAY 1994					
04...	1225	0.90	12.0	17.5	--
06...	1500	1.1	--	--	--
13...	1500	1.1	--	--	--
20...	1500	1.1	--	--	--
27...	1500	1.1	--	--	--
JUN					
03...	1500	1.1	--	--	--
10...	1500	1.1	--	--	--
17...	1500	1.1	--	--	--
24...	1500	1.1	--	--	--
JUL					
01...	1500	1.1	--	--	--
08...	1500	1.1	--	--	--
15...	1500	1.1	--	--	--
22...	1500	1.1	--	--	--
28...	1410	1.0	14.0	31.5	680
29...	1500	1.1	--	--	--
AUG					
05...	1500	1.1	--	--	--
12...	1500	0.90	--	--	--
19...	1500	0.90	--	--	--
23...	1500	1.0	13.8	27.5	677
26...	1500	0.90	--	--	--
SEP					
02...	1500	0.90	--	--	--
09...	1500	0.90	--	--	--
16...	1500	0.90	--	--	--
23...	1500	1.0	--	--	--
30...	1500	0.90	--	--	--
06430532 CROW CREEK NEAR BEULAH, WY (LAT 44 34 14N LONG 104 00 19W)					
OCT 1993					
25...	1415	30	7.0	10.5	--
NOV					
17...	1620	37	10	12.5	1400
JAN 1994					
03...	1400	34	9.0	6.0	1420
MAR					
09...	0945	36	7.0	7.0	1360
APR					
21...	1500	92	12.5	22.0	695
JUL					
01...	1405	31	18.5	26.0	1340
06430765 EAST SPEARFISH CREEK NEAR LEAD, SD (LAT 44 17 44N LONG 103 52 10W)					
OCT 1993					
12...	1425	7.7	6.5	14.0	439
NOV					
16...	1320	9.4	3.0	5.5	445
DEC					
22...	1250	9.0	1.0	-1.5	452
FEB 1994					
10...	1300	6.1	0.5	1.5	450
APR					
06...	1300	9.8	3.0	7.0	450
JUN					
27...	1045	13	9.5	17.0	442
AUG					
18...	1115	10	10.0	25.0	441

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)
442433103534400 SPEARFISH CR BLW HOMESTAKE DIVERSION, BLW MAURICE, SD (LAT 44 24 33N LONG 105 55 44W)					
MAY 1994					
10...	1220	23	8.5	27.5	367
06430950 SPEARFISH CREEK BLW ROBISON GULCH, NR SPEARFISH, SD (LAT 44 26 14N LONG 103 52 32W)					
MAY 1994					
10...	1400	35	11.5	32.0	360
442757103510600 SPEARFISH CR BLW MADISON OUTCROP, NR SPEARFISH, SD (LAT 44 27 57N LONG 103 51 06W)					
MAY 1994					
10...	1450	15	12.0	32.0	311
442904103432900 POLO CR BELOW MILLER CREEK AT I-90, NR WHITEWOOD, SD (LAT 44 29 04N LONG 103 43 29W)					
MAY 1994					
10...	1650	1.6	18.5	30.0	1100
06434505 INLET CANAL ABV BELLE FOURCHE RESERVOIR, SD (LAT 44 42 05N LONG 103 44 00W)					
AUG 1994					
11...	1320	46	23.5	19.5	1420
SEP					
20...	1220	100	17.5	23.5	1370
23...	0930	105	11.0	13.0	1360
442447103332800 BEAR BUTTE CREEK ABOVE STURGIS, SD (LAT 44 24 47N LONG 103 33 28W)					
MAY 1994					
04...	1345	80	11.5	21.0	216
06438550 CHEYENNE RIVER NEAR HOWES, SD (LAT 44 31 54N LONG 101 55 47W)					
MAR 1994					
07...	1825	7240	--	--	--
APR					
07...	1541	645	9.5	15.0	--
MAY					
04...	1455	2390	19.5	22.0	--
AUG					
11...	1030	259	--	--	--
06439295 CHERRY CREEK AT CHERRY CREEK, SD (LAT 44 36 12N LONG 101 30 34W)					
NOTE: Miscellaneous measurements for water year 1993 also published.					
MAY 1993					
18...	--	132	--	--	--
25...	--	44	--	--	--
JUL					
12...	1600	391	21.0	21.5	387
AUG					
25...	1500	26	26.0	24.5	3620
OCT					
18...	1414	6.4	10.5	13.5	3270
MAR 1994					
03...	1815	1390	4.0	14.0	629
APR					
29...	1015	46	7.0	6.0	2430
JUL					
06...	1530	10	24.5	29.0	1750
AUG					
25...	0940	0.03	24.0	25.0	3620

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)
06478533 LAKE THOMPSON NR RAMONA, SD (LAT 44 07 54N LONG 097 23 10W)					
OCT 1993					
15...	1430	E4.0	--	--	--
MAR 1994					
30...	1510	18	7.5	7.5	980
MAY					
13...	1425	44	18.5	25.0	1150
JUL					
01...	1455	35	23.5	23.0	1170
06479520 BIG SIOUX RIVER BELOW WATERTOWN, SD (LAT 44 50 52N LONG 097 02 57W)					
MAR 1994					
17...	1330	283	0.5	5.5	360
21...	1305	807	2.0	11.0	420
23...	1445	693	1.0	-3.5	460
28...	1310	690	1.5	4.0	650
APR					
05...	1525	604	4.0	4.0	--
13...	1740	426	9.0	18.0	590
MAY					
18...	1550	251	21.5	27.5	750
JUN					
07...	1155	182	21.0	19.0	690
29...	0835	341	--	17.0	600

GROUND-WATER LEVELS

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 SW1/4 SW1/4 SW1/4 NW1/4 sec.6, T.104 N., R.63 W., Hydrologic Unit 10160011, 8.5 mi north-northeast of Plankinton. Owner: South Dakota Department of Water and Natural Resources.

AQUIFER. --Niobrara.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in., depth 134 ft, perforated 114 to 134 ft.

INSTRUMENTATION.--Digital water-level recorder -- 60-minute punch.

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, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53.84	53.68	53.53	53.37	53.35	53.28	53.27	53.23	55.03	53.30	57.18	63.76
2	53.89	53.71	53.56	53.42	53.30	53.24	53.32	53.19	56.05	53.29	57.85	63.84
3	53.87	53.67	53.51	53.42	53.32	53.22	53.32	53.17	56.76	53.25	58.47	63.45
4	53.86	53.65	53.49	53.40	53.32	53.17	53.26	53.17	57.26	53.19	59.11	62.14
5	53.86	53.73	53.46	53.38	53.27	53.15	53.30	53.17	57.28	53.18	59.52	61.39
6	53.79	53.73	53.52	53.41	53.38	53.23	53.29	53.18	56.61	53.19	59.80	60.92
7	53.76	53.64	53.49	53.42	53.39	53.26	53.26	53.17	55.84	53.15	59.86	60.45
8	53.82	53.70	53.47	53.42	53.34	53.27	53.20	53.12	55.38	53.12	58.98	60.05
9	53.88	53.72	53.42	53.42	53.33	53.26	53.27	53.14	55.08	53.15	58.24	59.71
10	53.85	53.72	53.55	53.42	53.28	53.25	53.34	53.14	54.82	53.14	59.25	59.43
11	53.77	53.63	53.55	53.43	53.28	53.25	53.35	53.14	54.61	53.12	59.82	59.19
12	53.77	53.62	53.40	53.35	53.32	53.31	53.31	53.16	54.42	53.13	60.07	58.98
13	53.76	53.53	53.44	53.38	53.32	53.29	53.21	53.11	54.23	53.13	59.65	58.76
14	53.72	53.59	53.48	53.41	53.27	53.20	53.17	53.00	54.08	53.14	58.76	58.58
15	53.71	53.60	53.48	53.43	53.33	53.26	53.27	53.06	54.00	53.14	58.20	58.38
16	53.70	53.57	53.48	53.36	53.30	53.26	53.34	53.05	53.97	53.15	57.73	58.25
17	53.70	53.61	53.44	53.44	53.29	53.16	53.34	53.05	53.91	53.14	57.36	58.21
18	53.73	53.56	53.45	53.44	53.21	53.17	53.33	53.09	53.85	53.12	57.14	58.09
19	53.73	53.54	53.43	53.45	53.26	53.17	53.39	53.10	53.77	53.09	57.14	57.94
20	53.76	53.54	53.41	53.48	53.35	53.21	53.39	53.09	53.67	53.11	---	57.81
21	53.79	53.51	53.42	53.46	53.38	53.21	53.38	53.10	53.65	53.11	---	57.68
22	53.78	53.55	53.44	53.42	53.38	53.17	53.37	53.14	53.59	53.12	---	57.61
23	53.75	53.62	53.48	53.36	53.30	53.23	53.32	53.12	53.49	53.13	---	57.46
24	53.70	53.63	53.48	53.35	53.23	53.33	53.22	53.13	53.45	53.13	---	57.38
25	53.73	53.63	53.42	53.40	53.33	53.34	53.21	53.13	53.37	53.13	61.65	57.32
26	53.80	53.58	53.41	53.40	53.35	53.25	53.19	53.18	53.36	53.41	62.13	57.21
27	53.80	53.50	53.52	53.33	53.32	53.28	53.32	53.17	53.33	53.42	62.42	57.08
28	53.66	53.54	53.52	53.30	53.27	53.28	53.32	53.14	53.33	53.34	62.71	57.03
29	53.77	53.58	53.48	53.37	---	53.37	53.28	53.15	53.34	54.21	62.92	56.95
30	53.78	53.58	53.46	53.42	---	53.37	53.27	53.22	53.31	55.48	63.26	56.85
31	53.76	---	53.36	53.41	---	53.30	---	53.53	---	56.41	63.53	---
MAX	53.89	53.73	53.56	53.48	53.39	53.37	53.39	53.53	57.28	56.41	---	63.84

GROUND-WATER LEVELS

BEADLE COUNTY

442112098174001.

LOCATION.--Lat 44°21'12", long 98°17'40", in SW1/4 SW1/4 SW1/4 NW1/4 sec.9, T.110 N., R.62 W., Hydrologic Unit 10160006, at southwest corner of city well field, 3.5 mi west of Huron. Owner: City of Huron.

AQUIFER.--Glacial Outwash.

WELL CHARACTERISTICS.--Drilled artesian unused public supply well, diameter 12 in., depth 74 ft, perforated 38 to 74 ft.

INSTRUMENTATION.--Digital water-level recorder -- 60-minute punch.

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.

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, 22.42 ft below land-surface datum, July 26, 27, 1994.

DEPTH, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.80	28.72	27.60	26.62	34.34	40.67	34.34	36.79	27.69	24.40	24.82	26.73
2	29.87	28.77	27.60	26.65	35.00	40.75	33.82	36.89	27.68	24.61	25.03	26.84
3	29.80	28.62	27.60	26.65	35.53	40.81	33.01	34.38	27.33	24.68	25.22	26.22
4	29.80	28.58	27.53	26.60	35.76	41.03	32.26	31.82	27.08	24.69	25.45	25.24
5	29.79	28.71	27.39	26.50	35.89	41.32	32.21	30.93	27.10	24.77	25.50	24.97
6	29.67	28.70	27.50	26.54	35.37	39.10	31.98	30.45	27.09	24.35	25.44	24.90
7	29.62	28.49	27.39	26.55	35.68	40.61	31.75	30.13	27.08	23.74	25.50	24.73
8	29.67	28.57	27.36	26.52	36.47	41.70	31.42	29.74	26.96	23.53	25.58	24.59
9	29.76	28.59	27.17	26.52	36.77	41.91	31.40	29.61	26.16	23.46	25.55	24.47
10	29.68	28.60	27.42	26.47	37.24	41.43	31.42	29.46	25.82	23.38	25.47	24.38
11	29.52	28.40	27.42	26.49	37.43	41.62	31.36	29.25	25.57	23.19	25.48	24.33
12	29.49	28.39	27.05	26.34	37.67	41.79	31.14	29.23	25.36	23.18	25.36	24.31
13	29.48	28.18	27.08	26.35	37.04	40.85	30.83	28.98	25.14	23.10	25.36	24.21
14	29.37	28.27	27.15	26.39	37.74	41.34	30.64	28.79	24.87	23.05	25.37	24.16
15	29.34	28.27	27.16	26.43	38.08	41.77	30.63	28.81	24.94	23.02	25.30	24.04
16	29.28	28.21	27.16	26.25	38.42	41.79	30.68	28.72	24.91	22.96	25.15	24.20
17	29.28	28.26	27.10	26.35	38.49	38.65	30.59	28.57	24.81	22.92	25.05	24.24
18	29.23	28.11	27.08	26.37	38.37	36.51	30.44	28.55	24.77	22.83	25.05	24.21
19	29.22	28.08	27.00	26.29	39.02	35.45	30.50	28.54	24.68	22.65	24.98	24.15
20	29.22	28.06	26.96	26.34	39.40	34.68	30.41	28.42	24.56	22.63	24.98	24.04
21	29.25	27.90	26.91	26.24	39.64	34.37	30.32	28.42	24.53	22.59	24.94	24.02
22	29.24	27.96	26.96	26.15	39.68	33.86	30.22	28.34	24.41	22.57	24.83	24.02
23	29.17	28.00	27.00	25.99	39.71	33.53	29.96	28.20	24.24	22.55	24.74	23.92
24	29.06	28.04	27.00	25.94	39.88	33.53	29.70	28.12	24.13	22.52	24.78	23.93
25	28.98	28.02	26.89	25.99	40.32	33.43	29.59	28.02	24.02	22.45	24.71	23.93
26	29.09	27.88	26.79	28.28	40.43	32.98	32.72	28.01	23.94	22.46	24.69	23.88
27	29.09	27.69	27.03	30.86	40.38	32.82	34.87	27.96	23.84	22.45	24.60	23.77
28	28.81	27.65	27.03	32.26	40.62	32.79	35.67	27.80	23.79	22.59	24.66	23.77
29	28.97	27.73	26.95	32.87	---	33.40	36.26	27.75	23.80	23.04	24.59	23.70
30	28.99	27.71	26.88	33.03	---	33.92	36.55	27.73	23.76	23.71	25.26	23.64
31	28.91	---	26.66	33.53	---	34.27	---	27.80	---	24.31	26.28	---
MAX	29.87	28.77	27.60	33.53	40.62	41.91	36.55	36.89	27.69	24.77	26.28	26.84

GROUND-WATER LEVELS

CODINGTON COUNTY

450905097072202.

LOCATION.--Lat 45°09'05", long 97°07'22", in NW1/4 NW1/4 NW1/4 NW1/4 sec.25, T.120 N., R.52 W., Hydrologic Unit 10170201, 10 mi north-northeast of Florence. Owner: U.S. Geological Survey.

AQUIFER.--Prairie Coteau.

WELL CHARACTERISTICS.--Drilled observation well, diameter 40 ft of 4 in., 40 ft of 3 in., 80 ft of 2 in., and 15 ft sand point, depth 172 ft.

INSTRUMENTATION.--Digital water-level recorder -- 60-minute punch, driven by a manometer.

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, 10.62 ft below land-surface datum, July 25, 1993.

DEPTH, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.21	12.87	12.40	---	12.42	---	---	11.69	12.85	13.23	18.77	17.88
2	14.21	12.89	12.41	---	12.41	---	---	11.69	13.21	13.13	20.80	17.79
3	14.09	12.82	12.42	---	12.44	---	---	11.77	13.23	13.62	22.20	17.56
4	14.00	12.82	12.38	---	12.44	---	---	11.67	13.11	13.72	23.67	17.29
5	13.97	12.86	12.38	---	12.41	---	---	11.51	12.95	13.77	23.67	17.10
6	13.82	12.87	12.49	---	12.53	---	---	11.45	12.84	14.56	23.22	16.95
7	13.75	12.79	12.38	---	12.53	---	---	11.62	12.75	14.56	23.21	16.75
8	13.72	12.80	12.37	---	12.53	---	---	11.69	12.70	14.33	22.91	16.55
9	13.72	12.82	12.35	---	---	---	---	11.55	12.63	14.04	22.90	16.36
10	13.65	12.82	12.31	---	---	---	---	11.75	12.58	13.81	22.63	16.24
11	13.55	12.77	12.31	12.25	---	---	---	11.67	12.53	13.54	22.01	16.24
12	13.53	12.73	12.18	12.25	---	---	---	11.64	12.82	13.40	21.33	16.05
13	13.48	12.65	12.21	12.29	---	---	11.94	11.87	12.93	13.46	20.74	16.09
14	13.39	12.66	12.22	12.37	---	---	11.91	11.73	12.87	13.36	20.27	16.01
15	13.35	12.67	12.22	12.38	---	---	11.82	11.45	12.84	13.21	19.83	15.82
16	13.30	12.63	12.22	12.30	---	---	11.89	11.55	12.80	13.07	19.37	15.71
17	13.29	12.67	12.19	12.36	---	---	12.12	11.44	12.65	12.95	19.00	15.67
18	13.24	12.58	12.17	12.38	---	---	12.17	11.33	12.49	12.83	18.68	15.54
19	13.20	12.57	12.17	12.41	---	---	11.91	11.34	12.39	12.99	18.54	15.81
20	13.17	12.57	12.19	12.41	---	---	11.87	11.32	12.28	12.99	18.48	15.84
21	13.17	12.55	12.20	12.36	---	---	11.83	11.34	12.25	12.89	18.83	15.75
22	13.16	12.56	12.23	12.35	---	---	12.05	11.37	12.17	12.77	18.83	15.60
23	13.09	12.56	12.27	12.34	---	---	12.29	11.34	12.02	12.68	18.93	15.43
24	13.05	12.56	12.26	12.37	---	---	12.22	11.27	11.96	12.65	19.41	15.31
25	13.00	12.52	12.27	12.41	---	---	12.12	11.26	11.89	12.77	19.42	15.19
26	13.03	12.47	12.29	12.41	---	---	12.15	11.30	11.87	13.51	19.25	15.09
27	13.03	12.45	12.33	12.37	---	---	11.57	11.30	11.89	13.78	19.24	14.97
28	12.95	12.45	---	12.37	---	---	11.65	11.22	12.06	14.81	19.07	14.91
29	12.97	12.46	---	12.47	---	---	11.61	11.24	12.19	15.27	18.72	14.82
30	12.98	12.47	---	12.49	---	---	11.68	11.33	13.22	15.93	18.35	14.72
31	12.96	---	---	12.48	---	---	---	12.08	---	17.21	18.09	---
MAX	14.21	12.89	---	---	---	---	---	12.08	13.23	17.21	23.67	17.88

GROUND-WATER LEVELS

LINCOLN COUNTY

431619096460202.

LOCATION.--Lat 43°16'19", long 96°46'02", in NE1/4 NE1/4 NE1/4 NE1/4 sec.32, T.98 N., R.50 W., Hydrologic Unit 10170102, 4 mi south of Worthing. Owner: South Dakota Department of Water and Natural Resources.

AQUIFER.--Dakota Sandstone.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 383 ft, screened 363 to 383 ft.

INSTRUMENTATION.--None, only instantaneous water-level observations.

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, 172.67 ft below land-surface datum, Jan. 22, 23, 1994; minimum water level, 151.81 ft below land-surface datum, Feb. 21-23, 1981.

DEPTH, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	171.98	171.22	172.04	169.62	168.54	169.54	170.42	---
2	---	---	---	---	171.98	171.49	171.48	169.60	168.55	169.65	170.43	---
3	---	---	---	---	171.70	171.49	171.75	169.59	168.69	169.41	170.43	---
4	---	---	---	---	171.70	171.49	171.75	169.59	168.70	169.70	170.37	---
5	---	---	---	---	171.77	171.49	171.47	169.29	168.77	169.70	170.45	---
6	---	---	---	---	171.57	171.08	171.46	169.56	168.85	169.71	170.72	---
7	---	---	---	---	171.15	171.08	171.59	169.40	168.72	169.71	170.87	---
8	---	---	---	---	171.15	171.49	171.73	169.54	168.44	169.58	170.73	---
9	---	---	---	---	171.01	171.49	171.45	169.52	168.73	169.59	170.74	---
10	---	---	---	---	171.15	171.49	171.45	169.51	168.73	169.73	170.98	---
11	---	---	---	---	171.01	171.49	171.44	169.50	168.81	169.81	170.82	---
12	---	---	---	172.12	170.87	171.49	171.44	169.49	169.02	169.74	171.03	---
13	---	---	---	171.98	170.87	171.63	171.57	169.48	169.16	169.75	170.90	---
14	---	---	---	171.98	170.87	171.84	171.43	169.33	169.30	169.76	170.95	---
15	---	---	---	172.12	170.73	171.63	171.42	169.17	169.04	169.62	171.19	---
16	---	---	---	172.26	170.87	171.77	171.01	169.16	169.05	169.77	171.34	---
17	---	---	---	171.98	170.87	172.05	171.14	169.40	169.05	169.77	171.42	---
18	---	---	---	172.12	170.94	172.05	171.14	169.02	169.06	170.06	171.59	---
19	---	---	---	172.26	---	172.33	170.58	169.02	169.06	170.13	171.49	---
20	---	---	---	172.26	171.49	172.05	170.57	169.10	169.20	170.07	171.49	---
21	---	---	---	172.54	171.49	172.05	170.56	169.03	169.20	169.94	171.62	---
22	---	---	---	172.67	171.49	172.05	170.55	169.04	169.35	170.08	171.62	---
23	---	---	---	172.67	171.49	172.05	170.95	169.18	169.42	170.09	171.76	---
24	---	---	---	172.54	171.49	171.49	170.81	169.05	169.64	170.09	171.69	---
25	---	---	---	172.54	171.49	171.63	170.93	169.48	169.64	170.10	171.69	---
26	---	---	---	172.26	171.08	171.91	171.13	169.48	169.65	170.11	171.69	---
27	---	---	---	172.26	171.49	171.77	170.23	168.94	169.66	170.11	---	---
28	---	---	---	172.26	171.22	171.63	170.17	169.07	169.38	170.19	---	---
29	---	---	---	172.12	---	171.49	169.92	169.08	169.46	170.26	---	---
30	---	---	---	171.98	---	171.49	169.62	168.95	169.67	170.41	---	---
31	---	---	---	171.98	---	171.77	---	168.68	---	170.47	---	---
MAX	---	---	---	---	---	172.33	172.04	169.62	169.67	170.47	---	---

GROUND-WATER LEVELS

MARSHALL COUNTY

454745097450401.

LOCATION.--Lat 45°47'45", long 97°45'04", in SE1/4 NE1/4 SE1/4 sec.23, T.127 N., R.58 W., Hydrologic Unit 09020105, within city limits of Britton. Owner: City of Britton.

AQUIFER.--Dakota Sandstone.

WELL CHARACTERISTICS.--Drilled artesian unused public supply well, diameter 8 in, depth 1,060 ft.

INSTRUMENTATION.--Digital water-level recorder -- 60-minute punch.

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, 39.11 ft below land-surface datum, Mar. 19, July 18, 19, 1994.

DEPTH, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39.90	39.78	39.51	39.51	39.47	39.46	39.33	39.37	39.49	39.54	39.41	39.60
2	39.92	39.81	39.61	39.59	39.39	39.40	39.40	39.36	39.54	39.57	39.40	39.57
3	39.87	39.69	39.62	39.54	39.41	39.33	39.39	39.30	39.51	39.49	39.37	39.49
4	39.93	39.81	39.52	39.54	39.41	39.33	39.39	39.35	39.43	39.44	39.52	39.40
5	39.93	39.86	39.53	39.50	39.34	39.35	39.39	39.38	39.36	39.47	39.50	39.51
6	39.80	39.85	39.60	39.53	39.61	39.43	39.36	39.40	39.39	39.52	39.38	39.54
7	39.87	39.78	39.51	39.53	39.61	39.44	39.35	39.38	39.45	39.45	39.44	39.48
8	39.98	39.81	39.49	39.58	39.53	39.48	39.22	39.29	39.49	39.33	39.52	39.45
9	40.03	39.89	39.47	39.58	39.52	39.47	39.37	39.36	39.43	39.41	39.50	39.41
10	39.92	39.88	39.71	39.61	39.44	39.46	39.48	39.33	39.42	39.37	39.45	39.40
11	39.85	39.76	39.70	39.61	39.44	39.44	39.48	39.37	39.39	39.33	39.46	39.44
12	39.90	39.76	39.36	39.46	39.46	39.51	39.39	39.41	39.35	39.35	39.36	39.46
13	39.87	39.75	39.58	39.52	39.46	39.42	39.20	39.26	39.32	39.35	39.42	39.40
14	39.85	39.77	39.61	39.57	39.41	39.28	39.18	39.28	39.30	39.27	39.48	39.37
15	39.83	39.76	39.62	39.61	39.49	39.42	39.28	39.38	39.46	39.29	39.42	39.33
16	39.83	39.80	39.61	39.47	39.41	39.40	39.42	39.35	39.48	39.32	39.34	39.51
17	39.83	39.81	39.54	39.56	39.41	39.18	39.39	39.33	39.48	39.35	39.37	39.55
18	39.83	39.65	39.53	39.58	39.20	39.25	39.40	39.38	39.53	39.28	39.39	39.54
19	39.83	39.68	39.44	39.60	39.41	39.20	39.48	39.39	39.46	39.22	39.38	39.50
20	39.84	39.65	39.47	39.61	39.57	39.28	39.48	39.36	39.49	39.22	39.43	39.44
21	39.87	39.74	39.52	39.52	39.63	39.27	39.51	39.40	39.51	39.25	39.41	39.48
22	39.87	39.76	39.54	39.51	39.62	39.25	39.47	39.45	39.41	39.28	39.36	39.48
23	39.82	39.78	39.61	39.42	39.51	39.33	39.29	39.40	39.40	39.33	39.37	39.45
24	39.78	39.78	39.56	39.50	39.36	39.43	39.28	39.40	39.39	39.32	39.43	39.48
25	39.84	39.74	39.55	39.56	39.58	39.43	39.24	39.36	39.36	39.33	39.41	39.51
26	39.91	39.60	39.64	39.56	39.59	39.24	39.29	39.43	39.42	39.35	39.44	39.48
27	39.91	39.50	39.73	39.46	39.50	39.33	39.49	39.39	39.37	39.37	39.41	39.42
28	39.77	39.59	39.73	39.45	39.46	39.35	39.46	39.30	39.47	39.36	39.46	39.47
29	39.91	39.62	39.66	39.60	---	39.51	39.46	39.34	39.52	39.34	39.42	39.43
30	39.92	39.61	39.57	39.63	---	39.47	39.42	39.40	39.47	39.29	39.49	39.48
31	39.86	---	39.44	39.57	---	39.35	---	39.49	---	39.34	39.57	---
MAX	40.03	39.89	39.73	39.63	39.63	39.51	39.51	39.49	39.54	39.57	39.57	39.60

GROUND-WATER LEVELS

SHANNON COUNTY

430027102311801.

LOCATION.--Lat 43°00'27", long 102°31'18" (revised), in SW1/4 NW1/4 SE1/4 sec.17, T.35 N., R.44 W., Hydrologic Unit 10140201, 2.5 mi southeast of Pine Ridge. Owner: Oglala Sioux Tribe.

AQUIFER.--Arikaree.

WELL CHARACTERISTICS.--Drilled artesian production well, diameter 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 -- 60-minute punch.

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, 42.66 ft below land-surface datum, Aug. 22, 1994.

DEPTH, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42.94	42.95	42.92	42.89	42.89	42.88	42.85	42.80	42.80	42.77	42.76	42.75
2	42.96	42.94	42.92	42.93	42.86	42.87	42.85	42.80	42.82	42.77	42.76	42.74
3	42.92	42.87	42.91	42.93	42.88	42.84	42.81	42.81	42.79	42.78	42.77	42.72
4	42.93	42.97	42.84	42.91	42.87	42.85	42.85	42.81	42.80	42.75	42.79	42.79
5	42.90	42.95	42.94	42.86	42.84	42.86	42.83	42.82	42.78	42.81	42.76	42.79
6	42.89	42.90	42.92	42.93	42.90	42.88	42.80	42.83	42.77	42.80	42.74	42.76
7	42.92	42.91	42.89	42.90	42.89	42.90	42.80	42.81	42.82	42.79	42.79	42.74
8	42.98	42.91	42.86	42.89	42.89	42.87	42.83	42.82	42.82	42.79	42.79	42.73
9	42.97	42.94	42.92	42.86	42.87	42.85	42.84	42.81	42.82	42.79	42.76	42.72
10	42.89	42.90	42.93	42.91	42.88	42.84	42.87	42.79	42.80	42.77	42.79	42.73
11	42.90	42.87	42.87	42.89	42.89	42.91	42.85	42.82	42.80	42.79	42.77	42.75
12	42.91	42.85	42.89	42.89	42.91	42.92	42.80	42.80	42.76	42.79	42.76	42.73
13	42.91	42.92	42.92	42.89	42.90	42.86	42.78	42.78	42.75	42.80	42.79	42.73
14	42.88	42.93	42.91	42.90	42.90	42.85	42.85	42.81	42.81	42.77	42.77	42.75
15	42.90	42.90	42.88	42.90	42.90	42.86	42.86	42.81	42.80	42.79	42.73	42.77
16	42.89	42.93	42.87	42.91	42.87	42.78	42.87	42.75	42.83	42.82	42.75	42.78
17	42.89	42.92	42.91	42.92	42.83	42.84	42.81	42.79	42.82	42.77	42.75	42.77
18	42.91	42.94	42.91	42.88	42.83	42.85	42.85	42.82	42.80	42.73	42.74	42.74
19	42.94	42.95	42.89	42.91	42.90	42.84	42.86	42.79	42.79	42.79	42.75	42.74
20	42.98	42.88	42.87	42.92	42.93	42.87	42.81	42.84	42.83	42.78	42.74	42.74
21	42.94	42.88	42.91	42.88	42.90	42.82	42.83	42.81	42.79	42.78	42.71	42.80
22	42.93	42.90	42.88	42.86	42.87	42.83	42.79	42.79	42.78	42.76	42.72	42.75
23	42.91	42.95	42.94	42.84	42.85	42.91	42.78	42.81	42.77	42.79	42.77	42.73
24	42.90	42.94	42.90	42.87	42.92	42.89	42.80	42.79	42.77	42.76	42.76	42.75
25	42.96	42.91	42.90	42.86	42.94	42.82	42.77	42.79	42.79	42.79	42.76	42.75
26	42.96	42.87	42.92	42.86	42.87	42.84	42.89	42.79	42.79	42.78	42.76	42.72
27	42.92	42.87	42.92	42.88	42.85	42.87	42.87	42.77	42.81	42.77	42.77	42.74
28	42.95	42.91	42.91	42.87	42.88	42.88	42.85	42.79	42.79	42.74	42.76	42.73
29	42.95	42.88	42.93	42.90	---	42.90	42.85	42.77	42.78	42.75	42.75	42.71
30	42.93	42.86	42.86	42.92	---	42.85	42.81	42.82	42.77	42.73	42.80	42.74
31	42.86	---	42.89	42.88	---	42.83	---	42.83	---	42.76	42.80	---
MAX	42.98	42.97	42.94	42.93	42.94	42.92	42.89	42.84	42.83	42.82	42.80	42.80

430027102311806.

LOCATION.--Lat 43°00'27", long 102°31'18" in SW1/4 NW1/4 SE1/4 sec.17, T.35 N., R.44 W., Hydrologic Unit 10140201, 2.5 mi southeast of Pine Ridge. Owner: Oglala Sioux Tribe.

AQUIFER.--Arikaree.

WELL CHARACTERISTICS.--Drilled artesian production well, diameter 12 in., depth 835 ft, 12-in steel casing from 0 to 505 ft. Alternating 8-in screen and casing from 505 to 835 ft.

INSTRUMENTATION.--Digital water-level recorder -- 60-minute punch.

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, 37.80 ft below land-surface datum, Oct. 18, 1990; minimum water level, 36.19 ft below land-surface datum, Dec. 12, 1994.

DEPTH, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36.66	36.62	36.47	36.47	36.63	36.75	36.67	36.52	36.70	36.76	37.02	37.21
2	36.68	36.64	36.51	36.53	36.59	36.75	36.71	36.53	36.74	36.77	37.01	37.18
3	36.68	36.53	36.53	36.52	36.62	36.71	36.69	36.55	36.73	36.76	37.03	37.13
4	36.64	36.63	36.45	36.53	36.61	36.69	36.67	36.58	36.63	36.74	37.12	37.19
5	36.61	36.65	36.52	36.38	36.58	36.72	36.66	36.58	36.66	36.82	37.08	37.26
6	36.59	36.61	36.53	36.56	36.68	36.75	36.63	36.62	36.61	36.80	36.98	37.25
7	36.58	36.55	36.45	36.54	36.68	36.79	36.57	36.61	36.63	36.85	37.04	37.17
8	36.67	36.59	36.41	36.51	36.66	36.77	36.61	36.60	36.70	36.87	37.06	37.16
9	36.69	36.64	36.50	36.47	36.65	36.74	36.64	36.63	36.73	36.88	37.03	37.12
10	36.60	36.62	36.54	36.57	36.61	36.70	36.73	36.60	36.72	36.84	37.11	37.11
11	36.57	36.54	36.52	36.56	36.65	36.78	36.74	36.66	36.70	36.88	37.12	37.13
12	36.57	36.48	36.38	36.56	36.74	36.84	36.67	36.63	36.62	36.85	37.05	37.13
13	36.58	36.49	36.52	36.54	36.75	36.78	36.53	36.52	36.60	36.88	37.12	37.16
14	36.55	36.54	36.53	36.59	36.72	36.69	36.61	36.56	36.62	36.89	37.15	37.12
15	36.54	36.55	36.49	36.59	36.73	36.71	36.68	36.57	36.68	36.89	37.09	37.23
16	36.54	36.57	36.49	36.57	36.70	36.62	36.73	36.47	36.74	36.95	37.03	37.28
17	36.52	36.58	36.50	36.61	36.67	36.57	36.65	36.52	36.79	36.94	37.09	37.29
18	36.54	36.51	36.52	36.61	36.47	36.60	36.72	36.59	36.78	36.86	37.06	37.25
19	36.56	36.57	36.46	36.61	36.68	36.55	36.74	36.56	36.74	36.92	37.06	37.24
20	36.66	36.52	36.45	36.66	36.78	36.64	36.67	36.59	36.83	36.96	37.07	37.23
21	36.64	36.45	36.49	36.62	36.77	36.62	36.70	36.62	36.78	36.99	37.03	37.29
22	36.62	36.48	36.49	36.57	36.75	36.57	36.65	36.65	36.72	36.95	36.97	37.30
23	36.58	36.61	36.54	36.55	36.74	36.71	36.57	36.65	36.72	37.00	37.09	37.21
24	36.58	36.62	36.51	36.54	36.72	36.75	36.52	36.68	36.71	36.99	37.10	37.26
25	36.67	36.62	36.51	36.57	36.80	36.70	36.42	36.65	36.73	36.97	37.10	37.27
26	36.70	36.53	36.49	36.57	36.78	36.63	36.59	36.68	36.73	36.99	37.13	37.20
27	36.68	36.44	36.56	36.61	36.68	36.72	36.63	36.62	36.76	36.99	37.13	37.21
28	36.60	36.50	36.57	36.61	36.73	36.69	36.61	36.64	36.79	36.96	37.16	37.21
29	36.67	36.51	36.59	36.64	---	36.81	36.64	36.62	36.79	36.94	37.10	37.18
30	36.67	36.45	36.52	36.71	---	36.78	36.60	36.72	36.75	36.93	37.21	37.21
31	36.56	---	36.44	36.69	---	36.69	---	36.76	---	36.97	37.25	---
MAX	36.70	36.65	36.59	36.71	36.80	36.84	36.74	36.76	36.83	37.00	37.25	37.30

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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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