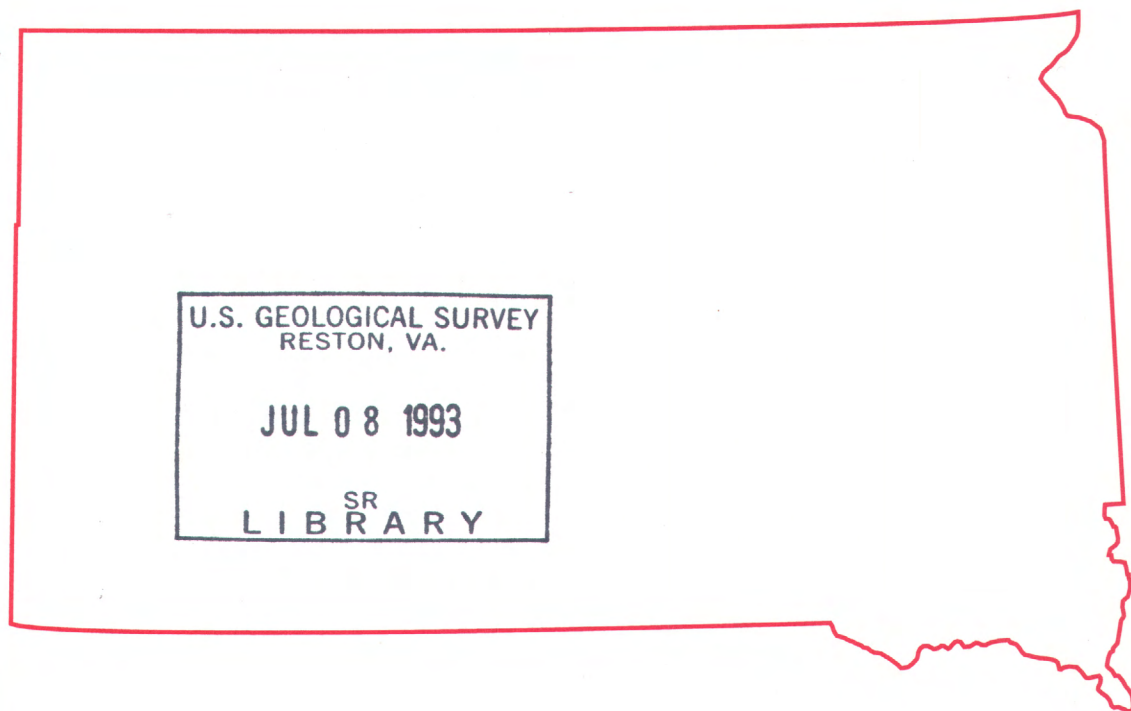


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Water Resources Data South Dakota Water Year 1992



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT SD-92-1
Prepared in cooperation with the State of South Dakota
and with other agencies

CALENDAR FOR WATER YEAR 1992

1991

OCTOBER

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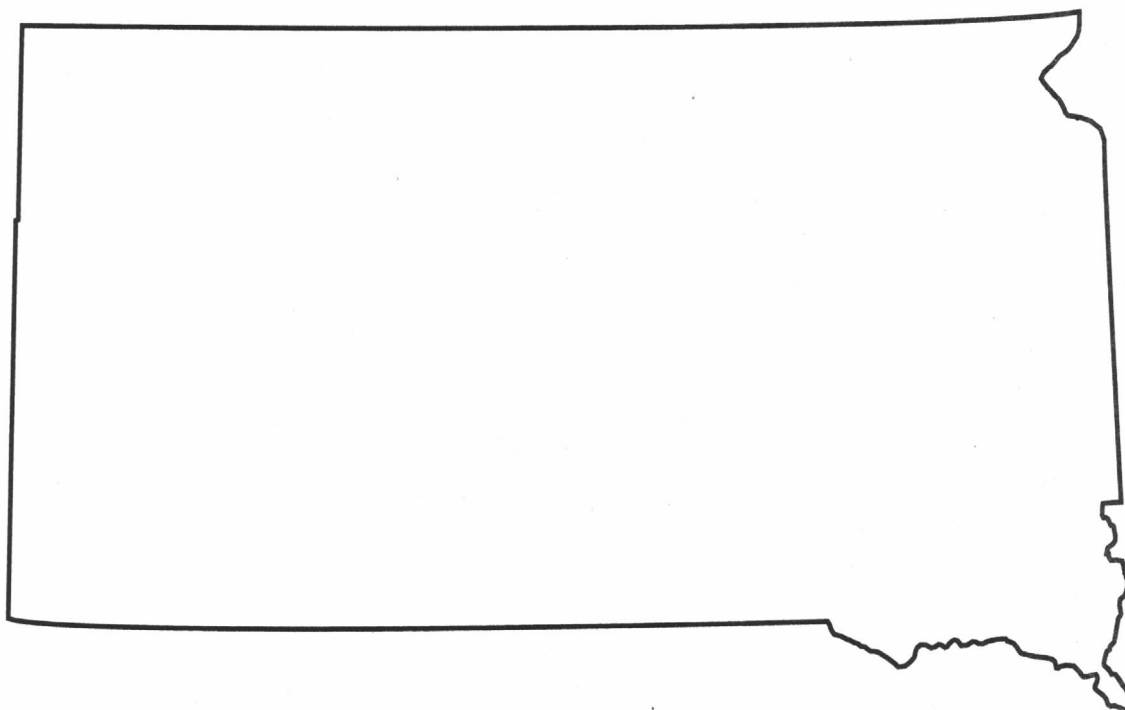
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Water Resources Data South Dakota Water Year 1992

by M.J. Burr, R.D. Benson, and S.K. Sando



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT SD-92-1
Prepared in cooperation with the State of South Dakota
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

BRUCE BABBITT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in South Dakota write to
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Rapid City, South Dakota 57702

PREFACE

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

General direction for the series is by Phillip Cohen, Chief Hydrologist, U.S. Geological Survey, James F. Daniel, Assistant Chief Hydrologist for Scientific Information Management, James F. Blakey, Regional Hydrologist, Central Region, and William J. Herb, Assistant Area Regional Hydrologist, North Central Area. 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, Acting Chief, Hydrologic Data Collection and Analysis Section. Other South Dakota personnel who contributed significantly to the collecting, processing, and tabulating the data, and typing the manuscript were:

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

REPORT DOCUMENTATION PAGE	1. REPORT NO. USGS/WRD/HD-93/284	2.	3. Recipient's Accession No.
4. Title and Subtitle Water Resources Data for South Dakota Water Year 1991		5. Report Date May 1993	
7. Author(s) M. J. Burr, R. D. Benson, S. K. Sando		8. Performing Organization Rept. No. USGS-WDR-SD-92-1	
9. Performing Organization Name and Address U.S. Geological Survey, Water Resources Division Rm. 408, Federal Building 200 4th St. SW Huron, SD 57350		10. Project/Task/Work Unit No.	
		11. Contract(C) or Grant(G) No. (C) (G)	
12. Sponsoring Organization Name and Address U.S. Geological Survey, Water Resources Division 1608 Mt. View Road Rapid City, SD 57702		13. Type of Report & Period Covered Annual-Oct. 1, 1991 to Sept. 30, 1992	
		14.	
15. Supplementary Notes Prepared in cooperation with the State of South Dakota and with other agencies.			
16. Abstract (Limit: 200 words) Water Resources Data for the 1992 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 6 streams and 4 lakes; water-quality records for 16 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.			
17. Document Analysis a. Descriptors *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. b. Identifiers/Open-Ended Terms c. COSATI Field/Group			
18. Availability Statement: No restriction on distribution This report may be purchased from: National Technical Information Service Springfield, VA 22161		19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 388
		20. Security Class (This Page) UNCLASSIFIED	22. Price

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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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WATER RESOURCES DATA - SOUTH DAKOTA, 1992

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 6 stream sites and 4 lakes; (3) water-quality records for 16 streamflow-gaging stations, 4 daily sediment stations, 3 wells, 9 ungaged stream sites, 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 4, 5, and 6. Miscellaneous hydrologic data were collected at 19 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-92-1." 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; City of Rapid City; City of Watertown; Lawrence County; Stanley County Irrigation District; Belle Fourche Irrigation District; West River Water Development 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 Interior, Bureau of Indian Affairs; U.S. Department of Interior, Bureau of Reclamation; and U.S. Department of Interior, U.S. Geological Survey, EROS Data Center.

Organizations that supplied data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

By Rick D. Benson

Precipitation was less than normal in the Black Hills and throughout all of northern South Dakota during water year 1992, ranging from 0.05 inch less than normal in the north-central part of the State to 2.12 inches less than normal in the Black Hills (table 1). Precipitation was greater than normal throughout the rest of the State during water year 1992. During the third quarter of the water year, precipitation was less than normal in all parts of the State, ranging from 3.69 inches below normal in the south central to only 0.10 inch below normal in the east central. During the fourth quarter of the water year, precipitation was greater than normal in all parts of the State except the Black Hills, and was substantially greater than normal in most parts: southeast (6.27 inches); east central (3.80 inches); central (3.75 inches); south central (2.96 inches); north central (2.47 inches); and northwest (1.62 inches). The southeast part of the State received the most precipitation (28.07 inches), which was 5.00 inches greater than normal (table 1). The northwest part of the State received the least amount of precipitation (14.96 inches), which was 0.32 inches less than normal. This was the fifth consecutive water year that precipitation was less than normal in the northwest part of the State. This was the first year since water year 1986 that precipitation was greater than normal in the southeast part of the State.

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

National Weather Service Division ²	October-December		October-March		October-June		October-September	
	Precipitation	Departure from normal	Precipitation	Departure from normal	Precipitation	Departure from normal	Precipitation	Departure from normal
Northwest	1.41	-0.27	2.38	-0.77	8.68	-1.94	14.96	-0.32
North Central	1.73	-.27	3.37	-.32	9.26	-2.52	17.28	-.05
Northeast	1.57	-.91	3.51	-.94	11.75	-1.32	18.92	-.68
Black Hills	2.64	-.03	5.59	.15	13.69	-1.59	19.18	-2.12
Southwest	2.20	.44	4.93	1.35	11.50	-.14	16.88	.26
Central	2.46	.48	5.17	1.42	10.39	-1.09	19.56	2.66
East Central	2.31	-.47	5.24	.20	13.98	.10	24.80	3.90
South Central	3.42	1.09	6.57	1.97	12.02	-1.72	21.39	1.24
Southeast	3.08	.13	7.42	1.86	13.66	-1.27	28.07	5.00

¹Based on data from 1951 to 1980.²Shown in figure 1.

Precipitation data from published reports of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, for the nine divisions in South Dakota are shown in table 1. The cumulative precipitation and departures from normal are shown for the end of each quarter.

Surface Water

Dry antecedent conditions and significantly less than normal precipitation across most of South Dakota during the third quarter of water year 1992 caused total streamflow for the water year to be substantially less than normal at three of the five representative streamflow-gaging stations. The Moreau, White, James, and Big Sioux Rivers derive most of their flow from surface runoff. The Moreau River, located in the northwest and north-central parts of the State where precipitation was less than normal, had less than normal discharge during all months except July and August (fig. 1); total discharge for the water year was only 20 percent of normal. The White River near Oacoma had less than normal discharge during six months and total discharge was 70 percent of normal for the water year. The James River, located in the eastern part of the State, had less than normal discharge during all months except February and July to September (fig. 1); total discharge for the water year was only 35 percent of normal. The Big Sioux River had less than normal discharge during the first and third quarters of the water year; however, total discharge for the water year was 148 percent of normal. For the east-central and southeast parts of the State, where the Big Sioux River is located, precipitation data (table 1) show that deficits occurred during the first and third quarters of the water year and relatively large excesses occurred during the fourth quarter of the water year. Castle Creek, which derives most of its water from the Madison aquifer, had near normal discharge throughout the year (fig. 1) and ended the water year with total discharge at 97 percent of normal.

Peak discharges at the representative streamflow-gaging stations indicate the effects of less than normal precipitation throughout all of South Dakota during the third quarter of the water year--the peak discharges for all of the stations except Castle Creek occurred outside of the third quarter (table 2). The peaks on all five of the representative streamflow-gaging stations had a recurrence interval of 2 years or less.

Because low-flow analyses are done for the period from April 1 through March 31, the analysis for 1992 consisted of the period from April 1, 1991, through March 31, 1992. The minimum 1-day and 7-day discharges that occurred during 1992 are compared with those from the long-term period for the representative gaging stations in table 3. The minimum daily mean discharge for the James River near Scotland during the 1992 low-flow year was 9.0 cubic feet per second on October 2, 1991, whereas minimum daily mean discharges of zero have occurred on many days during the long-term period of record. The lowest 7-day mean discharge during 1991 for the James River near Scotland was 10.0 cubic feet per second (the recurrence interval of a 7-day minimum daily mean discharge of 10.0 cubic feet per second is between 2 and 5 years). There is only a 10-percent chance in a given year that the mean discharge for 7 consecutive days will be equal to or less than 1.7 cubic feet per second for the James River near Scotland. Similar interpretations of the data for the other stations can be made.

Combined storage in the four Missouri River reservoirs (Lakes Oahe, Sharpe, Francis Case, and Lewis and Clark) was 19,338,000 acre-feet on September 30, 1992, an increase of 876,000 acre-feet during water year 1992.

Water Quality

The dissolved-solids concentrations of surface-water samples collected during water year 1992 are compared to concentrations measured in previous years using boxplots (fig. 2). Of the 10 stations shown in figure 2, all are National Stream-Quality Accounting Network (NASQAN) stations except for the Grand River at Little Eagle, Castle Creek above Deerfield Reservoir near Hill City (which is a hydrologic bench-mark station), and the Little Vermillion River near Salem. The boxplots for the Grand River at Little Eagle and the Little Vermillion River near Salem stations are for specific conductance.

Boxplots are a useful graphical technique 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 1992 values are plotted with a closed circle to show where these data lie with respect to the historic distribution of data.

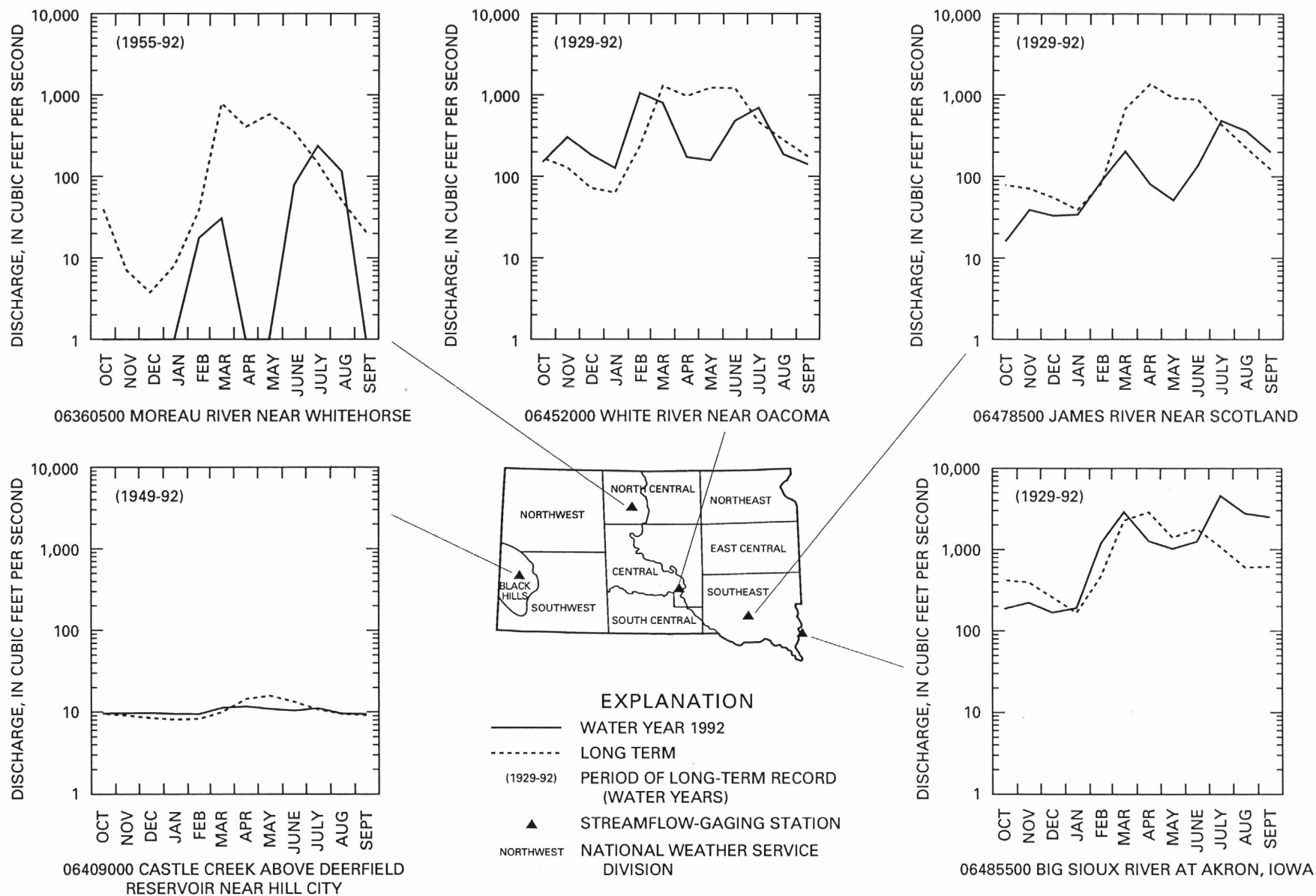


Figure 1.--Comparison of 1992 monthly mean to long-term monthly mean discharges.

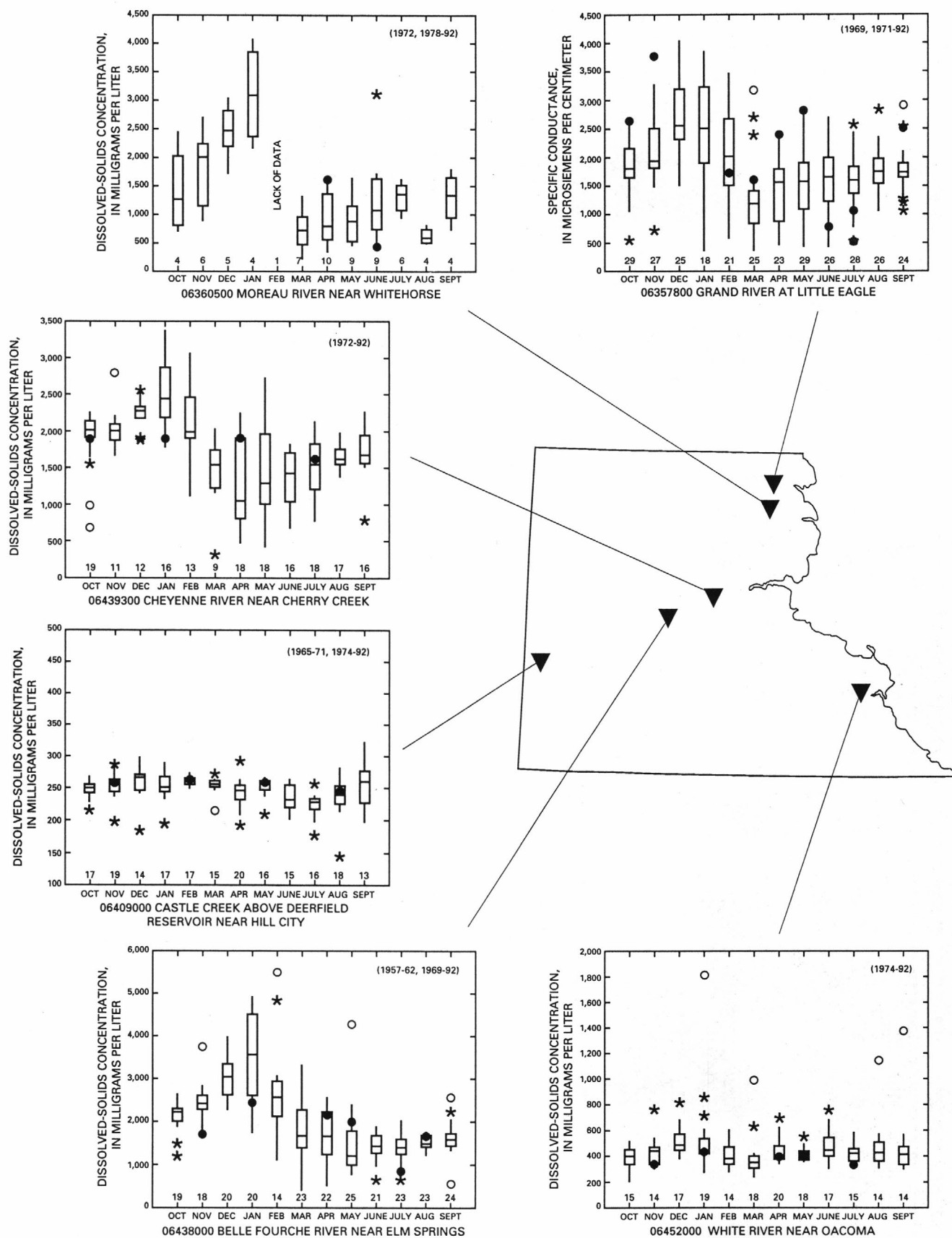


Figure 2.--Comparison of 1992 monthly dissolved-solids concentrations or specific conductance to the distributions of long-term monthly values.

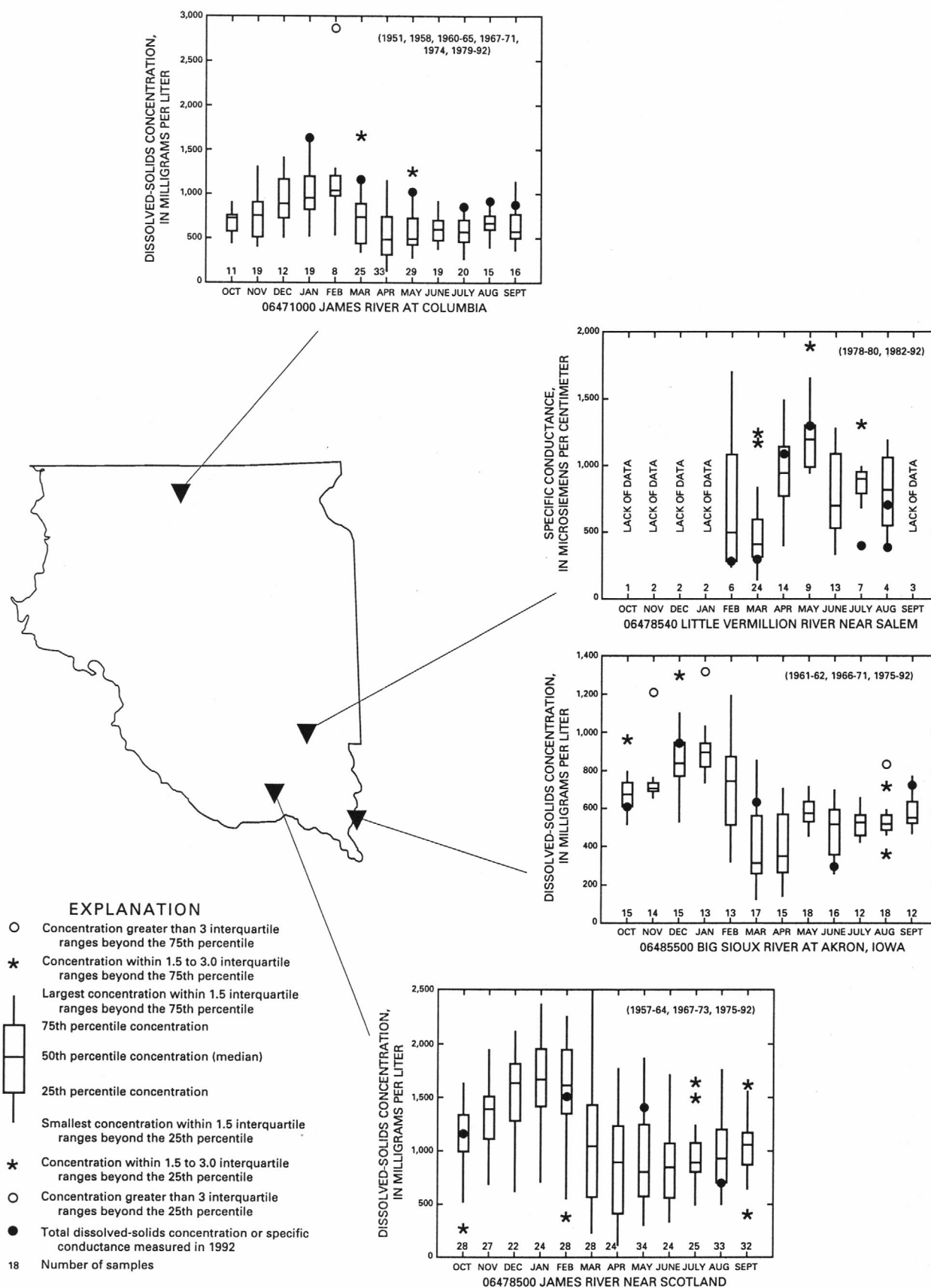


Figure 2.--Comparison of 1992 monthly dissolved-solids concentrations or specific conductance to the distributions of long-term monthly values.--Continued

Table 2.--Comparison of current-year maximum discharge to maximum for long-term period
[ft³/s, cubic feet per second]

Gaging-station number and name	Long-term period used (water years)	Peak discharges					
		1992 Water year			Long-term period		
		Peak (ft ³ /s)	Date	Return interval (years)	Peak (ft ³ /s)	Date	Return interval (years)
06360500 Moreau River near Whitehorse	1955-92	1,160	8- 1-92	<2	27,700	5-24-82	28
06409000 Castle Creek above Deerfield Reservoir, near Hill City	1948-92	30	5-21-92	<2	1,120	5-22-52	>100
06452000 White River near Oacoma	1929-92	7,100	2-17-92	<2	51,900	3-30-52	100
06478500 James River near Scotland	1929-92	933	8-12-92	<2	29,400	6-23-84	>100
06485500 Big Sioux River at Akron, Iowa	1929-92	9,710	7- 6-92	2	80,800	4- 9-69	>100

Table 3.--Comparison of current-year minimum discharge to minimum for long-term period
[ft³/s, cubic feet per second]

Gaging-station number and name	Long-term period used (water years)	Minimum discharges					
		1992 Water year ¹			Long-term period		
		1-day		7-day	1-day		7-day, 10-year
		(ft ³ /s)	Date	(ft ³ /s)	(ft ³ /s)	Date	(ft ³ /s) ¹
06360500 Moreau River near Whitehorse	1955-92	0	(137 days)	0	0.0	many days	0.09
06409000 Castle Creek above Deerfield Reservoir, near Hill City	1948-92	6.5	10-29-1991, 11- 1-1991	7.1	2.0	several days	4.1
06452000 White River near Oacoma	1929-92	48	8- 3-1991	58	.0	many days	2.7
06478500 James River near Scotland	1929-92	9.0	10- 2-1991	10	.0	many days	1.7
06485500 Big Sioux River at Akron, Iowa	1929-92	150	(4 days)	154	4.0	1-17-77	19.8

¹Low-flow water year was April 1, 1991, to March 31, 1992.

The boxplots of dissolved-solids concentrations for selected South Dakota stations (fig. 2) 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 247 milligrams per liter in the August sample at the Castle Creek above Deerfield Reservoir station to as much as 2,450 milligrams per liter in the January sample at the Belle Fourche River near Elm Springs station. All water samples collected during water year 1992 from the James River at Columbia had dissolved-solids concentrations greater than the long-term 7th percentiles for that station. Dissolved-solids concentrations for the January, July, and August samples exceeded the historic maximum concentrations that had been recorded during the same respective months at that station. These elevated concentrations are associated with the low-flow conditions that existed in the upstream part of the James River basin during water year 1992. Dissolved-solids concentrations for the Castle Creek above Deerfield Reservoir station tended to be near the median values, and flow conditions at this station tended to be near normal in 1992. At most stations, the dissolved-solids concentrations and specific conductance measurements for samples collected in the spring tended to approach or exceed the 75th percentiles, while dissolved-solids concentrations and specific conductance for most samples collected in the summer tended to be near or below the 25th percentile values. These patterns are associated with low-flow conditions that generally existed in the spring and above normal flow conditions that were common during the summer in 1992.

Ground Water

Water levels in wells and the quality of water from wells are key measurements in monitoring ground-water trends. During 1992, the U.S. Geological Survey regularly monitored several observation wells in South Dakota. The hydrographs in figure 3 are from six of the wells in the observation-well network. Net water-level changes during the water year for four of the six wells historically have correlated with precipitation in the areas where the wells are located; water year 1992 was no exception. The water level in the Aurora County well (southeast part of the State where precipitation was 5.00 inches greater than normal) had a net rise of 1.85 feet. The water level in the Beadle County well (east-central part where precipitation was 3.90 inches greater than normal) had a net rise of 0.58 foot. The water level in the Codrington County well dropped a net of 0.24 foot; precipitation in the northeast area was 0.68 inch less than normal. The water level in the Lincoln County well (southeast where precipitation was 5.00 inches greater than normal) had a net rise of 0.68 foot. Water-level fluctuations in the Marshall County well do not appear to react directly to precipitation; the water level had a net rise of 0.91 foot during water year 1992, even though the northeast part of the State ended the year with precipitation being 0.68 inch less than normal. Water-level fluctuations in the Shannon County well historically have not appeared to react directly to precipitation; the water level in the well dropped a net of 0.10 foot even though precipitation in the southwest area was 0.26 inch greater than normal. Water levels recorded during 1992 for the seven wells shown on the map in figure 3 are presented in the Ground-Water Levels section of this report.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 57 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. There are about 500 sites in NASQAN, which 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 objectives of NASQAN are (1) 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, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) 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 stations 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).

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1992 water year that began October 1, 1991, and ended September 30, 1992. 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 3, 4, 5, and 6. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

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

Downstream Order System

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

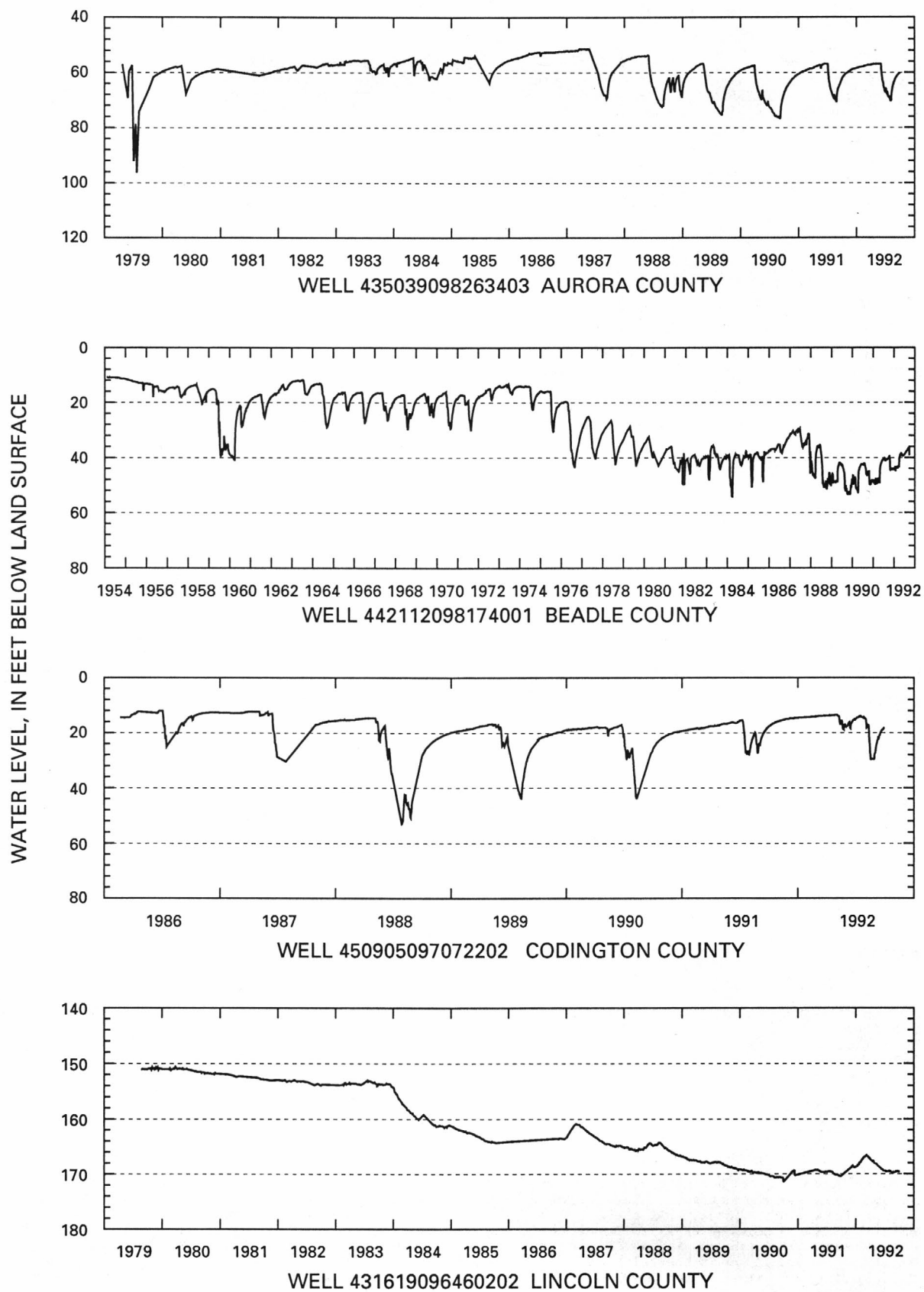


Figure 3.--Water levels from selected observation wells.

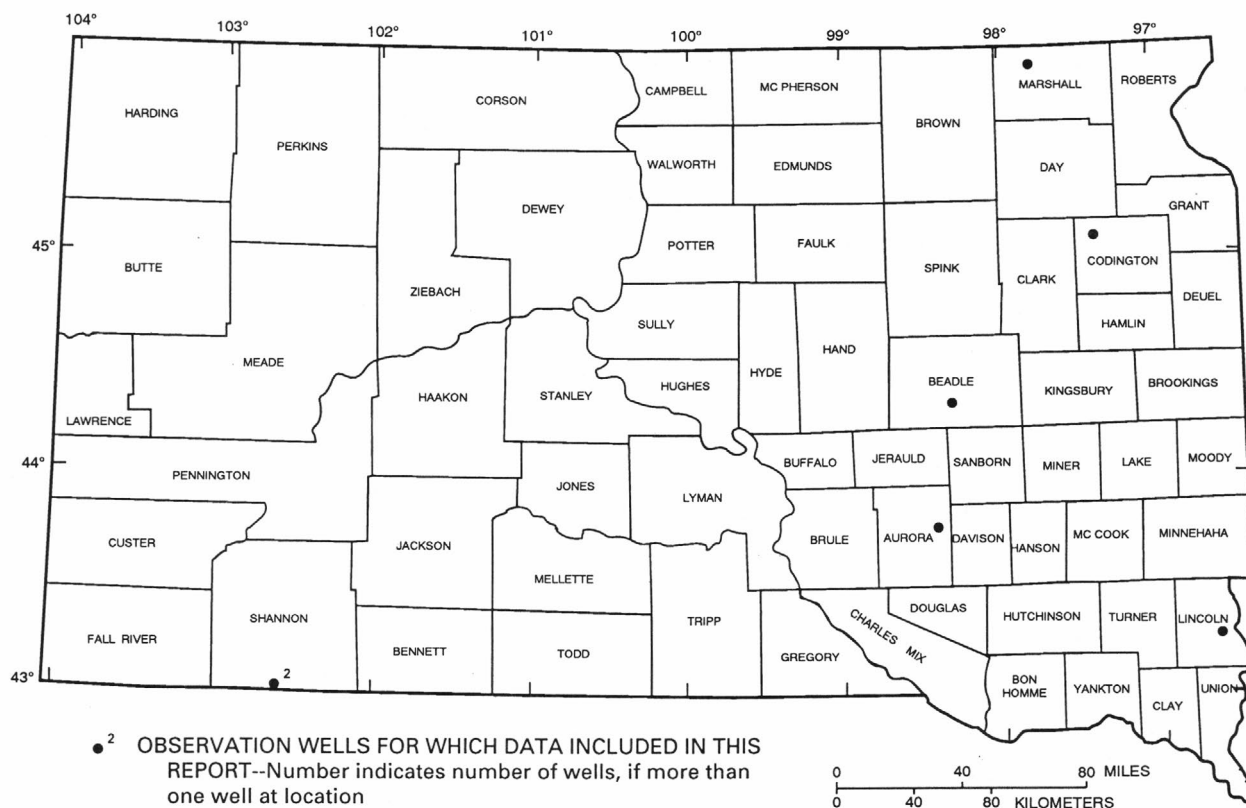
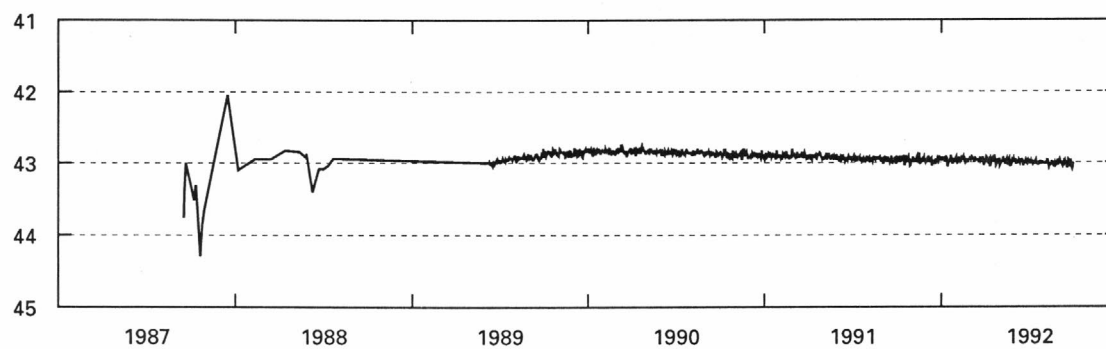
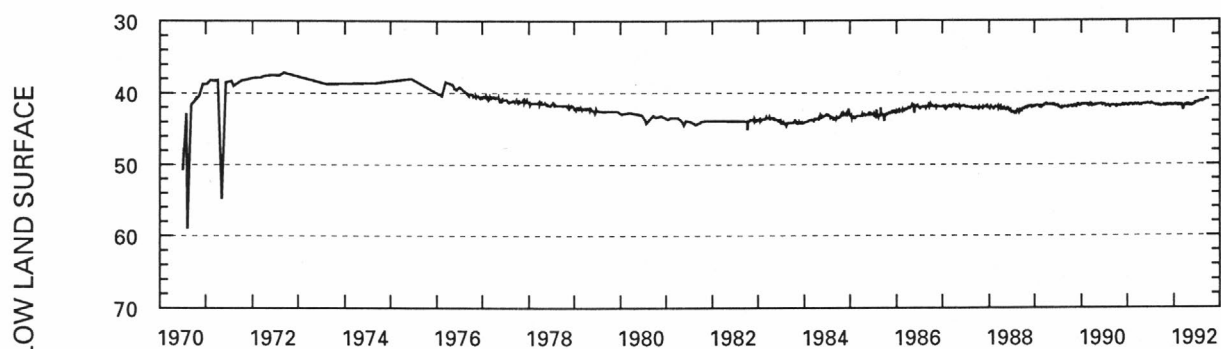
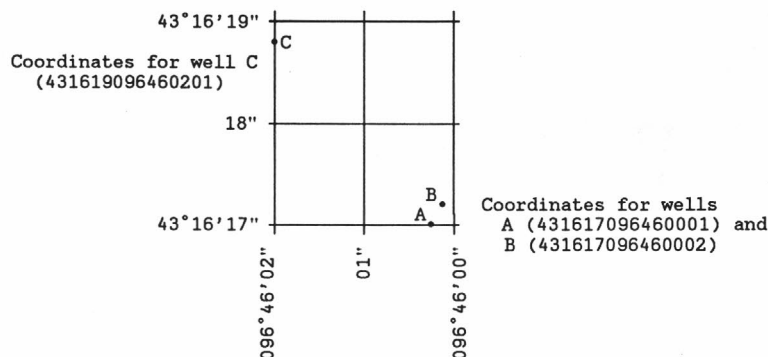


Figure 3.--Water levels from selected observation wells.--Continued

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, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

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.

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.

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.

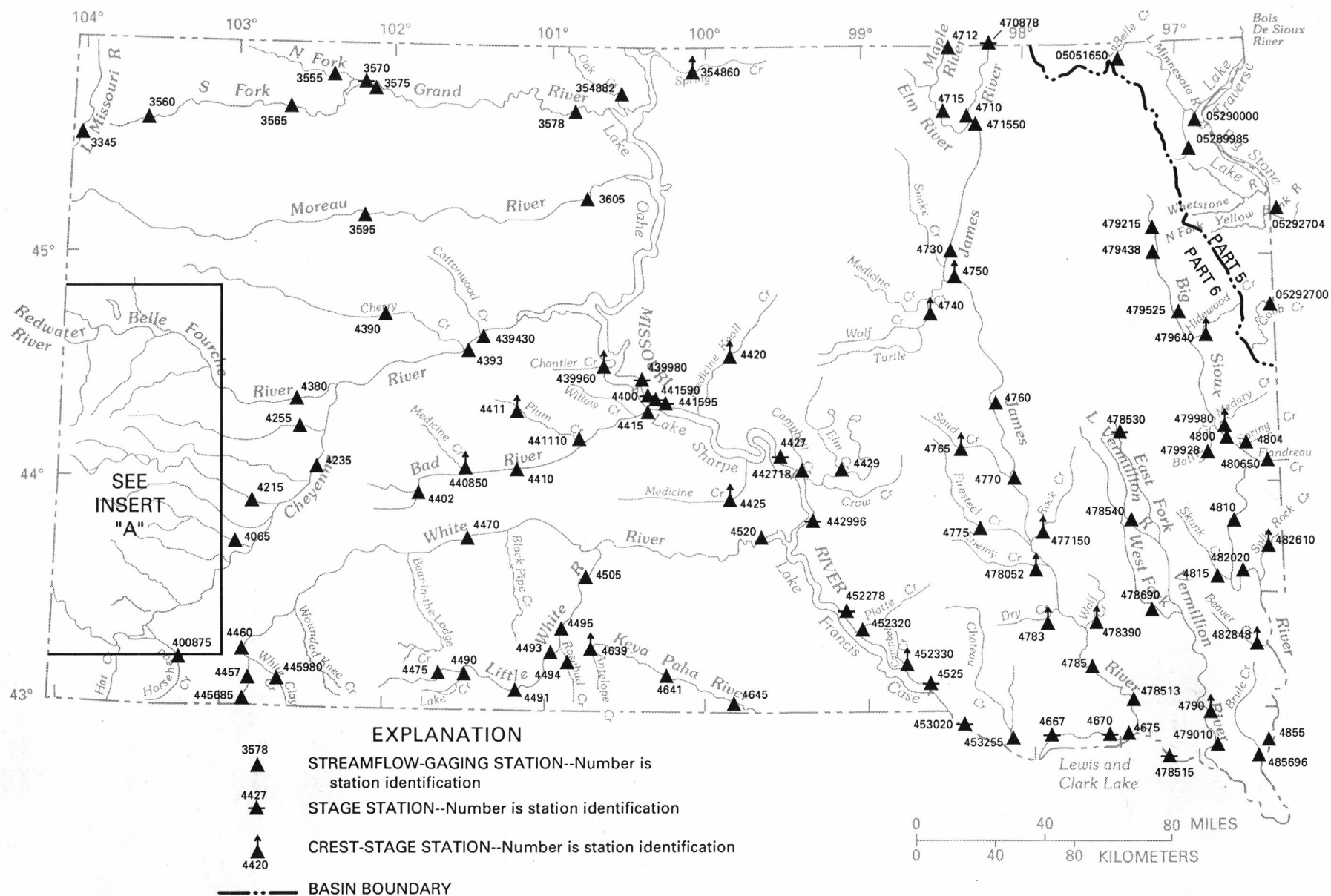


Figure 4.--Location of surface-water gaging stations.

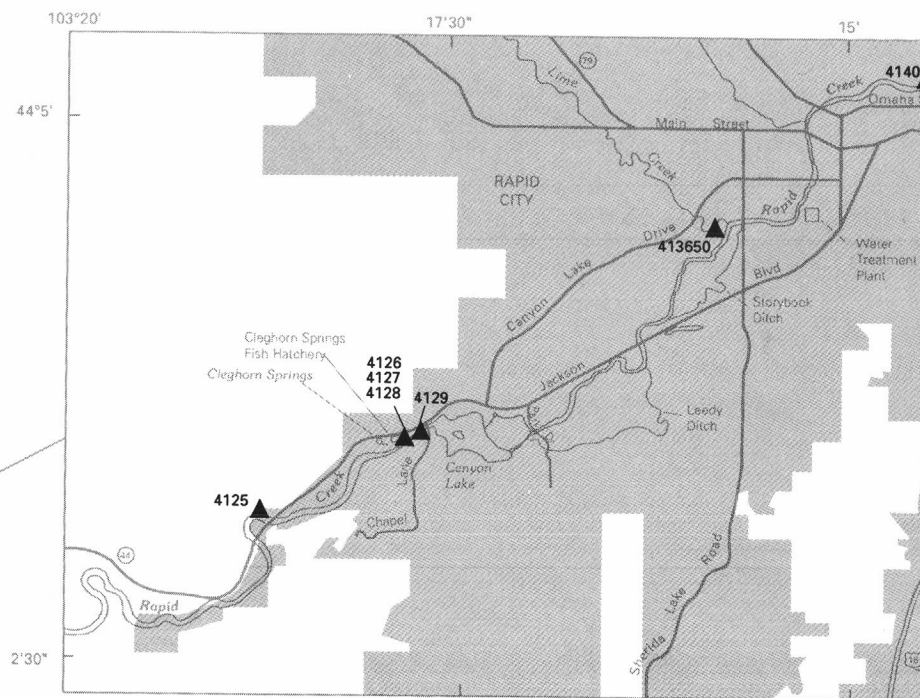
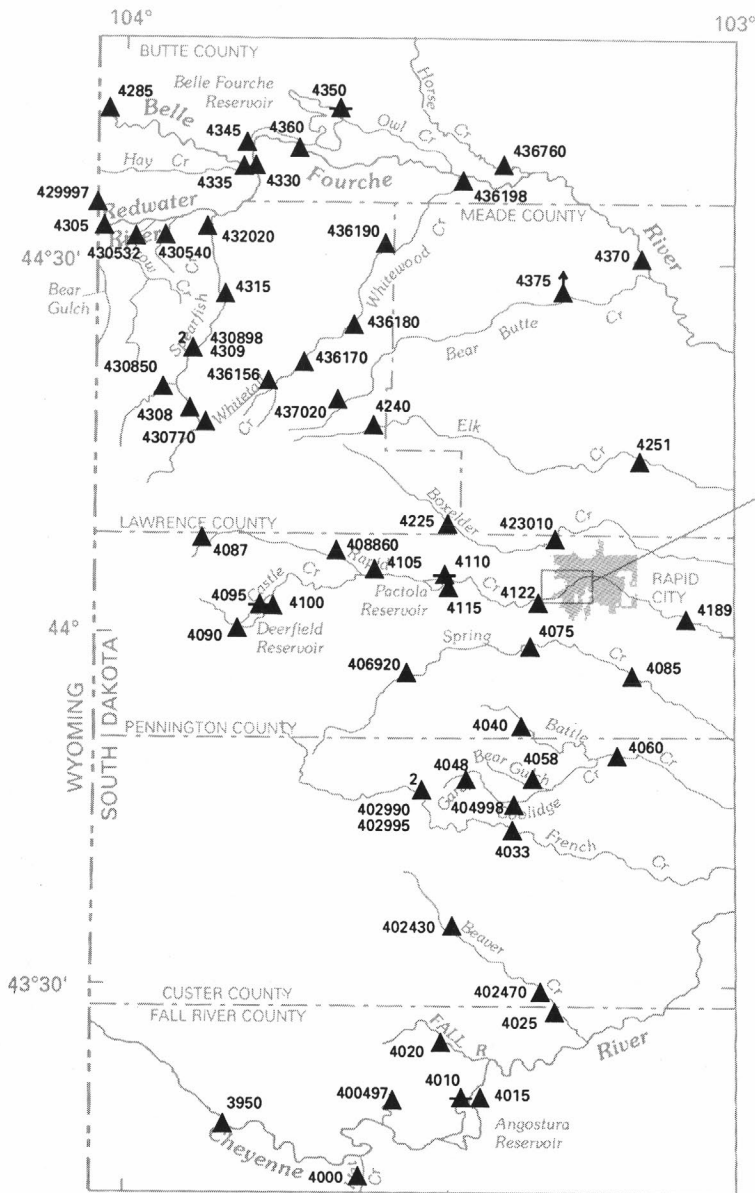


Figure 4.--Location of surface-water gaging stations.--Continued

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 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 is exceeded by 10 percent of the flow for the designated period.

50 PERCENT EXCEEDS.--The discharge that is exceeded by 50 percent of the flow for the designated period.

90 PERCENT EXCEEDS.--The discharge that is exceeded by 90 percent of the flow for the designated period.

Identifying Estimated Daily Discharge

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

Accuracy of the Records

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

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

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

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

Other Records Available

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

Records of Surface-Water Quality

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

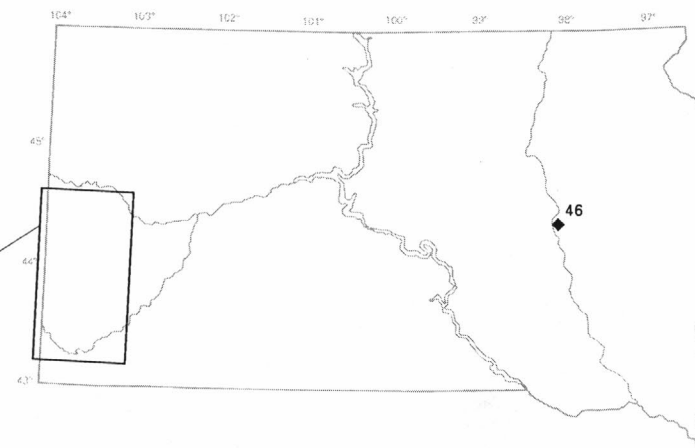
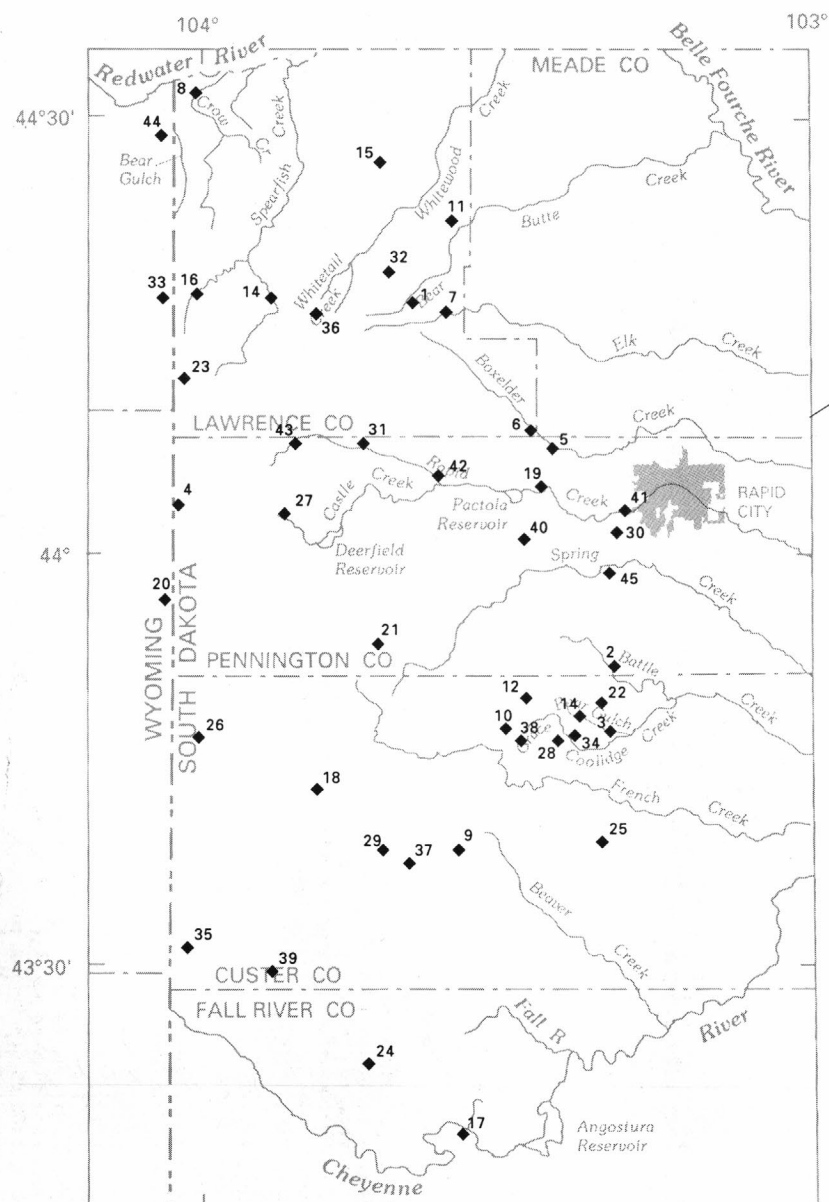
Classification of Records

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

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records of the quality of surface water are shown in figure 6.

Arrangement of Records

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



EXPLANATION

◆ ²	PRECIPITATION GAGING SITE--Number indicates site identification		
1	441859103385600	24	432343103421500
2	064040000	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 5.--Location of precipitation stations.

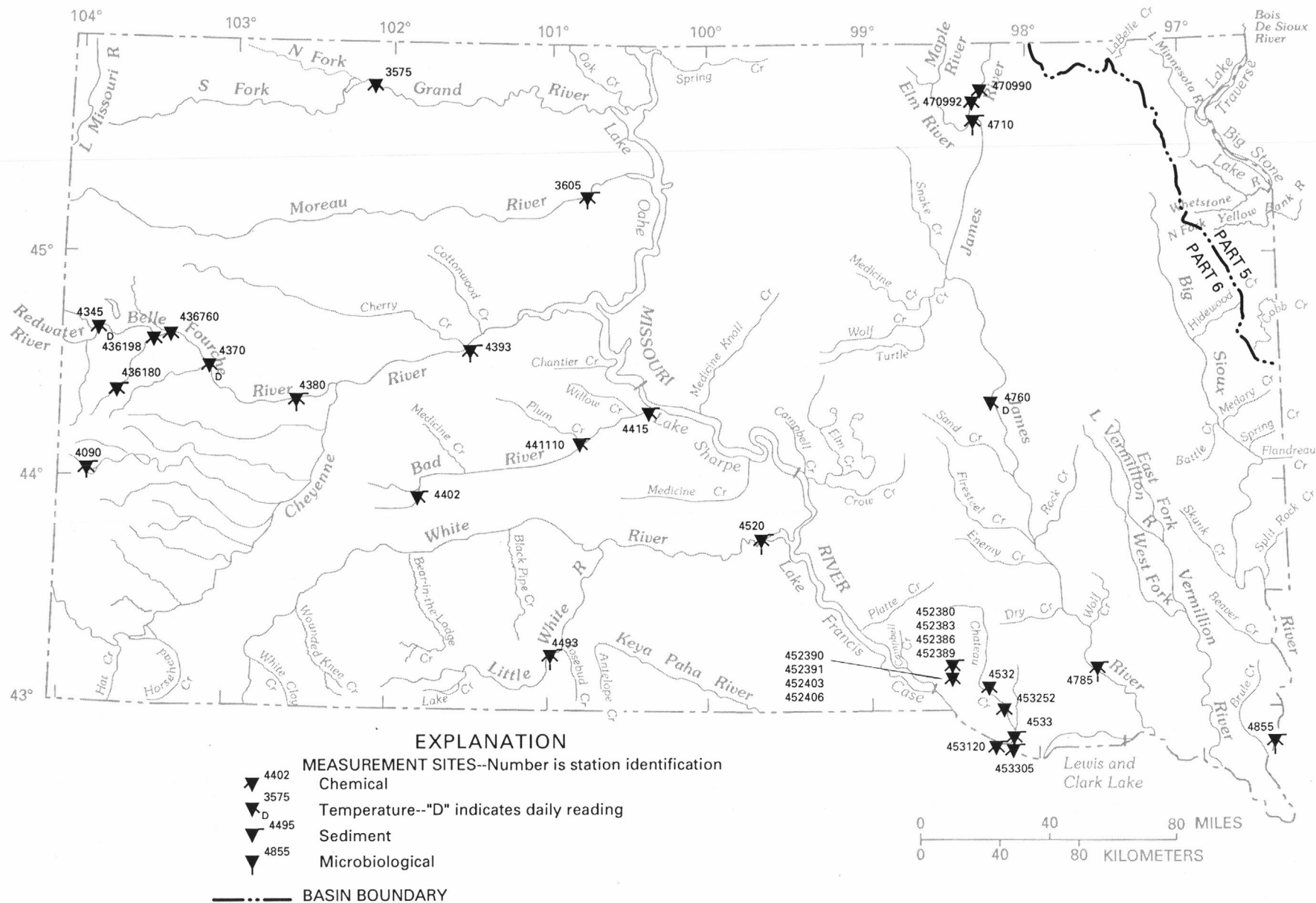


Figure 6.--Location of surface-water quality stations.

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 given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed in the PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS section. 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 (1992) 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 ultraclean techniques were used, then those concentrations are reported in nanograms per liter. If other than ultraclean techniques were used, then those concentrations are reported in micrograms per liter and 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.

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 in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratories are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

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.

Remark Codes

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

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
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)
TNTC	Too numerous to count

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, and 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 Techniques of Water Resources Investigations" manuals listed on a following page. 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. 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 (1992) 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 ultraclean techniques were used, then those concentrations are reported in nanograms per liter. If other than ultraclean techniques were used, then those concentrations are reported in micrograms per liter and 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 anaerobic, 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 $44.5^{\circ}\text{C} \pm 0.2^{\circ}\text{C}$ 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 $35^{\circ}\text{C} \pm 1.0^{\circ}\text{C}$ 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 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.)

Dissolved refers to that material in a representative water sample which passes through a $0.45\ \mu\text{m}$ 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, $\mu\text{g/g}$) 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, $\mu\text{g/L}$) 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:

<u>Classification</u>	<u>Size (mm)</u>	<u>Method of analysis</u>
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/(m²·time)] for periphyton and macrophytes and [mg C/(m³·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 O₂/(m²·time)] for periphyton and macrophytes and [mg O₂/(m³·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.

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 (ft³/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 Q₁₀) 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 emerged 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 μ m 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 μ m 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.....	<u>Hexagenia</u>
Species.....	<u>Hexagenia limbata</u>

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, Books and Open-File Reports Section, Federal Center, Box 25425, 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. Ficken, 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. McCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W. S. Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.
- 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 measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F. A. Kilpatrick and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

- 3-A10. *Discharge ratings at gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. *Measurement of discharge by 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*, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 41 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.
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- 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.
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- 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.
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RED RIVER OF THE NORTH BASIN

05051650 LA BELLE CREEK NEAR VEBLEN, SD

LOCATION.--Lat 45°53'33", long 97°21'40", in SW1/4SW1/4SW1/4SE1/4 sec.1, T.128 N., R.54 W., Marshall County, Hydrologic Unit 09020105, on right bank 5 ft downstream from highway bridge, 3.0 mi west of Veblen on State Highway 25, 2.0 mi north, and 0.5 mi west.

DRAINAGE AREA.--8.74 mi².

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

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

REMARKS.--Records good except those for estimated daily discharges and May 7, 13-16, 19, 20, Aug. 10-12, 21, 22, Sept. 15, which are poor, and those for June 18-23 and July 7-27, 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	e.15	e2.0	e.60	.79	.01	8.5	.10	e.04
2	.00	.00	.00	.00	.00	e1.2	e.50	.51	e.01	4.9	.15	e.04
3	.00	.00	.00	.00	.00	e.40	1.1	e.70	.35	e.01	4.3	.09
4	.00	.00	.00	.00	e.20	1.5	e.50	.26	e.01	3.3	.05	e.02
5	.00	.00	.00	.00	e.10	3.2	e.60	.21	e.01	2.9	.04	e.01
6	.00	.00	.00	.00	e.07	3.8	e.40	.18	e.01	2.6	.04	e.09
7	.00	.00	.00	.00	e.06	4.1	.30	.12	e.01	2.8	.85	4.9
8	.00	.00	.00	.00	e.04	3.6	.30	e.08	e.01	2.4	.20	.96
9	.00	.00	.00	.00	e.03	4.1	.26	e.06	e.01	1.8	.07	.28
10	.00	.00	.00	.00	e.02	2.2	.34	e.05	e.01	1.8	.03	.19
11	.00	.00	.00	.00	e.01	2.9	.48	e.06	.01	1.6	.02	.14
12	.00	.00	.00	.00	e.00	1.9	.35	e.09	e.01	2.3	.02	.10
13	.00	.00	.00	.00	e.01	1.7	.39	.15	e.01	2.2	e.01	.07
14	.00	.00	.00	.00	e.02	e1.5	1.1	.14	e.01	2.2	e.01	.06
15	.00	.00	.00	.00	e.04	e1.4	.72	.10	e.01	3.0	e.01	.06
16	.00	.00	.00	.00	e.05	e1.7	.63	.13	.77	2.1	e.01	e.05
17	.00	.00	.00	.00	e.06	e1.3	.60	.22	12	1.6	e.01	e.04
18	.00	.00	.00	.00	e.04	e1.5	.86	.19	9.7	1.3	e.01	e.04
19	.00	.00	.00	.00	e.03	e1.3	1.2	.14	13	1.1	e.01	e.03
20	.00	.00	.00	.00	e.02	e1.1	.94	.02	10	.80	e.01	e.03
21	.00	.00	.00	.00	e.01	e1.0	.78	.02	8.8	.72	e.03	e.02
22	.00	.00	.00	.00	e.01	e1.4	1.1	.05	7.0	.59	e.02	e.02
23	.00	.00	.00	.00	e.01	e1.5	1.4	.02	5.3	.43	.06	e.01
24	.00	.00	.00	.00	e.01	e1.4	2.2	.03	4.5	.29	.05	e.01
25	.00	.00	.00	.00	e.10	e1.3	1.9	.03	6.1	.26	.07	e.00
26	.00	.00	.00	.00	e.60	e1.3	1.7	.02	4.0	.27	.07	e.00
27	.00	.00	.00	.00	e5.0	e1.2	1.7	.01	3.3	.22	e.05	e.00
28	.00	.00	.00	e.00	e4.0	e1.0	1.5	.02	2.8	.15	e.04	e.00
29	.00	.00	.00	e.01	e3.0	e.90	.91	.01	2.4	.12	e.04	e.00
30	.00	.00	.00	e.05	---	e.80	.79	e.01	3.8	.11	e.03	e.00
31	.00	---	.00	e.10	---	e.70	---	.01	---	.09	e.03	---
TOTAL	0.00	0.00	0.00	0.16	14.59	55.60	25.75	4.08	93.62	56.75	2.23	7.23
MEAN	.000	.000	.000	.005	.50	1.79	.86	.13	3.12	1.83	.072	.24
MAX	.00	.00	.00	.10	5.0	4.1	2.2	.79	13	8.5	.85	4.9
MIN	.00	.00	.00	.00	.00	.70	.26	.01	.01	.09	.01	.00
AC-FT	.00	.00	.00	.3	29	110	51	8.1	186	113	4.4	14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988
MEAN	.000	.000	.000	.001	.18	1.29	1.51	.41	1.34	.98	.15	.075
MAX	.000	.000	.000	.005	.50	3.13	5.49	1.18	3.43	3.07	.39	.24
(WY)	1988	1988	1988	1992	1992	1989	1989	1989	1991	1991	1991	1992
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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1988 - 1992
ANNUAL TOTAL	262.04	260.01	
ANNUAL MEAN	.72	.71	.49
HIGHEST ANNUAL MEAN			.85
LOWEST ANNUAL MEAN			.056
HIGHEST DAILY MEAN	29 Jun 20	13 Jun 19	29 Jun 20 1991
LOWEST DAILY MEAN	.00 Jan 1	.00 Oct 1a	.00 Oct 1 1987a
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 1	.00 Oct 1	.00 Oct 1 1987
INSTANTANEOUS PEAK FLOW		49 Jun 18	77 Jun 20 1991b
INSTANTANEOUS PEAK STAGE		4.80 Jun 18	8.58 Mar 26 1989c
ANNUAL RUNOFF (AC-FT)	520	516	355
10 PERCENT EXCEEDS	1.4	2.2	1.1
50 PERCENT EXCEEDS	.16	.03	.00
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a No flow many days in each year.

b Gage height, 5.04 ft.

c Backwater from ice.

MINNESOTA RIVER BASIN

31

05289985 BIG COULEE CREEK NEAR PEEVER, SD

LOCATION.--Lat 45°29'14", long 96°57'26", in SW1/4SW1/4SW1/4 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 mi².

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

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

REMARKS.--Records good except those for 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.0	e1.7	e.30	e.80	e1.0	e1.0	e2.0	e1.9	e.09	e4.0	e1.2	.07
2	e.75	e1.3	e.30	e.90	e.90	e7.1	e1.0	e1.7	e.07	e3.1	e1.7	.25
3	e.56	e1.0	e.10	e1.0	e.80	e4.4	e1.5	e1.4	e.06	e2.9	e1.7	.19
4	e.64	e1.0	e.04	e.80	e.70	e4.8	e1.8	e1.6	e.08	e2.5	e1.4	.11
5	e.71	e.87	e.20	e1.0	e1.0	e9.9	e2.0	e1.5	e.14	e1.9	e1.2	.14
6	e.91	e.81	e.40	e.80	e.70	e1.7	e2.1	e1.7	e.23	e1.6	e.76	.07
7	e1.2	e.28	e.50	e.60	e.60	e9.0	e2.2	e1.3	e.40	e1.5	e.86	.43
8	e1.6	e.04	e.60	e.40	e.60	e9.5	e2.3	e1.2	e.90	e1.6	e.71	5.1
9	e1.6	e.40	e.60	e.20	e.80	e9.2	e2.3	e1.2	e1.7	e.81	e.44	15
10	e1.8	e.34	e.60	e.90	e.60	e7.9	e2.4	e.75	e2.0	e.31	e.20	14
11	e2.1	e.19	e.60	e.90	e.50	e9.0	e2.6	e1.2	e2.0	e.79	e.26	12
12	e1.8	e.27	e.50	e1.0	e.60	e9.0	e2.2	e1.7	e1.6	e8.7	e.33	8.9
13	e1.8	e.56	e.40	e.50	e.70	e9.2	e2.2	e2.1	e1.3	e4.7	e.36	7.9
14	e1.9	e.59	e.35	e.75	e.90	e9.2	e2.0	e2.5	e1.0	e3.8	e.05	6.4
15	e1.9	e.50	e.30	e.30	e.90	e9.2	e2.0	e2.9	e9.0	e3.4	e.01	4.8
16	e2.1	e.40	e.40	e.80	e1.0	e8.0	e2.2	e2.7	e3.0	e3.6	.00	3.7
17	e1.7	e.45	e.60	e.50	e1.5	e7.0	e2.5	e2.8	e18	e2.8	.00	2.4
18	e1.1	e.50	e.25	e.30	e1.2	e6.5	e3.0	e2.5	e14	e2.4	.00	1.1
19	e.93	e.60	e.10	e.80	e.90	e5.5	e3.8	e1.8	e12	e2.4	.00	.32
20	e1.5	e.70	e.20	e.80	e.80	e5.0	e2.9	e.40	e9.0	e2.1	.00	.17
21	e1.8	e.70	e.43	e.80	e.70	e4.0	e2.0	e.10	e6.0	e1.6	.00	.09
22	e2.0	e.50	e1.3	e.70	e.80	e3.5	e2.0	e.20	e3.0	e1.8	e.01	.32
23	e1.9	e.40	e.92	e.50	e1.0	e3.0	e2.9	e.30	e1.3	e2.4	e.01	.58
24	e1.9	e.30	e.90	e.40	e.90	e3.5	e3.5	e.50	e.49	e2.5	e.01	.57
25	e1.8	e.20	e.70	e.50	e.90	e5.0	e3.7	e.80	e2.6	e2.3	e.01	.36
26	e1.9	e.30	e.60	e.60	e3.0	e4.0	e3.2	e.70	e2.2	e1.8	.08	.31
27	e1.9	e.40	e.50	e.40	e3.0	e3.0	e2.9	e.60	e1.4	e1.4	.03	.53
28	e2.3	e.40	e.55	e.50	e2.0	e3.0	e2.7	e.30	e.64	e.51	.03	.37
29	e3.2	e.40	e.60	e.60	e1.0	e3.0	e2.3	e.20	e.14	e.15	.05	.64
30	e2.4	e.30	e.60	e.70	---	e3.0	e2.0	e.15	e1.5	e.86	.05	.48
31	e2.0	---	e.70	e.90	---	e3.0	---	e.10	---	e1.4	e.01	---
TOTAL	50.70	16.40	15.14	20.65	84.00	204.4	72.2	38.80	122.84	71.63	11.47	87.30
MEAN	1.64	.55	.49	.67	2.90	6.59	2.41	1.25	4.09	2.31	.37	2.91
MAX	3.2	1.7	1.3	1.0	3.0	17	3.8	2.9	3.0	8.7	1.7	15
MIN	.56	.04	.04	.20	.50	3.0	1.0	.10	.06	.15	.00	.07
AC-FT	101	33	30	41	167	405	143	77	244	142	23	173

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992
MEAN	.37	.16	.10	.13	.76
MAX	1.64	.55	.49	.67	2.90
(WY)	1992	1992	1992	1992	1989
MIN	.000	.000	.000	.000	.000
(WY)	1988	1988	1988	1988	1989

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1988 - 1992

ANNUAL TOTAL	1120.65	795.53			
ANNUAL MEAN	3.07	2.17			
HIGHEST ANNUAL MEAN					1.74
LOWEST ANNUAL MEAN					2.85
HIGHEST DAILY MEAN	118	Jun 21	30	Feb 27	.63
LOWEST DAILY MEAN	.00	Jan 1	.00	Aug 16a	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Aug 15	.00
INSTANTANEOUS PEAK FLOW			40	Feb 27	456
INSTANTANEOUS PEAK STAGE			5.86	Feb 27b	8.21
ANNUAL RUNOFF (AC-FT)	2220		1580		1260
10 PERCENT EXCEEDS	5.0		5.0		4.0
50 PERCENT EXCEEDS	1.2		.92		.05
90 PERCENT EXCEEDS	.00		.15		.00

e Estimated

a No flow many days in most years.

b Backwater from ice and/or 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 Peeper, 7.2 mi downstream from Jorgenson River, and 8 mi upstream from Big Stone Lake.

DRAINAGE AREA.--447 mi².

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

REVISÉD 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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
July 13	2200	*271	*4.03	No peak greater than base discharge.			

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	e13	e5.7	e4.2	e4.6	e110	27	43	5.3	68	16	1.8
2	13	e10	e5.4	e4.2	e4.9	e84	24	36	4.6	83	15	2.6
3	12	e9.5	e5.0	e4.2	e5.3	e68	24	31	3.6	86	14	2.1
4	11	e9.0	e4.8	e4.2	e5.6	58	22	28	3.4	76	13	2.8
5	10	e8.5	e4.6	e4.2	e5.8	61	22	25	3.2	64	12	3.8
6	9.7	e8.0	e4.5	e4.2	e6.0	86	21	24	3.1	56	10	2.9
7	9.7	e7.4	e4.6	e4.2	e6.0	129	22	21	3.1	49	9.8	4.3
8	10	e7.2	e4.7	e4.2	e6.0	103	23	19	3.3	45	8.9	4.2
9	9.4	e7.4	e4.8	e4.2	e6.0	76	22	19	3.4	40	8.2	7.3
10	9.1	e7.6	e4.9	e4.2	e6.0	45	24	17	3.4	37	7.2	6.6
11	8.7	e8.0	e5.0	e4.2	e6.0	55	25	16	3.3	33	6.5	4.5
12	8.1	e8.5	e5.1	e4.2	e6.0	46	30	16	3.0	78	5.6	3.5
13	8.0	e9.0	e5.2	e4.2	e6.0	46	29	15	2.5	204	4.9	2.7
14	7.6	e10	e5.1	e4.2	e6.0	43	29	15	2.2	203	4.0	2.2
15	7.4	e11	e4.9	e4.2	e6.0	38	30	14	2.4	131	3.5	1.5
16	7.7	e11	e4.7	e4.2	e6.0	36	33	13	3.6	101	3.3	1.3
17	8.0	e11	e4.5	e4.2	e6.0	34	31	14	17	84	3.0	1.1
18	7.1	e12	e4.3	e4.2	e6.0	32	31	13	115	73	2.6	1.1
19	6.7	e13	e4.2	e4.2	e6.0	30	37	12	178	63	2.1	.93
20	7.0	e13	e4.2	e4.2	e6.0	29	55	10	154	54	1.8	.77
21	7.0	e14	e4.2	e4.2	e6.0	29	49	9.1	164	46	2.4	.76
22	6.9	e14	e4.2	e4.2	e6.0	27	44	9.6	171	41	2.3	.64
23	6.7	e14	e4.2	e4.2	e6.0	28	41	9.1	148	37	1.9	.57
24	7.0	e12	e4.2	e4.2	e6.0	31	64	8.4	119	34	1.9	.56
25	7.1	e11	e4.2	e4.2	e6.4	36	78	9.8	99	31	2.0	.55
26	7.7	e10	e4.2	e4.2	e7.2	39	84	9.0	87	28	1.8	.64
27	8.8	e8.6	e4.2	e4.2	e10	34	73	9.4	87	25	1.9	.66
28	7.9	e7.5	e4.2	e4.2	e25	31	64	9.9	77	22	1.7	.66
29	10	e6.8	e4.2	e4.2	e50	29	55	8.6	68	22	1.7	.62
30	22	e6.2	e4.2	e4.2	---	30	49	7.4	66	19	1.6	.66
31	17	---	e4.2	e4.4	---	28	---	6.1	---	17	1.4	---
TOTAL	292.3	298.2	142.4	130.4	238.8	1551	1162	497.4	1603.4	1950	172.0	64.32
MEAN	9.43	9.94	4.59	4.21	8.23	50.0	38.7	16.0	53.4	62.9	5.55	2.14
MAX	22	14	5.7	4.4	50	129	84	43	178	204	16	7.3
MIN	6.7	6.2	4.2	4.2	4.6	27	21	6.1	2.2	17	1.4	.55
AC-FT	580	591	282	259	474	3080	2300	987	3180	3870	341	128
CFSM	.02	.02	.01	.01	.02	.11	.09	.04	.12	.14	.01	.00
IN.	.02	.02	.01	.01	.02	.13	.10	.04	.13	.16	.01	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1992, BY WATER YEAR (WY)

MEAN	3.60	4.43	2.34	1.11	2.36	94.8	197	82.2	72.7	38.0	8.03	3.56
MAX	40.7	34.7	10.8	4.25	21.8	573	1321	531	355	430	89.5	34.2
(WY)	1943	1958	1958	1947	1976	1943	1952	1962	1942	1962	1991	1942
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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1940 - 1992
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ANNUAL TOTAL	21252.00		8102.22					
ANNUAL MEAN	58.2		22.1			42.5a		
HIGHEST ANNUAL MEAN						153		1962
LOWEST ANNUAL MEAN						1.37		1981
HIGHEST DAILY MEAN	712	Jun 22	204	Jul 13		4400	Apr 8	1952
LOWEST DAILY MEAN	.39	Jan 8	.55	Sep 25		.00	Jan 1	1940
ANNUAL SEVEN-DAY MINIMUM	.45	Jan 2	.61	Sep 23		.00	Jan 1	1940
INSTANTANEOUS PEAK FLOW			271	Jul 13		4730	Apr 8	1952
INSTANTANEOUS PEAK STAGE			4.03	Jul 13		13.35	Mar 25	1943b
ANNUAL RUNOFF (AC-FT)	42150		16070			30800		
ANNUAL RUNOFF (CFSM)	.13		.050			.095		
ANNUAL RUNOFF (INCHES)	1.77		.67			1.29		
10 PERCENT EXCEEDS	204		64			90		
50 PERCENT EXCEEDS	13		8.1			2.6		
90 PERCENT EXCEEDS	.69		2.6			.30		

e Estimated

a Median of annual mean discharges, 30 ft³/s.

b From floodmarks (backwater from ice).

MINNESOTA RIVER BASIN

33

05292704 NORTH FORK YELLOW BANK RIVER NEAR ODESSA, MN

LOCATION.--Lat 45°11'21", long 96°24'54", in NW1/4NW1/4SW1/4 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, 6.4 mi southwest of Odessa, and 2.9 mi upstream from mouth.

DRAINAGE AREA.--Undetermined.

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.0	e7.0	e3.5	e7.5	e12	e70	18	22	7.5	465	24	e5.0
2	e4.5	e6.0	e3.5	e8.0	e15	e60	17	19	7.4	799	22	e6.0
3	e4.0	e6.0	e3.0	e8.0	e18	e50	16	17	7.2	632	21	e5.0
4	e4.2	e6.0	e3.0	e8.0	e20	e45	16	15	7.6	405	21	e4.0
5	e4.4	e6.0	e3.0	e8.0	e25	e40	16	14	5.9	226	22	e4.0
6	e4.8	e5.6	e3.5	e7.5	e24	53	17	13	6.3	153	22	e5.0
7	e5.0	e5.2	e4.0	e7.0	e20	75	17	12	5.4	117	23	e7.0
8	e5.3	e5.3	e4.5	e7.0	e18	94	17	11	6.9	95	22	e10
9	e5.8	e6.0	e5.0	e6.0	e16	74	17	11	7.3	79	22	e15
10	e6.0	e6.0	e5.5	e7.0	e15	e55	17	9.5	6.4	75	20	e14
11	e6.2	e6.5	e6.0	e7.0	e14	e40	18	8.8	6.9	98	17	e12
12	e6.4	e7.0	e6.5	e7.0	e14	e33	17	8.3	7.6	96	e15	e10
13	e6.6	e7.0	e6.0	e7.0	e13	e31	16	8.0	7.1	89	e14	e9.0
14	e6.8	e7.0	e6.5	e5.0	e13	e29	18	7.5	7.4	96	e13	e8.0
15	e7.0	e6.5	e6.0	e4.0	e12	e28	16	7.1	6.2	84	e10	e7.0
16	e7.2	e6.0	e7.0	e5.0	e12	27	16	7.4	110	69	e9.0	e6.0
17	e7.5	e5.5	e6.5	e5.0	e14	27	16	7.1	958	61	e8.0	e5.5
18	e7.8	e5.5	e5.9	e4.0	e17	23	17	6.6	1810	53	e7.0	e5.0
19	e8.2	e5.5	e6.0	e5.0	e17	21	21	6.7	e1000	47	e6.5	e5.0
20	e8.6	e5.5	e6.5	e5.5	e16	21	24	6.6	e700	42	e6.3	e4.5
21	e9.0	e6.0	e7.0	e6.0	e15	22	31	5.9	459	39	e6.3	e4.0
22	e8.5	e6.0	e7.0	e7.0	e14	21	28	5.3	257	39	e6.4	e4.0
23	e8.0	e5.0	e7.0	e7.0	e13	20	26	4.8	209	40	e6.7	e4.0
24	e8.0	e4.0	e7.0	e6.0	e11	22	29	4.7	156	52	e7.0	e4.0
25	e8.2	e4.0	e7.0	e6.0	e10	25	34	5.3	116	49	e8.0	e4.0
26	e8.4	e4.0	e7.0	e6.5	e13	26	38	5.2	148	43	e9.0	e4.0
27	e9.0	e4.5	e7.0	e7.0	e20	26	36	5.6	117	38	e8.8	e4.0
28	e9.2	e4.5	e7.0	e7.0	e50	24	32	5.8	78	34	e8.0	e4.0
29	e10	e4.5	e7.0	e8.0	e100	22	29	7.4	61	30	e7.0	e4.0
30	e8.5	e4.0	e7.0	e9.0	---	21	25	8.0	78	28	e6.0	e4.0
31	e7.5	---	e7.0	e10	---	19	---	7.6	---	26	e5.5	---
TOTAL	215.6	167.6	179.4	207.0	571	1144	655	283.2	6360.1	4199	403.5	187.0
MEAN	6.95	5.59	5.79	6.68	19.7	36.9	21.8	9.14	212	135	13.0	6.23
MAX	10	7.0	7.0	10	100	94	38	22	1810	799	24	15
MIN	4.0	4.0	3.0	4.0	10	19	16	4.7	5.4	26	5.5	4.0
AC-FT	428	332	356	411	1130	2270	1300	562	12620	8330	800	371

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1992, BY WATER YEAR (WY)

	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
MEAN	6.95	5.59	5.79	6.68	19.7	36.9	21.8	18.5	209	123	73.4	11.0
MAX	6.95	5.59	5.79	6.68	19.7	36.9	21.8	28.0	212	135	134	15.7
(WY)	1992	1992	1992	1992	1992	1992	1992	1991	1992	1992	1991	1991
MIN	6.95	5.59	5.79	6.68	19.7	36.9	21.8	9.14	205	111	13.0	6.23
(WY)	1992	1992	1992	1992	1992	1992	1992	1992	1991	1991	1992	1992

SUMMARY STATISTICS

FOR 1992 WATER YEAR

WATER YEARS 1991 - 1992

ANNUAL TOTAL	14572.4		
ANNUAL MEAN	39.8		39.8
HIGHEST ANNUAL MEAN			39.8
LOWEST ANNUAL MEAN			39.8
HIGHEST DAILY MEAN	1810	Jun 18	1810
LOWEST DAILY MEAN	3.0	Dec 3a	3.0
ANNUAL SEVEN-DAY MINIMUM	3.4	Nov 30	3.4
INSTANTANEOUS PEAK FLOW	2020	Jun 18	2020
INSTANTANEOUS PEAK STAGE	13.32	Jun 18	13.32
ANNUAL RUNOFF (AC-FT)	28900		28840
10 PERCENT EXCEEDS	61		126
50 PERCENT EXCEEDS	8.2		15
90 PERCENT EXCEEDS	4.8		5.2

e Estimated

a Also Dec. 4, 5, 1991.

05299700 COBB CREEK NEAR GARY, SD

LOCATION.--Lat 44°44'22", long 96°27'26", in NW1/4NW1/4SW1/4 sec.27, T.115 N., R.47 W., Deuel County, Hydrologic Unit 0702003, on right bank at upstream side of county highway bridge, 2.78 mi downstream from mouth of North Branch Cobb Creek, 0.32 mi upstream from South Dakota-Minnesota State line, and 3.5 mi south of Gary.

DRAINAGE AREA.--69.4 mi².

PERIOD OF RECORD.--May to September 1992.

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. 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, 860 ft³/s, June 17, gage height, 12.09 ft; minimum daily discharge, 1.7 ft³/s, June 4, 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	1.8	76	21	e20
2	---	---	---	---	---	---	---	---	1.8	123	19	e19
3	---	---	---	---	---	---	---	---	1.8	96	17	e18
4	---	---	---	---	---	---	---	---	1.7	66	15	e17
5	---	---	---	---	---	---	---	---	1.8	50	14	e19
6	---	---	---	---	---	---	---	---	2.4	40	14	e22
7	---	---	---	---	---	---	---	---	2.6	33	15	e22
8	---	---	---	---	---	---	---	---	2.6	30	16	e20
9	---	---	---	---	---	---	---	---	3.2	29	14	e18
10	---	---	---	---	---	---	---	---	2.7	37	13	16
11	---	---	---	---	---	---	---	---	2.5	37	11	16
12	---	---	---	---	---	---	---	---	1.8	35	10	13
13	---	---	---	---	---	---	---	---	1.7	36	10	12
14	---	---	---	---	---	---	---	---	1.8	38	9.8	12
15	---	---	---	---	---	---	---	---	3.2	37	8.7	11
16	---	---	---	---	---	---	---	---	54	39	8.4	11
17	---	---	---	---	---	---	---	---	594	40	7.9	11
18	---	---	---	---	---	---	---	---	289	39	7.4	10
19	---	---	---	---	---	---	---	---	220	40	7.1	9.8
20	---	---	---	---	---	---	---	---	226	37	6.9	8.7
21	---	---	---	---	---	---	---	---	272	32	6.7	8.4
22	---	---	---	---	---	---	---	---	242	36	6.7	7.6
23	---	---	---	---	---	---	---	---	187	60	6.2	7.9
24	---	---	---	---	---	---	---	---	146	60	12	6.4
25	---	---	---	---	---	---	---	---	128	47	22	6.2
26	---	---	---	---	---	---	---	---	102	40	25	5.7
27	---	---	---	---	---	---	---	---	81	33	20	5.7
28	---	---	---	---	---	---	---	2.0	63	29	17	5.1
29	---	---	---	---	---	---	---	2.0	48	27	e16	4.9
30	---	---	---	---	---	---	---	1.8	41	26	e16	4.7
31	---	---	---	---	---	---	---	1.8	---	24	e15	---
TOTAL	---	---	---	---	---	---	---	---	2726.4	1372	407.8	368.1
MEAN	---	---	---	---	---	---	---	---	90.9	44.3	13.2	12.3
MAX	---	---	---	---	---	---	---	---	594	123	25	22
MIN	---	---	---	---	---	---	---	---	1.7	24	6.2	4.7
AC-FT	---	---	---	---	---	---	---	---	5410	2720	809	730

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

	---	---	---	---	---	---	---	---	90.9	44.3	13.2	12.3
MEAN	---	---	---	---	---	---	---	---	90.9	44.3	13.2	12.3
MAX	---	---	---	---	---	---	---	---	90.9	44.3	13.2	12.3
(WY)	---	---	---	---	---	---	---	---	1992	1992	1992	1992
MIN	---	---	---	---	---	---	---	---	90.9	44.3	13.2	12.3
(WY)	---	---	---	---	---	---	---	---	1992	1992	1992	1992

e Estimated

06334500 LITTLE MISSOURI RIVER AT CAMP CROOK, SD

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

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

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

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

GAGE.--Water-stage recorder. Datum of gage is 3,108.98 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.59	e.80	e2.3	e1.0	e2.5	3.1	1.2	2.4	e.94	1.0	11	.57
2	.59	e.90	e2.1	e1.1	e3.0	2.4	1.4	1.7	e.94	.60	7.1	.60
3	.42	e1.0	e1.5	e1.1	e2.4	2.3	1.7	e1.4	e.92	11	5.8	.82
4	.59	e1.2	e1.7	e1.2	e2.0	2.2	1.7	e1.2	e.92	156	8.3	.65
5	.66	e1.5	e1.9	e1.3	e1.8	2.4	1.4	e1.1	e.90	108	19	.71
6	.66	e1.5	e2.2	e1.4	e1.7	3.1	1.6	e1.0	e.88	89	11	.78
7	.74	e1.5	e2.1	1.4	e1.5	2.2	1.4	e.96	e.86	59	7.8	.83
8	.83	e1.8	e2.0	1.4	e1.4	2.3	1.4	e.94	e.84	40	5.7	.86
9	.83	e2.1	e1.9	e1.2	e1.5	2.2	1.4	e.92	e.82	56	3.5	.70
10	.74	e2.4	e1.8	e1.2	e1.5	2.2	1.7	e1.5	e.80	136	2.2	.59
11	.83	e3.0	e1.8	1.4	e1.3	2.1	1.7	e1.3	e.78	237	1.3	.62
12	.83	e4.0	e1.8	1.4	e1.4	2.1	1.6	e1.2	e.76	204	.78	.63
13	.74	e4.0	e1.7	e1.2	e1.6	2.0	1.5	e1.1	e.74	278	.73	.61
14	.83	e4.0	e1.7	e.94	e1.8	1.7	1.5	e1.0	e.72	526	.61	.50
15	.83	e3.8	e1.6	e.80	e1.9	1.8	1.4	e.97	e.70	548	.57	.61
16	.83	e3.2	e1.5	e.90	e1.9	1.8	1.5	e.95	.66	481	.54	.69
17	.83	e3.4	e1.5	e1.0	e1.9	1.7	2.8	e1.3	.53	337	.51	.67
18	1.0	e3.7	e1.6	e1.0	e1.9	1.9	2.1	e1.2	.45	216	.50	.63
19	1.2	e3.9	e1.6	e1.0	e1.8	2.0	12	e1.1	.42	200	.44	.73
20	1.2	e4.1	e1.5	e1.2	e2.0	1.8	16	e1.0	.37	140	.46	.55
21	1.0	e3.8	e1.4	e1.4	e2.0	1.8	7.5	e1.0	.33	99	.48	.60
22	1.2	e3.2	e1.5	e1.3	e2.2	1.9	153	e1.0	.33	99	.53	.60
23	e1.4	e2.9	e1.4	e1.3	e2.5	1.7	62	e.97	.37	77	.55	.54
24	1.8	e2.5	e1.4	e1.3	e2.9	1.6	21	e.95	.30	48	.57	.56
25	1.8	e2.7	e1.2	e1.3	3.1	1.6	16	e.95	.26	56	.54	1.3
26	1.6	e2.8	e1.1	e1.2	3.4	1.7	15	e.95	.28	57	.53	.84
27	e1.6	e2.9	e1.0	e1.1	3.6	1.8	18	e.90	.35	69	.49	.53
28	e1.4	e2.7	e1.0	e1.1	4.0	1.2	10	1.0	.31	36	.45	.53
29	e1.2	e2.6	e.96	e1.3	3.7	1.2	5.8	1.0	.37	28	.49	.53
30	e1.0	e2.3	e.90	e1.6	---	1.3	4.0	.95	.76	21	.46	.47
31	e.80	---	e1.0	e2.0	---	1.2	---	e.95	---	14	.53	---
TOTAL	30.57	80.20	48.66	38.04	64.2	60.3	369.3	34.86	18.61	4427.60	93.46	19.85
MEAN	.99	2.67	1.57	1.23	2.21	1.95	12.3	1.12	.62	143	3.01	.66
MAX	1.8	4.1	2.3	2.0	4.0	3.1	153	2.4	.94	548	19	1.3
MIN	.42	.80	.90	.80	1.3	1.2	1.2	.90	.26	.60	.44	.47
AC-FT	61	159	97	75	127	120	733	69	37	8780	185	39

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1904-1905, 1957-1992, BY WATER YEAR (WY)

	MEAN	61.4	10.2	6.16	7.10	52.1	317	203	346	262	89.3	42.4	34.9
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1904-1905, 1957-1992

ANNUAL TOTAL	5377.42	5285.65	
ANNUAL MEAN	14.7	14.4	
HIGHEST ANNUAL MEAN			120a
LOWEST ANNUAL MEAN			492
HIGHEST DAILY MEAN	276	May 18	4.68
LOWEST DAILY MEAN	.13	Aug 26	.00
ANNUAL SEVEN-DAY MINIMUM	.17	Aug 21	.00
INSTANTANEOUS PEAK FLOW		563	Jul 15
INSTANTANEOUS PEAK STAGE		5.41	Jul 15
ANNUAL RUNOFF (AC-FT)	10670	10480	86940
10 PERCENT EXCEEDS	38	13	220
50 PERCENT EXCEEDS	2.5	1.4	9.0
90 PERCENT EXCEEDS	.52	.56	1.0

e Estimated

a Median of annual mean discharges, 98 ft³/s.

b No flow at times in some years.

c Present datum.

06342500 MISSOURI RIVER AT BISMARCK, ND

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

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

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,618.28 ft above 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 ft³/s, July 13, 1975, gage height, 14.24 ft; maximum gage height, 14.58 ft, Dec. 18, 1979; backwater from ice.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12600	13800	e19000	e21000	e24000	e20000	15900	18700	21000	20700	21200	18700
2	14200	13500	e19000	e21000	e24000	e19000	17400	18800	20600	20700	21000	19000
3	14300	13700	e19000	e21000	e23000	e18000	17000	19500	20900	20500	20100	18900
4	14000	13100	e19000	e21000	e22000	16800	17900	19900	20800	20500	19300	18100
5	14300	12200	e19000	e21000	e21500	14200	17900	21300	20700	20300	19700	18900
6	14100	13100	e19000	e21500	e21000	12400	17600	21000	20500	20700	19600	18700
7	14200	14300	e19000	e22000	e21500	12200	17500	20900	20600	20600	19800	18700
8	14300	13700	e19000	e22500	e21500	11700	17500	19100	20500	20700	19600	19000
9	13700	13100	e19000	e22500	e21500	11100	16900	19900	20600	20500	19600	18900
10	12900	13300	e19000	e22500	e21500	11800	15800	22500	20700	20900	19300	18900
11	13900	12700	e19000	e23000	e21500	11500	15600	20400	20700	20700	19900	18400
12	14400	12800	e19000	e23000	e21000	12600	14900	21500	20700	20600	19500	18400
13	15000	13500	e19000	e23000	e21000	13200	15700	21200	20700	20800	19400	18600
14	15100	12600	e19000	e23000	e21000	14300	17000	21600	21000	20700	19300	17700
15	13900	13400	e19000	e23000	e20000	14200	17100	21700	21400	20700	19300	15500
16	13600	13300	e19000	e23500	e20000	14300	16600	21700	20900	20500	19500	12500
17	15000	12200	e19000	e24000	e20000	13700	16500	21300	21100	20400	19300	11100
18	14400	13400	e19000	e24000	e20000	14000	16400	21200	21100	20400	19100	11100
19	15400	13700	e19000	e24000	e20000	14900	17300	21300	20600	20700	19000	10500
20	17000	13300	e19000	e24000	e20000	13900	17300	20800	20300	20500	19200	11600
21	15800	14200	e20000	e24000	e20000	14800	16400	21400	20400	20800	19100	10400
22	14000	14100	e20000	e24000	e20000	14100	18200	21700	20500	20800	19200	10800
23	14600	16500	e20000	e24000	e20000	14400	17800	21300	20400	20800	19600	11000
24	14600	18800	e20000	e24000	e20000	14200	17900	21000	20400	20800	19500	11200
25	14200	19500	e20000	e24000	e20500	14100	17500	21400	20400	21100	19100	10200
26	14300	19700	e20000	e24000	e22000	13400	18200	21300	20200	21000	19100	11400
27	13800	19500	e20000	e24000	e23000	14300	18700	21200	20200	20800	18800	10500
28	11600	18400	e20500	e24000	e21500	14600	18300	21200	20400	21000	18900	10700
29	13200	20000	e20500	e24000	e20500	14300	18300	21200	20100	21000	18700	10700
30	12700	e19000	e21000	e24000	---	14100	18300	21100	20300	21300	18500	10800
31	14100	---	e21000	e24000	---	15200	---	21000	---	21000	18600	---
TOTAL	439200	444400	603000	714500	613500	441300	515400	648100	618700	642500	601800	440900
MEAN	14170	14810	19450	23050	21160	14240	17180	20910	20620	20730	19410	14700
MAX	17000	20000	21000	24000	24000	20000	18700	22500	21400	21300	21200	19000
MIN	11600	12200	19000	21000	20000	11100	14900	18700	20100	20300	18500	10200
AC-FT	871200	881500	1196000	1417000	1217000	875300	1022000	1286000	1227000	1274000	1194000	874500

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1992, BY WATER YEAR (WY)

	MEAN	20380	18710	16250	17620	19420	22010	25580	24770	34660	28800	22990	20450
MAX	38800	35040	31690	32350	34840	35980	90160	62990	79400	79720	57010	39700	
(WY)	1952	1979	1970	1969	1969	1939	1952	1928	1929	1928	1975	1975	
MIN	7521	6380	4486	3365	4241	6210	10510	9234	8445	10840	6249	4561	
(WY)	1935	1936	1938	1940	1938	1940	1966	1963	1960	1960	1934	1934	

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1928 - 1992
ANNUAL TOTAL	6916870	6723300	
ANNUAL MEAN	18950	18370	22450
HIGHEST ANNUAL MEAN			35630
LOWEST ANNUAL MEAN			13030
HIGHEST DAILY MEAN	32400	Apr 18	24000
LOWEST DAILY MEAN	9970	Sep 30	10200
ANNUAL SEVEN-DAY MINIMUM	10500	Sep 24	10800
INSTANTANEOUS PEAK FLOW			24000
INSTANTANEOUS PEAK STAGE			12.70a
ANNUAL RUNOFF (AC-FT)	13720000	13340000	16260000
10 PERCENT EXCEEDS	22200	21500	35700
50 PERCENT EXCEEDS	21000	19300	21200
90 PERCENT EXCEEDS	12200	13300	8600

e Estimated.

a Backwater from ice.

MISSOURI-OAHE RIVER BASIN

37

06354882 OAK CREEK NEAR WAKPALA, SD

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

DRAINAGE AREA.--356 mi², approximately.

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

GAGE.--Water-stage recorder. Elevation of gage is 1,690 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	e.00	e.40	e.85	e2.7	1.2	.43	.00	.00	.00	.00
2	.00	.00	e.00	e.45	e1.0	e3.0	1.3	.33	.00	.00	.00	.00
3	.00	.00	e.00	e.50	e1.3	e1.8	1.3	.28	.00	.00	.00	.00
4	.00	.00	e.00	e.50	e1.1	.99	1.1	.25	.00	.00	94	.00
5	.00	.00	e.00	e.49	e.90	1.0	1.1	.26	.00	.00	7.7	.00
6	.00	.00	e.00	e.47	e.80	1.2	1.1	.27	.00	.11	.00	.00
7	.00	.00	e.10	e.46	e.78	1.4	1.1	.26	.00	.08	.00	.00
8	.00	.00	.22	e.45	e.73	1.5	1.0	.23	.00	.34	.00	.00
9	.00	.00	.23	e.46	e.70	e1.4	1.0	.22	.00	.03	.00	.00
10	.00	.00	e.25	e.47	e.67	e1.6	.81	.16	.00	.00	.00	.00
11	.00	.00	e.25	e.50	e.64	1.9	.79	.13	.00	.00	.00	.00
12	.00	.00	e.25	e.50	e.60	2.1	.81	.09	.00	.00	.00	.00
13	.00	.00	e.25	e.47	e.61	2.1	.79	.04	.00	.63	.00	.00
14	.00	.00	e.25	e.46	e.63	1.8	.97	.02	.00	.76	.00	.00
15	.00	.00	e.22	e.40	e.66	1.9	.75	.00	.00	3.7	.00	.00
16	.00	.00	e.20	e.45	e.68	1.9	.61	.00	.00	.42	.00	.00
17	.00	.00	e.20	e.47	e.70	2.1	.48	.00	.00	.04	.00	.00
18	.00	.00	e.20	e.50	e.70	1.8	.64	.00	.00	.02	.00	.00
19	.00	.00	e.22	e.53	e.67	1.9	.73	.00	.00	.00	.00	.00
20	.00	.00	e.25	e.56	e.63	1.9	.73	.00	.00	.00	.00	.00
21	.00	.00	e.27	e.55	e.60	1.8	.71	.00	.00	.00	.00	.00
22	.00	.00	e.30	e.53	e.60	1.8	.71	.00	.00	.01	.00	.00
23	.00	.00	e.30	e.51	e.60	2.0	.69	.00	.00	.00	.00	.00
24	.00	.00	e.30	e.50	e.60	1.9	.63	.00	.00	.00	.00	.00
25	.00	.00	e.30	e.50	e.65	1.9	.53	.00	.00	.00	.00	.00
26	.00	.00	e.30	e.50	e.80	1.8	.51	.00	.00	.00	.00	.00
27	.00	.00	e.30	e.50	e1.6	1.8	.43	.00	.00	.00	.00	.00
28	.00	.00	e.31	e.50	e3.0	2.1	.37	.00	.00	.00	.00	.00
29	.00	.00	e.33	e.55	e2.5	1.9	.42	.00	.00	.00	.00	.00
30	.00	e.00	e.35	e.60	---	1.6	.41	.00	.00	.00	.00	.00
31	.00	---	e.36	e.70	---	1.4	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	6.51	15.43	26.30	55.99	23.72	2.97	0.00	6.14	101.70	0.00
MEAN	.000	.000	.21	.50	.91	1.81	.79	.096	.000	.20	3.28	.000
MAX	.00	.00	.36	.70	3.0	3.0	1.3	.43	.00	3.7	94	.00
MIN	.00	.00	.00	.40	.60	.99	.37	.00	.00	.00	.00	.00
AC-FT	.00	.00	13	31	52	111	47	5.9	.00	12	202	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1992, BY WATER YEAR (WY)

	MEAN	.10	.39	.57	.79	1.69	152	47.7	21.1	5.89	1.74	1.35	.15
MAX	.62	1.81	1.83	4.23	9.70	568	171	131	36.8	8.87	5.91	1.07	
(WY)	1987	1987	1987	1987	1987	1986	1987	1986	1991	1988	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1985 - 1992

ANNUAL TOTAL	1321.79	238.76	
ANNUAL MEAN	3.62	.65	19.6
HIGHEST ANNUAL MEAN			70.7
LOWEST ANNUAL MEAN			.65
HIGHEST DAILY MEAN	186	Jun 5	3200
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW		426	3780
INSTANTANEOUS PEAK STAGE		7.84	18.35
ANNUAL RUNOFF (AC-FT)	2620	474	14200
10 PERCENT EXCEEDS	5.5	1.3	11
50 PERCENT EXCEEDS	.00	.00	.19
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a No flow many days in each year.

b Gage height, 17.73 ft.

c 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 mi².

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 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	3.0	.89	.73	1.5	1.7	1.5	.06	.37	3.2	2.7	e.00
2	.09	e2.8	.93	.74	1.5	1.7	1.4	.03	.36	3.7	3.9	e.00
3	.09	e2.5	.82	.71	1.4	1.6	1.4	.04	.25	3.0	2.7	e.00
4	.10	e2.3	.95	.76	1.4	1.4	1.3	.09	.22	3.2	2.3	e.00
5	.11	e2.0	.97	.90	1.4	1.4	1.2	.14	.17	3.1	2.4	e.00
6	.13	e1.9	1.1	.94	e1.3	.94	1.2	.24	.12	2.8	1.9	e.00
7	.20	e1.8	1.3	.94	e1.1	.54	1.1	.30	.11	2.5	2.2	e.00
8	.26	e1.7	1.5	.89	e.95	.36	.98	.23	.11	3.0	3.2	e.00
9	.24	e1.7	1.4	.87	e.85	.63	.73	.20	.14	3.2	3.1	e.00
10	.22	e1.8	1.3	.84	e.80	.98	.95	.60	.19	2.6	2.4	e.00
11	.20	e2.0	1.3	.97	e.80	.72	.98	.97	.22	2.4	2.1	e.00
12	.24	e2.5	1.2	.97	e.80	.24	.97	.98	.22	2.6	1.6	e.00
13	.32	e2.4	.95	1.0	e.80	.41	.91	1.4	19	2.8	.94	e.00
14	.39	e2.3	.82	1.0	e.85	1.1	.92	1.3	38	2.7	.47	e.00
15	.39	e2.1	.66	.98	e.90	1.4	1.0	.99	6.9	1.7	.37	e.00
16	.48	e1.8	.55	.82	e.90	1.3	.49	1.1	7.0	1.0	e.30	e.00
17	.70	e1.5	.57	.91	e.90	1.3	.81	1.2	e5.0	1.2	e.20	e.00
18	.80	1.3	.56	.82	e.90	1.2	1.4	.86	e1.0	1.0	e.10	e.00
19	.94	1.2	.55	.79	e.90	1.2	2.1	.64	e.80	.70	e.08	e.00
20	.94	1.3	.71	.89	e.90	1.8	2.1	.62	e.70	.57	e.06	e.00
21	.95	1.3	.70	.97	e.90	2.2	1.7	.89	e.60	.81	e.05	e.00
22	.99	1.1	.72	1.1	e1.0	2.7	1.6	.86	e.50	2.7	e.04	e.00
23	1.2	1.0	.71	1.1	e1.2	2.4	1.2	.86	e.50	7.9	e.03	e.00
24	1.6	1.0	.72	1.3	e1.4	2.4	.42	.68	e.50	3.8	e.02	e.00
25	1.8	.97	.64	1.3	e1.6	2.1	.14	.69	e.45	3.4	e.01	e.00
26	1.9	1.0	.62	1.3	e1.7	1.9	.13	.76	e.45	3.1	e.00	e.00
27	2.2	1.0	.75	1.3	e1.7	1.7	.20	.73	e.60	2.5	e.00	e.00
28	2.6	.95	.84	1.3	1.7	1.7	.13	.54	e.70	1.8	e.00	e.00
29	2.6	.96	.76	1.3	1.6	1.7	.05	.30	e.80	1.7	e.00	e.00
30	2.8	.91	.86	1.3	---	1.8	.04	.16	.99	2.5	e.00	e.00
31	3.4	---	.82	1.5	---	1.6	---	.21	---	2.8	e.00	---
TOTAL	28.97	50.09	27.17	31.24	33.65	44.12	29.05	18.67	86.97	79.98	33.17	0.00
MEAN	.93	1.67	.88	1.01	1.16	1.42	.97	.60	2.90	2.58	1.07	.000
MAX	3.4	3.0	1.5	1.5	1.7	2.7	2.1	1.4	38	7.9	3.9	.00
MIN	.09	.91	.55	.71	.80	.24	.04	.03	.11	.57	.00	.00
AC-FT	57	99	54	62	67	88	58	37	173	159	66	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1908 - 1992, BY WATER YEAR (WY)

	MEAN	2.09	2.44	1.52	3.00	8.22	74.6	105	33.4	44.2	19.5	5.40	1.75
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1908 - 1992

ANNUAL TOTAL	366.17	463.08	25.0	
ANNUAL MEAN	1.00	1.27	143	1952
HIGHEST ANNUAL MEAN			.88	1988
LOWEST ANNUAL MEAN				
HIGHEST DAILY MEAN	9.0	May 30	38	Jun 14
LOWEST DAILY MEAN	.00	Jan 1	.00	Aug 26
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Aug 26
INSTANTANEOUS PEAK FLOW			113	Jun 13
INSTANTANEOUS PEAK STAGE			6.67	Jun 13
ANNUAL RUNOFF (AC-FT)	726	919	18110	17.10
10 PERCENT EXCEEDS	2.5	2.5	30	
50 PERCENT EXCEEDS	.56	.94	1.5	
90 PERCENT EXCEEDS	.00	.01	.20	

e Estimated

06355500 NORTH FORK GRAND RIVER NEAR WHITE BUTTE, SD

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

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

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

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

GAGE.--Water-stage recorder. Elevation of gage is 2,296 ft above 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 10 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. Flow regulated by Bowman-Haley Dam, capacity, 93,000 acre-ft, 71 mi upstream, beginning August 1966. Maximum discharge prior to October 1966, 30,900 ft³/s, Apr. 16, 1950, gage height, 20.0 ft, from floodmarks, from rating curve extended above 19,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times most years. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	2.9	1.4	4.4	4.3	2.9	1.3	.12	7.3	.42	.00
2	.00	.00	3.4	1.4	4.8	4.4	2.6	1.2	.12	6.5	.19	.00
3	.00	.00	e1.7	1.6	5.5	4.7	2.4	1.1	.11	6.2	.88	.00
4	.00	.00	.83	1.4	6.9	4.8	2.4	1.1	.04	5.9	4.0	.00
5	.00	.00	1.0	1.6	6.2	5.1	2.2	1.1	.02	5.6	3.4	.00
6	.00	.00	1.7	1.5	6.2	5.1	2.4	1.1	.00	4.9	2.4	.00
7	.00	.00	2.7	1.9	5.4	4.8	2.4	1.1	.00	3.5	2.8	.00
8	.00	.00	3.3	1.6	e5.4	4.1	2.4	1.1	.00	2.2	2.9	.00
9	.00	.00	3.7	1.4	5.4	2.9	2.4	.94	.00	2.0	2.6	.00
10	.00	.00	4.1	1.4	5.8	2.4	2.4	.99	.00	1.9	2.2	.00
11	.00	.00	4.0	1.7	e4.8	2.3	2.4	.92	.00	2.1	2.2	.00
12	.00	.00	3.9	1.8	3.9	2.1	2.4	.82	.00	2.5	2.1	.00
13	.00	.00	3.6	1.7	3.6	2.0	2.4	.75	.00	2.8	1.5	.00
14	.00	.00	2.4	1.9	3.9	1.5	2.2	1.0	.27	3.4	1.6	.00
15	.00	.00	2.1	e1.7	3.9	1.0	1.8	1.0	38	3.9	1.6	.00
16	.00	.00	2.7	e1.5	3.9	1.0	1.7	1.0	136	2.9	1.6	.03
17	.00	.00	2.4	e1.3	3.6	2.7	1.6	1.0	145	2.5	1.4	.03
18	.00	.00	1.9	e1.1	3.7	2.9	1.5	.93	96	2.4	.88	.00
19	.00	.00	2.2	.91	3.6	3.4	1.3	.80	73	2.2	.63	.00
20	.00	.00	2.3	1.3	3.6	3.0	1.3	.61	48	1.9	.42	.00
21	.00	.25	2.2	1.3	3.6	2.8	1.3	.40	33	2.2	.27	.00
22	.00	5.4	2.6	1.5	3.1	2.9	1.3	.25	22	2.8	.18	.00
23	.00	e6.0	2.7	1.4	3.6	2.7	1.3	.19	16	2.1	.09	.00
24	.00	e4.0	2.5	1.9	3.9	3.0	1.3	.16	10	1.6	.08	.00
25	.00	e3.0	2.1	1.5	3.9	2.9	1.2	.08	7.1	.91	.02	.00
26	.00	e3.5	2.0	2.1	4.2	2.1	1.2	.11	5.4	.57	.02	.00
27	.00	e4.0	1.7	2.7	4.5	2.3	1.1	.10	4.5	.55	.00	.00
28	.00	e3.5	1.8	2.9	4.2	2.9	1.2	.11	4.1	.28	.00	.00
29	.00	e2.7	1.9	3.1	4.2	2.9	1.3	.12	4.7	.44	.00	.00
30	.00	2.1	2.0	3.4	---	2.9	1.3	.12	10	.77	.00	.00
31	.00	---	1.5	3.8	---	2.9	---	.12	---	.68	.00	---
TOTAL	0.00	34.45	75.83	55.71	129.7	94.8	55.6	21.62	653.48	85.50	36.38	0.06
MEAN	.000	1.15	2.45	1.80	4.47	3.06	1.85	.70	21.8	2.76	1.17	.002
MAX	.00	6.0	4.1	3.8	6.9	5.1	2.9	1.3	145	7.3	4.0	.03
MIN	.00	.00	.83	.91	3.1	1.0	1.1	.08	.00	.28	.00	.00
AC-FT	.00	68	150	111	257	188	110	43	1300	170	72	.1

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1992, BY WATER YEAR (WY)*

	MEAN	7.13	7.39	4.53	7.62	12.8	157	119	89.4	60.4	20.1	6.20	2.88
MAX	72.1	56.9	21.2	61.1	102	964	627	414	229	120	58.6	27.1	
(WY)	1983	1983	1983	1973	1983	1978	1978	1982	1982	1969	1982	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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1967 - 1992*
ANNUAL TOTAL	1754.01	1243.13	
ANNUAL MEAN	4.81	3.40	41.4a
HIGHEST ANNUAL MEAN			160
LOWEST ANNUAL MEAN			2.72
HIGHEST DAILY MEAN	125	Jun 26	6030
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW		423	6710
INSTANTANEOUS PEAK STAGE		3.71	12.08
ANNUAL RUNOFF (AC-FT)	3480	2470	29990
10 PERCENT EXCEEDS	10	4.7	82
50 PERCENT EXCEEDS	.00	1.5	4.5
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

* Regulated period only (1967-92). See REMARKS.

a Median of annual mean discharges, 26 ft³/s.

b No flow at times in most years.

c Gage height, 11.63 ft.

d Backwater from ice.

GRAND-MOREAU RIVER BASIN

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 mi².

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 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 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	e.60	e1.2	e2.0	e6.0	2.9	2.1	2.6	2.3	35	2.5	1.2
2	1.6	e.50	e.80	e2.1	e5.2	2.5	2.2	2.5	3.7	13	1.9	1.2
3	1.6	e.40	e.60	e2.2	e4.6	2.9	2.3	2.6	3.0	3.9	1.6	1.2
4	2.0	e.60	e.80	e2.2	e4.0	3.0	2.3	2.5	2.1	2.6	17	1.2
5	1.8	e.90	e1.3	e2.4	e3.5	4.6	2.3	2.4	1.8	2.2	91	1.3
6	1.8	e1.4	e2.0	e2.0	e3.0	4.6	2.3	2.3	1.7	2.0	6.1	1.4
7	2.0	e2.0	e3.2	e1.7	e2.5	4.6	2.2	2.3	1.5	83	2.7	1.5
8	2.0	e3.0	4.6	e1.5	e2.0	4.1	2.1	2.2	1.5	38	1.9	1.5
9	1.9	e4.4	3.3	e1.6	e2.0	e3.7	1.7	2.2	1.6	15	1.7	1.5
10	2.0	e6.0	3.3	e1.8	e2.2	e3.2	1.8	5.8	1.4	16	1.5	1.3
11	1.9	e12	2.7	e2.0	e1.8	2.9	1.8	2.4	1.3	8.3	1.4	1.1
12	2.0	e14	2.7	e1.8	e2.0	2.7	2.0	3.0	1.3	6.2	1.4	1.2
13	2.1	e13	e2.4	e1.6	e2.3	2.6	2.3	2.4	12	11	1.4	1.2
14	1.9	e18	e2.0	e1.0	e2.6	2.4	2.1	2.2	20	7.7	1.1	1.0
15	2.1	e16	e2.0	e.60	e3.0	2.2	2.2	1.9	16	7.2	.99	1.2
16	2.1	e15	e2.3	e.80	3.3	2.3	2.8	6.1	177	6.5	1.0	1.1
17	2.1	14	e2.0	e.70	2.8	2.4	3.5	6.3	66	3.7	1.0	1.1
18	2.1	11	e2.0	e.70	2.5	2.4	5.1	4.9	9.6	2.5	.99	1.0
19	2.1	7.9	e2.0	e1.0	2.4	2.9	19	3.0	20	2.6	.97	1.1
20	2.2	6.5	e2.0	e1.5	2.4	2.8	26	2.2	17	3.9	.84	1.1
21	2.2	5.4	e2.5	e2.0	e2.2	2.7	7.0	1.9	4.3	18	.80	1.2
22	2.3	4.3	e3.0	e1.9	e2.6	2.5	4.4	2.0	2.8	82	.95	1.2
23	2.5	e3.0	e2.8	e1.8	2.9	2.2	5.6	1.9	2.4	15	1.0	1.2
24	2.7	e2.5	e2.6	e1.8	e3.2	2.2	11	1.9	2.4	6.0	1.1	1.3
25	2.8	e3.3	e2.4	e1.7	3.7	2.2	12	1.8	2.2	30	1.1	2.3
26	2.8	3.8	e2.2	e1.6	3.7	2.4	6.7	1.7	2.0	6.9	.95	1.6
27	2.5	3.5	e2.0	e1.5	4.7	2.3	4.1	1.7	2.0	4.0	.92	1.4
28	e1.0	3.3	e1.5	e1.7	5.6	2.4	3.6	1.7	5.0	2.6	.80	1.3
29	e.45	e2.5	e1.0	e2.0	7.5	2.3	3.1	1.6	4.9	2.4	.97	1.4
30	e.50	e1.7	e1.5	e2.9	---	2.5	2.8	1.7	20	2.8	1.0	1.4
31	e.55	---	e2.0	e4.0	---	2.0	---	5.0	---	2.8	1.2	---
TOTAL	59.20	180.50	66.70	54.10	96.2	87.4	148.4	84.7	408.8	442.8	149.78	38.7
MEAN	1.91	6.02	2.15	1.75	3.32	2.82	4.95	2.73	13.6	14.3	4.83	1.29
MAX	2.8	18	4.6	4.0	7.5	4.6	26	6.3	177	83	91	2.3
MIN	.45	.40	.60	.60	1.8	2.0	1.7	1.6	1.3	2.0	.80	1.0
AC-FT	117	358	132	107	191	173	294	168	811	878	297	77

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1992, BY WATER YEAR (WY)

	5.22	2.85	2.00	1.70	4.34	15.2	11.7	18.5	19.6	8.79	4.08	4.09
MEAN	5.22	2.85	2.00	1.70	4.34	15.2	11.7	18.5	19.6	8.79	4.08	4.09
MAX	41.5	6.02	4.25	5.36	31.4	117	65.6	85.4	113	61.9	18.1	23.5
(WY)	1972	1992	1983	1983	1986	1978	1975	1982	1963	1969	1981	1986
MIN	1.44	1.25	.75	.039	.000	2.45	3.00	1.45	2.15	.98	.93	.85
(WY)	1965	1974	1962	1960	1960	1965	1968	1958	1961	1961	1990	1975

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1955 - 1992

ANNUAL TOTAL	2056.95	1817.28	8.20a
ANNUAL MEAN	5.64	4.97	22.5
HIGHEST ANNUAL MEAN			2.59
LOWEST ANNUAL MEAN			
HIGHEST DAILY MEAN	509	May 31	1610
LOWEST DAILY MEAN	.30	Jan 4	.00
ANNUAL SEVEN-DAY MINIMUM	.30	Jan 4	.00
INSTANTANEOUS PEAK FLOW		466	2780
INSTANTANEOUS PEAK STAGE		6.57	9.01
ANNUAL RUNOFF (AC-FT)	4080	3600	5930
10 PERCENT EXCEEDS	6.1	7.8	9.7
50 PERCENT EXCEEDS	2.0	2.2	2.4
90 PERCENT EXCEEDS	.55	1.1	1.0

e Estimated

a Median of annual mean discharges, 6.9 ft³/s.

b No flow at times in 1956-58, 1960, 1962, 1965, 1972, 1990.

c From rating curve extended above 550 ft³/s on basis of slope-area measurement of peak flow.

GRAND-MOREAU RIVER BASIN

41

06356500 SOUTH FORK GRAND RIVER NEAR CASH, SD

LOCATION.--Lat 45°38'56", long 102°38'27", in SW1/4SW1/4 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 mi², 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	e7.0	e4.0	e3.4	e10	e23	10	15	8.9	80	16	6.0
2	6.3	e6.0	e3.0	e3.4	e10	e35	11	13	8.6	86	14	5.9
3	6.6	e2.4	e2.5	e3.6	e9.0	e23	11	11	8.9	86	13	5.7
4	7.0	2.5	e2.7	e3.8	e8.0	15	11	9.9	12	71	18	5.7
5	7.2	2.6	e3.0	e3.7	e7.0	15	11	9.3	9.1	40	15	5.5
6	7.3	2.6	e3.3	e3.6	e6.0	15	11	9.3	8.2	30	40	5.2
7	9.0	2.9	e3.5	e3.5	e5.8	14	11	8.6	9.0	25	59	e5.2
8	8.8	e5.0	e4.0	e3.5	e5.5	14	12	8.2	8.4	23	35	e7.6
9	8.7	e7.0	e4.3	e3.6	e5.2	13	11	7.5	8.0	42	25	8.0
10	8.0	e10	e4.6	e3.7	e5.0	14	11	11	7.9	82	18	6.9
11	8.5	e12	e4.6	e3.9	e5.5	13	12	12	7.8	91	14	6.6
12	7.7	e14	e4.5	e4.0	e6.0	12	e11	12	7.3	44	12	6.4
13	10	e16	e4.3	e3.6	e6.2	12	e10	12	7.1	37	11	6.7
14	8.6	e15	e4.2	e3.4	e6.8	11	13	11	26	28	9.5	6.2
15	7.7	e13	e4.0	e3.0	e7.0	11	14	9.2	74	27	8.9	6.3
16	9.0	e10	e3.8	e3.2	e7.0	11	14	9.9	66	25	8.3	6.3
17	9.7	e9.5	e3.8	e3.5	e7.0	10	14	9.7	182	26	7.7	6.3
18	8.9	e9.5	e4.0	e3.6	e6.8	9.9	16	9.6	244	20	7.5	6.3
19	8.6	e10	e4.2	e3.8	e6.7	10	16	9.3	115	17	7.5	6.4
20	9.3	e10	e4.4	e4.0	e6.5	10	16	10	49	14	7.0	6.3
21	9.1	e9.8	e4.5	e4.4	e6.5	10	16	10	38	12	6.5	6.1
22	10	e9.3	e4.3	e4.5	e6.8	10	24	9.7	38	12	6.5	5.9
23	8.3	e9.0	e4.0	e4.4	e7.0	10	25	8.4	34	12	6.7	6.0
24	8.6	e8.5	e4.0	e4.3	e7.2	11	22	7.6	25	22	7.1	6.3
25	9.0	e8.0	e4.0	e4.0	e7.5	10	21	7.0	20	39	6.9	6.5
26	10	e7.5	e3.7	e4.0	e8.0	10	20	6.4	17	110	7.0	6.7
27	11	e7.0	e3.5	e4.0	e9.0	10	23	6.5	17	69	7.2	7.1
28	e5.0	e6.5	e3.2	e4.5	e10	11	22	7.0	19	28	7.3	7.2
29	e8.0	e6.0	e3.0	e5.0	e16	10	17	6.8	22	27	7.2	8.1
30	e2.0	e5.0	e3.4	e6.0	---	10	16	6.7	113	31	6.5	7.9
31	e1.5	---	e3.5	e8.0	---	10	---	7.4	---	25	6.3	---
TOTAL	245.5	243.6	117.8	124.9	215.0	402.9	452	291.0	1210.2	1281	421.6	193.3
MEAN	7.92	8.12	3.80	4.03	7.41	13.0	15.1	9.39	40.3	41.3	13.6	6.44
MAX	11	16	4.6	8.0	16	35	25	15	244	110	59	8.1
MIN	1.5	2.4	2.5	3.0	5.0	9.9	10	6.4	7.1	12	6.3	5.2
AC-FT	487	483	234	248	426	799	897	577	2400	2540	836	383

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1992, BY WATER YEAR (WY)

	MEAN	21.5	11.7	6.45	6.61	20.3	143	171	75.1	76.2	34.0	19.6	14.7
MAX	135	26.6	20.5	64.1	267	807	2446	401	336	133	85.6	62.7	
(WY)	1983	1973	1973	1973	1972	1972	1952	1982	1967	1969	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1946 - 1992

ANNUAL TOTAL	7198.26	5198.8	
ANNUAL MEAN	19.7	14.2	50.0a
HIGHEST ANNUAL MEAN			221
LOWEST ANNUAL MEAN			10.1
HIGHEST DAILY MEAN	1190	Jun 1	15600
LOWEST DAILY MEAN	.00	Jan 3	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 3	.00
INSTANTANEOUS PEAK FLOW			27000
INSTANTANEOUS PEAK STAGE			15.40
ANNUAL RUNOFF (AC-FT)	14280	10310	36200
10 PERCENT EXCEEDS	28	25	70
50 PERCENT EXCEEDS	7.7	8.6	12
90 PERCENT EXCEEDS	.92	3.8	2.0

e Estimated

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

b No flow at times in most years.

c From rating curve extended above 14,000 ft³/s on basis of slope-area measurement of peak flow.

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 mi², 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). Surge, 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, 52,000 acre-ft, July 31, elevation, 2,265.54 ft; minimum, 46,100 acre-ft, May 31, elevation, 2,264.13 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,265.18	50,500	-
Oct. 31	2,264.72	48,600	-1,900
Nov. 30	2,264.60	48,100	-700
Dec. 31	2,264.53	47,800	-300
CAL YR 1991	-	-	-5,000
Jan. 31	2,264.39	47,200	-600
Feb. 29	2,264.39	47,200	0
Mar. 31	2,264.46	47,500	+300
Apr. 30	2,264.38	47,200	-300
May 31	2,264.17	46,300	-900
June 30	2,264.96	49,600	+3,300
July 31	2,265.54	52,000	+2,400
Aug. 31	2,265.26	50,800	-1,200
Sept. 30	2,264.79	48,900	-1,900
WTR YR 1992	-	-	-1,800

06357500 GRAND RIVER AT SHADEHILL, SD

LOCATION.--Lat 45°45'23", long 102°11'44", in NW1/4NW1/4 sec.30, T.21 N., R.16 E., Perkins County, Hydrologic Unit 10130303, on left bank 0.2 mi downstream from Shadehill Dam, 1.1 mi southwest of Shadehill, and 12.0 mi southwest of Lemmon.

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

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1943 to September 1988, April 1991 to September 1992 (discontinued). Records for July 1904 to October 1906 collected at site 4 mi upstream and published as "at Seim" in WSP 130, 172, and 208 have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1279: 1943(M). See also Period of Record. WDR SD-85-1: Location.

GAGE.--Water-stage recorder. Datum of gage is 2,192.48 ft above sea level. Prior to Aug. 31, 1947, nonrecording gage, and Aug. 31, 1947, to Oct. 24, 1958, water-stage recorder at site 0.8 mi downstream at datum 6.02 ft lower. Oct. 25, 1958, to Sept. 30, 1988, water-stage recorder at same site and datum.

REMARKS.--Records good. Flow completely regulated by Shadehill Dam since July 1, 1950. (See station 06357000.) Maximum discharge prior to regulation, 58,000 ft³/s, Apr. 16, 1950, gage height, 21.0 ft, from floodmarks upstream from bridge; 19.06 ft, from floodmark in gage well, unreliable, site and datum then in use; no flow for many days in some years.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	11	e13	15	12	11	11	19	13	14	15	15
2	19	e10	e13	14	12	12	11	14	13	15	16	15
3	19	e10	e13	13	12	11	12	15	13	15	16	15
4	19	e10	e14	13	12	11	11	15	13	15	17	15
5	18	e10	e14	13	13	11	12	15	13	15	16	15
6	18	e10	e14	13	13	11	12	14	13	14	16	15
7	18	e10	e15	13	13	11	15	13	13	14	15	16
8	18	11	e15	13	13	11	19	13	13	14	16	16
9	19	11	17	12	13	11	21	13	13	14	15	16
10	19	11	16	12	12	11	21	12	13	15	15	17
11	19	11	e14	12	e13	11	21	11	13	15	15	17
12	18	11	17	11	13	11	21	11	13	15	15	17
13	19	12	e15	11	12	11	21	11	13	15	15	17
14	19	12	e15	e10	12	11	21	11	14	14	16	17
15	17	12	e16	e10	12	11	22	11	14	16	15	17
16	15	12	18	e10	12	11	23	11	13	15	13	17
17	13	12	18	e10	12	11	23	10	14	18	14	17
18	11	12	e16	11	12	11	22	9.8	14	15	15	16
19	11	12	18	11	12	10	22	10	14	14	17	16
20	11	12	17	11	12	10	22	10	14	14	15	16
21	11	13	16	11	12	11	22	11	14	15	13	17
22	11	13	16	12	12	10	22	11	15	16	14	18
23	12	13	16	13	12	11	22	11	15	15	15	18
24	12	13	15	12	11	11	22	11	15	15	15	18
25	12	13	16	12	11	9.6	21	12	15	15	15	15
26	12	14	16	12	11	9.9	22	12	15	15	17	13
27	12	15	16	12	11	9.8	21	12	15	16	16	13
28	12	15	16	12	11	10	21	12	16	16	16	13
29	12	e12	16	12	11	10	21	12	16	16	15	14
30	11	e12	15	12	---	10	21	13	15	16	15	13
31	11	---	15	12	---	11	---	13	---	16	15	---
TOTAL	467	355	481	370	349	332.3	578	378.8	417	467	473	474
MEAN	15.1	11.8	15.5	11.9	12.0	10.7	19.3	12.2	13.9	15.1	15.3	15.8
MAX	19	15	18	15	13	12	23	19	16	18	17	18
MIN	11	10	13	10	11	9.6	11	9.8	13	14	13	13
AC-FT	926	704	954	734	692	659	1150	751	827	926	938	940

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1988, 1992, BY WATER YEAR (WY)*

	MEAN	50.7	41.0	34.7	34.1	32.8	113	259	128	133	66.5	58.0	55.2
MAX	228	203	98.8	105	95.6	980	3826	848	868	214	148	166	
(WY)	1980	1961	1972	1983	1973	1972	1952	1982	1953	1978	1984	1979	
MIN	.43	.000	.000	.000	.000	.32	.69	.44	.52	.30	.98	.75	
(WY)	1952	1978	1951	1951	1951	1952	1951	1951	1951	1951	1951	1951	1951

SUMMARY STATISTICS

FOR 1992 WATER YEAR

WATER YEARS 1951 - 1988, 1992*

ANNUAL TOTAL	5142.1		
ANNUAL MEAN	14.0		85.1a
HIGHEST ANNUAL MEAN			380
LOWEST ANNUAL MEAN			.51
HIGHEST DAILY MEAN	23	Apr 16b	5140
LOWEST DAILY MEAN	9.6	Mar 25	.00
ANNUAL SEVEN-DAY MINIMUM	10	Mar 24	.00
INSTANTANEOUS PEAK FLOW	97	Jul 17	5150
INSTANTANEOUS PEAK STAGE	3.38	Jul 17	10.45
ANNUAL RUNOFF (AC-FT)	10200		61650
10 PERCENT EXCEEDS	18		116
50 PERCENT EXCEEDS	13		35
90 PERCENT EXCEEDS	11		7.5

e Estimated

* Regulated period only (1951-88, 1992). See REMARKS.

a Median of annual mean discharges, 53 ft³/s.

b Also Apr. 17.

c No flow many days in some years.

d Site and datum then in use.

06357500 GRAND RIVER AT SHADEHILL, SD--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

GRAND-MOREAU RIVER BASIN

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06357800 GRAND RIVER AT LITTLE EAGLE, SD

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

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

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

GAGE.--Water-stage recorder. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	e5.0	e2.5	e3.2	e7.0	e500	20	17	6.6	173	28	10
2	11	e4.0	e2.2	e3.5	e10	e400	20	16	5.9	1280	138	9.8
3	12	e3.5	e2.0	e3.8	e15	e330	20	16	5.6	638	101	8.5
4	12	e3.0	e2.2	e4.0	e20	259	20	16	10	366	256	8.3
5	12	e2.6	e2.5	e4.0	e25	193	19	15	6.7	211	314	7.3
6	12	e2.5	e3.0	e4.0	e30	160	19	14	4.6	130	399	7.2
7	13	e2.5	e3.8	e3.9	e29	139	17	14	4.8	101	389	6.9
8	14	e2.8	e4.5	e3.6	e27	130	18	14	5.2	79	235	7.6
9	14	e3.2	e4.2	e3.3	e26	87	18	13	5.1	104	110	8.0
10	13	e3.8	e4.0	e3.0	e25	e70	17	11	5.6	69	61	8.1
11	13	e4.2	e3.8	e3.0	e24	75	16	11	4.8	56	45	8.0
12	13	e5.0	e3.6	e3.0	e25	59	17	11	4.0	72	31	8.6
13	13	e4.9	e3.4	e3.0	e26	47	15	10	3.5	92	24	8.5
14	12	e4.7	e3.2	e2.8	e27	39	16	11	5.8	96	19	8.3
15	13	e4.5	e3.0	e2.5	e28	38	18	11	39	141	16	8.0
16	13	e4.5	e3.2	e2.8	e29	35	20	13	237	154	15	8.2
17	13	e4.8	e3.4	e3.0	e30	31	23	16	241	118	14	7.8
18	13	e5.0	e3.6	e3.3	e30	e29	21	15	619	89	13	7.4
19	13	e4.8	e3.7	e3.7	e29	28	25	13	697	74	10	7.8
20	13	e4.5	e3.9	e4.0	e29	26	25	11	432	54	11	8.0
21	14	e4.2	e4.0	e4.0	e28	27	24	9.6	318	42	10	7.8
22	14	e4.0	e3.9	e3.9	e28	25	24	13	189	40	9.2	7.5
23	14	e4.0	e3.8	e3.8	e28	26	25	9.9	117	31	9.4	7.3
24	12	e4.0	e3.8	e3.6	e28	28	25	9.1	85	28	8.8	7.3
25	11	e4.0	e3.7	e3.5	e30	27	25	7.9	61	73	8.5	7.1
26	10	e4.0	e3.6	e3.5	e60	26	22	7.3	50	91	8.8	7.5
27	11	e3.6	e3.5	e3.5	e140	25	21	6.7	46	57	12	7.3
28	11	e3.2	e3.4	e3.7	e270	24	20	6.7	44	41	18	8.0
29	e9.0	e3.0	e3.3	e4.0	e550	23	20	8.3	46	32	15	8.0
30	e7.0	e2.8	e3.1	e4.5	---	22	19	8.6	100	102	13	8.3
31	e6.0	---	e3.0	e5.0	---	20	---	7.5	---	42	11	---
TOTAL	373.0	116.6	104.8	110.4	1653.0	2948	609	362.6	3399.2	4676	2352.7	238.4
MEAN	12.0	3.89	3.38	3.56	57.0	95.1	20.3	11.7	113	151	75.9	7.95
MAX	14	5.0	4.5	5.0	550	500	25	17	697	1280	399	10
MIN	6.0	2.5	2.0	2.5	7.0	20	15	6.7	3.5	28	8.5	6.9
AC-FT	740	231	208	219	3280	5850	1210	719	6740	9270	4670	473

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1992, BY WATER YEAR (WY)

	MEAN	80.2	52.0	30.6	49.3	74.9	798	533	460	311	137	88.3	78.2
MAX	231	204	103	867	782	3866	3183	2292	1045	608	234	249	
(WY)	1980	1961	1983	1973	1973	1987	1978	1986	1967	1969	1962	1973	
MIN	2.92	2.14	.000	.000	.000	18.2	10.3	5.45	20.5	10.8	.000	1.44	
(WY)	1959	1960	1960	1959	1959	1981	1981	1981	1989	1991	1959	1958	

SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1959 - 1992

ANNUAL TOTAL	24304.61	16943.7	
ANNUAL MEAN	66.6	46.3	226a
HIGHEST ANNUAL MEAN			745
LOWEST ANNUAL MEAN			46.3
HIGHEST DAILY MEAN	2000	May 24	26500
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW			1600
INSTANTANEOUS PEAK STAGE			5.12
ANNUAL RUNOFF (AC-FT)	48210	33610	163700
10 PERCENT EXCEEDS	91	103	409
50 PERCENT EXCEEDS	9.5	13	59
90 PERCENT EXCEEDS	1.5	3.5	3.4

a Estimated

a Median of annual mean discharges, 160 ft³/s.

b No flow at times in most years.

c Gage height, 19.16 ft.

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

GRAND-MOREAU RIVER BASIN

06359500 MOREAU RIVER NEAR FAITH, SD

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

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

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

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

GAGE.--Water-stage recorder. Datum of gage is 2,238.68 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	e1.3	e5.0	e6.0	e10	e28	4.4	7.9	3.8	4.0	87	2.9
2	.01	e1.2	e6.0	e6.5	e10	e25	4.5	7.9	3.7	1.4	54	3.5
3	.00	e1.0	e5.0	e7.0	e10	e23	4.1	7.4	4.1	203	39	2.8
4	.00	e1.5	e5.0	e7.0	e9.6	20	4.5	7.0	3.3	134	34	3.4
5	.00	e2.0	e6.0	e7.0	e9.0	24	4.7	5.7	3.4	62	37	4.2
6	.00	e1.8	e7.0	e6.0	e9.1	22	4.7	4.5	5.0	35	109	3.4
7	.00	e1.5	e8.0	e5.0	e9.0	18	4.2	3.9	10	185	68	4.2
8	.00	e2.0	e8.0	e5.0	e8.5	17	3.9	2.9	9.8	265	72	4.4
9	.00	e6.0	e7.0	e5.5	e8.0	e14	4.5	2.2	8.5	232	50	4.0
10	.00	e5.0	e8.0	e6.0	e8.0	e12	4.5	6.7	6.8	147	44	3.0
11	.00	e8.0	e8.0	e6.5	e7.5	12	4.9	11	4.8	169	35	2.4
12	.00	e9.0	e8.0	e6.8	e7.0	12	4.3	5.3	2.9	334	28	2.3
13	.00	e14	e7.0	e7.0	e8.0	11	4.8	5.3	2.7	413	21	1.9
14	.00	e20	e6.0	e6.0	e8.0	9.9	4.6	5.5	13	1250	16	1.6
15	.00	e25	e7.0	e5.0	e8.0	9.2	4.8	5.4	78	596	13	1.3
16	.00	e22	e8.0	e5.5	e8.0	8.8	5.8	17	223	280	11	1.5
17	.00	e35	e7.0	e6.0	e8.0	8.8	5.4	15	67	168	9.2	1.2
18	.00	e50	e7.0	e7.0	e8.5	8.7	6.0	12	60	113	7.3	.78
19	.00	e45	e7.0	e8.0	e9.0	8.3	6.5	11	40	83	6.2	.74
20	.00	e46	e7.0	e9.0	e10	8.2	6.1	8.5	31	62	5.9	.77
21	.05	e55	e8.0	e10	e10	8.5	5.3	7.3	26	69	5.6	.70
22	1.9	e40	e8.0	e9.0	e11	e8.0	5.0	9.7	15	140	5.3	.49
23	1.8	e30	e7.0	e8.5	e11	7.9	5.6	18	7.8	134	7.0	.40
24	2.6	e20	e7.0	e8.0	e10	7.2	6.8	15	4.5	92	12	.34
25	3.0	e12	e7.0	e8.0	e18	7.0	7.6	19	2.8	57	9.7	.27
26	4.2	e11	e7.0	e8.0	e30	6.3	11	17	1.5	39	8.5	.25
27	4.9	e9.0	e7.0	e8.0	e50	5.8	9.7	11	1.0	30	7.7	.22
28	e3.0	e8.0	e6.0	e8.0	e40	5.6	8.9	8.4	.72	23	7.2	.23
29	e1.8	e7.0	e6.0	e8.5	e35	5.1	7.4	6.1	5.5	61	7.0	.18
30	e1.0	e5.0	e6.0	e9.0	---	4.7	7.6	4.4	3.2	177	5.3	.19
31	e1.2	---	e6.0	e9.5	---	4.8	---	3.6	---	94	4.1	---
TOTAL	25.50	494.3	212.0	222.3	388.2	370.8	172.1	271.6	648.82	5652.4	826.0	53.56
MEAN	.82	16.5	6.84	7.17	13.4	12.0	5.74	8.76	21.6	182	26.6	1.79
MAX	4.9	55	8.0	10	50	28	11	19	223	1250	109	4.4
MIN	.00	1.0	5.0	7.0	4.7	3.9	2.2	.72	1.4	1.4	4.1	.18
AC-FT	51	980	421	441	770	735	341	539	1290	11210	1640	106

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1992, BY WATER YEAR (WY)

MEAN	31.6	11.9	5.91	6.80	39.5	360	394	260	281	106	29.6	16.3
MAX	463	90.8	23.4	99.0	606	2757	4355	2203	1850	880	207	262
(WY)	1983	1947	1987	1973	1947	1978	1952	1982	1944	1969	1951	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1943 - 1992

ANNUAL TOTAL	9704.03	9337.58	129a
ANNUAL MEAN	26.6	25.5	485
HIGHEST ANNUAL MEAN			7.60
LOWEST ANNUAL MEAN			25300
HIGHEST DAILY MEAN	684	Jun 1	1250
LOWEST DAILY MEAN	.00	Jan 7	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 7	.00
INSTANTANEOUS PEAK FLOW			1680
INSTANTANEOUS PEAK STAGE			6.38
ANNUAL RUNOFF (AC-FT)	19250	18520	20.9
10 PERCENT EXCEEDS	62	50	93460
50 PERCENT EXCEEDS	6.0	7.0	178
90 PERCENT EXCEEDS	.00	1.0	10

e Estimated

a Median of annual mean discharges, 90 ft³/s.

b No flow at times in most years.

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

d From floodmarks site and datum then in use.

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- e Estimated
- a Median of annual mean discharges, 110 ft³/s.
- b No flow at times in each year.
- c Gage height, 26.00 ft.
- d Backwater from ice.

GRAND-MOREAU RIVER BASIN

06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1968 to September 1969, October 1971 to September 1976, October 1977 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1970 to September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 20,300 mg/L, May 9, 1972; minimum daily mean, 0 mg/L on many days most years.

SEDIMENT LOAD: Maximum daily, 420,000 tons, May 10, 1975; minimum daily, 0 ton on many days each year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE	PH (STAND-ARD UNITS)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, (PER-CENT SATUR-ATION)	COLI-FORM, FECA, 0.7 UM-MF (COLS./100 ML)	
		(00061)	(00095)	(00400)	(39086)	(00020)	(00010)	(00076)	(00025)	(00300)	(00301)	(31625)	
APR 23...	1230	0.23	2300	8.5	323	4.5	5.5	21	--	--	--	K23	
JUN 26...	1210	49	655	8.5	--	23.0	23.0	770	716	7.4	92	1200	
DATE	TIME	STREP-TOCOCCI FECA, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	
		(31673)	(00900)	(00915)	(00925)	(00930)	(00932)	(00931)	(00935)	(90410)	(00945)	(00940)	(00950)
APR 23...	170		260	60	27	430	77	12	10	330	850	0.90	0.30
JUN 26...	2200		60	16	4.8	110	78	6	5.8	151	160	9.3	0.30
DATE	TIME	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
		(00955)	(70300)	(70301)	(70303)	(70302)	(00615)	(00613)	(00620)	(00618)	(00630)	(00631)	(00610)
APR 23...	1.9		1610	1580	2.19	1.0	0.030	<0.010	--	--	<0.050	<0.050	0.020
JUN 26...	5.9		435	406	0.59	57.6	0.080	0.060	0.530	0.550	0.610	0.610	0.050
DATE	TIME	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	BARIUM, DIS-SOLVED (UG/L AS BA)	COBALT, DIS-SOLVED (UG/L AS CO)	IRON, DIS-SOLVED (UG/L AS FE)	
		(00608)	(71846)	(00625)	(71887)	(00665)	(00666)	(70507)	(00671)	(01106)	(01005)	(01035)	(01046)
APR 23...	0.020		0.03	0.50	--	0.040	0.020	0.050	<0.010	<10	<100	<1	10
JUN 26...	0.050		0.06	2.5	14	0.900	0.070	0.060	0.070	130	52	<1	120
DATE	TIME	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
		(01130)	(01056)	(01060)	(01065)	(01145)	(01075)	(01080)	(01085)	(80154)	(80155)	(70331)	
APR 23...		170	30	5	6	2	<1.0	870	2	--	--	--	
JUN 26...		38	8	<10	7	1	<1.0	210	8	1710	226	100	

CHEYENNE RIVER BASIN

49

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

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

DRAINAGE AREA.--10.3 mi².

PERIOD OF RECORD.--October 1974 to September 1982 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. 30 to Nov. 8, Nov. 24, 25, Dec. 2-7, Dec. 12 to Jan. 22, and Feb. 5-8. Records good except those for estimated daily discharges, which are poor. No diversions upstream from station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	1.1	1.4	1.4	1.5	1.6	1.3	1.6	1.4	1.4	1.2	1.5
2	1.7	.97	1.5	1.5	1.6	1.6	1.3	1.5	1.4	1.5	1.3	1.4
3	1.8	1.2	1.5	1.6	1.6	1.6	1.3	1.5	1.3	1.4	1.4	1.4
4	1.8	1.4	1.7	1.6	1.5	1.7	1.3	1.5	1.3	1.4	1.3	1.4
5	1.7	1.6	1.7	1.6	1.5	1.7	1.3	1.5	1.4	1.4	1.3	1.3
6	1.8	1.5	1.8	1.6	1.5	1.7	1.3	1.5	1.4	1.4	1.4	1.4
7	1.8	1.5	1.9	1.5	1.4	1.7	1.2	1.5	1.4	1.4	1.3	1.4
8	1.7	1.6	1.8	1.4	1.5	1.6	1.2	1.5	1.3	1.3	1.3	1.3
9	1.7	1.8	1.7	1.5	1.6	1.4	1.2	1.6	1.3	1.3	1.3	1.3
10	1.7	1.7	1.7	1.6	1.6	1.4	1.3	1.7	1.3	1.4	1.3	1.4
11	1.7	1.7	1.5	1.5	1.6	1.5	1.4	1.5	1.4	1.4	1.3	1.3
12	1.8	1.7	1.4	1.4	1.6	1.5	1.3	1.5	1.3	1.7	1.3	1.3
13	1.7	1.7	1.4	1.2	1.6	1.4	1.3	1.5	1.3	1.6	1.3	1.3
14	1.7	1.7	1.2	1.3	1.6	1.4	1.3	1.5	1.4	1.5	1.3	1.2
15	1.7	1.7	1.3	1.4	1.6	1.4	1.3	1.5	1.8	1.4	1.3	1.2
16	1.7	1.7	1.4	1.6	1.6	1.5	1.3	1.5	1.5	1.4	1.4	1.1
17	1.7	1.7	1.4	1.4	1.6	1.5	1.3	1.5	1.6	1.4	1.3	1.1
18	1.7	1.7	1.4	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.3	1.1
19	1.7	1.7	1.4	1.7	1.4	1.4	1.5	1.5	1.5	1.4	1.4	1.1
20	1.8	1.7	1.4	1.6	1.6	1.4	1.5	1.4	1.6	1.4	1.3	1.1
21	1.8	1.8	1.5	1.5	1.6	1.4	1.9	1.4	1.6	1.5	1.3	1.0
22	1.8	1.7	1.5	1.6	1.6	1.2	1.6	1.6	1.5	1.4	1.4	1.0
23	1.8	1.7	1.5	1.7	1.6	1.4	1.6	1.5	1.4	1.4	1.8	1.1
24	1.8	1.4	1.5	1.7	1.5	1.3	1.5	1.3	1.4	1.3	1.4	1.1
25	1.8	1.7	1.5	1.7	1.6	1.3	1.5	1.3	1.4	1.3	1.3	1.1
26	1.8	1.8	1.5	1.6	1.7	1.2	1.6	1.4	1.5	1.3	1.4	1.0
27	1.8	1.7	1.5	1.6	1.6	1.3	1.7	1.4	1.4	1.3	1.2	1.0
28	1.8	1.7	1.5	1.6	1.6	1.2	1.7	1.4	1.4	1.3	1.1	1.0
29	1.7	1.7	1.5	1.6	1.7	1.2	1.6	1.3	1.4	1.2	1.1	1.2
30	1.5	1.3	1.4	1.6	---	1.2	1.6	1.5	1.3	1.2	1.3	1.0
31	1.1	---	1.3	1.6	---	1.2	---	1.4	---	1.2	1.4	---
TOTAL	53.3	47.87	46.7	47.8	45.6	44.4	42.7	45.8	42.7	42.9	41.0	36.1
MEAN	1.72	1.60	1.51	1.54	1.57	1.43	1.42	1.48	1.42	1.38	1.32	1.20
MAX	1.8	1.8	1.9	1.7	1.7	1.7	1.9	1.7	1.8	1.7	1.8	1.5
MIN	1.1	.97	1.2	1.2	1.4	1.2	1.2	1.3	1.3	1.2	1.1	1.0
AC-FT	106	95	93	95	90	88	85	91	85	85	81	72

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1992, BY WATER YEAR (WY)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	1.78	1.63	1.58	1.50	1.69	1.79	2.13	2.23	2.30	2.08	1.92	1.82						
MAX	2.32	2.35	2.23	2.17	2.51	2.70	3.41	3.44	4.05	3.09	2.89	2.78						
(WY)	1979	1981	1980	1979	1979	1979	1978	1978	1978	1979	1978	1978						
MIN	.31	.47	.44	.49	.46	.71	1.25	1.23	1.38	1.38	.75	.62						
(WY)	1977	1977	1977	1977	1977	1977	1977	1977	1977	1992	1976	1976						

SUMMARY STATISTICS

FOR 1992 WATER YEAR

WATER YEARS 1975 - 1992

ANNUAL TOTAL	536.87	---
ANNUAL MEAN	1.47	1.89
HIGHEST ANNUAL MEAN	---	2.59
LOWEST ANNUAL MEAN	---	.94
HIGHEST DAILY MEAN	1.9	6.9
LOWEST DAILY MEAN	.97	.23
ANNUAL SEVEN-DAY MINIMUM	1.0	.25
INSTANTANEOUS PEAK FLOW	4.1	21
INSTANTANEOUS PEAK STAGE	1.15	5.40
ANNUAL RUNOFF (AC-FT)	1060	1370
10 PERCENT EXCEEDS	1.7	2.7
50 PERCENT EXCEEDS	1.5	1.9
90 PERCENT EXCEEDS	1.2	1.1

a Maximum recorded, backwater from ice, may have been exceeded during periods of estimated daily discharge.

b Site and datum then in use.

CHEYENNE RIVER BASIN

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.--3 years, 22.11 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.05	.01	.00	.00	.00	.00	.13	.02	e.50	e.00	.04
2	.00	.05	.09	.00	.00	.00	.00	.00	.00	e.00	e.00	.00
3	.43	.03	.09	.00	.00	.00	.00	.00	.02	e.00	e.00	.00
4	.21	.08	.03	.00	.00	.29	.00	.00	.00	e.49	e.00	.05
5	.00	.19	.00	.00	.00	.04	.00	.00	.12	e.00	e.00	.00
6	.00	.22	.00	.00	.00	.02	.00	.00	.00	e.00	.00	.23
7	.00	.02	.00	.00	.00	.00	.00	.00	.06	e.03	.00	.27
8	.00	.00	.04	.00	.00	.40	.00	.00	.00	e.02	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.41	.00	e.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.33	.20	.00	e.00	.00	.00
11	.00	.00	.00	.00	.00	.28	.30	.00	.00	e.21	.00	.00
12	.00	.00	.02	.04	.00	.00	.08	.00	.00	e1.60	.00	.00
13	.00	.00	.00	.10	.00	.00	.00	.00	.00	e.01	.00	.00
14	.00	.00	.09	.45	.21	.00	.00	.00	.00	e.00	.00	.00
15	.00	.00	.00	.03	.00	.00	.00	.00	.82	e.00	.00	.00
16	.00	.00	.00	.03	.00	.06	.00	.11	.20	e.00	.04	.02
17	.05	.00	.00	.00	.03	.07	.05	.00	.00	e.00	.08	.25
18	.12	.03	.00	.00	.04	.45	.86	.00	.09	e.00	.14	.00
19	.00	.00	.00	.00	.00	.08	.96	.00	.02	e.03	.00	.00
20	.00	.00	.00	.00	.00	.00	.30	.00	.08	e.28	.00	.00
21	.00	.61	.00	.00	.00	.00	.00	.59	.14	e.14	.00	.00
22	.00	.12	.00	.00	.13	.00	.12	.19	.00	e.00	.28	.00
23	.00	.08	.00	.02	.26	.00	.25	.00	.00	e.05	1.12	.00
24	.00	.00	.00	.36	.00	.00	.00	.00	.00	e.00	.07	.00
25	.00	.02	.00	.04	.00	.00	.00	.00	.00	e.00	.00	.00
26	.00	.08	.00	.00	.02	.00	.00	.00	e.04	e.00	.28	.00
27	.00	.13	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00
28	.56	.05	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00
29	.04	.16	.00	.00	.02	.00	.00	.00	.00	e.00	.00	.00
30	.00	.02	.00	.00	---	.00	.00	.68	.00	e.02	.00	.00
31	.00	---	.00	.00	---	.00	---	.35	---	e.00	.05	---
TOTAL	1.41	1.94	0.37	1.07	0.71	1.69	3.25	2.66	1.61	3.38	2.06	0.86

CAL YR 1991 TOTAL 24.02
WTR YR 1992 TOTAL 21.01

e Estimated

CHEYENNE RIVER BASIN

51

06392950 STOCKADE BEAVER CREEK NEAR NEWCASTLE, WY

LOCATION.--Lat 43°51'32", long 104°06'24", in SW1/4SE1/4 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 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 4,460 ft above sea level, from topographic map. October 1974 to September 1982, at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 2, 3 and Jan. 15, 16. Records good. A few small diversions upstream from station for irrigation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	12	12	11	12	11	11	5.7	8.0	6.2	12
2	11	11	12	12	11	12	11	10	6.0	11	4.1	11
3	12	12	12	12	11	12	11	10	5.0	8.9	4.2	10
4	13	12	12	12	11	12	11	10	6.9	7.4	4.8	10
5	12	12	12	12	11	12	11	8.3	8.5	16	4.6	11
6	12	12	12	12	11	12	11	7.2	7.6	8.6	4.8	11
7	12	11	12	12	11	12	11	10	6.8	8.8	4.8	11
8	12	11	12	12	11	12	11	7.5	7.0	8.8	4.6	11
9	12	12	12	12	11	12	11	5.5	5.9	8.6	4.8	11
10	12	12	12	12	11	12	11	6.4	5.4	8.6	4.8	11
11	12	12	12	12	11	11	12	6.3	5.5	8.4	4.8	11
12	12	11	12	12	11	12	11	9.9	5.2	9.2	4.7	11
13	12	12	12	12	11	11	11	8.2	4.7	9.6	5.0	11
14	12	11	11	12	12	11	11	6.0	4.9	8.1	5.9	11
15	12	12	12	10	11	11	11	5.9	8.0	8.1	6.0	11
16	11	12	12	12	11	11	11	5.1	6.5	8.7	6.3	9.9
17	11	12	12	12	11	11	11	4.5	6.0	8.1	6.8	10
18	11	12	12	12	11	12	11	4.4	5.5	7.1	6.7	9.6
19	11	11	12	12	11	12	14	4.7	5.7	6.7	6.7	9.5
20	11	12	12	12	11	12	12	4.0	5.3	7.3	6.8	8.8
21	11	12	12	12	11	12	12	3.9	5.1	8.2	7.1	6.0
22	11	12	12	12	11	12	12	5.8	5.4	8.9	7.3	6.5
23	11	12	12	11	13	12	12	4.7	5.6	9.0	9.0	6.2
24	11	11	12	12	11	12	12	5.4	6.0	8.8	8.0	6.3
25	11	12	12	12	11	11	12	5.4	5.9	8.8	8.3	6.6
26	11	12	12	12	11	11	11	4.5	6.1	8.5	8.8	7.1
27	11	12	12	12	11	11	11	4.3	5.5	8.2	8.2	7.3
28	11	12	12	12	11	11	11	4.4	5.1	8.0	7.8	7.1
29	11	12	12	11	11	11	11	3.9	5.5	7.6	7.3	8.3
30	11	12	12	11	---	11	11	5.4	5.4	6.9	7.4	9.4
31	11	---	11	11	---	11	---	7.2	---	6.7	9.5	---
TOTAL	355	353	370	366	322	359	340	199.8	177.7	265.6	196.1	282.6
MEAN	11.5	11.8	11.9	11.8	11.1	11.6	11.3	6.45	5.92	8.57	6.33	9.42
MAX	13	12	12	12	13	12	14	11	8.5	16	9.5	12
MIN	11	11	11	10	11	11	11	3.9	4.7	6.7	4.1	6.0
AC-FT	704	700	734	726	639	712	674	396	352	527	389	561

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1992, BY WATER YEAR (WY)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	12.1	12.7	12.7	12.3	12.7	13.5	12.4	9.20	10.7	10.2	10.5	11.3						
MAX	14.1	14.8	14.4	14.8	14.4	15.7	16.5	12.3	12.5	13.2	13.8	13.5						
(WY)	1975	1977	1976	1977	1977	1979	1975	1978	1991	1975	1979	1979						
MIN	9.40	10.1	10.4	9.52	11.0	11.2	9.53	6.45	5.92	8.24	6.33	8.89						
(WY)	1982	1982	1982	1980	1981	1982	1981	1992	1992	1981	1992	1991						

SUMMARY STATISTICS

FOR 1992 WATER YEAR

WATER YEARS 1975 - 1992

ANNUAL TOTAL	3586.8	---
ANNUAL MEAN	9.80	11.7
HIGHEST ANNUAL MEAN	---	13.0
LOWEST ANNUAL MEAN	---	9.80
HIGHEST DAILY MEAN	16	58
LOWEST DAILY MEAN	3.9	3.9
ANNUAL SEVEN-DAY MINIMUM	4.6	4.6
INSTANTANEOUS PEAK FLOW	51	361
INSTANTANEOUS PEAK STAGE	7.76	9.87
ANNUAL RUNOFF (AC-FT)	7110	8480
10 PERCENT EXCEEDS	12	14
50 PERCENT EXCEEDS	11	12
90 PERCENT EXCEEDS	5.5	8.4

a From rating curve extended above 18 ft³/s on basis of culvert-backwater computations, gage height, 9.35 ft.
b Backwater from ice.

06395000 CHEYENNE RIVER AT EDMONT. SD

LOCATION.--Lat 43°18'20", long 103°49'14", in SW1/4SE1/4SE1/4 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 mi².

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

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

GAGE.--Water-stage recorder. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.1	e6.0	e9.0	e8.0	e17	e60	e9.0	7.1	16	19	25	1.5
2	9.2	e5.8	e9.0	e9.0	e16	e60	e9.5	7.1	15	21	20	1.3
3	10	e5.8	e8.0	e10	e16	e60	e10	6.6	10	18	20	1.2
4	11	e6.0	e9.0	e10	e15	e50	e10	5.9	9.3	16	18	1.9
5	9.3	e8.0	e10	e10	e15	e50	e9.5	5.5	9.3	e16	15	3.4
6	7.3	e8.0	e10	e10	e15	e60	e9.5	4.3	7.5	e16	12	3.1
7	9.0	e7.3	e12	e10	e14	e50	8.2	4.2	6.9	e17	9.6	2.7
8	12	e7.0	e15	e10	e13	e50	10	3.3	5.9	e17	8.0	2.5
9	12	e8.0	e14	e10	e13	e48	9.2	4.8	5.0	e17	6.3	2.2
10	11	e8.0	e14	e10	e11	e40	8.5	9.1	3.9	e17	5.0	1.9
11	11	e8.0	e10	e10	e9.0	e40	14	6.5	2.6	e17	8.5	1.7
12	11	e9.0	e10	e10	e10	e45	13	6.5	2.4	e17	4.7	1.5
13	11	e10	e9.0	e10	e14	e44	11	6.4	1.9	e17	3.5	1.4
14	11	e10	e8.0	e10	e16	e40	10	4.9	2.0	e16	2.7	1.2
15	12	e10	e8.0	e10	e18	e35	8.8	4.6	7.6	15	2.1	1.0
16	11	e12	e8.0	e9.8	e19	e35	9.3	5.5	12	17	1.6	.91
17	12	e13	e7.0	e9.0	e18	e30	8.1	4.6	19	26	1.7	.80
18	11	e15	e6.0	e9.0	e18	e25	8.7	3.2	16	19	2.3	.70
19	12	e15	e6.0	e10	e19	e22	9.6	3.3	17	16	2.2	.61
20	12	e16	e6.0	e10	e19	e22	9.2	3.1	19	14	1.5	.52
21	13	e16	e6.0	e10	e20	e20	8.5	4.4	19	15	.44	.45
22	14	e17	e7.0	e9.0	e22	e19	e7.6	14	14	40	.44	.39
23	14	e15	e6.0	e8.0	e28	e18	e7.5	9.0	11	46	1.0	.34
24	14	e14	e6.0	e9.0	e28	e16	e7.2	6.6	11	25	1.0	.30
25	15	e14	e6.0	e9.0	e30	e15	e7.1	7.5	10	34	.89	.25
26	14	e15	e6.0	e10	e33	e13	e7.0	8.0	8.9	25	1.6	.21
27	13	e15	e7.0	e10	e40	13	e7.0	7.1	14	18	1.5	.18
28	9.7	e13	e7.0	e13	e50	15	e6.9	5.1	26	18	1.4	.16
29	6.6	e10	e7.0	e6.0	e50	15	e6.8	3.8	28	124	1.7	.14
30	e7.0	e10	e8.0	e16	---	e9.2	e6.6	3.5	24	115	1.9	.16
31	e6.0	---	e8.0	e17	---	e9.0	---	6.4	---	37	1.7	---
TOTAL	340.2	326.9	262.0	311.8	606.0	1028.2	267.3	181.9	354.2	845	183.27	34.62
MEAN	11.0	10.9	8.45	10.1	20.9	33.2	8.91	5.87	11.8	27.3	5.91	1.15
MAX	15	17	15	17	50	60	14	14	28	124	25	3.4
MIN	6.0	5.8	6.0	6.0	9.0	9.0	6.6	3.1	1.9	14	.44	.14
AC-FT	675	648	520	618	1200	2040	530	361	703	1680	364	6.0

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1992, BY WATER YEAR (WY)

MEAN	16.3	11.4	7.33	6.61	32.5	110	61.7	232	269	134	70.5	29.0
MAX	202	51.0	32.3	34.0	156	379	558	2192	2084	806	388	275
(WY)	1987	1983	1983	1974	1984	1987	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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1929-1932, 1947-1992

ANNUAL TOTAL	67043.50		4741.39				
ANNUAL MEAN	184		13.0			92a	
HIGHEST ANNUAL MEAN						434	1962
LOWEST ANNUAL MEAN						12.0	1988
HIGHEST DAILY MEAN	6110	Jun 2	124	Jul 29	24000		May 20 1978
LOWEST DAILY MEAN	.00	Jan 21	.14	Sep 29	.00		Jun 3 1929b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 21	.20	Sep 24	.00		Aug 31 1947c
INSTANTANEOUS PEAK FLOW			341	Jul 29	28000		May 20 1978
INSTANTANEOUS PEAK STAGE			2.58	Jul 29		13.65	May 20 1978
ANNUAL RUNOFF (AC-FT)	133000		9400			66650	
10 PERCENT EXCEEDS	296		25			150c	
50 PERCENT EXCEEDS	12		10			10c	
90 PERCENT EXCEEDS	.60		1.8			.10c	

e Estimated

a Median of yearly mean discharges, 72 ft³/s.

b No flow at times in most years.

c Data based on period 1947-92.

06400000 HAT CREEK NEAR EDMONT, SD

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

DRAINAGE AREA.--1,044 mi².

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

GAGE.--Water-stage recorder. 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 1991 are given herewith:

Oct. 8	0	Jan. 8	0	May 19	0
Nov. 25	0	Mar. 10	4.22	June 23	0
Dec. 10	0	Apr. 7	1.62	Aug. 18	0

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	e.27	e.66	.39	e1.2	e.37	.70	.25	.15	3.3	.88	.00
2	.00	e.24	e.65	.41	e1.3	e.37	.84	.30	.14	3.8	.83	.00
3	.00	e.20	e.65	.39	e1.3	e.38	.72	.30	.21	2.5	.84	.00
4	.00	e.20	e.66	.41	e1.3	e.40	.63	.31	.82	3.7	.88	.00
5	.00	e.25	e.70	.48	e1.3	e.41	.54	.28	.05	1.8	.62	.00
6	.00	e.30	e.70	.47	e1.2	e.42	.50	.39	.09	2.1	.58	.00
7	.00	e.27	e.72	.40	e1.1	e.45	.41	.36	.07	3.5	.44	.00
8	.00	e.25	e.78	.36	e1.1	e.46	.41	.20	.07	3.5	.33	.00
9	.00	e.27	e.80	.46	e1.0	e.48	.43	.20	.11	2.8	.19	.00
10	.00	e.30	e.80	.52	e.97	e.49	.41	.31	.21	1.9	.09	.00
11	.00	e.36	e.79	.56	e.95	e.50	.40	.21	.31	1.8	.16	.00
12	.00	e.43	e.75	.53	e1.0	e.50	.36	.17	.36	4.2	.14	.00
13	.00	e.50	e.70	.36	e1.0	e.50	.36	.15	.45	.92	.08	.00
14	.00	e.58	e.70	.36	e1.0	e.50	.39	.16	.56	15	.04	.00
15	.00	e.60	e.69	.12	e.95	e.51	.43	.19	.69	10	.00	.00
16	.00	e.62	e.67	.34	e.90	e.50	.42	.19	.69	1.0	.00	.00
17	.00	e.65	e.68	.45	e.84	e.49	.54	.19	.69	.29	.00	.00
18	.00	e.70	e.67	.32	e.80	e.48	.51	.17	.90	.22	.00	.00
19	.00	e.74	e.64	.50	e.74	e.46	.53	.18	1.4	.34	.00	.00
20	.00	e.80	e.60	.53	e.70	e.44	.49	.20	1.9	.44	.00	.00
21	.00	e.88	e.58	.55	e.63	e.42	.50	.24	2.0	.45	.00	.00
22	.00	e.95	e.53	.50	e.58	e.41	.48	.29	1.9	.50	.00	.00
23	.00	e1.0	e.50	.43	e.56	.61	.57	5.5	2.3	.42	.00	.00
24	.00	e1.5	e.46	.51	e.52	.67	.62	5.0	2.3	1.8	.00	.00
25	.00	e1.5	e.42	.58	e.50	.75	.59	.08	1.9	1.2	.00	.00
26	.00	e1.5	e.40	.73	e.48	.89	.49	.48	2.0	.78	.00	.00
27	.00	e1.4	e.37	.87	e.45	1.1	.26	.04	2.1	.96	.00	.00
28	.44	e1.3	e.34	.92	e.42	1.2	.22	.03	2.1	.94	.00	.00
29	e.38	e1.0	e.30	.89	e.40	1.0	.25	.06	2.0	1.2	.00	.00
30	e.32	e.85	e.30	.95	---	1.0	.30	.13	1.8	1.2	.00	.00
31	e.28	---	.29	e1.0	---	.90	---	.16	---	.91	.00	---
TOTAL	1.42	20.41	18.50	16.29	25.19	18.06	14.30	16.72	30.27	73.47	6.10	0.00
MEAN	.046	.68	.60	.53	.87	.58	.48	.54	1.01	2.37	.20	.000
MAX	.44	1.5	.80	1.0	1.3	1.2	.84	5.5	2.3	15	.88	.00
MIN	.00	.20	.29	.12	.40	.37	.22	.03	.05	.22	.00	.00
AC-FT	2.8	40	37	32	50	36	28	33	60	146	12	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1992, BY WATER YEAR (WY)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
MEAN	1.22	1.02	1.15	1.62	4.88	21.9	18.1	48.4	73.3	18.7	6.95	3.15
MAX	13.0	6.73	16.0	25.5	52.6	119	141	444	1223	174	68.4	70.1
(WY)	1987	1968	1956	1974	1980	1978	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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1906, 1951-1992

	1991 CALENDAR YEAR	1992 WATER YEAR	1906, 1951-1992
ANNUAL TOTAL	15785.94	240.73	
ANNUAL MEAN	43.2	.66	17.7a
HIGHEST ANNUAL MEAN			112
LOWEST ANNUAL MEAN			.16
HIGHEST DAILY MEAN	2890	15	8350
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		32	13300
INSTANTANEOUS PEAK STAGE		9.63	13.35
ANNUAL RUNOFF (AC-FT)	31310	477	12800
10 PERCENT EXCEEDS	56	1.3	17
50 PERCENT EXCEEDS	.35	.44	.30
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a Median of annual discharges, 12 ft³/s.

b No flow for many days in each year.

CHEYENNE RIVER BASIN

06400497 CASCADE SPRINGS NEAR HOT SPRINGS, SD

LOCATION.--Lat 43°20'10", long 103°33'07", in SE1/4SW1/4 sec.20, T.8 S., R.5 E., Fall River County, Hydrologic Unit 10120106, on right 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 mi².

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.--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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	e18	18	19	18	18	18	18	18	17	18	18
2	18	e18	18	18	18	18	18	18	18	17	18	18
3	18	e18	18	18	18	18	18	18	18	17	18	18
4	18	e18	17	18	18	18	18	18	18	17	18	18
5	18	e18	17	18	18	18	18	18	18	17	18	18
6	18	e18	17	19	17	18	18	e18	18	17	18	18
7	19	e18	17	19	17	18	18	e18	18	17	18	18
8	19	e18	17	19	18	18	18	e18	18	17	18	18
9	18	e18	17	19	18	18	18	e18	17	17	18	18
10	e18	e18	17	18	18	18	19	e18	17	17	18	18
11	e18	e18	18	19	18	18	19	e18	17	17	e18	19
12	e18	e18	18	18	18	18	19	e18	17	17	e18	19
13	e18	e18	17	18	18	18	19	e18	17	17	e18	19
14	e17	e18	17	18	18	18	19	e18	17	17	e18	18
15	e16	e18	17	18	18	18	19	e18	17	17	e18	18
16	e16	e18	17	18	18	18	19	e18	17	17	e18	18
17	e16	e17	18	18	18	18	19	e18	17	17	e18	18
18	e16	e17	18	18	18	18	19	e18	17	17	e18	17
19	e16	e17	17	18	18	18	18	17	17	17	18	18
20	e16	e18	17	18	18	18	19	18	17	17	18	18
21	e16	e19	17	18	18	18	18	18	17	17	18	18
22	e16	e18	17	18	18	18	18	19	17	17	19	17
23	e17	e18	18	18	18	18	18	19	17	18	19	16
24	e18	e18	18	18	18	18	18	18	17	18	19	16
25	e19	e18	18	18	18	18	18	18	17	18	19	16
26	e19	18	18	18	18	18	19	18	17	18	19	16
27	e19	18	19	18	18	18	19	18	17	18	19	15
28	e18	18	19	18	18	18	19	18	17	18	19	15
29	e18	18	19	18	18	18	18	18	17	18	19	15
30	e18	18	19	18	---	18	18	18	17	18	19	15
31	e18	---	18	18	---	18	---	18	---	18	19	---
TOTAL	546	538	547	564	520	558	553	558	518	536	568	521
MEAN	17.6	17.9	17.6	18.2	17.9	18.0	18.4	18.0	17.3	17.3	18.3	17.4
MAX	19	19	19	19	18	18	19	19	18	18	19	19
MIN	16	17	17	18	17	18	18	17	17	17	18	15
AC-FT	1080	1070	1080	1120	1030	1110	1100	1110	1030	1060	1130	1030

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1992, BY WATER YEAR (WY)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	19.6	19.8	19.7	19.7	19.5	19.5	19.7	20.2	20.4	20.5	19.9	19.6					
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	17.6	17.9	17.6	18.0	17.9	17.7	17.6	18.0	17.3	17.3	17.1	17.4					
(WY)	1992	1992	1992	1982	1992	1979	1979	1989	1992	1992	1991	1992					

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1976 - 1992

ANNUAL TOTAL	6566	6527		
ANNUAL MEAN	18.0	17.8		
HIGHEST ANNUAL MEAN			19.8	
LOWEST ANNUAL MEAN			21.4	1984
HIGHEST DAILY MEAN			17.8	1992
LOWEST DAILY MEAN	20	Mar 11	19	Oct 1a
ANNUAL SEVEN-DAY MINIMUM	16	Oct 15	15	Sep 27c
INSTANTANEOUS PEAK FLOW	16	Oct 15	15	Sep 24
INSTANTANEOUS PEAK STAGE			22	Apr 28d
ANNUAL RUNOFF (AC-FT)	13020	12950	5.06	May 23
10 PERCENT EXCEEDS	19	19		
50 PERCENT EXCEEDS	18	18		
90 PERCENT EXCEEDS	17	17		

e Estimated

a Many days.

b Also Dec. 31, 1977, to Jan. 24, 1978, and July 27 to Aug. 4, 1982.

c Also Sept. 28-30, 1992.

d Gage height, 5.05 ft.

CHEYENNE RIVER BASIN

55

06400875 HORSEHEAD CREEK AT OELRICHS, SD

LOCATION.--Lat 43°11'17", long 103°13'34", in SW1/4SW1/4SW1/4 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 mi².

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	e.00	e.01	e.10	e2.2	.42	.26	.24	.00	.00	.00
2	.00	.00	e.00	e.02	e.10	e2.1	.47	.06	.41	.00	.00	.00
3	.00	.00	e.00	e.02	e.12	e2.0	.58	.00	.41	.00	.00	.00
4	.00	.00	e.00	e.03	e.13	e1.9	.54	.00	.49	.00	.00	.00
5	.00	.00	e.00	e.03	e.14	e1.8	.55	.00	.56	.00	.00	.00
6	.00	.00	e.00	e.04	e.15	e1.7	.48	.00	.54	.00	.00	.00
7	.00	.00	e.00	e.04	e.15	e1.6	.40	.00	.45	.00	.00	.00
8	.00	.00	e.00	e.05	e.10	e1.5	.40	.00	.37	.00	.00	.00
9	.00	.00	e.00	e.05	e.10	e1.4	.40	.00	.29	.00	.00	.00
10	.00	.00	e.00	e.06	e.08	e1.4	.40	.08	.04	.00	.00	.00
11	.00	.00	e.00	e.07	e.06	e1.4	.48	.14	.00	.00	.00	.00
12	.00	.00	e.00	e.07	e.07	1.2	.54	.32	e.00	.00	.00	.00
13	.00	.00	e.00	e.05	e.08	1.2	.64	.28	e.00	.00	.00	.00
14	.00	.00	e.00	e.04	e.09	1.1	.66	.16	e.00	.00	.00	.00
15	.00	.00	e.00	e.03	e.10	.99	.67	.00	e.00	.00	.00	.00
16	.00	.00	e.00	e.03	e.10	.95	.59	.00	e.90	.00	.00	.00
17	.00	.00	e.00	e.04	e.07	.84	.61	.00	e.90	.00	.00	e.00
18	.00	.00	e.00	e.04	e.10	.77	.56	.00	e.70	.00	.00	e.00
19	.00	.00	e.00	e.04	e.16	.76	.47	.00	e.60	.00	.00	e.00
20	.00	.00	e.00	e.04	e.25	.78	.44	.00	e.30	.00	.00	e.00
21	.00	.00	e.00	e.04	e.39	.71	.44	.00	e.10	.00	.00	e.00
22	.00	.00	e.00	e.05	e.60	.74	.46	.18	.00	.00	.00	e.00
23	.00	.00	e.00	e.05	e.90	.77	.52	.36	.00	.00	.00	e.00
24	.00	.00	e.00	e.06	e1.40	.74	.45	.49	.00	.00	.00	e.00
25	.00	.00	e.00	e.06	e1.90	.72	.40	.34	.00	.00	.00	e.00
26	.00	.00	e.00	e.06	e2.5	.63	.37	.12	.00	.00	.00	e.00
27	.00	e.00	e.00	e.07	e2.5	.66	.36	.00	.00	.00	.00	e.00
28	.00	e.00	e.00	e.07	e2.4	.65	.38	.00	.00	.00	.00	e.00
29	.00	e.00	e.00	e.08	e2.3	.59	.37	.00	.00	.00	.00	e.00
30	.00	e.00	e.00	e.08	---	.55	.35	.00	.00	.00	.00	e.00
31	.00	---	e.00	e.09	---	.47	---	.07	---	.00	.00	---
TOTAL	0.00	0.00	0.00	1.51	17.14	34.82	14.40	2.86	7.30	0.00	0.00	0.00
MEAN	.000	.000	.000	.049	.59	1.12	.48	.092	.24	.000	.000	.000
MAX	.00	.00	.00	.09	2.5	2.2	.67	.49	.90	.00	.00	.00
MIN	.00	.00	.00	.01	.06	.47	.35	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	3.0	34	69	29	5.7	14	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1992, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	.012	.010	.019	.035	.25	8.76	16.4	34.3	28.6
MAX	.10	.076	.15	.19	1.40	58.9	83.3	246	187
(WY)	1987	1987	1987	1987	1986	1986	1986	1986	1986
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1984	1984	1984	1985	1989	1989	1989	1985	1985

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1984 - 1992
ANNUAL TOTAL	9617.18	78.03	
ANNUAL MEAN	26.3	.21	7.57
HIGHEST ANNUAL MEAN			29.3
LOWEST ANNUAL MEAN			.000
HIGHEST DAILY MEAN	4080 May 11	2.5 Feb 26a	4080 May 11 1991
LOWEST DAILY MEAN	.00 Jan 1	.00 Oct 1b	.00 Oct 1 1983b
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 1	.00 Oct 1	.00 Oct 1 1983
INSTANTANEOUS PEAK FLOW		1.7 Mar 11	8270 May 11 1991
INSTANTANEOUS PEAK STAGE		2.42 Mar 11	18.57 May 11 1991
ANNUAL RUNOFF (AC-FT)	19080	155	5480
10 PERCENT EXCEEDS	20	.66	1.9
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a Also Feb. 27.

b No flow for many days in each year.

CHEYENNE RIVER BASIN

06401000 ANGOSTURA RESERVOIR NEAR HOT SPRINGS, SD

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

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

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

GAGE.--Water-stage recorder. 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, 104,500 acre-ft, Apr. 30, elevation, 3,183.16 ft; minimum, 73,500 acre-ft, Sept. 30, elevation, 3,174.89 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,179.99	91,800	-
Oct. 31	3,180.08	92,100	+300
Nov. 30	3,180.56	94,000	+1,900
Dec. 31	3,181.01	95,800	+1,800
CAL YR 1991	-	-	+40,000
Jan. 31	3,181.44	97,500	+1,700
Feb. 29	3,182.17	100,400	+2,900
Mar. 31	3,182.91	103,600	+3,200
Apr. 30	3,183.16	104,500	+900
May 31	3,182.18	100,500	-4,000
June 30	3,182.01	99,800	-700
July 31	3,180.36	93,200	-6,600
Aug. 31	3,176.80	80,000	-13,200
Sept. 30	3,174.89	73,500	-6,500
WTR YR 1992	-	-	-18,300

06401500 CHEYENNE RIVER BELOW ANGOSTURA DAM, SD

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

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

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

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

GAGE.--Water-stage recorder. Datum of gage is 3,058.02 ft above 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 ft³/s, 48,610 acre-ft/yr.

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

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 3.2 ft³/s at 1215 hours, June 15, gage height, 3.01 ft; minimum daily discharge, 0.86 ft³/s, May 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	1.8	2.0	1.3	1.1	1.9	1.9	---	---
2	---	---	---	---	1.8	2.0	1.3	1.1	1.8	e1.9	---	---
3	---	---	---	---	1.8	2.0	1.2	1.1	1.8	e1.9	---	---
4	---	---	---	---	1.8	2.3	1.2	1.2	1.8	e1.8	---	---
5	---	---	---	---	1.6	2.2	1.2	1.2	2.3	e1.9	---	---
6	---	---	---	---	1.8	2.0	1.3	1.2	1.7	e1.8	---	---
7	---	---	---	---	1.8	2.0	1.2	1.2	1.6	e1.7	---	---
8	---	---	---	---	1.9	2.0	1.2	1.1	1.6	e1.6	---	---
9	---	---	---	---	1.9	2.0	1.2	.97	1.6	e1.6	---	---
10	---	---	---	---	1.9	2.0	1.2	1.2	1.6	e1.5	---	---
11	---	---	---	---	2.0	1.5	1.5	.93	1.6	e1.4	---	---
12	---	---	---	---	2.0	1.4	1.4	.86	1.5	e1.4	---	---
13	---	---	---	---	9	1.5	1.3	1.1	1.5	e1.5	---	---
14	---	---	---	---	1.9	1.4	1.1	1.1	1.6	e1.7	---	---
15	---	---	---	---	1.9	1.6	1.2	1.2	1.8	e1.6	---	---
16	---	---	---	---	1.9	1.6	1.2	1.3	1.6	e1.5	---	---
17	---	---	---	---	2.0	1.6	1.2	1.4	1.5	e1.5	---	---
18	---	---	---	---	2.0	1.6	1.1	1.3	1.5	e1.5	---	---
19	---	---	---	---	2.0	1.6	.95	1.3	1.6	e1.5	---	---
20	---	---	---	---	2.0	1.6	.88	1.3	1.6	e1.5	---	---
21	---	---	---	---	2.0	1.5	.96	1.6	1.6	e1.6	---	---
22	---	---	---	---	2.0	1.5	1.0	1.7	1.6	e1.7	---	---
23	---	---	---	---	2.5	1.5	1.0	1.4	1.5	e1.7	---	---
24	---	---	---	---	2.5	1.3	.96	1.4	1.5	e1.6	---	---
25	---	---	---	---	2.2	1.2	.96	1.5	1.6	e1.5	---	---
26	---	---	---	---	2.2	1.2	.95	1.6	1.7	e1.5	---	---
27	---	---	---	---	2.2	1.2	.94	1.6	1.7	e1.4	---	---
28	---	---	---	---	2.2	1.2	.89	1.6	1.7	e1.5	---	---
29	---	---	---	---	2.2	1.2	.94	1.6	1.7	e1.6	---	---
30	---	---	---	---	---	1.3	.96	1.5	1.7	e1.7	---	---
31	---	---	---	---	---	1.3	---	1.9	---	e1.8	---	---
TOTAL	---	---	---	---	64.8	50.3	33.69	40.56	49.8	50.3	---	---
MEAN	---	---	---	---	2.23	1.62	1.12	1.31	1.66	1.62	---	---
MAX	---	---	---	---	9.0	2.3	1.5	1.9	2.3	1.9	---	---
MIN	---	---	---	---	1.6	1.2	.88	.86	1.5	1.4	---	---
AC-FT	---	---	---	---	129	100	67	80	99	100	---	---

e Estimated

06402000 FALL RIVER AT HOT SPRINGS, SD

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

DRAINAGE AREA.--137 mi².

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

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

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

REMARKS.--No estimated daily discharges. Records good. Flow regulated by dam forming Coldbrook Reservoir, capacity, 7,200 acre-ft, since September 1952, and dam forming Cottonwood Springs Lake, capacity, 8,385 acre-ft since June 1969. Maximum discharge prior to Oct. 1, 1970, 13,100 ft³/s, Sept. 4, 1938, gage height, 18.4 ft, site and datum then in use, from rating curve extended above 51 ft³/s on basis of weir formula and slope-area measurement of peak flow; minimum, 4.0 ft³/s, Sept. 23, 1940. Some diversion above station for municipal supply of Hot Springs. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	22	22	22	24	22	21	21	22	24	20	22
2	21	21	23	22	25	22	21	22	20	20	19	22
3	22	22	23	22	24	23	21	21	22	19	19	22
4	22	21	23	22	24	25	21	21	20	19	20	22
5	22	22	23	22	22	24	21	20	23	20	19	22
6	22	21	23	22	23	22	21	20	21	19	20	22
7	22	22	23	22	23	22	21	21	21	20	20	22
8	22	22	23	22	23	24	21	20	21	20	20	22
9	22	22	23	22	23	22	21	23	21	19	20	21
10	22	22	23	22	22	22	22	23	20	20	20	21
11	22	22	23	22	23	21	22	21	20	20	19	21
12	22	22	23	22	23	22	22	21	20	21	20	22
13	22	22	23	22	22	21	22	21	20	20	20	22
14	22	22	22	21	22	22	22	21	20	20	20	21
15	22	21	23	22	23	21	22	21	24	20	20	22
16	22	22	23	21	22	22	21	21	21	20	20	21
17	22	22	22	22	22	22	21	21	21	19	21	22
18	22	22	22	21	22	22	21	21	21	20	20	22
19	22	21	22	22	22	22	22	20	21	19	20	23
20	22	22	22	21	22	21	21	21	20	19	20	22
21	22	22	22	22	22	21	21	24	20	25	20	22
22	22	23	23	22	22	21	22	24	20	20	21	22
23	22	22	22	22	24	22	22	23	19	20	22	22
24	21	23	22	26	22	21	21	23	20	20	22	22
25	21	22	22	25	22	22	21	23	19	20	21	22
26	21	23	22	26	22	21	21	24	27	20	23	22
27	22	23	22	26	23	21	21	22	18	20	22	22
28	22	23	22	27	22	21	21	22	18	22	22	23
29	22	23	22	27	23	21	21	22	18	22	22	23
30	22	23	22	26	---	21	21	22	18	20	22	22
31	21	---	22	25	---	21	---	26	---	20	22	---
TOTAL	676	662	697	710	658	677	639	676	616	627	636	658
MEAN	21.8	22.1	22.5	22.9	22.7	21.8	21.3	21.8	20.5	20.2	20.5	21.9
MAX	22	23	23	27	25	25	22	26	27	25	23	23
MIN	21	21	22	21	22	21	21	20	18	19	19	21
AC-FT	1340	1310	1380	1410	1310	1340	1270	1340	1220	1240	1260	1310

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1992, BY WATER YEAR (WY)*

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	21.5	21.5	22.2	21.8	22.2	22.6	21.8	21.8	21.4	20.3	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	1972	1972	1983										

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1971 - 1992*

	1972	1992	1971-1992
ANNUAL TOTAL	7972	7932	
ANNUAL MEAN	21.8	21.7	21.6
HIGHEST ANNUAL MEAN			22.8
LOWEST ANNUAL MEAN			20.9
HIGHEST DAILY MEAN	31	Jul 10	75
LOWEST DAILY MEAN	18	Jun 2	14
ANNUAL SEVEN-DAY MINIMUM	20	May 30	15
INSTANTANEOUS PEAK FLOW			486
INSTANTANEOUS PEAK STAGE			Jul 4 1977d
ANNUAL RUNOFF (AC-FT)	15810	15730	15650
10 PERCENT EXCEEDS	23	23	24
50 PERCENT EXCEEDS	22	22	22
90 PERCENT EXCEEDS	20	20	19

* Regulated period only (1971-92). See REMARKS.

a Also Jan. 29 and June 26.

b Also June 28-30.

c Also May 3, 8, 9, 1982, Sept. 16, 17, 28, 1983, and July 23, 1985.

d Gage height, 3.32 ft.

CHEYENNE RIVER BASIN

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06402430 BEAVER CREEK NEAR PRINGLE, SD

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

DRAINAGE AREA.--45.8 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 4,140 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are fair. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.15	.20	.14	.17	.36	.37	e.39	1.0	.60	.21	.21
2	.06	.14	.20	.14	.17	.36	.41	e.37	.93	1.0	.25	.23
3	.06	.12	.20	.14	.18	.36	.41	e.35	.70	.87	.25	.21
4	.07	.12	.20	.14	.18	.42	.41	e.37	.56	.70	.27	.16
5	.07	.12	.20	.14	.18	.67	.39	e.37	.67	.77	.30	.15
6	.08	.12	.22	.14	.19	.57	.40	e.37	.75	.68	.32	.15
7	.08	.12	.26	.13	.22	.51	.38	e.33	.74	.77	.29	.12
8	.08	.12	.35	.13	.22	.53	.29	e.32	.64	.64	.25	.16
9	.08	.13	.33	.13	.22	.51	.29	e.40	.61	.59	.28	.13
10	.08	.17	.33	.12	.22	.46	.30	e.88	.45	.44	.24	.15
11	.08	.20	.28	.13	.22	.49	.44	e.81	.48	.47	.22	.12
12	.09	.20	.27	.13	.22	.47	.40	e.79	.41	.56	.17	.12
13	.09	.22	.26	.13	.22	.50	e.41	e.72	.42	.95	.16	.10
14	.09	.22	.21	.13	.23	.50	e.41	e.70	.33	.82	.20	.09
15	.09	.22	.19	.14	.23	.47	e.39	e.65	.45	.60	.20	.14
16	.09	.22	.18	.15	.26	.47	e.39	e.64	.50	.50	.17	.14
17	.09	.23	.18	.14	.26	.47	e.39	e.61	.47	.41	.24	.15
18	.10	.25	.18	.14	.25	.44	e.40	e.60	.44	.32	.24	.16
19	.09	.27	.18	.14	.25	.44	e.39	.48	.39	.29	.21	.17
20	.09	.27	.18	.15	.25	.45	e.39	.45	.62	.28	.18	.17
21	.10	.27	.19	.15	.26	.50	e.39	.52	.76	.94	.18	.19
22	.10	.27	.24	.15	.27	.44	e.39	.79	.68	1.0	.18	.22
23	.10	.24	.23	.14	.32	.46	e.41	.68	.62	.48	.20	.24
24	.10	.23	.23	.14	.29	.42	e.40	.59	.52	.38	.21	.25
25	.11	.23	.23	.14	.33	.41	e.40	.57	.52	.25	.21	.26
26	.12	.24	.25	.14	.33	.41	e.39	.57	.55	.25	.39	.16
27	.13	.26	.29	.14	.36	.38	e.39	.50	.53	.22	.39	.18
28	.14	.29	.28	.14	.37	.39	e.39	.43	.54	.20	.28	.24
29	.14	.26	.23	.15	.36	.38	e.39	.41	.66	.31	.22	.25
30	.15	.25	.21	.15	---	.38	e.39	.43	.64	.38	.19	.25
31	.15	---	.17	.16	---	.38	---	.69	---	.28	.18	---
TOTAL	2.96	6.15	7.15	4.33	7.23	14.00	11.60	16.78	17.58	16.95	7.28	5.27
MEAN	.095	.20	.23	.14	.25	.45	.39	.54	.59	.55	.23	.18
MAX	.15	.29	.35	.16	.37	.67	.44	.88	1.0	1.0	.39	.26
MIN	.06	.12	.17	.12	.17	.36	.29	.32	.33	.20	.16	.09
AC-FT	5.9	12	14	8.6	14	28	23	33	35	34	14	10

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

MEAN	.095	.20	.23	.14	.25	.45	.39	.46	.59	.55	.23	.18
MAX	.095	.20	.23	.14	.25	.45	.39	.46	.59	.55	.23	.18
(WY)	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992
MIN	.095	.20	.23	.14	.25	.45	.39	.46	.59	.55	.23	.18
(WY)	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

ANNUAL TOTAL	85.39	117.28
ANNUAL MEAN	.23	.32
HIGHEST DAILY MEAN	2.9 May 28	1.0 Jun 1
LOWEST DAILY MEAN	.01 Jan 28	.06 Oct 1a
ANNUAL SEVEN-DAY MINIMUM	.02 Jan 25	.07 Oct 1
INSTANTANEOUS PEAK FLOW		2.8 Jul 21b
INSTANTANEOUS PEAK STAGE		8.05 Jul 21c
ANNUAL RUNOFF (AC-FT)	169	233
10 PERCENT EXCEEDS	.42	.61
50 PERCENT EXCEEDS	.22	.26
90 PERCENT EXCEEDS	.03	.12

e Estimated

a Minimum daily discharge for period of record, 0.01 ft³/s, Jan. 28-29, 1991.

b Maximum discharge for period of record, 6.0 ft³/s, May 27, 1991.

c Maximum gage height for period of record, 8.11 ft.

CHEYENNE RIVER BASIN

06402470 BEAVER CREEK ABOVE BUFFALO GAP, SD

LOCATION.--Lat 43°31'20", long 103°21'23", in SW1/4SE1/4SW1/4 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 mi².

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.3	8.4	8.5	8.5	8.2	8.2	8.4	8.2	7.5	7.8	8.2	8.9
2	8.3	8.3	8.5	8.5	8.2	8.2	8.3	8.1	7.2	7.9	8.2	8.5
3	8.3	8.4	8.4	8.5	8.2	8.2	8.3	7.9	7.3	7.7	8.2	8.4
4	8.3	8.4	8.5	8.5	8.2	8.2	8.4	7.7	7.2	7.9	8.2	8.3
5	8.3	8.5	8.2	8.5	8.2	8.2	8.4	7.7	7.4	7.7	8.2	8.3
6	8.3	8.5	8.3	8.4	8.2	8.2	8.3	7.6	7.1	7.6	8.2	8.4
7	8.2	8.4	8.4	8.2	8.3	8.9	8.0	7.5	7.1	7.6	8.3	8.4
8	8.1	8.5	8.6	8.2	8.3	8.5	8.0	7.4	7.1	8.1	8.4	8.4
9	8.1	8.4	8.5	8.2	8.3	8.4	7.9	7.5	7.1	7.9	8.4	8.4
10	8.1	8.5	8.5	8.2	8.3	8.3	7.8	7.7	7.1	7.9	8.3	8.3
11	8.1	8.5	8.5	8.2	8.2	8.3	7.9	7.4	7.1	7.9	8.3	8.3
12	8.1	8.5	8.5	8.2	8.3	8.3	7.9	7.3	7.2	8.0	8.3	8.3
13	8.1	8.5	8.5	8.2	8.4	8.3	7.8	7.3	7.1	7.9	8.3	8.3
14	8.1	8.5	8.5	8.1	8.4	8.2	7.8	7.5	7.1	7.8	8.5	8.4
15	8.2	8.5	8.5	8.1	8.4	8.2	7.9	7.4	7.8	7.8	8.4	8.3
16	8.2	8.5	8.5	8.1	8.4	8.3	7.8	7.2	7.2	7.8	8.5	8.3
17	8.1	8.5	8.5	8.1	8.4	8.3	7.8	7.4	7.1	7.9	8.5	8.3
18	8.2	8.5	8.5	8.1	8.4	8.3	8.1	7.4	7.1	7.9	8.4	8.3
19	8.2	8.5	8.5	8.2	8.4	8.3	8.0	7.3	7.2	7.9	8.4	8.3
20	8.2	8.4	8.5	8.2	8.4	8.3	8.1	7.0	7.1	8.0	8.3	8.4
21	8.3	8.5	8.5	8.2	8.4	8.2	8.0	7.7	7.2	8.8	8.3	8.4
22	8.3	8.5	8.5	8.1	8.4	8.3	8.0	7.5	7.2	8.2	8.4	8.4
23	8.3	8.4	8.4	8.1	8.5	8.2	7.9	7.2	7.2	8.2	8.5	8.4
24	8.3	8.4	8.4	8.2	8.4	8.3	7.9	7.2	7.2	8.3	8.5	8.4
25	8.6	8.5	8.4	8.1	8.4	8.2	7.9	7.2	7.2	8.2	8.4	8.5
26	8.5	8.5	8.3	8.2	8.3	8.3	7.9	7.2	7.4	8.3	8.7	8.4
27	8.5	8.5	8.4	8.2	8.2	8.3	8.1	7.1	7.4	8.2	8.4	8.5
28	8.6	8.5	8.4	8.1	8.0	8.2	8.0	7.2	7.4	8.3	8.4	8.5
29	8.4	8.4	8.4	8.1	8.5	8.4	8.1	7.1	7.4	8.4	8.4	8.5
30	8.4	8.5	8.5	8.1	---	8.3	8.1	7.1	7.4	8.1	8.0	8.5
31	8.4	---	8.4	8.2	---	8.3	---	7.4	---	8.2	8.2	---
TOTAL	256.4	253.9	262.0	254.8	241.2	257.1	240.8	230.4	217.1	248.2	258.7	252.0
MEAN	8.27	8.46	8.45	8.22	8.32	8.29	8.03	7.43	7.24	8.01	8.35	8.40
MAX	8.6	8.5	8.6	8.5	8.5	8.9	8.4	8.2	7.8	8.8	8.7	8.9
MIN	8.1	8.3	8.2	8.1	8.0	8.2	7.8	7.0	7.1	7.6	8.0	8.3
AC-FT	509	504	520	505	478	510	478	457	431	492	513	500

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1992, BY WATER YEAR (WY)

	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
MEAN	8.23	8.51	8.37	8.23	8.27	8.20	8.07	7.85	7.86	8.08	8.09	8.10
MAX	8.27	8.55	8.45	8.25	8.32	8.29	8.12	8.27	8.49	8.15	8.35	8.40
(WY)	1992	1991	1992	1991	1992	1992	1991	1991	1991	1991	1992	1992
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1991 - 1992

ANNUAL TOTAL	2993.9	2972.6		
ANNUAL MEAN	8.20	8.12		
HIGHEST ANNUAL MEAN			8.16	
LOWEST ANNUAL MEAN			8.19	1991
HIGHEST DAILY MEAN	9.9	Jun 3	8.9	Mar 7a
LOWEST DAILY MEAN	7.1	Aug 30	7.0	May 20
ANNUAL SEVEN-DAY MINIMUM	7.6	Aug 28	7.1	Jun 6
INSTANTANEOUS PEAK FLOW			15	Jul 8
INSTANTANEOUS PEAK STAGE			11.35	Jul 8
ANNUAL RUNOFF (AC-FT)	5940	5900	11.61	Oct 7 1990
10 PERCENT EXCEEDS	8.5	8.5		
50 PERCENT EXCEEDS	8.2	8.3		
90 PERCENT EXCEEDS	7.8	7.4		

a Also Sept. 1.

CHEYENNE RIVER BASIN

61

06402500 BEAVER CREEK NEAR BUFFALO GAP, SD

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

DRAINAGE AREA.--130 mi², approximately.

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

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

GAGE.--Water-stage recorder. Elevation of gage is 3,150 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	e5.0	e5.0	8.9	8.5	8.0	7.5	4.1	2.1	5.7	9.0	5.3
2	10	e4.0	e6.0	8.9	8.5	8.1	7.8	4.2	3.6	8.5	8.8	2.6
3	10	e3.0	e5.0	8.9	8.5	8.2	7.5	4.4	.95	8.3	8.3	1.4
4	9.9	e4.0	e7.0	8.8	8.5	9.1	7.4	4.4	6.8	7.7	3.7	1.5
5	9.8	e6.0	9.1	8.8	8.5	10	7.6	4.5	12	8.3	3.4	3.5
6	9.7	e6.0	8.9	8.9	8.5	8.5	7.8	3.8	11	7.8	4.0	8.1
7	9.7	e6.0	8.9	e7.0	8.4	8.5	8.5	1.1	11	7.6	3.1	8.3
8	9.7	e7.0	8.8	e6.0	8.4	9.6	8.8	.89	11	7.5	4.9	9.5
9	9.7	e9.0	9.0	8.9	8.2	9.5	9.1	.80	10	8.4	6.3	8.5
10	9.6	9.9	8.9	8.9	8.2	8.9	9.4	1.3	9.8	8.2	7.3	8.3
11	9.7	9.8	8.9	8.8	8.2	8.7	10	.84	9.5	8.3	6.8	8.9
12	9.7	9.7	8.9	8.8	8.2	8.6	11	.73	9.4	8.5	2.2	9.4
13	9.7	9.7	9.1	e8.0	8.2	8.3	11	.65	9.4	9.6	2.1	9.1
14	9.9	9.7	9.0	e7.0	8.1	8.2	11	.75	8.8	8.2	2.2	8.8
15	10	9.7	9.4	e6.0	8.2	8.2	12	.83	11	7.9	2.3	9.2
16	10	9.5	9.4	e8.0	8.2	8.2	12	.65	11	6.4	4.3	9.2
17	9.5	9.5	9.3	8.8	8.2	8.5	12	.68	9.5	2.7	7.8	9.1
18	9.7	9.7	9.2	8.6	8.2	8.5	12	.72	8.8	2.7	7.7	8.9
19	10	9.7	9.2	8.6	8.3	8.7	13	.60	8.9	2.8	5.6	9.2
20	10	9.6	9.2	8.6	8.0	8.6	13	.55	8.2	3.0	5.4	9.2
21	10	9.5	9.1	8.6	8.0	8.3	14	1.2	8.1	5.2	5.0	9.2
22	10	e8.0	9.1	8.5	8.0	8.3	14	3.6	8.1	8.7	1.2	9.1
23	9.9	e6.0	9.1	8.5	9.0	8.2	15	3.5	7.9	7.3	1.4	9.2
24	9.8	e5.0	9.1	8.5	8.1	8.0	14	.95	7.8	7.0	1.4	9.1
25	9.8	e7.0	9.1	8.4	7.9	8.1	14	1.4	7.9	7.2	1.5	9.1
26	11	e9.0	9.1	8.4	8.0	7.9	14	2.8	7.3	9.5	2.6	9.3
27	10	e8.0	9.1	8.3	8.0	7.6	11	1.6	5.6	9.7	1.4	9.3
28	e7.8	e7.0	9.0	8.5	8.0	7.6	5.0	.71	4.4	8.8	1.2	10
29	e6.0	e6.0	8.9	8.5	7.7	7.4	4.5	.53	4.0	9.8	1.9	9.9
30	e5.0	e5.5	8.9	8.5	---	7.8	4.3	.41	5.4	7.0	3.7	7.6
31	e7.0	---	8.9	8.5	---	7.5	---	.82	---	7.2	3.3	---
TOTAL	292.3	227.5	267.6	258.4	238.7	259.6	308.2	54.01	239.25	225.5	129.8	239.8
MEAN	9.43	7.58	8.63	8.34	8.23	8.37	10.3	1.74	7.97	7.27	4.19	7.99
MAX	11	9.9	9.4	8.9	9.0	10	15	4.5	12	9.8	9.0	10
MIN	5.0	3.0	5.0	6.0	7.7	7.4	4.3	.41	.95	2.7	1.2	1.4
AC-FT	580	451	531	513	473	515	611	107	475	447	257	476

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1957, 1959 - 1992, BY WATER YEAR (WY)

	6.84	8.72	9.56	9.85	9.91	9.09	6.18	4.45	6.41	4.63	3.50	5.84
MEAN	6.84	8.72	9.56	9.85	9.91	9.09	6.18	4.45	6.41	4.63	3.50	5.84
MAX	11.2	12.4	12.5	12.9	13.5	16.1	16.9	11.8	27.9	22.2	18.3	56.6
(WY)	1947	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1938 - 1992

ANNUAL TOTAL	2789.39	2740.66	
ANNUAL MEAN	7.64	7.49	7.06
HIGHEST ANNUAL MEAN			11.1
LOWEST ANNUAL MEAN			3.78
HIGHEST DAILY MEAN	27	15	815
LOWEST DAILY MEAN	.08	.41	.00
ANNUAL SEVEN-DAY MINIMUM	.41	.68	.06
INSTANTANEOUS PEAK FLOW		23	11700
INSTANTANEOUS PEAK STAGE		4.44	16.46
ANNUAL RUNOFF (AC-FT)	5530	5440	5110
10 PERCENT EXCEEDS	10	9.9	11b
50 PERCENT EXCEEDS	8.6	8.3	8.0b
90 PERCENT EXCEEDS	2.7	2.3	.66b

e Estimated

a No flow at times in some years.

b Reflects water years 1938-57, 1959-92 only.

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

d Site and datum then in use.

CHEYENNE RIVER BASIN

06402990 FRENCH CREEK BELOW CUSTER, SD

LOCATION.--Lat 43°46'14", long 103°33'04", in NE1/4NW1/4SE1/4SW1/4 sec.18, T.3 S., R.5 E., Custer County, Hydrologic Unit 10120109, on right bank 0.4 mi above confluence with Willow Creek, 1.1 mi above Stockade Lake, and 1.8 mi east of Custer on Highway 16A.

DRAINAGE AREA.--53.4 mi².

PERIOD OF RECORD.--August 1990 to September 1992 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 5,235 ft above sea level, from topographic map.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.75	1.5	2.0	.58	.60	4.6	3.1	1.4	3.5	2.3	.81	.28
2	.75	1.2	1.6	.50	.60	4.0	2.9	1.2	3.3	3.0	.81	.28
3	1.7	1.0	1.3	.46	.60	3.8	2.9	1.1	2.6	2.6	.56	.25
4	2.1	1.0	1.8	.54	.60	5.1	3.0	1.0	2.4	2.0	.56	.21
5	2.1	1.3	1.8	.47	.61	13	3.1	.98	3.8	5.8	.48	.23
6	2.1	1.5	1.9	.46	.60	13	3.0	.84	3.7	3.8	.42	.24
7	2.1	1.8	2.2	.46	.60	7.0	2.8	.77	3.9	2.7	.38	.25
8	2.0	1.9	2.3	.53	.68	6.1	2.7	.73	3.2	1.8	.32	.26
9	1.9	2.6	2.2	.57	.61	4.2	2.6	.80	2.9	1.4	.27	.21
10	1.7	3.5	2.1	.51	.64	3.3	2.7	6.0	2.3	1.1	.24	.21
11	1.7	3.9	1.8	.47	.63	3.6	4.2	4.2	1.7	1.0	.30	.22
12	1.6	4.0	1.6	.47	.63	3.5	4.0	3.1	1.3	2.5	.29	.20
13	1.6	3.7	1.5	e.24	.56	4.0	3.9	2.1	1.0	5.7	.22	.18
14	1.5	3.6	1.4	e.24	.62	4.3	4.5	1.7	.86	4.0	.28	.18
15	1.5	3.3	1.2	e.24	.67	4.4	4.6	1.4	2.8	2.8	.26	.18
16	1.5	2.8	1.0	e.24	.69	4.4	4.0	1.1	2.7	1.8	.21	.18
17	1.4	2.6	.97	e.24	.65	4.1	3.6	.88	2.6	1.3	.29	.18
18	1.3	3.0	1.0	e.24	.65	4.1	3.5	.76	2.1	1.0	.28	.18
19	1.2	3.0	.92	e.24	.68	3.6	3.7	.64	3.9	.96	.21	.17
20	1.4	2.4	.99	e.27	.67	3.1	3.7	.52	5.3	.97	.20	.15
21	1.6	2.8	1.0	e.30	.78	3.7	3.6	.94	5.2	2.4	.19	.15
22	1.6	2.8	.89	e.29	.95	3.3	3.3	4.7	4.3	2.3	.19	.15
23	1.5	2.2	.96	.36	1.4	3.6	3.2	4.1	3.2	2.2	1.6	.15
24	1.4	2.0	.81	.29	1.3	4.2	3.0	3.4	2.4	1.9	.71	.15
25	1.3	2.1	.78	.32	1.3	3.9	2.7	2.7	1.8	1.5	.55	.15
26	1.3	2.3	.70	.32	1.6	3.9	2.5	2.1	1.7	1.2	1.8	.15
27	1.4	2.2	.72	.37	2.2	4.0	2.2	2.0	1.6	.95	.68	.15
28	1.6	2.2	.52	.38	3.8	4.1	2.0	1.8	1.8	.75	.47	.15
29	1.6	2.3	.57	.45	4.5	3.9	1.6	1.4	1.7	1.4	.38	.15
30	1.4	2.1	.62	.47	---	3.6	1.6	1.2	1.6	1.1	.32	.15
31	1.5	---	.64	.57	---	3.3	---	3.5	---	.93	.28	---
TOTAL	48.10	72.6	39.79	12.09	30.42	144.7	94.2	59.06	81.16	65.16	14.56	5.84
MEAN	1.55	2.42	1.28	.39	1.05	4.67	3.14	1.91	2.71	2.10	.47	.19
MAX	2.1	4.0	2.3	.58	4.5	13	4.6	6.0	5.3	5.8	1.8	.35
MIN	.75	1.0	.52	.24	.56	3.1	1.6	.52	.86	.75	.19	.15
AC-FT	95	144	79	24	60	287	187	117	161	129	29	12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1992, BY WATER YEAR (WY)

	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
MEAN	.92	1.51	.73	.25	.67	3.45	3.80	7.99	13.0	2.89	4.71	.65
MAX	1.57	2.28	1.24	.33	1.03	4.67	4.45	14.1	23.3	3.68	8.96	1.11
(WY)	1992	1992	1992	1992	1992	1992	1991	1991	1991	1991	1991	1991
MIN	.28	.74	.22	.18	.30	2.23	3.14	1.88	2.71	2.10	.47	.19
(WY)	1991	1991	1991	1991	1991	1991	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1991 - 1992

ANNUAL TOTAL	1937.03	667.68	
ANNUAL MEAN	5.31	1.82	3.40
HIGHEST ANNUAL MEAN			4.97
LOWEST ANNUAL MEAN			1.80
HIGHEST DAILY MEAN	100	Jun 4	100
LOWEST DAILY MEAN	.14	Jan 13	.14
ANNUAL SEVEN-DAY MINIMUM	.17	Jan 13	.14
INSTANTANEOUS PEAK FLOW			20
INSTANTANEOUS PEAK STAGE			14.66
ANNUAL RUNOFF (AC-FT)	3840	1320	2460
10 PERCENT EXCEEDS	12	3.9	6.2
50 PERCENT EXCEEDS	2.1	1.5	1.3
90 PERCENT EXCEEDS	.24	.24	.20

e Estimated

a Also Sept. 21-30.

b Also Jan. 14, 1991.

c From rating curve extended above 80 ft³/s.

CHEYENNE RIVER BASIN

63

06402995 FRENCH CREEK ABOVE STOCKADE LAKE, NEAR CUSTER, SD

LOCATION.--Lat 43°46'10", long 103°32'10", in SE1/4NW1/4SW1/4 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 mi².

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.8	e2.6	e.70	e.70	6.9	3.2	1.5	4.5	3.4	4.4	.86
2	1.0	1.9	e2.4	e.60	e.70	5.7	3.1	1.3	4.8	6.6	3.8	.91
3	2.5	1.5	e1.9	e.60	e.71	5.1	3.2	1.2	3.0	4.5	3.2	.77
4	2.9	1.2	e2.3	e.60	e.72	6.6	3.4	1.1	2.9	3.4	3.2	.72
5	2.5	1.5	e2.3	e.60	e.73	20	3.5	1.1	4.7	11	2.8	.75
6	2.3	1.7	e2.4	e.50	e.73	14	3.4	.93	4.6	6.6	2.5	.74
7	2.3	2.1	e2.7	e.50	e.73	8.2	3.1	.85	4.8	4.9	2.3	1.0
8	2.3	2.1	e2.6	e.60	e.75	6.8	2.9	.80	4.2	3.5	2.1	.79
9	2.0	2.7	e2.4	e.60	e.70	4.8	2.8	.89	3.3	2.8	1.8	.65
10	1.8	3.7	e2.2	e.50	e.70	3.8	3.0	9.8	2.6	2.5	1.6	.53
11	1.8	4.1	e2.0	e.50	e.72	3.6	5.8	5.9	2.2	2.4	1.6	.52
12	1.7	4.1	e2.0	e.40	e.72	4.2	5.2	3.7	1.7	4.3	1.4	.51
13	1.6	4.0	e1.9	e.40	e.65	5.2	5.1	2.5	1.4	12	1.3	.45
14	1.5	3.8	e1.8	e.40	e.75	5.3	6.4	2.0	1.1	7.2	1.1	.43
15	1.4	3.3	e1.5	e.30	e.75	5.3	6.2	1.7	4.0	5.1	1.1	.46
16	1.5	2.8	e1.3	e.30	e.75	5.3	5.0	1.3	4.2	3.8	1.1	.37
17	1.4	2.9	e1.3	e.30	e.73	5.0	4.4	1.1	3.5	2.8	1.4	.37
18	1.4	3.1	e1.3	e.30	e.73	4.7	4.1	.95	2.5	2.5	1.3	.35
19	1.5	3.0	e1.2	e.30	e.75	3.9	4.4	.82	5.0	2.2	1.0	.37
20	1.6	2.5	e1.2	e.30	e.75	3.6	4.3	.71	22	2.4	.88	.37
21	1.7	e2.5	e1.3	e.35	e.86	4.5	4.1	.92	13	5.1	.84	.34
22	1.7	e2.5	e1.2	e.35	e.95	4.0	3.5	6.1	10	4.8	.89	.34
23	1.6	2.4	e1.3	e.40	e1.6	4.3	3.6	5.0	6.8	4.0	3.0	.34
24	1.6	e2.5	e1.2	e.50	e1.7	5.1	3.3	3.7	4.9	3.5	2.1	.31
25	1.6	2.5	e1.1	e.50	e1.8	4.4	2.9	3.0	3.8	3.2	2.0	.28
26	1.6	2.7	e1.0	e.50	e2.1	4.5	2.7	2.2	3.5	3.6	3.4	.28
27	1.7	2.6	e.90	e.55	4.0	4.9	2.5	2.1	3.5	6.1	2.1	.26
28	1.8	2.7	e.80	e.55	6.7	5.1	2.2	1.7	3.2	4.0	1.4	.27
29	1.6	2.8	e.80	e.55	8.2	4.7	1.8	1.3	3.2	5.9	1.1	.28
30	1.7	e2.7	e.70	e.55	---	4.1	1.8	1.1	3.2	8.1	.90	.27
31	1.9	---	e.80	e.66	---	3.7	---	4.2	---	5.5	.85	---
TOTAL	54.6	79.7	50.40	14.76	42.38	177.3	110.9	71.47	142.1	147.7	58.46	14.89
MEAN	1.76	2.66	1.63	.48	1.46	5.72	3.70	2.31	4.74	4.76	1.89	.50
MAX	2.9	4.1	2.7	.70	8.2	20	6.4	9.8	22	12	4.4	1.0
MIN	1.0	1.2	.70	.30	.65	3.6	1.8	.71	1.1	2.2	.84	.26
AC-FT	108	158	100	29	84	352	220	142	282	293	116	30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1992, BY WATER YEAR (WY)

MEAN	1.16	1.86	.96	.33	.92	4.37	4.91	17.0	22.5	5.42	6.07	.98
MAX	1.76	2.66	1.63	.48	1.46	5.72	6.12	31.7	40.3	6.07	10.3	1.47
(WY)	1992	1992	1992	1992	1992	1992	1991	1991	1991	1991	1991	1991
MIN	.56	1.06	.30	.19	.35	3.03	3.70	2.31	4.74	4.76	1.89	.50
(WY)	1991	1991	1991	1991	1991	1991	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1991 - 1992

ANNUAL TOTAL	3219.82	964.66	
ANNUAL MEAN	8.82	2.64	5.56
HIGHEST ANNUAL MEAN			8.48
LOWEST ANNUAL MEAN			2.64
HIGHEST DAILY MEAN	129	Jun 4	129
LOWEST DAILY MEAN	.15	Jan 14	.15
ANNUAL SEVEN-DAY MINIMUM	.18	Jan 13	.18
INSTANTANEOUS PEAK FLOW		53	320
INSTANTANEOUS PEAK STAGE		5.41	7.31
ANNUAL RUNOFF (AC-FT)	6390	1910	4030
10 PERCENT EXCEEDS	23	5.1	10
50 PERCENT EXCEEDS	2.5	2.0	1.8
90 PERCENT EXCEEDS	.26	.50	.32

e Estimated

a Also June 8, 1991.

CHEYENNE RIVER BASIN

06403300 FRENCH CREEK ABOVE FAIRBURN, SD

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

DRAINAGE AREA.--105 mi², approximately.

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Stockade Reservoir, capacity, 1,820 acre-ft, 21 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	e3.5	e3.1	e1.2	1.3	8.0	6.4	3.3	6.1	5.7	11	2.3
2	2.9	e3.4	e3.2	1.3	e1.3	8.2	5.9	3.1	7.7	7.1	8.6	2.3
3	3.0	e3.4	e3.4	e1.3	1.4	8.2	5.8	3.0	7.6	9.7	7.5	1.9
4	3.3	e3.3	e3.6	e1.4	e1.5	8.7	5.4	2.6	6.5	8.1	6.8	2.0
5	3.3	e3.4	e3.8	e1.4	e1.6	17	5.9	2.3	6.5	8.3	6.1	1.9
6	3.1	e3.5	e4.0	1.4	e1.7	24	5.4	2.3	8.0	12	5.8	1.8
7	3.2	e3.7	e4.1	e1.4	e1.8	18	5.1	2.3	7.5	11	5.1	1.7
8	3.3	4.0	e4.1	e1.5	e1.9	14	4.8	2.2	6.7	8.6	4.7	1.6
9	3.3	4.0	e3.7	e1.5	2.0	15	4.6	2.1	7.1	6.9	4.2	1.7
10	3.7	4.0	e3.4	e1.6	e2.0	14	4.4	4.3	6.0	5.9	3.8	1.5
11	3.2	3.3	e3.1	e1.6	e2.0	9.4	5.0	11	5.1	5.2	3.4	1.5
12	3.1	3.4	e2.8	1.6	e2.0	8.0	6.8	8.2	4.4	5.2	3.1	1.5
13	3.6	3.7	e2.5	e1.4	e2.0	7.9	7.0	6.0	3.9	9.7	3.0	1.5
14	3.5	3.5	e2.3	e1.3	e2.1	8.2	6.5	4.8	3.8	17	2.7	1.4
15	3.8	2.9	2.1	e1.1	e2.2	9.2	7.0	3.9	3.8	12	2.7	1.4
16	4.0	2.9	1.9	e1.2	e2.3	9.5	7.4	3.4	4.2	9.2	2.5	1.4
17	4.0	2.9	e1.8	e1.2	e2.4	9.4	6.8	3.0	6.8	7.5	2.4	1.4
18	4.0	2.8	e1.6	e1.3	e2.5	9.4	6.3	2.7	6.3	6.3	2.4	1.4
19	4.3	3.2	1.5	e1.3	e2.6	9.3	6.1	2.4	5.6	5.5	2.3	1.4
20	3.9	3.4	1.4	e1.3	2.7	9.3	5.8	2.1	8.2	5.4	2.2	1.4
21	3.8	2.9	e1.4	e1.4	2.9	7.9	5.2	1.9	21	5.9	2.1	1.4
22	3.7	e2.8	e1.3	1.4	2.7	7.6	4.9	2.8	21	7.7	2.4	1.4
23	3.5	e2.7	e1.3	e1.4	3.5	8.3	4.8	3.9	16	9.0	2.3	1.5
24	4.0	e2.7	e1.3	e1.4	e3.6	7.5	4.8	5.6	12	7.5	3.0	1.5
25	3.7	e2.6	e1.3	e1.4	3.8	7.7	4.6	5.0	9.0	6.8	4.2	1.5
26	3.6	2.6	e1.3	e1.3	4.8	7.7	4.2	4.6	7.3	7.8	4.6	1.5
27	3.8	2.7	e1.3	e1.3	5.0	7.3	4.1	3.9	6.7	15	4.9	1.5
28	3.7	e2.8	e1.3	e1.3	5.5	7.4	3.9	3.5	6.8	16	4.4	1.4
29	e3.6	e2.9	e1.3	e1.4	6.3	7.8	3.8	3.3	6.4	13	3.3	1.5
30	e3.6	3.0	e1.2	1.4	---	7.1	3.7	2.9	6.1	11	2.8	1.6
31	e3.5	---	e1.2	1.3	---	6.7	---	3.6	---	13	2.4	---
TOTAL	109.9	95.9	71.6	42.3	77.4	307.7	162.4	116.0	234.1	279.0	126.7	47.8
MEAN	3.55	3.20	2.31	1.36	2.67	9.93	5.41	3.74	7.80	9.00	4.09	1.59
MAX	4.3	4.0	4.1	1.6	6.3	24	7.4	11	21	17	11	2.3
MIN	2.9	2.6	1.2	1.1	1.3	6.7	3.7	1.9	3.8	5.2	2.1	1.4
AC-FT	218	190	142	84	154	610	322	230	464	553	251	95

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1992, BY WATER YEAR (WY)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	4.28	3.23	1.56	1.39	1.65	7.04	6.90	14.7	16.0	8.06
MAX	12.6	8.63	2.93	3.90	4.08	24.8	11.4	54.8	64.8	24.2
(WY)	1983	1983	1987	1985	1983	1987	1987	1991	1991	1984
MIN	.84	1.07	.69	.39	.19	1.59	1.63	1.00	.46	.44
(WY)	1988	1986	1990	1989	1989	1988	1989	1989	1989	1985

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1983 - 1992

ANNUAL TOTAL	5180.45	1670.8	
ANNUAL MEAN	14.2	4.57	5.94a
HIGHEST ANNUAL MEAN			13.7
LOWEST ANNUAL MEAN			1.01
HIGHEST DAILY MEAN	252	Jun 4	252
LOWEST DAILY MEAN	.30	Jan 1	.02
ANNUAL SEVEN-DAY MINIMUM	.30	Jan 1	.03
INSTANTANEOUS PEAK FLOW		32	Jun 22
INSTANTANEOUS PEAK STAGE		1.34	Jun 22
ANNUAL RUNOFF (AC-FT)	10280	3310	4310
10 PERCENT EXCEEDS	37	8.4	13
50 PERCENT EXCEEDS	3.7	3.5	2.4
90 PERCENT EXCEEDS	.65	1.4	.57

e Estimated

a Median of annual mean discharges, 4.8 ft³/s.

b Also Feb. 4-5, 1989.

06404000 BATTLE CREEK NEAR KEYSTONE, SD

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

DRAINAGE AREA.--66 mi².

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	e1.8	e1.4	e2.0	e2.6	3.5	3.7	2.0	2.4	7.9	6.3	1.1
2	1.3	e1.8	e1.4	e2.1	e2.6	3.2	3.6	2.0	2.1	13	5.6	1.4
3	1.8	e2.0	e1.2	2.2	e2.6	3.1	3.5	1.8	1.7	12	4.9	1.7
4	3.4	e2.4	e1.4	2.4	e2.6	3.7	3.4	2.5	2.6	9.3	4.7	1.7
5	2.7	e2.5	e1.6	3.3	e2.6	11.0	3.2	2.5	4.1	18	4.6	1.3
6	2.3	e2.0	e1.8	e2.6	e2.6	8.2	3.2	2.4	5.6	17	4.7	.95
7	2.3	e2.5	e2.0	e2.0	e2.5	6.6	3.2	2.3	5.4	12	5.5	.90
8	2.2	2.9	e2.1	e1.7	e2.3	6.1	3.1	1.9	5.1	9.7	4.5	.87
9	2.1	3.2	e2.0	e2.0	e2.1	5.9	3.3	2.0	5.0	8.2	3.6	.84
10	2.0	3.4	e1.8	2.5	e1.9	5.6	3.6	6.3	4.7	7.4	2.9	.73
11	2.0	3.4	e1.8	2.5	e1.7	5.0	4.9	4.6	4.4	6.7	2.5	1.0
12	2.0	3.2	e1.7	2.5	e2.0	5.0	4.8	4.0	3.8	7.8	2.3	.99
13	2.0	3.2	e1.6	e1.8	e2.5	5.0	4.4	6.3	3.4	25	2.6	.66
14	2.0	3.2	e1.6	e1.7	e2.6	5.0	4.2	3.5	4.3	19	2.9	.54
15	2.0	3.2	e1.7	e1.3	e2.6	4.8	4.2	2.9	5.1	13	2.0	.47
16	1.9	2.9	e1.8	e1.3	e2.6	4.7	4.2	2.8	5.1	11	1.8	.36
17	1.8	2.9	e1.9	e1.0	e2.6	4.7	3.7	2.6	4.4	8.9	2.0	.34
18	1.8	2.9	e1.9	e1.0	e2.6	4.8	3.5	2.4	4.0	7.4	2.2	.35
19	1.9	2.9	e2.0	e1.8	e2.4	5.0	3.5	1.8	3.9	6.7	1.9	.36
20	2.0	2.7	e2.0	2.5	e2.6	4.8	3.5	1.4	3.8	6.6	1.4	.30
21	2.1	e2.6	e2.0	2.3	e2.6	4.7	3.2	1.6	10	8.7	1.2	.30
22	2.1	e2.2	e1.9	2.3	e2.6	4.7	3.0	3.6	27	11	1.1	.28
23	2.1	e1.9	e1.8	2.2	e2.7	4.3	2.9	2.9	15	9.0	1.8	.31
24	2.1	e1.7	e1.6	2.1	e2.8	4.4	2.8	2.4	11	8.0	3.0	.27
25	3.2	e2.0	e1.7	e2.5	e2.9	4.2	2.7	2.3	8.2	6.2	3.3	.29
26	3.4	e2.0	e1.8	e2.6	3.6	4.2	2.7	2.4	6.9	5.3	2.9	.25
27	3.4	e2.0	e1.8	e2.6	4.7	4.2	2.5	2.5	6.9	5.1	2.7	.25
28	e2.0	e1.8	e1.9	e2.6	4.2	4.0	2.4	2.1	6.0	5.3	2.5	.23
29	e1.8	e1.6	e1.9	e2.6	4.3	3.7	2.2	2.1	6.7	4.8	1.7	.25
30	e1.8	e1.3	e2.0	e2.6	---	3.8	2.1	1.6	7.5	8.1	1.1	.37
31	e2.3	---	e2.0	e2.6	---	3.9	---	2.4	---	7.7	1.1	---
TOTAL	67.0	74.1	55.1	67.2	79.0	151.8	101.2	83.9	186.1	305.8	91.3	19.66
MEAN	2.16	2.47	1.78	2.17	2.72	4.90	3.37	2.71	6.20	9.86	2.95	.66
MAX	3.4	3.4	2.1	3.3	4.7	11	4.9	6.3	27	25	6.3	1.7
MIN	1.2	1.3	1.2	1.0	1.7	3.1	2.1	1.4	1.7	4.8	1.1	.23
AC-FT	133	147	109	133	157	301	201	166	369	607	181	39

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1992, BY WATER YEAR (WY)

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
MEAN	2.18	1.82	1.39	1.04	1.27	3.18	8.52	22.8	36.0	11.9	3.96	1.87		
MAX	12.7	5.24	4.25	2.64	3.03	12.8	38.8	89.8	199	46.3	15.6	6.20		
(WY)	1987	1987	1987	1987	1987	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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1962 - 1992

	1991	1992	1962-1992
ANNUAL TOTAL	6170.24	1282.16	
ANNUAL MEAN	16.9	3.50	8.01a
HIGHEST ANNUAL MEAN			21.1
LOWEST ANNUAL MEAN			.69
HIGHEST DAILY MEAN	348	27	2400
LOWEST DAILY MEAN	.30	.23	.00
ANNUAL SEVEN-DAY MINIMUM	.34	.26	.00
INSTANTANEOUS PEAK FLOW		37	26200
INSTANTANEOUS PEAK STAGE		3.92	14.50
ANNUAL RUNOFF (AC-FT)	12240	2540	5810
10 PERCENT EXCEEDS	42	6.6	14
50 PERCENT EXCEEDS	2.5	2.6	2.1
90 PERCENT EXCEEDS	.94	1.3	.17

e Estimated

a Median of annual mean discharges, 6.4 ft³/s.

b No flow for some days in 1961, 1962, 1970, 1974, 1976, 1980-89.

c From floodmarks, site then in use, from rating curve extended above 550 ft³/s on basis of slope-area measurement of peak flow.

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 fair except those for estimated periods, which are 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.03	.00	.35	.00	.10
2	.00	.00	.00	.00	.00	.00	.00	.00	.16	.10	.00	.00
3	.58	.00	.25	.00	.00	.00	.00	.00	.18	.00	.00	.00
4	.00	.00	.00	.00	.00	e.96	.00	.00	.28	.00	.00	.48
5	.00	.00	.00	.00	.00	e.03	.00	.00	.00	1.18	.00	.10
6	.00	.00	.00	.00	.00	.12	.00	.00	.00	.10	.12	.00
7	.00	.03	.00	.03	.00	.03	.00	.00	.10	.02	.00	.00
8	.00	.00	.00	.00	.00	.55	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	1.17	.00	.07	.00	.00
10	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.02	.00	.26	.00	.00	.00	.07	.00
12	.00	.00	.00	.00	.00	.10	.68	.00	.00	.63	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.43	.00	.00
14	.00	.02	.00	.01	.00	.00	.03	.00	1.30	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.73	.00	.00	.00
16	.00	.00	.00	.00	.00	.03	.00	.14	.10	.00	.15	.00
17	.10	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.47	.10	.00	e.09	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	e.01	.07	.00	.00
20	.00	.00	.00	.00	.00	.00	.07	.00	e.13	.00	.00	.00
21	.00	1.00	.00	.00	.00	.00	.00	e.70	.43	.00	.00	.00
22	.00	.00	.00	.00	.03	.00	.06	e.29	.00	.00	.00	.00
23	.00	.00	.00	.00	.30	.00	.00	.00	.00	.00	.42	.00
24	.00	.00	.00	.00	.00	.00	.00	.07	.00	.45	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	.38	.03
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.24	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.05	.14	.00	.00
30	.03	.00	.00	.00	---	.00	---	.66	.02	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.71	1.59	0.25	0.04	0.35	2.29	1.20	3.06	3.88	3.61	1.14	0.71

WTR YR 1992 TOTAL 18.83

e Estimated

CHEYENNE RIVER BASIN

67

06404800 GRACE COOLIDGE CREEK NEAR HAYWARD, SD

LOCATION.--Lat 43°48'07", long 103°26'03", in NE1/4NW1/4SW1/4 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 mi².

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 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	e.40	.37	.09	.29	.19	.32	.36	.48	2.2	2.9	1.2
2	e.35	e.38	.40	.09	.28	.17	.33	.38	.49	4.3	2.7	1.4
3	e.39	e.36	.40	.12	.27	.18	.31	.33	.61	2.9	2.7	1.2
4	e.60	e.36	.43	.13	.21	.35	.29	.33	.75	2.3	2.7	1.2
5	e.52	e.38	.42	.16	.20	1.3	.29	.32	.77	4.6	1.9	1.1
6	e.50	e.39	.43	.16	.18	.53	.27	.30	.59	3.5	1.8	1.1
7	e.50	e.40	.44	.17	.16	.43	.35	.27	.59	3.0	1.8	1.0
8	e.54	e.40	.46	.18	.13	.39	.44	.28	.58	2.7	1.6	1.0
9	e.50	e.41	.43	.18	.11	.34	.41	.33	.47	2.5	1.4	1.1
10	e.48	e.42	.42	.18	.10	.38	.45	1.2	.41	2.4	1.4	1.1
11	e.49	e.43	.25	.18	.08	.41	.75	.48	.38	2.3	1.4	1.1
12	e.48	e.43	.15	.20	.07	.48	.54	.33	.35	2.9	1.3	1.1
13	e.50	e.45	.13	.19	.11	.59	.64	.36	.32	5.7	1.3	1.0
14	e.50	e.45	.13	.17	.13	.54	.67	.39	.27	3.4	1.3	1.0
15	e.48	e.47	.14	e.14	.15	.47	.57	.35	.48	2.6	1.3	1.0
16	e.47	e.47	.15	e.14	.17	.44	.49	.33	.47	2.3	1.3	1.0
17	e.47	e.47	.14	e.16	.18	.40	.46	.30	.40	2.1	1.6	1.0
18	e.49	e.47	.12	e.17	.17	e.30	.41	.27	.32	2.0	1.5	.89
19	e.51	e.45	.16	e.18	.14	e.30	.43	.26	.40	2.0	1.4	.88
20	e.51	e.44	.18	e.19	.14	e.29	.42	.22	2.9	2.1	1.3	.88
21	e.52	e.41	.18	e.20	.14	e.28	.41	.24	5.6	3.3	1.2	.88
22	e.50	e.40	.17	e.23	.16	e.28	.39	.72	8.7	3.0	1.1	.88
23	e.50	e.38	.17	.23	.23	e.29	.41	.43	4.4	2.5	1.5	.88
24	e.48	e.38	.14	.24	.19	e.29	.38	.37	3.3	2.3	1.4	.88
25	e.47	e.39	.15	.26	.18	e.30	.39	.34	2.8	2.1	1.4	.88
26	e.47	e.40	.14	.27	.17	e.30	.39	.31	2.3	1.9	1.6	.88
27	e.46	e.39	.13	.27	.19	e.35	.39	.32	2.2	2.0	1.5	.88
28	e.45	e.40	.12	.27	.23	.37	.39	.26	2.2	1.5	1.4	.88
29	e.44	e.38	.11	.27	.21	.35	.38	.22	2.7	4.3	1.2	.88
30	e.42	e.37	.13	.25	---	.33	.35	.20	2.2	5.4	1.2	.86
31	e.41	---	.10	.27	---	.33	---	.53	---	3.5	1.2	---
TOTAL	14.76	12.33	7.29	5.94	4.97	11.95	12.72	11.33	48.43	89.6	49.3	30.03
MEAN	.48	.41	.24	.19	.17	.39	.42	.37	1.61	2.89	1.59	1.00
MAX	.60	.47	.46	.27	.29	1.3	.75	1.2	8.7	5.7	2.9	1.4
MIN	.35	.36	.10	.09	.07	.17	.27	.20	.27	1.5	1.1	.86
AC-FT	29	24	14	12	9.9	24	25	22	96	178	98	60

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992
MEAN	.62	.42	.25	.19
MAX	1.15	.62	.34	.26
(WY)	1990	1990	1990	1991
MIN	.24	.24	.17	.12
(WY)	1991	1991	1991	1989

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1989 - 1992

ANNUAL TOTAL	1316.24	298.65		
ANNUAL MEAN	3.61	.82		
HIGHEST ANNUAL MEAN			2.13	
LOWEST ANNUAL MEAN			3.57	1991
HIGHEST DAILY MEAN	76	Jun 4	.82	1992
LOWEST DAILY MEAN	.03	Jan 29	102	May 30 1990
ANNUAL SEVEN-DAY MINIMUM	.04	Jan 25	.02	Dec 22 1990a
INSTANTANEOUS PEAK FLOW			.04	Jan 25 1991
INSTANTANEOUS PEAK STAGE			210	Jun 3 1991
ANNUAL RUNOFF (AC-FT)	2610	592	7.23	Jun 3 1991
10 PERCENT EXCEEDS	7.6	2.2	1540	
50 PERCENT EXCEEDS	.47	.42	3.0	
90 PERCENT EXCEEDS	.14	.16	.39	
			.11	

e Estimated

a Also Dec. 29, 1990.

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

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

DRAINAGE AREA.--25.2 mi².

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

REVISED RECORDS.--WDR SD-88-1: 1988 (M).

GAGE.--Water-stage recorder. Elevation of gage is 4,100 ft above 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 ft³/s from slope-area measurement of peak flow.
Flood of June 15, 1976, reached a stage of 10.90 ft, from floodmarks, discharge, 980 ft³/s on basis of slope-area measurement of 10.35 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	e2.2	e2.6	e2.1	1.6	1.8	2.1	1.6	3.0	5.6	6.9	2.9
2	2.1	e2.3	e2.7	e2.1	1.6	1.8	2.0	1.6	3.6	9.1	6.6	3.8
3	2.4	e2.3	e2.9	e2.1	1.6	1.8	2.1	1.5	2.8	7.2	6.2	3.0
4	3.7	e2.4	e2.9	e2.2	1.5	2.1	2.1	1.5	3.5	6.2	6.3	2.7
5	2.6	e2.4	e2.9	e2.2	1.5	4.7	2.0	1.4	4.3	8.4	5.8	2.9
6	2.4	e2.5	e2.9	e2.3	e1.5	3.6	2.0	1.3	3.8	7.6	5.6	2.7
7	2.4	e2.6	e2.9	e2.3	e1.5	3.1	2.0	1.3	3.4	6.5	5.3	2.6
8	2.8	e2.7	2.9	e2.2	e1.5	3.1	1.9	1.2	3.4	5.8	4.8	2.5
9	2.4	e2.7	2.7	e2.2	e1.4	3.3	1.9	1.5	2.9	5.9	4.4	2.4
10	2.2	e2.8	2.6	e2.1	e1.4	2.4	1.8	4.6	2.7	5.8	4.1	2.2
11	2.3	e2.8	2.5	e1.9	e1.4	2.6	3.0	2.8	2.5	5.7	4.0	2.2
12	2.2	2.8	2.5	e1.7	e1.5	2.6	2.7	2.2	2.4	6.9	3.8	2.1
13	2.4	2.7	e2.5	e1.7	e1.6	2.6	2.5	1.9	2.2	12	3.7	2.1
14	2.4	2.7	e2.4	e1.5	1.6	2.6	2.5	1.7	2.4	8.7	3.5	2.0
15	2.2	2.6	e2.4	e1.4	1.6	2.5	2.4	1.6	3.0	7.5	3.5	2.0
16	2.1	2.6	e2.4	e1.4	1.6	2.5	2.3	1.6	3.6	7.0	3.5	2.0
17	2.1	2.7	e2.3	e1.4	1.5	2.4	2.2	1.6	3.1	6.4	4.0	1.9
18	2.3	2.8	e2.3	e1.4	1.6	2.6	2.2	1.4	2.6	6.2	3.7	2.0
19	2.5	2.8	e2.2	e1.4	1.8	2.9	2.4	1.3	2.7	6.1	3.3	1.9
20	2.5	2.6	e2.3	e1.3	1.6	2.7	2.3	1.4	8.0	6.4	3.1	1.9
21	2.6	e2.6	e2.4	e1.3	1.5	2.8	2.2	1.5	8.7	8.5	3.0	1.9
22	2.5	e2.6	e2.4	e1.3	1.6	2.5	1.9	2.9	12	8.1	3.0	1.9
23	2.4	e2.5	e2.4	e1.4	2.3	2.6	2.0	2.4	8.9	6.9	3.9	1.8
24	2.5	e2.5	e2.4	e1.5	2.1	2.5	2.1	2.0	7.7	6.3	4.0	1.8
25	2.6	e2.6	e2.4	e1.5	1.9	2.4	2.1	2.1	6.5	6.1	3.8	1.9
26	2.6	e2.7	e2.4	e1.6	1.9	2.3	2.0	1.9	6.1	6.2	4.8	1.8
27	e2.5	e2.8	e2.4	e1.6	2.0	2.2	1.9	1.8	5.9	6.3	4.2	1.8
28	e2.4	e2.7	e2.3	e1.7	2.0	2.3	1.8	1.7	5.4	5.5	3.4	1.9
29	e2.3	e2.6	e2.3	1.7	1.9	2.4	1.8	1.5	6.4	7.6	3.1	1.8
30	e2.2	e2.5	e2.2	1.6	---	2.1	1.7	1.5	5.9	10	2.6	1.9
31	e2.2	---	e2.2	1.6	---	2.1	---	2.4	---	7.9	2.8	---
TOTAL	75.0	78.1	77.6	53.7	48.1	79.9	63.9	56.7	139.4	220.4	130.7	66.3
MEAN	2.42	2.60	2.50	1.73	1.66	2.58	2.13	1.83	4.65	7.11	4.22	2.21
MAX	3.7	2.8	2.9	2.3	2.3	4.7	3.0	4.6	12	12	6.9	3.8
MIN	2.1	2.2	2.2	1.3	1.4	1.8	1.7	1.2	2.2	5.5	2.6	1.8
AC-FT	149	155	154	107	95	158	127	112	276	437	259	132

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1992, BY WATER YEAR (WY)

	1.83	1.42	1.15	.94	.90	1.71	2.30	10.8	8.57	4.64	2.74	1.78
MEAN	1.83	1.42	1.15	.94	.90	1.71	2.30	10.8	8.57	4.64	2.74	1.78
MAX	5.92	3.33	2.50	1.95	2.20	5.54	5.22	40.4	43.9	22.3	11.9	5.58
(WY)	1987	1987	1992	1987	1987	1989	1987	1978	1991	1979	1979	1979
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1977 - 1992

ANNUAL TOTAL	3377.05	1089.8	
ANNUAL MEAN	9.25	2.98	3.25
HIGHEST ANNUAL MEAN			8.89
LOWEST ANNUAL MEAN			.61
HIGHEST DAILY MEAN	148	Jun 4	254
LOWEST DAILY MEAN	.50	Jan 23	.00
ANNUAL SEVEN-DAY MINIMUM	.51	Jan 23	.00
INSTANTANEOUS PEAK FLOW			1030
INSTANTANEOUS PEAK STAGE			12.76
ANNUAL RUNOFF (AC-FT)	6700	2160	2350
10 PERCENT EXCEEDS	21	6.1	6.2
50 PERCENT EXCEEDS	2.5	2.4	1.2
90 PERCENT EXCEEDS	.80	1.6	.42

e Estimated

a Also July 13.

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

c Gage height, 10.84 ft, from floodmarks, from rating curve extended above 709 ft³/s based on slope-area measurement of peak flow.

d Backwater from ice.

CHEYENNE RIVER BASIN

69

06405800 BEAR GULCH NEAR HAYWARD, SD

LOCATION.--Lat 43°47'31", long 103°20'49", in NW1/4SW1/4NE1/4 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 mi².

WATER-DISCHARGE RECORDS

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

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

REMARKS.--Records fair 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	e.00	e.00	e.00	e.00	e.00	.17	e.07	.57	2.1	1.1	.29
2	.05	e.00	e.00	e.00	e.00	e.00	.14	e.06	.55	2.2	1.1	.29
3	.18	e.00	e.00	e.00	e.00	e.00	.07	e.06	.59	1.9	1.0	.23
4	.32	e.00	e.00	e.00	e.00	e.00	.06	e.06	.67	1.7	.98	.22
5	.20	e.00	e.00	e.00	e.00	e.00	.06	e.05	1.1	2.1	.97	.27
6	.16	e.00	e.00	e.00	e.00	e.00	.07	e.05	1.1	1.8	1.3	.22
7	.12	e.00	e.00	e.00	e.00	e.00	.08	e.35	1.3	1.7	.95	.22
8	.10	e.00	e.00	e.00	e.00	e.00	.09	e.95	1.3	1.6	.85	.20
9	.10	e.00	e.00	e.00	e.00	e.00	.07	e.85	1.2	1.8	.77	.17
10	.09	e.00	e.00	e.00	e.00	e.00	.11	e.75	1.2	1.7	.76	.16
11	e.08	e.00	e.00	e.00	e.00	e.00	.30	e.70	1.2	1.5	.73	.15
12	e.08	e.00	e.00	e.00	e.00	e.00	.38	e.65	1.1	1.9	.71	.12
13	e.07	e.00	e.00	e.00	e.00	e.00	.14	e.60	1.1	3.4	.66	.14
14	e.06	e.00	e.00	e.00	e.00	e.00	.16	e.56	1.1	3.3	.63	.13
15	e.05	e.00	e.00	e.00	e.00	e.00	.14	.47	1.4	3.2	.57	.12
16	e.04	e.00	e.00	e.00	e.00	e.00	.13	.49	1.3	3.0	.60	.08
17	e.04	e.00	e.00	e.00	e.00	e.01	.15	.49	1.2	2.8	.67	.08
18	e.09	e.00	e.00	e.00	e.00	.02	.15	.45	1.1	2.5	.57	.08
19	e.14	e.00	e.00	e.00	e.00	.02	.15	.40	1.1	2.3	.50	.09
20	e.06	e.00	e.00	e.00	e.00	.04	.16	.37	2.1	2.2	.44	.07
21	e.05	e.00	e.00	e.00	e.00	.09	.16	.44	2.5	2.4	.44	.05
22	.05	e.00	e.00	e.00	e.00	.25	.17	.70	3.4	2.1	.40	.06
23	.05	e.00	e.00	e.00	e.00	.17	.14	.55	3.4	1.8	.57	.04
24	.06	e.00	e.00	e.00	e.00	.20	.17	.54	3.3	1.6	.52	.02
25	.06	e.00	e.00	e.00	e.00	.17	.14	.51	3.0	1.5	.48	.02
26	.05	e.00	e.00	e.00	e.00	.15	.13	.50	2.8	1.4	.61	.02
27	e.04	e.00	e.00	e.00	e.00	.11	.12	.49	2.5	1.3	.45	.02
28	e.02	e.00	e.00	e.00	e.00	.11	.11	.43	2.3	1.1	.34	.02
29	e.00	e.00	e.00	e.01	e.00	.12	.09	.38	2.3	1.6	.31	.02
30	e.00	e.00	e.00	e.00	---	.09	e.07	.35	2.0	1.5	.30	.01
31	e.00	---	e.00	e.00	---	.13	---	.64	---	1.2	.29	---
TOTAL	2.47	0.00	0.00	0.01	0.00	1.68	4.08	13.96	49.78	62.2	20.57	3.61
MEAN	.080	.000	.000	.000	.000	.054	.14	.45	1.66	2.01	.66	.12
MAX	.32	.00	.00	.01	.00	.25	.38	.95	3.4	3.4	1.3	.29
MIN	.00	.00	.00	.00	.00	.00	.06	.05	.55	1.1	.29	.01
AC-FT	4.9	.00	.00	.02	.00	3.3	8.1	28	99	123	41	7.2

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1992, BY WATER YEAR (WY)

MEAN	.23	.036	.001	.000	.000	.063	.67	3.68	3.39	1.83	.51	.077
MAX	.60	.11	.004	.000	.000	.13	1.79	6.68	5.72	2.01	.66	.12
(WY)	1990	1990	1990	1992	1990	1990	1991	1991	1991	1992	1992	1992
MIN	.000	.000	.000	.000	.000	.000	.084	.45	1.66	1.49	.34	.003
(WY)	1991	1991	1991	1990	1990	1991	1990	1992	1992	1991	1991	1990

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR			FOR 1992 WATER YEAR			WATER YEARS 1990 - 1992		
ANNUAL TOTAL	494.75			158.36					
ANNUAL MEAN	1.36			.43					
HIGHEST ANNUAL MEAN							.88		
LOWEST ANNUAL MEAN							1.35		
HIGHEST DAILY MEAN	13			3.4			.43		
LOWEST DAILY MEAN	.00			.00			.00		
ANNUAL SEVEN-DAY MINIMUM	.00			.00			.00		
INSTANTANEOUS PEAK FLOW				4.0			1250		
INSTANTANEOUS PEAK STAGE				5.20			10.68		
ANNUAL RUNOFF (AC-FT)	981			314			636		
10 PERCENT EXCEEDS	5.1			1.5			2.2		
50 PERCENT EXCEEDS	.05			.07			.06		
90 PERCENT EXCEEDS	.00			.00			.00		

e Estimated

a Also June 23 and July 13.

b For many days each year.

c Based on slope-area measurement of peak flow.

d 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.--3 years, 21.52 in.

REMARKS.--Records fair.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.10	.53	.02	.08
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.01	.00
3	.73	.00	.00	.00	.00	.00	.00	.00	.45	.00	.00	.00
4	.03	.00	.00	.00	.00	.75	.00	.00	.00	.06	.00	.15
5	.00	.06	.00	.00	.00	.02	.00	.00	.46	.40	.33	.00
6	.00	.21	.00	.00	.00	.18	.00	.00	.05	.02	.00	.00
7	.00	.00	.00	.10	.00	.00	.00	.00	.02	.00	.00	.00
8	.00	.00	.00	.00	.00	.57	.00	.00	.00	.02	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.95	.00	.18	.00	.00
10	.00	.00	.00	.00	.00	.00	.50	.13	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.19	.00	.00	.06	.00	.00
12	.00	.00	.00	.00	.00	.04	.07	.02	.00	1.04	.00	.00
13	.00	.00	.00	.03	.00	.00	.00	.00	.00	.02	.00	.00
14	.00	.00	.00	.03	.00	.00	.00	.00	.09	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.11	.66	.00	.00	.00
16	.00	.00	.00	.00	.00	.06	.00	.04	.07	.00	.02	.00
17	.00	.09	.00	.00	.00	.00	.00	.00	.00	.00	.11	.00
18	.06	.03	.00	.00	.00	.52	.02	.00	.40	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.06	.00	.03	.02	.00	.00
20	.00	.02	.00	.00	.00	.00	.06	.00	.53	.08	.00	.00
21	.00	.85	.00	.00	.00	.00	.00	.65	.42	.41	.00	.00
22	.00	.01	.00	.00	.03	.00	.11	.27	.00	.00	.13	.00
23	.00	.03	.00	.00	.28	.00	.01	.00	.00	.04	.22	.00
24	.00	.00	.00	.00	.00	.00	.00	.07	.02	.11	.05	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.05	.14	.00	.44	.00
27	.03	.48	.00	.00	.00	.00	.00	.00	.02	.00	.00	.04
28	.58	.12	.00	.00	.00	.00	.00	.00	.08	.22	.00	.00
29	.04	.04	.00	.00	.00	.00	.00	.00	.01	.64	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.29	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.45	---	.00	.00	---
TOTAL	1.47	1.94	0.00	0.16	0.31	2.14	1.02	3.03	3.55	3.89	1.33	0.27

CAL YR 1991 TOTAL 25.69
WTR YR 1992 TOTAL 19.11

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LOCATION.--Lat 43°49'41", long 103°11'44", in NE1/4SW1/4SW1/4 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.

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.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	e6.0	e5.5	5.7	4.3	4.8	5.1	3.3	5.3	4.5	4.4	5.0
2	5.3	6.1	e6.0	5.7	4.4	4.8	5.1	4.0	5.1	5.2	4.2	5.0
3	5.7	6.5	e5.0	5.8	4.5	4.6	5.3	4.9	4.8	3.3	4.3	3.5
4	6.9	6.7	e6.0	5.8	4.4	4.9	5.3	4.6	4.5	3.2	5.1	4.3
5	6.7	6.9	7.0	5.6	4.3	6.1	5.3	4.8	4.5	5.1	4.8	4.3
6	6.7	e5.5	7.0	5.6	4.3	5.3	5.3	4.5	4.8	3.7	4.7	4.2
7	6.7	6.2	7.0	5.3	4.3	5.3	5.1	4.5	4.6	3.3	4.7	4.0
8	6.4	6.8	6.7	5.3	4.1	5.5	4.8	4.4	4.4	3.1	4.9	4.0
9	6.4	7.1	6.8	5.2	4.3	5.8	4.6	4.4	4.3	3.4	4.6	4.0
10	6.3	6.9	6.8	5.5	e3.9	5.1	5.1	6.5	4.0	3.9	4.0	4.1
11	6.3	6.9	6.8	5.6	e3.4	5.1	6.1	5.3	3.8	5.1	3.3	4.4
12	5.8	6.4	7.5	5.6	5.1	5.1	6.1	5.1	3.8	5.9	3.3	5.6
13	5.6	6.9	7.7	4.9	4.7	5.3	5.8	5.1	3.8	8.5	3.4	5.3
14	5.5	7.0	6.7	4.7	4.5	5.1	5.2	5.0	4.1	6.2	3.3	5.4
15	5.3	6.8	7.0	4.2	4.5	5.1	3.9	4.8	5.2	6.1	4.1	6.0
16	5.3	6.7	6.7	4.8	4.5	5.1	3.6	4.9	5.7	6.4	4.0	5.0
17	5.1	7.2	6.4	4.6	4.5	5.1	3.6	5.0	5.2	6.1	4.4	5.5
18	4.8	7.5	6.1	4.4	4.5	5.4	3.6	5.3	4.8	6.1	4.4	5.5
19	5.4	7.2	6.7	4.6	4.5	5.6	3.6	4.7	4.8	5.8	4.0	5.5
20	5.2	7.0	6.6	4.8	4.5	5.5	3.7	4.2	5.2	6.2	3.9	5.5
21	5.6	7.5	6.3	4.8	4.5	5.6	3.9	4.7	5.3	7.4	4.0	5.6
22	5.8	7.8	6.5	4.8	4.8	5.7	3.8	5.8	5.1	7.8	5.6	5.5
23	5.4	7.1	6.0	4.5	5.2	5.6	4.2	5.1	4.4	7.1	6.5	5.7
24	5.8	6.7	5.9	5.2	5.1	5.3	5.4	5.1	4.0	5.2	7.0	4.9
25	5.9	6.7	6.1	4.5	5.1	5.3	4.0	5.3	3.8	4.8	7.0	4.5
26	6.0	6.7	5.7	4.3	5.2	5.3	3.8	4.7	4.0	4.5	7.1	4.6
27	e5.5	6.9	5.7	4.1	4.9	5.3	3.8	4.6	4.0	4.4	7.1	5.0
28	e5.0	e6.4	5.8	4.0	4.8	5.3	4.1	4.8	4.0	4.1	6.5	4.8
29	e4.5	e6.0	5.8	4.0	4.9	5.1	3.5	4.7	4.1	4.3	6.1	5.6
30	e4.5	e5.5	5.9	4.0	---	5.1	3.3	4.1	4.2	4.8	5.2	5.1
31	e5.0	---	5.8	4.1	---	5.1	---	4.9	---	4.7	4.9	---
TOTAL	175.7	201.6	197.5	152.0	130.9	163.3	136.0	149.1	135.6	160.2	150.8	147.4
MEAN	5.67	6.72	6.37	4.90	4.51	5.27	4.53	4.81	4.52	5.17	4.86	4.91
MAX	6.9	7.8	7.7	5.8	5.2	6.1	6.1	6.5	5.7	8.5	7.1	6.0
MIN	4.5	5.5	5.0	4.0	3.4	4.6	3.3	3.3	3.8	3.1	3.3	3.5
AC-FT	349	400	392	301	260	324	270	296	269	318	299	292

MEAN	3.90	4.15	3.68	3.22	3.08	3.58	5.48	22.9	33.3	12.7	5.76	3.66
MAX	10.5	10.6	8.96	6.63	6.16	9.98	31.9	129	158	75.5	25.5	10.1
(WY)	1980	1980	1980	1985	1968	1987	1971	1965	1967	1962	1957	1984
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

ANNUAL TOTAL	8716.1			1900.1					
ANNUAL MEAN	23.9			5.19				8.79a	
HIGHEST ANNUAL MEAN								26.5	1965
LOWEST ANNUAL MEAN								.99	1955
HIGHEST DAILY MEAN	607	Jun	6	8.5	Jul	13	1750		Jun 10 1972
LOWEST DAILY MEAN	1.4	Jan	4	3.1	Jul	8	.00		Oct 6 1954b
ANNUAL SEVEN-DAY MINIMUM	1.4	Jan	4	3.6	Jul	3	.00		Oct 9 1954
INSTANTANEOUS PEAK FLOW				23	Sep	29	21400		Jun 10 1972c
INSTANTANEOUS PEAK STAGE				3.00	Sep	29	17.72		Jun 10 1972c
ANNUAL RUNOFF (AC-FT)	17290			3770			6370		
10 PERCENT EXCEEDS	65			6.7			11		
50 PERCENT EXCEEDS	5.9			5.1			3.5		
90 PERCENT EXCEEDS	2.4			4.0			.90		

c From floodmarks, from rating curve extended above 2,800 ft³/s on basis of contracted-opening and flow-over-railroad embankment measurement of peak flow.

CHEYENNE RIVER BASIN

06406500 BATTLE CREEK BELOW HERMOSA, SD

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

DRAINAGE AREA.--285 mi².

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

GAGE.--Water-stage recorder and rectangular weir. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	e6.0	e8.2	e7.9	e4.4	e5.8	5.8	3.6	3.8	3.5	1.9	1.8
2	4.4	e6.0	e7.0	e7.9	e4.4	e5.8	6.1	2.9	3.8	3.6	1.9	2.0
3	5.0	e5.8	e7.6	e7.6	e4.4	e5.8	6.3	3.0	3.8	3.9	1.9	1.7
4	5.6	5.7	7.6	e7.7	e4.3	e6.0	6.1	2.9	3.9	3.4	1.9	1.6
5	5.3	6.2	7.7	e7.9	e4.3	6.1	6.3	2.9	4.0	4.4	1.7	1.6
6	5.6	e5.0	7.9	e7.7	e4.1	6.1	6.4	2.8	4.1	3.6	1.8	1.5
7	5.7	e6.0	8.3	e6.8	e4.1	6.7	6.4	2.9	4.0	3.1	1.8	1.4
8	5.6	e7.2	8.3	e6.0	e4.0	5.8	6.3	3.1	4.0	2.9	1.7	1.4
9	5.6	8.0	8.5	e7.0	e3.6	5.6	6.4	3.5	4.0	2.7	1.6	1.4
10	5.4	8.2	8.3	7.2	e4.0	5.5	5.1	5.0	4.1	2.4	1.5	1.3
11	4.2	8.2	7.8	7.4	e4.0	5.3	4.7	4.7	4.0	2.3	1.4	1.2
12	2.8	8.0	8.4	e7.0	e4.5	5.2	4.6	4.7	3.8	2.5	1.4	1.3
13	3.1	8.0	7.8	e6.2	e4.4	5.2	4.8	4.6	3.7	3.3	1.3	1.2
14	3.2	8.1	e9.0	e6.2	e4.4	5.3	4.8	4.3	3.8	3.1	1.2	1.1
15	3.3	7.8	8.4	e6.5	e4.4	5.4	4.7	4.1	4.3	3.1	1.1	1.1
16	3.4	7.6	9.0	e4.5	e4.5	5.3	4.6	3.9	4.5	3.1	1.1	1.0
17	3.4	7.6	8.7	e4.8	e4.5	6.3	4.4	3.9	4.9	2.8	1.1	1.0
18	3.5	7.8	9.4	e4.9	e4.5	e6.0	4.0	3.8	5.0	2.7	1.1	.97
19	3.8	7.7	8.3	e4.9	e4.5	e6.5	4.5	3.6	4.8	2.7	1.1	1.3
20	3.9	7.7	8.4	e4.9	e4.9	e6.5	4.6	3.5	4.8	2.7	1.0	1.4
21	4.1	7.9	9.0	e4.8	e5.0	e6.0	4.5	3.6	4.5	3.2	1.0	1.4
22	4.2	8.0	8.6	e5.0	e5.3	e5.8	4.5	5.1	4.4	3.3	.99	1.4
23	4.4	7.9	e7.4	e4.9	e5.6	e5.8	4.7	4.4	4.2	3.4	1.1	1.4
24	4.5	7.4	e7.9	e4.5	e5.8	5.7	4.5	4.2	4.0	3.4	1.1	1.4
25	4.7	7.3	e8.1	e4.0	e5.9	5.7	4.5	4.1	3.6	3.3	1.2	1.4
26	4.7	7.8	e7.6	e4.0	e6.0	5.7	4.5	3.8	3.5	3.0	2.0	1.4
27	4.9	7.7	9.3	e4.0	e6.0	5.6	4.8	3.5	3.4	2.8	2.1	1.5
28	e4.5	8.0	e8.3	e4.0	e5.9	5.7	4.4	3.5	3.2	2.3	1.9	1.5
29	e4.0	7.8	e8.1	e4.1	e5.9	5.9	3.5	3.4	3.3	2.2	1.8	1.5
30	e4.0	e7.0	e7.9	e4.5	---	5.8	3.4	3.4	3.3	2.2	1.7	1.6
31	e5.0	---	e7.9	e4.5	---	6.0	---	3.6	---	2.1	1.6	---
TOTAL	136.2	219.4	254.7	179.3	137.6	179.9	150.2	116.3	120.5	93.0	45.99	41.77
MEAN	4.39	7.31	8.22	5.78	4.74	5.80	5.01	3.75	4.02	3.00	1.48	1.39
MAX	5.7	8.2	9.4	7.9	6.0	6.7	6.4	5.1	5.0	4.4	2.1	2.0
MIN	2.8	5.0	7.0	4.0	3.6	5.2	3.4	2.8	3.2	2.1	.99	.97
AC-FT	270	435	505	356	273	357	298	231	239	184	91	83

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1953, 1989 - 1992, BY WATER YEAR (WY)

	1951	1952	1953	1989	1990	1991	1992
MEAN	1.09	2.16	2.20	1.99	2.60	3.99	2.12
MAX	4.39	7.31	8.22	5.78	4.74	6.19	5.01
(WY)	1992	1992	1992	1992	1992	1992	1992
MIN	.000	.000	.000	.000	.000	.44	.59
(WY)	1953	1989	1989	1989	1989	1990	1989

SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1951-1953, 1989-1992

	1991	1992	1951-1953	1989-1992
ANNUAL TOTAL	8419.49	1674.86		
ANNUAL MEAN	23.1	4.58		
HIGHEST ANNUAL MEAN			8.68	1991
LOWEST ANNUAL MEAN			21.6	1989
HIGHEST DAILY MEAN	533	Jun 7	1760	May 23 1952
LOWEST DAILY MEAN	.25	Jan 8	.00	Oct 1 1950a
ANNUAL SEVEN-DAY MINIMUM	.37	Jan 6	.00	Oct 1 1950
INSTANTANEOUS PEAK FLOW			2060	May 23 1952c
INSTANTANEOUS PEAK STAGE			8.13	May 23 1952e
ANNUAL RUNOFF (AC-FT)	16700	3320	6290	
10 PERCENT EXCEEDS	70	7.8	8.7	
50 PERCENT EXCEEDS	5.3	4.4	1.8	
90 PERCENT EXCEEDS	2.3	1.5	.00	

e Estimated

a No flow many days in most years.

b Gage height, 3.17 ft.

c From rating curve extended above 110 ft³/s.

d Backwater from ice.

e Site and datum then in use.

CHEYENNE RIVER BASIN

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06406920 SPRING CREEK ABOVE SHERIDAN LAKE, NEAR KEYSTONE, SD

LOCATION.--Lat 43°57'39", long 103°29'18", in SE1/4NE1/4SW1/4 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.--355 mi².

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	e4.2	e5.8	e2.6	e2.5	e5.2	6.5	5.3	7.0	8.9	11	5.0
2	4.4	e4.2	e5.2	e2.5	e2.5	e5.2	6.4	5.2	6.6	13	10	6.8
3	5.4	e4.2	e5.0	e2.3	e2.5	e5.2	6.8	5.0	6.2	12	9.6	5.3
4	7.7	e4.5	e5.0	e2.2	e2.5	e5.5	7.1	4.8	5.6	9.4	10	4.6
5	7.8	e4.7	e5.2	e2.0	e2.6	e5.5	7.4	4.6	5.7	16	10	4.4
6	6.9	e4.9	e5.4	e2.0	e2.6	e5.6	7.5	4.4	6.3	15	9.9	4.3
7	6.9	e5.0	e5.6	e2.0	e2.6	e5.7	6.9	4.4	5.8	11	9.6	5.0
8	7.0	e5.5	e6.0	e2.0	e2.7	e5.9	6.5	4.3	5.5	9.5	8.5	5.3
9	6.3	e5.9	e6.0	e2.2	e2.9	e6.0	6.2	4.5	5.7	8.6	7.9	5.4
10	5.8	e6.2	e6.0	e2.2	e3.0	6.1	6.5	12	5.2	8.1	7.3	5.9
11	5.4	e7.0	e6.0	e2.4	e3.0	7.2	8.4	10	4.4	8.2	6.8	4.8
12	5.2	e7.5	e6.0	e2.5	e3.0	7.5	7.9	7.1	4.2	9.5	6.4	4.4
13	4.9	e7.8	e6.2	e2.5	e2.8	7.8	7.9	6.1	3.6	19	6.1	3.9
14	4.8	e7.8	e6.5	e2.5	e2.7	8.1	8.8	5.7	3.0	15	5.7	3.5
15	4.9	e8.0	e6.5	e2.5	e2.5	8.3	8.4	5.2	4.3	11	5.5	3.4
16	4.9	e7.7	e6.5	e2.6	e2.5	8.3	8.0	4.8	6.9	9.4	5.3	3.0
17	4.5	e7.5	e6.0	e2.7	e2.5	8.4	7.6	4.6	6.2	8.6	5.7	2.9
18	4.4	e7.5	e5.8	e3.0	e2.7	8.3	7.6	4.3	5.5	8.1	5.9	2.7
19	4.8	e7.3	e5.5	e3.0	e3.0	7.5	8.4	3.7	5.6	7.8	5.4	2.7
20	5.0	e7.5	e5.0	e3.0	e3.2	6.9	8.1	3.3	21	8.2	4.8	2.6
21	5.0	e7.9	e4.8	e3.0	e3.5	7.9	7.6	3.1	22	10	4.7	2.6
22	5.0	e7.3	e4.4	e2.9	e3.7	6.6	7.1	8.9	15	13	4.7	2.6
23	5.0	e7.3	e4.0	e2.7	e3.8	7.0	7.6	9.4	11	11	6.1	2.5
24	5.1	e7.3	e3.6	e2.6	e4.0	8.1	7.4	6.8	10	9.4	7.7	2.5
25	5.2	e7.3	e3.5	e2.5	e4.2	7.6	6.9	6.4	8.6	9.0	7.0	2.5
26	5.1	e7.5	e3.4	e2.5	e4.8	7.5	6.5	5.7	9.4	12	7.3	2.5
27	5.2	e7.6	e3.0	e2.5	e5.0	7.8	6.3	5.4	11	17	7.7	2.4
28	e5.2	e7.6	e3.0	e2.5	e5.0	8.0	6.2	5.1	11	12	6.6	2.4
29	e4.7	e7.0	e2.8	e2.5	e5.0	8.1	5.9	4.6	12	11	5.5	2.5
30	e4.5	e6.2	e2.7	e2.5	---	7.6	5.7	4.3	10	14	5.0	2.6
31	e4.3	---	e2.6	e2.5	---	7.2	---	5.9	---	13	4.7	---
TOTAL	165.8	197.9	153.0	77.4	93.3	217.6	216.1	174.9	244.3	347.7	218.4	111.0
MEAN	5.35	6.60	4.94	2.50	3.22	7.02	7.20	5.64	8.14	11.2	7.05	3.70
MAX	7.8	8.0	6.5	3.0	5.0	8.4	8.8	12	22	19	11	6.8
MIN	4.3	4.2	2.6	2.0	2.5	5.2	5.7	3.1	3.0	7.8	4.7	2.4
AC-FT	329	393	303	154	185	432	429	347	485	690	433	220

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1992, BY WATER YEAR (WY)

	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
MEAN	3.98	4.96	3.61	2.46	2.70	6.29	8.79	39.7	64.7	19.1	10.0	4.91
MAX	5.35	6.60	4.94	2.50	3.22	7.02	10.4	73.7	121	26.9	13.0	6.12
(WY)	1992	1992	1992	1992	1992	1992	1991	1991	1991	1991	1991	1991
MIN	2.61	3.32	2.28	2.42	2.16	5.56	7.20	5.64	8.14	11.2	7.05	3.70
(WY)	1991	1991	1991	1991	1991	1991	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1991 - 1992

ANNUAL TOTAL	8478.4	2217.4										
ANNUAL MEAN	23.2	6.06										
HIGHEST ANNUAL MEAN									14.3			
LOWEST ANNUAL MEAN									22.5			1991
HIGHEST DAILY MEAN	311	Jun 7				22	Jun 21		6.06			1992
LOWEST DAILY MEAN	1.7	Feb 5				2.0	Jan 5a		1.5			Oct 6 1990
ANNUAL SEVEN-DAY MINIMUM	1.8	Feb 1				2.1	Jan 4		1.7			Oct 1 1990
INSTANTANEOUS PEAK FLOW						32	Jun 20		455			Jun 4 1991
INSTANTANEOUS PEAK STAGE						8.49	Jun 20		10.77			Jun 4 1991
ANNUAL RUNOFF (AC-FT)	16820					4400			10360			
10 PERCENT EXCEEDS	68					9.5			21			
50 PERCENT EXCEEDS	6.6					5.6			5.5			
90 PERCENT EXCEEDS	2.4					2.6			2.4			

e Estimated

a Also Jan. 6-8.

CHEYENNE RIVER BASIN

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

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

DRAINAGE AREA.--163 mi².

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 miles 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	e4.6	e6.6	4.5	4.9	7.8	8.2	6.6	7.2	11	13	4.6
2	5.2	e4.3	e6.4	4.5	4.8	7.9	7.8	6.1	7.2	13	13	5.0
3	5.3	e4.6	e6.2	4.5	4.9	7.9	7.6	5.8	7.5	13	12	5.5
4	6.9	e4.8	6.4	4.5	4.6	8.6	7.8	5.3	8.0	12	12	5.2
5	7.2	e5.0	6.4	4.6	4.7	14	7.9	4.8	7.9	17	11	5.0
6	7.2	e5.2	6.6	4.5	4.6	17	7.9	4.6	9.5	18	11	4.5
7	7.4	5.7	6.8	4.5	4.4	18	7.9	4.5	9.3	17	11	4.6
8	7.5	6.4	6.9	4.6	4.1	17	7.9	4.3	8.5	16	10	4.7
9	7.4	6.8	7.0	4.6	4.6	17	7.9	4.5	7.6	14	9.8	4.4
10	7.6	7.3	7.2	4.8	4.5	14	7.8	8.9	7.0	13	8.9	3.9
11	7.5	7.7	6.7	5.1	4.0	12	8.7	9.9	4.9	12	8.3	3.4
12	7.3	8.0	6.6	5.0	4.7	12	8.9	9.9	3.5	13	7.4	3.4
13	7.1	8.4	6.4	4.8	5.2	11	9.2	9.2	3.4	17	6.5	3.8
14	6.8	8.4	6.1	4.5	5.1	9.9	9.5	8.4	3.9	18	5.9	3.0
15	6.4	8.4	5.4	4.4	5.2	9.7	9.5	7.3	4.6	17	5.6	2.7
16	6.4	8.4	5.9	e4.2	5.0	9.5	9.5	7.0	6.0	15	4.4	2.4
17	6.7	8.4	5.4	e4.1	4.8	9.7	9.5	6.9	7.4	14	2.9	2.3
18	5.7	8.4	5.1	e4.1	4.9	10	9.8	5.5	6.7	13	3.1	1.8
19	5.7	10	5.5	e4.4	5.6	11	11	5.0	6.0	10	3.5	1.7
20	5.8	9.6	5.7	e4.6	4.9	12	11	4.5	5.8	9.7	3.7	1.5
21	5.9	7.8	5.4	4.5	5.0	11	9.8	4.4	11	11	3.8	1.3
22	6.1	10	5.3	4.4	5.3	9.7	9.4	6.7	18	11	3.5	1.2
23	6.0	8.9	5.1	4.5	6.8	8.8	9.1	8.3	19	12	4.6	1.2
24	5.6	e8.2	5.2	4.6	7.2	8.4	9.3	8.7	23	12	5.6	1.1
25	5.6	e7.8	5.4	4.9	6.6	8.4	8.8	8.3	19	12	5.6	1.1
26	5.9	e7.8	5.1	5.0	7.3	8.8	8.6	7.2	16	12	6.3	1.3
27	e6.0	e7.6	4.5	4.5	7.5	8.6	7.8	6.6	15	14	7.5	1.1
28	e5.5	e7.5	4.9	4.5	7.6	8.5	7.5	5.9	19	15	7.4	.97
29	e5.2	e6.8	4.9	4.7	7.8	8.4	7.4	5.2	19	15	6.8	.84
30	e4.8	e6.6	5.3	4.6	---	8.4	7.0	4.8	17	14	5.9	.76
31	e4.6	---	4.9	4.8	---	8.3	---	6.0	---	14	4.9	---
TOTAL	193.7	219.4	181.3	141.8	156.6	333.3	260.0	201.1	307.9	424.7	224.9	84.27
MEAN	6.25	7.31	5.85	4.57	5.40	10.8	8.67	6.49	10.3	13.7	7.25	2.81
MAX	7.6	10	7.2	5.1	7.8	18	11	9.9	23	18	13	5.5
MIN	4.6	4.3	4.5	4.1	4.0	7.8	7.0	4.3	3.4	9.7	2.9	.76
AC-FT	384	435	360	281	311	661	516	399	611	842	446	167

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1992, BY WATER YEAR (WY)*

	1987	1988	1989	1990	1991	1992
MEAN	4.08	3.34	2.38	1.94	2.46	8.30
MAX	15.7	8.10	5.85	4.57	5.40	24.0
(WY)	1987	1987	1992	1992	1987	1987
MIN	.000	.006	.076	.10	.010	.74
(WY)	1989	1989	1989	1989	1989	1989

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1987 - 1992*

ANNUAL TOTAL	10591.1	2728.97	
ANNUAL MEAN	29.0	7.46	
HIGHEST ANNUAL MEAN			13.5
LOWEST ANNUAL MEAN			28.0
HIGHEST DAILY MEAN	245	Jun 8	1991
LOWEST DAILY MEAN	1.1	Jan 7	1989
ANNUAL SEVEN-DAY MINIMUM	1.1	Jan 6	1989
INSTANTANEOUS PEAK FLOW		31	Jun 28
INSTANTANEOUS PEAK STAGE		4.98	Jun 28
ANNUAL RUNOFF (AC-FT)	21010	5410	9780
10 PERCENT EXCEEDS	105	13	23
50 PERCENT EXCEEDS	7.5	6.7	3.8
90 PERCENT EXCEEDS	2.0	4.3	.02

e Estimated

* Period using present site and datum only (1987-92). See GAGE.

a No flow many days in 1988-89.

b Peaks occurred during partial year.

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PRECIPITATION RECORDS

REMARKS.--Records fair.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

[illegible]

06408500 SPRING CREEK NEAR HERMOSA, SD

LOCATION.--Lat 43°56'31", long 103°09'32", in SE1/4SE1/4SE1/4 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 mi².

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

REVISID 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	e2.0	e1.4	2.0	1.6	1.4	.89	1.1	.56	.48	.34	.22
2	2.0	e2.0	e1.4	2.0	1.6	1.4	1.0	1.0	.45	.65	.31	.25
3	2.0	e2.0	e1.3	1.9	1.6	1.4	1.0	1.0	.38	.65	.31	.24
4	2.1	e2.0	e1.4	1.8	1.4	1.4	1.0	1.0	.38	.56	.35	.15
5	2.0	e2.0	e1.6	1.8	1.4	1.7	.96	.89	.47	1.1	.37	.13
6	1.9	e1.9	e1.8	e1.8	1.4	1.5	.96	.85	.47	1.1	.34	.15
7	2.0	e1.8	e2.0	e1.6	1.4	1.4	.96	.83	.50	.72	.34	.17
8	2.1	e2.0	e2.1	e1.5	1.4	1.3	.96	.82	.45	.66	.28	.20
9	1.8	e2.1	1.8	e1.6	1.4	1.4	.96	.65	.38	.60	.24	.22
10	1.8	2.1	1.8	e1.8	1.4	1.3	.97	1.0	.37	.60	.21	.22
11	1.8	2.1	1.7	e2.0	1.3	1.3	1.1	.82	.31	.64	.17	.18
12	1.7	2.1	1.7	e1.9	1.5	1.3	1.1	.60	.27	.76	.13	.20
13	1.7	2.1	e1.6	e1.8	1.5	1.3	1.1	.60	.22	1.2	.13	.09
14	1.6	2.1	e1.7	e1.8	1.5	1.2	1.1	.62	.22	1.0	.13	.06
15	1.7	2.0	e1.8	e1.9	1.5	1.2	1.1	.63	.43	.76	.12	.00
16	1.8	2.0	e2.0	e1.8	1.3	1.2	1.0	.50	.57	.61	.11	.00
17	1.8	2.1	e1.9	e1.7	1.2	1.2	1.0	.50	.40	.56	.21	.00
18	1.7	2.2	e1.7	e1.5	1.3	1.1	1.1	.49	.34	.51	.24	.00
19	1.7	2.0	e2.0	e1.8	1.3	1.1	1.2	.45	.37	.50	.15	.00
20	1.8	1.9	e1.9	e2.0	1.4	1.1	1.2	.41	.38	.50	.06	.00
21	1.9	1.9	1.9	e2.0	1.4	1.1	1.2	.34	.38	.71	.00	.00
22	2.0	1.9	2.0	e2.0	1.4	1.0	1.2	.53	.38	.89	.00	.00
23	1.9	1.9	1.8	e2.0	1.4	1.0	1.2	.53	.37	.77	.12	.00
24	1.9	1.9	1.8	e2.0	1.4	1.0	1.2	.46	.27	.71	.19	.00
25	1.9	1.9	1.9	e2.0	1.4	1.0	1.0	.46	.22	.65	.21	.00
26	2.1	e1.9	1.8	1.9	1.4	1.0	1.0	.46	.19	.55	.27	.00
27	e2.0	e1.7	e1.8	1.8	1.4	1.0	1.0	.45	.22	.51	.30	.00
28	e1.9	e1.6	e1.7	1.8	1.4	1.0	1.1	.46	.46	.50	.24	.00
29	e1.8	e1.5	e1.7	1.7	1.4	.97	1.2	.41	.80	.50	.21	.00
30	e1.9	e1.4	e1.9	1.7	---	.96	1.1	.38	.53	.49	.17	.00
31	e2.0	---	1.9	1.7	---	.95	---	.52	---	.37	.18	---
TOTAL	58.2	58.1	54.8	56.6	41.0	37.18	31.86	19.76	11.78	20.81	6.43	2.48
MEAN	1.88	1.94	1.77	1.83	1.41	1.20	1.06	.64	.39	.67	.21	.083
MAX	2.1	2.2	2.1	2.0	1.6	1.7	1.2	1.1	.80	1.2	.37	.25
MIN	1.6	1.4	1.3	1.5	1.2	.95	.89	.34	.19	.37	.00	.00
AC-FT	115	115	109	112	81	74	63	39	23	41	13	4

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1992, BY WATER YEAR (WY)

MEAN	1.00	1.09	.94	.82	1.29	.97	.96	9.17	27.9	8.31	1.82	.91
MAX	3.19	6.54	2.97	2.48	20.8	4.22	5.24	78.5	271	73.2	16.4	3.65
(WY)	1985	1972	1972	1964	1971	1985	1971	1965	1972	1962	1962	1965
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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1950 - 1992
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ANNUAL TOTAL	5742.71			399.00				
ANNUAL MEAN	15.7			1.09			4.59a	
HIGHEST ANNUAL MEAN							27.5	1972
LOWEST ANNUAL MEAN							.000	1990
HIGHEST DAILY MEAN	357	Jun 8		2.2	Nov 18	3300		Jun 10 1972
LOWEST DAILY MEAN	.00	Jan 1		.00	Aug 21b	.00		Jan 26 1951b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1		.00	Sep 15	.00		Jan 26 1951
INSTANTANEOUS PEAK FLOW				2.4	Nov 10c	13400		Jun 10 1972d
INSTANTANEOUS PEAK STAGE				2.66	Jan 15f	13.12		Jun 10 1972g
ANNUAL RUNOFF (AC-FT)	11390			791		3320		
10 PERCENT EXCEEDS	54			2.0		2.9		
50 PERCENT EXCEEDS	1.8			1.1		.54		
90 PERCENT EXCEEDS	.00			.19		.00		

e Estimated

a Median of annual mean discharges, 1.5 ft³/s.

b No flow for many days in most years.

c Gage height, 2.29 ft.

d From rating curve extended above 350 ft³/s on basis of contracted-opening measurement of peak flow.

f Backwater from ice.

g From floodmarks, site and datum then in use.

CHEYENNE RIVER BASIN

77

06408700 RHOADS FORK NEAR ROCHESTER, SD

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

DRAINAGE AREA.--7.95 mi², 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.

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4	3.7	3.9	3.6	3.7	3.8	3.6	3.8	3.9	3.9	3.8	3.7
2	3.8	3.8	4.0	3.6	3.7	3.8	3.7	3.8	3.9	3.8	3.7	3.7
3	3.9	3.6	4.0	3.6	3.7	3.9	3.7	3.9	3.8	3.8	3.6	3.7
4	4.0	3.6	3.8	3.6	3.7	4.0	3.7	3.9	3.8	3.9	3.7	3.7
5	4.0	3.6	3.4	3.6	3.7	3.9	3.7	3.9	3.8	3.8	3.7	3.7
6	3.8	3.6	3.3	3.6	3.7	3.8	3.7	3.9	3.8	3.8	3.6	3.7
7	3.8	3.6	3.3	3.6	3.7	3.7	3.7	3.9	3.8	3.8	3.5	3.8
8	3.8	3.5	3.4	3.7	3.7	3.6	3.7	3.9	3.7	3.8	3.5	3.7
9	4.0	3.5	3.5	3.7	3.7	3.5	3.7	4.0	3.7	3.8	3.6	3.7
10	4.0	3.5	3.6	3.6	3.7	3.5	3.8	4.0	3.7	3.8	3.7	3.7
11	4.0	3.5	3.6	3.6	3.7	3.5	3.8	4.0	3.8	3.9	3.6	3.7
12	3.9	3.5	3.6	3.7	3.7	3.5	3.7	3.9	3.7	4.1	3.6	3.7
13	3.8	3.6	3.6	3.7	3.7	3.6	3.8	3.9	3.7	4.0	3.7	3.7
14	3.8	3.5	3.5	3.7	3.7	3.5	3.8	3.9	3.7	3.9	3.7	3.8
15	3.8	3.4	3.5	3.7	3.7	3.5	3.8	3.8	3.8	3.8	3.7	3.8
16	3.8	3.4	3.6	3.7	3.7	3.6	3.8	3.9	3.8	3.8	3.8	3.8
17	3.8	3.3	3.6	3.7	3.7	3.6	3.8	3.9	3.8	3.8	3.7	3.9
18	3.8	3.3	3.6	3.7	3.7	3.5	3.9	3.9	3.8	3.8	3.7	3.8
19	3.8	3.3	3.6	3.7	3.7	3.5	4.0	3.9	3.8	3.8	3.9	3.9
20	3.9	3.3	3.6	3.7	3.7	3.5	3.7	4.0	3.8	3.8	4.0	3.8
21	3.9	3.7	3.6	3.7	3.8	3.6	3.8	4.3	3.8	3.9	4.0	3.9
22	3.7	3.7	3.6	3.7	3.8	3.5	3.8	4.2	3.7	3.8	3.9	3.8
23	3.7	3.8	3.5	3.7	3.8	3.4	3.9	4.1	3.7	3.8	4.1	3.9
24	3.7	3.8	3.5	3.7	3.8	3.5	3.9	3.9	3.8	3.8	3.9	3.8
25	3.7	3.9	3.5	3.7	3.8	3.5	3.8	3.9	3.8	3.8	3.7	3.9
26	3.7	3.8	3.5	3.6	3.8	3.5	3.8	3.9	3.9	3.7	3.9	3.8
27	3.7	3.9	3.6	3.6	3.8	3.5	3.8	3.8	3.8	4.0	3.8	3.8
28	3.7	3.9	3.6	3.6	3.8	3.6	3.8	3.8	3.8	3.9	3.7	3.8
29	3.7	3.9	3.6	3.6	3.8	3.6	3.8	3.7	3.8	3.5	3.7	3.9
30	3.9	3.9	3.7	3.7	---	3.6	3.8	3.9	3.9	3.6	3.7	3.8
31	3.7	---	3.7	3.7	---	3.6	---	3.9	---	3.8	3.7	---
TOTAL	118.6	108.4	111.4	113.4	108.2	111.7	113.3	121.5	113.6	118.5	115.9	113.4
MEAN	3.83	3.61	3.59	3.66	3.73	3.60	3.78	3.92	3.79	3.82	3.74	3.78
MAX	4.0	3.9	4.0	3.7	3.8	4.0	4.0	4.3	3.9	4.1	4.1	3.9
MIN	3.7	3.3	3.3	3.6	3.7	3.4	3.6	3.7	3.7	3.5	3.5	3.7
AC-FT	235	215	221	225	215	222	225	241	225	235	230	225

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1992, BY WATER YEAR (WY)

	5.35	5.21	4.98	4.85	4.91	4.99	5.04	5.18	5.17	5.18	5.07	5.05
MEAN	5.35	5.21	4.98	4.85	4.91	4.99	5.04	5.18	5.17	5.18	5.07	5.05
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	3.58	3.60	3.78	3.91	3.73	3.80	3.70	3.64
(WY)	1991	1991	1991	1991	1991	1992	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1983 - 1992

ANNUAL TOTAL	1368.7	1367.9	
ANNUAL MEAN	3.75	3.74	5.08
HIGHEST ANNUAL MEAN			6.95
LOWEST ANNUAL MEAN			3.69
HIGHEST DAILY MEAN	4.3	Apr 8	8.5
LOWEST DAILY MEAN	3.1	Jan 19	3.1
ANNUAL SEVEN-DAY MINIMUM	3.1	Jan 18	3.1
INSTANTANEOUS PEAK FLOW			9.7
INSTANTANEOUS PEAK STAGE			2.19
ANNUAL RUNOFF (AC-FT)	2710	2710	3680
10 PERCENT EXCEEDS	4.0	3.9	6.7
50 PERCENT EXCEEDS	3.8	3.7	5.0
90 PERCENT EXCEEDS	3.3	3.5	3.7

a Also Nov. 18-20 and Dec. 6-7.

b Also Jan. 20-22, 1991.

c Gage height, 1.86 ft.

d Gage height, 2.00 ft.

e Backwater.

f Backwater from vegetation.

CHEYENNE RIVER BASIN

06408700 RHOADS FORK NEAR ROCHEFORD, 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.--9 years, 20.03 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.03	.02	.00	.00	.00	.00	.07	.11	.55	.08	.15
2	.00	.04	.05	.00	.00	.00	.00	.00	.01	.00	.00	.00
3	.49	.00	.10	.00	.00	.03	.00	.00	.10	.00	.00	.00
4	.13	.08	.00	.00	.00	.55	.00	.00	.01	.32	.00	.06
5	.00	.13	.00	.00	.00	.09	.00	.00	.22	.10	.00	e.05
6	.00	.22	.00	.00	.00	.03	.00	.00	.00	.08	.18	e.00
7	.00	.00	.00	.03	.00	.00	.00	.00	.23	.07	.00	e.42
8	.00	.00	.06	.00	.01	.49	.00	.17	.00	.00	.03	.04
9	.00	.00	.00	.00	.00	.08	.00	.89	.00	.02	.00	.00
10	.00	.00	.00	.00	.00	.01	.46	.07	.00	.00	.00	.00
11	.00	.00	.00	.02	.00	.21	.26	.02	.02	.25	.00	.00
12	.00	.00	.00	.02	.00	.08	.05	.00	.00	1.00	.00	.00
13	.00	.00	.04	.06	.00	.00	.00	.00	.07	.02	.00	.00
14	.09	.00	.00	.43	.20	.00	.00	.00	.00	.06	.00	.00
15	.01	.00	.00	.00	.00	.00	.00	.00	.60	.00	.00	.00
16	.00	.06	.00	.01	.02	.08	.00	.08	.15	.00	e.22	.00
17	.07	.00	.00	.02	.02	.11	.10	.00	.16	.00	e.00	.00
18	.04	.00	.00	.00	.03	.32	.80	.02	.07	.00	.00	.00
19	.03	.00	.00	.00	.00	.04	.63	.00	.00	.07	.00	.00
20	.00	.01	.00	.00	.00	.05	.27	.00	.52	.04	.00	.00
21	.00	.35	.00	.00	.00	.00	.00	2.27	.34	.49	.16	.02
22	.00	.10	.00	.02	.11	.00	.07	.25	.01	.02	.36	.00
23	.00	.08	.00	.02	.23	.00	.17	.00	.00	.00	.48	.00
24	.00	.00	.00	.26	.02	.00	.04	.00	.00	.00	.10	.05
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.07
26	.00	.05	.00	.00	.05	.00	.00	.00	.44	.00	.30	.00
27	.02	.26	.00	.00	.01	.00	.00	.00	.00	.00	.02	.00
28	.59	.09	.00	.00	.01	.00	.00	.00	.16	.00	.00	.00
29	.02	.12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.79	.03	.00	.00	.00
31	.03	---	.00	.00	---	.00	---	.16	---	.00	.02	---
TOTAL	1.52	1.62	0.27	0.89	0.71	2.17	2.85	4.79	3.25	3.09	1.99	0.86

CAL YR 1991 TOTAL 24.37
WTR YR 1992 TOTAL 24.01

e Estimated

CHEYENNE RIVER BASIN

79

06408860 RAPID CREEK NEAR ROCHFORD, SD

LOCATION.--Lat 44°06'17", long 103°38'35", in SW1/4NE1/4 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 mi².

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 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	12	7.0	e11	13	16	12	18	18	14	12	10
2	9.3	11	11	e12	13	15	13	18	17	18	12	11
3	10	11	12	14	e12	16	14	17	15	16	12	8.9
4	13	12	13	14	e11.7	17	14	16	15	15	12	8.5
5	12	13	13	14	e11.5	26	15	15	15	17	11	8.5
6	12	13	12	14	11	22	15	15	15	15	14	8.6
7	12	12	13	14	11	19	14	15	15	15	12	12
8	12	12	13	e13	e11	18	13	15	15	14	11	11
9	12	13	12	e12	11	14	13	15	14	13	10	9.3
10	12	13	11	e11	11	14	14	25	14	13	10	8.7
11	12	13	9.5	e10	11	16	16	19	14	14	10	8.4
12	12	13	e9.5	e9.5	11	15	14	16	14	18	9.6	8.3
13	12	13	e9.3	e9.3	11	16	17	15	13	28	9.4	7.9
14	11	13	e9.0	e9.1	e11	16	17	15	13	18	9.2	8.1
15	12	12	e8.7	e9.0	e11	16	15	14	14	16	9.2	8.1
16	12	12	11	e9.0	e11	17	15	13	18	15	9.2	7.9
17	12	12	12	e9.0	11	16	15	14	17	15	9.9	7.9
18	12	12	11	e9.1	11	17	15	13	16	14	9.2	7.9
19	12	12	12	e9.2	e11	15	17	12	15	14	8.8	8.1
20	12	11	13	e9.2	12	15	15	12	14	15	8.4	7.9
21	12	12	12	e9.4	12	16	14	12	17	16	8.5	7.7
22	12	12	11	e9.5	13	14	17	26	17	17	8.6	7.9
23	12	9.3	11	e9.6	13	15	20	18	14	15	15	7.7
24	12	8.1	10	e9.7	e13	15	21	15	14	15	13	7.9
25	11	12	11	e11	13	14	19	15	13	14	12	7.7
26	12	13	e10	e11	13	14	20	14	14	15	12	7.9
27	12	12	e10	12	16	14	22	14	19	15	12	7.9
28	10	11	e10	12	17	15	22	13	15	13	9.9	7.9
29	6.9	9.1	e10	12	17	14	20	12	16	13	8.8	7.9
30	11	8.2	e10	12	---	14	19	13	15	13	8.6	7.9
31	12	---	e10	12	---	14	---	23	---	12	8.6	---
TOTAL	355.8	351.7	337.0	341.6	354.2	495	487	487	455	475	325.9	255.4
MEAN	11.5	11.7	10.9	11.0	12.2	16.0	16.2	15.7	15.2	15.3	10.5	8.51
MAX	13	13	13	14	17	26	22	26	19	28	15	12
MIN	6.9	8.1	7.0	9.0	11	14	12	12	13	12	8.4	7.7
AC-FT	706	698	668	678	703	982	966	966	902	942	646	507

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992
MEAN	9.77	9.65	8.72	9.77
MAX	11.5	11.7	10.9	11.9
(WY)	1992	1992	1992	1991
MIN	8.45	7.91	7.15	7.39
(WY)	1991	1991	1990	1990

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1989 - 1992

ANNUAL TOTAL	7163.6	4720.6		
ANNUAL MEAN	19.6	12.9		
HIGHEST ANNUAL MEAN			13.8	
LOWEST ANNUAL MEAN			18.8	1991
HIGHEST DAILY MEAN	122	Jun 6	11.6	1989
LOWEST DAILY MEAN	6.9	Oct 29	3.8	Dec 22 1989
ANNUAL SEVEN-DAY MINIMUM	8.4	Sep 1	4.3	Dec 17 1989
INSTANTANEOUS PEAK FLOW			144	Jun 7 1991a
INSTANTANEOUS PEAK STAGE			5.94	Mar 25 1990b
ANNUAL RUNOFF (AC-FT)	14210	9360	10000	
10 PERCENT EXCEEDS	42	17	22	
50 PERCENT EXCEEDS	12	12	11	
90 PERCENT EXCEEDS	9.7	8.9	7.4	

e Estimated

a Gage height, 5.58 ft.

b Backwater from ice.

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.--4 years, 19.22 in.

REMARKS.--Records fair except those for estimated periods, which are 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	e.06	.00	.00	e.10
2	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	e1.02	.20	.00	.00
4	.20	.20	.00	.00	.00	e.12	.00	.00	e.00	.00	.00	.00
5	.30	.00	.00	.00	.00	e.75	.00	.00	e.15	e.38	.00	.40
6	.00	.10	.00	.00	.00	e.05	.00	.00	e.02	e.00	e.30	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	e.22	e.07	e.00	.00
8	.00	.00	.20	.00	.00	e.60	.00	.00	e.01	e.05	e.00	.00
9	.00	.00	.00	.00	.00	e.08	.00	.00	e.00	e.00	e.00	.00
10	.00	.00	.10	.00	.00	.00	.00	.80	e.00	e.00	e.00	.00
11	.00	.00	.00	.00	.00	.00	.60	.00	e.00	e.14	e.00	.00
12	.20	.00	.00	.00	.00	.00	.00	.00	e.00	e.82	e.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.53	e.00	.00
14	.00	.10	.00	.00	.00	.00	.00	.00	e.42	e.00	e.00	.00
15	.00	.00	.00	.10	.00	.00	.00	.00	e.57	e.00	e.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.20	e.08	e.00	e.12	.00
17	.00	.00	.00	.10	.00	e.10	.00	.00	e.00	e.00	e.00	.00
18	.00	.00	.00	.00	.00	e.55	.00	.00	e.20	e.00	e.00	.00
19	.00	.00	.00	.00	.00	e.05	.20	.00	e.13	e.13	e.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	e.02	e.00	e.00	.00
21	.00	.00	.00	.00	.00	.00	.20	.00	e.56	e.67	e.00	.00
22	.00	.00	.00	.00	.00	.00	.10	.80	e.04	e.01	e.00	.00
23	.00	.00	.00	.00	.10	.00	.10	.00	e.00	e.00	e.71	.00
24	.00	.10	.00	.00	.00	.00	.00	.00	e.00	e.00	e.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	e.01	e.20	e.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	e.13	e.57	e.37	.20
27	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.02	e.00	.00
28	.00	.20	.00	.00	.00	.00	.00	.00	e.08	e.00	e.00	.00
29	.50	.00	.00	.00	.00	.00	.00	.00	e.13	e.00	e.00	.00
30	.00	.10	.00	.00	---	.00	.00	.00	e.05	e.30	e.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	e.00	e.00	---
TOTAL	1.20	0.80	0.30	0.20	0.10	2.30	1.20	1.80	3.90	4.09	1.50	0.70

CAL YR 1991 TOTAL 22.60
WTR YR 1992 TOTAL 18.09

e Estimated

e Estimated
a Gage height, 2.87 ft.
b From rating curve extended based on 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 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- PER (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)
NOV 25...	1130	15	493	8.4	273	6.0	0.0	10	611	11.8	101
FEB 04...	1100	7.3	480	8.4	267	-5.5	0.0	6.0	619	12.2	103
MAY 19...	1030	9.4	475	8.7	265	29.0	11.0	0.30	617	9.6	108
AUG 04...	1045	9.9	473	8.2	266	21.0	13.0	19	616	9.3	110

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	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)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)
NOV 25...	K6	40	300	67	33	1.7	1	0.0	1.7	--	6.7
FEB 04...	K13	K10	280	62	31	1.5	1	0.0	1.1	273	10
MAY 19...	K2	33	280	59	31	1.9	1	0.0	1.1	249	6.2
AUG 04...	96	43	270	57	30	1.4	1	0.0	1.1	250	5.4

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
NOV 25...	2.6	0.10	10	258	287	0.35	10.4	<0.010	0.010	0.220	0.230
FEB 04...	3.9	0.20	9.3	264	280	0.36	5.20	<0.010	<0.010	--	0.220
MAY 19...	0.20	0.30	7.7	261	266	0.35	6.62	<0.010	<0.010	--	0.060
AUG 04...	4.5	0.10	8.7	247	268	0.34	6.60	<0.010	<0.010	--	<0.050

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00610)	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)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	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)
NOV 25...	0.230	0.030	0.010	0.01	<0.20	0.030	0.010	<0.010	0.010	<10	61
FEB 04...	0.220	0.030	<0.010	--	<0.20	0.030	<0.010	0.010	<0.010	10	60
MAY 19...	0.057	0.020	0.010	0.01	<0.20	0.020	0.020	<0.010	<0.010	20	62
AUG 04...	<0.050	0.020	0.020	0.03	0.20	<0.010	<0.010	0.010	<0.010	10	63

CHEYENNE RIVER BASIN

83

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	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)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT) (80030)
NOV 25...	<3	9	10	6	<10	<1	<1	<1.0	76	<6	--
FEB 04...	<3	9	14	5	<10	<1	<1	<1.0	69	<6	2.5
MAY 19...	<3	5	5	10	<10	1	<1	<1.0	73	<6	--
AUG 04...	<3	<3	6	6	<10	<1	<1	<1.0	71	<6	1.0

DATE	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137) (03516)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90) (80050)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90) (80060)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L) (09511)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 25...	--	--	--	--	--	--	--	82	3.3	55
FEB 04...	1.0	1.8	1.2	1.4	1.1	0.10	1.1	42	0.83	96
MAY 19...	--	--	--	--	--	--	--	52	1.3	93
AUG 04...	<0.6	2.0	0.9	1.5	0.8	0.07	0.98	80	2.1	94

CHEYENNE RIVER BASIN

06409500 DEERFIELD RESERVOIR NEAR HILL CITY, SD

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

DRAINAGE AREA.--95 mi², approximately.

PERIOD OF RECORD.--May 1947 to current year (monthend contents only). Some elevations obtained during period of initial filling, December 1945 to May 1947, are available in Bureau of Reclamation files. Prior to October 1953, published as "near Deerfield."

GAGE.--Water-stage recorder. 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, 200 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, 15,100 acre-ft, Feb. 29, elevation, 5,907.12 ft; minimum, 13,200 acre-ft, Sept. 30, elevation, 5,902.30 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	5,901.99	13,000	-
Oct. 31	5,902.91	13,400	+400
Nov. 30	5,903.95	13,800	+400
Dec. 31	5,905.07	14,300	+500
CAL YR 1991	-	-	+400
Jan. 31	5,906.10	14,700	+400
Feb. 29	5,907.12	15,100	+400
Mar. 31	5,906.49	14,800	-300
Apr. 30	5,906.13	14,700	-100
May 31	5,905.60	14,500	-200
June 30	5,904.89	14,200	-300
July 31	5,904.01	13,800	-400
Aug. 31	5,903.07	13,500	-300
Sept. 30	5,902.30	13,200	-300
WTR YR 1992	-	-	+200

CHEYENNE RIVER BASIN

85

06410000 CASTLE CREEK BELOW DEERFIELD DAM, SD

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

DRAINAGE AREA.--96 mi², approximately.

PERIOD OF RECORD.--July 1946 to current year, seasonal records only beginning October 1983.

GAGE.--Water-stage recorder. Datum of gage is 5,784.52 ft above 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 ft³/s, 8,040 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 200 ft³/s, May 22, 1952; maximum gage height, 5.08 ft, present datum, June 5, 1991; no flow at times in 1948, 1950-60.

EXTREMES FOR CURRENT PERIOD.--Maximum daily discharge, 23 ft³/s, Mar. 10-26; minimum daily discharge, 9.5 ft³/s, for several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	16	16	15	14	16	9.5
2	---	---	---	---	---	2.3	16	16	15	14	16	9.5
3	---	---	---	---	---	2.9	16	16	15	14	16	9.5
4	---	---	---	---	---	5.4	16	16	15	14	16	9.5
5	---	---	---	---	---	9.3	16	16	15	14	15	9.5
6	---	---	---	---	---	12	16	16	15	14	16	9.5
7	---	---	---	---	---	12	16	16	15	15	16	9.5
8	---	---	---	---	---	12	16	16	15	15	16	9.5
9	---	---	---	---	---	18	16	16	15	15	16	9.5
10	---	---	---	---	---	23	16	16	15	14	16	9.5
11	---	---	---	---	---	23	16	16	15	14	15	9.5
12	---	---	---	---	---	23	16	16	15	14	15	9.6
13	---	---	---	---	---	23	16	16	15	14	15	9.6
14	---	---	---	---	---	23	16	16	15	14	12	9.8
15	---	---	---	---	---	23	16	16	15	14	9.8	9.8
16	---	---	---	---	---	23	16	16	15	14	9.8	9.9
17	---	---	---	---	---	23	16	16	15	15	9.8	9.9
18	---	---	---	---	---	23	16	16	15	15	9.8	10
19	---	---	---	---	---	23	16	16	15	15	9.5	11
20	---	---	---	---	---	23	16	16	15	14	9.5	11
21	---	---	---	---	---	23	16	16	15	14	9.5	11
22	---	---	---	---	---	23	16	16	15	14	9.5	11
23	---	---	---	---	---	23	16	16	15	15	9.5	11
24	---	---	---	---	---	23	15	16	15	15	9.6	11
25	---	---	---	---	---	23	15	16	15	15	9.8	11
26	---	---	---	---	---	23	15	16	15	16	9.8	11
27	---	---	---	---	---	19	16	16	15	15	9.8	12
28	---	---	---	---	---	16	16	16	15	16	9.8	12
29	---	---	---	---	---	16	16	16	15	16	9.8	12
30	---	---	---	---	---	16	16	16	15	15	9.5	12
31	---	---	---	---	---	16	---	15	---	15	9.5	---
TOTAL	---	---	---	---	---	---	477	495	450	452	380.3	309.1
MEAN	---	---	---	---	---	---	15.9	16.0	15.0	14.6	12.3	10.3
MAX	---	---	---	---	---	---	16	16	15	16	16	12
MIN	---	---	---	---	---	---	15	15	15	14	9.5	9.5
AC-FT	---	---	---	---	---	---	946	982	893	897	754	613

CHEYENNE RIVER BASIN

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

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

DRAINAGE AREA.--292 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 4,620.00 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	e14	e17	e15	e15	e26	33	40	43	41	37	29
2	25	e15	e17	e15	e16	e25	33	40	40	41	35	29
3	22	e16	e18	e16	e15	e26	34	39	36	43	33	29
4	24	17	e20	e16	e14	e28	34	37	33	42	33	29
5	23	20	e21	e16	e13	e29	34	37	32	43	37	29
6	21	21	e21	e16	e13	e31	34	34	34	42	40	29
7	19	23	e20	e16	e13	e30	34	35	34	40	40	28
8	19	22	e19	e16	e13	e27	35	32	34	40	38	28
9	18	22	e19	e15	e13	e25	35	31	34	39	37	28
10	17	21	e20	e14	e13	e25	35	45	34	39	36	29
11	17	21	e17	e13	e13	e30	35	46	33	39	36	29
12	16	21	e17	e12	e13	e32	35	39	33	40	35	28
13	16	22	e16	e11	e13	e34	37	37	33	52	33	27
14	16	22	e15	e11	e13	e35	41	36	31	47	33	27
15	16	22	e15	e11	e13	36	41	34	31	43	31	27
16	16	21	e15	e11	e13	38	39	32	34	42	29	25
17	16	20	e15	e11	e13	38	41	32	34	40	29	25
18	16	19	e16	e12	e13	39	41	31	34	41	29	25
19	16	20	e16	e12	e13	39	42	31	34	41	29	25
20	16	16	e16	e13	e14	36	46	31	34	41	28	25
21	16	18	e16	e13	e15	34	42	31	35	41	28	25
22	16	18	e15	e13	e14	33	36	43	36	41	28	25
23	16	e19	e15	e13	e14	35	39	46	34	41	31	25
24	16	e19	e14	e13	e15	32	41	41	32	39	33	25
25	16	e19	e14	e13	e16	33	41	38	32	38	33	25
26	17	e20	e14	e13	e18	32	40	36	39	39	33	25
27	17	e20	e14	e13	e20	34	41	36	47	44	32	25
28	14	e20	e14	e13	e24	34	43	34	41	42	31	25
29	e12	e18	e13	e13	e27	41	44	33	42	40	29	25
30	e13	e17	e13	e14	---	40	41	33	42	41	29	24
31	e13	---	e14	e14	---	41	---	41	---	40	29	---
TOTAL	541	583	506	417	432	1018	1147	1131	1065	1282	1014	799
MEAN	17.5	19.4	16.3	13.5	14.9	32.8	38.2	36.5	35.5	41.4	32.7	26.6
MAX	26	23	21	16	27	41	46	46	47	52	40	29
MIN	12	14	13	11	13	25	33	31	31	38	28	24
AC-FT	1070	1160	1000	827	857	2020	2280	2240	2110	2540	2010	1580

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1992, BY WATER YEAR (WY)

	MEAN	28.9	19.2	15.5	14.8	17.1	27.7	56.5	81.2	81.7	48.9	39.6	36.4
MAX	73.5	36.6	24.3	25.0	34.4	57.3	172	172	274	291	156	101	73.7
(WY)	1966	1987	1965	1965	1979	1966	1971	1965	1965	1965	1965	1982	1982
MIN	10.2	10.3	7.77	8.61	8.77	12.1	16.5	14.5	14.7	15.2	11.5	10.5	10.5
(WY)	1962	1962	1962	1962	1989	1962	1961	1961	1961	1961	1961	1961	1961

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1954 - 1992

ANNUAL TOTAL	17049.0	9935	
ANNUAL MEAN	46.7	27.1	39.0
HIGHEST ANNUAL MEAN			91.7
LOWEST ANNUAL MEAN			15.1
HIGHEST DAILY MEAN	390	Jun 6	1330
LOWEST DAILY MEAN	8.6	Jan 1	2.5
ANNUAL SEVEN-DAY MINIMUM	9.8	Feb 12	11
INSTANTANEOUS PEAK FLOW			55
INSTANTANEOUS PEAK STAGE			4.83
ANNUAL RUNOFF (AC-FT)	33820	19710	28260
10 PERCENT EXCEEDS	116	41	72
50 PERCENT EXCEEDS	25	28	26
90 PERCENT EXCEEDS	13	13	12

e Estimated

a Also Jan. 14-17.

b From rating curve extended above 1,000 ft³/s on basis of slope-area measurement of peak flow.

06411000 PACTOLA RESERVOIR NEAR SILVER CITY, SD

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

DRAINAGE AREA.--319 mi².

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

GAGE.--Water-stage recorder. 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). Surge 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, 1964, 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, 45,900 acre-ft, Apr. 30, elevation, 4,567.69 ft; minimum, 40,800 acre-ft, Sept. 30, elevation, 4,560.47 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	4,564.63	43,700	-
Oct. 31	4,564.55	43,600	-100
Nov. 30	4,564.64	43,700	+100
Dec. 31	4,564.32	43,500	-200
CAL YR 1991	-	-	+18,000
Jan. 31	4,563.88	43,100	-400
Feb. 29	4,563.68	43,000	-100
Mar. 31	4,565.79	44,500	+1,500
Apr. 30	4,567.69	45,900	+1,400
May 31	4,564.74	43,800	-2,100
June 30	4,564.72	43,700	-100
July 31	4,565.47	44,300	+600
Aug. 31	4,562.08	41,900	-2,400
Sept. 30	4,560.47	40,800	-1,100
WTR YR 1992	-	-	-2,700

06411500 RAPID CREEK BELOW PACTOLA DAM, SD

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

DRAINAGE AREA.--320 mi², approximately.

PERIOD OF RECORD.--October 1928 to September 1932 (combined records of Creek and Dakota Power and Light Co. flume), July 1946 to current year. Prior to October 1953, published as "near Pactola." Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1931(M).

GAGE.--Water-stage recorder and concrete control since Oct. 16, 1962. Datum of gage is 4,406.00 ft above 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 ft³/s, May 22, 1952, gage height, 6.74 ft, site and datum then in use; minimum daily discharge, 6.6 ft³/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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	15	16	17	16	17	17	24	43	34	34	43
2	22	15	16	17	16	17	17	29	29	36	34	39
3	22	15	16	17	16	17	17	29	33	35	41	39
4	20	16	16	17	16	18	17	29	35	35	47	39
5	18	16	16	17	16	17	17	42	33	35	47	39
6	18	16	16	16	16	17	17	48	32	35	48	39
7	18	16	16	15	16	18	17	53	32	35	50	39
8	18	16	16	14	16	18	17	63	32	35	56	39
9	18	16	16	14	16	17	17	71	32	35	59	35
10	17	16	15	14	16	17	17	62	33	31	68	30
11	18	16	16	14	16	17	17	58	34	27	73	30
12	18	16	16	14	16	17	17	67	38	27	73	30
13	18	16	16	14	16	17	17	75	41	27	75	30
14	17	16	16	14	16	17	17	79	41	27	82	30
15	16	15	15	14	16	17	17	79	41	27	84	30
16	15	15	15	14	16	17	17	79	38	27	84	30
17	15	16	15	16	16	17	17	79	35	27	78	30
18	14	16	15	16	16	17	17	79	35	27	69	28
19	14	16	17	16	16	17	17	84	35	28	72	26
20	13	16	17	16	16	17	17	91	35	28	88	29
21	14	16	17	16	17	17	17	91	35	28	88	31
22	13	16	17	16	17	17	17	52	33	27	85	28
23	14	16	17	16	17	17	17	75	34	26	83	26
24	14	16	17	16	17	17	17	86	36	26	74	26
25	14	16	17	16	17	17	17	86	36	26	59	29
26	14	16	17	16	17	17	17	86	39	26	48	40
27	14	16	17	16	17	17	17	71	41	26	43	53
28	15	16	17	16	17	17	17	61	41	29	47	51
29	15	16	17	16	17	17	17	61	41	46	49	50
30	15	16	17	16	---	17	17	62	37	36	49	57
31	15	---	17	16	---	17	---	62	---	32	49	---
TOTAL	508	475	504	482	473	530	510	2013	1080	946	1936	1065
MEAN	16.4	15.8	16.3	15.5	16.3	17.1	17.0	64.9	36.0	30.5	62.5	35.5
MAX	22	16	17	17	17	18	17	91	43	46	88	57
MIN	13	15	15	14	16	17	17	24	29	26	34	26
AC-FT	1010	942	1000	956	938	1050	1010	3990	2140	1880	3840	2110

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1992, BY WATER YEAR (WY)*

MEAN	22.8	17.6	16.1	15.7	15.8	20.8	36.5	77.5	80.7	76.2	57.4	40.6
MAX	78.5	46.3	28.4	26.4	38.2	64.2	141	238	415	168	107	75.6
(WY)	1966	1987	1983	1979	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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1957 - 1992*
ANNUAL TOTAL	8029.8	10522	
ANNUAL MEAN	22.0	28.7	39.9
HIGHEST ANNUAL MEAN			99.8
LOWEST ANNUAL MEAN			13.0
HIGHEST DAILY MEAN	78 Aug 29	91 May 20a	515 May 20 1965b
LOWEST DAILY MEAN	9.0 Jan 12	13 Oct 20c	.00 Oct 11 1962d
ANNUAL SEVEN-DAY MINIMUM	9.7 Jan 11	14 Oct 18	.00 Oct 11 1962
INSTANTANEOUS PEAK FLOW		106 May 21	547 May 19 1965
INSTANTANEOUS PEAK STAGE		7.94 May 21	9.00 May 19 1965
ANNUAL RUNOFF (AC-FT)	15930	20870	28910
10 PERCENT EXCEEDS	53	61	83
50 PERCENT EXCEEDS	16	17	23
90 PERCENT EXCEEDS	10	16	10

* Regulated period only (1957-92). See REMARKS.

a Also May 21.

b Also May 28-29, 1965.

c Also Oct. 22.

d Also Oct. 12-17, 1962.

CHEYENNE RIVER BASIN

89

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

LOCATION.--Lat 44°02'48", long 103°21'06", in SW1/4NW1/4 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 mi².

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	e18	e18	e20	e24	23	20	20	68	36	37	52
2	20	e18	e17	e20	e24	22	20	31	35	40	37	42
3	20	e18	e17	e20	e24	22	20	34	34	38	38	41
4	21	e18	e17	e20	e24	23	20	35	39	38	56	41
5	19	e19	e17	e20	e25	27	20	37	37	43	57	40
6	18	e20	e18	e20	e25	23	19	57	34	38	57	41
7	18	e20	e19	e20	e25	22	20	56	34	38	59	42
8	18	e20	e20	e19	e25	23	20	72	34	38	65	41
9	18	e20	e21	e18	e24	23	19	77	33	37	77	40
10	18	e20	e21	e19	e24	22	21	87	34	37	79	32
11	18	e20	e21	e20	e24	21	23	64	36	30	89	31
12	18	20	e20	e20	e24	21	21	74	37	31	89	31
13	18	20	e20	e20	e24	21	21	81	45	33	88	30
14	18	20	e19	e20	e26	21	21	92	45	30	96	30
15	18	20	e19	e20	e28	21	21	93	47	30	101	30
16	17	19	e19	e20	e27	21	21	91	44	29	101	30
17	18	19	e18	e19	e26	21	21	94	38	29	100	30
18	17	19	e18	e19	e25	22	21	94	38	29	89	29
19	17	19	e17	e20	e25	22	22	95	38	29	84	26
20	17	19	e18	e21	e25	21	21	103	38	30	100	25
21	17	20	e18	e22	e25	21	21	120	40	31	105	30
22	17	20	e19	e23	e26	21	21	70	40	31	104	30
23	17	e19	e20	e24	e25	21	21	74	35	29	101	25
24	17	e20	e20	e24	e25	21	21	102	38	28	96	25
25	17	e20	e20	e24	e24	21	21	103	39	28	81	24
26	17	e20	e20	e24	e23	21	21	104	40	28	66	28
27	17	e20	e20	e24	e24	21	21	96	45	29	47	46
28	17	e20	e20	e24	24	21	21	72	46	28	47	50
29	e18	e20	e20	e24	23	21	21	72	46	43	53	48
30	e18	e19	e20	e24	---	21	21	71	45	51	52	50
31	e18	---	e20	e24	---	21	---	75	---	32	52	---
TOTAL	557	584	591	656	717	673	622	2346	1202	1041	2303	1060
MEAN	18.0	19.5	19.1	21.2	24.7	21.7	20.7	75.7	40.1	33.6	74.3	35.3
MAX	21	20	21	24	28	27	23	120	68	51	105	52
MIN	17	18	17	18	23	21	19	20	33	28	37	24
AC-FT	1100	1160	1170	1300	1420	1330	1230	4650	2380	2060	4570	2100

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992
MEAN	15.0	14.7	14.7	14.7
MAX	18.0	19.5	19.1	21.2
(WY)	1992	1992	1992	1992
MIN	10.7	10.8	12.5	10.2
(WY)	1991	1991	1989	1991

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1989 - 1992

ANNUAL TOTAL	10338.8	12352	
ANNUAL MEAN	28.3	33.7	30.8
HIGHEST ANNUAL MEAN			34.3
LOWEST ANNUAL MEAN			26.4
HIGHEST DAILY MEAN	100	Jun 6	132
LOWEST DAILY MEAN	7.0	Feb 28	5.0
ANNUAL SEVEN-DAY MINIMUM	8.6	Feb 26	6.4
INSTANTANEOUS PEAK FLOW			147
INSTANTANEOUS PEAK STAGE			5.96
ANNUAL RUNOFF (AC-FT)	20510	24500	22330
10 PERCENT EXCEEDS	62	72	73
50 PERCENT EXCEEDS	19	24	20
90 PERCENT EXCEEDS	10	18	11

e Estimated

a Also Oct. 18-28, Dec. 2-5, 19.

CHEYENNE RIVER BASIN

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

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

DRAINAGE AREA.--371 mi².

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.--Records good except those for estimated daily discharges, which are poor. 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 ft³/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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	e5.8	e6.2	8.5	11	9.9	10	9.6	53	29	24	38
2	11	e5.8	e6.2	9.0	11	9.9	10	16	28	31	25	33
3	11	e5.8	e6.0	11	11	9.9	10	20	25	29	25	31
4	13	e6.0	e5.9	11	9.0	11	9.9	21	31	29	37	30
5	12	e6.1	e6.0	12	11	14	9.9	22	29	31	38	30
6	9.5	e6.3	e6.0	11	9.5	11	9.9	38	26	28	38	30
7	9.4	e6.6	e6.0	10	8.9	10	9.9	38	26	27	39	32
8	9.1	e7.3	e6.0	8.8	9.1	11	9.6	49	25	27	41	31
9	8.5	e5.8	e5.8	8.7	10	11	8.6	54	25	27	46	31
10	8.1	e7.8	e5.5	8.5	11	11	9.1	68	24	27	48	24
11	8.1	e8.3	e5.2	9.3	e11	10	12	45	26	23	57	21
12	8.1	e8.8	e5.0	8.5	e11	10	11	52	28	22	58	21
13	7.9	8.8	e4.6	8.0	e11	10	11	59	33	24	58	20
14	7.8	8.8	e4.4	7.8	e11	9.9	11	67	36	21	62	19
15	8.1	8.5	e4.2	7.5	11	9.9	10	67	38	20	67	20
16	7.6	8.1	e4.2	7.4	11	9.9	9.9	68	38	19	69	19
17	7.2	8.1	e4.1	7.8	10	9.9	9.9	70	33	19	69	19
18	7.2	8.1	e4.0	7.1	10	11	10	70	31	18	61	19
19	6.9	8.0	e4.2	9.8	9.6	12	12	70	30	19	56	17
20	6.6	7.5	e4.5	13	11	11	11	75	30	19	66	15
21	6.6	7.6	e5.0	12	10	11	11	91	32	21	71	18
22	6.6	8.0	e5.8	10	10	11	11	59	32	21	71	20
23	6.6	7.3	e6.2	9.1	11	11	11	53	26	18	70	16
24	6.6	e7.0	e6.5	12	9.9	11	11	77	28	17	68	14
25	6.6	e7.2	e6.6	12	11	11	11	78	29	17	55	14
26	6.6	e7.5	e6.4	11	10	11	11	79	30	16	46	18
27	6.6	e7.1	e6.2	9.2	10	11	11	76	35	19	37	34
28	7.5	e6.9	7.5	11	10	11	11	55	34	17	36	39
29	6.3	e6.5	8.6	11	9.9	10	10	54	36	25	38	39
30	e5.9	e6.3	9.4	11	---	10	9.9	53	35	35	38	39
31	e5.9	---	9.8	11	---	10	---	55	---	23	38	---
TOTAL	249.9	219.3	182.0	304.0	299.9	330.3	312.6	1708.6	932	718	1552	751
MEAN	8.06	7.31	5.87	9.81	10.3	10.7	10.4	55.1	31.1	23.2	50.1	25.0
MAX	13	8.8	9.8	13	11	14	12	91	53	35	71	39
MIN	5.9	5.8	4.0	7.1	8.9	9.9	8.6	9.6	24	16	24	14
AC-FT	496	435	361	603	595	655	620	3390	1850	1420	3080	1490

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1992, BY WATER YEAR (WY) *

MEAN	18.8	12.5	9.63	9.46	10.2	15.7	32.1	78.6	95.4	76.7	52.5	34.4
MAX	89.7	44.2	24.2	26.7	27.8	62.4	157	266	445	186	107	77.4
(WY)	1966	1987	1966	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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1957 - 1992*
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ANNUAL TOTAL	6950.84		7559.6						
ANNUAL MEAN	19.0		20.7				37.3a		
HIGHEST ANNUAL MEAN							104		1965
LOWEST ANNUAL MEAN							14.7		1958
HIGHEST DAILY MEAN	128	May 12	91	May 21		2600		Jun 10	1972
LOWEST DAILY MEAN	.00	Jan 1	4.0	Dec 18		.00		Jan 6	1959b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	4.2	Dec 14		.00		Dec 20	1990
INSTANTANEOUS PEAK FLOW			105	May 21		31200		Jun 9	1972
INSTANTANEOUS PEAK STAGE			2.59	May 21		17.77		Jun 9	1972
ANNUAL RUNOFF (AC-FT)	13790		14990			27020			
10 PERCENT EXCEEDS	54		53			82			
50 PERCENT EXCEEDS	7.3		11			20			
90 PERCENT EXCEEDS	.05		6.5			3.5			

e Estimated

* Regulated period only (1957-92). See REMARKS.

a Median of annual mean discharges, 34 ft³/s.

b No flow at times in 1957-60, 1962-63, 1981, 1991.

CHEYENNE RIVER BASIN

91

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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	---	---	.00	.00	.00	.01	.32	.00	.07
2	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
3	.26	.00	.00	---	---	.00	.00	.00	.28	.13	.00	.01
4	.02	.16	.02	---	.00	.71	.00	.00	.00	.20	.00	.01
5	.00	.09	.02	---	.00	.00	.00	.00	.10	.20	.00	.04
6	.00	.00	.08	---	.00	.04	.00	.00	.03	.05	.00	.21
7	.00	.00	.02	---	.00	.00	.00	.00	.04	.02	.00	.07
8	.00	.28	.00	---	.00	.08	.00	.01	.00	.00	.02	.00
9	.00	.00	.00	---	.01	.00	.00	.47	.00	.05	.00	.00
10	.00	.00	.00	---	.00	.24	.34	.21	.00	.00	.00	.00
11	.00	.00	.00	---	.00	.12	.02	.00	.00	.23	.00	.00
12	.00	.00	.00	---	.00	.01	.00	.00	.00	.63	.00	.00
13	.00	.00	.00	---	.00	.00	.23	.00	.00	.10	.00	.00
14	.04	.01	.00	---	.00	.00	.00	.00	.12	.00	.00	.00
15	.00	.00	.00	---	.00	.00	.00	.00	.50	.00	.00	.00
16	.00	.00	.00	---	.00	.06	.00	.14	.01	.00	.01	.00
17	.00	.00	.00	---	.00	.02	.00	.00	.00	.00	.01	.00
18	.02	.00	.00	---	.00	.00	.16	.00	.05	.00	.00	.00
19	.00	.00	.00	---	.00	.44	.03	.00	.02	.11	.00	.00
20	.00	.00	.00	---	.00	.02	.08	.00	.01	.00	.00	.00
21	.00	.10	.00	---	.00	.00	.00	.64	.71	.35	.00	.00
22	.00	.00	.00	---	.04	.00	.06	.00	.00	.02	.02	.00
23	.00	.00	.00	---	.10	.00	.06	.00	.00	.00	.28	.00
24	.00	.00	.00	---	.00	.00	.00	.00	.01	.03	.05	.00
25	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	---	.00	.00	.00	.00	.07	.00	.29	.00
27	.00	.00	.00	---	.00	.00	.00	.00	.01	.00	.00	.00
28	.00	.00	.00	---	.00	.00	.00	.00	.11	.00	.00	.00
29	.00	.00	.00	---	.00	.00	.00	.00	.00	.07	.00	.00
30	.00	.00	.00	---	---	.00	.00	.05	.01	.00	.00	.00
31	.00	---	---	---	---	.00	---	.37	---	.00	.00	---
TOTAL	0.34	0.64	---	---	---	1.74	0.98	1.89	2.09	2.51	0.68	0.41

CHEYENNE RIVER BASIN

06412600 CLEGHORN SPRINGS MAIN CHANNEL AT FISH HATCHERY, AT RAPID CITY, SD

LOCATION.--Lat 44°03'32", long 103°17'54", in NE1/4NW1/4SE1/4 sec.8, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, at concrete Parshall flume within Cleghorn Springs Fish Hatchery, 0.2 mi west of Canyon Lake within city limits of Rapid City.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--October 1987 to September 1992 (discontinued).

REVISED RECORDS.--WDR SD-89-1: 1988 daily discharges. WDR SD-91-1: 1988 daily discharges, 1989 daily discharges.

GAGE.--Water-stage recorder and concrete Parshall flume. Datum of gage is 3,364.10 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flows may vary depending on operational activities of fish hatchery. This is one of three stations that monitors flow from Cleghorn Springs (see stations 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	9.8	9.1	8.8	8.7	8.6	9.2	9.5	e9.9	9.3	9.3	9.2
2	10	10	9.0	9.0	8.7	8.5	9.2	9.6	e9.5	9.3	9.3	9.2
3	10	10	8.8	9.0	8.6	8.6	9.1	9.5	e9.6	9.3	9.3	9.1
4	10	9.9	8.9	9.1	8.8	8.8	9.0	9.5	e9.8	9.3	9.3	9.2
5	10	9.9	9.1	9.0	8.8	8.8	9.2	9.4	e9.5	9.5	9.4	9.1
6	10	9.7	9.0	9.0	9.2	8.8	9.2	9.3	e9.4	9.5	9.5	9.1
7	10	9.5	8.9	9.0	9.0	8.7	9.0	9.2	e9.3	9.4	9.4	9.2
8	10	9.6	8.9	9.0	8.7	8.8	9.0	9.3	e9.3	9.4	9.3	9.3
9	10	9.7	8.8	9.0	8.8	9.0	9.1	9.5	8.9	9.6	9.2	9.3
10	10	9.6	8.9	9.0	8.7	9.0	9.1	9.8	8.6	9.4	9.0	9.3
11	10	9.6	8.8	9.0	8.7	9.0	9.2	9.6	8.6	9.4	9.2	9.1
12	10	9.5	8.8	9.0	8.7	9.1	9.3	9.8	8.5	9.5	8.9	9.1
13	10	9.5	8.5	8.9	8.8	9.0	9.4	9.9	8.6	9.5	8.8	9.1
14	10	9.6	8.6	8.9	8.7	9.0	9.4	10	9.0	9.5	8.3	9.2
15	9.8	9.5	8.3	8.8	8.9	8.9	9.3	9.7	9.4	9.4	8.6	9.2
16	9.8	9.6	8.4	8.9	8.8	8.8	9.3	9.6	9.2	9.5	9.0	9.2
17	10	9.5	8.7	8.8	8.7	8.8	9.3	9.7	8.9	9.5	9.1	9.3
18	9.8	9.4	8.9	8.8	8.7	8.9	9.0	10	9.0	9.4	9.0	9.3
19	9.3	9.4	9.0	8.8	8.9	8.9	9.0	9.6	8.9	9.2	8.8	9.2
20	9.0	9.2	9.2	8.8	8.8	9.0	9.0	9.4	8.9	9.4	8.9	9.1
21	9.3	9.4	9.1	8.7	8.9	8.9	9.1	9.6	9.0	9.5	8.9	9.1
22	9.6	9.3	9.1	8.7	9.0	8.9	9.1	9.8	9.0	9.5	9.2	9.4
23	9.5	9.4	8.9	8.8	9.0	9.0	9.5	9.8	9.0	9.6	9.3	9.2
24	9.7	9.3	8.7	8.8	8.8	9.0	9.2	9.9	8.8	9.5	9.4	9.0
25	9.9	9.2	8.2	8.7	9.0	9.0	9.4	9.9	9.0	9.4	9.3	8.8
26	9.7	9.1	8.8	8.6	9.2	9.0	9.4	9.8	9.1	9.4	9.3	8.9
27	9.7	9.1	9.0	8.6	8.8	9.0	9.2	9.9	9.0	9.4	9.3	9.0
28	9.7	9.2	8.7	8.6	8.8	9.1	9.2	9.7	9.1	9.4	9.0	9.1
29	9.6	9.2	8.8	8.7	8.6	9.1	9.3	9.2	9.0	9.4	9.1	9.1
30	9.6	9.2	8.8	8.8	---	9.1	9.5	9.1	9.2	9.6	9.2	9.0
31	9.7	---	8.8	8.7	---	9.1	---	e9.4	---	9.4	9.2	---
TOTAL	303.7	284.9	273.5	274.3	255.8	276.2	276.2	298.0	273.0	292.4	282.8	274.4
MEAN	9.80	9.50	8.82	8.85	8.82	8.91	9.21	9.61	9.10	9.43	9.12	9.15
MAX	10	10	9.2	9.1	9.2	9.1	9.5	10	9.9	9.6	9.5	9.4
MIN	9.0	9.1	8.2	8.6	8.6	8.5	9.0	9.1	8.5	9.2	8.3	8.8
AC-FT	602	565	542	544	507	548	548	591	541	580	561	544

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992
MEAN	9.10	9.13	9.32	9.23	9.08
MAX	9.86	10.0	9.89	9.96	9.83
(WY)	1989	1989	1989	1988	1988
MIN	8.16	8.16	8.47	8.74	8.82
(WY)	1991	1988	1991	1991	1992

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1988 - 1992

ANNUAL TOTAL	3358.5	3365.2	
ANNUAL MEAN	9.20	9.19	9.25
HIGHEST ANNUAL MEAN			9.74
LOWEST ANNUAL MEAN			8.96
HIGHEST DAILY MEAN	10	Aug 15	11
LOWEST DAILY MEAN	8.2	Dec 25	6.0
ANNUAL SEVEN-DAY MINIMUM	8.4	Mar 22	7.2
ANNUAL RUNOFF (AC-FT)	6660	6670	6700
10 PERCENT EXCEEDS	10	9.8	10
50 PERCENT EXCEEDS	9.1	9.2	9.2
90 PERCENT EXCEEDS	8.6	8.7	8.5

e Estimated

a Several days.

b For many days in 1988-90.

CHEYENNE RIVER BASIN

93

06412700 CLEGHORN SPRINGS SOUTH CHANNEL AT FISH HATCHERY, AT RAPID CITY, SD

LOCATION.--Lat 44°03'31", long 103°17'56", in NE1/4NW1/4SE1/4 sec.8, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, at weir on left bank within Cleghorn Springs Fish Hatchery and 0.2 mi west of Canyon Lake within city limits of Rapid City.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--October 1987 to September 1992 (discontinued).

REVISED RECORDS.--WDR SD-89-1: 1988 daily discharges.

GAGE.--Water-stage recorder and Cipolletti weir. Datum of gage is 3,368.03 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Flows may vary depending on operational activities of fish hatchery. This is one of three stations that monitors flow from Cleghorn Springs (see stations 06412600 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.87	.80	.83	.83	.81	.82	.83	.81	.84	.90	.87	.87
2	.87	.81	.83	.82	.79	.80	.83	.86	.83	.91	.87	.87
3	.87	.79	.82	.82	.79	.83	.81	.85	.83	.92	.87	.87
4	.87	.79	.81	.83	.80	.83	.83	.86	.84	.91	.87	.86
5	.87	.80	.83	.83	.79	.83	.83	.84	.88	.90	.87	.87
6	.87	.79	.82	.83	.77	.81	.83	.85	.87	.87	.87	.87
7	.87	.79	.83	.83	.75	.83	.80	.84	.87	.87	.87	.87
8	.87	.79	.83	.83	.79	.83	.79	.86	.86	.86	.87	.87
9	.86	.81	.83	.82	.82	.84	.79	.89	.87	.87	.87	.87
10	.83	.79	.83	.82	.82	.83	.78	.94	.85	.87	.87	.87
11	.83	.79	.83	.83	.80	.83	.83	.91	.85	.87	.88	.86
12	.83	.79	.81	.83	.78	.83	.83	.93	.83	.88	.87	.87
13	.83	.79	.83	.81	.81	.80	.84	.91	.85	.88	.85	.87
14	.87	.81	.83	.81	.81	.82	.84	.91	.87	.87	.87	.87
15	.83	.80	.81	.79	.83	.80	.83	.92	.82	.87	.87	.87
16	.83	.84	.79	.80	.82	.79	.83	.95	.83	.87	.87	.87
17	.84	.83	.79	.79	.80	.79	.82	.96	.91	.86	.87	.87
18	.83	.83	.80	.79	.79	.79	.83	.85	.89	.87	.86	.86
19	.85	.89	.82	.83	.78	.79	.83	.81	.87	.85	.84	.87
20	.84	.88	.82	.83	.79	.77	.83	.83	.89	.87	.87	.87
21	.85	.83	.84	.81	.78	.79	.83	.85	.92	.87	.88	.87
22	.88	.82	.83	.82	.82	.79	.84	.89	.91	.87	.91	.82
23	.83	.85	.83	.82	.83	.80	.91	.87	.88	.87	.91	.84
24	.81	.84	.83	.80	.79	.79	.88	.87	.87	.86	.91	.87
25	.82	.83	.83	.83	.83	.79	.87	.87	.87	.87	.91	.83
26	.80	.83	.83	.82	.85	.79	.85	.88	.85	.87	.91	.83
27	.81	.83	.84	.81	.81	.80	.83	.89	.90	.87	.88	.86
28	.81	.83	.85	.83	.80	.83	.82	.86	.87	.87	.85	.87
29	.83	.83	.83	.83	.83	.83	.80	.83	.86	.87	.87	.87
30	.82	.83	.83	.82	---	.83	.83	.83	.91	.89	.87	.85
31	.81	---	.83	.82	---	.83	---	.83	---	.89	.87	---
TOTAL	26.10	24.53	25.56	25.38	23.28	25.13	24.89	27.05	25.99	27.17	27.12	25.88
MEAN	.84	.82	.82	.82	.80	.81	.83	.87	.87	.88	.87	.86
MAX	.88	.89	.85	.83	.85	.84	.91	.96	.92	.92	.91	.87
MIN	.80	.79	.79	.79	.75	.77	.78	.81	.82	.85	.84	.82
AC-FT	52	49	51	50	46	50	49	54	52	54	54	51

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992
MEAN	1.01	1.04	.94	.88	.91
MAX	1.43	1.46	1.06	.95	1.04
(WY)	1988	1988	1988	1990	1988
MIN	.84	.82	.82	.82	.80
(WY)	1992	1992	1992	1992	1992

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1988 - 1992

ANNUAL TOTAL	309.15	308.08	
ANNUAL MEAN	.85	.84	
HIGHEST ANNUAL MEAN			.94
LOWEST ANNUAL MEAN			1.11
HIGHEST DAILY MEAN	1.0 May 12	.96 May 17	2.2 Nov 19 1987
LOWEST DAILY MEAN	.75 Sep 7	.75 Feb 7	.75 Feb 20 1990a
ANNUAL SEVEN-DAY MINIMUM	.79 Sep 5	.78 Feb 2	.78 Feb 2 1992
ANNUAL RUNOFF (AC-FT)	613	611	684
10 PERCENT EXCEEDS	.91	.88	1.1
50 PERCENT EXCEEDS	.83	.83	.91
90 PERCENT EXCEEDS	.80	.79	.82

a Also Feb. 21, 1990, Sept. 7, 1991, and Feb. 7, 1992.

CHEYENNE RIVER BASIN

06412800 CLEGHORN SPRINGS NORTH CHANNEL AT FISH HATCHERY, AT RAPID CITY, SD

LOCATION.--Lat 44°03'32", long 103°17'50", in NE1/4NW1/4SE1/4 sec.8, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, at weir on right bank within Cleghorn Springs Fish Hatchery and 0.2 mi west of Canyon Lake within city limits of Rapid City.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--October 1987 to September 1992 (discontinued).

REVISED RECORDS.--WDR SD-89-1: 1988 daily discharges.

GAGE.--Water-stage recorder and V-notch weir. Datum of gage is 3,367.59 ft above sea level.

REMARKS.--Records good. Flows may vary depending on operational activities of fish hatchery. This is one of three stations that monitors flow from Cleghorn Springs (see stations 06412600 and 06412700). 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	.92	.99	1.1	.86	.81	.76	.66	1.0	1.2	1.0	.68
2	1.2	.96	.77	.80	.71	.66	.68	1.0	1.0	1.2	1.0	.62
3	1.2	.96	.66	.80	.45	.99	.36	.87	.99	1.2	.97	.58
4	1.3	.82	.88	.84	.91	.94	.37	.97	.92	1.3	.82	.59
5	1.3	.83	.89	.74	1.1	1.0	.69	.61	1.1	1.3	.98	.62
6	1.3	.75	.94	.58	.71	1.0	.60	.65	1.2	1.3	.92	.61
7	1.3	.96	.96	.65	.54	1.1	.36	.48	1.2	1.2	.94	.76
8	1.4	1.0	.93	.80	1.0	1.1	.32	.55	1.2	1.2	.76	.85
9	1.3	.99	.74	.76	1.2	1.2	.26	1.0	.94	1.1	.60	.89
10	1.1	.92	.94	.65	1.0	.96	.28	1.3	.54	1.1	.26	.72
11	1.1	.91	.79	.82	1.0	.92	.66	1.2	.31	1.2	.27	.68
12	1.1	.91	.88	.86	.92	.93	.77	1.3	.18	1.2	.17	.68
13	1.1	.88	1.2	.62	1.0	.62	1.0	1.3	.50	1.3	.31	.70
14	1.3	.98	1.3	.85	1.1	.69	.98	1.3	1.1	1.2	.53	.81
15	.88	.89	.97	.84	1.3	.65	.65	1.2	1.2	1.2	.65	e.87
16	.79	1.1	.86	.77	1.1	.44	.49	1.2	1.0	1.2	1.2	e.85
17	.92	1.1	.69	.68	.98	.39	.57	1.3	.98	1.2	.72	e.82
18	1.4	.89	.85	.85	1.0	.64	.32	.91	.94	1.1	.28	e.65
19	1.6	.92	.77	.93	.93	.39	.30	.44	.83	.74	.16	e.61
20	1.3	.85	1.1	.91	1.0	.34	.27	.60	1.0	1.2	.20	e.55
21	1.6	.89	1.2	.73	.97	.38	.24	.70	1.2	1.2	.22	e.56
22	1.8	.83	1.0	.98	1.1	.38	.29	1.2	1.1	1.3	.55	.34
23	1.7	1.1	.78	1.0	1.2	.41	.77	1.1	1.0	1.3	.87	.43
24	1.5	.91	1.1	1.1	.72	.39	.38	1.2	.53	1.3	.99	.52
25	1.5	.87	1.6	1.2	.97	.39	.76	1.2	.61	1.3	.83	.52
26	1.3	.78	1.5	1.0	1.2	.42	.63	1.3	.70	1.3	.85	.54
27	1.3	.68	1.3	1.1	.65	.48	.30	1.4	.81	1.2	.73	.73
28	1.4	1.0	1.1	1.1	.96	.43	.23	1.2	.75	1.1	.39	.93
29	1.4	1.0	1.1	1.1	.95	.44	.34	.61	.56	1.1	.55	.92
30	1.3	.98	1.0	1.1	---	.41	.60	.44	1.1	1.1	.66	.58
31	1.1	---	1.0	.83	---	.34	---	.82	---	1.1	.66	---
TOTAL	39.99	27.58	30.79	27.09	27.53	20.24	15.23	30.01	26.49	36.94	20.04	20.21
MEAN	1.29	.92	.99	.87	.95	.65	.51	.97	.88	1.19	.65	.67
MAX	1.8	1.1	1.6	1.2	1.3	1.2	1.0	1.4	1.2	1.3	1.2	.93
MIN	.79	.68	.66	.58	.45	.34	.23	.44	.18	.74	.16	.34
AC-FT	79	55	61	54	55	40	30	60	53	73	40	40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

	MEAN	.96	1.04	.88	.91	.89	.75	.76	1.12	1.20	1.27	1.02	.93
MAX	1.29	1.75	1.01	1.05	1.04	.89	.99	1.24	1.50	1.51	1.28	1.25	
(WY)	1992	1988	1992	1988	1991	1990	1989	1991	1991	1991	1991	1991	
MIN	.70	.78	.71	.82	.66	.60	.53	.97	.88	1.10	.65	.67	
(WY)	1989	1990	1990	1990	1988	1988	1992	1992	1992	1990	1992	1992	

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1988 - 1992

ANNUAL TOTAL	409.32	322.14	
ANNUAL MEAN	1.12	.88	.98
HIGHEST ANNUAL MEAN			1.08
LOWEST ANNUAL MEAN			.88
HIGHEST DAILY MEAN	2.3	Jul 27	1.8
LOWEST DAILY MEAN	.27	Apr 4	.16
ANNUAL SEVEN-DAY MINIMUM	.56	Mar 31	.35
ANNUAL RUNOFF (AC-FT)	812	639	710
10 PERCENT EXCEEDS	1.6	1.3	1.3
50 PERCENT EXCEEDS	1.1	.92	.96
90 PERCENT EXCEEDS	.70	.41	.60

e Estimated

a Also Nov. 14-16, 1987.

CHEYENNE RIVER BASIN

95

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

LOCATION.--Lat 44°03'33", long 103°17'49", in NW1/4NE1/4SE1/4 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 mi².

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. 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 discharge of 43,800 ft³/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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	19	16	22	23	23	25	30	65	46	44	56
2	26	17	19	22	22	23	25	38	45	48	44	50
3	27	17	20	23	21	24	24	41	42	46	45	48
4	27	21	21	24	22	25	23	43	46	47	54	48
5	26	23	23	24	23	28	24	43	45	49	56	48
6	25	21	23	23	22	26	24	57	43	45	56	49
7	24	19	23	23	21	25	23	57	43	45	56	51
8	24	22	23	20	22	27	23	65	42	44	58	50
9	22	22	22	19	23	27	23	70	39	44	63	50
10	21	22	22	21	24	26	24	78	38	45	63	44
11	21	21	19	22	21	26	28	63	39	41	71	41
12	21	21	21	22	21	26	27	69	39	41	71	40
13	21	21	22	19	26	25	28	73	45	44	71	40
14	22	21	18	18	25	25	27	77	50	39	76	40
15	21	21	17	16	25	24	26	76	53	39	79	40
16	20	22	20	18	24	23	25	77	52	39	81	40
17	20	21	21	21	23	24	26	78	46	38	80	40
18	21	21	20	20	24	25	25	77	44	38	73	39
19	20	21	22	23	22	25	27	76	44	37	69	37
20	19	20	26	24	25	24	26	80	45	39	77	35
21	21	21	24	23	24	24	26	91	48	42	82	38
22	21	21	23	23	25	24	27	71	46	42	82	39
23	20	22	22	22	26	24	29	66	41	40	82	36
24	20	17	22	24	23	24	27	84	41	39	81	35
25	21	23	23	24	25	24	29	85	43	38	72	34
26	20	22	23	23	26	24	29	85	45	38	64	37
27	20	21	21	22	23	24	28	83	49	40	56	52
28	21	22	21	23	24	24	28	66	49	37	52	57
29	19	18	22	23	24	24	28	62	49	44	55	56
30	19	19	22	23	---	24	30	62	52	54	56	55
31	20	---	22	23	---	24	---	66	---	42	55	---
TOTAL	676	619	663	677	679	765	784	2089	1368	1310	2024	1325
MEAN	21.8	20.6	21.4	21.8	23.4	24.7	26.1	67.4	45.6	42.3	65.3	44.2
MAX	27	23	26	24	26	28	30	91	65	54	82	57
MIN	19	17	16	16	21	23	23	30	38	37	44	34
AC-FT	1340	1230	1320	1340	1350	1520	1560	4140	2710	2600	4010	2630

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992
MEAN	20.5	20.4	19.7	19.3	19.8
MAX	24.1	23.8	21.4	21.8	23.8
(WY)	1988	1988	1992	1992	1988
MIN	15.9	15.1	15.9	15.7	17.0
(WY)	1991	1991	1991	1991	1991

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1988 - 1992

ANNUAL TOTAL	13022	12979	
ANNUAL MEAN	35.7	35.5	
HIGHEST ANNUAL MEAN			38.7
LOWEST ANNUAL MEAN			49.3
HIGHEST DAILY MEAN	125	May 12	152
LOWEST DAILY MEAN	13	Apr 3	12
ANNUAL SEVEN-DAY MINIMUM	14	Mar 30	13
INSTANTANEOUS PEAK FLOW			694
INSTANTANEOUS PEAK STAGE			7.76
ANNUAL RUNOFF (AC-FT)	25830	25740	28040
10 PERCENT EXCEEDS	74	65	82
50 PERCENT EXCEEDS	21	26	24
90 PERCENT EXCEEDS	15	21	16

a Also Jan. 15.

06413650 LIME CREEK AT MOUTH, AT RAPID CITY, SD

LOCATION.--Lat 44°04'27", long 103°15'53", in NW1/4NE1/4SW1/4 sec.3, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, at weir 500 ft above mouth, and 1,000 ft downstream from Canyon Lake Drive.

DRAINAGE AREA.--10.1 mi².

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

GAGE.--Water-stage recorder and 5 ft metal rectangular weir since October 1987. Datum of gage is 3,281.11 ft above sea level. From April 24, 1981, to July 21, 1982 (seasonal records), at datum about 60 ft higher.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 25, 1982, reached a stage of 3.6 ft, present datum, from floodmarks. A discharge of 103 ft³/s was measured July 22, 1982.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.83	e.60	.56	.52	.45	.52	.45	.52	.63	1.3	.47	.24
2	.77	e.54	.59	.52	.45	.52	.45	.52	.63	.96	.42	.26
3	1.0	e.50	.59	.52	.50	.52	.45	.49	.66	3.5	.42	.22
4	.94	e.50	.59	.68	.48	2.5	.76	.50	.57	.90	.43	.21
5	.92	e.60	.63	.52	.54	1.3	.97	.50	.72	2.1	.41	.17
6	.87	e.50	.64	.52	.54	.71	1.5	.51	.60	.62	.38	.27
7	.87	e.50	.68	.51	.52	.66	.45	.49	.79	.53	.40	.19
8	.87	e.60	.63	.48	.52	1.6	.46	.48	.57	.55	.36	.22
9	.84	e.70	.59	.52	.52	1.2	.45	.64	.59	.56	.32	.22
10	.86	e.74	.59	.53	.52	.72	.63	3.2	.51	.48	.30	.21
11	.84	e.78	.57	.53	.52	.73	1.2	.60	.47	.83	.29	.17
12	.85	e.87	.48	.52	.54	.73	.54	.58	.47	1.6	.32	.18
13	1.0	.87	.49	.52	.57	.67	.52	.49	.46	1.5	.27	.18
14	1.1	.80	.46	e.48	.59	.61	.51	.50	.53	.58	.30	.17
15	1.1	.77	.46	e.47	.56	.60	.47	.54	2.9	.54	.28	.17
16	1.2	.77	.52	e.46	.59	.59	.45	.69	.67	.66	.22	.17
17	1.1	.77	.52	e.45	.52	.63	.45	.55	.58	.48	.23	.18
18	.99	.77	.52	e.45	.54	1.2	.45	.50	.60	.47	.20	.17
19	.94	.77	.55	.53	.55	.72	.64	.48	1.2	.53	.18	.17
20	.87	.77	.59	.52	.59	.67	.58	.44	.59	.64	.16	.17
21	.92	.72	.59	.52	.59	.60	.51	1.7	1.8	1.2	.20	.17
22	.96	.67	.59	.50	.59	.59	.53	1.5	.72	.63	.22	.16
23	.96	.67	.59	.52	.62	.59	1.1	.59	.62	.69	.69	.14
24	.96	.67	.59	.52	.52	.59	.62	.57	.53	.63	.31	.14
25	.96	.67	.59	.45	.52	.59	.59	.59	.50	.55	.24	.13
26	.91	.67	.59	.49	.52	.50	.59	.59	.49	.53	.53	.13
27	.87	.67	.59	.52	.52	.51	.59	.62	.51	.51	.28	.13
28	e.76	.59	.57	.52	.52	.45	1.0	.58	.47	.50	.25	.15
29	e.70	.59	.55	.52	.55	.45	.52	.53	.47	.52	.22	.30
30	e.70	.59	.52	.52	---	.77	.51	.52	.58	.50	.22	.13
31	e.70	---	.52	.50	---	.45	---	2.0	---	.48	.22	---
TOTAL	28.16	20.23	17.54	15.83	15.56	23.49	18.94	23.01	21.43	26.07	9.74	6.12
MEAN	.91	.67	.57	.51	.54	.76	.63	.74	.71	.84	.31	.20
MAX	1.2	.87	.68	.68	.62	2.5	1.5	3.2	2.9	3.5	.69	.79
MIN	.70	.50	.46	.45	.45	.45	.45	.44	.46	.47	.16	.13
AC-FT	56	40	35	31	31	47	38	46	43	52	19	12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)*

	MEAN	1.95	1.04	.97	.95	1.03	1.03	1.17	1.61	1.24	1.17	1.15	.63
MAX	1.76	2.15	2.15	1.91	1.96	1.99	1.60	3.24	2.69	2.69	1.98	1.74	.97
(WY)	1988	1988	1988	1988	1988	1988	1988	1991	1991	1991	1991	1988	1989
MIN	.32	.35	.45	.23	.34	.40	.63	.74	.71	.71	.80	.31	.20
(WY)	1991	1991	1991	1991	1991	1991	1992	1992	1992	1992	1989	1992	1992

SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1988 - 1992*

ANNUAL TOTAL	435.43	226.12	
ANNUAL MEAN	1.19	.62	1.08
HIGHEST ANNUAL MEAN			1.65
LOWEST ANNUAL MEAN			.62
HIGHEST DAILY MEAN	21	May 11	21
LOWEST DAILY MEAN	.10	Jan 15	.10
ANNUAL SEVEN-DAY MINIMUM	.13	Jan 11	.13
INSTANTANEOUS PEAK FLOW		52	210
INSTANTANEOUS PEAK STAGE		2.09	3.04
ANNUAL RUNOFF (AC-FT)	864	449	782
10 PERCENT EXCEEDS	2.4	.94	2.0
50 PERCENT EXCEEDS	.84	.54	.82
90 PERCENT EXCEEDS	.34	.24	.36

e Estimated

* Period reflects only complete water years.

a Also Sept. 26-27, 30.

06414000 RAPID CREEK AT RAPID CITY, SD

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

DRAINAGE AREA.--410 mi², approximately.

PERIOD OF RECORD.--June 1903 to November 1906, July 1942 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 3,230.14 ft above 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.--No estimated daily discharges. Records good. Several small diversions upstream from station to municipal park pools and for irrigation of about 320 acres. Flow regulated by Pactola Dam 25.4 mi upstream since Aug. 22, 1956. Maximum discharge prior to regulation, 2,540 ft³/s, May 23, 1952, gage height, 6.20 ft, datum then in use; minimum daily discharge, 18 ft³/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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	26	21	26	31	29	29	27	68	50	41	53
2	22	25	22	26	31	28	29	33	48	50	42	50
3	25	25	25	28	30	28	26	39	43	71	41	47
4	28	25	24	29	30	35	24	39	46	54	47	47
5	28	29	27	29	31	38	25	37	45	60	49	48
6	26	27	27	28	32	34	27	48	43	48	51	49
7	27	25	27	28	30	32	26	51	43	47	51	52
8	26	27	27	27	30	38	25	53	42	46	52	48
9	24	30	25	23	31	37	25	61	40	46	56	47
10	22	29	26	26	33	32	27	98	37	47	55	44
11	22	28	23	27	30	32	34	60	37	48	66	41
12	23	27	23	27	28	33	31	66	37	51	66	40
13	22	26	26	23	32	31	31	73	41	54	74	39
14	23	26	22	22	34	30	31	82	46	45	78	39
15	24	26	20	27	33	30	30	80	62	43	85	39
16	24	26	22	22	32	28	27	82	50	42	86	38
17	24	26	24	24	31	27	28	84	45	41	85	37
18	25	26	23	25	32	33	27	83	44	40	74	37
19	24	25	25	26	30	32	30	78	45	40	65	37
20	23	26	29	30	33	29	30	82	43	42	70	34
21	23	27	28	29	32	28	29	104	54	47	76	36
22	24	28	28	28	32	28	30	86	47	44	85	38
23	25	28	26	28	34	29	35	65	42	42	91	35
24	24	25	26	29	31	28	30	92	40	41	88	33
25	25	27	27	31	31	28	31	94	39	39	76	32
26	24	29	28	31	33	28	32	94	41	38	66	34
27	24	27	25	29	29	28	29	94	44	39	54	45
28	25	27	25	30	30	28	28	70	44	37	49	53
29	26	24	25	31	30	27	27	63	45	41	51	54
30	25	23	26	31	---	29	28	61	48	50	52	53
31	26	---	26	31	---	28	---	77	---	44	52	---
TOTAL	757	795	778	851	906	945	861	2156	1349	1427	1974	1279
MEAN	24.4	26.5	25.1	27.5	31.2	30.5	28.7	69.5	45.0	46.0	63.7	42.6
MAX	28	30	29	31	34	38	35	104	68	71	91	54
MIN	22	23	20	22	28	27	24	27	37	37	41	32
AC-FT	1500	1580	1540	1690	1800	1870	1710	4280	2680	2830	3920	2540

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1992, BY WATER YEAR (WY)*

	34.9	31.0	28.0	26.4	27.3	32.6	48.9	94.4	113	85.4	60.7	47.1
MEAN	34.9	31.0	28.0	26.4	27.3	32.6	48.9	94.4	113	85.4	60.7	47.1
MAX	98.4	65.9	45.8	44.8	48.9	75.7	182	321	487	198	126	95.5
(WY)	1966	1987	1966	1985	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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1957 - 1992*

	13738	14078	52.6	1965
ANNUAL TOTAL	13738	14078	52.6	1965
ANNUAL MEAN	37.6	38.5	124	1960
HIGHEST ANNUAL MEAN			29.3	1960
LOWEST ANNUAL MEAN			5600	Jun 10 1972
HIGHEST DAILY MEAN	159	May 12	2.0	Apr 20 1962
LOWEST DAILY MEAN	13	Apr 6	7.0	Apr 15 1962
ANNUAL SEVEN-DAY MINIMUM	14	Apr 1	50000	Jun 9 1972a
INSTANTANEOUS PEAK FLOW			19.66	Jun 9 1972b
INSTANTANEOUS PEAK STAGE				
ANNUAL RUNOFF (AC-FT)	27250	27920	38110	
10 PERCENT EXCEEDS	70	65	93	
50 PERCENT EXCEEDS	27	31	36	
90 PERCENT EXCEEDS	18	25	19	

* Regulated period only (1957-92). 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 NW1/4NE1/4NE1/4 sec.25, T.1 N., R.8 E., Pennington County, Hydrologic Unit 10120110, on right bank 120 ft downstream from sewage treatment plant effluent and 6.7 mi southeast of Rapid City.

DRAINAGE AREA.--452 mi², approximately.

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

GAGE.--Water-stage recorder. Elevation of gage is 3,000 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	42	38	44	46	49	42	20	64	36	14	34
2	34	32	39	43	44	44	46	19	42	90	13	35
3	45	31	38	42	44	44	44	19	25	39	15	25
4	45	35	43	49	42	46	41	21	30	223	15	26
5	39	42	44	53	43	117	39	21	32	140	16	27
6	40	43	48	51	44	54	43	20	25	49	19	23
7	38	35	48	51	43	51	43	20	31	40	18	73
8	36	38	51	48	42	69	40	18	34	36	16	45
9	34	47	49	49	44	70	41	21	27	34	21	43
10	34	49	46	48	46	55	40	136	20	36	24	47
11	32	47	48	56	43	51	67	46	16	44	27	41
12	28	42	44	56	43	54	47	35	15	44	29	36
13	30	41	45	51	45	50	49	39	13	175	29	34
14	35	39	e44	46	48	46	48	38	13	41	29	36
15	33	41	e45	47	46	44	46	40	75	27	37	23
16	30	40	e46	53	46	44	42	44	61	23	44	26
17	29	41	e47	47	46	43	43	46	32	21	59	28
18	32	44	e47	51	45	51	39	43	25	18	47	30
19	31	40	47	55	44	58	38	42	67	19	38	33
20	33	40	51	60	45	49	44	42	36	16	36	27
21	35	42	57	57	45	46	40	63	40	41	46	27
22	32	43	54	57	46	45	37	177	93	33	55	28
23	32	44	49	59	49	45	46	39	43	19	103	26
24	33	45	49	56	47	44	37	60	32	16	69	20
25	31	42	48	62	45	42	24	80	19	13	62	13
26	33	46	51	61	48	43	21	89	22	13	56	11
27	32	46	52	60	48	44	22	91	24	15	42	11
28	30	45	38	60	51	41	29	70	23	15	30	20
29	43	46	46	63	51	38	29	48	35	14	23	36
30	42	34	41	63	---	40	23	33	31	16	26	32
31	41	---	44	54	---	43	---	86	---	18	31	---
TOTAL	1077	1242	1437	1652	1319	1560	1190	1566	1045	1364	1089	916
MEAN	34.7	41.4	46.4	53.3	45.5	50.3	39.7	50.5	34.8	44.0	35.1	30.5
MAX	45	49	57	63	51	117	67	177	93	223	103	73
MIN	28	31	38	42	42	38	21	18	13	13	13	11
AC-FT	2140	2460	2850	3280	2620	3090	2360	3110	2070	2710	2160	1820

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1992, BY WATER YEAR (WY)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	41.6	44.8	43.0	44.2	43.9	51.3	63.2	85.1	67.7	59.7	38.0
MAX	99.3	91.3	60.7	55.5	54.6	75.5	120	237	180	163	96.5
(WY)	1983	1987	1983	1984	1985	1985	1983	1983	1984	1982	1982
MIN	18.7	23.7	31.5	28.8	32.7	32.3	31.1	30.5	32.7	32.3	22.2
(WY)	1991	1982	1991	1991	1991	1991	1988	1989	1985	1991	1990

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1982 - 1992

ANNUAL TOTAL	17311	15457	
ANNUAL MEAN	47.4	42.2	52.8
HIGHEST ANNUAL MEAN			81.5
LOWEST ANNUAL MEAN			35.5
HIGHEST DAILY MEAN	200	223	636
LOWEST DAILY MEAN	15	11	11
ANNUAL SEVEN-DAY MINIMUM	21	15	13
INSTANTANEOUS PEAK FLOW		646	1680
INSTANTANEOUS PEAK STAGE		5.74	9.12
ANNUAL RUNOFF (AC-FT)	34340	30660	38250
10 PERCENT EXCEEDS	80	57	93
50 PERCENT EXCEEDS	38	42	41
90 PERCENT EXCEEDS	27	20	23

e Estimated

a Also Sept. 27, 1992.

CHEYENNE RIVER BASIN

99

06421500 RAPID CREEK NEAR FARMINGDALE, SD

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

DRAINAGE AREA.--602 mi².

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

GAGE.--Water-stage recorder. 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 ft³/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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	e41	e41	e43	e49	47	40	24	58	26	30	9.7
2	36	e40	e42	e43	e48	45	41	20	45	37	24	13
3	33	e39	e44	e43	e47	43	46	14	38	63	20	17
4	35	e40	e45	e44	e45	44	38	16	33	107	21	19
5	47	e41	e48	e50	e45	97	34	17	36	109	19	19
6	45	e42	e50	e50	e46	95	33	13	30	104	19	19
7	41	e42	e51	e47	e45	58	36	9.5	27	53	21	20
8	42	e43	e52	e45	e46	56	38	6.5	20	44	17	57
9	38	e45	e51	e45	e46	83	35	4.7	25	41	13	36
10	34	e46	e50	e46	e47	74	35	30	24	37	7.4	32
11	32	e47	e50	e50	e45	59	40	113	19	40	10	34
12	30	e47	e49	e50	e45	53	74	29	12	43	7.7	20
13	26	e45	e48	e49	e48	56	53	13	13	70	10	15
14	23	e44	e47	e45	e50	49	53	20	22	115	13	14
15	24	e43	e47	e43	e49	46	51	21	24	47	14	13
16	31	e42	e48	e47	e48	47	49	19	61	36	12	8.9
17	28	e43	e48	e45	e48	45	46	16	50	31	16	9.8
18	28	e44	e49	e46	e48	44	47	20	32	30	37	11
19	28	e42	e50	e49	e48	62	44	14	33	26	21	12
20	31	e42	e52	e51	e47	59	41	8.2	48	23	8.8	13
21	32	e42	e52	e51	e48	50	55	6.3	32	31	3.3	11
22	33	e44	e52	e51	e49	47	49	75	41	50	11	9.7
23	31	e46	e52	e50	e49	46	46	98	57	49	29	9.8
24	32	e47	e50	e49	e50	45	56	17	37	38	49	6.7
25	31	e47	e50	e51	e48	43	49	28	29	36	32	3.7
26	34	e48	e50	e50	e48	43	35	36	23	30	29	.95
27	36	e49	e49	e50	51	43	32	43	19	26	24	.85
28	e38	e49	e47	e49	48	43	33	48	18	26	17	2.1
29	e41	e49	e45	e50	46	38	32	38	15	24	8.2	4.3
30	e40	e40	e43	e50	---	37	35	26	15	22	5.1	10
31	e40	---	e43	e50	---	38	---	22	---	28	3.5	---
TOTAL	1055	1319	1495	1482	1378	1635	1296	865.2	936	1442	552.0	451.50
MEAN	34.0	44.0	48.2	47.8	47.5	52.7	43.2	27.9	31.2	46.5	17.8	15.0
MAX	47	49	52	51	51	97	74	113	61	115	49	57
MIN	23	39	41	43	45	37	32	4.7	12	22	3.3	.85
AC-FT	2090	2620	2970	2940	2730	3240	2570	1720	1860	2860	1090	896

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1992, BY WATER YEAR (WY)*

	MEAN	38.0	43.8	39.1	37.4	43.2	61.5	71.9	96.3	114	60.1	30.6	32.5
MAX	134	100	68.9	72.5	128	134	230	338	543	221	151	99.0	
(WY)	1983	1987	1983	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1957 - 1992*

ANNUAL TOTAL	16324.1	13906.70	
ANNUAL MEAN	44.7	38.0	55.7
HIGHEST ANNUAL MEAN			127
LOWEST ANNUAL MEAN			12.5
HIGHEST DAILY MEAN	265	May 28	2860
LOWEST DAILY MEAN	5.0	Jul 23	.00
ANNUAL SEVEN-DAY MINIMUM	10	Aug 19	.00
INSTANTANEOUS PEAK FLOW			7320
INSTANTANEOUS PEAK STAGE			11.85
ANNUAL RUNOFF (AC-FT)	32380	27580	40350
10 PERCENT EXCEEDS	71	51	105
50 PERCENT EXCEEDS	35	42	38
90 PERCENT EXCEEDS	16	13	11

e Estimated

* Regulated period only (1957-92). See REMARKS.

a No flow at times in 1958-63 and 1969-71.

b From floodmarks, from rating curve extended about 400 ft³/s on basis of contracted-opening and flow-over-road measurement of peak flow.

CHEYENNE RIVER BASIN

06422500 BOXELDER CREEK NEAR NEMO, SD

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

DRAINAGE AREA.--96 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1945 to July 1947, May 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,320.27 ft above sea level. July 1945 to July 1947 nonrecording gage at site 100 ft upstream at different datum. May 17, 1966, to June 9, 1972, water-stage recorder (destroyed by flood) and June 10, 1972, to Aug. 8, 1972, nonrecording gage, both at site 100 ft upstream at datum 2.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e8.5	e6.5	e7.5	6.3	e5.3	9.5	5.5	7.7	7.4	5.1	5.0	4.3
2	e8.5	e6.5	e7.5	6.2	e5.0	8.9	5.9	7.3	6.2	6.9	4.6	5.9
3	e10	e6.7	e7.0	6.1	e4.8	8.1	5.8	7.0	6.6	6.7	4.4	5.0
4	e9.8	e6.9	e7.0	6.6	e4.7	8.4	6.2	6.7	6.3	5.4	4.6	4.2
5	e9.5	e6.9	e6.8	6.7	e4.7	17	6.3	6.3	5.5	6.1	4.3	4.1
6	e9.2	e6.5	e6.5	6.2	e4.7	14	6.2	6.1	5.9	6.0	4.4	3.9
7	e9.0	e6.5	e6.5	6.7	e4.7	10	6.1	5.7	6.5	5.3	4.3	4.6
8	e8.8	e6.5	e6.5	7.5	e5.0	9.2	5.8	5.7	6.7	6.0	3.9	5.0
9	e8.5	e6.8	e6.3	6.8	e5.0	7.6	5.7	6.0	5.3	5.6	3.4	4.3
10	e8.0	e7.0	e6.3	6.9	e5.5	9.1	5.7	13	8.7	5.8	3.4	3.8
11	e8.0	e7.5	e6.3	6.8	e5.5	7.9	7.2	13	7.6	7.2	3.4	3.6
12	e8.7	e8.0	e7.0	6.8	e5.8	7.5	6.3	8.4	14	11	3.1	3.4
13	e8.5	e8.8	e7.5	7.0	e5.8	8.1	7.0	7.3	23	24	2.9	3.2
14	e8.5	13	e7.5	e8.0	e5.9	9.2	8.7	6.6	11	15	3.0	3.2
15	e7.0	11	e7.5	e8.0	e5.9	9.4	8.0	6.0	11	9.6	2.9	3.2
16	e6.5	10	e8.0	e8.0	e5.9	9.5	6.5	5.8	18	7.8	2.8	3.2
17	e6.5	12	e8.0	7.2	e5.9	9.2	6.7	5.6	13	6.7	3.2	3.1
18	e6.2	e8.5	e8.0	7.0	e5.9	9.3	6.3	5.4	12	6.5	3.2	2.9
19	e6.0	e8.3	e8.0	7.2	e5.5	8.9	10	5.0	10	6.3	2.6	3.0
20	e5.8	e8.0	8.1	7.2	e5.5	7.9	9.8	5.0	8.9	6.9	2.4	3.1
21	e5.6	e8.0	8.4	6.9	e5.5	8.6	6.1	4.7	9.7	8.4	2.4	3.4
22	e5.6	e8.0	8.3	6.1	e5.3	7.2	9.9	8.8	11	9.0	2.5	3.6
23	e5.5	e8.0	8.8	e6.0	e5.5	7.8	14	9.7	8.3	8.1	3.9	3.6
24	e5.5	e8.0	8.5	e6.0	e5.5	7.3	17	7.1	6.3	6.5	5.4	3.5
25	e5.3	e8.0	7.9	e6.0	e5.3	6.3	14	5.8	5.8	5.8	5.1	3.1
26	5.6	e8.0	7.6	e6.2	6.1	6.9	12	5.1	5.4	6.9	5.3	3.0
27	e6.0	e8.0	7.8	e6.0	8.0	6.7	11	4.8	8.4	7.4	5.3	3.0
28	e6.0	e8.0	7.2	e6.0	10	6.9	11	4.5	6.6	7.1	4.6	2.7
29	e6.0	e8.0	7.2	e5.9	10	7.0	9.4	4.0	6.0	5.9	3.6	2.8
30	e6.0	e7.5	6.9	e5.8	---	6.4	8.3	3.9	6.1	7.2	3.8	2.9
31	e6.0	---	6.6	e5.8	---	6.1	---	6.1	---	6.2	3.9	---
TOTAL	224.6	241.4	229.0	205.9	168.2	265.9	248.4	204.1	267.2	238.4	117.6	108.6
MEAN	7.25	8.05	7.39	6.64	5.80	8.58	8.28	6.58	8.91	7.69	3.79	3.62
MAX	10	13	8.8	8.0	10	17	17	13	23	24	5.4	5.9
MIN	5.3	6.5	6.3	5.8	4.7	6.1	5.5	3.9	5.3	5.1	2.4	2.7
AC-FT	445	479	454	408	334	527	493	405	530	473	233	215

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1992, BY WATER YEAR (WY)

	7.12	6.46	4.83	4.13	4.99	9.63	22.9	36.0	51.8	16.5	9.25	6.54
MEAN	7.12	6.46	4.83	4.13	4.99	9.63	22.9	36.0	51.8	16.5	9.25	6.54
MAX	26.8	22.3	10.5	8.50	10.0	17.6	86.7	126	489	57.5	29.2	14.0
(WY)	1983	1983	1983	1983	1971	1983	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1946, 1967-1992

ANNUAL TOTAL	5440.9	2519.3	
ANNUAL MEAN	14.9	6.88	15.7
HIGHEST ANNUAL MEAN			55.1
LOWEST ANNUAL MEAN			3.81
HIGHEST DAILY MEAN	199	Jun 6	6700
LOWEST DAILY MEAN	1.1	Feb 6	.10
ANNUAL SEVEN-DAY MINIMUM	1.1	Feb 6	.14
INSTANTANEOUS PEAK FLOW		53	30100
INSTANTANEOUS PEAK STAGE		2.34	20.40
ANNUAL RUNOFF (AC-FT)	10790	5000	11370
10 PERCENT EXCEEDS	35	9.6	29b
50 PERCENT EXCEEDS	8.0	6.5	7.2b
90 PERCENT EXCEEDS	1.7	3.8	2.3b

e Estimated

a Also Aug. 21.

b Reflects water years 1967-92 only.

c From rating curve extended above 600 ft³/s on basis of slope-area measurement of peak flow.

d Site and datum then in use (22.0 ft, present site and datum, from floodmarks).

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PRECIPITATION RECORDS

REMARKS.--Records fair.

[illegible]

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 SE1/4NW1/4 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.02	.00	.00
2	---	---	---	---	---	---	---	.00	.00	.35	.00	.30
3	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
4	---	---	---	---	---	---	---	.00	.31	.14	.00	.00
5	---	---	---	---	---	---	---	.00	.14	.35	.00	.00
6	---	---	---	---	---	---	---	.00	.02	.00	.00	.00
7	---	---	---	---	---	---	---	.00	.39	.07	.00	.00
8	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
9	---	---	---	---	---	---	---	.00	.00	.03	.00	.00
10	---	---	---	---	---	---	---	.95	.00	.00	.00	.40
11	---	---	---	---	---	---	---	.00	.00	.13	.00	.01
12	---	---	---	---	---	---	---	.00	.00	.65	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.70	.00	.00
14	---	---	---	---	---	---	---	.00	.89	.05	.00	.00
15	---	---	---	---	---	---	---	.00	.05	.00	.00	.00
16	---	---	---	---	---	---	---	.05	.55	.00	.00	.00
17	---	---	---	---	---	---	---	.06	.07	.00	.08	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
20	---	---	---	---	---	---	---	.00	.02	.10	.00	.00
21	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
22	---	---	---	---	---	---	---	.90	.62	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.43	.00
24	---	---	---	---	---	---	---	.00	.06	e.17	.04	.00
25	---	---	---	---	---	---	---	.00	.03	e.49	.10	.00
26	---	---	---	---	---	---	---	.00	.00	.00	.20	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.16	.29	.00	.00
30	---	---	---	---	---	---	---	.00	.03	.00	.00	.00
31	---	---	---	---	---	---	---	.44	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	2.40	3.34	3.54	0.85	0.71

e Estimated

CHEYENNE RIVER BASIN

103

06423010 BOXELDER CREEK NEAR RAPID CITY, SD

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

DRAINAGE AREA.--128 mi².

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

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

REMARKS.--No estimated daily discharges. Records good. 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 1991 TO SEPTEMBER 1992
MEAN 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	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.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	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.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	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1992, BY WATER YEAR (WY)

	1979	1979	1979	1979	1979	1979	1979	1979	1979	1979	1979	1979
MEAN	.000	.000	.000	.000	.000	.000	.36	3.97	4.13	.63	.29	.025
MAX	.000	.000	.000	.000	.000	.000	4.67	34.7	27.9	7.06	3.82	.33
(WY)	1979	1979	1979	1979	1979	1979	1983	1983	1991	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1979 - 1992

ANNUAL TOTAL	836.31	.00		
ANNUAL MEAN	2.29	.00		
HIGHEST ANNUAL MEAN			.73	1984
LOWEST ANNUAL MEAN			4.06	1979a
HIGHEST DAILY MEAN	114	Jun 7	.000	
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1 1978b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1 1978
INSTANTANEOUS PEAK FLOW			253	May 18 1978c
INSTANTANEOUS PEAK STAGE			31.64	Jun 6 1991
ANNUAL RUNOFF (AC-FT)	1660		530	
10 PERCENT EXCEEDS	.00	.00	.00	
50 PERCENT EXCEEDS	.00	.00	.00	
90 PERCENT EXCEEDS	.00	.00	.00	

a Also 1980, 1981, 1985-1990, and 1992.

b Most days each year.

c Gage height, 31.14 ft, from floodmark.

CHEYENNE RIVER BASIN

06423500 CHEYENNE RIVER NEAR WASTA, SD

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

DRAINAGE AREA.--12,800 mi², approximately.

PERIOD OF RECORD.--July 1914 to June 1915, August 1928 to June 1932, March 1934 to current year. Monthly discharge only for some periods, published in WSP 1309. Records for Feb. 19-28, 1930, published in WSP 701, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 786: Drainage area. WSP 1279: 1930 (M), 1931, 1937. See also Period of Record.

GAGE.--Water-stage recorder. Datum of gage is 2,260.78 ft above 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 good 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 ft³/s, May 6, 1932, gage height, 13.28 ft, present datum, from rating curve extended above 11,000 ft³/s on basis of an incomplete discharge measurement, at gage height, 10.65 ft, present datum; maximum gage height observed, 14.5 ft, present datum, June 13, 1915; minimum discharge, 0.8 ft³/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 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	e70	e118	e86	e152	126	91	69	1390	79	105	70
2	88	e78	e125	e92	e155	122	91	67	705	320	92	70
3	91	e89	e120	e94	e150	119	92	63	216	286	83	96
4	155	e110	e130	e98	e147	118	96	60	175	207	78	86
5	131	e143	e200	e97	e138	733	94	58	231	771	74	85
6	122	e171	e280	e102	e126	427	90	58	313	529	78	82
7	107	e227	e350	e98	e110	214	86	56	164	227	69	82
8	100	e300	e400	e92	e105	157	89	51	122	132	66	82
9	98	e385	387	e96	e115	924	91	48	91	97	60	104
10	96	e540	228	e104	e105	515	91	64	83	89	54	97
11	97	e480	159	e110	e96	398	99	250	78	84	48	97
12	94	472	124	e106	e88	459	102	148	71	90	42	106
13	92	430	e120	e102	e103	256	115	88	63	111	43	94
14	88	326	e95	e101	e125	180	110	63	60	279	47	82
15	88	244	97	e98	e130	143	113	57	91	203	47	79
16	86	192	e95	e100	e135	139	108	56	761	118	50	80
17	92	172	e90	e100	e140	127	102	56	439	91	52	80
18	104	356	e80	e98	e145	117	98	50	264	79	54	76
19	101	332	e85	e101	e150	114	98	46	263	77	61	78
20	99	165	e90	e110	e155	116	101	44	418	75	65	81
21	97	136	e94	e112	e180	120	104	38	687	81	56	81
22	96	167	e96	e112	e250	111	120	1120	232	1660	55	77
23	97	172	e98	e106	e320	108	119	614	152	402	59	76
24	98	128	e98	e110	e400	105	126	229	125	199	95	75
25	99	115	e98	e110	244	102	120	112	96	135	90	72
26	100	129	e96	e116	182	101	101	87	85	116	92	64
27	102	127	e94	e110	165	99	85	90	105	105	157	63
28	99	e125	e93	e125	151	97	76	91	143	101	144	54
29	97	e122	e92	e132	137	96	72	95	156	91	105	52
30	e86	e112	e90	e156	---	94	70	91	114	152	83	55
31	e78	---	e86	e150	---	92	---	86	---	153	74	---
TOTAL	3069	6615	4408	3324	4599	6629	2950	4105	7893	7139	2278	2376
MEAN	99.0	220	142	107	159	214	98.3	132	263	230	73.5	79.2
MAX	155	540	400	156	400	924	126	1120	1390	1660	157	106
MIN	78	70	80	86	88	92	70	38	60	75	42	52
AC-FT	6090	13120	8740	6590	9120	13150	5850	8140	15660	14160	4520	4710

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1992, BY WATER YEAR (WY)*

MEAN	142	128	97.6	93.8	142	342	376	681	917	332	151	122
MAX	639	232	176	448	669	1199	1595	2527	5270	1739	363	305
(WY)	1983	1987	1987	1974	1974	1978	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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1957 - 1992*

	1991	1992	1957-1992
ANNUAL TOTAL	181202.2	55385	
ANNUAL MEAN	496	151	294a
HIGHEST ANNUAL MEAN			735
LOWEST ANNUAL MEAN			76.8
HIGHEST DAILY MEAN	15000	1660	19200
LOWEST DAILY MEAN	3.5	38	1.0
ANNUAL SEVEN-DAY MINIMUM	4.0	47	4.0
INSTANTANEOUS PEAK FLOW		5130	26900
INSTANTANEOUS PEAK STAGE		6.05	16.25
ANNUAL RUNOFF (AC-FT)	359400	109900	212900
10 PERCENT EXCEEDS	717	279	500
50 PERCENT EXCEEDS	98	101	111
90 PERCENT EXCEEDS	25	64	48

e Estimated

* Regulated period only (1957-92). See REMARKS.

a Median of annual mean discharges, 260 ft³/s.

b Minimum discharge, 0.60 ft³/s, July 27, 1961.

c Gage height, 12.42 ft.

d Backwater from ice.

CHEYENNE RIVER BASIN

105

06424000 ELK CREEK NEAR ROUBAIX, SD

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

DRAINAGE AREA.--21.5 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1945 to July 1947, October 1991 to September 1992.

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 and Oct. 10-23, Dec. 18 to Feb. 24, Apr. 14 to May 29, 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.4	e1.5	e1.0	2.4	3.8	e5.0	e5.0	6.8	5.6	4.8	2.2	3.3
2	e2.8	e1.5	e1.4	4.4	2.9	e5.0	e4.5	6.9	4.7	6.3	2.2	2.5
3	e3.0	e1.5	e1.6	4.1	3.0	e4.5	e4.5	6.4	4.1	5.1	2.2	1.7
4	e2.5	e1.5	e2.0	4.1	2.3	e4.0	e4.5	6.0	4.1	4.7	2.3	1.6
5	e2.5	e1.8	e2.5	3.4	2.1	e4.0	e4.5	5.8	4.7	4.8	2.2	1.6
6	e2.5	e1.4	e3.0	3.3	2.0	e4.0	e3.5	6.0	4.7	3.9	2.2	1.6
7	e2.5	e1.4	e3.5	1.6	1.5	e4.0	e4.0	5.4	4.5	4.2	2.1	3.1
8	e2.5	e1.8	e3.0	1.7	1.3	e4.0	e4.5	5.6	4.0	4.0	2.0	2.0
9	e2.4	e2.0	e2.8	1.8	1.2	e3.0	e5.0	4.8	3.6	3.5	1.9	1.6
10	2.3	e2.2	e2.8	2.1	1.5	e2.0	e4.5	10	4.2	3.6	1.8	1.4
11	2.7	e2.0	e2.5	1.8	1.0	e1.8	e4.0	5.5	4.3	3.9	1.7	1.4
12	2.3	e2.2	e2.5	1.3	1.9	e2.0	e3.5	4.6	5.4	4.9	1.7	1.3
13	1.8	e2.5	e2.5	.96	2.2	e2.5	e3.0	4.3	5.5	7.3	1.6	1.2
14	1.7	e2.0	e2.0	.72	2.6	e3.5	2.7	4.7	4.4	3.9	1.7	1.2
15	2.8	e1.8	e2.2	.44	2.8	e4.0	2.5	4.5	6.1	3.6	1.6	1.2
16	2.8	e1.8	e2.2	1.4	2.6	e4.5	1.9	3.9	6.7	3.3	1.8	1.2
17	2.1	e2.0	e2.5	.97	1.6	e4.0	2.3	3.8	6.9	3.0	2.1	1.2
18	1.5	e2.8	2.6	1.3	1.9	e3.5	2.3	4.0	5.5	3.0	1.8	1.1
19	2.2	e2.8	2.5	1.8	2.0	e3.0	2.8	3.8	5.3	3.1	1.7	1.1
20	2.0	e2.5	2.6	1.9	1.8	e2.5	1.6	3.8	4.6	3.3	1.6	1.0
21	2.2	e3.0	2.0	1.5	3.1	e2.5	2.9	3.4	5.0	3.7	1.8	1.0
22	1.8	e2.5	1.7	1.1	3.4	e2.5	5.1	6.2	6.7	3.7	1.7	1.0
23	1.2	e2.0	1.5	1.1	2.6	e2.5	7.1	3.6	4.7	3.0	3.5	.94
24	e1.9	e2.0	1.2	1.6	2.3	e2.8	6.6	3.2	4.9	2.7	2.6	.90
25	e1.8	e1.8	1.6	1.8	e2.3	e3.5	6.8	2.5	4.8	2.8	2.4	.93
26	e1.8	e1.8	1.8	1.8	e2.5	e3.0	8.2	2.4	5.0	2.6	2.5	1.0
27	e2.0	e1.5	1.7	1.7	e3.0	e3.0	9.9	2.8	5.9	3.1	2.3	1.0
28	e2.0	e1.5	1.7	1.8	e3.5	e4.0	9.8	2.5	4.9	2.7	1.8	.97
29	e2.0	e1.2	1.6	1.9	e4.0	e4.0	8.3	2.6	5.4	2.6	1.7	.94
30	e1.8	e1.2	2.2	2.1	---	e4.0	8.0	4.3	4.9	2.6	1.6	.89
31	e1.5	---	2.4	5.5	---	e4.5	---	8.2	---	2.3	1.6	---
TOTAL	67.3	57.5	67.1	63.39	68.7	107.1	143.8	148.3	151.1	116.0	61.9	41.87
MEAN	2.17	1.92	2.16	2.04	2.37	3.45	4.79	4.78	5.04	3.74	2.00	1.40
MAX	3.0	3.0	3.5	5.5	4.0	5.0	9.9	10	6.9	7.3	3.5	3.3
MIN	1.2	1.2	1.0	.44	1.0	1.8	1.6	2.4	3.6	2.3	1.6	.89
AC-FT	133	114	133	126	136	212	285	294	300	230	123	83

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

	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992
MEAN	2.17	2.05	2.16	2.04	2.36	3.45	4.79	4.78	5.04	3.74	2.00	1.40
MAX	2.17	2.05	2.16	2.04	2.36	3.45	4.79	4.78	5.04	3.74	2.00	1.40
(WY)	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992
MIN	2.17	2.05	2.16	2.04	2.36	3.45	4.79	4.78	5.04	3.74	2.00	1.40
(WY)	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS

FOR 1992 WATER YEAR

ANNUAL TOTAL	1094.06
ANNUAL MEAN	2.99
HIGHEST DAILY MEAN	10 May 10
LOWEST DAILY MEAN	.44 Jan 15
ANNUAL SEVEN-DAY MINIMUM	.95 Sep 24
INSTANTANEOUS PEAK FLOW	15 May 10
INSTANTANEOUS PEAK STAGE	7.12 May 10
ANNUAL RUNOFF (AC-FT)	2170

e Estimated

CHEYENNE RIVER BASIN

06424000 ELK CREEK NEAR ROUBAIX, SD--Continued

PRECIPITATION RECORDS

PERIOD OF RECORD.--May to September 1992 (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 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.10	.00	.00	.04
2	---	---	---	---	---	---	---	.14	.00	.37	.00	.02
3	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
4	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
5	---	---	---	---	---	---	---	.00	.17	.16	.00	.00
6	---	---	---	---	---	---	---	.00	.16	.00	.00	.00
7	---	---	---	---	---	---	---	.00	e.00	.03	.00	.58
8	---	---	---	---	---	---	---	.00	e.00	.26	.00	.00
9	---	---	---	---	---	---	---	.03	e.00	.02	.02	.00
10	---	---	---	---	---	---	---	.99	e.00	.04	.00	.00
11	---	---	---	---	---	---	---	.00	e.00	.09	.00	.00
12	---	---	---	---	---	---	---	.00	e.00	.07	.00	.00
13	---	---	---	---	---	---	---	.00	.55	.75	.00	.00
14	---	---	---	---	---	---	---	.00	.11	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.07	.06	.00	.00
16	---	---	---	---	---	---	---	.00	.50	.00	.02	.00
17	---	---	---	---	---	---	---	.00	.15	.00	.12	.00
18	---	---	---	---	---	---	---	.00	.07	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.10	.07	.01	.00
20	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
21	---	---	---	---	---	---	---	.00	.00	.08	.17	.00
22	---	---	---	---	---	---	---	.95	.07	.11	.00	.00
23	---	---	---	---	---	---	---	.00	.02	.00	.67	.00
24	---	---	---	---	---	---	---	.00	.03	.02	.06	.00
25	---	---	---	---	---	---	---	.00	.00	.05	.16	.00
26	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
27	---	---	---	---	---	---	---	.00	.04	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.14	.00	.00	.00
30	---	---	---	---	---	---	---	.00	.03	.28	.00	.00
31	---	---	---	---	---	---	---	.36	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	2.47	2.31	2.46	1.23	0.64

e Estimated

CHEYENNE RIVER BASIN

107

0425100 ELK CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°14'25", long 103°09'03", in NE1/4NE1/4 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 mi².

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

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

REMARKS.--No estimated daily discharges. Records good. Some flow is pumped from stream for irrigation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN 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	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.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	.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	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.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	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1992, BY WATER YEAR (WY)

MEAN	3.65	1.72	1.32	1.52	5.24	5.26	6.19	18.1	8.95	2.41	1.35	.69
MAX	31.9	7.46	5.72	6.78	51.8	14.7	31.4	90.5	89.2	17.4	8.75	5.88
(WY)	1983	1985	1985	1983	1986	1985	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1979 - 1992

ANNUAL TOTAL	734.64											
ANNUAL MEAN	2.01									4.72		
HIGHEST ANNUAL MEAN										16.3		1984
LOWEST ANNUAL MEAN										.000		1992
HIGHEST DAILY MEAN	372	May 12								1060	May 20	1982
LOWEST DAILY MEAN	.00	Jan 1						.00	Oct 1a	.00	Sep 19	1979a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1						.00	Oct 1	.00	Sep 19	1979
INSTANTANEOUS PEAK FLOW										1560	May 20	1982b
INSTANTANEOUS PEAK STAGE										11.80	Feb 26	1986c
ANNUAL RUNOFF (AC-FT)	1460									3420		
10 PERCENT EXCEEDS	.87						.00			7.5		
50 PERCENT EXCEEDS	.00						.00			.00		
90 PERCENT EXCEEDS	.00						.00			.00		

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 SW1/4NW1/4 sec.1, T.3 N., R.13 E., Meade County, Hydrologic Unit 10120111, on left bank near downstream end of county highway bridge, 1.4 mi downstream from Hay Draw, 5.0 mi southeast of Elm Springs, and 7.0 mi upstream from mouth.

DRAINAGE AREA.--540 mi², approximately.

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

GAGE.--Water-stage recorder. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.93	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.93	.00	.00	.01	.00	.00	.00
3	.00	.00	.00	.00	.00	.93	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.25	.93	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.19	.93	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.93	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.93	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.93	.00	.00	.00	.00	.00	.00
9	.00	e.00	.00	.00	.00	.93	.00	.00	.00	.00	.00	.00
10	.00	e.02	.00	.00	.00	e.51	.00	.00	.00	.00	.00	.00
11	.00	e.04	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
12	.00	e.06	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
13	.00	e.08	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
14	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.10	.00	.00	.00	.00	.00	.00	1.9	.00	.00	.00
16	.00	.10	.00	.00	.00	.00	.00	.00	15	.00	.00	.00
17	.00	.10	.00	.00	.00	.00	.00	.00	e10	.00	.00	.00
18	.00	.10	.00	.00	.00	.00	.00	.00	e4.5	.00	.00	.00
19	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.10	.00	.00	.00	.00	.00	.00	13	.00	.00	.00
22	.00	.10	.00	.00	.28	.00	.00	.00	21	.03	.00	.00
23	.00	.10	.00	.00	2.0	.00	.00	.00	e8.4	.00	.00	.00
24	.00	.01	.00	.00	5.2	.00	.00	.00	e2.1	.00	.00	.00
25	.00	.00	.00	.00	2.1	.00	.00	.00	e.21	.00	.00	.00
26	.00	.00	.00	.00	.61	.00	.00	.00	.21	.00	.00	.00
27	.00	.00	.00	.00	.70	.00	.00	.00	.32	.00	.00	.00
28	.00	.00	.00	.00	.70	.00	.00	.00	.20	.00	.00	.00
29	.00	.00	.00	.00	.80	.00	.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	.00	---
TOTAL	0.00	1.21	0.00	0.00	12.83	8.88	0.00	0.00	76.85	0.03	0.00	0.00
MEAN	.000	.040	.000	.000	.44	.29	.000	.000	2.56	.001	.000	.000
MAX	.00	.10	.00	.00	5.2	.93	.00	.00	21	.03	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	2.4	.00	.00	25	18	.00	.00	152	.06	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1992, BY WATER YEAR (WY)

	4.20	1.45	1.14	.87	7.71	36.7	45.2	80.5	61.7	9.08	2.26	1.11
MEAN	152	10.5	9.60	6.14	130	327	288	513	708	72.5	20.8	26.8
MAX	1983	1972	1968	1968	1971	1978	1970	1982	1967	1962	1953	1951
(WY)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MIN	1950	1950	1950	1950	1950	1957	1959	1955	1955	1949	1949	1949
(WY)												

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1950 - 1992

ANNUAL TOTAL	1673.24	99.80		
ANNUAL MEAN	4.58	.27		
HIGHEST ANNUAL MEAN			21.1	1967
LOWEST ANNUAL MEAN			96.4	1961
HIGHEST DAILY MEAN	279	May 30	.000	May 21 1982
LOWEST DAILY MEAN	.00	Jan 1	.00	Jul 1 1949a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Jul 1 1949
INSTANTANEOUS PEAK FLOW			27	Jun 21 1952b
INSTANTANEOUS PEAK STAGE			5.49	Jun 21 1952b
ANNUAL RUNOFF (AC-FT)	3320	198	15290	Feb 27 1986c
10 PERCENT EXCEEDS	5.4	.10	24	
50 PERCENT EXCEEDS	.00	.00	.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 ft³/s.

c Backwater from ice.

BELLE FOURCHE RIVER BASIN

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06427000 KEYHOLE RESERVOIR NEAR MOORCROFT, WY

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

DRAINAGE AREA.--2,000 mi², approximately.

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

GAGE.--Water-stage recorder. 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, 29,900 acre-ft, Mar. 31, elevation, 4,066.89 ft; minimum, 18,200 acre-ft, Sept. 30, elevation, 4,060.58 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	4,067.74	31,700	-
Oct. 31	4,066.96	29,000	-2,700
Nov. 30	4,066.58	29,200	+200
Dec. 31	4,066.57	29,200	0
CAL YR 1991	-	-	-9,500
Jan. 31	4,066.59	29,300	+100
Feb. 29	4,066.68	29,500	+200
Mar. 31	4,066.89	29,900	+400
Apr. 30	4,066.79	29,200	-700
May 31	4,065.10	26,200	-3,000
June 30	4,064.41	24,900	-1,300
July 31	4,064.04	24,200	-700
Aug. 31	4,060.97	18,800	-5,400
Sept. 30	4,060.58	18,200	-600
WTR YR 1992	-	-	-13,500

06428500 BELLE FOURCHE RIVER AT WYOMING-SOUTH DAKOTA STATE LINE

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

DRAINAGE AREA.--3,280 mi², approximately.

PERIOD OF RECORD.--December 1946 to current year. Records for water year 1947 incomplete, yearly estimate published in WSP 1729.

GAGE.--Water-stage recorder. Datum of gage is 3,095.7 ft above 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 ft³/s, June 23, 1947, gage height, 12.51 ft; maximum gage height, 14.33 ft, Mar. 22, 1949, backwater from ice; no flow at times some years. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	e6.0	e14	e8.0	e8.0	e19	11	15	29	45	21	63
2	15	e6.0	e14	e5.5	e9.0	e19	11	15	22	44	20	61
3	14	e7.0	e13	e8.0	e10	e20	11	15	16	43	21	62
4	14	e10	e13	e5.5	e12	20	11	16	15	49	20	62
5	14	e16	e16	e4.0	e16	21	10	16	13	55	18	51
6	14	e18	e18	e4.0	e16	22	10	17	10	55	17	37
7	14	e12	e20	e4.0	e16	21	10	15	9.6	55	16	30
8	15	e18	e22	e3.5	e16	21	10	14	11	55	15	24
9	13	e23	e22	e5.0	e14	22	10	13	12	54	13	20
10	13	e22	e22	e5.0	e12	21	11	13	12	54	12	18
11	13	e22	e20	e5.0	e10	22	11	12	11	61	11	17
12	13	e22	e20	e5.0	e9.0	21	11	11	11	67	11	15
13	12	e22	e18	e6.0	e9.5	19	11	11	12	65	9.9	13
14	11	e30	e18	e4.0	e10	18	13	10	56	59	9.7	12
15	11	e28	e16	e2.5	e10	17	12	10	62	61	43	11
16	12	e26	e16	e2.5	e14	17	11	51	77	58	53	11
17	12	e28	e18	e3.0	e17	17	11	67	64	54	62	9.2
18	11	e30	e16	e4.0	e19	17	12	61	56	52	69	8.7
19	11	e28	e16	e5.0	e18	17	26	62	58	40	72	8.5
20	11	e20	e18	e8.0	e16	17	29	60	47	32	71	8.2
21	11	e18	e16	e7.5	e18	17	26	57	42	29	64	8.0
22	11	15	e16	e7.5	e14	16	26	57	42	30	75	7.7
23	11	15	e14	e7.5	e24	16	25	60	37	27	83	7.6
24	11	14	e14	e7.5	e18	15	22	64	45	27	83	7.1
25	11	e16	e14	e8.0	e22	14	20	59	39	53	83	7.4
26	12	e18	e14	e8.0	e26	13	18	58	37	35	86	7.1
27	12	16	e12	e9.0	e22	13	17	59	34	36	85	7.2
28	9.1	16	e8.0	e10	e20	12	17	57	35	35	81	6.9
29	e4.5	e16	e9.0	e10	e19	12	16	54	42	44	67	7.0
30	e4.5	e14	e10	e10	---	11	15	48	48	35	63	6.8
31	e6.0	---	e12	e9.0	---	11	---	38	---	23	62	---
TOTAL	361.1	552.0	489.0	191.5	444.5	538	454	1115	1004.6	1432	1416.6	614.4
MEAN	11.6	18.4	15.8	6.18	15.3	17.4	15.1	36.0	33.5	46.2	45.7	20.5
MAX	15	30	22	10	26	22	29	67	77	67	86	63
MIN	4.5	6.0	8.0	2.5	8.0	11	10	10	9.6	23	9.7	6.8
AC-FT	716	1090	970	380	882	1070	901	2210	1990	2840	2810	1220

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1992, BY WATER YEAR (WY)*

	MEAN	24.6	20.1	15.6	14.0	27.7	137	151	210	180	93.0	75.4	33.6
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1954 - 1992*

ANNUAL TOTAL	17537.60	8612.7	
ANNUAL MEAN	48.0	23.5	82.2
HIGHEST ANNUAL MEAN			229
LOWEST ANNUAL MEAN			7.69
HIGHEST DAILY MEAN	623	May 15	3760
LOWEST DAILY MEAN	.60	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.71	Jan 1	.00
INSTANTANEOUS PEAK FLOW		107	4400
INSTANTANEOUS PEAK STAGE		4.22	15.59
ANNUAL RUNOFF (AC-FT)	34790	17080	59550
10 PERCENT EXCEEDS	100	58	175
50 PERCENT EXCEEDS	22	16	32
90 PERCENT EXCEEDS	6.0	7.9	4.0

e Estimated

* Regulated period only (1954-92). See REMARKS.

a Also Jan. 16.

b No flow at times in some years.

c Gage height, 4.17 ft.

d Backwater from ice.

BELLE FOURCHE RIVER BASIN

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06429500 COLD SPRINGS CREEK AT BUCKHORN, WY

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

DRAINAGE AREA.--19.0 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 6,050 ft above sea level, from topographic map. October 1974 to September 1982, 200 ft upstream at different datum.

REMARKS.--Estimated daily discharges: Oct. 30 to Nov. 9, Nov. 12, 20, 22-25, 27, Nov. 29 to Dec. 3, Dec. 11 to Feb. 20, Mar. 9, 10, 22, 23, and Apr. 1, 2. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	.90	2.6	3.3	3.7	3.5	3.5	3.6	3.5	3.3	3.1	3.1
2	3.5	.80	2.8	3.5	3.5	3.5	3.6	3.6	3.5	3.3	3.0	3.1
3	3.5	1.0	2.9	3.5	3.4	3.5	3.7	3.5	3.5	3.3	3.0	3.1
4	3.5	1.2	3.0	3.5	3.5	3.6	3.7	3.5	3.5	3.3	3.0	3.1
5	3.5	1.4	3.4	3.5	3.5	3.6	3.8	3.5	3.5	3.4	3.0	3.2
6	3.5	1.7	3.5	3.5	3.4	3.5	3.7	3.5	3.5	3.2	3.1	3.3
7	3.5	2.2	3.5	3.4	3.4	3.6	3.6	3.5	3.5	3.1	3.0	3.4
8	3.5	2.6	3.5	3.3	3.3	3.5	3.6	3.5	3.4	3.1	3.0	3.3
9	3.5	3.5	3.5	3.4	3.4	3.3	3.6	3.5	3.4	3.2	3.0	3.3
10	3.5	3.8	3.5	3.5	3.5	3.4	3.6	3.6	3.5	3.1	3.0	3.1
11	3.5	3.8	3.2	3.5	3.4	3.5	3.7	3.5	3.5	3.1	3.0	3.1
12	3.5	3.8	3.4	3.4	3.4	3.5	3.6	3.5	3.5	3.3	3.0	3.1
13	3.5	3.7	3.2	3.3	3.4	3.5	3.6	3.5	3.5	3.2	3.0	3.1
14	3.5	3.6	3.1	3.2	3.5	3.5	3.6	3.5	3.5	3.1	3.1	3.1
15	3.5	3.6	3.3	3.0	3.6	3.5	3.6	3.5	3.6	3.1	3.1	3.1
16	3.5	3.6	3.5	3.1	3.5	3.6	3.6	3.5	3.5	3.1	3.1	3.1
17	3.5	3.6	3.3	3.1	3.3	3.6	3.6	3.5	3.6	3.1	3.1	3.1
18	3.5	3.6	3.5	3.1	3.2	3.5	3.3	3.4	3.5	3.1	3.1	3.1
19	3.5	3.6	3.4	3.1	3.3	3.5	1.2	3.4	3.5	3.1	3.1	3.1
20	3.5	3.9	3.3	3.2	3.4	3.5	1.3	3.4	3.5	3.1	3.1	3.1
21	3.5	3.5	3.4	3.2	3.5	3.5	2.9	3.5	3.5	3.2	3.1	3.1
22	3.5	3.4	3.4	3.3	3.5	3.5	3.6	3.6	3.5	3.1	3.1	3.1
23	3.5	3.1	3.4	3.3	3.5	3.5	3.5	3.5	3.5	3.1	3.3	3.0
24	3.5	3.4	3.4	3.4	3.0	3.6	3.5	3.5	3.5	3.1	3.1	3.0
25	3.5	3.6	3.4	3.5	3.5	3.6	3.5	3.5	3.5	3.1	3.1	3.0
26	3.5	3.5	3.4	3.5	3.5	3.6	3.5	3.5	3.5	3.1	3.3	3.0
27	3.5	3.3	3.4	3.5	3.5	3.7	3.5	3.5	3.5	3.1	3.2	3.0
28	1.8	3.5	3.4	3.6	3.5	3.7	3.5	3.5	3.3	3.1	3.1	3.0
29	3.6	3.3	3.4	3.7	3.5	3.6	3.5	3.5	3.3	3.1	3.1	3.0
30	3.0	2.8	3.3	3.8	---	3.6	3.5	3.5	3.3	3.1	3.1	3.0
31	1.8	---	3.2	3.8	---	3.6	---	3.5	---	3.1	3.1	---
TOTAL	104.7	89.30	102.5	105.0	99.6	109.7	102.0	108.6	104.4	97.8	95.5	93.2
MEAN	3.38	2.98	3.31	3.39	3.43	3.54	3.40	3.50	3.48	3.15	3.08	3.11
MAX	3.6	3.9	3.5	3.8	3.7	3.7	3.8	3.6	3.6	3.4	3.3	3.4
MIN	1.8	.80	2.6	3.0	3.0	3.3	1.2	3.4	3.3	3.1	3.0	3.0
AC-FT	208	177	203	208	198	218	202	215	207	194	189	185

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1992, BY WATER YEAR (WY)

	4.48	4.39	4.41	4.19	4.33	4.49	4.78	4.50	4.67	4.57	4.76	4.58
MEAN	4.48	4.39	4.41	4.19	4.33	4.49	4.78	4.50	4.67	4.57	4.76	4.58
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	2.48	2.94	2.93	3.43	3.18	3.40	3.50	3.48	3.15	3.08	3.11
(WY)	1975	1975	1975	1979	1992	1975	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS

FOR 1992 WATER YEAR

WATER YEARS 1975 - 1992

ANNUAL TOTAL	1212.30	---
ANNUAL MEAN	3.31	4.56
HIGHEST ANNUAL MEAN	---	5.37
LOWEST ANNUAL MEAN	---	3.31
HIGHEST DAILY MEAN	3.9	9.5
LOWEST DAILY MEAN	.80	.80
ANNUAL SEVEN-DAY MINIMUM	1.3	1.3
INSTANTANEOUS PEAK FLOW	6.3	13
INSTANTANEOUS PEAK STAGE	3.24	8.61
ANNUAL RUNOFF (AC-FT)	2400	3300
10 PERCENT EXCEEDS	3.6	5.6
50 PERCENT EXCEEDS	3.5	4.6
90 PERCENT EXCEEDS	3.0	3.4

a Gage height, 2.29 ft, release of anchor ice.

b Gage height, 4.98 ft, site and datum then in use.

c Backwater from ice.

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 fair. 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.40	.00	.00	.10
2	.00	.00	.00	.00	.00	.00	.00	.15	.00	.10	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00
4	.10	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.25	.30	.00	.00	.00	.25	.00	.00	.10	.00	.00	.00
6	.00	.15	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00
7	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.25
8	.00	.00	.10	.00	.00	.00	.00	.00	.30	.20	.00	.00
9	.00	.00	.00	.00	.00	.35	.00	.20	.00	.00	.00	.00
10	.00	.05	.00	.00	.05	.00	.15	.60	.00	.10	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.60	.00	.00	.00	.10	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.20	.40	.00	.00
14	.00	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.10	.00	.10	.05	.00	.00	.00	.15	.30	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.50	.00	.10	.00
17	.00	.00	.00	.00	.00	.00	.00	.05	.05	.00	.25	.00
18	.00	.00	.00	.00	.15	.05	.10	.00	.10	.00	.00	.00
19	.00	.00	.00	.00	.00	.30	.80	.00	.05	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.25	.00
22	.00	.40	.00	.00	.00	.00	.00	.70	.15	.25	.20	.00
23	.00	.05	.00	.00	.50	.00	.00	.00	.00	.00	.20	.00
24	.00	.00	.00	.10	.00	.00	.05	.00	.00	.15	.15	.00
25	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.35
26	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	.15	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.15	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.45	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.30	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.20	---	.00	.00	---
TOTAL	0.95	1.85	0.20	0.25	0.75	1.55	1.40	1.90	2.25	1.70	1.30	0.70

WTR YR 1992 TOTAL 14.80

BELLE FOURCHE RIVER BASIN

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06429905 SAND CREEK NEAR RANCH A, NEAR BEULAH, WY

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

DRAINAGE AREA.--267 mi².

PERIOD OF RECORD.--October 1976 to September 1983, April 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,580 ft above sea level, from topographic map. October 1976 to September 1983, at site 500 ft downstream at different datum.

REMARKS.--Estimated daily discharges: Nov. 2, 3 and Dec. 22 to Jan. 15. Records good except those for estimated daily discharges and those for March, which are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 700 ft³/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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	17	17	16	18	15	15	16	16	15	15	15
2	16	17	16	17	18	15	15	15	16	16	14	15
3	17	17	16	17	18	14	15	15	16	15	14	15
4	17	17	17	17	18	15	15	15	16	15	14	15
5	16	18	16	17	18	15	15	15	16	15	14	15
6	16	18	16	17	17	15	15	15	16	15	14	15
7	17	18	17	16	17	15	15	15	16	15	14	16
8	16	18	17	15	17	14	15	15	15	15	14	15
9	17	18	17	16	17	13	15	16	15	15	14	15
10	17	17	17	17	17	12	15	16	15	15	14	15
11	16	17	18	16	17	14	16	16	15	15	14	15
12	17	17	18	15	17	14	15	15	16	15	14	15
13	16	17	17	15	17	13	15	15	16	15	14	15
14	16	17	17	14	17	13	15	15	16	15	14	15
15	17	17	17	14	17	14	15	15	16	15	14	15
16	17	17	17	15	17	15	15	15	16	15	14	15
17	17	17	17	15	17	15	15	15	16	15	14	15
18	17	17	17	15	16	14	16	15	15	15	14	15
19	17	16	16	16	16	16	16	15	15	15	14	15
20	17	15	17	16	16	16	16	15	15	16	14	15
21	17	15	17	16	16	15	16	15	16	16	15	15
22	17	16	17	16	16	15	16	16	16	16	15	15
23	17	16	16	17	15	15	16	16	15	16	15	15
24	17	16	16	18	14	16	16	16	15	15	15	15
25	17	16	16	18	15	16	16	16	15	15	15	16
26	17	16	17	18	15	16	15	16	15	15	15	15
27	17	15	16	18	15	16	15	16	15	15	15	15
28	17	17	16	18	15	16	15	16	15	15	15	15
29	17	17	16	18	15	15	15	16	15	15	15	15
30	17	16	16	18	---	15	15	16	15	15	15	15
31	17	---	15	18	---	15	---	16	---	15	15	---
TOTAL	520	502	515	509	478	457	459	479	465	470	446	452
MEAN	16.8	16.7	16.6	16.4	16.5	14.7	15.3	15.5	15.5	15.2	14.4	15.1
MAX	17	18	18	18	18	16	16	16	16	16	15	16
MIN	16	15	15	14	14	12	15	15	15	15	14	15
AC-FT	1030	996	1020	1010	948	906	910	950	922	932	885	897

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1992, BY WATER YEAR (WY)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	22.5	22.4	21.8	21.2	20.0	20.5	21.6	30.0	25.5	23.7	21.5	21.1				
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	15.7	16.7	16.6	16.3	15.2	14.7	15.3	15.5	15.5	15.2	14.4	15.1				
(WY)	1982	1982	1992	1982	1982	1992	1992	1992	1992	1992	1992	1992				

SUMMARY STATISTICS

FOR 1992 WATER YEAR

WATER YEARS 1977 - 1992

ANNUAL TOTAL	5752	--
ANNUAL MEAN	15.7	23.1
HIGHEST ANNUAL MEAN	--	29.5
LOWEST ANNUAL MEAN	--	15.7
HIGHEST DAILY MEAN	18	322
LOWEST DAILY MEAN	12	12
ANNUAL SEVEN-DAY MINIMUM	13	13
INSTANTANEOUS PEAK FLOW	22	514
INSTANTANEOUS PEAK STAGE	1.59	7.35
ANNUAL RUNOFF (AC-FT)	11410	16720
10 PERCENT EXCEEDS	17	29
50 PERCENT EXCEEDS	16	22
90 PERCENT EXCEEDS	15	16

a Gage height, 1.35 ft.

b Backwater from ice.

c Site and datum then in use.

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

LOCATION.--Lat 44°34'35", long 104°03'20", in SW1/4SW1/4 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	1.2	.00	e.00	e.00	e.00	e.00	.00	18	8.6	.00	6.9
2	10	1.2	.00	e.00	e.00	e.00	e.00	.00	17	8.5	.00	6.8
3	18	1.2	.00	e.00	e.00	e.00	e.00	.00	16	12	.00	6.7
4	16	.87	.00	e.00	e.00	e.00	.00	.00	16	19	.00	6.8
5	15	.00	.00	e.00	e.00	e.00	.00	.00	15	16	.00	8.6
6	29	.00	.00	e.00	e.00	e.00	.00	.00	19	10	3.1	7.0
7	21	.00	.00	e.00	e.00	e.00	.00	3.8	20	11	6.8	8.1
8	11	.00	.00	e.00	e.00	e.00	.00	6.2	16	12	6.9	2.6
9	7.8	.00	.00	e.00	e.00	e.00	.00	5.1	14	11	7.4	.26
10	7.2	.00	e.00	e.00	e.00	e.00	.00	.91	12	9.5	8.2	.00
11	6.6	.00	e.00	e.00	e.00	e.00	.00	2.1	9.1	8.5	8.4	4.5
12	9.4	.00	e.00	e.00	e.00	e.00	.00	3.4	10	8.6	8.6	6.9
13	19	.00	e.00	e.00	e.00	e.00	.00	6.6	9.8	8.6	8.5	6.4
14	25	.00	e.00	e.00	e.00	e.00	.00	7.5	8.0	8.2	8.4	6.9
15	20	.00	e.00	e.00	e.00	e.00	.00	7.4	8.1	8.0	8.7	6.7
16	6.4	.00	e.00	e.00	e.00	e.00	.00	8.3	7.2	6.9	8.7	6.7
17	6.2	.00	e.00	e.00	e.00	e.00	.00	7.6	6.3	6.6	8.6	6.7
18	6.6	.00	e.00	e.00	e.00	e.00	.00	7.0	5.8	7.3	8.4	6.4
19	8.7	.00	e.00	e.00	e.00	e.00	.00	7.0	5.9	7.6	8.7	6.7
20	9.4	.00	e.00	e.00	e.00	e.00	.00	8.7	6.1	7.0	8.7	6.7
21	9.8	.00	e.00	e.00	e.00	e.00	.00	7.5	7.7	6.6	7.6	6.2
22	8.0	.00	e.00	e.00	e.00	e.00	.00	7.3	9.6	6.3	6.9	6.1
23	5.7	.00	e.00	e.00	e.00	e.00	.00	7.7	11	6.2	7.7	6.1
24	5.7	.00	e.00	e.00	e.00	e.00	.00	8.2	11	7.5	8.7	6.0
25	5.6	.00	e.00	e.00	e.00	e.00	.00	9.1	11	4.9	8.6	6.8
26	5.5	.00	e.00	e.00	e.00	e.00	.00	10	11	4.2	8.7	8.5
27	5.5	.00	e.00	e.00	e.00	e.00	.00	10	11	4.3	8.7	8.7
28	5.3	.00	e.00	e.00	e.00	e.00	.00	10	11	4.1	8.7	8.3
29	5.5	.00	e.00	e.00	e.00	e.00	.00	13	11	.14	8.0	7.3
30	5.5	.00	e.00	e.00	---	e.00	.00	16	9.6	.05	6.7	7.0
31	3.6	---	e.00	e.00	---	e.00	---	15	---	.00	6.7	---
TOTAL	327.5	4.47	0.00	0.00	0.00	0.00	0.00	195.41	343.2	239.19	205.10	189.36
MEAN	10.6	.15	.000	.000	.000	.000	.000	6.30	11.4	7.72	6.62	6.31
MAX	29	1.2	.00	.00	.00	.00	.00	16	20	19	8.7	8.7
MIN	3.6	.00	.00	.00	.00	.00	.00	.00	5.8	.00	.00	.00
AC-FT	650	8.9	.00	.00	.00	.00	.00	388	681	474	407	376

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1992, BY WATER YEAR (WY)

	MEAN	7.95	.15	.000	.000	.000	.000	.011	1.86	8.48	11.6	11.1	8.63
MAX	20.6	.58	.000	.000	.000	.000	.000	.054	6.30	13.9	16.4	18.2	16.4
(WY)	1991	1989	1988	1988	1988	1988	1988	1989	1992	1988	1991	1991	1989
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	7.72	5.92	1.85
(WY)	1988	1988	1988	1988	1988	1988	1988	1988	1987	1991	1992	1990	1991

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1987 - 1992

ANNUAL TOTAL	1458.87	1504.23	
ANNUAL MEAN	4.00	4.11	4.24
HIGHEST ANNUAL MEAN			4.83
LOWEST ANNUAL MEAN			3.18
HIGHEST DAILY MEAN	37	Aug 11	46
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
ANNUAL RUNOFF (AC-FT)	2890	2980	3070
10 PERCENT EXCEEDS	15	10	15
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a No flow for long periods in each year.

06430500 REDWATER CREEK AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'26", long 104°02'54", in NW1/4NW1/4 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 south-west of Belle Fourche, SD.

DRAINAGE AREA.--471 mi².

PERIOD OF RECORD.--April 1929 to September 1931 and February 1936 to July 1937 (published as "near Beulah, WY"), June 1954 to current year.

REVISED RECORDS.--WSP 1309: 1931(M), 1936-37(M).

GAGE.--Water-stage recorder. Elevation of gage is 3,410 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	25	e25	26	26	25	24	23	4.8	11	20	15
2	5.4	e25	26	27	26	25	24	23	4.8	11	21	14
3	5.3	e25	25	27	25	25	25	23	4.7	12	23	12
4	5.3	28	26	26	26	25	25	22	4.9	11	21	13
5	5.3	26	26	26	25	25	24	18	5.1	10	21	13
6	8.8	26	26	27	26	25	23	16	5.4	10	14	19
7	10	25	26	26	25	25	23	11	5.8	11	9.7	18
8	11	25	25	26	25	25	23	6.9	5.9	11	9.6	24
9	13	25	25	26	25	25	23	9.3	6.5	11	9.4	23
10	15	25	25	27	25	24	24	16	7.2	13	10	23
11	18	25	25	27	25	24	25	13	11	16	9.9	17
12	17	25	26	26	25	25	25	10	10	14	8.2	12
13	17	25	26	26	25	24	24	9.9	11	14	8.5	14
14	17	26	25	26	25	24	24	10	14	10	12	14
15	18	25	25	e25	25	23	23	10	17	11	13	14
16	18	25	25	e25	25	23	23	11	22	15	14	13
17	18	25	25	26	25	24	23	10	23	13	15	14
18	17	25	26	26	25	24	21	10	21	13	15	13
19	18	25	26	26	25	24	24	9.1	21	13	13	13
20	18	25	26	26	25	24	24	8.9	21	13	11	13
21	18	25	26	27	25	24	24	7.8	20	13	10	13
22	18	26	26	26	25	24	23	9.3	17	9.7	9.4	13
23	18	25	26	26	26	24	24	8.5	13	11	11	13
24	18	25	26	26	25	24	24	9.1	13	15	13	13
25	17	25	26	26	25	24	24	9.7	13	17	13	14
26	17	25	26	26	25	24	23	9.0	13	16	14	14
27	17	25	26	26	25	24	23	11	13	17	16	14
28	22	26	26	26	25	24	22	11	13	18	17	14
29	26	26	26	26	25	24	23	9.9	13	26	16	14
30	e25	27	26	26	---	24	21	5.0	13	25	16	14
31	e25	---	26	26	---	24	---	4.8	---	24	16	---
TOTAL	482.2	761	796	810	730	752	705	365.2	367.1	434.7	429.7	447
MEAN	15.6	25.4	25.7	26.1	25.2	24.3	23.5	11.8	12.2	14.0	13.9	14.9
MAX	26	28	26	27	26	25	25	23	23	26	23	24
MIN	5.3	25	25	25	25	23	21	4.8	4.7	9.7	8.2	12
AC-FT	956	1510	1580	1610	1450	1490	1400	724	728	862	852	887

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1992, BY WATER YEAR (WY)*

	MEAN	28.2	32.4	32.2	31.5	32.5	33.7	36.5	51.5	46.3	22.2	21.3	24.8
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	22.8	21.6	23.7	22.1	18.8	7.44	6.29	7.62	6.78	11.8	
(WY)	1991	1961	1991	1984	1962	1962	1981	1985	1961	1990	1985	1985	

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1955 - 1992*
ANNUAL TOTAL	8281.5	7079.9	
ANNUAL MEAN	22.7	19.3	32.7
HIGHEST ANNUAL MEAN			56.0
LOWEST ANNUAL MEAN			17.9
HIGHEST DAILY MEAN	35	May 25	732
LOWEST DAILY MEAN	3.1	Jul 15	1.3
ANNUAL SEVEN-DAY MINIMUM	4.0	Jul 14	4.9
INSTANTANEOUS PEAK FLOW			May 30
INSTANTANEOUS PEAK STAGE			Jul 29b
ANNUAL RUNOFF (AC-FT)	16430	14040	2440
10 PERCENT EXCEEDS	31	26	12.19
50 PERCENT EXCEEDS	26	23	Aug 22 1973c
90 PERCENT EXCEEDS	7.3	9.9	Aug 22 1973

e Estimated

* Period using present site and datum only (1955-92). See GAGE.

a No flow Aug. 13-15, 1929, during partial year.

b Gage height, 3.14 ft.

c From rating curve extended above 1,000 ft³/s, based on a slope-area measurement at gage height, 11.95 ft.

d Backwater from ice.

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 SW1/4NW1/4NW1/4, 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 to September 1992 (seasonal record).

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

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.12	.00	.18	.00	.00
2	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
3	---	---	---	---	---	---	---	.00	.02	.23	.00	.00
4	---	---	---	---	---	---	---	.00	.00	.02	.00	.00
5	---	---	---	---	---	---	---	.00	.21	.00	.00	.35
6	---	---	---	---	---	---	---	.00	.07	.00	.00	.00
7	---	---	---	---	---	---	---	.00	.23	.26	.00	.00
8	---	---	---	---	---	---	---	.12	.00	.00	.00	.00
9	---	---	---	---	---	---	---	.58	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.16	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.25	.00	.00
12	---	---	---	---	---	---	---	.00	.00	.39	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
14	---	---	---	---	---	---	---	.00	.30	.05	.00	.00
15	---	---	---	---	---	---	---	.00	.33	.00	.00	.00
16	---	---	---	---	---	---	---	.12	.00	.00	.06	.00
17	---	---	---	---	---	---	---	.00	.37	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.03	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
20	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
21	---	---	---	---	---	---	---	.38	.97	.41	.50	.00
22	---	---	---	---	---	---	---	.00	.00	.03	.09	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.55	.00
24	---	---	---	---	---	---	---	.05	.23	.13	.06	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.00	.23
26	---	---	---	---	---	---	---	.00	.02	.00	.02	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.02	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	---	.22	.03	.00	.00	.00
31	---	---	---	---	---	---	---	.44	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	2.03	2.83	2.11	1.28	0.58

BELLE FOURCHE RIVER BASIN

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06430540 COX LAKE OUTLET NEAR BEULAH, WY

LOCATION.--Lat 44°33'56", long 103°59'37", in SE1/4NE1/4 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 mi².

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. 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.

REVISIONS.--Revised figures of daily discharge for water year 1991, superseding those published in WDR SD-91-1, are given below.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	4.1	4.3	4.3	4.3	4.4	4.4	4.3	4.3	4.3	4.1	4.1
2	4.1	4.2	4.3	4.3	4.3	4.4	4.4	4.3	4.3	4.3	4.1	4.1
3	4.1	4.1	4.3	4.3	4.3	4.5	4.4	4.4	4.3	4.3	4.1	4.1
4	4.1	4.2	4.3	4.3	4.3	4.4	4.3	4.4	4.3	4.3	4.2	4.1
5	4.1	4.2	4.2	4.3	4.3	4.4	4.3	4.3	4.3	4.3	4.2	4.1
6	4.1	4.2	4.3	4.3	4.3	4.4	4.3	4.4	4.4	4.3	4.3	4.1
7	4.1	4.2	4.3	4.3	4.3	4.4	4.4	4.4	4.4	4.3	4.1	4.2
8	4.1	4.2	4.3	4.3	4.3	4.4	4.4	4.3	4.3	4.3	4.1	4.1
9	4.1	4.2	4.3	4.3	4.3	4.4	4.4	4.2	4.4	4.2	4.1	4.1
10	4.1	4.2	4.3	4.3	4.3	4.4	4.3	4.1	4.4	4.3	4.1	4.1
11	4.2	4.2	4.3	4.3	4.4	4.4	4.3	4.3	4.4	4.2	4.1	4.1
12	4.2	4.1	4.3	4.4	4.4	4.4	4.5	4.3	4.4	4.1	4.1	4.1
13	4.1	4.2	4.3	4.3	4.4	4.4	4.4	4.2	4.5	4.1	4.1	4.1
14	4.1	4.2	4.4	4.3	4.4	4.4	4.4	4.2	4.5	4.1	4.1	4.2
15	4.1	4.1	4.4	4.3	4.4	4.4	4.3	4.7	4.4	4.1	4.1	4.1
16	4.2	4.2	4.3	4.3	4.4	4.4	4.4	4.4	4.4	4.1	4.1	4.1
17	4.2	4.1	4.3	4.3	4.5	4.4	4.4	4.3	4.4	4.1	4.1	4.1
18	4.1	4.1	4.3	4.3	4.5	4.4	4.4	4.3	4.4	4.2	4.1	4.1
19	4.2	4.2	4.3	4.3	4.5	4.4	4.4	4.3	4.4	4.1	4.1	4.1
20	4.1	4.3	4.3	4.3	4.4	4.4	4.4	4.3	4.4	4.1	4.1	4.1
21	4.1	4.2	4.3	4.3	4.4	4.4	4.4	4.3	4.4	4.1	4.1	4.1
22	4.1	4.2	4.3	4.3	4.4	4.4	4.4	4.6	4.4	4.1	4.1	4.1
23	4.1	4.2	4.3	4.3	4.4	4.4	4.4	4.6	4.4	4.1	4.1	4.1
24	4.1	4.2	4.3	4.3	4.4	4.4	4.4	4.3	4.4	4.1	4.1	4.1
25	4.1	4.2	4.3	4.3	4.4	4.4	4.3	4.3	4.4	4.1	4.1	4.1
26	4.1	4.2	4.3	4.3	4.4	4.4	4.5	4.3	4.4	4.1	4.1	4.1
27	4.1	4.2	4.3	4.3	4.4	4.4	4.5	4.5	4.4	4.1	4.1	4.1
28	4.1	4.2	4.3	4.3	4.4	4.4	4.3	4.4	4.4	4.1	4.1	4.1
29	4.1	4.3	4.3	4.3	---	4.4	4.3	4.3	4.3	4.1	4.1	4.1
30	4.1	4.2	4.3	4.3	---	4.4	4.4	4.3	4.3	4.1	4.1	4.2
31	4.2	---	4.3	4.3	---	4.4	---	4.3	---	4.1	4.1	---
TOTAL	127.7	125.6	133.4	133.4	122.5	136.5	131.4	134.6	131.4	129.2	127.5	123.3
MEAN	4.12	4.19	4.30	4.30	4.37	4.40	4.38	4.34	4.38	4.17	4.11	4.11
MAX	4.2	4.3	4.4	4.4	4.5	4.5	4.5	4.7	4.5	4.3	4.3	4.2
MIN	4.1	4.1	4.2	4.3	4.3	4.4	4.3	4.1	4.3	4.1	4.1	4.1
AC-FT	253	249	265	265	243	271	261	267	261	256	253	245

BELLE FOURCHE RIVER BASIN

06430540 COX LAKE OUTLET NEAR BEULAH, WY--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	4.2	4.3	4.3	4.3	4.3	4.3	4.2	4.1	4.1	4.0	4.0
2	4.1	4.2	4.3	4.3	4.3	4.3	4.3	4.2	4.0	4.1	4.0	3.9
3	4.1	4.2	4.3	4.3	4.3	4.3	4.3	4.1	4.0	4.2	4.0	4.0
4	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.1	4.0	4.1	4.0	4.0
5	4.1	4.3	4.3	4.3	4.3	4.4	4.3	4.1	4.1	4.1	4.0	3.9
6	4.1	4.4	4.3	4.3	4.3	4.3	4.3	4.1	4.0	4.1	4.0	4.0
7	4.1	4.3	4.3	4.3	4.3	4.3	4.3	4.1	4.0	4.1	4.0	4.0
8	4.1	4.3	4.3	4.3	4.3	4.4	4.3	4.1	4.0	4.1	4.0	4.0
9	4.1	4.3	4.3	4.3	4.3	4.3	4.3	4.2	4.0	4.1	4.0	3.9
10	4.1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.0	4.1	4.0	4.0
11	4.1	4.3	4.3	4.3	4.3	4.3	4.3	4.1	4.0	4.2	4.0	4.0
12	4.1	4.3	4.3	4.3	4.3	4.3	4.3	4.1	4.0	4.2	4.0	4.0
13	4.1	4.3	4.3	4.3	4.3	4.3	4.3	4.1	4.0	4.2	4.0	3.9
14	4.2	4.4	4.3	4.3	4.3	4.3	4.3	4.1	4.0	4.1	4.0	4.0
15	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.1	4.1	4.0	3.9	4.0
16	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.1	4.1	4.0	3.9	4.0
17	4.1	4.3	4.3	4.3	e4.3	4.3	4.3	4.1	4.1	4.0	3.9	4.0
18	4.2	4.3	4.3	4.3	e4.3	4.4	4.4	4.1	4.1	4.0	3.9	4.0
19	4.1	4.3	4.3	4.3	e4.3	4.3	4.4	4.1	4.1	4.0	3.9	4.0
20	4.2	4.3	4.3	4.3	e4.3	4.3	4.3	4.1	4.1	4.0	3.9	4.0
21	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.0	4.2	4.2	4.0	4.0
22	4.1	4.3	4.3	4.3	4.3	4.3	4.3	4.2	4.1	4.1	4.0	4.0
23	4.1	4.3	4.3	4.3	4.3	4.3	4.3	4.1	4.1	4.1	4.1	4.0
24	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.1	4.1	4.0	4.0	4.0
25	4.2	4.3	4.3	4.3	4.3	4.3	4.2	4.1	4.1	4.1	3.9	4.0
26	4.2	4.3	4.3	4.3	4.3	4.3	4.2	4.0	4.1	4.0	4.0	4.0
27	4.1	4.3	4.3	4.3	4.3	4.3	4.2	4.0	4.1	4.0	3.9	3.9
28	4.2	4.4	4.3	4.3	4.3	4.3	4.2	4.0	4.1	4.0	3.9	4.0
29	4.2	4.3	4.3	4.3	4.3	4.3	4.2	4.0	4.1	4.0	3.9	4.0
30	4.1	4.3	4.3	4.3	---	4.3	4.2	4.0	4.1	4.0	3.9	4.0
31	4.2	---	4.3	4.3	---	4.3	---	4.0	---	4.0	4.0	---
TOTAL	128.4	129.0	133.3	133.3	124.7	133.6	128.6	127.0	121.9	126.3	123.0	119.5
MEAN	4.14	4.30	4.30	4.30	4.30	4.31	4.29	4.10	4.06	4.07	3.97	3.98
MAX	4.2	4.4	4.3	4.3	4.3	4.4	4.4	4.3	4.2	4.2	4.1	4.0
MIN	4.1	4.2	4.3	4.3	4.3	4.3	4.2	4.0	4.0	4.0	3.9	3.9
AC-FT	255	256	264	264	247	265	255	252	242	251	244	237

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1992, BY WATER YEAR (WY)

	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
MEAN	4.13	4.24	4.30	4.30	4.34	4.36	4.33	4.22	4.22	4.12	4.04	4.05
MAX	4.14	4.30	4.30	4.30	4.37	4.40	4.38	4.34	4.38	4.17	4.11	4.11
(WY)	1992	1992	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991
MIN	4.12	4.19	4.30	4.30	4.30	4.31	4.29	4.10	4.06	4.07	3.97	3.98
(WY)	1991	1991	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1991 - 1992

ANNUAL TOTAL	1560.5	1528.6										
ANNUAL MEAN	4.28	4.18								4.22		
HIGHEST ANNUAL MEAN										4.26		1991
LOWEST ANNUAL MEAN										4.18		1992
HIGHEST DAILY MEAN	4.7	May 15				4.4	Nov 6a			4.7	May 15	1991
LOWEST DAILY MEAN	4.1	May 10				3.9	Aug 15b			3.9	Aug 15	1992b
ANNUAL SEVEN-DAY MINIMUM	4.1	Jul 19				3.9	Aug 14			3.9	Aug 14	1992
ANNUAL RUNOFF (AC-FT)	3100					3030				3060		
10 PERCENT EXCEEDS	4.4					4.3				4.4		
50 PERCENT EXCEEDS	4.3					4.2				4.3		
90 PERCENT EXCEEDS	4.1					4.0				4.0		

e Estimated

a Also Nov. 28, Mar. 5, and Apr. 17.

b Many days in August and September 1992.

BELLE FOURCHE RIVER BASIN

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06430770 SPEARFISH CREEK NEAR LEAD, SD

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

DRAINAGE AREA.--63.5 mi².

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

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

REMARKS.--Records good except those for estimated daily discharges, which are poor. Upstream diversions out of drainage basin to Whitewood Creek basin by Homestake Mining Co. average about 12 ft³/s. Figures of daily discharge do not include diversion by Homestake Mining Co. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 673 ft³/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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	12	13	13	15	14	20	17	20	14	16
2	15	15	14	15	13	14	14	20	16	21	14	16
3	15	16	14	13	13	13	13	20	15	21	14	16
4	16	15	15	12	13	14	14	18	16	20	15	16
5	15	18	15	13	13	16	15	16	16	19	15	16
6	16	18	15	13	14	16	15	16	16	18	15	17
7	15	16	14	12	15	16	15	16	17	18	14	19
8	15	15	15	12	15	17	15	16	16	20	15	18
9	15	16	12	12	14	16	14	16	16	19	16	16
10	15	16	12	12	14	15	15	20	15	18	15	16
11	15	15	12	12	13	16	17	18	14	18	14	14
12	15	15	13	12	13	15	17	16	16	18	14	16
13	15	15	13	12	13	15	18	16	16	20	13	17
14	15	15	13	12	14	16	16	16	17	16	13	16
15	16	14	14	e12	14	16	16	15	17	16	15	15
16	16	14	15	e12	15	15	16	15	17	16	16	15
17	16	14	14	12	14	16	16	16	17	15	16	14
18	16	14	14	13	14	16	18	16	16	15	15	14
19	16	14	13	14	13	15	23	15	17	16	15	16
20	15	13	13	13	15	15	16	14	16	15	15	17
21	15	13	14	12	15	15	17	15	17	16	14	15
22	16	12	15	12	14	16	15	18	16	16	16	13
23	14	e12	13	13	15	14	17	17	15	16	20	14
24	14	e13	15	13	14	14	15	17	17	16	16	13
25	15	e13	16	12	14	14	17	16	20	16	15	13
26	15	13	14	12	13	14	18	15	22	16	17	14
27	15	12	13	14	14	14	18	15	20	16	16	15
28	12	13	13	14	13	15	20	15	20	15	16	14
29	11	13	12	13	14	15	20	15	20	14	16	12
30	13	10	13	12	---	15	20	16	21	14	17	13
31	14	---	13	13	---	15	---	17	---	14	17	---
TOTAL	461	427	423	391	401	468	494	511	511	528	473	456
MEAN	14.9	14.2	13.6	12.6	13.8	15.1	16.5	16.5	17.0	17.0	15.3	15.2
MAX	16	18	16	15	15	17	23	20	22	21	20	19
MIN	11	10	12	12	13	13	13	14	14	14	13	12
AC-FT	914	847	839	776	795	928	980	1010	1010	1050	938	904

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992
MEAN	14.5	14.7	13.7	12.9
MAX	15.0	16.7	15.5	14.3
(WY)	1989	1990	1989	1989
MIN	13.0	13.3	11.9	12.2
(WY)	1991	1991	1991	1990

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1989 - 1992
ANNUAL TOTAL	5702.9	5544	
ANNUAL MEAN	15.6	15.1	14.9
HIGHEST ANNUAL MEAN			15.2
LOWEST ANNUAL MEAN			14.2
HIGHEST DAILY MEAN	30	23	30
LOWEST DAILY MEAN	9.9	10	7.5
ANNUAL SEVEN-DAY MINIMUM	11	12	9.5
INSTANTANEOUS PEAK FLOW		31	34
INSTANTANEOUS PEAK STAGE		7.53	7.79
ANNUAL RUNOFF (AC-FT)	11310	11000	10800
10 PERCENT EXCEEDS	22	18	19
50 PERCENT EXCEEDS	15	15	14
90 PERCENT EXCEEDS	12	13	12

e Estimated

a Gage height, 7.53 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 NW1/4NW1/4NW1/4 sec.9, T.4 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on left bank 200 ft upstream from mouth and about 6 mi southwest of Lead.

DRAINAGE AREA.--3.55 mi².

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

GAGE.--Water-stage recorder and V-notch weir. Elevation of gage is 5,125 ft above 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 the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	e.09	.19	e.12	e.19	.15	.20	7.3	.71	.40	.12	.09
2	.15	e.07	.22	e.12	e.19	.11	.20	5.3	.59	.48	.11	.09
3	.19	e.10	.17	e.13	e.19	.15	.29	4.0	.56	.41	.12	.08
4	.20	e.12	.16	e.14	e.18	.21	.35	3.3	.54	.38	.13	.08
5	.17	e.15	.16	e.17	e.18	.42	.34	2.7	.67	.41	.12	.07
6	.17	e.15	.16	e.17	e.18	.36	.26	2.3	.67	.37	.11	.07
7	.18	.14	.16	e.16	e.18	.35	.21	2.1	.67	.34	.11	.16
8	.16	.13	.16	e.14	e.17	.29	.21	1.8	.61	.28	.10	.11
9	.15	.16	.14	e.14	e.15	.21	.25	1.8	.63	.30	.09	.08
10	.13	.14	.14	e.14	e.14	.19	.29	1.9	.57	.29	.09	.08
11	.13	.13	e.14	e.15	e.14	.16	.27	1.6	.56	.29	.09	.07
12	.13	.13	e.13	e.15	e.14	.17	.24	1.4	.60	.39	.08	.07
13	.12	.15	e.13	e.14	e.16	.15	.31	1.3	.56	.40	.09	.05
14	.15	.14	e.13	e.10	e.20	.15	.34	1.2	.57	.28	.08	.05
15	.16	.13	e.13	e.05	e.20	.18	.34	1.1	.72	.25	.07	.05
16	.15	.13	e.13	e.07	e.20	.23	.35	1.1	.66	.22	.08	.05
17	.13	.14	e.13	e.09	e.20	.29	.36	.96	.64	.21	.09	.05
18	.14	.14	e.14	e.12	e.20	.26	.43	.89	.62	.20	.09	.05
19	.14	.13	e.15	e.17	e.18	.23	.51	.81	.62	.20	.06	.05
20	.15	.13	e.16	e.20	e.20	.20	.40	.73	.62	.21	.06	.05
21	.15	.14	e.15	e.20	e.20	.16	.46	.79	.74	.27	.10	.05
22	.14	.13	e.14	e.20	e.22	.18	.44	.94	.61	.24	.07	.04
23	.14	.15	e.14	e.20	e.24	.19	.48	.70	.53	.21	.29	.04
24	.14	.17	e.13	e.20	e.20	.17	.44	.62	.59	.19	.13	.03
25	.13	.19	e.13	e.20	e.18	.16	.51	.58	.51	.18	.11	.03
26	.13	.18	e.13	e.20	e.20	.17	.88	.57	.69	.17	.14	.04
27	.13	.15	e.13	e.20	e.26	.23	1.8	.53	.55	.16	.09	.05
28	.04	.14	e.12	e.20	e.26	.26	3.4	.49	.50	.14	.10	.04
29	.05	.16	e.12	e.20	e.20	.24	6.3	.50	.48	.14	.09	.03
30	e.05	.19	e.12	e.20	---	.25	8.2	.62	.42	.13	.09	.03
31	e.07	---	e.12	e.20	---	.22	---	.65	---	.12	.09	---
TOTAL	4.23	4.20	4.46	4.87	5.53	6.69	29.06	50.58	18.01	8.26	3.19	1.83
MEAN	.14	.14	.14	.16	.19	.22	.97	1.63	.60	.27	.10	.061
MAX	.20	.19	.22	.20	.26	.42	8.2	7.3	.74	.48	.29	.16
MIN	.04	.07	.12	.05	.14	.11	.20	.49	.42	.12	.06	.03
AC-FT	8.4	8.3	8.8	9.7	11	13	58	100	36	16	6.3	3.6

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992
MEAN	.13	.18	.13	.12
MAX	.17	.28	.19	.16
(WY)	1991	1990	1990	1992
MIN	.10	.12	.045	.097
(WY)	1990	1989	1989	1990

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1989 - 1992
ANNUAL TOTAL	319.55	140.91	
ANNUAL MEAN	.88	.38	.70
HIGHEST ANNUAL MEAN			.88
LOWEST ANNUAL MEAN			.38
HIGHEST DAILY MEAN	11 May 17	8.2 Apr 30	12 May 8 1989
LOWEST DAILY MEAN	.03 Feb 25	.03 Sep 24a	.00 Mar 2 1989b
ANNUAL SEVEN-DAY MINIMUM	.03 Feb 25	.04 Sep 24	.00 Mar 1 1989
INSTANTANEOUS PEAK FLOW		9.7 Apr 30	12 May 8 1989c
INSTANTANEOUS PEAK STAGE		4.66 Apr 30	4.75 May 17 1991d
ANNUAL RUNOFF (AC-FT)	634	279	507
10 PERCENT EXCEEDS	3.1	.65	1.6
50 PERCENT EXCEEDS	.16	.17	.18
90 PERCENT EXCEEDS	.08	.08	.08

e Estimated

a Also Sept. 25, 29, 30.

b Also Mar. 3-7, 1989.

c Gage height, 4.27 ft, also on May 17, 1991.

d After V-notch weir installation.

BELLE FOURCHE RIVER BASIN

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06430850 LITTLE SPEARFISH CREEK NEAR LEAD, SD

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

DRAINAGE AREA.--25.8 mi².

PERIOD OF RECORD.--October 1988 to 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	12	13	12	13	13	12	13	14	13	12	13
2	12	13	13	12	13	13	12	13	14	13	12	13
3	12	12	13	12	13	13	12	13	14	13	12	13
4	12	12	13	12	13	13	12	13	14	13	13	13
5	12	13	13	12	13	13	12	13	14	13	13	13
6	12	13	13	13	13	13	12	13	14	13	13	13
7	12	13	13	13	13	13	12	13	14	13	13	13
8	12	13	12	13	13	13	12	13	14	13	13	13
9	12	13	13	13	13	13	12	13	14	13	13	13
10	12	13	12	12	13	13	12	13	14	13	13	13
11	12	13	12	13	13	13	12	13	14	13	13	13
12	12	13	12	13	13	13	12	13	14	13	13	13
13	12	13	12	13	13	12	12	13	14	13	13	13
14	12	13	12	13	13	12	12	13	14	13	13	13
15	12	13	12	12	13	12	12	13	14	13	13	13
16	12	13	12	13	13	12	12	13	14	12	13	13
17	12	13	12	13	13	12	13	13	14	12	13	13
18	12	13	12	13	13	12	13	13	14	12	13	13
19	12	13	12	13	13	12	13	13	14	12	13	13
20	12	13	13	13	13	12	13	13	14	13	13	13
21	13	13	13	13	13	12	13	13	14	13	13	13
22	12	13	12	12	13	12	13	14	14	12	13	13
23	13	13	12	12	13	12	13	13	14	12	13	13
24	13	13	12	13	13	12	13	13	13	12	13	13
25	13	13	12	12	13	12	13	13	13	12	13	13
26	13	13	12	12	13	12	13	13	14	12	13	13
27	12	13	12	12	13	12	13	13	14	12	13	13
28	12	13	12	12	13	12	13	13	13	12	13	13
29	12	13	12	12	13	12	13	13	14	12	13	13
30	12	13	12	13	---	12	13	14	13	13	13	13
31	12	---	12	13	---	12	---	14	---	13	13	---
TOTAL	377	387	382	389	377	384	374	406	416	391	400	390
MEAN	12.2	12.9	12.3	12.5	13.0	12.4	12.5	13.1	13.9	12.6	12.9	13.0
MAX	13	13	13	13	13	13	13	14	14	13	13	13
MIN	12	12	12	12	13	12	12	13	13	12	12	13
AC-FT	748	768	758	772	748	762	742	805	825	776	793	774

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992
MEAN	13.6	13.1	12.9	12.7
MAX	14.8	14.3	14.1	14.0
(WY)	1989	1989	1989	1989
MIN	12.2	12.3	12.2	11.5
(WY)	1992	1991	1991	1991

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1989 - 1992
ANNUAL TOTAL	4725	4673	
ANNUAL MEAN	12.9	12.8	13.2
HIGHEST ANNUAL MEAN			14.0
LOWEST ANNUAL MEAN			12.8
HIGHEST DAILY MEAN	18	14	18
LOWEST DAILY MEAN	11	12	11
ANNUAL SEVEN-DAY MINIMUM	11	12	11
ANNUAL RUNOFF (AC-FT)	9370	9270	9560
10 PERCENT EXCEEDS	15	13	14
50 PERCENT EXCEEDS	13	13	13
90 PERCENT EXCEEDS	11	12	12

a Many days.

b Also May 16, 1991.

c Many days in 1990.

BELLE FOURCHE RIVER BASIN

06430898 SQUAW CREEK NEAR SPEARFISH, SD

LOCATION.--Lat 44°24'04", long 103°53'35", in NE1/4NE1/4 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 mi².

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 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 the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.37	e.35	e.45	e.35	e.50	e.45	1.7	10	1.5	1.5	.52	.32
2	.39	e.35	e.40	e.35	e.50	e.45	1.0	7.8	1.3	1.7	.52	.33
3	.42	e.50	e.40	e.35	e.50	e.45	1.2	5.9	1.2	1.5	.56	.28
4	.54	e.60	e.43	e.35	e.45	e.45	1.6	4.8	1.2	1.3	.59	.29
5	.52	e.70	.43	e.35	e.45	e.50	1.9	4.1	1.4	1.3	.50	.31
6	.43	e.65	.43	e.35	e.45	e.55	1.7	3.6	1.3	1.3	.36	.34
7	.43	e.60	.43	e.30	e.45	e.55	1.5	3.1	1.4	1.2	.35	.68
8	.42	e.60	.46	e.25	e.45	e.55	1.4	2.8	1.2	1.1	.34	.43
9	.39	e.60	.43	e.30	e.40	e.45	1.3	2.7	1.2	1.1	.31	.33
10	.39	e.60	e.40	e.35	e.35	e.40	1.5	3.4	1.1	1.1	.30	.31
11	.39	e.60	e.40	e.35	e.30	e.65	1.6	2.7	1.1	1.1	.27	.31
12	.39	e.60	e.35	e.30	e.30	e1.0	1.3	2.4	1.1	1.3	.22	.31
13	.36	e.60	e.35	e.25	e.35	e.95	1.3	2.2	1.1	1.5	.23	.31
14	.33	e.55	e.30	e.25	e.35	.87	1.5	2.1	1.0	1.1	.22	.28
15	.33	e.55	e.25	e.20	e.35	.97	1.6	2.0	1.2	1.0	.22	.29
16	.31	e.55	e.30	e.25	e.35	1.2	1.6	1.8	1.2	.92	.28	.28
17	.31	e.55	e.35	e.30	e.35	1.4	1.6	1.7	1.2	.80	.33	.28
18	.34	e.55	e.35	e.40	e.35	1.4	1.7	1.5	1.1	.79	.28	.28
19	.35	e.55	e.35	e.40	e.35	1.2	2.5	1.4	1.0	.74	.26	.30
20	.35	e.55	e.40	e.40	e.40	1.0	1.7	1.3	.93	.74	.28	.31
21	.35	e.55	e.40	e.40	e.45	.98	2.0	1.4	2.0	.90	.37	.31
22	.35	e.50	e.40	e.40	e.45	1.5	2.0	2.1	2.1	.89	.31	.31
23	.35	e.45	e.40	e.40	e.45	1.6	2.4	1.5	1.6	.72	.82	.31
24	.35	e.45	e.40	e.40	e.40	1.4	2.5	1.4	1.7	.68	.52	.31
25	.35	e.45	e.35	e.40	e.45	1.2	2.5	1.3	1.4	.66	.43	.33
26	.35	e.60	e.35	e.40	e.45	.87	3.7	1.3	1.4	.64	.50	.31
27	.35	e.55	e.35	e.40	e.50	.90	7.1	1.2	1.3	.63	.44	.28
28	e.35	e.55	e.35	e.45	e.55	1.2	13	1.1	1.2	.52	.35	.28
29	e.35	e.55	e.35	e.50	e.50	1.2	17	1.1	1.3	.54	.34	.28
30	e.35	e.50	e.35	e.50	---	1.1	14	1.1	1.7	.57	.31	.28
31	e.35	---	e.35	e.50	---	1.2	---	1.4	---	.52	.31	---
TOTAL	11.61	16.35	11.71	11.15	12.15	28.59	97.4	82.2	39.43	30.36	11.64	9.57
MEAN	.37	.54	.38	.36	.42	.92	3.25	2.65	1.31	.98	.38	.32
MAX	.54	.70	.46	.50	.55	1.6	17	10	2.1	1.7	.82	.68
MIN	.31	.35	.25	.20	.30	.40	1.0	1.1	.93	.52	.22	.28
AC-FT	23	32	23	22	24	57	193	163	78	60	23	19

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992	1989	1990	1991	1992	1989	1990	1991	1992
MEAN	.61	.66	.52	.41	.46	1.12	4.08	9.26	2.64	1.06	.42	.42
MAX	1.02	.94	.74	.52	.62	1.73	5.60	12.6	5.32	1.21	.45	.58
(WY)	1989	1990	1990	1990	1989	1990	1991	1991	1991	1991	1990	1989
MIN	.38	.39	.38	.36	.32	.57	3.25	2.65	1.31	.93	.38	.32
(WY)	1991	1991	1992	1992	1991	1991	1992	1992	1992	1990	1992	1992

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1989 - 1992

ANNUAL TOTAL	788.18	362.16		
ANNUAL MEAN	2.16	.99	1.81	
HIGHEST ANNUAL MEAN			2.15	1991
LOWEST ANNUAL MEAN			.99	1992
HIGHEST DAILY MEAN	29	May 16	36	May 8 1989
LOWEST DAILY MEAN	.25	Dec 15	.20	Dec 28 1988a
ANNUAL SEVEN-DAY MINIMUM	.28	Feb 24	.25	Aug 10 1988
INSTANTANEOUS PEAK FLOW			18	Apr 28 1989
INSTANTANEOUS PEAK STAGE			4.56	Apr 28 1989
ANNUAL RUNOFF (AC-FT)	1560	718	1310	
10 PERCENT EXCEEDS	6.8	1.7	4.2	
50 PERCENT EXCEEDS	.45	.50	.64	
90 PERCENT EXCEEDS	.31	.31	.33	

e Estimated

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

BELLE FOURCHE RIVER BASIN

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06430900 SPEARFISH CREEK ABOVE SPEARFISH, SD

LOCATION.--Lat 44°24'06", long 103°53'40", in NW1/4NE1/4NE1/4 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 mi².

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 except Oct. 25 to Mar. 31, which are poor. Upstream diversions out of drainage basin to Whitewood Creek basin by Homestake Mining Co. average about 12 ft³/s. Figures of daily discharge do not include diversion by Homestake Mining Co. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	e28	31	e27	39	39	39	63	45	42	35	39
2	35	33	e28	e27	40	39	39	61	42	43	35	39
3	38	39	e25	e30	38	37	39	55	41	43	35	37
4	39	42	e28	e30	36	38	41	50	42	42	37	37
5	39	43	e30	e30	37	42	42	49	44	44	35	38
6	41	42	e35	e30	37	41	41	47	43	42	36	37
7	37	42	e35	e25	38	41	39	45	44	39	34	40
8	38	39	e35	e25	39	43	39	45	42	41	35	39
9	40	42	e30	e28	40	40	39	45	40	40	36	37
10	37	41	e30	e30	39	39	40	51	39	40	36	36
11	40	39	e30	e30	37	40	42	46	38	40	34	36
12	39	40	e30	e30	38	40	42	43	40	42	34	36
13	42	39	e30	e30	36	39	40	44	40	43	33	35
14	41	39	30	e24	38	40	40	44	41	39	33	37
15	39	40	e29	e18	40	40	40	43	42	39	34	35
16	38	37	e30	e24	41	40	39	42	41	39	37	35
17	38	39	e30	e28	41	41	40	44	41	39	38	34
18	38	38	e32	e34	39	42	42	42	41	38	35	35
19	39	40	e32	38	35	40	48	40	40	40	35	35
20	39	39	e32	38	38	40	42	40	40	39	33	37
21	37	39	e30	37	37	40	43	40	42	40	36	36
22	38	38	e28	38	37	39	44	46	42	39	35	34
23	37	38	e28	37	38	39	46	43	41	38	41	35
24	38	32	e28	e35	36	38	44	43	41	39	37	33
25	38	39	e28	e37	36	39	45	43	41	38	37	34
26	39	39	e28	38	36	39	48	42	40	39	37	35
27	38	38	e28	38	37	39	53	42	44	37	36	36
28	30	39	e28	38	37	39	66	40	42	36	39	35
29	23	36	e28	39	38	41	74	40	42	32	36	34
30	e25	32	e30	37	---	40	68	42	42	34	38	34
31	e25	---	e27	37	---	40	---	44	---	35	40	---
TOTAL	1138	1151	923	987	1098	1234	1344	1404	1243	1221	1112	1080
MEAN	36.7	38.4	29.8	31.8	37.9	39.8	44.8	45.3	41.4	39.4	35.9	36.0
MAX	42	43	35	39	41	43	74	63	45	44	41	40
MIN	23	28	25	18	35	37	39	40	38	32	33	33
AC-FT	2260	2280	1830	1960	2180	2450	2670	2780	2470	2420	2210	2140

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992
MEAN	38.8	39.1	36.0	37.2
MAX	43.3	41.7	41.4	41.2
(WY)	1989	1989	1989	1989
MIN	36.4	37.2	29.8	31.8
(WY)	1991	1991	1992	1992

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1989 - 1992
ANNUAL TOTAL	16116	13935	
ANNUAL MEAN	44.2	38.1	42.8
HIGHEST ANNUAL MEAN			44.7
LOWEST ANNUAL MEAN			38.1
HIGHEST DAILY MEAN	120	74	120
LOWEST DAILY MEAN	23	18	18
ANNUAL SEVEN-DAY MINIMUM	28	26	26
INSTANTANEOUS PEAK FLOW		75	129
INSTANTANEOUS PEAK STAGE		3.93	4.28
ANNUAL RUNOFF (AC-FT)	31970	27640	31010
10 PERCENT EXCEEDS	66	43	52
50 PERCENT EXCEEDS	39	39	40
90 PERCENT EXCEEDS	32	30	35

e Estimated

BELLE FOURCHE RIVER BASIN

06431500 SPEARFISH CREEK AT SPEARFISH, SD

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

DRAINAGE AREA.--168 mi².

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

REVISID 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.--No estimated daily discharges. Records good. Regulation by fish hatchery and by hydroelectric plant 0.5 mi upstream causes diurnal fluctuation, but since storage capacity is small, daily flows are not appreciably affected. Upstream diversions out of drainage basin to Whitewood Creek basin by the Homestake Mining Co. average about 12 ft³/s. Figures of daily discharge do not include diversion by Homestake Mining Co. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 5, 1904, reached a stage of 7.00 ft, site and datum of former gage near Spearfish, 1.0 mi upstream, drainage area, 157 mi²; discharge about 5,000 ft³/s.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	41	34	37	38	41	38	64	40	36	32	35
2	37	38	42	39	38	41	38	61	39	36	35	34
3	37	41	44	39	39	41	38	58	39	38	33	34
4	39	45	43	38	38	40	41	57	37	39	35	33
5	38	45	43	38	39	42	42	57	39	39	33	33
6	34	44	43	38	38	43	42	53	41	37	33	33
7	38	39	43	38	40	42	42	52	39	34	33	34
8	39	39	43	36	39	45	41	53	38	37	34	32
9	38	40	42	39	39	40	42	52	39	34	35	33
10	38	41	40	39	40	38	41	57	38	35	32	32
11	40	40	38	38	40	38	43	54	34	34	30	32
12	39	41	39	38	39	38	43	52	36	37	31	32
13	41	42	40	38	39	38	42	53	38	37	30	32
14	41	41	33	38	39	39	42	50	34	36	30	32
15	41	42	36	34	41	38	43	49	38	35	31	30
16	41	42	42	39	41	38	43	47	38	34	32	29
17	41	41	40	38	40	39	43	48	38	34	33	29
18	40	40	40	38	39	41	45	46	38	35	29	29
19	41	41	42	39	37	40	51	44	38	36	29	29
20	41	42	40	40	40	38	45	45	37	36	30	31
21	42	42	39	39	39	37	44	43	37	37	32	31
22	41	41	39	39	39	36	45	47	40	35	33	30
23	40	41	39	39	41	36	48	43	38	37	39	30
24	41	35	40	41	39	36	47	43	37	36	38	29
25	42	42	40	41	39	36	48	42	35	33	36	28
26	42	41	39	39	38	36	49	42	36	34	36	29
27	42	41	36	39	39	38	52	42	39	34	33	32
28	36	43	38	40	39	37	59	38	38	33	34	30
29	29	40	36	40	40	38	64	38	39	30	33	29
30	34	34	39	38	---	39	64	39	36	31	33	30
31	42	---	37	37	---	39	---	42	---	33	34	---
TOTAL	1211	1225	1229	1193	1136	1208	1365	1511	1133	1092	1021	936
MEAN	39.1	40.8	39.6	38.5	39.2	39.0	45.5	48.7	37.8	35.2	32.9	31.2
MAX	42	45	44	41	41	45	64	64	41	39	39	35
MIN	29	34	33	34	37	36	38	38	34	30	29	28
AC-FT	2400	2430	2440	2370	2250	2400	2710	3000	2250	2170	2030	1860

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1992, BY WATER YEAR (WY)

MEAN	43.1	42.9	40.2	39.4	40.2	42.4	61.1	97.0	74.3	48.7	42.8	41.3
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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1947 - 1992
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ANNUAL TOTAL	15416		14260				
ANNUAL MEAN	42.2		39.0			51.2	
HIGHEST ANNUAL MEAN						84.5	1982
LOWEST ANNUAL MEAN						27.1	1961
HIGHEST DAILY MEAN	103	May 24	64	Apr 29a	1880		May 15 1965
LOWEST DAILY MEAN	26	Jan 6	28	Sep 25	9.0		Dec 2 1959b
ANNUAL SEVEN-DAY MINIMUM	29	Jan 4	30	Sep 23	18		Dec 18 1981
INSTANTANEOUS PEAK FLOW			70	Apr 29	4240		May 15 1965c
INSTANTANEOUS PEAK STAGE			6.57	Apr 29	10.54		Jun 15 1976
ANNUAL RUNOFF (AC-FT)	30580		28280		37090		
10 PERCENT EXCEEDS	60		44		71		
50 PERCENT EXCEEDS	39		39		44		
90 PERCENT EXCEEDS	32		32		31		

a Also Apr. 30 to May 1.

b No flow for part of Oct. 18, 1970.

c Gage height, 10.53 ft, from rating curve extended above 520 ft³/s on basis of slope-area measurement of peak flow.

BELLE FOURCHE RIVER BASIN

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06432020 SPEARFISH CREEK BELOW SPEARFISH, SD

LOCATION.--Lat 44°34'48", long 103°53'37", in SW1/4NE1/4SE1/4 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 mi².

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 except those for estimated daily discharges, which are poor. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	e30	28	43	40	45	47	49	14	18	16	29
2	29	e30	39	44	40	46	45	49	13	15	15	30
3	32	27	42	41	42	43	40	43	9.1	14	15	27
4	41	38	56	41	40	46	41	38	8.1	25	15	27
5	41	67	58	42	39	54	41	32	12	23	16	29
6	36	67	55	41	40	52	42	25	19	21	15	30
7	42	61	53	39	40	51	40	22	22	18	15	42
8	40	60	56	37	39	54	40	23	20	17	15	40
9	40	64	55	42	42	53	40	26	16	17	14	42
10	38	61	51	40	40	51	40	40	14	19	13	40
11	36	59	49	40	40	53	46	34	12	20	9.0	41
12	37	61	52	38	e43	54	45	28	12	23	5.6	39
13	37	61	50	38	38	48	45	26	11	28	5.4	38
14	40	65	37	39	40	49	42	20	11	23	5.5	36
15	42	61	41	e40	41	49	42	19	19	18	5.2	29
16	44	59	57	39	42	50	42	18	22	14	5.1	28
17	43	60	52	48	42	53	42	17	17	17	6.1	26
18	44	57	53	44	43	52	47	11	16	15	5.5	24
19	46	56	47	45	36	51	62	9.1	17	15	5.7	27
20	49	56	45	44	43	48	54	7.6	18	14	5.8	25
21	51	57	45	40	45	47	50	7.6	19	13	8.4	24
22	51	56	44	40	43	47	49	15	21	14	10	26
23	50	52	42	40	49	50	51	13	14	16	20	26
24	44	42	43	40	44	47	50	13	15	17	17	25
25	45	58	46	39	43	48	51	13	15	20	21	24
26	45	56	42	39	41	48	53	12	15	20	22	27
27	46	51	39	38	43	48	56	13	17	20	23	31
28	52	52	39	38	43	45	59	11	24	21	29	32
29	31	49	40	40	43	48	61	8.0	23	17	29	29
30	30	36	45	38	---	49	53	7.8	14	17	26	27
31	32	---	41	41	---	47	---	14	---	18	28	---
TOTAL	1268	1609	1442	1258	1204	1526	1416	664.1	479.2	567	441.3	920
MEAN	40.9	53.6	46.5	40.6	41.5	49.2	47.2	21.4	16.0	18.3	14.2	30.7
MAX	52	67	58	48	49	54	62	49	24	28	29	42
MIN	29	27	28	37	36	43	40	7.6	8.1	13	5.1	24
AC-FT	2520	3190	2860	2500	2390	3030	2810	1320	950	1120	875	1820

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992
MEAN	43.9	51.5	41.7	40.7
MAX	49.5	56.5	49.5	48.7
(WY)	1989	1989	1989	1990
MIN	36.8	46.9	32.5	28.0
(WY)	1991	1991	1991	1989

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1989 - 1992
ANNUAL TOTAL	15362.2	12794.6	
ANNUAL MEAN	42.1	35.0	38.6
HIGHEST ANNUAL MEAN			40.4
LOWEST ANNUAL MEAN			34.9
HIGHEST DAILY MEAN	122	67	122
LOWEST DAILY MEAN	1.6	5.1	1.0
ANNUAL SEVEN-DAY MINIMUM	2.2	5.5	1.3
INSTANTANEOUS PEAK FLOW		107	163
INSTANTANEOUS PEAK STAGE		5.14	5.86
ANNUAL RUNOFF (AC-FT)	30470	25380	27970
10 PERCENT EXCEEDS	67	53	58
50 PERCENT EXCEEDS	43	40	43
90 PERCENT EXCEEDS	8.7	14	8.1

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 NW1/4SE1/4 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 mi².

PERIOD OF RECORD.--November 1945 to current year. Records for water year 1946 incomplete, yearly discharge published in WSP 1309. 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 and those for winter period, Oct. 28 to Feb. 15, 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	112	e120	122	113	118	115	108	3.3	30	46	21
2	65	94	122	123	113	118	116	102	3.8	13	45	31
3	64	105	e118	124	113	107	115	90	4.0	11	44	37
4	68	129	e115	126	111	91	115	72	4.6	22	46	38
5	72	134	113	129	108	99	113	52	4.7	32	42	41
6	71	131	113	127	106	96	116	39	5.0	22	34	47
7	74	e130	116	121	105	100	116	11	7.5	15	29	61
8	77	130	119	e118	106	104	114	14	12	16	19	60
9	77	126	117	115	108	110	117	10	19	12	12	73
10	91	130	114	118	111	107	113	13	15	11	10	72
11	96	132	112	117	e111	105	117	15	13	14	8.0	70
12	99	133	112	117	e111	107	119	11	11	15	6.6	67
13	101	131	e112	115	111	102	119	8.0	11	27	6.0	60
14	103	136	e112	117	112	101	117	7.8	16	36	5.5	65
15	106	137	e112	e110	112	102	119	6.9	31	30	5.2	61
16	111	133	113	e110	107	106	118	5.8	53	22	5.5	60
17	111	132	113	e110	106	109	120	4.0	48	26	6.5	59
18	111	130	e115	e110	107	110	120	3.6	44	47	6.3	60
19	112	131	115	e110	104	112	140	3.6	40	67	6.5	71
20	115	132	113	107	109	110	131	3.6	44	55	7.7	70
21	120	132	114	110	105	110	127	3.6	57	37	7.8	69
22	120	130	114	112	116	109	124	4.0	61	39	9.5	72
23	124	126	113	112	112	111	125	3.6	43	36	11	79
24	119	120	114	112	113	107	128	3.6	32	36	8.9	79
25	120	125	118	111	114	104	122	3.8	24	38	9.2	79
26	116	124	119	111	109	108	126	3.8	22	42	10	82
27	116	118	115	108	113	111	128	3.4	15	47	14	83
28	125	120	e115	108	114	113	131	3.1	13	46	15	85
29	122	122	e116	108	117	115	134	3.1	25	43	24	81
30	116	e120	117	109	---	116	126	3.0	35	45	23	80
31	110	---	115	109	---	117	---	3.4	---	47	23	---
TOTAL	3105	3785	3566	3556	3197	3335	3641	618.7	716.9	979	546.2	1913
MEAN	100	126	115	115	110	108	121	20.0	23.9	31.6	17.6	63.8
MAX	125	137	122	129	117	118	140	108	61	67	46	85
MIN	64	94	112	107	104	91	113	3.0	3.3	11	5.2	21
AC-FT	6160	7510	7070	7050	6340	6610	7220	1230	1420	1940	1080	3790

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1992, BY WATER YEAR (WY)

	125	138	137	130	140	152	171	225	184	52.5	38.4	82.9
MEAN	125	138	137	130	140	152	171	225	184	52.5	38.4	82.9
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	101	105	62.9	20.0	4.07	2.13	2.72	19.3
(WY)	1961	1961	1962	1957	1989	1961	1981	1992	1988	1960	1959	1959

SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1946 - 1992

	33371.8	28958.8	
ANNUAL TOTAL	33371.8	28958.8	
ANNUAL MEAN	91.4	79.1	131
HIGHEST ANNUAL MEAN			227
LOWEST ANNUAL MEAN			57.1
HIGHEST DAILY MEAN	237	Jun 8	5790
LOWEST DAILY MEAN	2.4	Jul 22	3.0
ANNUAL SEVEN-DAY MINIMUM	2.6	Jul 17	3.3
INSTANTANEOUS PEAK FLOW			152
INSTANTANEOUS PEAK STAGE			2.75
ANNUAL RUNOFF (AC-FT)	66190	57440	94910
10 PERCENT EXCEEDS	131	124	202
50 PERCENT EXCEEDS	112	106	125
90 PERCENT EXCEEDS	3.6	8.0	16

e Estimated

a No flow at times in 1960, 1968-69, 1981-82, and 1988.

b From rating curve extended above 6,000 ft³/s on basis of slope-area measurement of peak flow.

BELLE FOURCHE RIVER BASIN

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06433500 HAY CREEK AT BELLE FOURCHE, SD

LOCATION.--Lat 44°40'01", long 103°50'46", in NW1/4SW1/4 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 mi².

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.04	e.00	.01	.02	.08	.08	e.01	.06	.02	.01	.27	.00
2	e.04	e.00	.00	.96	.02	.18	e.01	.04	.00	.10	.03	.00
3	e.04	e.00	e.00	2.3	.01	.51	.00	.01	.00	.00	.00	.00
4	e.09	e.00	e.00	.73	.02	.17	.00	.00	.00	.00	.00	.00
5	e.07	e.01	e.00	.12	.02	.33	.00	.00	.13	.02	.00	.00
6	e.07	e.01	e.00	e.05	.02	.06	.00	.00	.01	.00	.00	.00
7	e.07	e.00	.01	.04	.01	.02	.00	.00	.38	.75	.00	.42
8	e.07	e.01	.00	.00	.02	.49	.00	.00	.03	.14	.00	.00
9	e.07	e.03	.00	.00	e.01	.15	.00	.21	.00	.85	.00	.00
10	.18	e.04	e.00	.01	e.05	.02	.01	.59	.00	.08	.00	.00
11	.04	e.07	e.00	.03	.04	.02	.16	.06	.00	1.3	.00	.00
12	.01	.10	.00	.00	.02	.14	.07	.03	.00	.39	.00	.00
13	.01	.25	.00	.00	e.07	.01	.04	.01	.00	.54	.00	.00
14	.02	.41	.00	.00	e.40	.00	.03	.00	.00	.06	.00	.00
15	.01	.04	e.00	e.00	e.10	.00	.01	.00	.84	.15	.00	.00
16	.01	.00	e.01	e.01	e.09	.09	.00	.11	.21	.02	.00	.00
17	.01	.00	.02	e.04	.09	.26	.00	.06	1.5	.00	.00	.00
18	.01	.00	.15	e.07	.09	.27	.35	.02	.03	.00	.00	.00
19	.01	.05	1.9	e.20	.08	.16	.65	.00	.00	.00	.00	.00
20	.01	.67	.81	.54	.05	.07	.17	.00	.00	.12	.00	.00
21	.01	.35	.35	.40	.05	.05	.08	.00	.62	.77	.65	.00
22	.01	.10	.01	.31	.96	.02	.04	.13	.20	.12	.00	.00
23	.00	.01	.00	.22	.23	.02	.22	.00	.01	.00	.99	.00
24	.00	.00	e.03	.36	.05	.03	.15	.00	.00	.01	.00	.00
25	.01	.00	e.01	.35	.04	.01	.07	.00	.00	.13	.00	.00
26	.01	.00	.00	.27	.04	.01	.04	.00	.00	.00	.00	.00
27	.01	.00	.00	.29	.06	.02	.03	.00	.00	.00	.00	.00
28	.01	.01	.00	.28	.06	.01	.02	.00	.00	.00	.00	.00
29	e.00	.00	.00	.22	.10	.00	.01	.00	.00	2.2	.00	.00
30	e.00	.00	.01	.23	---	e.01	.01	.09	.00	.04	.00	.00
31	e.00	---	.02	.23	---	e.01	---	.09	---	.00	.00	---
TOTAL	0.94	2.16	3.34	8.28	2.88	3.22	2.18	1.51	3.98	7.80	1.94	0.42
MEAN	.030	.072	.11	.27	.099	.10	.073	.049	.13	.25	.063	.014
MAX	.18	.67	1.9	2.3	.96	.51	.65	.59	1.5	2.2	.99	.42
MIN	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00
AC-FT	1.9	4.3	6.6	16	5.7	6.4	4.3	3.0	7.9	15	3.8	.8

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1992, BY WATER YEAR (WY)

MEAN	.44	.15	.096	.16	.79	1.74	2.26	5.00	5.15	.52	.16	.21
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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1954 - 1992

ANNUAL TOTAL	159.64	38.65	
ANNUAL MEAN	.44	.11	1.39a
HIGHEST ANNUAL MEAN			5.50
LOWEST ANNUAL MEAN			.012
HIGHEST DAILY MEAN	18 Jun 20	2.3 Jan 3	610 Jun 19 1972
LOWEST DAILY MEAN	.00 Jan 1	.00 Oct 23b	.00 Apr 2 1954b
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 1	.00 Oct 29	.00 Jul 3 1954
INSTANTANEOUS PEAK FLOW		16 Jul 29	930 Jun 19 1972
INSTANTANEOUS PEAK STAGE		4.38 Jul 29	9.15 Jun 19 1972
ANNUAL RUNOFF (AC-FT)	317	77	1010
10 PERCENT EXCEEDS	.93	.30	2.1
50 PERCENT EXCEEDS	.03	.01	.02
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a Median of annual mean discharges, 0.69 ft³/s.

b No flow many days in each year.

BELLE FOURCHE RIVER BASIN

06434500 INLET CANAL NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°42'14", long 103°49'23", in NE1/4NW1/4 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 fair. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	e112	e135	127	117	129	116	108	39	55	77	71
2	65	e95.0	e135	120	118	128	116	101	24	16	82	80
3	65	e105	e130	130	121	127	114	88	14	16	84	64
4	72	e130	e130	118	120	128	114	69	7.8	35	80	63
5	78	e140	e135	120	122	142	115	52	.81	78	79	59
6	78	e140	141	120	120	141	115	43	.00	61	70	56
7	77	e133	142	120	119	140	113	8.0	.00	29	61	59
8	79	e138	142	e120	121	143	112	.00	.55	29	45	54
9	76	e142	144	e120	122	148	113	.00	15	25	28	58
10	87	144	145	118	122	141	113	.00	27	24	18	58
11	97	144	141	117	119	138	119	.00	18	58	13	41
12	102	144	139	118	e120	143	126	.00	7.6	81	7.2	35
13	101	144	137	119	119	137	120	.00	.46	105	5.9	29
14	105	160	e135	e114	117	132	117	.00	.72	123	6.0	33
15	107	162	e133	104	117	130	118	.00	84	94	2.4	32
16	110	156	e130	e100	118	130	115	.00	111	54	22	31
17	111	158	132	e108	120	133	115	3.7	100	55	43	32
18	113	160	135	e110	121	133	118	10	83	69	60	30
19	116	154	131	e112	117	133	143	18	81	106	58	39
20	119	150	130	e115	120	130	150	21	95	86	58	38
21	124	159	129	114	119	129	146	16	88	46	63	38
22	126	156	130	115	122	127	142	15	97	45	52	40
23	129	147	127	115	134	125	140	21	94	50	67	46
24	128	141	126	115	126	123	142	20	60	45	73	46
25	128	146	127	116	134	120	135	24	64	71	77	47
26	126	155	126	116	134	120	133	40	46	173	80	51
27	125	147	126	116	137	119	132	39	18	118	85	52
28	129	149	e118	116	133	118	132	35	19	89	80	53
29	116	144	e125	116	131	117	129	46	67	102	64	52
30	e110	137	e125	117	---	117	127	55	66	152	59	50
31	e108	---	125	116	---	117	---	53	---	112	65	---
TOTAL	3183	4292.0	4106	3602	3560	4038	3740	885.70	1327.94	2202	1664.5	1437
MEAN	103	143	132	116	123	130	125	28.6	44.3	71.0	53.7	47.9
MAX	129	162	145	130	137	148	150	108	111	173	85	80
MIN	65	95	118	100	117	117	112	.00	.00	16	2.4	29
AC-FT	6310	8510	8140	7140	7060	8010	7420	1760	2630	4370	3300	2850

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1992, BY WATER YEAR (WY)

MEAN	145	151	148	141	156	226	243	222	190	114	104	115
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1946 - 1992

ANNUAL TOTAL	49572.0	34038.14	
ANNUAL MEAN	136	93.0	163
HIGHEST ANNUAL MEAN			240
LOWEST ANNUAL MEAN			69.7
HIGHEST DAILY MEAN	623	173	1410
LOWEST DAILY MEAN	19	.00	.00
ANNUAL SEVEN-DAY MINIMUM	30	.00	.00
ANNUAL RUNOFF (AC-FT)	98330	67510	118100
10 PERCENT EXCEEDS	206	141	287
50 PERCENT EXCEEDS	127	114	141
90 PERCENT EXCEEDS	61	20	26

e Estimated

a No flow at times in most years.

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.

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.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum observed daily (more than 20 percent missing record), 2,270 microsiemens, May 16; minimum observed daily (more than 20 percent missing record), 1,020 microsiemens, Dec. 20.

WATER TEMPERATURE: Maximum observed daily (more than 20 percent missing record), 26.0°C, June 11 and July 27; minimum observed daily (more than 20 percent missing record), 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	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)
OCT											
16...	0845	109	1410	8.1	17.5	11.0	740	210	52	25	7
NOV											
14...	0900	157	1380	8.1	6.0	6.5	730	210	50	30	8
JAN											
07...	0900	121	1280	8.5	-3.0	1.0	740	220	47	15	4
MAR											
06...	1000	141	1350	8.2	9.5	8.0	730	210	49	26	7
31...	0930	118	1330	8.2	2.0	7.0	690	200	46	22	6
MAY											
05...	0930	53	1470	8.0	19.0	14.0	750	210	54	43	11
JUN											
02...	1000	23	1710	8.4	21.5	15.0	590	150	53	140	33
JUL											
02...	1045	63	1520	8.2	17.0	17.0	680	190	51	80	20
28...	0945	89	1310	7.8	23.0	20.5	580	160	44	71	21

DATE	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 CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)
OCT										
16...	0.4	3.5	198	610	7.7	0.40	9.4	1040	1.41	305
NOV										
14...	0.5	3.5	214	550	5.2	0.30	9.0	986	1.34	418
JAN										
07...	0.2	2.1	218	510	6.0	0.30	9.4	941	1.28	307
MAR										
06...	0.4	3.2	209	510	6.7	0.30	8.9	939	1.28	358
31...	0.4	2.6	191	500	8.7	0.30	7.8	902	1.23	287
MAY										
05...	0.7	3.7	175	650	8.9	0.70	5.5	1080	1.47	155
JUN										
02...	3	9.8	133	650	35	0.60	3.7	1120	1.53	70.9
JUL										
02...	1	7.7	176	620	19	0.50	7.8	1080	1.47	183
28...	1	7.5	129	580	16	0.40	9.3	966	1.31	232

06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)
OCT 16...	<0.010	--	--	0.130	--	0.010	--	0.020	<0.010	<0.010
NOV 14...	0.030	--	0.250	0.280	--	0.020	--	0.070	0.020	0.020
JAN 07...	0.010	--	0.380	0.390	--	0.030	--	0.060	0.040	0.040
MAR 06...	<0.010	--	--	0.280	--	0.030	--	0.080	0.030	0.030
31...	<0.010	--	--	0.150	--	0.020	--	0.030	<0.010	0.020
MAY 05...	--	<0.010	--	--	<0.050	--	<0.010	0.090	<0.010	--
JUN 02...	0.010	--	--	<0.050	--	0.030	--	0.050	0.030	0.020
JUL 02...	0.010	--	--	<0.050	--	0.030	--	0.100	0.010	0.060
28...	0.010	--	0.130	0.140	--	0.050	--	0.070	0.060	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 16...	--	--	80	--	--	--	--	--	--	--
NOV 14...	--	--	90	--	--	--	--	--	--	--
JAN 07...	--	--	70	--	--	--	--	--	--	--
MAR 06...	--	--	80	--	--	--	--	--	--	--
31...	--	--	80	--	--	--	--	--	--	--
MAY 05...	<0.010	1	120	<1.0	<1	<1	<1	<3	<1	34
JUN 02...	--	--	230	--	--	--	--	--	--	--
JUL 02...	--	--	190	--	--	--	--	--	--	--
28...	--	--	170	--	--	--	--	--	--	--

[illegible]

BELLE FOURCHE RIVER BASIN

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06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1250	---	---	---	---	---	1280	---	1660	---	1290	1600
2	1340	---	---	1220	---	1300	1280	---	1670	1650	1460	1590
3	1340	---	1130	1160	1160	---	1260	---	1730	1670	1500	---
4	1300	1500	1130	---	---	1280	---	1310	1770	1700	1520	1570
5	---	---	1240	---	1090	---	---	---	1770	---	1530	1570
6	---	1250	1210	1170	---	---	1270	1460	1800	1580	1510	1520
7	---	---	---	---	1090	---	---	1910	---	1560	1590	---
8	---	1250	---	1210	---	---	1250	---	1730	1580	1620	1410
9	---	---	1240	---	---	1260	1110	---	1540	1590	1780	1450
10	---	---	1170	1210	1260	1280	---	---	1570	1630	1780	1430
11	---	---	---	---	---	1310	---	1780	1610	1740	1790	1430
12	---	1310	1240	---	1260	1290	---	1810	1670	---	1790	1440
13	---	1350	1280	1190	1240	1310	1250	1900	---	1500	1890	---
14	---	---	---	---	---	---	---	1950	1560	1310	1980	1380
15	---	1360	---	1220	1270	---	1310	1990	1940	1410	1960	1410
16	---	---	1300	---	---	---	1300	2270	1630	1520	---	---
17	---	---	---	1200	---	---	---	---	1620	1550	1800	---
18	---	1310	1210	---	---	1180	---	2200	1500	1580	1940	---
19	---	1270	---	---	1240	---	---	2120	1500	1490	---	---
20	---	1250	1020	---	---	1230	1300	1770	1470	1490	1670	---
21	---	1300	---	---	1220	---	1390	1730	1330	1540	1590	1410
22	---	1030	---	1220	---	---	1310	1700	1320	1580	1610	1430
23	---	---	1240	---	---	1300	1330	1670	1290	1480	1600	---
24	1280	---	---	1200	1180	1290	---	1670	1380	1560	1570	---
25	1300	1340	---	---	1290	1270	---	1670	1500	1570	1590	---
26	---	1330	---	---	1280	---	---	1680	1470	1220	1580	---
27	---	1250	---	1190	---	1260	---	1680	1520	1150	1570	---
28	1160	---	---	---	---	---	1260	1670	1570	1390	1560	1340
29	---	---	---	1240	---	---	1240	1700	1610	1390	1570	---
30	1270	---	---	---	---	1260	1220	---	1490	1170	---	---
31	1320	---	---	1280	---	---	---	1680	---	1230	1600	---

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.5	---	---	---	---	---	5.5	---	16.0	---	19.0	17.0
2	13.0	---	---	1.0	---	7.5	4.0	---	14.5	17.0	25.0	16.0
3	12.0	---	.0	1.0	4.0	---	10.0	---	20.5	16.5	19.0	---
4	8.5	.0	.0	---	---	6.5	---	13.0	20.0	17.0	20.0	17.0
5	---	---	.5	---	1.5	---	---	---	15.0	---	18.0	15.5
6	---	.0	3.0	1.0	---	8.0	8.0	14.0	19.0	20.0	19.5	14.5
7	---	---	---	---	.0	---	---	21.0	---	20.5	20.0	---
8	---	.0	---	1.0	---	---	9.5	---	18.0	20.0	21.0	11.0
9	---	---	3.0	---	---	2.5	9.0	---	18.0	22.5	20.0	13.0
10	---	---	3.0	1.5	.0	3.5	---	---	19.0	17.0	20.0	12.5
11	---	---	---	---	---	4.5	---	13.5	26.0	18.0	19.0	12.5
12	---	6.0	1.0	---	.0	5.0	---	13.5	20.0	---	17.0	14.5
13	---	6.0	1.5	.0	.0	7.0	5.0	12.5	---	19.0	16.5	---
14	---	---	---	---	---	---	---	11.5	21.0	24.5	17.0	13.0
15	---	4.5	---	.0	3.0	---	12.0	19.5	18.0	20.0	15.5	12.5
16	---	---	.0	---	---	---	12.0	9.0	16.5	20.0	---	---
17	---	---	---	.0	---	---	---	---	15.5	19.0	20.0	---
18	---	4.5	.0	---	---	5.0	---	23.0	21.0	18.5	21.5	---
19	---	5.5	---	---	1.0	---	---	18.0	20.0	19.0	---	---
20	---	3.5	.0	---	---	5.0	4.0	21.5	17.0	17.0	21.0	---
21	---	4.5	---	---	1.5	---	3.0	17.5	16.5	15.5	18.0	---
22	---	2.5	---	1.5	---	---	6.0	12.5	18.0	15.0	19.5	---
23	---	---	.0	---	---	4.5	9.0	13.0	21.0	17.5	14.0	---
24	4.5	---	---	3.0	2.0	6.0	---	12.0	20.0	21.0	13.0	---
25	4.0	.0	---	---	4.5	7.5	---	10.0	20.5	23.0	14.0	---
26	---	3.5	---	---	5.5	---	---	10.5	25.5	20.5	12.0	---
27	---	2.5	---	.5	---	6.0	---	18.0	19.0	26.0	12.5	---
28	.0	---	---	---	---	---	13.5	19.0	21.5	25.5	16.5	---
29	---	---	---	3.0	---	---	14.0	21.0	18.0	18.0	15.5	---
30	.0	---	---	---	---	5.5	16.0	---	17.0	17.5	---	---
31	.0	---	---	4.0	---	---	---	15.0	---	21.0	15.5	---

BELLE FOURCHE RIVER BASIN

06435000 BELLE FOURCHE RESERVOIR NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°44'12", long 103°40'27", in SW1/4SE1/4 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, 79,900 acre-ft, Apr. 30, elevation, 2,959.13 ft; minimum, 10,600 acre-ft, Sept. 30, elevation, 2,936.48 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

Date		Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.	30	2,942.48	21,400	-
Oct.	31	2,945.37	27,800	+6,400
Nov.	30	2,949.16	38,400	+10,600
Dec.	31	2,951.86	47,600	+9,200
CAL YR 1991		-	-	+2,700
Jan.	31	2,953.85	55,400	+7,800
Feb.	29	2,955.69	63,400	+8,000
Mar.	31	2,957.53	71,900	+8,500
Apr.	30	2,959.13	79,900	+8,000
May	31	2,956.44	66,800	-13,100
June	30	2,954.45	57,900	-8,900
July	31	2,951.78	47,300	-10,600
Aug.	31	2,938.38	13,600	-33,700
Sept.	30	2,936.48	10,600	-3,000
WTR YR 1992		-	-	-10,800

06436000 BELLE FOURCHE RIVER NEAR FRUITDALE, SD

LOCATION.--Lat 44°41'27", long 103°44'14", in NW1/4NE1/4 sec.3, T.8 N., R.3 E., Butte County, Hydrologic Unit 10120202, on left bank near downstream end of bridge on U.S. Highway 212, 2.5 mi northwest of Fruitdale, and 8.8 mi downstream from point of diversion to Belle Fourche Reservoir.

DRAINAGE AREA.--4,540 mi², approximately.

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

GAGE.--Water-stage recorder. Elevation of gage is 2,925 ft above 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 fair. 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 ft³/s, June 16, 1962, 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	e7.0	5.7	4.9	4.0	7.2	7.2	5.3	9.2	7.5	14	13
2	7.2	e7.0	5.7	4.9	5.4	7.3	7.9	4.9	8.8	9.6	12	14
3	7.2	e7.0	5.7	4.9	5.7	7.4	8.3	4.9	8.9	10	13	15
4	7.4	e7.0	5.7	4.9	5.7	7.0	8.5	4.5	7.8	11	13	15
5	7.9	e7.5	5.7	4.9	5.6	7.3	8.3	4.8	7.6	12	12	14
6	8.1	e7.5	5.7	4.9	5.4	7.5	8.0	5.7	8.7	12	11	14
7	8.1	e7.0	5.7	4.7	5.4	7.4	7.5	6.1	9.4	14	11	14
8	7.9	e7.0	6.0	4.6	5.4	7.0	7.5	6.4	11	15	11	14
9	6.9	e7.0	6.3	4.0	5.4	7.1	7.5	5.0	10	13	12	14
10	7.1	e7.0	6.0	4.1	5.4	7.2	7.5	6.1	11	15	9.8	14
11	7.6	e7.0	5.7	4.2	5.3	7.2	7.5	6.7	11	16	8.5	14
12	7.9	e7.0	5.7	4.2	5.2	7.2	7.2	6.9	9.7	17	8.5	15
13	7.8	e7.0	e5.5	4.2	5.2	7.2	6.9	6.0	9.1	20	8.5	15
14	7.2	e7.0	e5.5	4.2	5.2	7.2	6.8	5.2	8.9	19	8.7	14
15	7.2	e7.0	5.2	e4.2	5.2	7.2	7.2	5.8	9.5	21	7.2	14
16	7.5	6.9	5.2	e4.2	5.2	6.9	7.5	7.4	13	16	4.0	13
17	7.4	6.6	5.2	4.4	4.9	6.9	7.3	7.8	11	13	5.1	13
18	6.9	6.4	5.2	4.4	4.9	6.9	7.7	7.1	10	13	5.2	11
19	6.9	6.3	5.2	4.4	4.9	7.2	7.9	8.2	9.7	13	4.9	10
20	6.9	6.3	5.2	4.4	4.9	6.8	7.2	7.3	9.3	15	6.9	10
21	7.0	6.3	5.2	4.4	4.9	6.3	6.9	7.8	10	13	9.9	9.7
22	7.1	6.3	5.2	4.3	5.4	6.6	6.6	8.4	10	11	9.7	9.6
23	6.9	6.3	5.2	4.0	6.9	6.9	6.3	8.8	9.9	11	10	10
24	7.5	6.3	5.2	4.0	7.2	6.9	8.0	9.0	9.6	11	13	8.6
25	7.5	6.3	5.2	4.0	7.2	6.6	6.7	8.9	8.9	12	14	7.3
26	7.5	6.3	5.1	4.0	6.9	7.8	6.0	9.0	8.1	11	15	6.9
27	7.3	6.3	4.9	4.0	6.9	7.8	5.5	8.5	8.3	11	17	7.9
28	7.2	6.3	4.9	3.8	6.9	7.5	5.2	8.6	8.2	12	15	7.5
29	e7.0	6.0	4.9	3.7	7.0	7.2	7.0	9.1	7.7	12	14	7.8
30	e6.5	e6.0	4.9	3.7	---	6.9	11	8.9	6.5	13	14	7.9
31	e6.5	---	4.9	3.8	---	6.9	---	8.9	---	14	14	---
TOTAL	226.1	200.9	167.4	133.3	163.6	220.5	220.6	218.0	280.8	413.1	331.9	353.2
MEAN	7.29	6.70	5.40	4.30	5.64	7.11	7.35	7.03	9.36	13.3	10.7	11.8
MAX	8.1	7.5	6.3	4.9	7.2	7.8	11	9.1	13	21	17	15
MIN	6.5	6.0	4.9	3.7	4.0	6.3	5.2	4.5	6.5	7.5	4.0	6.9
AC-FT	448	398	332	264	325	437	438	432	557	819	658	701

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1992, BY WATER YEAR (WY)*

	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
MEAN	9.70	8.97	5.41	4.09	17.4	61.9	105	272	204	30.1	15.2	8.79								
MAX	44.1	55.8	26.0	12.6	222	973	953	1717	1149	324	142	19.6								
(WY)	1983	1988	1965	1965	1973	1972	1971	1978	1976	1962	1953	1971								
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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1953 - 1992*
ANNUAL TOTAL	2388.1	2929.4	
ANNUAL MEAN	6.54	8.00	62.0a
HIGHEST ANNUAL MEAN			263
LOWEST ANNUAL MEAN			3.00
HIGHEST DAILY MEAN	24	Sep 20	9110
LOWEST DAILY MEAN	1.7	Jun 25	.00
ANNUAL SEVEN-DAY MINIMUM	3.0	Mar 14	.00
INSTANTANEOUS PEAK FLOW			12700
INSTANTANEOUS PEAK STAGE			14.32
ANNUAL RUNOFF (AC-FT)	4740	5810	44920
10 PERCENT EXCEEDS	11	13	25
50 PERCENT EXCEEDS	5.5	7.2	5.5
90 PERCENT EXCEEDS	3.3	4.9	3.0

e Estimated

* Regulated period only (1953-92). See REMARKS.

a Median of annual mean discharges, 23 ft³/s.

b Also Jan. 30.

c No flow at times in 1959-62, 1977.

BELLE FOURCHE RIVER BASIN

06436156 WHITETAIL CREEK AT LEAD, SD

LOCATION.--Lat 44°20'36", long 103°45'57", in NE1/4NE1/4NW1/4 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 mi².

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.88	.86	e.95	e.60	1.0	1.2	1.4	10	3.3	2.5	1.3	1.1
2	.96	.76	1.1	e.50	1.0	1.2	1.4	8.2	2.7	2.7	1.2	1.0
3	1.1	.87	.99	e.55	1.0	1.3	1.4	8.4	2.5	2.4	1.3	.96
4	1.1	.93	.99	e.55	.97	1.4	1.4	7.9	2.5	2.3	1.2	.95
5	1.1	1.0	.99	e.55	.98	1.9	1.5	7.4	2.6	2.3	1.2	.96
6	1.0	.98	.99	e.50	.96	1.7	1.5	6.9	2.5	2.1	1.2	1.0
7	1.0	.93	1.0	e.45	.96	1.7	1.5	6.4	2.5	2.0	1.2	1.4
8	1.0	.97	1.0	e.45	.95	1.6	1.4	5.9	2.3	1.9	1.1	1.1
9	.93	1.0	1.0	e.50	.99	1.4	1.4	5.9	2.2	1.8	1.2	.97
10	.93	.98	.97	e.70	.97	1.7	1.5	7.1	2.1	1.9	1.2	.93
11	.94	.93	1.0	e1.0	.93	1.3	1.7	5.7	2.2	1.9	1.1	.92
12	.90	.93	1.0	e.95	.99	1.5	1.6	5.0	3.1	2.6	1.3	.89
13	.93	.93	.98	.93	.99	1.5	1.6	4.6	3.0	2.6	e1.3	.91
14	.88	.94	e.90	.86	.97	1.6	1.5	4.4	2.7	2.1	e1.3	.90
15	.88	.93	e.90	.65	.96	1.6	1.4	4.2	3.2	1.9	e1.4	.86
16	.88	.93	e.90	.93	.93	1.6	1.4	4.0	3.0	1.8	e1.4	.85
17	.88	.93	1.0	.93	.96	1.9	1.5	3.8	3.1	1.7	1.5	.88
18	.88	.83	e.95	.93	.94	1.9	1.8	3.5	2.7	1.6	1.0	.88
19	.88	.90	.96	.93	.94	1.7	2.2	3.3	2.5	1.6	1.0	.88
20	.88	.85	.93	.97	.96	1.6	2.1	3.1	2.4	1.6	.99	.81
21	.89	.90	.85	.99	.95	1.5	2.9	3.3	3.4	1.8	1.1	.77
22	.93	.94	.90	.99	1.0	1.6	3.2	4.2	3.1	1.7	1.0	.77
23	.93	.89	e.80	.99	1.0	1.5	3.8	3.4	2.6	1.6	1.8	.77
24	.93	1.0	e.80	.99	.99	1.4	3.7	3.2	2.7	1.5	1.3	.76
25	.93	.99	e.80	.99	.98	1.4	3.6	3.0	2.5	1.6	1.2	.77
26	.93	.99	e.70	.99	1.0	1.3	4.6	2.9	2.9	1.5	1.2	.77
27	.99	.93	e.70	1.0	1.2	1.4	6.2	2.6	2.6	1.4	1.1	.77
28	e.84	.90	e.70	.99	1.3	1.5	8.5	2.5	2.5	1.3	1.1	.75
29	e.81	.97	e.70	.99	1.2	1.5	9.9	2.4	2.6	1.4	.99	.73
30	.80	e.90	e.70	.99	---	1.4	11	2.7	2.4	1.4	.99	.73
31	.89	---	e.65	1.0	---	1.5	---	3.2	---	1.3	1.0	---
TOTAL	28.80	27.79	27.80	25.34	28.97	47.3	88.6	149.1	80.4	57.8	37.17	26.74
MEAN	.93	.93	.90	.82	1.00	1.53	2.95	4.81	2.68	1.86	1.20	.89
MAX	1.1	1.0	1.1	1.0	1.3	1.9	11	10	3.4	2.7	1.8	1.4
MIN	.80	.76	.65	.45	.93	1.2	1.4	2.4	2.1	1.3	.99	.73
AC-FT	57	55	55	50	57	94	176	296	159	115	74	53

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1989	1989	1990	1990	1990	1990	1991	1991	1991	1991
MEAN	1.00	.97	.82	.80	.87	1.56	3.78	9.39	4.15	1.99	1.15	.89
MAX	1.21	1.12	1.04	.97	1.00	1.89	5.41	11.8	7.35	2.38	1.24	1.11
(WY)	1989	1990	1989	1989	1992	1990	1990	1989	1991	1991	1989	1989
MIN	.74	.74	.43	.50	.70	1.15	2.87	4.81	2.68	1.53	.97	.74
(WY)	1991	1991	1991	1991	1991	1991	1991	1992	1992	1990	1990	1990

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1989 - 1992

ANNUAL TOTAL	925.68	625.81	
ANNUAL MEAN	2.54	1.71	
HIGHEST ANNUAL MEAN			2.29
LOWEST ANNUAL MEAN			2.56
HIGHEST DAILY MEAN	18	May 23	1.72
LOWEST DAILY MEAN	.20	Jan 1	1.1
ANNUAL SEVEN-DAY MINIMUM	.26	Jan 1	.06
INSTANTANEOUS PEAK FLOW			.14
INSTANTANEOUS PEAK STAGE			33
ANNUAL RUNOFF (AC-FT)	1840	2.77	3.60
10 PERCENT EXCEEDS	7.2	3.1	1660
50 PERCENT EXCEEDS	.99	1.1	4.9
90 PERCENT EXCEEDS	.65	.85	1.1
			.70

e Estimated

a Also Jan. 8.

b Gage height, 2.32 ft.

c Backwater.

BELLE FOURCHE RIVER BASIN

135

06436170 WHITEWOOD CREEK AT DEADWOOD, SD

LOCATION.--Lat 44°22'48", long 103°43'25", in NW1/4NE1/4SW1/4 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 mi², 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.--Records good except those for estimated daily discharges, which are poor. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	12	9.6	10	14	12	43	e18	14	11	12
2	11	10	13	8.9	9.9	13	12	36	e15	16	12	10
3	12	11	11	9.2	9.5	13	12	34	15	16	10	9.5
4	12	11	12	8.2	9.7	16	14	30	14	16	10	9.3
5	12	12	12	9.1	9.3	24	14	26	16	14	9.5	9.7
6	12	11	12	8.0	9.8	19	13	26	15	13	9.8	10
7	11	11	13	8.8	9.2	17	12	24	15	12	10	14
8	11	12	12	8.7	10	16	12	23	13	12	10	10
9	11	12	12	9.6	11	14	11	26	12	12	11	9.5
10	10	12	12	9.8	10	13	12	36	12	13	10	8.9
11	9.9	12	11	9.3	9.4	12	13	23	14	14	9.5	10
12	10	12	12	9.4	9.8	14	12	21	17	19	9.8	9.0
13	11	11	10	9.3	10	14	12	20	19	18	9.6	9.2
14	10	12	10	8.7	10	15	11	20	31	13	9.0	8.8
15	10	11	11	8.5	10	15	11	19	23	12	9.0	9.2
16	9.5	11	11	10	9.8	16	10	20	21	11	9.6	9.4
17	9.6	11	11	9.9	9.9	18	11	19	22	11	9.5	9.2
18	11	11	11	10	10	17	19	18	19	12	9.4	9.5
19	11	11	11	9.7	10	14	e22	16	18	12	9.3	11
20	11	11	11	9.3	11	14	e17	15	17	12	9.2	9.6
21	11	11	10	9.7	11	14	e23	18	21	13	11	9.1
22	9.7	11	10	9.5	12	13	e21	24	19	12	11	9.0
23	10	11	9.8	9.3	11	13	e23	19	17	11	18	9.7
24	11	11	9.9	9.2	11	13	e27	17	17	11	11	9.1
25	10	12	10	9.1	11	12	26	17	16	13	10	9.5
26	11	13	9.9	9.8	11	12	30	15	18	12	10	9.5
27	11	13	9.1	9.6	12	14	42	14	19	12	9.9	9.6
28	9.5	13	9.2	9.4	14	16	53	13	18	10	10	8.9
29	10	11	9.8	9.6	14	15	52	14	17	13	10	8.3
30	11	12	9.2	9.8	---	14	47	e19	14	11	10	8.6
31	12	---	9.8	9.7	---	13	---	e20	---	11	9.8	---
TOTAL	332.2	345	336.7	288.7	305.3	457	606	685	522	401	317.9	289.1
MEAN	10.7	11.5	10.9	9.31	10.5	14.7	20.2	22.1	17.4	12.9	10.3	9.64
MAX	12	13	13	10	14	24	53	43	31	19	18	14
MIN	9.5	10	9.1	8.0	9.2	12	10	13	12	10	9.0	8.3
AC-FT	659	684	668	573	606	906	1200	1360	1040	795	631	573

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1992, BY WATER YEAR (WY)

MEAN	15.4	13.9	11.1	11.1	12.0	18.2	40.0	92.6	35.2	17.7	14.5	13.1
MAX	44.0	34.7	20.2	17.1	16.0	38.6	101	311	102	29.4	24.3	18.2
(WY)	1983	1983	1983	1983	1983	1983	1983	1982	1984	1984	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	9.64
(WY)	1982	1982	1982	1982	1982	1985	1992	1985	1985	1985	1992	1992

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1982 - 1992

ANNUAL TOTAL	7410.2	4885.9	
ANNUAL MEAN	20.3	13.3	
HIGHEST ANNUAL MEAN			24.6a
LOWEST ANNUAL MEAN			43.8
HIGHEST DAILY MEAN	224	Jun 5	12.5
LOWEST DAILY MEAN	8.5	Jan 2	3.5
ANNUAL SEVEN-DAY MINIMUM	9.6	Dec 25	4.4
INSTANTANEOUS PEAK FLOW			2660
INSTANTANEOUS PEAK STAGE			7.54
ANNUAL RUNOFF (AC-FT)	14700	9690	17820
10 PERCENT EXCEEDS	36	19	39
50 PERCENT EXCEEDS	12	11	14
90 PERCENT EXCEEDS	10	9.3	9.7

e Estimated

a Median of annual mean discharges, 20 ft³/s.

b Present datum.

BELLE FOURCHE RIVER BASIN

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD

LOCATION.--Lat 44°26'32", long 103°37'44", in SE1/4SE1/4NE1/4 sec.33, T.6 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on left bank 90 ft downstream from Crook Mountain Road and 1.1 mi south of Whitewood.

DRAINAGE AREA.--56.3 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 3,680 ft above 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 ft³/s, by contracted-opening measurement, 1.8 mi downstream from gage.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	e11	e16	e16	14	15	14	51	21	17	12	13
2	9.8	e11	e16	e16	14	15	14	46	19	19	12	13
3	10	e11	e15	e17	14	14	14	42	18	20	11	11
4	12	e11	e14	e17	14	15	15	39	18	19	12	11
5	11	e13	e15	e15	14	18	15	33	19	18	11	11
6	11	e13	e16	13	14	17	15	34	18	18	11	11
7	11	e11	16	15	15	16	14	32	18	17	11	15
8	11	e12	17	e14	e14	17	14	32	17	17	11	12
9	11	e15	16	e14	e14	16	15	31	16	16	11	12
10	11	15	16	e15	e16	15	15	43	16	17	10	11
11	11	15	16	e15	e16	15	16	32	16	17	10	11
12	11	15	16	14	e16	16	16	29	18	20	10	11
13	11	15	16	e14	e16	16	16	28	20	21	10	11
14	11	15	e15	e13	e16	16	16	28	29	18	10	11
15	11	15	e15	e14	13	15	16	25	22	17	10	11
16	11	15	e16	e14	13	16	16	25	22	16	11	11
17	11	15	e17	e14	13	17	17	25	21	15	11	11
18	12	15	e17	e14	13	16	18	23	20	15	14	11
19	12	15	e16	e14	14	15	30	22	19	15	15	12
20	12	14	15	e15	13	15	22	21	18	15	15	11
21	13	15	15	e15	13	16	24	21	20	15	17	11
22	12	15	15	e15	14	15	27	28	20	15	17	11
23	12	15	e15	e14	15	15	31	24	19	14	21	11
24	12	e15	e15	e14	14	15	32	22	18	14	13	11
25	12	15	15	13	14	15	31	22	18	14	13	11
26	13	16	16	14	14	15	35	20	18	14	13	12
27	13	16	e16	14	14	15	44	20	20	14	13	12
28	e13	16	e16	14	15	15	53	19	19	12	13	12
29	e12	e16	e15	14	15	15	54	18	19	14	12	11
30	e10	e16	e15	14	---	15	51	20	18	13	13	11
31	e10	---	e15	14	---	15	---	24	---	13	12	---
TOTAL	352.6	427	484	448	414	481	710	879	574	499	385	344
MEAN	11.4	14.2	15.6	14.5	14.3	15.5	23.7	28.4	19.1	16.1	12.4	11.5
MAX	13	16	17	17	16	18	54	51	29	21	21	15
MIN	9.8	11	14	13	13	14	14	18	16	12	10	11
AC-FT	699	847	960	889	821	954	1410	1740	1140	990	764	682

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1992, BY WATER YEAR (WY)

MEAN	15.0	17.1	12.8	12.4	14.4	22.2	43.9	66.1	36.4	18.2	14.6	13.8
MAX	19.5	41.6	20.3	14.5	18.0	47.4	108	150	101	31.2	24.9	19.5
(WY)	1984	1983	1983	1992	1983	1983	1983	1983	1984	1984	1983	1983
MIN	11.4	9.85	7.63	10.6	12.0	15.5	22.2	15.0	13.4	10.6	9.45	10.9
(WY)	1992	1986	1991	1991	1985	1992	1985	1985	1985	1985	1985	1990

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1983 - 1992

ANNUAL TOTAL	8528.6	5997.6	
ANNUAL MEAN	23.4	16.4	21.8
HIGHEST ANNUAL MEAN			35.7
LOWEST ANNUAL MEAN			13.8
HIGHEST DAILY MEAN	185	Jun 5	470
LOWEST DAILY MEAN	6.0	Jan 2	5.0
ANNUAL SEVEN-DAY MINIMUM	6.5	Jan 1	5.5
INSTANTANEOUS PEAK FLOW			2080
INSTANTANEOUS PEAK STAGE			5.68
ANNUAL RUNOFF (AC-FT)	16920	11900	15790
10 PERCENT EXCEEDS	42	22	44
50 PERCENT EXCEEDS	15	15	16
90 PERCENT EXCEEDS	10	11	11

e Estimated

a Also Oct. 2.

b Gage height, 3.25 ft, June 14.

c Backwater from ice.

BELLE FOURCHE RIVER BASIN

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06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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)
OCT											
22...	0745	12	1320	8.4	12.5	8.0	659	9.7	95	510	110
NOV											
27...	0900	16	1300	8.6	0.5	2.0	662	12.5	105	460	100
DEC											
17...	1345	18	1320	8.8	4.0	0.5	672	13.4	106	520	110
JAN											
16...	0900	15	1260	8.6	8.0	0.0	663	13.2	104	530	110
FEB											
12...	1030	4.3	1300	8.7	-1.0	0.5	664	14.8	118	540	110
MAR											
11...	1115	15	1020	9.1	7.0	5.0	667	14.9	134	420	87
APR											
08...	1415	15	1050	9.4	12.0	13.0	666	13.7	150	450	94
28...	1230	56	617	8.8	21.5	13.5	669	13.6	149	270	61
JUN											
11...	1045	16	957	9.1	29.0	19.0	668	10.5	130	400	90
JUL											
14...	1100	16	1070	8.9	24.5	18.5	663	9.9	122	440	96
AUG											
11...	0845	9.7	1360	8.4	22.0	15.5	674	9.7	111	580	120
SEP											
02...	1145	13	1210	8.8	21.0	15.5	667	12.0	138	510	120

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, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT											
22...	57	79	25	2	13	182	490	23	0.90	6.1	924
NOV											
27...	52	79	26	2	13	163	460	33	1.3	8.8	992
DEC											
17...	59	89	27	2	14	184	490	28	1.0	8.9	1020
JAN											
16...	63	73	22	1	11	187	430	28	1.2	11	848
FEB											
12...	64	68	21	1	12	219	420	31	0.90	6.9	874
MAR											
11...	49	54	21	1	9.8	184	320	34	1.0	5.4	683
APR											
08...	52	61	22	1	9.1	149	320	28	0.80	2.1	732
28...	28	24	16	0.6	5.2	124	150	23	0.70	10	398
JUN											
11...	42	50	21	1	8.8	169	280	29	1.2	0.33	642
JUL											
14...	49	57	21	1	10	179	340	29	1.1	7.8	744
AUG											
11...	67	67	20	1	12	143	500	30	0.90	6.1	944
SEP											
02...	51	76	24	1	12	157	400	29	0.90	6.5	864

BELLE FOURCHE RIVER BASIN

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	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)
OCT 22...	927	1.26	28.9	8.50	0.030	0.04	0.173	30	2	40	30
NOV 27...	885	1.35	41.8	8.80	0.020	0.03	0.165	<10	2	33	20
DEC 17...	954	1.39	49.6	9.50	<0.010	--	0.192	<10	4	26	23
JAN 16...	841	1.15	33.7	--	0.030	0.04	0.220	10	7	27	29
FEB 12...	878	1.19	10.1	7.40	<0.010	--	0.186	20	6	24	19
MAR 11...	690	0.93	26.7	4.10	0.040	0.05	0.133	10	9	26	23
APR 08...	676	1.0	29.6	4.10	<0.010	--	0.126	30	3	32	26
APR 28...	384	0.54	60.2	1.50	0.010	0.01	0.067	<10	4	64	16
JUN 11...	625	0.87	27.7	4.90	<0.010	--	0.113	20	3	30	21
JUL 14...	718	1.01	32.9	4.50	0.020	0.03	0.178	20	6	31	29
AUG 11...	926	1.28	24.7	8.20	0.010	0.01	0.147	<10	4	120	53
SEP 02...	832	1.18	29.6	9.30	0.040	0.05	0.310	<10	11	28	30

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)
OCT 22...	57	<0.5	130	<1	<1.0	<1	<5	10	10	<10	790
NOV 27...	59	<0.5	110	<1	<1.0	2	<5	9	60	<10	1700
DEC 17...	60	<0.5	140	<1	<1.0	2	<5	9	110	<10	390
JAN 16...	52	<0.5	120	<1	<1.0	2	<5	7	<10	<10	350
FEB 12...	52	<0.5	120	<1	<1.0	9	<5	6	<10	<10	460
MAR 11...	51	<0.5	90	<1	<1.0	<1	<5	6	20	10	440
APR 08...	50	<0.5	110	<1	<1.0	1	<5	5	30	30	960
APR 28...	53	<0.5	60	<1	<1.0	6	<5	<3	30	10	5500
JUN 11...	60	<0.5	110	<1	<1.0	4	<5	6	30	20	1100
JUL 14...	73	<0.5	100	<1	<1.0	<1	<5	6	10	<10	450
AUG 11...	36	<0.5	130	<1	<1.0	<1	<5	4	<10	<10	590
SEP 02...	66	<0.5	120	<1	<1.0	<1	<5	10	10	<10	270

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, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)
OCT 22...	51	1	<10	33	90	43	0.10	<0.1	<10	<10	5
NOV 27...	28	<1	<10	33	130	80	0.10	<0.1	10	<10	6
DEC 17...	48	4	<10	38	130	120	<0.10	<0.1	10	10	5
JAN 16...	68	<1	10	35	220	220	<0.10	<0.1	10	<10	4
FEB 12...	38	<1	10	35	120	100	<0.10	<0.1	10	10	3
MAR 11...	37	<1	<10	23	100	91	0.30	<0.1	10	<10	2
APR 08...	100	<1	<10	25	90	39	<0.10	<0.1	<10	<10	4
APR 28...	19	7	<10	16	250	71	0.10	<0.1	<10	<10	3
JUN 11...	37	1	<10	26	80	27	<0.10	<0.1	<10	<10	4
JUL 14...	10	<1	<10	24	40	16	0.10	<0.1	10	<10	4
AUG 11...	<3	<1	<10	32	160	150	<0.10	<0.1	<10	<10	1
SEP 02...	67	1	10	39	20	2	<0.10	<0.1	20	<10	5

BELLE FOURCHE RIVER BASIN

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06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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, DIS- CHARGE, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
OCT 22...	5	<1	<1.0	550	<6	<10	8	0.05	16	0.52
NOV 27...	5	<1	<1.0	530	<6	20	5	0.09	23	0.95
DEC 17...	5	<1	1.0	600	<6	10	7	0.17	3	0.17
JAN 16...	3	<1	<1.0	540	<6	<10	6	0.17	6	0.23
FEB 12...	3	<1	<1.0	580	<6	10	8	0.09	6	0.07
MAR 11...	2	<1	<1.0	470	<6	<10	7	0.14	8	0.32
APR 08...	3	<1	<1.0	490	<6	20	10	0.12	26	1.1
APR 28...	2	<1	2.0	310	<6	50	9	0.06	240	36
JUN 11...	2	<1	<1.0	440	<6	20	7	0.10	19	0.83
JUL 14...	4	<1	<1.0	480	<6	<10	5	--	10	0.44
AUG 11...	2	<1	<1.0	800	<6	<10	<3	0.02	1	0.02
SEP 02...	6	<1	<1.0	530	<6	10	<3	0.02	4	0.14

BELLE FOURCHE RIVER BASIN

06436190 WHITEWOOD CREEK NEAR WHITEWOOD, SD

LOCATION.--Lat 44°32'30", long 103°34'16", in SE1/4NW1/4SE1/4 sec.25, T.7 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on right bank 30 ft downstream from county highway bridge and 6.9 mi northeast of Whitewood.

DRAINAGE AREA.--77.4 mi², approximately.

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

GAGE.--Water-stage recorder. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.9	9.9	8.1	12	14	16	16	50	22	15	8.0	7.7
2	9.9	6.3	18	12	14	14	15	43	16	19	8.1	8.9
3	10	6.7	15	13	13	14	15	38	14	18	7.3	6.6
4	15	9.8	12	13	12	14	16	35	14	30	8.0	5.9
5	16	16	14	12	12	22	16	26	17	26	5.8	6.1
6	13	10	14	12	12	19	18	26	14	20	6.2	6.6
7	13	9.0	17	11	11	17	19	25	15	17	6.0	15
8	12	9.0	19	9.7	9.8	19	18	24	14	15	5.3	13
9	13	12	16	11	11	19	18	24	12	15	5.1	9.9
10	12	16	15	12	12	17	17	46	12	15	4.9	8.3
11	11	15	13	14	12	16	19	28	12	20	4.5	8.2
12	11	17	15	13	11	18	19	22	13	24	4.5	7.1
13	11	17	12	11	12	18	19	21	19	41	4.7	6.2
14	12	16	7.6	11	13	18	18	21	41	27	4.4	6.0
15	11	16	9.8	7.8	14	18	16	19	28	24	4.3	4.7
16	11	14	12	e7.5	12	19	13	20	24	22	4.8	5.6
17	9.8	15	12	e8.5	12	21	14	20	22	20	6.0	6.0
18	12	15	11	10	12	20	14	19	22	21	5.1	5.8
19	15	13	13	12	12	20	38	16	18	22	4.6	7.2
20	15	12	14	14	12	19	24	15	15	26	4.1	7.1
21	14	13	13	13	12	18	21	14	17	25	5.9	10
22	13	14	13	13	13	16	26	29	22	28	5.1	8.1
23	9.7	11	13	12	17	18	31	20	14	23	16	7.2
24	12	9.6	12	13	13	18	32	18	14	21	8.3	5.5
25	15	14	13	13	14	17	32	17	12	20	8.5	4.4
26	14	19	13	13	13	16	36	16	13	19	8.8	5.4
27	15	19	10	14	15	17	43	15	17	16	7.8	5.9
28	8.7	20	9.9	14	15	18	56	13	16	10	6.7	6.0
29	3.3	15	9.9	14	15	17	62	13	18	12	6.3	5.4
30	5.3	7.9	12	14	---	18	57	13	16	12	7.5	5.5
31	9.5	---	11	14	---	17	---	29	---	8.7	7.0	---
TOTAL	362.1	397.2	397.3	373.5	369.8	548	758	735	523	631.7	199.6	215.3
MEAN	11.7	13.2	12.8	12.0	12.8	17.7	25.3	23.7	17.4	20.4	6.44	7.18
MAX	16	20	19	14	17	22	62	50	41	41	16	15
MIN	3.3	6.3	7.6	7.5	9.8	14	13	13	12	8.7	4.1	4.4
AC-FT	718	788	788	741	733	1090	1500	1460	1040	1250	396	427

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1992, BY WATER YEAR (WY)

	18.9	18.2	13.3	13.5	15.7	22.1	47.1	86.1	36.5	17.8	11.6	12.4
MEAN	18.9	18.2	13.3	13.5	15.7	22.1	47.1	86.1	36.5	17.8	11.6	12.4
MAX	57.8	44.6	26.7	23.9	20.2	35.1	120	258	84.2	32.2	27.0	24.5
(WY)	1983	1983	1983	1983	1983	1983	1983	1982	1984	1984	1983	1986
MIN	9.95	10.9	6.57	5.95	12.2	16.2	21.9	18.7	11.1	4.24	4.74	6.70
(WY)	1982	1991	1991	1991	1982	1991	1985	1985	1985	1985	1985	1990

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1982 - 1992

ANNUAL TOTAL	7950.6	5510.5	
ANNUAL MEAN	21.8	15.1	26.1a
HIGHEST ANNUAL MEAN			48.1
LOWEST ANNUAL MEAN			14.1
HIGHEST DAILY MEAN	360	62	1840
LOWEST DAILY MEAN	3.3	3.3	2.9
ANNUAL SEVEN-DAY MINIMUM	3.8	4.6	3.3
INSTANTANEOUS PEAK FLOW		172	3050
INSTANTANEOUS PEAK STAGE		2.23	4.52
ANNUAL RUNOFF (AC-FT)	15770	10930	18910
10 PERCENT EXCEEDS	41	23	48
50 PERCENT EXCEEDS	13	14	17
90 PERCENT EXCEEDS	7.1	6.3	8.1

e Estimated

a Median of annual mean discharges, 23 ft³/s.

BELLE FOURCHE RIVER BASIN

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06436198 WHITEWOOD CREEK ABOVE VALE, SD

LOCATION.--Lat 44°37'04", long 103°28'52", in SE1/4NW1/4NE1/4NW1/4 sec.35, T.8 N., R.5 E., Butte County, Hydrologic Unit 10120202, on right bank at point where South Canal crosses creek, 3.2 mi above mouth, and 3.7 mi west of Vale.

DRAINAGE AREA.--102 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 2,840 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	e5.0	e11	e9.5	12	16	13	44	27	16	7.4	3.6
2	7.6	e5.5	e11	e10	11	16	14	42	23	15	6.2	5.5
3	7.9	e6.5	e8.5	e12	11	15	14	35	19	14	6.4	3.9
4	10	e9.0	e9.0	e16	10	14	14	34	16	18	6.9	3.6
5	12	e11	e10	e12	11	e15	14	28	16	15	6.8	3.6
6	11	e9.0	e11	e10	11	e17	14	26	17	12	5.5	3.5
7	11	e7.5	e13	e10	11	e17	16	24	16	14	6.1	7.8
8	9.8	e12	e17	e8.5	8.2	19	16	22	16	13	5.8	6.9
9	9.5	e13	e16	e9.0	e6.0	e16	16	22	14	10	4.7	4.2
10	9.4	e15	17	e9.0	e5.5	16	16	40	13	11	3.6	3.7
11	9.3	16	e16	e10	e5.0	14	16	27	12	14	3.3	3.4
12	8.9	17	e15	e11	e4.0	16	16	21	11	14	2.8	3.5
13	9.1	17	e14	e9.5	e4.5	15	16	20	17	22	3.0	2.8
14	9.2	17	e13	e7.5	e5.5	15	16	20	29	16	3.7	3.0
15	10	16	e11	e5.0	e6.5	15	16	19	25	12	3.7	3.6
16	10	15	e11	e5.0	e6.5	16	14	20	28	10	3.6	2.8
17	8.7	17	e11	e5.5	e7.0	18	15	20	23	9.6	5.0	3.8
18	8.5	17	e11	e6.0	e8.5	18	14	19	20	9.0	3.9	3.6
19	11	16	e12	e6.5	11	17	30	17	14	8.2	3.2	4.2
20	10	15	e13	e7.5	e11	17	23	16	14	9.1	2.2	4.5
21	11	16	e11	e8.5	11	15	20	15	14	9.8	3.9	3.7
22	11	16	e10	e8.5	12	14	23	29	21	12	5.5	3.6
23	9.1	16	e10	e8.0	14	15	25	26	19	10	10	3.7
24	10	14	e10	e8.0	13	14	29	19	18	8.9	9.6	4.3
25	12	16	e10	e9.0	14	14	28	17	15	8.2	7.1	3.7
26	11	16	e10	e8.5	14	14	29	16	13	8.1	7.7	3.3
27	12	16	e9.0	e8.0	15	14	37	17	15	8.5	6.9	4.4
28	9.5	17	e8.5	e9.5	15	14	47	18	13	7.9	5.3	5.0
29	5.6	16	e8.5	12	16	14	52	18	17	8.1	4.4	4.9
30	e5.0	13	e9.0	12	---	14	49	14	17	9.3	4.0	4.7
31	e4.5	---	e9.0	11	---	14	---	29	---	8.0	4.4	---
TOTAL	290.9	412.5	355.5	282.5	290.2	478	662	734	532	360.7	162.6	122.8
MEAN	9.38	13.7	11.5	9.11	10.0	15.4	22.1	23.7	17.7	11.6	5.25	4.09
MAX	12	17	17	16	16	19	52	44	29	22	10	7.8
MIN	4.5	5.0	8.5	5.0	4.0	14	13	14	11	7.9	2.2	2.8
AC-FT	577	818	705	560	576	948	1310	1460	1060	715	323	244

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1992, BY WATER YEAR (WY)

MEAN	14.9	14.9	13.6	14.0	16.6	26.3	50.5	73.7	42.8	15.3	9.48	11.8
MAX	28.3	22.2	27.3	27.5	24.0	52.1	125	156	156	35.1	22.2	38.9
(WY)	1984	1987	1983	1983	1986	1983	1983	1983	1984	1984	1983	1986
MIN	9.38	9.86	8.01	8.15	10.0	15.4	21.0	15.9	8.64	2.12	1.77	4.09
(WY)	1992	1986	1991	1991	1992	1992	1985	1985	1985	1985	1985	1992

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1983 - 1992

ANNUAL TOTAL	8369.2	4683.7	
ANNUAL MEAN	22.9	12.8	23.1
HIGHEST ANNUAL MEAN			45.3
LOWEST ANNUAL MEAN			11.8
HIGHEST DAILY MEAN	340	Jun 6	604
LOWEST DAILY MEAN	2.8	Aug 27	2.2
ANNUAL SEVEN-DAY MINIMUM	3.2	Aug 26	3.3
INSTANTANEOUS PEAK FLOW			89
INSTANTANEOUS PEAK STAGE			1.61
ANNUAL RUNOFF (AC-FT)	16600	9290	16740
10 PERCENT EXCEEDS	43	20	51
50 PERCENT EXCEEDS	13	12	16
90 PERCENT EXCEEDS	5.7	4.4	6.5

e Estimated

a Also July 22 and Aug. 19, 1985.

b Gage height, 1.28 ft.

c From rating curve extended above 1,300 ft³/s on basis of slope-area estimate of peak flow.

d Backwater from ice.

BELLE FOURCHE RIVER BASIN
6436198 WHITEWOOD CREEK ABOVE VALE, SD--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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)
OCT											
21...	1045	12	1410	8.1	16.5	7.5	680	11.3	106	620	140
NOV											
26...	0900	17	1400	8.4	5.5	2.5	685	12.2	100	600	140
DEC											
17...	0900	8.9	1510	8.3	-5.0	0.5	698	13.2	101	680	160
JAN											
15...	1330	3.9	1600	8.4	-4.0	0.5	691	13.1	101	780	180
FEB											
11...	1130	3.8	1440	8.4	-5.0	0.0	694	13.9	105	660	150
MAR											
10...	0915	17	1200	8.4	-2.0	0.5	690	12.9	99	530	120
APR											
09...	0945	15	1260	8.4	8.0	8.5	687	11.2	107	540	120
29...	0915	54	774	8.2	18.5	12.5	689	9.2	96	340	81
JUN											
12...	0915	12	1110	8.1	23.5	18.5	688	8.3	99	460	100
JUL											
15...	0815	12	1110	8.0	17.0	17.5	688	8.0	93	--	--
AUG											
12...	0845	2.7	1330	7.8	18.0	16.0	696	8.2	91	550	120
SEP											
03...	0700	4.8	1360	8.0	9.0	14.5	688	7.4	81	590	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)	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, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT											
21...	65	70	19	1	12	174	570	25	0.90	3.7	1030
NOV											
26...	60	69	20	1	12	111	530	28	0.90	2.7	898
DEC											
17...	67	78	20	1	13	205	520	32	0.70	5.4	1160
JAN											
15...	80	75	17	1	11	225	630	31	0.90	7.3	1130
FEB											
11...	68	63	17	1	11	216	530	27	0.70	5.4	1010
MAR											
10...	55	53	18	1	9.3	204	390	30	1.0	6.7	845
APR											
09...	57	64	20	1	9.2	217	380	38	1.0	2.0	852
29...	33	31	16	0.7	6.4	147	210	27	0.70	9.0	516
JUN											
12...	52	54	20	1	10	151	370	31	0.90	2.0	738
JUL											
15...	--	--	--	--	--	160	390	28	0.70	--	764
AUG											
12...	61	85	25	2	14	184	450	33	1.0	1.4	954
SEP											
03...	65	73	21	1	13	166	470	30	1.0	4.9	970

BELLE FOURCHE RIVER BASIN

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6436198 WHITEWOOD CREEK ABOVE VALE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	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)
OCT 21...	1010	1.40	32.8	3.60	0.030	0.04	0.002	10	3	66	32
NOV 26...	933	1.22	40.0	5.20	0.030	0.04	0.010	<10	3	58	29
DEC 17...	1030	1.58	27.9	5.80	<0.010	--	0.007	<10	7	70	33
JAN 15...	1150	1.54	11.9	--	0.040	0.05	0.007	<10	5	69	30
FEB 11...	1000	1.37	10.3	4.20	0.040	0.05	0.007	10	12	57	31
MAR 10...	800	1.15	37.9	2.70	0.030	0.04	0.013	<10	11	64	41
APR 09...	813	1.16	35.7	2.10	0.920	1.2	0.014	<10	4	68	52
APR 29...	494	0.70	75.5	1.50	0.100	0.13	0.041	10	8	210	42
JUN 12...	718	1.00	23.5	1.50	0.050	0.06	0.004	<10	4	82	47
JUL 15...	--	--	--	1.60	0.030	0.04	0.005	--	--	--	--
AUG 12...	881	1.30	6.95	0.940	0.050	0.06	0.005	<10	4	39	35
SEP 03...	890	1.32	12.6	0.471	0.040	0.05	0.004	<10	13	99	47

DATE	BARIIUM, 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)
OCT 21...	33	<0.5	120	<1	1.0	<1	<5	6	10	<10	370
NOV 26...	32	<0.5	60	<1	<1.0	2	<5	8	60	<10	510
DEC 17...	37	<0.5	120	<1	<1.0	4	<5	7	90	<10	610
JAN 15...	35	<0.5	130	<1	<1.0	<1	<5	4	10	<10	1700
FEB 11...	29	<0.5	100	<1	<1.0	<1	<5	6	<10	<10	480
MAR 10...	30	<0.5	90	<1	<1.0	<1	<5	4	10	<10	450
APR 09...	32	<0.5	120	<1	<1.0	<1	<5	4	10	<10	370
APR 29...	40	<0.5	70	<1	<1.0	4	<5	<3	30	<10	8500
JUN 12...	34	<0.5	110	<1	<1.0	<1	<5	4	10	<10	670
JUL 15...	--	--	--	--	--	<1	--	--	<10	--	--
AUG 12...	75	<0.5	130	<1	<1.0	<1	<5	10	<10	<10	70
SEP 03...	35	<0.5	140	<1	<1.0	<1	<5	6	<10	<10	620

BELLE FOURCHE RIVER BASIN

6436198 WHITEWOOD CREEK ABOVE VALE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)
OCT 21...	4	<1	<10	32	100	82	<0.10	<0.1	<10	<10	2
NOV 26...	7	<1	<10	28	120	110	<0.10	<0.1	10	<10	3
DEC 17...	11	3	<10	35	170	180	<0.10	<0.1	<10	<10	2
JAN 15...	14	<1	<10	37	360	350	<0.10	<0.1	<10	<10	2
FEB 11...	18	<1	10	32	200	190	<0.10	<0.1	<10	<10	3
MAR 10...	4	<1	<10	21	190	190	<0.10	<0.1	<10	<10	2
APR 09...	7	<1	10	30	140	140	<0.10	<0.1	<10	<10	2
APR 29...	12	8	<10	19	480	140	<0.10	<0.1	<10	10	2
JUN 12...	5	<1	10	29	130	89	<0.10	<0.1	<10	<10	2
JUL 15...	--	--	--	--	--	--	--	--	--	--	--
AUG 12...	7	<1	<10	34	<10	<1	<0.10	<0.1	20	<10	6
SEP 03...	<3	<1	<10	28	130	110	<0.10	<0.1	10	<10	1

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, DIS- CHARGE, SUS- PENDEDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY) (80155)
OCT 21...	2	<1	<1.0	850	<6	<10	10	0.02	13	0.42
NOV 26...	<1	<1	<1.0	830	<6	<10	8	0.02	42	1.9
DEC 17...	3	<1	<1.0	930	<6	10	9	0.03	44	1.1
JAN 15...	1	<1	<1.0	980	<6	<10	6	0.04	26	0.27
FEB 11...	3	<1	<1.0	860	<6	30	19	0.02	40	0.41
MAR 10...	1	<1	<1.0	720	<6	<10	<3	0.02	35	1.6
APR 09...	2	<1	1.0	750	<6	10	5	0.02	14	0.59
APR 29...	2	<1	<1.0	450	<6	40	10	0.03	335	49
JUN 12...	2	<1	<1.0	670	<6	10	5	0.01	41	1.3
JUL 15...	--	--	--	--	--	--	--	--	30	0.96
AUG 12...	6	<1	<1.0	560	<6	<10	7	<0.01	12	0.08
SEP 03...	2	<1	<1.0	820	<6	<10	<3	0.01	19	0.24

BELLE FOURCHE RIVER BASIN

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06436760 HORSE CREEK ABOVE VALE, SD

LOCATION.--Lat 44°39'08", long 103°21'59", in SE1/4NE1/4 sec.14, T.8 N., R.6 E., Butte County, Hydrologic Unit 10120202, on left bank 2.6 mi upstream from Dry Creek, 5.5 mi upstream from mouth, 3.0 mi northeast of Vale, and 4.5 mi southeast of Newell.

DRAINAGE AREA.--464 mi².

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

GAGE.--Water-stage recorder. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	e2.3	1.7	1.1	1.0	1.9	.68	.45	37	8.9	28	12
2	1.9	e2.3	1.7	1.1	1.0	1.9	.72	.39	28	9.7	20	11
3	1.6	2.5	1.4	1.1	1.1	2.2	.70	.32	22	9.0	21	16
4	1.4	3.2	1.4	1.1	.99	2.3	.66	.27	24	6.5	19	17
5	1.6	4.4	1.5	1.2	1.0	2.2	.66	.28	24	6.6	13	22
6	1.1	5.0	1.4	1.1	.90	2.2	.61	.26	22	7.3	8.3	21
7	.85	4.5	1.3	1.0	.83	1.9	.59	.30	22	8.6	11	22
8	.67	4.3	1.6	.95	.87	1.8	.57	.35	20	7.1	14	21
9	.60	4.3	1.8	.86	.87	1.8	.54	.39	17	7.1	16	26
10	.80	4.4	1.9	.92	.82	1.6	.54	.82	14	18	23	22
11	.95	4.3	1.9	1.1	.81	1.4	.58	.78	11	80	28	19
12	1.1	4.2	1.8	1.0	.93	1.3	.68	.78	9.0	160	28	18
13	1.0	3.8	1.7	1.0	.97	1.3	.72	.66	6.9	315	29	16
14	.99	3.9	1.6	.94	1.1	1.3	.75	.60	11	263	34	14
15	.90	4.0	1.5	.73	1.1	1.1	.72	.60	14	112	40	12
16	.84	3.6	1.5	.85	1.1	.93	.67	.60	13	53	38	14
17	.99	3.5	1.6	.89	1.1	.91	.68	.60	17	35	34	14
18	.73	3.2	1.5	.82	1.1	.95	.73	2.7	12	30	36	7.3
19	.64	2.8	1.5	.83	1.1	.99	1.2	3.3	9.1	22	24	4.9
20	1.3	2.5	1.7	.88	1.1	1.0	1.3	12	11	18	28	4.4
21	1.8	2.4	1.7	.89	1.2	.99	1.2	14	13	16	30	4.0
22	1.8	2.2	1.5	.82	1.4	.91	1.0	22	10	16	28	4.1
23	2.1	2.1	1.6	.78	1.9	.83	.98	19	7.3	16	33	3.5
24	1.9	1.8	1.5	1.0	1.9	.82	1.1	20	5.3	18	42	3.2
25	1.8	1.8	1.5	1.2	1.7	.85	.90	36	43	16	40	2.6
26	2.8	1.9	1.5	1.0	1.8	.79	.73	35	16	12	34	1.9
27	2.9	1.9	1.4	.93	2.1	.78	.60	23	12	25	24	1.8
28	e2.5	2.0	1.2	.83	2.2	.96	.69	23	12	134	22	1.4
29	e2.2	1.9	1.2	.93	2.0	.88	.53	20	9.7	79	18	1.3
30	1.9	1.6	1.2	1.0	---	.74	.45	18	9.5	43	16	1.3
31	e2.0	---	1.2	1.0	---	.80	---	43	---	33	17	---
TOTAL	45.16	92.6	47.5	29.85	35.99	40.33	22.48	299.45	481.8	1584.8	796.3	338.7
MEAN	1.46	3.09	1.53	.96	1.24	1.30	.75	9.66	16.1	51.1	25.7	11.3
MAX	2.9	5.0	1.9	1.2	2.2	2.3	1.3	43	43	315	42	26
MIN	.60	1.6	1.2	.73	.81	.74	.45	.26	5.3	6.5	8.3	1.3
AC-FT	90	184	94	59	71	80	45	594	956	3140	1580	672

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1992, BY WATER YEAR (WY)

	MEAN	22.5	4.45	3.29	5.32	8.59	45.1	42.7	145	63.3	63.4	53.5	59.0
MAX	169	12.4	8.50	31.7	34.2	251	229	901	252	90.3	82.6	311	
(WY)	1983	1987	1983	1983	1983	1986	1987	1982	1984	1981	1987	1986	
MIN	1.46	1.82	1.30	.96	1.24	1.30	.75	6.48	11.3	35.8	25.7	11.3	
(WY)	1992	1991	1991	1992	1992	1992	1992	1981	1991	1991	1992	1992	

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1981 - 1992
ANNUAL TOTAL	4307.45	3814.96	
ANNUAL MEAN	11.8	10.4	43.3a
HIGHEST ANNUAL MEAN			113
LOWEST ANNUAL MEAN			10.4
HIGHEST DAILY MEAN	74 Jun 3	315 Jul 13	14000 May 21 1982
LOWEST DAILY MEAN	.35 Jan 1	.26 May 6	.07 Nov 7 1985
ANNUAL SEVEN-DAY MINIMUM	.56 Jan 1	.31 May 2	.28 Dec 25 1990
INSTANTANEOUS PEAK FLOW		400 Jul 13	17700 May 21 1982
INSTANTANEOUS PEAK STAGE		5.81 Jul 13	24.80 May 21 1982
ANNUAL RUNOFF (AC-FT)	8540	7570	31370
10 PERCENT EXCEEDS	38	24	70
50 PERCENT EXCEEDS	2.9	1.8	7.5
90 PERCENT EXCEEDS	1.2	.72	1.6

e Estimated

a Median of annual mean discharges, 30 ft³/s.

BELLE FOURCHE RIVER BASIN

06436760 HORSE CREEK ABOVE VALE, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1987 to current year (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	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)
OCT 17...	0830	1.1	4210	8.1	10.0	12.0	1900	330	260	420
DATE	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)	
OCT 17...	32	4	12	287	2500	51	0.60	1.5	3750	
DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	BORON, DIS- SOLVED (UG/L AS B) (01020)	
OCT 17...	5.10	11.5	<0.010	0.340	0.020	0.040	0.020	<0.010	840	

LOCATION.--Lat 44°30'47", long 103°08'11", in SE1/4NW1/4 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.

WATER-DISCHARGE RECORDS

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, average capacity, 191,600 acre-ft, 246 mi upstream since February, 1952. At a point 75 mi upstream, water is diverted to Bell 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 ft³/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.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	e25	e50	e25	e30	e50	34	59	143	53	126	132
2	44	e25	e50	e30	e32	e50	34	56	151	78	113	123
3	40	e25	e40	e30	e34	e50	34	55	133	73	99	112
4	41	e25	e40	e35	e30	e49	31	51	101	66	105	119
5	43	e40	e45	e30	e30	e49	30	44	83	59	97	115
6	48	e60	e50	e30	e30	53	29	39	83	65	92	116
7	50	e50	e50	e26	e30	56	30	e35	82	75	107	136
8	49	e60	e55	e26	e30	55	31	e30	80	92	99	156
9	49	e70	e50	e28	e28	55	33	e28	90	126	95	155
10	50	e80	e40	e30	e26	55	31	e34	91	177	95	148
11	59	e90	e35	e35	e26	51	33	e36	97	145	108	162
12	63	e100	e35	e30	e22	49	37	e28	80	1090	99	139
13	66	e105	e40	e25	e24	47	37	e32	67	490	100	139
14	58	e105	e35	e23	e26	46	37	e23	73	553	105	130
15	48	e100	e30	e20	e28	44	37	e18	89	379	110	123
16	43	e100	e30	e20	e28	42	34	e15	120	232	114	130
17	41	e105	e30	e25	e28	44	34	e84	152	150	106	139
18	40	e110	e30	e25	e30	43	33	e74	145	122	110	108
19	40	e105	e35	e28	e30	46	39	e56	121	107	113	83
20	39	e100	e35	e30	e30	46	43	e48	103	84	106	70
21	42	e100	e30	e30	e30	43	58	e35	130	71	110	56
22	39	e100	e30	e30	e32	41	49	e70	118	79	121	46
23	37	e90	e30	e30	e34	39	47	e133	114	100	132	42
24	40	e80	e30	e30	e32	37	50	e113	96	123	166	40
25	42	e70	e30	e30	e32	36	51	e104	65	133	185	37
26	43	e75	e30	e28	e40	35	49	e123	69	122	184	36
27	45	e75	e30	e25	e55	35	44	e139	54	114	177	33
28	42	e75	e25	e28	e50	34	47	e139	44	101	175	28
29	e30	e70	e25	e30	e45	32	52	e113	38	175	172	30
30	e20	e60	e25	e30	---	33	58	88	53	122	145	31
31	e23	---	e25	e30	---	34	---	88	---	123	132	---
TOTAL	1360	2275	1115	872	922	1379	1186	1990	2865	5479	3798	2914
MEAN	43.9	75.8	36.0	28.1	31.8	44.5	39.5	64.2	95.5	177	123	97.1
MAX	66	110	55	35	55	56	58	139	152	1090	185	162
MIN	20	25	25	20	22	32	29	15	38	53	92	28
AC-FT	2700	4510	2210	1730	1830	2740	2350	3950	5680	10870	7530	5780

MEAN	101	58.4	37.9	29.2	73.4	251	262	620	586	310	284	222
MAX	529	111	79.5	137	511	1715	1134	3478	2499	800	625	723
(WY)	1983	1972	1987	1983	1971	1978	1971	1982	1976	1976	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	1960	1979	1979	1961	1981	1961	1961	1960	1961	1961

ANNUAL TOTAL	35344.5		26155						
ANNUAL MEAN	96.8		71.5			237a			
HIGHEST ANNUAL MEAN						566			1978
LOWEST ANNUAL MEAN						27.4			1961
HIGHEST DAILY MEAN	1650	May 12	1090	Jul 12		29700		May 21	1982
LOWEST DAILY MEAN	5.5	Jan 1	15	May 16		.00		Aug 9	1961
ANNUAL SEVEN-DAY MINIMUM	9.6	Jan 1	24	Jan 13		.56		Aug 8	1961
INSTANTANEOUS PEAK FLOW			1790	Jul 12		36400		May 21	1982
INSTANTANEOUS PEAK STAGE			6.57	Jul 12		19.10		May 21	1982
ANNUAL RUNOFF (AC-FT)	70110		51880			171700			
10 PERCENT EXCEEDS	167		131			449			
50 PERCENT EXCEEDS	70		49			82			
90 PERCENT EXCEEDS	25		28			24			

* Regulated period only (1953-92). See REMARKS.

a Median of annual mean discharges, 220 ft³/s.

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, 650 microsiemens, Feb. 15, 1971.

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, 4,930 microsiemens, May 23; minimum observed daily, 1,410 microsiemens, May 5.

WATER TEMPERATURE: Maximum observed daily, 23.0°C, July 7; minimum observed daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED AS (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)
OCT											
17...	1130	37	2270	8.1	13.5	13.0	1100	260	120	130	20
NOV											
14...	1400	11	2630	8.2	7.0	4.0	1200	260	130	210	28
JAN											
08...	1215	26	2710	8.2	-1.0	0.5	1300	300	130	180	23
MAR											
05...	1130	49	2550	8.4	10.0	9.5	1000	220	120	210	30
31...	1545	33	2320	8.4	5.5	10.5	950	200	110	170	28
MAY											
06...	1100	39	1540	8.2	26.0	19.5	580	120	68	93	26
JUN											
03...	0900	139	1900	8.3	20.0	18.5	840	200	82	110	22
JUL											
02...	1115	86	2330	8.2	15.0	15.0	870	190	96	190	32
12...	0830	1760	1110	7.9	19.5	17.0	310	78	28	100	40

DATE	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 CONSTITUENTS, DIS- SOLVED AS (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)
OCT											
17...	2	10	165	1200	28	0.70	1.8	1850	2.52	183	--
NOV											
14...	3	9.6	239	1300	24	0.50	5.5	2080	2.83	60.7	0.060
JAN											
08...	2	11	249	1400	31	0.60	3.2	2210	3.00	155	0.040
MAR											
05...	3	9.6	195	1200	42	0.50	0.40	1920	2.61	253	0.090
31...	2	10	175	1100	43	0.60	0.20	1740	2.37	156	0.020
MAY											
06...	2	8.6	150	640	20	0.40	2.6	1040	1.42	110	0.020
JUN											
03...	2	8.7	178	850	21	0.50	4.0	1380	1.88	519	0.020
JUL											
02...	3	11	161	1100	45	0.60	4.6	1730	2.36	404	0.060
12...	2	7.9	124	340	16	0.50	7.8	659	0.90	3130	--

BELLE FOURCHE RIVER BASIN

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06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)
OCT 17...	<0.010	--	--	--	0.160	--	<0.010	--	0.020	<0.010	--
NOV 14...	--	5.54	--	5.60	--	0.130	--	--	<0.010	<0.010	<0.010
JAN 08...	--	3.06	--	3.10	--	0.040	--	--	0.010	<0.010	<0.010
MAR 05...	--	5.01	--	5.10	--	0.030	--	--	0.020	<0.010	<0.010
MAR 31...	--	1.08	--	1.10	--	0.040	--	--	<0.010	<0.010	<0.010
MAY 06...	--	0.370	--	0.390	--	0.030	--	--	0.010	0.020	<0.010
JUN 03...	--	0.860	--	0.880	--	0.050	--	--	0.050	0.020	0.020
JUL 02...	--	3.34	--	3.40	--	0.050	--	--	0.050	<0.010	0.040
JUL 12...	0.040	--	1.06	--	1.10	--	0.300	0.39	8.60	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 17...	<0.010	6	330	<1.0	<1	<1	1	20	<1	110
NOV 14...	--	--	350	--	--	--	--	--	--	--
JAN 08...	--	--	400	--	--	--	--	--	--	--
MAR 05...	--	--	310	--	--	--	--	--	--	--
MAR 31...	--	--	310	--	--	--	--	--	--	--
MAY 06...	--	--	230	--	--	--	--	--	--	--
JUN 03...	--	--	260	--	--	--	--	--	--	--
JUL 02...	--	--	310	--	--	--	--	--	--	--
JUL 12...	0.010	6	170	<1.0	<1	<1	3	7	<1	75

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 17...	30	<0.10	2	2	2	<1.0	3200	<1	<10	--
NOV 14...	--	--	--	--	--	--	--	--	--	--
JAN 08...	--	--	--	--	--	--	--	--	--	--
MAR 05...	--	--	--	--	--	--	--	--	--	--
MAR 31...	--	--	--	--	--	--	--	--	--	--
MAY 06...	--	--	--	--	--	--	--	--	--	--
JUN 03...	--	--	--	--	--	--	--	--	--	--
JUL 02...	--	--	--	--	--	--	--	--	--	--
JUL 12...	3	<0.10	3	3	3	<1.0	870	2	<3	<0.010

BELLE FOURCHE RIVER BASIN

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2250	2680	2990	2840	2130	2640	2200	1740	2280	2250	1880	2040
2	2320	2690	2850	2890	2180	2820	2250	1580	2300	2280	1890	2100
3	2310	3210	3080	2780	2110	2800	2170	1440	2300	2280	1910	2100
4	2260	3080	3080	2700	2160	2770	2170	1420	2300	2280	1890	2130
5	2280	3080	2950	2510	2250	2510	2270	1410	2280	2260	1800	2170
6	2290	2830	2940	2560	2250	2480	2240	1510	2280	2280	1800	2180
7	2260	2910	2800	2460	2330	2420	2230	1650	2310	2300	1970	2190
8	2240	2790	2600	2500	2420	2470	2310	1690	2320	2320	1950	2130
9	2220	2700	2640	2520	2670	2350	2230	1730	2320	2310	1930	2100
10	2210	2640	2690	2540	2590	2350	2230	1730	2310	2290	2000	2120
11	2210	2570	2760	2560	2530	2320	2160	1770	2290	2300	1980	2090
12	2210	2570	2770	2500	2860	2360	2130	1600	2330	---	1990	2080
13	2210	2400	2690	2570	2750	2410	2110	1770	2330	2320	2000	2090
14	2250	2480	2860	2550	2630	2250	2080	1880	2330	2330	2000	2110
15	2210	2600	2960	2610	2480	2390	2150	1920	2300	2310	2000	2060
16	2210	2540	3010	2700	2380	2410	2070	2040	2280	2300	2000	---
17	2220	2550	2930	2670	2270	2370	2110	2040	2320	2300	2000	2090
18	2280	2500	3030	2890	2230	2330	2130	2140	2330	2330	1970	2020
19	2280	2500	2920	2740	2230	2210	2020	2050	2330	2320	2000	2070
20	2260	2600	2780	2710	2150	2250	2060	1950	2310	2310	2000	2150
21	2260	2820	2730	2480	2250	2230	2030	1970	2290	2310	2000	2110
22	2340	2820	2730	2520	2230	2160	2110	2430	2320	2320	2070	2270
23	2320	2840	2730	2330	2060	2180	2100	4930	2320	2330	1970	2300
24	2330	2860	2780	2120	2170	2130	2010	2210	2320	2330	2090	2310
25	2340	2880	2780	2290	2110	2270	2200	2420	2300	2310	2070	2300
26	2360	2770	2820	2190	2060	2260	2110	2380	2260	2290	2040	2310
27	2380	2740	2840	2210	2090	2270	2100	2610	2290	2320	2050	2330
28	2420	2620	2880	2270	2340	2220	2060	2250	2300	2330	2020	2340
29	2640	2550	2880	2160	2470	2170	2090	2120	2300	2320	2050	2330
30	2740	2810	2940	2210	---	2330	1910	2030	2290	2310	2060	2320
31	2650	---	2880	2230	---	2270	---	2110	---	2300	2060	---

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	.0	.5	1.0	1.0	4.0	2.0	17.0	15.0	16.0	20.0	17.0
2	12.0	.0	1.0	1.0	1.0	6.0	3.0	9.0	16.5	16.5	19.0	16.0
3	12.0	.0	.0	1.0	2.0	6.5	8.0	12.0	18.5	14.0	19.0	16.0
4	5.5	.0	.5	1.0	1.0	7.0	9.5	12.0	15.0	19.0	19.0	18.0
5	5.0	.0	.5	1.0	1.0	8.0	11.0	14.0	17.0	18.0	19.0	17.0
6	3.0	.0	.5	1.0	1.0	8.5	8.5	15.0	15.5	19.5	19.0	16.0
7	6.5	.5	1.0	1.0	1.5	8.5	6.0	16.0	16.5	23.0	20.5	13.0
8	10.0	.5	1.0	1.0	1.0	8.0	8.0	18.0	16.5	19.0	22.0	11.0
9	4.0	.5	1.0	1.0	1.0	1.0	11.0	17.5	17.0	19.5	22.5	14.0
10	9.0	.5	1.0	1.0	1.0	1.5	7.5	13.0	19.0	17.0	21.5	10.5
11	10.0	1.0	1.0	1.0	1.0	4.0	8.5	15.0	19.5	16.5	19.0	13.0
12	10.5	1.0	1.0	1.0	1.0	3.5	.5	14.0	19.0	---	17.5	16.5
13	11.5	1.0	1.0	1.0	1.0	6.0	.5	13.5	19.0	17.5	18.0	14.0
14	6.0	1.0	1.0	1.0	1.0	5.5	7.0	12.0	19.0	19.0	19.0	14.0
15	9.0	1.0	.5	.5	1.0	5.5	8.5	14.5	19.0	20.0	18.0	15.0
16	9.5	1.0	1.0	1.0	1.0	7.0	6.0	14.0	14.5	18.0	21.0	---
17	11.0	1.0	1.0	1.0	1.0	6.0	10.0	9.5	15.5	17.0	18.0	14.5
18	8.0	1.0	1.0	1.0	1.0	6.0	9.5	15.0	16.5	19.0	20.0	10.0
19	6.5	1.0	1.0	1.0	1.0	4.5	7.0	18.5	18.0	20.5	21.0	10.5
20	5.0	1.0	1.0	1.0	1.0	4.0	3.0	18.0	18.0	18.5	21.0	13.0
21	6.0	1.0	1.0	1.0	1.0	2.0	3.0	19.0	17.0	17.0	18.5	14.5
22	7.0	1.0	1.0	1.0	1.0	.5	5.5	12.0	19.0	15.0	20.5	12.5
23	5.5	1.0	1.0	1.0	1.0	2.5	5.0	13.5	21.0	15.0	14.0	14.0
24	3.0	1.0	1.0	1.0	1.0	5.0	6.0	11.0	21.0	18.5	13.0	14.5
25	3.5	.5	1.0	1.0	1.0	2.0	6.5	10.0	20.0	19.5	12.0	14.5
26	4.0	1.0	1.0	1.0	1.0	5.0	9.0	9.0	20.5	20.5	13.5	11.0
27	7.5	.5	1.0	1.0	2.0	7.0	9.0	10.0	19.5	21.0	12.5	10.5
28	.0	.0	1.0	1.0	4.0	5.5	14.0	11.0	22.0	21.0	15.5	8.0
29	.0	.0	1.0	1.0	3.5	5.5	14.0	15.0	18.5	20.5	19.0	10.0
30	.0	.0	1.0	1.0	---	5.5	16.0	15.5	16.0	18.5	13.0	8.0
31	.0	---	1.0	1.0	---	6.5	---	15.0	---	19.0	15.5	---

BELLE FOURCHE RIVER BASIN

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06437020 BEAR BUTTE CREEK NEAR DEADWOOD, SD

LOCATION.--Lat 44°20'08", long 103°38'06", in NE1/4SE1/4 sec.4, T.4 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on right bank 0.4 mi northeast of Galena, 0.5 mi downstream from Butcher Gulch, and 5.3 mi southeast of Deadwood.

DRAINAGE AREA.--16.6 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 4,750 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	e1.0	1.4	e1.2	e1.5	3.5	e1.8	12	4.4	2.6	.64	.96
2	1.1	e1.0	1.2	e1.2	e1.4	3.1	e2.0	10	3.5	3.5	.64	1.1
3	1.4	e1.1	e1.3	e1.2	e1.4	3.3	2.2	8.8	3.1	2.7	.68	.64
4	1.9	1.4	e1.3	e1.2	e1.4	4.0	2.3	8.3	2.9	2.3	.65	.64
5	1.7	1.9	1.3	e1.2	e1.4	9.2	2.2	7.5	3.6	2.2	.56	.62
6	1.6	1.7	1.3	e1.2	e1.4	4.7	2.2	7.0	3.5	1.7	.56	.59
7	1.5	1.5	1.3	e.70	e1.4	4.3	1.9	6.6	3.3	1.8	.54	1.6
8	1.5	1.5	1.5	e.55	e1.4	3.3	1.8	6.4	2.8	1.8	.48	1.1
9	1.4	1.8	e1.3	e.50	e1.4	4.9	1.7	6.4	2.6	1.6	.50	.79
10	1.3	1.8	e1.3	e.60	e1.2	3.6	1.8	13	2.7	1.7	.48	.69
11	1.2	1.6	e1.3	e.80	e.90	2.6	2.8	7.7	3.0	1.8	.48	.72
12	1.1	1.7	e1.3	e1.0	e1.1	2.9	2.4	6.8	3.2	3.0	.54	.61
13	1.1	1.6	1.3	e1.1	e1.5	2.9	2.9	6.7	3.9	4.2	.51	.49
14	1.1	1.7	1.4	e.90	e1.6	3.2	2.8	6.5	4.3	2.0	.48	.47
15	1.1	e1.7	1.4	e.80	e1.6	3.7	2.5	5.9	4.8	1.3	.38	.55
16	1.1	e1.5	e1.3	e.90	e1.6	3.8	2.2	5.3	5.1	1.1	.44	.54
17	1.0	1.3	e1.3	e1.0	e1.5	4.0	2.1	5.0	5.2	1.1	.60	.48
18	1.1	1.6	e1.3	e1.1	e1.5	3.8	2.6	4.4	4.1	.99	.57	.48
19	1.1	e1.5	e1.3	e1.2	e1.5	3.1	5.8	4.1	3.6	1.0	.44	.54
20	1.1	e1.4	e1.3	e1.3	e1.5	3.3	3.2	3.8	3.3	1.3	.40	.52
21	1.2	1.3	e1.3	e1.3	e1.5	3.1	5.4	4.4	3.1	1.4	.57	.48
22	1.2	1.6	e1.3	e1.3	e1.5	e2.4	6.2	7.9	3.7	1.4	.56	.48
23	1.1	1.5	e1.3	e1.3	e1.6	e1.8	7.8	5.4	2.9	1.3	2.0	.48
24	1.1	e1.4	e1.2	e1.3	e1.6	2.7	8.4	4.3	2.6	1.4	1.2	.48
25	1.3	1.4	e1.2	e1.3	1.8	2.9	8.6	3.6	2.4	1.1	.94	.49
26	1.3	1.4	e1.2	e1.3	2.2	2.2	11	3.4	2.5	1.0	.95	.54
27	1.3	e1.4	e1.2	e1.3	3.4	2.3	12	3.2	2.4	1.1	.95	.48
28	e1.1	e1.3	e1.2	e1.3	4.2	2.6	13	3.0	2.1	.95	.77	.48
29	e1.0	e1.3	e1.2	e1.3	3.9	2.4	13	2.8	2.6	1.1	.69	.48
30	e1.1	1.2	e1.2	e1.3	---	2.2	12	3.2	2.5	1.0	.61	.48
31	e1.0	---	e1.2	e1.4	---	2.2	---	5.5	---	.85	.67	---
TOTAL	38.2	44.1	39.9	34.05	49.90	104.0	146.6	188.9	99.7	52.29	20.48	19.00
MEAN	1.23	1.47	1.29	1.10	1.72	3.35	4.89	6.09	3.32	1.69	.66	.63
MAX	1.9	1.9	1.5	1.4	4.2	9.2	13	13	5.2	4.2	2.0	1.6
MIN	1.0	1.0	1.2	.50	.90	1.8	1.7	2.8	2.1	.85	.38	.47
AC-FT	76	87	79	68	99	206	291	375	198	104	41	38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992
MEAN	1.14	1.36	.95	.88
MAX	1.25	2.12	1.37	1.31
(WY)	1990	1990	1990	1992
MIN	.84	.82	.28	.30
(WY)	1991	1991	1991	1991

SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1989 - 1992

ANNUAL TOTAL	2662.60	837.12	
ANNUAL MEAN	7.29	2.29	3.86
HIGHEST ANNUAL MEAN			7.12
LOWEST ANNUAL MEAN			2.29
HIGHEST DAILY MEAN	188	13	188
LOWEST DAILY MEAN	.08	.38	.00
ANNUAL SEVEN-DAY MINIMUM	.11	.47	.05
INSTANTANEOUS PEAK FLOW		21	938
INSTANTANEOUS PEAK STAGE		4.31	7.70
ANNUAL RUNOFF (AC-FT)	5280	1660	2800
10 PERCENT EXCEEDS	17	4.7	8.3
50 PERCENT EXCEEDS	1.5	1.4	1.4
90 PERCENT EXCEEDS	.40	.57	.50

e Estimated

a Also Apr. 29 and May 10.

b Also Sept. 2-4, 1990.

LOCATION.--Lat 44°22'11", long 102°33'56", in NE1/4NE1/4 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.

WATER-DISCHARGE RECORDS

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 ft³/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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	23	33	e17	e22	39	25	41	79	30	71	76
2	36	20	42	e18	e21	39	26	47	95	75	78	77
3	37	26	49	e18	e20	37	27	49	143	59	61	69
4	39	48	44	e19	e21	34	27	45	127	69	53	57
5	35	47	46	e17	e22	43	27	39	97	62	49	61
6	35	40	42	e17	e22	42	26	31	70	56	50	54
7	36	46	45	e17	e22	37	26	27	63	50	46	59
8	40	56	46	e18	e21	38	25	24	62	57	46	78
9	42	65	48	e19	e19	51	25	20	61	220	53	96
10	40	78	52	e21	e18	46	25	23	65	228	44	94
11	42	83	47	e22	e18	39	27	21	73	415	43	93
12	42	80	47	e23	e19	37	30	17	72	1320	41	110
13	49	79	40	e24	e21	35	29	18	73	1620	47	91
14	49	79	30	e25	e22	32	27	24	213	816	41	85
15	54	76	35	e24	e23	31	32	21	137	747	43	87
16	55	74	37	e23	e23	31	32	14	410	442	46	74
17	46	83	28	e22	e23	29	32	8.9	96	241	56	75
18	40	95	25	e22	e23	27	31	6.8	129	138	54	87
19	39	86	32	e21	e25	30	34	53	144	90	46	77
20	39	75	33	e17	e27	31	33	38	126	67	54	60
21	40	66	30	e18	e30	31	35	29	120	62	49	46
22	40	67	29	e19	e31	32	34	29	103	48	49	37
23	38	40	28	e20	e30	31	44	27	103	39	59	30
24	39	40	26	e21	e31	30	42	76	95	40	71	28
25	38	50	24	e22	e37	30	38	106	83	64	89	23
26	39	56	23	e22	e44	28	37	90	68	73	125	22
27	42	67	22	e21	e50	28	38	96	48	83	127	22
28	33	43	23	e20	44	27	38	110	48	77	115	21
29	24	41	21	e20	40	27	36	107	39	53	115	21
30	32	29	19	e20	---	27	38	102	34	119	106	20
31	28	---	e18	e22	---	27	---	89	---	95	93	---
TOTAL	1225	1758	1064	629	769	1046	946	1428.7	3076	7555	2020	1830
MEAN	39.5	58.6	34.3	20.3	26.5	33.7	31.5	46.1	103	244	65.2	61.0
MAX	55	95	52	25	50	51	44	110	410	1620	127	110
MIN	24	20	18	17	18	27	25	6.8	34	30	41	20
AC-FT	2430	3490	2110	1250	1530	2070	1880	2830	6100	14990	4010	3630

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1992, BY WATER YEAR (WY)*

MEAN	114	56.7	36.4	27.6	82.3	363	386	870	790	320	280	221
MAX	732	110	102	112	484	2457	1584	4683	2985	787	634	768
(WY)	1983	1957	1987	1983	1971	1978	1975	1962	1976	1976	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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1953 - 1992*
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ANNUAL TOTAL	47969.83		23346.7						
ANNUAL MEAN	131		63.8			297a			
HIGHEST ANNUAL MEAN						724		1962	
LOWEST ANNUAL MEAN						28.4		1961	
HIGHEST DAILY MEAN	5430	May 13	1620	Jul 13	35200		May 21	1982	
LOWEST DAILY MEAN	.00	Jan 7	6.8	May 18	.00		Jun 5	1961b	
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 7	16	May 12	.00		Aug 9	1961	
INSTANTANEOUS PEAK FLOW			3120	Jul 12	45100		Jun 8	1964c	
INSTANTANEOUS PEAK STAGE			4.83	Jul 12	18.22		May 21	1982	
ANNUAL RUNOFF (AC-FT)	95150		46310		215200				
10 PERCENT EXCEEDS	205		95		539				
50 PERCENT EXCEEDS	61		40		87				
90 PERCENT EXCEEDS	.15		21		19				

e Estimated

* Regulated period only (1952-92). See REMARKS.

a Median of annual mean discharges, 240 ft³/s.

b No flow for many days in 1961-62, 1981, 1991.

c Gage height, 15.90 ft.

BELLE FOURCHE RIVER BASIN

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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 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	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)	COLI-FORM, FECL, 0.7 UM-MF (COLS./100 ML) (31625)	
OCT 03...	1400	36	2360	--	--	13.0	14.0	--	--	--	--	--	
NOV 18...	1510	96	1880	8.0	169	9.0	0.5	26	--	--	--	97	
JAN 14...	1100	25	2910	8.1	268	2.0	0.0	20	700	14.8	111	K27	
APR 07...	1650	25	2500	8.2	141	16.5	14.5	8.1	704	10.2	109	--	
MAY 22...	1330	30	2420	7.2	87	14.0	15.0	11	710	13.4	144	100	
JUL 16...	1425	414	1210	7.8	93	23.0	21.0	1200	703	7.5	92	K1800	
AUG 31...	1400	98	2040	7.9	112	20.0	18.0	40	622	8.4	110	K23	
DATE		STREP-TOCOCCEI, FECL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO PERCENT (00932)	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)	
OCT 03...	--	--	--	--	--	--	--	--	--	--	--	--	
NOV 18...	K55	940	210	100	160	27	2	7.8	165	940	26	0.40	
JAN 14...	K8	1300	300	140	220	26	3	11	221	1400	42	0.60	
APR 07...	K4	1000	210	120	190	29	3	10	141	1300	42	0.60	
MAY 22...	--	810	160	100	200	35	3	10	94	1100	73	0.70	
JUL 16...	4200	440	110	39	92	31	2	8.7	110	490	18	0.40	
AUG 31...	120	950	220	97	120	21	2	10	116	1000	32	0.50	
DATE		SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT 03...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV 18...	3.1	1710	1560	2.33	444	0.030	0.020	2.87	2.88	2.90	2.90	0.090	
JAN 14...	1.2	2450	2290	3.33	168	0.020	0.020	2.08	2.58	2.10	2.60	0.020	
APR 07...	0.30	2180	1960	2.96	148	0.010	<0.010	0.240	--	0.250	0.240	0.020	
MAY 22...	2.0	2020	1710	2.75	165	0.130	0.120	2.57	2.58	2.70	2.70	0.050	
JUL 16...	7.4	886	827	1.20	990	0.040	0.030	1.06	1.07	1.10	1.10	0.110	
AUG 31...	3.1	1700	1550	2.31	450	0.020	0.010	0.330	0.330	0.350	0.340	0.020	

BELLE FOURCHE RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	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)
OCT 03...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 18...	0.100	0.13	0.50	15	0.040	<0.010	0.030	<0.010	<10	37	<9	<9
JAN 14...	0.020	0.03	0.30	11	<0.010	0.020	<0.010	<0.010	<10	50	<3	41
APR 07...	0.030	0.04	0.40	2.9	<0.010	<0.010	0.010	<0.010	--	--	--	--
MAY 22...	0.040	0.05	0.60	15	0.040	0.020	0.030	<0.010	10	<100	<1	<10
JUL 16...	0.120	0.15	4.2	23	1.70	0.020	0.010	0.010	<10	62	<3	<3
AUG 31...	0.020	0.03	0.40	3.3	0.070	<0.010	0.030	<0.010	20	<100	<1	10

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, DIS- SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 03...	--	--	--	--	--	--	--	--	53	5.2	96
NOV 18...	120	24	<30	2	7	<1.0	2300	<18	136	35	99
JAN 14...	160	40	<10	4	5	<1.0	3300	<6	73	5.0	44
APR 07...	--	--	--	--	--	--	--	--	28	1.9	92
MAY 22...	120	20	4	4	<1	<1.0	2100	2	42	3.4	97
JUL 16...	55	1	<10	3	4	<1.0	1200	<6	2510	2810	100
AUG 31...	90	20	7	3	4	<1.0	2900	1	83	22	99

CHEYENNE RIVER BASIN

155

06439000 CHERRY CREEK NEAR PLAINVIEW, SD

LOCATION.--Lat 44°44'35", long 102°03'11", in SW1/4NE1/4 sec.16, T.9 N., R.17 E., Meade County, Hydrologic Unit 10120113, on left upstream wingwall of bridge on State Highway 73, 0.2 mi downstream from small right-bank tributary, 6.2 mi downstream from Red Owl Creek, and 11 mi northeast of Plainview.

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

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

REVISED RECORDS.--WDR SD-85-1: Location and datum.

GAGE.--Water-stage recorder. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	e12	7.6	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	e31	4.3	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	e38	3.3	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	e38	8.4	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	e35	e9.3	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	e30	e6.9	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	e25	e4.6	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	e10	e3.6	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	e3.6	e2.4	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.6	e2.0	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.3	e2.0	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	80	e1.7	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	79	e1.6	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	112	e1.4	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	45	52	e.72	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	126	39	e.14	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	315	41	e.09	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	56	98	e.06	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	19	68	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	11	45	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	8.8	34	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	5.5	38	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	2.2	41	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	1.2	50	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.64	66	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.64	74	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.25	33	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.06	12	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	22	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	18	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	16	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	591.29	1251.5	60.11	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	19.7	40.4	1.94	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	315	112	9.3	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.6	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	1170	2480	119	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1992, BY WATER YEAR (WY)

	MEAN	3.37	.24	.20	.50	6.19	128	141	113	108	15.2	7.26	.64
MAX	109	5.18	5.44	16.5	131	1062	2221	1215	793	83.5	175	16.6	
(WY)	1983	1987	1987	1947	1947	1978	1952	1982	1953	1962	1953	1986	
MIN	.000	.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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1946 - 1992

ANNUAL TOTAL	2191.33	1902.90	
ANNUAL MEAN	6.00	5.20	43.7a
HIGHEST ANNUAL MEAN			193
LOWEST ANNUAL MEAN			.000
HIGHEST DAILY MEAN	370	315	13800
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		457	17500
INSTANTANEOUS PEAK STAGE		7.19	22.63
ANNUAL RUNOFF (AC-FT)	4350	3770	31660
10 PERCENT EXCEEDS	11	8.5	40
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a Median of annual mean discharges, 21 ft³/s.

b No flow for long periods in each year.

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 SW1/4NW1/4 (revised) 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 mi², 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	e96	e196	e97	e195	263	160	106	165	204	336	223
2	130	e91	e198	e100	e190	243	157	102	880	191	283	204
3	126	e99	e200	e100	e185	225	154	101	861	158	241	178
4	123	e108	e200	e102	e180	217	150	103	523	402	313	167
5	127	e102	e195	e106	e176	220	148	105	357	281	260	183
6	156	e94	e195	e106	e168	360	147	100	342	415	209	163
7	179	e87	e200	e105	e158	733	147	97	332	1040	201	168
8	167	e85	e220	e101	e150	437	141	e84	360	435	193	164
9	153	e92	e250	e102	e145	350	137	e84	225	395	167	168
10	143	e115	e280	e105	e135	751	134	e79	181	249	150	166
11	140	e180	e350	e100	e130	635	136	e73	149	876	148	188
12	135	e260	e400	e94	e140	544	139	e64	125	788	136	198
13	130	e360	e320	e88	e145	504	148	158	121	1300	125	194
14	124	e480	e260	e84	e145	498	155	161	148	1830	110	208
15	125	e395	e215	e88	e145	332	162	131	247	958	108	190
16	130	e380	e190	e90	e145	280	162	109	965	888	104	177
17	128	e340	e175	e90	e147	236	160	106	891	616	107	166
18	127	e305	e170	e90	e140	224	158	91	687	472	104	156
19	128	e285	e180	e92	e135	208	148	78	799	398	112	159
20	132	e390	e178	e95	e130	200	144	60	514	317	117	172
21	127	e345	e175	e94	e135	195	145	47	634	408	118	161
22	112	e300	e165	e97	e138	189	149	64	756	781	121	145
23	114	e275	e150	e100	e150	191	155	317	497	1460	166	137
24	112	e225	e145	e105	e200	185	161	875	358	824	129	128
25	108	e228	e140	e105	e370	180	167	379	270	462	141	114
26	119	e240	e133	e110	e740	171	172	280	236	375	187	105
27	121	e250	e125	e110	e570	168	169	218	209	320	217	100
28	e118	e238	e115	e115	457	166	157	170	208	288	238	86
29	e92	e212	e112	e135	313	166	135	165	221	317	253	82
30	e98	e196	e100	e165	---	164	117	168	263	298	246	83
31	e99	---	e95	e180	---	163	---	163	---	241	231	---
TOTAL	3957	6853	6027	3251	6157	9398	4514	4838	12524	17987	5571	4733
MEAN	128	228	194	105	212	303	150	156	417	580	180	158
MAX	179	480	400	180	740	751	172	875	965	1830	336	223
MIN	92	85	95	84	130	163	117	47	121	158	104	82
AC-FT	7850	13590	11950	6450	12210	18640	8950	9600	24840	35680	11050	9390

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1992, BY WATER YEAR (WY)

	MEAN	325	196	128	110	280	1323	1129	2142	2170	750	442	349
MAX	2362	522	388	435	1617	7645	4296	9947	10210	2841	834	930	
(WY)	1983	1987	1987	1974	1971	1978	1986	1982	1967	1962	1979	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	1961	1961	1989	1989	1961	1961	

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1960 - 1992
ANNUAL TOTAL	256705.6	85810	
ANNUAL MEAN	703	234	782a
HIGHEST ANNUAL MEAN			1748
LOWEST ANNUAL MEAN			100
HIGHEST DAILY MEAN	18500	Jun 7	48400
LOWEST DAILY MEAN	5.5	Jan 19	.00
ANNUAL SEVEN-DAY MINIMUM	5.7	Jan 18	.00
INSTANTANEOUS PEAK FLOW		3220	55900
INSTANTANEOUS PEAK STAGE		6.46	15.77
ANNUAL RUNOFF (AC-FT)	509200	170200	566600
10 PERCENT EXCEEDS	1230	436	1490
50 PERCENT EXCEEDS	206	165	260
90 PERCENT EXCEEDS	32	99	70

e Estimated

a Median of annual mean discharges, 700 ft³/s.

b Also Jan. 7 to Feb. 2, 1962.

WATER-QUALITY RECORDS

WATER TEMPERATURE: Maximum daily, 35.0°C, Aug. 26, 1975; minimum daily, 0.0°C on many days during winter periods.

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (000061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (000095)	PH (STAND-ARD UNITS) (000400)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	TEMPER-ATURE AIR (DEG C) (000020)	TEMPER-ATURE WATER (DEG C) (000010)	TUR-BID-ITY (NTU) (000076)	BARO-METRIC PRES-SURE (MM OF HG) (000025)	OXYGEN, DIS-SOLVED (MG/L) (000300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (000301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	
OCT 08...	1215	169	2110	8.0	135	22.0	13.0	53	720	9.2	93	K63	
JAN 13...	1350	88	2220	8.0	241	1.0	0.0	79	710	13.0	96	K3	
APR 24...	1345	167	2230	7.5	146	13.5	9.5	13	720	--	--	K3	
JUL 02...	1240	191	2030	8.3	110	19.0	17.0	1000	710	8.3	93	3000	
DATE		STREP-TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CAC03) (00900)	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 SORB-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CAC03) (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)	
OCT 08...	K33	800	190	80	220	37	3	13	139	1100	110	0.50	
JAN 13...	K42	780	190	74	180	33	3	9.3	185	1100	90	0.40	
APR 24...	K6	800	190	79	230	38	4	11	142	1300	110	1.4	
JUL 02...	1500	670	170	59	210	40	4	12	119	880	80	0.60	
DATE		SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NO2+NO3 DIS-SOLVED TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED TOTAL (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT 08...	4.6	1880	1800	2.56	858	<0.010	<0.010	--	--	<0.050	0.056	0.010	
JAN 13...	5.4	1880	1800	2.56	447	0.020	0.020	1.68	1.68	1.70	1.70	0.030	
APR 24...	1.1	1890	2010	2.57	852	0.010	<0.010	--	--	<0.050	<0.050	0.020	
JUL 02...	13	1610	1490	2.19	830	0.020	<0.010	0.190	--	0.210	0.220	0.020	

CHEYENNE RIVER BASIN

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	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)
OCT 08...	0.020	0.03	0.30	--	0.080	<0.010	0.030	<0.010	20	<100	<1	<10
JAN 13...	0.020	0.03	0.20	8.4	0.270	0.200	0.170	0.170	<10	46	<1	9
APR 24...	0.030	0.04	0.50	--	0.080	<0.010	0.040	<0.010	10	<100	<1	<10
JUL 02...	0.020	0.03	2.1	10	2.10	<0.010	0.010	<0.010	<10	110	<3	7

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, DIS- SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 08...	130	20	5	3	2	<1.0	220	3	184	84	--
JAN 13...	110	37	4	2	3	<1.0	2200	3	239	57	75
APR 24...	130	20	4	2	1	<1.0	2700	2	44	20	78
JUL 02...	110	7	10	2	2	<1.0	2200	<6	2270	1170	100

CHEYENNE RIVER BASIN

159

06439430 COTTONWOOD CREEK NEAR CHERRY CREEK, SD

LOCATION.--Lat 44°40'28", long 101°24'16", in NW1/4NW1/4NE1/4 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 mi², approximately.

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

GAGE.--Water-stage recorder. Elevation of gage is 1,810 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records 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 ft³/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 1991 TO SEPTEMBER 1992
MEAN 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	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	102	.00
5	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	21	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.3	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.4	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.9	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.59	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.0	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.73	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.2	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	11	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	25	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.6	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.11	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.11	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.0	.00	.00
30	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.7	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.09	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.12	0.02	0.00	0.00	0.00	46.29	136.62	0.00
MEAN	.000	.000	.000	.000	.004	.001	.000	.000	.000	1.49	4.41	.000
MAX	.00	.00	.00	.00	.11	.01	.00	.00	.00	25	102	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.2	.04	.00	.00	.00	92	271	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1992, BY WATER YEAR (WY)

MEAN	.28	.000	.000	.013	1.60	50.3	19.3	12.4	7.58	.88	2.15	.010
MAX	2.63	.001	.000	.12	9.29	362	123	113	65.5	6.55	17.1	.11
(WY)	1983	1990	1983	1984	1986	1987	1986	1986	1984	1987	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	1982

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1983 - 1992

ANNUAL TOTAL	213.19	183.05	7.94a
ANNUAL MEAN	.58	.50	38.6
HIGHEST ANNUAL MEAN			.000
LOWEST ANNUAL MEAN			1987
HIGHEST DAILY MEAN	48	May 17	102
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW			340
INSTANTANEOUS PEAK STAGE			6.03
ANNUAL RUNOFF (AC-FT)	423	363	5750
10 PERCENT EXCEEDS	.03	.00	1.0
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

a Median of annual mean discharges, 0.60 ft³/s.

b No flow for long periods in each year.

MISSOURI-OAHE RIVER BASIN

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 mi², approximately.

PERIOD OF RECORD.--August 1958 to current year (monthend contents only). Prior to October 1967, published as Oahe Reservoir near Pierre.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 14, 1958, nonrecording gages at various locations upstream from outlet works, Jan. 14, 1959, to Sept. 30, 1962, recorder in Tower No. 1 of outlet works, all at same datum.

REVISED RECORDS.--WDR SD-88-1: September monthend elevation.

REMARKS.--Reservoir is formed by an earthfill dam; storage began in August 1958. Maximum capacity, 23,338,000 acre-ft below elevation 1,620.0 ft (top of spillway gates). Normal maximum, 22,240,000 acre-ft below 1,617.0 ft, of which about 2,390,000 acre-ft is designated for flood control. Inactive storage, 5,451,000 acre-ft below elevation 1,540.0 ft. Dead storage, 1,970 acre-ft below elevation 1,425.0 ft (invert of lowest outlet tunnel). Figures given herein represent elevations at powerhouse intake structure and total contents adjusted for wind effect.

The spillway consists of a gated chute with flat crest at elevation 1,596.5 ft, 8 gates, 50 by 23.5 ft each; design capacity, 300,000 ft³/s. The outlet works consist of 7 turbines with a generating capacity of 85,000 kilowatts each. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 22,764,000 acre-ft, May 14, 1986, affected by wind; minimum since initial filling, 12,071,000 acre-ft, Oct. 30, 1989, Nov. 1, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 14,930,000 acre-ft, Mar. 22; minimum contents, 12,644,000 acre-ft, Oct. 1.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,583.31	12,633,000	-
Oct. 31	1,584.89	12,962,000	+329,000
Nov. 30	1,586.48	13,364,000	+402,000
Dec. 31	1,587.63	13,643,000	+279,000
CAL YR 1991	-	-	+1,278,000
Jan. 31	1,589.32	14,057,000	+414,000
Feb. 29	1,591.49	14,590,000	+533,000
Mar. 31	1,592.23	14,774,000	+184,000
Apr. 30	1,591.11	14,490,000	-284,000
May 31	1,590.39	14,318,000	-172,000
June 30	1,589.77	14,128,000	-190,000
July 31	1,589.96	14,221,000	+93,000
Aug. 31	1,590.12	14,291,000	+70,000
Sept. 30	1,591.37	14,531,000	+240,000
WTR YR 1992	-	-	+1,898,000

NOTE.--Lake did not freeze over.

MISSOURI-FORT RANDALL RIVER BASIN

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06440000 MISSOURI RIVER AT PIERRE, SD

LOCATION (REVISED).--Lat 44°22'23", long 100°22'03" in NW1/4SW1/4 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.10	6.79	7.14	6.27	6.52	6.88	7.96	7.61	7.86	8.37	7.13	7.35
2	7.18	6.94	8.45	6.52	7.00	7.23	7.99	7.34	8.11	7.94	7.18	6.76
3	7.31	6.65	7.22	6.20	7.28	7.25	8.08	6.87	8.25	7.55	7.38	7.65
4	7.17	7.70	8.13	7.18	7.21	6.87	8.09	7.50	7.61	7.82	7.73	7.36
5	6.92	6.45	7.72	6.77	7.08	6.72	7.35	7.57	7.72	8.18	7.30	6.88
6	7.08	6.81	7.53	7.89	6.88	6.21	7.78	7.85	7.67	8.43	7.35	7.11
7	7.14	6.38	7.13	7.68	6.86	5.69	7.76	8.14	7.14	7.74	7.25	6.80
8	6.88	5.96	6.55	6.55	6.82	5.95	7.84	7.87	8.17	7.57	7.71	7.40
9	6.77	5.85	7.42	8.06	6.81	7.29	8.72	8.10	8.41	8.15	7.35	6.35
10	6.69	5.97	7.20	7.35	7.24	6.87	9.17	7.79	8.14	7.45	7.80	6.04
11	6.59	6.11	7.52	6.95	7.81	6.70	7.98	8.53	8.59	7.99	6.97	6.37
12	7.17	6.09	7.36	6.90	7.58	6.73	7.97	8.32	8.49	6.96	6.76	6.42
13	6.13	6.02	6.83	7.49	7.37	6.48	8.55	9.14	8.02	7.82	6.98	6.24
14	6.56	6.09	7.03	7.33	7.20	6.92	8.16	8.41	7.72	7.63	7.12	7.00
15	6.80	5.87	6.85	7.28	7.18	7.20	8.02	8.91	8.73	7.41	7.29	7.50
16	6.75	6.22	7.37	7.44	7.32	7.29	8.21	8.84	8.23	6.55	6.93	7.07
17	6.35	6.28	7.19	7.21	8.18	7.07	8.59	7.95	6.68	6.29	7.48	6.59
18	6.40	6.14	7.81	7.79	7.96	6.84	8.06	8.95	6.85	6.44	7.31	5.79
19	6.49	5.88	8.08	7.18	8.26	6.71	7.09	8.90	6.65	6.40	7.37	6.69
20	6.56	6.06	6.89	7.91	7.76	6.95	7.79	8.57	6.62	7.13	7.21	6.64
21	6.84	6.07	7.20	8.06	7.75	6.93	8.01	8.60	6.41	7.28	7.26	6.47
22	6.32	5.64	6.68	7.93	7.31	6.96	7.86	7.90	8.01	7.30	7.40	6.89
23	6.21	5.55	6.52	7.80	6.88	7.98	7.51	7.26	9.44	7.84	6.52	6.65
24	5.71	5.39	6.66	7.78	7.60	7.96	7.32	7.29	9.39	8.24	8.09	6.82
25	6.18	5.28	6.06	6.89	7.38	8.16	7.55	7.06	9.29	7.56	7.82	6.33
26	6.79	5.79	5.97	6.78	6.90	8.14	7.40	7.90	9.35	7.34	7.80	6.35
27	6.89	5.85	5.61	8.09	6.67	8.62	8.29	7.84	9.25	8.43	7.90	6.40
28	6.24	5.80	6.16	8.02	6.99	8.13	8.04	7.88	8.63	7.98	7.47	6.95
29	6.17	6.25	6.62	7.59	7.01	7.58	7.77	7.61	8.99	7.29	6.80	7.29
30	6.83	6.49	7.02	7.37	---	8.28	7.91	7.76	8.98	6.34	6.65	7.23
31	7.20	---	6.74	7.41	---	7.93	---	7.01	---	6.36	7.39	---
MEAN	6.69	6.15	7.05	7.34	7.27	7.18	7.96	7.98	8.11	7.48	7.31	6.78
MAX	7.31	7.70	8.45	8.09	8.26	8.62	9.17	9.14	9.44	8.43	8.09	7.65
MIN	5.71	5.28	5.61	6.20	6.52	5.69	7.09	6.87	6.41	6.29	6.52	5.79

MISSOURI-FORT RANDALL RIVER BASIN

06440200 SOUTH FORK BAD RIVER NEAR COTTONWOOD, SD
(Formerly published as Buffalo Creek near Cottonwood)

LOCATION.--Lat 43°53'08", long 101°46'00", in NE1/4SW1/4SE1/4 sec.7, T.1 S., R.20 E., Jackson County, Hydrologic Unit 10140102, on right bank at upstream side of bridge on old U.S. Highway 16, 1.0 mi above confluence with Cottonwood Creek, and 7.0 mi east of Cottonwood.

DRAINAGE AREA.--250 mi².

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 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	e.00	.07	.00	28	4.6	.03	.07	.18	15	.07	.33
2	.00	e.00	.06	.00	19	2.8	.03	.04	.12	8.2	.04	.18
3	.00	e.00	.04	.00	14	1.8	.03	.02	11	4.1	.03	.10
4	.01	e.00	.03	.00	11	1.1	.03	.02	6.0	18	.02	.05
5	9.6	e.00	.02	.00	8.7	3.3	.02	.01	1.5	8.7	.02	.03
6	12	e.00	.03	.00	6.0	34	.01	.00	.45	131	.02	.00
7	7.9	e.00	.03	.00	4.3	31	.01	.00	.17	137	.02	.00
8	2.0	e.01	.03	.00	1.2	12	.01	.00	.15	25	.01	.00
9	.40	e.03	.03	.00	.84	13	.00	.00	.11	15	.01	.00
10	.16	.05	.03	.00	.44	43	.01	.01	.08	11	.00	.00
11	.14	.40	5.7	.00	.28	43	.01	.00	.06	6.6	.00	.00
12	.09	32	5.6	.00	.16	25	.01	.00	.05	24	.00	.00
13	.11	33	3.1	.00	.09	18	.01	.00	.04	32	.00	.00
14	.03	32	1.2	.00	.07	11	.01	.01	563	25	.00	.00
15	.06	23	.35	.00	.09	5.2	.01	.00	188	39	.00	.00
16	.04	16	.17	.00	.10	3.6	.01	.00	128	15	.00	.00
17	.03	8.8	.15	.00	.10	1.7	.02	.00	86	7.3	.00	.00
18	.01	4.2	.08	.00	.08	1.0	.02	.00	37	2.8	.00	.00
19	.01	.89	.06	.00	.08	.80	.01	.00	17	.63	.00	.00
20	.01	.75	.06	.00	.06	.64	.01	.00	9.9	.29	.00	.00
21	.01	1.5	.06	.00	.05	.47	.01	.00	22	.30	.00	.00
22	.01	2.0	.04	.00	.06	.24	.01	.00	111	.22	.00	.00
23	.00	.66	.03	.00	.26	.24	.02	.00	19	34	.00	.00
24	.00	.31	.02	.00	e4.0	.17	.03	30	8.1	26	.00	.00
25	.00	.31	.01	.00	e45	.14	.03	9.6	3.1	8.3	.00	.00
26	.01	.28	.01	.01	e30	.11	2.1	3.3	.92	3.4	.01	.00
27	.00	.22	.01	.01	19	.10	3.4	.94	.45	1.2	.02	.00
28	.00	.18	.01	.01	12	.07	.83	.29	.52	.41	.92	.00
29	.01	.16	.00	.05	8.1	.05	.28	.11	1.9	.20	4.4	.00
30	e.02	.10	.00	14	---	.05	.15	.08	12	.14	2.2	.00
31	e.01	---	.00	23	---	.03	---	.06	---	.10	.92	---
TOTAL	32.68	156.85	17.03	37.08	213.06	258.21	7.16	44.56	1227.80	599.89	8.71	0.69
MEAN	1.05	5.23	.55	1.20	7.35	8.33	.24	1.44	40.9	19.4	.28	.023
MAX	12	33	5.7	23	45	43	3.4	30	563	137	4.4	.33
MIN	.00	.00	.00	.00	.05	.03	.00	.00	.04	.10	.00	.00
AC-FT	65	311	34	74	423	512	14	88	2440	1190	17	1.4

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992
MEAN	.28	1.31	.14	.55
MAX	1.05	5.23	.55	1.20
(WY)	1992	1992	1992	1992
MIN	.000	.000	.000	.000
(WY)	1991	1990	1991	1989

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1989 - 1992

ANNUAL TOTAL	19536.25	2603.72		
ANNUAL MEAN	53.5	7.11		
HIGHEST ANNUAL MEAN			16.2	
LOWEST ANNUAL MEAN			53.0	1991
HIGHEST DAILY MEAN	3990	May 31	1.98	1989
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 2 1988a
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 2 1988
INSTANTANEOUS PEAK FLOW			998	Jun 14
INSTANTANEOUS PEAK STAGE			10.34	Jun 14
ANNUAL RUNOFF (AC-FT)	38750	5160	17.89	May 31 1991
10 PERCENT EXCEEDS	32	16	11740	
50 PERCENT EXCEEDS	.07	.05	8.9	
90 PERCENT EXCEEDS	.00	.00	.02	
			.00	

e Estimated

a No flow for many days in each year.

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 poor. 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, 0 mg/L on many days each year.

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, 35,200 mg/L, May 25; minimum daily mean, 0 mg/L on many days.

SEDIMENT LOAD: Maximum daily, 37,200 tons, June 14; minimum daily, 0 ton on many days.

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	.01	0	.00	e.00	0	.00	.07	e99	.02
2	.00	0	.00	e.00	0	.00	.06	e98	.02
3	.00	0	.00	e.00	0	.00	.04	e95	.01
4	.01	0	.00	e.00	0	.00	.03	e90	.01
5	9.6	e6800	534	e.00	0	.00	.02	e88	.00
6	12	e16400	531	e.00	0	.00	.03	e85	.01
7	7.9	e14800	316	e.00	0	.00	.03	e82	.01
8	2.0	13000	70	e.01	e0	.00	.03	e80	.01
9	.40	e11200	12	e.03	e20	.00	.03	e75	.01
10	.16	e7600	3.3	.05	e60	.01	.03	e70	.01
11	.14	3650	1.4	.40	e100	.11	5.7	e90	1.4
12	.09	e1850	.45	32	e6000	705	5.6	e100	1.5
13	.11	900	.27	33	5860	522	3.1	e90	.75
14	.03	e250	.02	32	5010	433	1.2	e80	.26
15	.06	e40	.01	23	4840	301	.35	e70	.07
16	.04	e10	.00	16	4600	199	.17	e50	.02
17	.03	e0	.00	8.8	4420	105	.15	e50	.02
18	.01	0	.00	4.2	4240	48	.08	e40	.01
19	.01	0	.00	.89	3520	8.5	.06	e30	.00
20	.01	0	.00	.75	2680	5.4	.06	e20	.00
21	.01	0	.00	1.5	1780	7.2	.06	e10	.00
22	.01	0	.00	2.0	e830	4.5	.04	e5	.00
23	.00	0	.00	.66	e420	.75	.03	e0	.00
24	.00	0	.00	.31	295	.25	.02	0	.00
25	.00	0	.00	.31	250	.21	.01	0	.00
26	.01	0	.00	.28	250	.19	.01	0	.00
27	.00	0	.00	.22	200	.12	.01	0	.00
28	.00	0	.00	.18	e150	.07	.01	0	.00
29	.01	0	.00	.16	e100	.04	.00	0	.00
30	e.02	0	.00	.10	e100	.03	.00	0	.00
31	e.01	0	.00	---	---	---	.00	0	.00
TOTAL	32.68	---	1468.45	156.85	---	2340.38	17.03	---	4.14

MISSOURI-FORT RANDALL RIVER BASIN

06440200 SOUTH FORK BAD RIVER NEAR COTTONWOOD, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN	MEAN	SEDIMENT	MEAN	MEAN	SEDIMENT	MEAN	MEAN	SEDIMENT
	DISCHARGE (CFS)	CONCENTRATION (MG/L)	DISCHARGE (TONS/DAY)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	DISCHARGE (TONS/DAY)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	DISCHARGE (TONS/DAY)
JANUARY									
1	.00	0	.00	28	e95	7.2	4.6	3430	43
2	.00	0	.00	19	e86	4.4	2.8	750	5.7
3	.00	0	.00	14	e66	2.5	1.8	500	2.4
4	.00	0	.00	11	e40	1.2	1.1	e450	1.3
5	.00	0	.00	8.7	e25	.59	3.3	e660	19
6	.00	0	.00	6.0	e19	.31	34	e5630	787
7	.00	0	.00	4.3	e16	.19	31	e6550	548
8	.00	0	.00	1.2	e15	.05	12	e4590	149
9	.00	0	.00	.84	e14	.03	13	e4200	147
10	.00	0	.00	.44	e13	.02	43	e7220	1450
11	.00	0	.00	.28	e12	.01	43	e8780	1020
12	.00	0	.00	.16	e10	.00	25	e8420	568
13	.00	0	.00	.09	e10	.00	18	8020	390
14	.00	0	.00	.07	e10	.00	11	5600	166
15	.00	0	.00	.09	e9	.00	5.2	2900	41
16	.00	0	.00	.10	e7	.00	3.6	780	7.6
17	.00	0	.00	.10	e5	.00	1.7	275	1.3
18	.00	0	.00	.08	e5	.00	1.0	96	.26
19	.00	0	.00	.08	e4	.00	.80	e70	.15
20	.00	0	.00	.06	e3	.00	.64	65	.11
21	.00	0	.00	.05	e2	.00	.47	50	.06
22	.00	0	.00	.06	e1	.00	.24	50	.03
23	.00	0	.00	.26	e15	.01	.24	50	.03
24	.00	0	.00	e4.0	e148	1.6	.17	e38	.02
25	.00	0	.00	e45	e680	83	.14	27	.01
26	.01	0	.00	e30	6760	548	.11	e24	.01
27	.01	0	.00	19	7100	364	.10	e24	.01
28	.01	e0	.00	12	7060	229	.07	25	.00
29	.05	e10	.00	8.1	4730	103	.05	e26	.00
30	14	e57	2.2	---	---	---	.05	25	.00
31	23	e80	5.0	---	---	---	.03	e19	.00
TOTAL	37.08	---	7.20	213.06	---	1345.11	258.21	---	5346.99
APRIL									
1	.03	12	.00	.07	99	.02	.18	1400	.68
2	.03	8	.00	.04	95	.01	.12	e200	.06
3	.03	e6	.00	.02	e84	.00	11	15200	691
4	.03	e4	.00	.02	e58	.00	6.0	22000	356
5	.02	e2	.00	.01	e21	.00	1.5	19000	77
6	.01	e0	.00	.00	e0	.00	.45	7800	9.5
7	.01	0	.00	.00	0	.00	.17	e2500	1.1
8	.01	0	.00	.00	0	.00	.15	e1000	.40
9	.00	0	.00	.00	0	.00	.11	e400	.12
10	.01	0	.00	.01	0	.00	.08	90	.02
11	.01	0	.00	.00	0	.00	.06	e70	.01
12	.01	0	.00	.00	0	.00	.05	e50	.01
13	.01	0	.00	.00	0	.00	.04	e30	.00
14	.01	0	.00	.01	0	.00	563	e17000	37200
15	.01	0	.00	.00	0	.00	188	12100	6140
16	.01	0	.00	.00	0	.00	128	e10100	3490
17	.02	0	.00	.00	0	.00	86	3500	813
18	.02	0	.00	.00	0	.00	37	17100	1710
19	.01	e0	.00	.00	0	.00	17	14000	643
20	.01	e0	.00	.00	0	.00	9.9	4200	112
21	.01	e0	.00	.00	0	.00	22	e5780	638
22	.01	e0	.00	.00	0	.00	111	24500	7340
23	.02	e5	.00	.00	0	.00	19	19900	1020
24	.03	e10	.00	30	19700	1600	8.1	e17100	374
25	.03	e10	.00	9.6	35200	912	3.1	10800	90
26	2.1	e69	.39	3.3	32200	287	.92	1300	3.2
27	3.4	117	1.1	.94	29000	74	.45	205	.25
28	.83	e107	.24	.29	e24000	19	.52	e167	.23
29	.28	102	.08	.11	e12500	3.7	1.9	210	1.1
30	.15	e101	.04	.08	4500	.97	12	0	.00
31	---	---	---	.06	3000	.49	---	---	---
TOTAL	7.16	---	1.85	44.56	---	2897.19	1227.80	---	60710.68

e Estimated

06440200 SOUTH FORK BAD RIVER NEAR COTTONWOOD, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	15	1350	55	.07	e140	.03	.33	e360	.32
2	8.2	690	15	.04	e110	.01	.18	e280	.14
3	4.1	330	3.7	.03	e70	.01	.10	e210	.06
4	18	e7650	372	.02	e30	.00	.05	e130	.02
5	8.7	e4850	114	.02	e0	.00	.03	e40	.00
6	131	8650	6470	.02	0	.00	.00	0	.00
7	137	15000	5550	.02	0	.00	.00	0	.00
8	25	e9600	648	.01	0	.00	.00	0	.00
9	15	7400	300	.01	0	.00	.00	0	.00
10	11	1850	55	.00	0	.00	.00	0	.00
11	6.6	e350	6.2	.00	0	.00	.00	0	.00
12	24	700	45	.00	0	.00	.00	0	.00
13	32	3100	268	.00	0	.00	.00	0	.00
14	25	7540	509	.00	0	.00	.00	0	.00
15	39	e12100	1270	.00	0	.00	.00	0	.00
16	15	e8750	354	.00	0	.00	.00	0	.00
17	7.3	e4900	97	.00	0	.00	.00	0	.00
18	2.8	e3300	25	.00	0	.00	.00	0	.00
19	.63	e2250	3.8	.00	0	.00	.00	0	.00
20	.29	e1500	1.2	.00	0	.00	.00	0	.00
21	.30	e800	.65	.00	0	.00	.00	0	.00
22	.22	e250	.15	.00	0	.00	.00	0	.00
23	34	e7720	864	.00	0	.00	.00	0	.00
24	26	e6500	456	.00	0	.00	.00	0	.00
25	8.3	e4370	98	.00	0	.00	.00	0	.00
26	3.4	e3150	29	.01	e0	.00	.00	0	.00
27	1.2	e1950	6.3	.02	e40	.00	.00	0	.00
28	.41	e970	1.1	.92	e250	.62	.00	0	.00
29	.20	e398	.21	4.4	e1220	14	.00	0	.00
30	.14	e230	.09	2.2	e800	4.8	.00	0	.00
31	.10	e170	.05	.92	e500	1.2	---	---	---
TOTAL	599.89	---	17617.45	8.71	---	20.67	0.69	---	0.54
YEAR	2603.72		91760.65						

e Estimated

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (000061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 1991					
18...	1150	4.5	2.5	4290	100
FEB 1992					
26...	1640	30	2.0	8430	100
APR					
08...	1110	0.01	7.0	--	--
JUN					
10...	1320	0.08	26.0	87	--
25...	1510	2.8	22.0	10500	--
JUL					
14...	1545	25	23.0	8070	100

MISSOURI-FORT RANDALL RIVER BASIN

06441000 BAD RIVER NEAR MIDLAND, SD

LOCATION.--Lat 44°04'01", long 101°09'36", in NE1/4NW1/4 sec.7, T.1 N., R.25 E., Haakon County, Hydrologic Unit 10140102, on right bank at downstream side of bridge on State Highway 63, 0.4 mi southwest of Midland, 2.0 mi upstream from Mitchell Creek, and 3.7 mi upstream from Ash Creek.

DRAINAGE AREA.--1,460 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year. Prior to February 1946 monthly discharge only, published in WSP 1309.

REVISED RECORDS.--WSP 2117: Drainage area.

GAGE.--Water-stage recorder. 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 good. Only daily discharges above 100 ft³/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 ft³/s, June 15, 1967, gage height, 24.44 ft, from floodmarks, 20.10 ft, from floodmarks, at former site and datum, from rating curve extended above 16,000 ft³/s; no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 999 ft³/s at 1800 hours, June 15, 9.60 ft; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

Daily discharge, in cubic feet per second, above 100 ft³/s are given herewith:

June 15	482	July 8	343
June 16	215	July 9	134
June 17	212	July 12	256
June 18	105	July 13	231
June 29	176	July 14	168

MISSOURI-FORT RANDALL RIVER BASIN

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06441110 PLUM CREEK BELOW HAYES, SD

LOCATION.--Lat 44°12'38", long 100°43'34", in NW1/4NW1/4NW1/4 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 mi².

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 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	e10	1.1	.00	.00	.00	.00	2.3	11
2	.00	.00	.00	.00	5.7	1.0	.00	.00	.00	1.7	1.2	1.1
3	.00	.00	.00	.00	3.9	e.70	.00	.00	.00	.98	1.1	.11
4	.00	.00	.00	.00	3.0	e.30	.00	.00	.00	e.60	239	.00
5	.00	.00	.00	.00	1.5	5.1	.00	.00	.00	e.30	87	.29
6	.00	.00	.00	.00	1.3	5.4	.00	.00	.00	e.10	14	.29
7	.00	.00	.00	.00	1.0	2.1	.00	.00	.00	8.3	4.3	.05
8	.00	.00	.00	.00	.51	1.1	.00	.00	.00	3.4	2.3	.00
9	.00	.00	.00	.00	.43	1.8	.00	.00	.00	19	1.2	.00
10	.00	.00	.00	.00	.29	.98	.00	.00	.00	1.7	.68	.00
11	.00	.00	.00	.00	.21	.68	.00	.00	.00	35	.43	.00
12	.00	.00	.00	.00	.00	e.60	.00	.00	.00	19	.29	.00
13	.00	.00	.00	.00	.00	e.50	.00	.00	.00	63	.18	.00
14	.00	.00	.00	.00	.00	e.45	.00	.00	.00	28	.05	.00
15	.00	.00	.00	.00	.00	.38	.00	.00	.74	8.8	.00	.00
16	.00	.00	.00	.00	.00	e.25	.00	.00	.86	3.9	.00	.00
17	.00	.00	.00	.00	2.4	e.15	.00	.00	1.6	e2.0	.00	.00
18	.00	.00	.00	.00	9.8	e.05	.00	.00	.63	e1.5	.00	.00
19	.00	.00	.00	.00	2.7	e.00	.00	.00	e.43	1.3	.00	.00
20	.00	.00	.00	.00	2.6	.00	.00	.00	e.20	1.7	.00	.00
21	.00	.00	.00	.00	2.1	.00	.00	.00	.00	1.6	.00	.00
22	.00	.00	.00	.00	2.3	.00	.00	.00	9.9	9.0	.00	.00
23	.00	.00	.00	.00	2.5	.00	.00	.00	.86	4.2	.04	.00
24	.00	.00	.00	.00	11	.00	.00	.00	.43	2.2	.17	.00
25	.00	.00	.00	.00	7.3	.00	.00	.00	.00	1.7	.07	.00
26	.00	.00	.00	.00	6.2	.00	.00	.00	.00	e1.1	.08	.00
27	.00	.00	.00	.00	4.6	.00	.00	.00	.00	e.70	.09	.00
28	.00	.00	.00	.00	2.7	.00	.00	.00	.00	e.40	.10	.00
29	.00	.00	.00	.00	1.5	.00	.00	.00	.00	e3.1	.01	.00
30	.00	.00	.00	e.50	---	.00	.00	.00	.00	52	.00	.00
31	.00	---	.00	e2.0	---	.00	---	.00	---	5.9	.00	---
TOTAL	0.00	0.00	0.00	2.50	85.54	22.64	0.00	0.00	15.65	282.18	354.59	12.84
MEAN	.000	.000	.000	.081	2.95	.73	.000	.000	.52	9.10	11.4	.43
MAX	.00	.00	.00	2.0	11	5.4	.00	.00	9.9	63	239	11
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	5.0	170	45	.00	.00	31	560	703	25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1992, BY WATER YEAR (WY)

MEAN	.000	.009	.001	.38	1.07	.32	1.61	44.2	43.4	3.48	3.81	.14
MAX	.000	.026	.002	1.06	2.95	.73	2.84	132	98.7	9.10	11.4	.43
(WY)	1990	1990	1990	1990	1992	1992	1991	1991	1991	1992	1992	1992
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.52	.000	.000	.000
(WY)	1990	1991	1991	1991	1991	1991	1992	1992	1992	1990	1990	1990

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1990 - 1992
ANNUAL TOTAL	7170.43	775.94	
ANNUAL MEAN	19.6	2.12	8.21
HIGHEST ANNUAL MEAN			19.6
LOWEST ANNUAL MEAN			2.12
HIGHEST DAILY MEAN	3370 May 30	239 Aug 4	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		889 Aug 4	13500 May 30 1991
INSTANTANEOUS PEAK STAGE		13.26 Aug 4	23.74 May 30 1991
ANNUAL RUNOFF (AC-FT)	14220	1540	5950
10 PERCENT EXCEEDS	9.4	2.3	3.2
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a No flow many days in each year.

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, 0 mg/L on many days each year.

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, 33,200 mg/L, July 30; minimum daily mean, 0 mg/L on many days.

SEDIMENT LOAD: Maximum daily, 32,000 tons, Aug. 4; minimum daily, 0 ton on many days.

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	.00	0	.00	.00	0	.00	.00	0	.00
2	.00	0	.00	.00	0	.00	.00	0	.00
3	.00	0	.00	.00	0	.00	.00	0	.00
4	.00	0	.00	.00	0	.00	.00	0	.00
5	.00	0	.00	.00	0	.00	.00	0	.00
6	.00	0	.00	.00	0	.00	.00	0	.00
7	.00	0	.00	.00	0	.00	.00	0	.00
8	.00	0	.00	.00	0	.00	.00	0	.00
9	.00	0	.00	.00	0	.00	.00	0	.00
10	.00	0	.00	.00	0	.00	.00	0	.00
11	.00	0	.00	.00	0	.00	.00	0	.00
12	.00	0	.00	.00	0	.00	.00	0	.00
13	.00	0	.00	.00	0	.00	.00	0	.00
14	.00	0	.00	.00	0	.00	.00	0	.00
15	.00	0	.00	.00	0	.00	.00	0	.00
16	.00	0	.00	.00	0	.00	.00	0	.00
17	.00	0	.00	.00	0	.00	.00	0	.00
18	.00	0	.00	.00	0	.00	.00	0	.00
19	.00	0	.00	.00	0	.00	.00	0	.00
20	.00	0	.00	.00	0	.00	.00	0	.00
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	.00	0	.00
23	.00	0	.00	.00	0	.00	.00	0	.00
24	.00	0	.00	.00	0	.00	.00	0	.00
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.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	.00	0	.00	.00	0	.00
31	.00	0	.00	---	---	---	.00	0	.00
TOTAL	0.00	---	0.00	0.00	---	0.00	0.00	---	0.00

MISSOURI-FORT RANDALL RIVER BASIN

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06441110 PLUM CREEK BELOW HAYES, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	.00	0	.00	e10	e5540	150	1.1	e1020	3.0
2	.00	0	.00	5.7	e2060	32	1.0	e920	2.5
3	.00	0	.00	3.9	e860	9.1	e.70	e870	1.6
4	.00	0	.00	3.0	e450	3.6	e.30	e860	.70
5	.00	0	.00	1.5	e290	1.2	5.1	4170	87
6	.00	0	.00	1.3	e200	.70	5.4	5780	84
7	.00	0	.00	1.0	e170	.46	2.1	1640	9.3
8	.00	0	.00	.51	e100	.14	1.1	310	.92
9	.00	0	.00	.43	e55	.06	1.8	9500	46
10	.00	0	.00	.29	e25	.02	.98	e4600	12
11	.00	0	.00	.21	e25	.01	.68	390	.72
12	.00	0	.00	.00	0	.00	e.60	180	.29
13	.00	0	.00	.00	0	.00	e.50	e175	.24
14	.00	0	.00	.00	0	.00	e.45	e172	.21
15	.00	0	.00	.00	0	.00	.38	170	.17
16	.00	0	.00	.00	0	.00	e.25	e130	.09
17	.00	0	.00	2.4	e1280	8.3	e.15	e110	.04
18	.00	0	.00	9.8	e2740	73	e.05	90	.01
19	.00	0	.00	2.7	e1630	12	e.00	0	.00
20	.00	0	.00	2.6	e1180	8.3	.00	0	.00
21	.00	0	.00	2.1	e1100	6.2	.00	0	.00
22	.00	0	.00	2.3	e1570	9.7	.00	0	.00
23	.00	0	.00	2.5	e1700	11	.00	0	.00
24	.00	0	.00	11	e4400	131	.00	0	.00
25	.00	0	.00	7.3	4620	91	.00	0	.00
26	.00	0	.00	6.2	e4300	72	.00	0	.00
27	.00	0	.00	4.6	e4230	53	.00	0	.00
28	.00	0	.00	2.7	e2490	18	.00	0	.00
29	.00	0	.00	1.5	e1380	5.6	.00	0	.00
30	e.50	e4	.01	---	---	---	.00	0	.00
31	e2.0	e5200	28	---	---	---	.00	0	.00
TOTAL	2.50	---	28.01	85.54	---	696.39	22.64	---	248.79
APRIL			MAY			JUNE			
1	.00	0	.00	.00	0	.00	.00	0	.00
2	.00	0	.00	.00	0	.00	.00	0	.00
3	.00	0	.00	.00	0	.00	.00	0	.00
4	.00	0	.00	.00	0	.00	.00	0	.00
5	.00	0	.00	.00	0	.00	.00	0	.00
6	.00	0	.00	.00	0	.00	.00	0	.00
7	.00	0	.00	.00	0	.00	.00	0	.00
8	.00	0	.00	.00	0	.00	.00	0	.00
9	.00	0	.00	.00	0	.00	.00	0	.00
10	.00	0	.00	.00	0	.00	.00	0	.00
11	.00	0	.00	.00	0	.00	.00	0	.00
12	.00	0	.00	.00	0	.00	.00	0	.00
13	.00	0	.00	.00	0	.00	.00	0	.00
14	.00	0	.00	.00	0	.00	.00	0	.00
15	.00	0	.00	.00	0	.00	.74	309	.62
16	.00	0	.00	.00	0	.00	.86	385	.89
17	.00	0	.00	.00	0	.00	1.6	985	4.3
18	.00	0	.00	.00	0	.00	.63	e820	1.4
19	.00	0	.00	.00	0	.00	e.43	e320	.37
20	.00	0	.00	.00	0	.00	e.20	e100	.05
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	9.9	28800	770
23	.00	0	.00	.00	0	.00	.86	1100	2.6
24	.00	0	.00	.00	0	.00	.43	250	.29
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.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	.00	0	.00	.00	0	.00
31	---	---	---	.00	0	.00	---	---	---
TOTAL	0.00	---	0.00	0.00	---	0.00	15.65	---	780.52

e Estimated

MISSOURI-FORT RANDALL RIVER BASIN

06441110 PLUM CREEK BELOW HAYES, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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	0	.00	2.3	187	1.2	11	e994	30
2	1.7	7320	34	1.2	90	.29	1.1	440	1.3
3	.98	450	1.2	1.1	78	.23	.11	e50	.01
4	e.60	e80	.13	239	19300	32000	.00	e55	.00
5	e.30	e40	.03	87	e29500	6930	.29	e160	.13
6	e.10	e20	.01	14	e9700	367	.29	e100	.08
7	8.3	9680	481	4.3	e1700	20	.05	e30	.00
8	3.4	e13000	119	2.3	450	2.8	.00	0	.00
9	19	30000	1540	1.2	242	.78	.00	0	.00
10	1.7	4100	19	.68	165	.30	.00	0	.00
11	35	18600	3090	.43	140	.16	.00	0	.00
12	19	26100	1340	.29	e130	.10	.00	0	.00
13	63	12000	2040	.18	e120	.06	.00	0	.00
14	28	15200	1150	.05	e70	.01	.00	0	.00
15	8.8	2500	59	.00	0	.00	.00	0	.00
16	3.9	500	5.3	.00	0	.00	.00	0	.00
17	e2.0	e350	1.9	.00	0	.00	.00	0	.00
18	e1.5	e220	.89	.00	0	.00	.00	0	.00
19	1.3	154	.54	.00	0	.00	.00	0	.00
20	1.7	190	.87	.00	0	.00	.00	0	.00
21	1.6	260	1.1	.00	0	.00	.00	0	.00
22	9.0	7690	187	.00	0	.00	.00	0	.00
23	4.2	1750	20	.04	e100	.01	.00	0	.00
24	2.2	205	1.2	.17	e400	.18	.00	0	.00
25	1.7	145	.67	.07	e350	.07	.00	0	.00
26	e1.1	55	.16	.08	e300	.06	.00	0	.00
27	e.70	40	.08	.09	e450	.11	.00	0	.00
28	e.40	e30	.03	.10	e100	.03	.00	0	.00
29	e3.1	e2000	17	.01	0	.00	.00	0	.00
30	52	33200	6650	.00	0	.00	.00	0	.00
31	5.9	7500	119	.00	0	.00	---	---	---
TOTAL	282.18	---	16879.11	354.59	---	39323.39	12.84	---	31.52
YEAR	775.94		57987.73						

e Estimated

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (000061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. & FINER THAN .062 MM (70331)
FEB 1992					
25...	1010	5.5	1.0	5180	100
JUL					
13...	1300	98	19.0	11800	100
15...	1500	9.6	19.0	1260	100

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LOCATION.--Lat 44°19'36", long 100°23'02", in NW1/4NW1/4 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.

WATER-DISCHARGE RECORDS

REVISED RECORDS.--WSP 786: Drainage area. WSP 856: 1929(M), 1937.

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.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1992, BY WATER YEAR (WY)

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1929 - 1992

e Estimated

a Median of annual mean discharges, 98 ft³/s.

b No flow for long periods in each year.

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 fair. Observer collects samples on a daily basis. Flow affected by ice Jan. 29 to Feb. 25.
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 on many days each year.

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, 51,000 mg/L, July 8; minimum daily mean, 0 mg/L on many days.

SEDIMENT LOAD: Maximum daily, 148,000 tons, July 7; minimum daily, 0 ton on many days.

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	.00	0	.00	.00	0	.00	.00	0	.00
2	.00	0	.00	.00	0	.00	.00	0	.00
3	.00	0	.00	.00	0	.00	.00	0	.00
4	.00	0	.00	.00	0	.00	.00	0	.00
5	.00	0	.00	.00	0	.00	.00	0	.00
6	.00	0	.00	.00	0	.00	.00	0	.00
7	.00	0	.00	.00	0	.00	.00	0	.00
8	.00	0	.00	.00	0	.00	.00	0	.00
9	.00	0	.00	.00	0	.00	.00	0	.00
10	.00	0	.00	.00	0	.00	.00	0	.00
11	.00	0	.00	.00	0	.00	.00	0	.00
12	.00	0	.00	.00	0	.00	.00	0	.00
13	.00	0	.00	.00	0	.00	.00	0	.00
14	.00	0	.00	.00	0	.00	.00	0	.00
15	.00	0	.00	.00	0	.00	.00	0	.00
16	.00	0	.00	.00	0	.00	.00	0	.00
17	.00	0	.00	.00	0	.00	.00	0	.00
18	.00	0	.00	.00	0	.00	.00	0	.00
19	.00	0	.00	.00	0	.00	.00	0	.00
20	.00	0	.00	.00	0	.00	.00	0	.00
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	.00	0	.00
23	.00	0	.00	.00	0	.00	.00	0	.00
24	.00	0	.00	.00	0	.00	.00	0	.00
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.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	.00	0	.00	.00	0	.00
31	.00	0	.00	---	---	---	.00	0	.00
TOTAL	0.00	---	0.00	0.00	---	0.00	0.00	---	0.00

MISSOURI-FORT RANDALL RIVER BASIN

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06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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	0	.00	e10	e410	11	96	e4550	1180
2	.00	0	.00	e24	e685	44	62	1300	218
3	.00	0	.00	e48	1120	145	39	360	38
4	.00	0	.00	e38	884	91	28	180	14
5	.00	0	.00	e30	400	32	42	3430	389
6	.00	0	.00	e20	195	11	98	5220	1380
7	.00	0	.00	e17	102	4.7	96	3580	928
8	.00	0	.00	e14	80	3.0	52	e2190	307
9	.00	0	.00	e15	92	3.7	85	6040	1390
10	.00	0	.00	e13	e92	3.2	e116	e5700	1790
11	.00	0	.00	e10	e90	2.4	73	1970	388
12	.00	0	.00	e9.0	e90	2.2	43	1400	163
13	.00	0	.00	e10	e90	2.4	33	1180	105
14	.00	0	.00	e11	e90	2.7	71	e1970	378
15	.00	0	.00	e12	e86	2.8	47	e700	89
16	.00	0	.00	e12	e86	2.8	32	250	22
17	.00	0	.00	e80	e1830	395	24	160	10
18	.00	0	.00	e220	6620	3930	19	e82	4.2
19	.00	0	.00	e240	4930	3190	14	e68	2.6
20	.00	0	.00	e100	2370	640	11	e68	2.0
21	.00	0	.00	e75	1530	310	9.3	e67	1.7
22	.00	0	.00	e55	1430	212	7.7	e67	1.4
23	.00	0	.00	e50	e1210	163	5.8	e66	1.0
24	.00	0	.00	e75	2790	565	4.1	e64	.71
25	.00	0	.00	e150	e6860	2780	2.5	e62	.42
26	e.00	0	.00	172	7010	3260	1.5	e59	.24
27	e.00	0	.00	164	8100	3590	.98	e56	.15
28	e.00	0	.00	130	9680	3400	.83	e52	.12
29	e.10	e10	.00	125	8920	3010	1.0	e50	.13
30	e1.0	e238	.64	---	---	---	.83	e48	.11
31	e10	e448	12	---	---	---	.91	e44	.11
TOTAL	11.10	---	12.64	1929.0	---	25808.9	1116.45	---	8803.89
APRIL			MAY			JUNE			
1	.84	40	.09	.03	e8	.00	.00	0	.00
2	.95	e40	.10	.00	0	.00	.00	0	.00
3	1.2	40	.13	.00	0	.00	.00	0	.00
4	1.2	29	.09	.00	0	.00	.00	0	.00
5	1.1	32	.10	.00	0	.00	.00	0	.00
6	.83	64	.14	.00	0	.00	.00	0	.00
7	.61	80	.13	.00	0	.00	.00	0	.00
8	.63	82	.14	.00	0	.00	.00	0	.00
9	.58	87	.14	.00	0	.00	.00	0	.00
10	.62	83	.14	.00	0	.00	.00	0	.00
11	.69	85	.16	.00	0	.00	.00	0	.00
12	.62	75	.13	.00	0	.00	.00	0	.00
13	.52	87	.12	.00	0	.00	.00	0	.00
14	.59	111	.18	.00	0	.00	.00	0	.00
15	.66	116	.21	.00	0	.00	.00	0	.00
16	.78	130	.27	.00	0	.00	.00	0	.00
17	.78	139	.29	.00	0	.00	218	e6250	9750
18	.58	138	.22	.00	0	.00	267	e11200	8820
19	.49	e119	.16	.00	0	.00	186	5930	2980
20	.44	95	.11	.00	0	.00	110	e4310	1280
21	.43	75	.09	.00	0	.00	83	2790	625
22	.53	78	.11	.00	0	.00	55	e1500	223
23	.61	120	.20	.00	0	.00	64	e1580	273
24	.67	130	.24	.00	0	.00	45	e460	56
25	.51	109	.15	.00	0	.00	32	660	57
26	.35	68	.06	.00	0	.00	56	3300	499
27	.28	e54	.04	.00	0	.00	27	700	51
28	.25	e42	.03	.00	0	.00	17	340	16
29	.18	e31	.02	.00	0	.00	9.0	230	5.6
30	.14	e19	.01	.00	0	.00	4.6	e220	2.7
31	---	---	---	.00	0	.00	---	---	---
TOTAL	18.66	---	4.00	0.03	---	0.00	1173.60	---	24638.30

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 1991 TO SEPTEMBER 1992

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	118	7880	3970	83	7100	1590	38	6840	6530
2	141	10400	3960	36	940	91	47	e13700	2560
3	86	e6750	1570	21	180	10	17	e4600	211
4	32	e3600	311	140	4600	10800	4.8	400	5.2
5	13	e1330	47	1130	22800	68400	6.6	e143	2.5
6	8.7	350	8.2	448	11200	13500	4.6	127	1.6
7	773	43900	148000	175	4700	2220	1.3	e94	.33
8	274	51000	37700	83	800	179	.52	e81	.11
9	192	23300	12100	47	185	23	.25	e68	.05
10	445	e48500	58300	31	153	13	.08	e53	.01
11	814	e45900	115000	21	117	6.6	.23	e38	.02
12	951	25800	66200	14	111	4.2	.06	e22	.00
13	1070	16000	46200	9.2	118	2.9	.00	0	.00
14	1470	10800	42900	5.5	78	1.2	.00	0	.00
15	576	3600	5600	3.2	58	.50	.00	0	.00
16	285	3300	2540	2.1	62	.35	.00	0	.00
17	151	e3200	1300	1.3	60	.21	.00	0	.00
18	80	e2520	544	.94	56	.14	.00	0	.00
19	58	e1460	229	.67	58	.10	.00	0	.00
20	39	520	55	.48	38	.05	.00	0	.00
21	33	e220	20	.38	38	.04	.00	0	.00
22	135	9640	3730	.38	49	.05	.00	0	.00
23	71	e1880	360	.41	49	.05	.00	0	.00
24	49	580	77	.51	73	.10	.00	0	.00
25	46	430	53	.81	53	.12	.00	0	.00
26	28	290	22	6.0	153	2.5	.00	0	.00
27	19	220	11	7.8	e139	2.9	.00	0	.00
28	24	740	48	6.5	92	1.6	.00	0	.00
29	57	e1500	231	4.1	70	.77	.00	0	.00
30	525	30800	52400	2.7	47	.34	.00	0	.00
31	257	17600	12200	1.3	50	.18	---	---	---
TOTAL	8820.7	---	615686.2	2283.28	---	96850.90	120.44	---	9310.82
YEAR	15473.26		781115.65						
e Estimated									

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (000061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
FEB 1992					
03...	1540	48	0.5	1550	100
MAR					
02...	1015	67	3.0	1380	100
JUL					
01...	1200	231	18.0	12400	100
13...	1600	1460	20.0	21100	100
31...	1100	253	19.0	17900	100

MISSOURI-FORT RANDALL RIVER BASIN

175

06441590 MISSOURI RIVER AT LA FRAMBOISE ISLAND, AT PIERRE, SD

LOCATION.--Lat 44°21'07", long 100°21'31", in NW1/4SW1/4NE1/4 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 good. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.70	21.20	21.80	21.18	21.19	21.65	22.48	22.16	22.40	22.79	21.61	21.97
2	21.77	21.30	22.96	21.20	21.67	22.11	22.53	21.91	22.55	22.41	21.76	21.41
3	21.91	21.38	21.82	21.10	21.91	21.93	22.54	21.60	22.68	22.04	22.02	22.19
4	21.77	22.33	22.67	21.85	21.86	21.60	22.65	22.13	22.10	22.30	22.37	21.94
5	21.53	21.23	22.22	21.60	21.76	21.44	22.02	22.17	22.17	22.73	21.86	21.53
6	21.69	21.54	22.01	22.57	21.50	20.94	22.34	22.42	22.09	22.98	21.97	21.83
7	21.74	21.15	21.74	21.99	21.49	20.50	22.34	22.64	21.76	22.31	21.80	21.59
8	21.47	20.77	21.30	21.73	21.55	20.74	22.35	22.41	22.62	22.06	22.20	22.14
9	21.37	20.67	22.16	22.35	21.61	21.87	23.10	22.61	22.80	22.61	22.03	21.08
10	21.29	20.80	21.81	21.85	21.93	21.59	23.55	22.39	22.56	21.92	22.41	20.86
11	21.19	20.90	22.09	21.61	22.47	21.45	22.47	23.05	22.99	22.45	21.68	21.18
12	21.74	20.88	21.92	21.50	22.27	21.50	22.60	22.79	22.89	21.61	21.44	21.24
13	20.70	20.81	21.33	22.07	22.04	21.23	23.14	23.53	22.47	22.32	21.61	21.04
14	21.15	20.87	21.60	21.98	21.88	21.60	22.70	22.86	22.23	22.16	21.66	21.72
15	21.39	20.69	21.51	21.94	21.85	21.94	22.57	23.29	23.14	21.92	21.84	22.17
16	21.35	21.02	22.09	22.02	22.04	21.98	22.72	23.20	22.70	21.09	21.64	21.74
17	20.94	21.07	21.80	21.79	22.81	21.84	23.03	22.50	21.41	20.89	22.13	21.30
18	20.99	20.95	22.47	22.32	22.58	21.61	22.59	23.44	21.61	21.04	21.95	20.70
19	21.08	20.69	22.48	21.85	22.86	21.43	21.73	23.32	21.45	21.07	22.00	21.50
20	21.16	20.85	21.47	22.48	22.37	21.67	22.38	23.05	21.38	21.72	21.77	21.47
21	21.43	20.83	21.73	22.62	22.34	21.63	22.53	23.04	21.09	21.90	21.79	21.33
22	20.91	20.67	21.30	22.44	21.95	21.67	22.43	22.39	22.42	21.84	21.94	21.73
23	20.82	20.60	21.39	22.32	21.63	22.58	22.13	21.89	23.63	22.28	21.20	21.48
24	20.37	20.72	21.24	22.36	22.24	22.51	21.92	21.99	23.63	22.65	22.60	21.59
25	20.88	21.38	20.79	21.57	22.06	22.70	22.12	21.75	23.55	22.02	22.34	21.08
26	21.35	20.76	20.61	21.53	21.60	22.67	22.07	22.45	23.59	21.89	22.35	21.12
27	21.46	20.68	20.47	22.64	21.41	23.14	22.89	22.39	23.52	22.85	22.35	21.20
28	20.72	20.63	21.07	22.54	21.63	22.66	22.60	22.38	23.03	22.42	21.99	21.71
29	20.69	20.97	21.37	22.12	21.70	22.18	22.34	22.13	23.38	21.84	21.31	21.99
30	21.31	21.15	21.74	21.93	---	22.80	22.46	22.27	23.39	20.90	21.29	21.88
31	21.67	---	21.24	21.97	---	22.47	---	21.67	---	20.91	22.04	---
MEAN	21.28	20.98	21.68	21.97	21.94	21.86	22.51	22.51	22.57	22.00	21.90	21.52
MAX	21.91	22.33	22.96	22.64	22.86	23.14	23.55	23.53	23.63	22.98	22.60	22.19
MIN	20.37	20.60	20.47	21.10	21.19	20.50	21.73	21.60	21.09	20.89	21.20	20.70

MISSOURI-FORT RANDALL RIVER BASIN

06441595 MISSOURI RIVER AT FARM ISLAND, NEAR PIERRE, SD

LOCATION.--Lat 44°20'03", long 100°15'54", in NW1/4SW1/4NE1/4 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 good. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.25	19.48	20.77	20.60	20.36	20.97	21.00	20.83	21.02	21.13	20.13	20.79
2	21.29	19.61	21.41	20.54	20.81	21.22	21.05	20.71	21.01	20.87	20.50	20.29
3	21.43	20.47	20.63	20.24	20.93	21.06	20.94	20.77	20.97	20.63	20.83	20.73
4	21.32	21.21	21.20	20.87	20.84	20.83	21.19	21.07	20.59	20.83	21.11	20.66
5	21.08	20.48	20.84	20.82	20.83	20.58	20.94	21.04	20.59	21.40	20.74	20.42
6	21.23	20.60	20.71	21.59	20.45	20.09	21.10	21.16	20.49	21.66	20.76	20.85
7	21.28	20.35	20.55	21.21	20.38	19.87	21.06	21.16	20.66	21.22	20.47	20.79
8	21.03	20.04	20.58	20.72	20.73	20.04	20.99	21.04	21.04	20.81	20.68	21.17
9	20.91	19.93	21.10	21.23	20.96	20.60	21.38	21.20	21.05	21.00	20.93	20.20
10	20.85	20.08	20.80	20.85	20.98	20.68	21.60	21.18	20.92	20.50	21.13	20.14
11	20.71	20.11	20.90	20.75	21.41	20.65	21.03	21.57	21.24	20.93	20.72	20.42
12	21.16	20.09	20.62	20.86	21.29	20.73	21.44	21.19	21.09	20.82	20.41	20.46
13	20.13	20.03	19.93	21.21	21.04	20.38	21.66	21.69	20.89	21.14	20.45	20.30
14	20.57	20.05	20.37	21.09	20.92	20.58	21.33	21.25	20.84	20.95	20.30	20.78
15	20.90	19.92	20.75	21.04	20.94	21.02	21.19	21.47	21.46	20.58	20.51	21.02
16	20.84	20.21	21.07	21.01	21.21	20.98	21.24	21.30	21.23	19.98	20.64	---
17	20.45	20.28	20.75	20.70	21.70	20.93	21.53	21.14	20.59	19.88	20.99	20.32
18	20.48	20.22	21.18	21.03	21.41	20.75	21.25	21.85	20.81	19.98	20.80	19.88
19	20.59	20.00	21.14	21.02	21.68	20.53	20.68	21.58	20.70	20.18	20.76	20.44
20	20.68	20.09	20.38	21.41	21.23	20.69	21.02	21.44	20.54	20.65	20.42	20.59
21	20.90	20.00	20.46	21.46	21.20	20.59	21.07	21.28	20.16	20.80	20.37	20.52
22	20.39	19.80	20.52	21.13	20.92	20.74	21.11	20.75	20.67	20.61	20.57	20.80
23	20.19	19.85	20.64	21.07	20.89	21.29	20.94	20.68	21.38	20.75	20.20	20.58
24	19.72	20.02	20.45	21.22	21.32	21.10	20.71	20.94	21.39	20.96	21.10	20.71
25	19.90	20.49	20.16	20.65	21.18	21.22	20.85	20.68	21.41	20.51	20.95	20.31
26	20.03	20.01	19.94	20.90	20.80	21.19	21.07	21.01	21.44	20.65	20.87	20.27
27	20.14	20.01	19.83	21.52	20.68	21.55	21.66	20.94	21.50	21.23	20.79	20.41
28	19.19	19.97	20.22	21.37	20.68	21.15	21.31	20.83	21.40	20.81	20.50	20.81
29	19.25	20.07	20.47	20.98	20.85	20.92	21.11	20.66	21.72	20.45	19.87	20.88
30	19.90	20.07	20.92	20.80	---	21.32	21.19	20.82	21.73	19.85	20.27	20.80
31	20.22	---	20.73	20.81	---	20.99	---	20.63	---	19.78	20.96	---
MEAN	20.58	20.12	20.65	20.99	20.99	20.81	21.15	21.09	21.02	20.69	20.64	---
MAX	21.43	21.21	21.41	21.59	21.70	21.55	21.66	21.85	21.73	21.66	21.13	---
MIN	19.19	19.48	19.83	20.24	20.36	19.87	20.68	20.63	20.16	19.78	19.87	---

MISSOURI-FORT RANDALL RIVER BASIN

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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 mi², approximately.

PERIOD OF RECORD.--July 1963 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam; closure made July 1963; intentional storage began November 1963. Maximum capacity, 1,874,000 acre-ft below elevation, 1,423.0 ft (top of spillway gates). Normal maximum, 1,697,000 acre-ft below elevation 1,424.0 ft. Inactive storage, 1,424,000 acre-ft below elevation 1,415.0 ft. Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of a concrete chute with flat crest at elevation 1,385.0 ft surmounted by 8 taintor gates, each 40 by 38 ft; design capacity, 390,000 ft³/s. Normal releases are through 8 power units (completed in July 1966), with a generating capacity of 58,500 kilowatts each. Maximum release through power-plant about 100,000 ft³/s. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,829,000 acre-ft, Apr. 22, 1971, affected by wind; minimum since initial filling, 1,448,000 acre-ft, Sept. 17, 1967, affected by wind.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,795,000 acre-ft, Oct. 1; minimum contents, 1,650,000 acre-ft, Oct. 26.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,421.50	1,790,000	-
Oct. 31	1,419.84	1,674,000	-116,000
Nov. 30	1,420.56	1,717,000	+43,000
Dec. 31	1,420.71	1,732,000	+15,000
CAL YR 1991	-	-	-18,000
Jan. 31	1,420.06	1,697,000	-35,000
Feb. 29	1,420.80	1,741,000	+44,000
Mar. 31	1,420.60	1,731,000	-10,000
Apr. 30	1,420.57	1,730,000	-1,000
May 31	1,420.76	1,738,000	+8,000
June 30	1,420.60	1,732,000	-6,000
July 31	1,419.75	1,682,000	-50,000
Aug. 31	1,420.40	1,744,000	+62,000
Sept. 30	1,420.52	1,705,000	-39,000
WTR YR 1992	-	-	-85,000

NOTE.--Lake did not freeze over.

MISSOURI-FORT RANDALL RIVER BASIN

06442718 CAMPBELL CREEK NEAR LEE'S CORNER, SD

LOCATION.--Lat 44°04'39", long 99°22'51", in NW1/4NE1/4NW1/4 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 mi².

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	e.00	e.01	e.02	e6.0	13	.21	.17	.06	29	.06	.06
2	.00	e.00	e.01	e.02	e3.0	8.8	.24	.14	.06	25	.06	.06
3	.00	e.00	e.02	e.10	e1.0	6.3	.26	.15	.06	4.2	.06	.06
4	.01	e.00	e.01	e.09	e.20	4.9	.23	.15	.06	.54	24	.06
5	.00	e.01	e.03	e.08	e.04	6.3	.25	.16	.08	.33	30	.08
6	.00	e.02	e.05	e.15	e.03	6.7	.24	.16	.06	.27	13	23
7	.00	e.02	e.10	e.30	.03	4.6	.26	.15	.06	24	5.1	13
8	.00	e.02	e.25	e.25	.02	e4.0	.27	.14	.06	12	.73	.14
9	.00	e.04	e.30	e.15	.02	e3.5	.25	.12	.06	41	.21	.10
10	.00	e.06	e.20	e.15	.02	e3.0	.23	.12	.05	13	.12	.08
11	.00	e.05	e.10	e.17	.01	2.7	.22	.13	.05	17	.09	.08
12	.00	e.04	.05	e.19	.03	.99	.20	.11	.05	105	.11	.08
13	.00	.04	.03	e.21	.03	.84	.21	.11	.05	30	.06	.08
14	.01	.03	.02	e.18	.03	.49	.22	.10	.06	16	.06	.08
15	.01	.03	.01	e.16	.03	.45	.22	.10	.10	7.5	.06	.08
16	.02	.02	.02	e.17	e1.0	.50	.22	.09	56	1.6	.06	.08
17	.02	.03	.02	e.18	e100	.35	.22	.09	86	.36	.06	.08
18	.02	.04	e.02	e.20	e50	.36	.24	.09	12	.15	.06	.08
19	.02	.02	e.01	e.22	e20	.36	.22	.09	1.3	.11	.06	.08
20	.02	.02	e.01	e.25	e10	.36	.19	.08	.29	.08	.06	.09
21	.03	.02	e.01	e.30	e6.0	.34	.18	.08	.19	.08	.06	.09
22	.03	.02	e.02	e.30	e4.0	.27	.19	.07	3.2	.30	.06	.09
23	.03	.01	.03	e.25	e2.5	.30	.17	.07	.23	.16	.06	.10
24	.04	.01	.02	e.20	e1.5	.30	.18	.07	.17	.09	.06	.10
25	.04	.01	.02	e.25	e3.0	.24	.17	.08	.19	.08	.06	.10
26	.06	.02	.02	e.25	e92	.22	.17	.07	.17	.07	.06	.10
27	.06	.02	e.02	e.25	e80	.22	.19	.08	.17	.06	.06	.11
28	e.03	.02	e.02	e.25	43	.23	.19	.08	.17	.06	.06	.12
29	e.02	.02	e.02	e1.0	20	.26	.19	.08	.17	.08	.06	.13
30	e.01	e.02	e.02	e10	---	.24	.18	.07	22	.09	.06	.15
31	e.00	---	e.02	e8.0	---	.22	---	.06	---	.07	.06	---
TOTAL	0.48	0.66	1.49	24.29	443.49	71.34	6.41	3.26	183.17	328.28	74.68	38.54
MEAN	.015	.022	.048	.78	15.3	2.30	.21	.11	6.11	10.6	2.41	1.28
MAX	.06	.06	.30	.10	100	.13	.27	.17	.86	105	.30	.23
MIN	.00	.00	.01	.02	.01	.22	.17	.06	.05	.06	.06	.06
AC-FT	1.0	1.3	3.0	48	880	142	13	6.5	363	651	148	76

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992
MEAN	.005	.013	.015	.19	3.44
MAX	.015	.022	.048	.78	15.3
(WY)	1992	1992	1992	1992	1992
MIN	.000	.000	.000	.000	.000
(WY)	1988	1989	1988	1988	1989

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1988 - 1992
ANNUAL TOTAL	3508.55	1176.09	
ANNUAL MEAN	9.61	3.21	3.07
HIGHEST ANNUAL MEAN			9.61
LOWEST ANNUAL MEAN			.63
HIGHEST DAILY MEAN	909	May 17	909
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW		468	2920
INSTANTANEOUS PEAK STAGE		7.08	14.19
ANNUAL RUNOFF (AC-FT)	6960	2330	2220
10 PERCENT EXCEEDS	3.1	6.0	1.4
50 PERCENT EXCEEDS	.02	.09	.02
90 PERCENT EXCEEDS	.00	.02	.00

e Estimated

a No flow for long periods in most years.

b Gage height, 6.45 ft.

c Backwater from ice.

MISSOURI-FORT RANDALL RIVER BASIN

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06442900 ELM CREEK NEAR GANN VALLEY, SD

LOCATION.--Lat 44°04'38", long 99°09'03", in NW1/4NE1/4NE1/4 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 mi².

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.01	.00	.00	.00	e55	88	.91	.36	e.06	3.0	.33	.08
2	e.01	.00	.00	.00	e60	46	.85	.37	.06	3.2	.34	.08
3	e.01	.00	.00	.00	e42	29	.78	.28	.06	4.9	.33	.06
4	e.01	.00	.00	.00	e35	21	.68	.22	.06	9.0	.40	.05
5	e.01	.00	.00	.00	e28	17	.70	.21	.08	7.1	.54	.06
6	e.01	.00	.00	.00	e17	15	.65	.19	e.07	5.8	.53	.04
7	.01	.00	.00	e1.0	e15	14	.57	.19	e.06	4.7	1.3	.11
8	.01	.00	.00	e16	e12	12	.54	.19	e.05	3.9	1.0	.08
9	.00	.00	.00	e9.0	8.1	11	.58	.15	e.04	3.4	.87	.13
10	.00	.00	.00	e1.4	6.1	9.5	.58	.13	e.03	4.4	.85	.08
11	.00	.00	.00	e.45	5.7	8.1	.55	.13	.03	6.9	.69	.08
12	.00	.00	.00	e.46	5.1	7.3	.51	.12	.02	111	.53	.07
13	.00	.00	.00	e.60	4.3	5.5	.52	.13	.01	176	.39	.07
14	.00	.00	.00	e.64	3.7	4.5	.43	.15	.02	71	.34	.12
15	.00	.00	.00	e.50	3.4	3.7	.43	.16	.04	41	.37	.23
16	.00	.00	.00	e.70	3.3	3.0	.42	.16	.45	28	.38	.20
17	.00	.00	.00	e.65	81	2.7	.43	.12	30	18	.33	.15
18	.00	.00	.00	e.60	487	2.4	.51	.11	97	12	.32	.13
19	.00	.00	.00	e.60	516	1.9	.56	.10	49	8.3	.31	.12
20	.00	.00	.00	e.74	229	1.8	.49	.08	23	5.9	.27	.14
21	.00	.00	.00	e.90	114	1.8	.46	.06	14	4.2	.26	.14
22	.00	.00	.00	e1.4	68	1.7	.44	.04	17	3.9	.27	.09
23	.00	.00	.00	e2.0	44	1.6	.39	.03	16	3.0	.22	.08
24	.00	.00	.00	e15	34	1.5	.37	.06	24	2.6	.24	.10
25	.00	.00	.00	e13	29	1.4	.36	.07	12	1.9	.25	.11
26	.00	.00	.00	e5.0	43	1.5	.35	.06	6.0	1.4	.19	.08
27	.00	.00	.00	e2.0	397	1.4	.36	.06	4.1	.78	.15	.07
28	.00	.00	.00	e1.5	716	1.2	.36	e.06	3.7	.60	.15	.05
29	.00	.00	.00	e4.0	202	1.1	.30	e.06	2.7	.71	.13	.05
30	.00	.00	.00	e17	---	---	.99	.26	e.06	2.0	.79	.08
31	.00	---	.00	e30	---	---	.88	---	e.06	---	.48	.08
TOTAL	0.08	0.00	0.00	125.14	3263.7	318.47	15.34	4.17	301.64	547.86	12.44	2.89
MEAN	.003	.000	.000	4.04	113	10.3	.51	.13	10.1	17.7	.40	.096
MAX	.01	.00	.00	30	716	88	.91	.37	97	176	1.3	.23
MIN	.00	.00	.00	.00	3.3	.88	.26	.03	.01	.48	.08	.04
AC-FT	.2	.00	.00	248	6470	632	30	8.3	598	1090	25	5.7

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

	1991	1988	1988	1989	1989	1991	1990	1992	1989	1988	1988	1988
MEAN	.003	.000	.006	.82	23.5	18.2	2.28	24.7	25.9	3.89	.15	.030
MAX	.010	.000	.032	4.04	113	62.1	5.23	98.1	103	17.7	.40	.096
(WY)	1991	1988	1988	1992	1992	1989	1989	1991	1991	1992	1992	1992
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1988 - 1992

ANNUAL TOTAL	6254.86	4591.73	
ANNUAL MEAN	17.1	12.5	8.18
HIGHEST ANNUAL MEAN			17.1
LOWEST ANNUAL MEAN			2.06
HIGHEST DAILY MEAN	1210	716	1210
LOWEST DAILY MEAN	.00 Jan 1	.00 Feb 28	.00 Jun 5 1991
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 1	.00 Oct 9	.00 Oct 1 1987a
INSTANTANEOUS PEAK FLOW		904	1400
INSTANTANEOUS PEAK STAGE		10.24 Feb 28	12.31 Jun 5 1991
ANNUAL RUNOFF (AC-FT)	12410	9110	5930
10 PERCENT EXCEEDS	12	17	6.9
50 PERCENT EXCEEDS	.03	.27	.02
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a No flow at times in each year.

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 SE1/4NE1/4NW1/4 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 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55.19	---	---	---	---	53.86	55.48	55.88	54.71	55.51	56.35	54.38
2	54.37	---	---	---	---	53.98	55.70	55.78	54.76	55.83	55.88	54.25
3	53.76	---	---	---	---	54.32	55.90	55.46	55.06	56.17	55.76	54.32
4	---	---	---	---	---	54.57	55.92	55.32	54.96	55.95	55.98	54.45
5	---	---	---	---	---	54.92	55.80	55.23	55.02	55.59	55.94	53.99
6	---	---	---	---	---	55.25	55.40	55.22	54.89	55.79	56.11	53.65
7	---	---	---	---	---	55.39	55.49	55.34	54.60	55.72	56.25	---
8	---	---	---	---	---	55.20	55.38	55.17	54.54	55.80	56.20	---
9	---	---	---	---	---	55.11	55.52	55.01	54.83	56.21	55.80	---
10	---	---	---	---	---	55.48	55.71	54.62	54.91	56.31	55.72	---
11	---	---	---	---	---	55.46	55.32	54.59	54.97	56.19	55.80	---
12	---	---	---	---	---	55.69	55.24	54.49	55.31	55.92	55.87	---
13	---	---	---	---	---	55.75	55.34	54.99	55.26	56.01	56.04	---
14	---	---	---	---	---	55.88	55.27	55.13	54.80	56.39	56.03	---
15	---	---	---	---	---	56.03	55.21	55.32	54.93	56.54	55.83	---
16	---	---	---	---	---	56.02	55.42	55.45	54.92	56.66	55.23	---
17	---	---	---	---	---	56.14	55.71	55.23	54.49	56.68	55.02	---
18	---	---	---	---	---	56.04	55.60	55.62	54.32	56.52	55.13	---
19	---	---	---	---	---	55.96	55.17	55.99	53.91	55.95	55.25	---
20	---	---	---	---	---	55.87	54.95	56.22	53.94	55.76	55.32	---
21	---	---	---	---	---	55.28	55.02	56.24	53.90	55.89	55.29	---
22	---	---	---	---	---	55.07	55.65	55.80	53.72	55.64	55.33	---
23	---	---	---	---	---	54.95	55.81	55.82	53.98	55.69	54.46	---
24	---	---	---	---	---	54.95	55.71	55.39	54.47	55.87	54.22	---
25	---	---	---	---	---	55.10	55.48	54.92	54.51	55.64	54.46	---
26	---	---	---	---	---	55.16	55.35	55.22	54.99	55.51	54.74	---
27	---	---	---	---	---	55.76	55.57	55.22	55.27	55.96	54.98	---
28	---	---	---	---	53.62	55.44	55.56	55.36	54.90	56.40	55.13	---
29	---	---	---	---	53.90	54.95	55.67	55.40	54.98	56.67	54.64	---
30	---	---	---	---	---	55.22	55.89	55.14	55.60	56.70	54.33	---
31	---	---	---	---	---	55.12	---	54.81	---	56.69	54.35	---
MEAN	---	---	---	---	---	55.29	55.51	55.33	54.71	56.07	55.40	---
MAX	---	---	---	---	---	56.14	55.92	56.24	55.60	56.70	56.35	---
MIN	---	---	---	---	---	53.86	54.95	54.49	53.72	55.51	54.22	---

WHITE RIVER BASIN

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06445685 WHITE RIVER NEAR NEBRASKA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 43°00'47", long 102°50'07", in NE1/4SW1/4NE1/4 sec.15, T.35 N., R.47 W., Shannon County, Hydrologic Unit 10140201, on left bank 1.0 mi north of Nebraska-South Dakota State line, and 4.3 mi south of Slim Butte.

DRAINAGE AREA.--1,440 mi², approximately.

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

GAGE.--Water-stage recorder. Elevation of gage is 3,030 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e6.1	e8.0	e9.0	20	156	45	42	15	16	23	5.4	15
2	e3.4	e7.9	e8.0	18	155	42	34	16	16	20	4.7	15
3	e4.9	e7.2	e7.0	16	141	37	24	15	16	22	4.3	11
4	e6.0	e8.0	e8.0	17	131	38	22	15	33	19	4.0	8.6
5	e6.0	9.0	e10	18	128	39	22	14	35	42	4.0	7.3
6	e4.9	7.3	14	e15.5	122	38	20	14	25	35	3.9	4.5
7	e5.2	8.0	17	e12	103	38	19	15	21	21	3.7	2.9
8	e6.8	9.6	18	e10	85	52	18	11	22	13	3.0	2.6
9	e15.5	11	36	e10	72	56	18	13	17	10	2.1	3.4
10	9.4	11	e50	e13	48	59	18	16	17	8.1	1.6	3.3
11	7.4	19	e45	e14	39	78	17	13	14	6.6	1.8	3.1
12	6.3	46	e40	e15	35	112	17	16	12	6.6	1.7	2.8
13	9.5	31	e35	e14	33	114	16	26	10	13	1.5	2.3
14	9.8	25	e35	e13	32	143	17	28	8.9	16	2.3	1.9
15	11	22	e40	e11	39	103	18	19	8.7	16	1.9	1.7
16	13	18	38	e20	39	75	16	16	9.9	49	1.4	1.7
17	14	17	19	18	49	62	16	13	11	23	1.0	4.3
18	16	18	18	23	40	55	22	6.4	11	13	.96	2.6
19	19	17	17	36	37	51	31	8.8	47	9.6	1.4	1.9
20	20	15	15	40	32	48	25	6.6	52	7.2	3.6	2.6
21	22	15	19	48	31	43	26	8.1	27	8.9	3.0	11
22	24	14	21	100	28	41	25	10	18	9.3	5.5	10
23	26	e12	26	101	24	41	24	9.1	15	11	4.4	7.0
24	28	e10.5	50	70	39	42	32	12	28	13	5.4	4.4
25	28	13	18	55	38	43	38	92	21	15	3.8	2.7
26	25	13	14	55	59	42	36	53	66	14	8.7	1.6
27	19	14	13	80	106	42	29	40	122	11	11	2.0
28	23	e13	15	141	72	42	18	31	224	12	14	1.9
29	15	e11	14	146	55	42	16	21	81	7.6	20	1.9
30	9.1	e10	16	163	---	41	16	15	46	6.6	39	2.0
31	8.4	---	18	151	---	42	---	16	---	6.1	21	---
TOTAL	421.7	440.5	703.0	1463.5	1968	1746	692	604.0	1050.5	487.6	190.06	143.0
MEAN	13.6	14.7	22.7	47.2	67.9	56.3	23.1	19.5	35.0	15.7	6.13	4.77
MAX	28	46	50	163	156	143	42	92	224	49	39	15
MIN	3.4	7.2	7.0	10	24	37	16	6.4	8.7	6.1	.96	1.6
AC-FT	836	874	1390	2900	3900	3460	1370	1200	2080	967	377	284

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992
MEAN	7.33	8.57	9.65	15.5	20.6
MAX	13.6	14.7	22.7	47.2	67.9
(WY)	1992	1992	1992	1992	1988
MIN	2.07	3.31	3.35	1.53	1.82
(WY)	1991	1991	1991	1991	1991

SUMMARY STATISTICS FOR 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1988 - 1992

	1991	1992	1988-1992
ANNUAL TOTAL	29852.5	9909.86	
ANNUAL MEAN	81.8	27.1	33.7
HIGHEST ANNUAL MEAN			78.2
LOWEST ANNUAL MEAN			14.2
HIGHEST DAILY MEAN	1910	May 12	1910
LOWEST DAILY MEAN	1.0	Jan 29	1.0
ANNUAL SEVEN-DAY MINIMUM	1.1	Jan 25	1.5
INSTANTANEOUS PEAK FLOW			434
INSTANTANEOUS PEAK STAGE			8.38
ANNUAL RUNOFF (AC-FT)	59210	19660	24420
10 PERCENT EXCEEDS	135	55	61
50 PERCENT EXCEEDS	17	16	11
90 PERCENT EXCEEDS	1.8	3.9	1.8

e Estimated

a No flow at times in most years.

WHITE RIVER BASIN

06445700 WHITE RIVER NEAR SLIM BUTTE, SD

LOCATION.--Lat 43°05'23", long 102°47'52", in SE1/4SW1/4 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 mi², 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 September 1965, water-stage recorder and supplemental staff or wire-weight gage read daily 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 ft³/s), from slope-area measurement of peak flow.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	e6.0	e9.0	18	105	52	41	15	16	27	6.6	13
2	2.6	e6.0	e8.0	19	115	43	40	15	15	20	5.5	9.0
3	4.1	7.0	e7.0	16	106	40	30	16	15	22	4.6	9.0
4	5.5	7.0	e8.0	17	100	40	27	14	19	20	4.6	4.9
5	5.5	6.7	e10	19	100	41	26	14	34	24	4.3	5.8
6	4.4	6.6	12	18	93	40	25	13	26	35	4.3	5.1
7	4.7	6.4	16	e10	81	40	23	13	21	25	3.9	3.0
8	6.3	7.5	19	e9.0	61	45	22	13	21	15	3.4	2.1
9	15	9.0	22	e9.0	51	59	21	12	18	11	2.6	1.6
10	14	10	e30	16	39	53	19	18	17	8.8	1.9	2.3
11	9.3	12	e25	14	26	61	19	15	13	7.4	1.6	2.4
12	7.5	31	e20	15	24	110	17	15	9.5	7.9	1.5	2.3
13	6.7	37	e17	e9.5	23	116	18	20	7.8	6.7	1.4	2.1
14	7.8	27	e14	e9.0	25	139	19	32	6.4	18	1.1	1.8
15	5.8	26	e16	e8.5	23	135	20	25	5.6	17	1.8	1.6
16	5.0	21	e20	e16	25	77	18	19	7.4	30	1.4	1.2
17	4.6	19	24	17	25	56	16	16	14	32	1.4	.90
18	4.3	21	19	11	28	50	17	10	7.3	16	1.2	1.4
19	5.0	19	18	13	22	46	30	7.3	24	12	.91	1.9
20	5.4	16	16	17	22	44	27	8.3	40	9.5	.71	1.5
21	5.6	14	17	17	21	42	26	5.9	33	15	2.4	2.8
22	6.3	15	19	20	21	40	26	12	22	15	2.2	5.9
23	6.4	12	21	27	26	40	25	9.9	15	11	3.6	5.3
24	6.9	11	28	62	27	40	25	9.2	18	12	3.2	3.7
25	7.6	14	30	41	34	40	34	55	25	12	3.6	2.4
26	9.1	13	15	31	33	41	33	52	20	15	4.8	1.9
27	24	13	15	29	76	41	31	38	121	11	6.5	1.6
28	21	14	14	44	73	41	22	31	282	11	7.7	1.1
29	14	e13	13	102	53	40	16	26	92	9.7	9.9	1.1
30	10	e11	14	110	---	41	17	16	47	7.6	32	1.2
31	7.9	---	15	113	---	41	---	15	---	7.1	25	---
TOTAL	248.4	431.2	531.0	877.0	1458	1734	730	580.6	1012.0	490.7	155.62	99.90
MEAN	8.01	14.4	17.1	28.3	50.3	55.9	24.3	18.7	33.7	15.8	5.02	3.33
MAX	24	37	30	113	115	139	41	55	282	35	32	13
MIN	2.6	6.0	7.0	8.5	21	40	16	5.9	5.6	6.7	.71	.90
AC-FT	493	855	1050	1740	2890	3440	1450	1150	2010	973	309	198

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1992, BY WATER YEAR (WY)

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	12.1	11.3	11.0	12.2	27.0	63.6	46.0	70.0	187	50.3	21.8	9.40																		
MAX	26.5	16.0	16.8	26.9	58.1	263	124	398	1012	185	77.0	22.7																		
(WY)	1963	1970	1992	1992	1963	1966	1970	1991	1967	1969	1966	1991																		
MIN	1.19	4.82	2.82	1.25	1.61	6.32	11.3	15.5	10.5	7.21	1.86	.11																		
(WY)	1965	1965	1965	1991	1991	1991	1991	1964	1966	1964	1964	1964																		

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1963 - 1970, 1992

ANNUAL TOTAL	26117.0	8348.42	
ANNUAL MEAN	71.6	22.8	40.4
HIGHEST ANNUAL MEAN			115
LOWEST ANNUAL MEAN			13.1
HIGHEST DAILY MEAN	1560	282	6720
LOWEST DAILY MEAN	1.0	.71	.00
ANNUAL SEVEN-DAY MINIMUM	1.1	1.2	.00
INSTANTANEOUS PEAK FLOW		337	1750
INSTANTANEOUS PEAK STAGE		8.25	16.61
ANNUAL RUNOFF (AC-FT)	51800	16560	29300
10 PERCENT EXCEEDS	130	44	65
50 PERCENT EXCEEDS	14	16	15
90 PERCENT EXCEEDS	1.5	3.1	2.5

e Estimated

a No flow many days in some years.

b Occurred during partial-record year.

06445980 WHITE CLAY CREEK NEAR OGLALA, SD

LOCATION.--Lat 43°08'46", long 102°40'58", in NW1/4SE1/4SE1/4 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 mi², 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	e4.2	e4.0	e2.3	e4.0	e7.0	18	e5.9	e9.1	e11	e7.2	4.6
2	5.1	e3.7	e3.7	e2.8	e4.5	e7.5	7.1	e5.9	e9.3	e11	e6.0	4.5
3	4.6	e3.0	e3.5	e3.0	e4.5	e8.8	3.2	e4.5	e9.5	e11	e6.3	4.4
4	5.1	e3.0	e3.4	e4.8	e4.5	e9.0	3.2	e4.5	e10	e11	e6.8	4.3
5	5.7	e4.0	e4.0	e5.0	e4.5	e10	2.8	e5.0	e11	e11	e6.7	4.1
6	6.1	e4.0	e4.5	e5.2	e4.5	e12	2.8	e6.4	e12	e11	e6.7	3.8
7	3.2	e4.0	e5.0	e5.0	e4.0	e13	3.3	e6.5	e10	e10	e6.6	3.6
8	3.3	e5.0	e5.0	e5.0	e3.8	e10	3.9	e6.6	e8.0	e10	e6.6	3.5
9	4.5	e6.0	e5.0	e5.0	e3.8	e9.0	4.0	e6.6	e9.5	e10	e6.6	3.4
10	3.3	e6.0	e4.6	e5.0	e3.8	e9.0	4.2	e7.0	e10	e9.8	e5.0	3.3
11	11	e6.0	e4.0	e6.0	e3.0	e12	4.1	e8.0	e11	e9.7	e4.5	3.1
12	9.8	e7.0	e3.8	e6.0	e3.0	e15	4.1	e7.9	e11	e8.0	e4.0	3.0
13	4.8	e8.0	e3.2	e5.0	e3.0	e18	4.2	e7.0	e11	e8.5	e4.3	2.9
14	5.2	e8.0	e3.0	e4.0	e3.0	18	4.3	e7.1	e11	e9.3	e4.5	2.8
15	5.5	e8.0	e3.0	e3.0	e3.0	19	4.5	e8.0	e11	e9.1	e5.0	2.8
16	7.1	e8.0	e3.4	e3.0	e3.0	21	e4.8	e9.0	e11	e7.0	e5.8	2.6
17	6.1	e8.0	e3.4	e2.8	e2.5	19	e4.5	e10	e12	e8.0	e5.7	2.6
18	5.9	e8.0	e3.2	e2.8	e2.4	10	e4.7	e8.0	e12	e9.0	e5.9	2.4
19	7.4	e8.0	e3.0	e2.8	e2.5	10	e4.7	e7.6	e12	e8.5	e5.9	2.3
20	5.4	e7.2	e2.9	e2.7	e2.5	11	e5.0	e7.7	e12	e8.3	5.8	2.2
21	6.0	e7.0	e2.8	e2.6	e2.5	11	e5.6	e7.8	e13	e7.0	5.7	2.0
22	6.6	e6.5	e2.7	e2.4	e2.7	12	e5.5	e7.8	e13	e7.9	5.6	1.9
23	6.8	e6.0	e2.6	e2.2	e3.0	13	e5.5	e7.8	e13	e6.5	5.3	1.9
24	6.9	e6.0	e2.6	e2.2	e3.0	15	e5.6	e8.0	e13	e7.9	5.2	1.9
25	6.7	e7.0	e2.6	e2.2	e3.7	16	e5.7	e8.1	e12	e7.7	5.0	1.7
26	7.8	e7.5	e2.5	e2.6	e4.0	17	e6.2	e8.2	e12	e7.4	5.0	1.6
27	5.3	e7.0	e2.4	e2.6	e4.9	18	e5.8	e9.0	e13	e7.4	4.9	1.5
28	e9.0	e6.0	e2.3	e2.6	e5.3	20	e5.6	e11	e16	e7.2	4.9	1.5
29	e7.5	e5.0	e2.3	e3.0	e6.0	22	e5.0	e10	e14	e7.2	4.8	1.5
30	e6.0	e4.5	e2.3	e3.0	---	22	e6.0	e8.9	e12	e7.1	4.7	1.5
31	e5.0	---	e2.3	e3.5	---	21	---	e9.0	---	e8.0	4.8	---
TOTAL	187.4	181.6	103.0	110.1	104.9	435.3	153.9	234.8	343.4	272.5	171.8	83.2
MEAN	6.05	6.05	3.32	3.55	3.62	14.0	5.13	7.57	11.4	8.79	5.54	2.77
MAX	11	8.0	5.0	6.0	6.0	22	18	11	16	11	7.2	4.6
MIN	3.2	3.0	2.3	2.2	2.4	7.0	2.8	4.5	8.0	6.5	4.0	1.5
AC-FT	372	360	204	218	208	863	305	466	681	541	341	165

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1981, 1988 - 1992, BY WATER YEAR (WY)

MEAN	5.46	6.09	6.11	5.39	8.86	21.9	13.9	13.7	18.8	9.27	6.43	3.10
MAX	15.8	13.1	11.0	11.4	25.4	112	21.6	22.6	109	39.8	19.8	8.74
(WY)	1966	1969	1968	1981	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1966-1981, 1988-1992

ANNUAL TOTAL	3213.1	2381.9	
ANNUAL MEAN	8.80	6.51	9.93a
HIGHEST ANNUAL MEAN			20.8
LOWEST ANNUAL MEAN			4.31
HIGHEST DAILY MEAN	92	22	554
LOWEST DAILY MEAN	1.8	1.5	.00
ANNUAL SEVEN-DAY MINIMUM	2.2	1.6	.00
INSTANTANEOUS PEAK FLOW		23	659
INSTANTANEOUS PEAK STAGE		8.88	15.02
ANNUAL RUNOFF (AC-FT)	6370	4720	7190
10 PERCENT EXCEEDS	13	11	17
50 PERCENT EXCEEDS	7.0	5.6	7.0
90 PERCENT EXCEEDS	2.7	2.6	1.6

e Estimated

a Median of annual mean discharges, 8.4 ft³/s.

b Also Mar. 30.

c Also Sept. 28-30.

d No flow at times in some years.

f Gage height, 6.98 ft.

g Gage height, 14.74 ft.

h Backwater from ice.

WHITE RIVER BASIN

06446000 WHITE RIVER NEAR OGLALA, SD

LOCATION.--Lat 43°15'17", long 102°49'29", in SW1/4NE1/4 sec.24, T.38 N., R.47 W., Shannon County, Hydrologic Unit 10140201, on right bank at downstream side of bridge, 3.0 mi downstream from Blacktail Creek, and 7.0 mi northwest of Oglala.

DRAINAGE AREA.--2,200 mi², approximately.

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

GAGE.--Water-stage recorder. Datum of gage is 2,853.54 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	14	e14	e10.00	e98	e49	e38	e14	33	70	12	47
2	7.5	11	18	e12.00	e108	e40	e37	e14	38	46	12	32
3	5.5	10	19	e15.00	e99	e37	e28	e15	34	32	11	25
4	2.7	10	18	e15.00	e94	e37	e25	e14	34	29	9.5	23
5	1.8	10	18	e12.00	e94	e38	e24	20	40	31	8.2	19
6	5.0	11	18	e12.00	e87	e37	e23	20	62	27	8.1	12
7	7.6	12	19	e14.00	e76	e37	e22	19	59	46	8.6	14
8	5.2	12	21	e16.00	e57	e42	e21	22	42	32	9.4	11
9	5.3	13	24	e17.00	e48	e55	e20	27	37	22	7.6	5.8
10	8.4	18	29	e20.00	e36	e50	e18	38	40	17	5.7	2.6
11	20	21	38	e25.00	e24	e57	e18	35	33	16	4.6	1.5
12	14	21	e30	e20.00	e22	e103	e16	37	32	39	3.1	1.3
13	9.4	27	e20	e15.00	e21	e108	e17	25	22	27	2.4	.79
14	7.0	56	e17	e9.00	e23	e130	e18	27	17	14	2.1	.77
15	4.8	44	e19	e6.00	e21	e126	e19	46	15	20	1.8	1.7
16	11	38	e21	e15	e23	e72	e17	50	18	21	2.0	1.6
17	10	35	e25	e16	e23	e52	e15	34	28	26	2.3	2.0
18	7.9	38	e17	e10	e26	e47	e16	25	39	42	2.9	2.0
19	6.4	35	e16	e12	e21	e43	e28	22	30	19	3.9	2.2
20	7.5	33	e15	e16	e21	e41	e25	13	28	14	3.4	3.4
21	7.5	31	e12	e16	e20	e39	e24	12	76	16	2.9	4.1
22	8.4	27	e14	e18	e20	e37	e24	29	77	30	2.6	2.8
23	8.1	24	e15	e25	e24	e37	e23	20	43	29	2.6	4.2
24	9.2	e23	e17	e58	e25	e37	e23	26	31	17	5.2	21
25	10	e21	e19	e38	e32	e37	e32	20	24	23	13	18
26	10	e20	e21	e29	e31	e38	e31	50	40	23	17	9.9
27	11	e19	e26	e27	e71	e38	e27	108	176	21	16	2.7
28	22	e18	e11	e41	e68	e38	e21	69	320	19	20	2.4
29	28	e17	e11	e95	e50	e37	e15	57	257	17	21	1.3
30	27	e16	e10	e103	---	e38	e16	49	110	41	25	.89
31	19	---	e9.0	e106	---	e38	---	38	---	24	44	---
TOTAL	318.2	685	581.0	843.00	1363	1615	681	995	1835	850	289.9	275.95
MEAN	10.3	22.8	18.7	27.2	47.0	52.1	22.7	32.1	61.2	27.4	9.35	9.20
MAX	28	56	38	106	108	130	38	108	320	70	44	47
MIN	1.8	10	9.0	6.0	20	37	15	12	15	14	1.8	.77
AC-FT	631	1360	1150	1670	2700	3200	1350	1970	3640	1690	575	547

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1992, BY WATER YEAR (WY)

	MEAN	15.4	17.2	15.0	12.8	31.4	109	71.5	105	150	55.4	26.9	21.4
MAX	63.1	55.8	55.7	37.7	77.4	807	362	583	1037	314	130	181	
(WY)	1968	1987	1947	1947	1984	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1944 - 1992

ANNUAL TOTAL	30535.88	10332.05	52.4a
ANNUAL MEAN	83.7	28.2	142
HIGHEST ANNUAL MEAN			13.0
LOWEST ANNUAL MEAN			3870
HIGHEST DAILY MEAN	1250	Jun 7	320
LOWEST DAILY MEAN	.40	Jan 29	.77
ANNUAL SEVEN-DAY MINIMUM	.46	Jan 12	1.4
INSTANTANEOUS PEAK FLOW			552
INSTANTANEOUS PEAK STAGE			11.36
ANNUAL RUNOFF (AC-FT)	60570	20490	37960
10 PERCENT EXCEEDS	170	50	95
50 PERCENT EXCEEDS	20	21	20
90 PERCENT EXCEEDS	1.0	5.2	3.9

a Estimated

a Median of annual mean discharges, 44 ft³/s.

b No flow at times in some years.

c Gage height, 23.50 ft from rating curve extended above 2,800 ft³/s on basis of velocity-area studies.

06447000 WHITE RIVER NEAR KADOKA, SD

LOCATION.--Lat 43°45'09", long 101°31'28", in SE1/4SE1/4 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 (revised), 5.0 mi upstream from Pass Creek, 5.5 mi downstream from Cottonwood Creek, and 5.8 mi south of Kadoka.

DRAINAGE AREA.--5,000 mi², approximately.

PERIOD OF RECORD.--July 1942 to current year.

REVISED RECORDS.--WSP 1279: 1944(M), 1948.

GAGE.--Water-stage recorder. Datum of gage is 2,122.18 ft above sea level. Prior to June 14, 1949, nonrecording gage, and June 14, 1949, to Mar. 8, 1955, water-stage recorder at site 0.3 mi downstream at same datum. Mar. 9, 1955, to May 17, 1957, nonrecording gage at present site and datum.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 4, 1942, reached a stage of 16.24 ft, from floodmarks (discharge, about 32,000 ft³/s, from rating curve extended above 16,000 ft³/s). Floods of Mar. 8, 1905, and in spring of 1927 were 1 or 2 ft higher than flood of June 4, 1942, from information by local residents.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	e10	e20	e16	e250	149	62	44	84	213	77	35
2	15	e10	e17	e16	e275	137	61	41	742	243	109	50
3	19	e9.0	e21	e17	e290	133	62	27	763	438	79	31
4	524	e8.0	e25	e17	e245	161	63	23	374	479	71	22
5	281	e12	e22	e18	e230	535	63	19	176	1310	51	78
6	159	e17	e23	e18	e200	1340	66	15	207	1310	39	73
7	105	e19	e30	e17	e180	644	62	19	219	742	33	37
8	68	e18	e35	e15	e160	408	61	8.9	253	251	28	27
9	48	e19	e38	e14	e130	758	55	5.3	130	123	23	22
10	33	e200	e37	e15	e100	878	40	4.6	80	294	20	17
11	25	e1000	e33	e16	e80	825	43	12	69	97	14	16
12	20	e760	e30	e17	e72	651	34	26	54	146	9.7	17
13	17	e600	e30	e18	e82	725	36	56	34	237	8.5	14
14	14	e458	e26	e17	e88	571	43	78	66	420	4.3	9.8
15	12	e361	e20	e12	e100	370	37	63	339	185	2.0	8.4
16	10	e303	e22	e14	e95	254	46	51	218	146	2.7	5.5
17	9.1	222	e22	e18	e90	214	41	46	1140	98	7.3	3.8
18	8.9	176	e20	e20	e85	182	34	35	780	61	5.9	2.7
19	18	176	e20	e20	e82	186	32	25	608	47	1.1	2.2
20	21	285	e20	e20	e80	174	46	21	515	37	.24	1.5
21	19	224	e19	e22	e90	142	118	11	1340	86	.06	.97
22	17	138	e18	e25	e170	122	175	102	1270	896	7.3	.75
23	15	114	e18	e32	e300	109	139	845	519	1950	249	.81
24	14	83	e17	e39	e900	102	144	734	214	755	196	1.2
25	15	86	e17	e50	e800	97	123	290	143	293	58	.58
26	17	110	e17	e60	514	87	115	114	110	145	287	.22
27	17	96	e17	e70	365	82	102	63	102	92	467	.10
28	e16	52	e16	e100	250	74	82	44	73	68	320	.11
29	e14	33	e16	e150	174	71	67	28	214	54	173	.08
30	e13	e27	e16	e175	---	66	53	21	119	53	84	.06
31	e12	---	e15	e210	---	61	---	17	---	60	50	---
TOTAL	1593.0	5626.0	697	1268	6477	10308	2105	2888.8	10955	11329	2477.10	477.78
MEAN	51.4	188	22.5	40.9	223	333	70.2	93.2	365	365	79.9	15.9
MAX	524	1000	38	210	900	1340	175	845	1340	1950	467	78
MIN	8.9	8.0	15	12	72	61	32	4.6	34	37	.06	.06
AC-FT	3160	11160	1380	2520	12850	20450	4180	5730	21730	22470	4910	948

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1992, BY WATER YEAR (WY)

	MEAN	88.0	57.1	29.0	27.4	143	558	390	592	727	281	162	111
MAX	624	295	153	104	763	2479	1555	2802	3984	986	559	1060	
(WY)	1983	1957	1956	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1942 - 1992

ANNUAL TOTAL	108584.10	56201.68	
ANNUAL MEAN	297	154	264
HIGHEST ANNUAL MEAN			573
LOWEST ANNUAL MEAN			90.0
HIGHEST DAILY MEAN	5690	1950	16500
LOWEST DAILY MEAN	.00	.06	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.34	.00
INSTANTANEOUS PEAK FLOW		2600	21700
INSTANTANEOUS PEAK STAGE		6.65	16.18
ANNUAL RUNOFF (AC-FT)	215400	111500	191300
10 PERCENT EXCEEDS	668	444	578
50 PERCENT EXCEEDS	50	57	56
90 PERCENT EXCEEDS	4.1	10	3.5

e Estimated

a Also Sept. 30.

b No flow at times in many years.

c Gage height, 13.83 ft, site then in use, from rating curve extended above 16,000 ft³/s.

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 mi², approximately, of which about 230 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year. Prior to October 1965, published as South Fork White River near Martin.

GAGE.--Water-stage recorder. Elevation of gage is 3,045 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	e11	e11	e10	e14	27	18	20	9.8	7.8	16	12
2	10	e12	e10	e11	e15	25	18	18	13	7.7	15	11
3	10	13	e9.5	e12	e17	24	18	19	13	11	15	12
4	11	e14	e10	e13	e16	23	18	17	10	8.8	13	11
5	12	e16	e11	e13	e15	25	18	18	11	6.8	12	12
6	12	17	e12	e12	e13	32	17	18	11	6.8	12	14
7	12	18	e12	e12	e12	34	16	18	13	6.8	12	16
8	12	22	e13	e11	e12	34	16	16	12	7.0	13	16
9	11	24	e13	e11	e11	33	16	16	11	6.2	13	14
10	11	24	e13	e9.2	e12	35	16	19	11	9.8	11	12
11	11	29	e13	e9.8	e12	34	17	17	9.7	6.6	10	12
12	11	30	e13	e11	e11	37	18	17	8.6	6.1	9.9	11
13	10	28	e13	e13	e11	39	20	12	7.8	5.2	9.5	11
14	10	31	e12	e13	e12	37	22	12	7.3	7.7	9.3	10
15	10	25	e10	e12	e12	34	22	11	7.0	15	9.3	10
16	11	27	e11	e9.6	e13	30	23	11	7.1	13	8.8	10
17	11	22	e11	e8.8	e14	27	24	10	8.1	12	8.4	10
18	11	20	e12	e9.0	e15	25	24	9.7	13	12	7.2	9.9
19	11	19	e12	e9.5	e16	23	25	9.2	11	12	7.4	9.9
20	11	18	e12	e10	e17	24	25	8.7	8.4	11	7.1	9.9
21	11	17	e11	e11	e17	24	25	8.2	30	12	7.3	9.7
22	11	16	e12	e11	e20	24	23	9.1	34	14	8.4	9.5
23	11	15	e12	e12	e23	23	22	9.8	29	17	12	9.7
24	11	e12	e12	e12	e29	23	23	10	27	17	16	9.6
25	11	e12	e12	e11	e37	22	25	9.8	18	16	13	9.2
26	12	e13	e12	e12	e36	22	25	9.6	13	18	14	9.3
27	12	e13	e12	e12	e34	21	24	10	11	17	17	9.3
28	e13	e13	e11	e12	31	21	20	10	9.3	15	18	9.0
29	e12	e12	e11	e13	28	20	20	10	8.7	15	17	9.1
30	e11	e12	e11	e13	---	20	19	9.9	8.8	16	16	9.3
31	e9.5	---	e10	e14	---	19	---	9.4	---	17	13	---
TOTAL	342.5	555	359.5	352.9	525	841	617	402.4	391.6	353.3	370.6	327.4
MEAN	11.0	18.5	11.6	11.4	18.1	27.1	20.6	13.0	13.1	11.4	12.0	10.9
MAX	13	31	13	14	37	39	25	20	34	18	18	16
MIN	9.5	11	9.5	8.8	11	19	16	8.2	7.0	5.2	7.1	9.0
AC-FT	679	1100	713	700	1040	1670	1220	798	777	701	735	649

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1992, BY WATER YEAR (WY)

MEAN	12.5	15.1	11.5	9.60	16.4	40.8	34.9	28.2	25.4	13.4	11.7	8.93
MAX	22.5	20.9	17.4	18.2	28.4	157	104	55.9	157	44.5	102	18.0
(WY)	1987	1987	1987	1984	1988	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1938 - 1992

ANNUAL TOTAL	7707.9	5438.2	
ANNUAL MEAN	21.1	14.9	
HIGHEST ANNUAL MEAN			19.2
LOWEST ANNUAL MEAN			31.6
HIGHEST DAILY MEAN	260	Jul 29	10.9
LOWEST DAILY MEAN	3.0	Jan 3	10.9
ANNUAL SEVEN-DAY MINIMUM	3.0	Jan 3	916
INSTANTANEOUS PEAK FLOW			.60
INSTANTANEOUS PEAK STAGE			.67
ANNUAL RUNOFF (AC-FT)	15290	10790	1190
10 PERCENT EXCEEDS	38	25	13.21
50 PERCENT EXCEEDS	15	12	13910
90 PERCENT EXCEEDS	7.7	9.2	34
			13
			6.0

e Estimated

a Also Aug. 16, 18, 1940; no flow for part of each day Oct. 19, 20, 22, 1962 (regulation from construction above station).

b Gage height, 2.69 ft.

c Gage height, 12.90 ft, from rating curve extended above 340 ft³/s on basis of computation of peak flow through culvert and flow-over-road measurement of peak flow.

d Backwater from ice.

WHITE RIVER BASIN

187

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 mi², approximately, of which about 60 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year.

GAGE.--Water-stage recorder. 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 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	11	e15	30	27	29	14	e3.5	e.23	1.6	36	4.8
2	32	11	e15	30	27	29	14	e3.3	e.19	1.5	36	3.2
3	31	10	e16	30	28	32	13	e3.2	e.18	1.5	36	2.2
4	31	10	e18	30	28	37	13	e3.1	e.17	1.6	36	2.1
5	30	9.9	22	30	28	45	13	e3.0	e.15	1.5	30	1.8
6	29	9.9	22	30	28	49	12	e2.8	e.13	1.6	8.7	5.8
7	29	9.8	22	30	28	39	12	e2.7	e.12	1.7	8.2	13
8	25	10	22	32	28	34	12	e2.2	e.10	1.7	6.8	13
9	21	11	22	30	29	33	12	e1.9	e.08	2.1	2.4	19
10	21	11	22	30	29	31	11	e1.7	.10	1.7	1.7	29
11	20	11	23	30	30	31	9.9	e1.6	.16	1.8	1.5	30
12	20	11	25	30	32	28	9.8	e1.5	.12	1.7	1.3	30
13	20	12	29	30	32	28	9.7	e1.5	.10	2.0	1.3	29
14	18	12	29	e28	32	27	9.5	e1.3	.18	1.9	1.3	29
15	18	13	29	e28	32	27	9.4	e1.1	.30	2.2	1.4	27
16	16	13	30	29	33	26	9.2	e.94	.24	2.0	1.4	24
17	16	13	30	29	33	25	9.2	e.87	.12	1.8	1.4	24
18	16	13	30	28	33	25	8.8	e.84	.00	2.4	1.4	22
19	15	13	30	28	33	25	8.2	e.81	.11	2.5	1.5	23
20	13	13	30	28	33	24	7.7	e.79	.44	3.0	1.5	24
21	13	14	30	27	33	23	7.5	e.75	.38	3.4	1.6	24
22	13	13	30	27	33	23	7.1	e.66	.87	1.9	1.3	22
23	12	14	30	27	33	23	6.4	e.58	.91	2.2	.44	21
24	12	14	30	27	34	22	e6.0	e.54	.80	2.0	.42	20
25	12	14	30	27	34	22	e5.8	e.51	.84	7.2	.70	19
26	12	14	30	27	34	19	e5.5	e.46	1.9	19	.94	19
27	12	14	30	27	34	15	e5.3	e.38	2.8	20	.84	19
28	26	15	30	27	29	15	e5.1	e.32	2.2	18	1.4	19
29	20	15	30	27	29	14	e4.8	e.29	2.4	17	3.0	19
30	12	e15	30	27	---	14	e4.2	e.28	1.8	25	2.7	19
31	11	---	30	27	---	14	---	e.25	---	36	3.6	---
TOTAL	609	369.6	811	887	896	828	275.1	43.67	18.12	189.5	232.74	556.9
MEAN	19.6	12.3	26.2	28.6	30.9	26.7	9.17	1.41	.60	6.11	7.51	18.6
MAX	33	15	30	32	34	49	14	3.5	2.8	36	36	30
MIN	11	9.8	15	27	27	14	4.2	.25	.00	1.5	.42	1.8
AC-FT	1210	733	1610	1760	1780	1640	546	87	36	376	462	1100

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939, 1963 - 1992, BY WATER YEAR (WY)

	4.03	7.14	12.5	15.3	19.2	29.2	34.5	28.7	27.1	13.1	7.77	5.97
MEAN	4.03	7.14	12.5	15.3	19.2	29.2	34.5	28.7	27.1	13.1	7.77	5.97
MAX	23.8	37.2	32.7	28.6	39.7	109	96.1	79.3	139	63.4	36.6	35.0
(WY)	1939	1984	1980	1992	1981	1987	1977	1991	1991	1967	1979	1991
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1939, 1963-1992

ANNUAL TOTAL	12603.51	5716.63	
ANNUAL MEAN	34.5	15.6	17.0
HIGHEST ANNUAL MEAN			32.4
LOWEST ANNUAL MEAN			3.09
HIGHEST DAILY MEAN	205	Jun 2	424
LOWEST DAILY MEAN	.04	Mar 13	.00
ANNUAL SEVEN-DAY MINIMUM	.26	Mar 11	.11
INSTANTANEOUS PEAK FLOW			50
INSTANTANEOUS PEAK STAGE			3.15
ANNUAL RUNOFF (AC-FT)	25000	11340	12320
10 PERCENT EXCEEDS	101	30	43
50 PERCENT EXCEEDS	20	14	9.3
90 PERCENT EXCEEDS	5.6	.80	.35

e Estimated

a No flow for many days in most years.

b Gage height, 5.57 ft, from rating curve extended above 150 ft³/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 NE1/4NW1/4 sec.17, T.36 N., R.33 W., Bennett County, Hydrologic Unit 10140203, on left bank downstream side of highway culvert, 0.3 mi downstream from small right-bank tributary, 10.8 mi southeast of Vetal, and 15.3 mi upstream from Spring Creek.

DRAINAGE AREA.--590 mi², approximately, of which about 415 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--August 1959 to current year. Prior to October 1965, published as South Fork White River near Vetal.

GAGE.--Water-stage recorder. 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 good 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	e45	e50	63	74	96	47	31	28	36	49	27
2	64	e48	e48	68	74	93	47	30	28	36	52	27
3	61	e47	e50	68	73	90	49	33	25	35	52	26
4	63	e48	e62	65	73	93	48	36	25	33	52	25
5	59	e57	e72	61	74	102	43	33	32	35	51	31
6	57	e57	e82	59	75	106	40	34	33	34	52	28
7	57	e56	88	e54	77	109	39	33	28	33	46	26
8	57	e63	86	e32	e76	106	39	31	27	32	33	30
9	54	61	83	e28	e74	103	38	31	29	34	31	32
10	49	59	81	e32	e74	93	39	31	28	35	28	31
11	48	59	79	e35	e76	97	38	31	27	34	26	36
12	48	57	79	e40	e72	107	36	33	26	35	24	41
13	47	58	81	e36	e75	109	39	38	26	36	23	40
14	45	52	79	e33	77	103	43	32	27	34	23	38
15	45	52	81	e25	74	97	44	30	28	30	23	38
16	46	54	e81	e30	74	94	41	28	31	26	22	38
17	45	57	86	e38	77	89	40	28	37	26	23	36
18	43	57	73	e47	74	85	40	26	29	26	22	35
19	44	58	68	e53	75	81	39	25	29	27	21	36
20	45	63	67	e60	80	80	38	21	30	27	20	36
21	44	63	63	e65	78	77	39	22	32	32	20	36
22	44	62	66	e68	81	70	38	26	29	34	20	35
23	43	60	66	e71	86	71	38	26	28	31	22	35
24	44	56	66	71	87	70	38	23	32	29	23	35
25	47	60	68	71	88	69	42	23	41	30	24	34
26	47	65	69	69	100	67	35	26	41	29	26	34
27	47	60	68	71	104	65	33	24	40	34	26	34
28	51	61	62	70	103	53	33	23	39	39	25	33
29	e44	e59	e62	75	99	50	33	24	38	42	24	34
30	e42	e53	e62	75	---	49	33	27	36	40	24	34
31	e43	---	e62	75	---	48	---	24	---	39	26	---
TOTAL	1530	1707	2190	1708	2324	2622	1189	883	929	1023	933	1001
MEAN	49.4	56.9	70.6	55.1	80.1	84.6	39.6	28.5	31.0	33.0	30.1	33.4
MAX	64	65	88	75	104	109	49	38	41	42	52	41
MIN	42	45	48	25	72	48	33	21	25	26	20	25
AC-FT	3030	3390	4340	3390	4610	5200	2360	1750	1840	2030	1850	1990

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1992, BY WATER YEAR (WY)

	30.5	36.7	36.0	33.5	48.8	91.9	95.2	84.2	77.7	45.2	34.8	27.9
MEAN	30.5	36.7	36.0	33.5	48.8	91.9	95.2	84.2	77.7	45.2	34.8	27.9
MAX	49.4	58.2	70.6	55.1	91.7	205	273	185	267	156	137	56.9
(WY)	1992	1984	1992	1992	1982	1978	1977	1991	1967	1967	1983	1991
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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1960 - 1992

	30270	18039	
ANNUAL TOTAL	30270	18039	
ANNUAL MEAN	82.9	49.3	
HIGHEST ANNUAL MEAN			53.6
LOWEST ANNUAL MEAN			75.8
HIGHEST DAILY MEAN	1200	May 16	1200
LOWEST DAILY MEAN	18	Jan 3	9.0
ANNUAL SEVEN-DAY MINIMUM	20	Jan 1	9.6
INSTANTANEOUS PEAK FLOW			3540
INSTANTANEOUS PEAK STAGE			12.53
ANNUAL RUNOFF (AC-FT)	60040	35780	38830
10 PERCENT EXCEEDS	165	80	102
50 PERCENT EXCEEDS	60	43	38
90 PERCENT EXCEEDS	43	26	20

e Estimated

a Also Mar. 13.

b Also Aug. 21, 22.

c Also Mar. 12, gage height, 4.33 ft.

d Backwater from ice.

WHITE RIVER BASIN

189

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD

LOCATION.--Lat 43°15'47", long 100°55'02", in NW1/4SE1/4 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 mi², approximately, of which an undetermined amount contributes directly to surface runoff.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 2,415 ft above sea level, from topographic map.

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	e60	e95	91	129	173	124	80	75	53	73	68
2	108	e60	105	96	131	166	125	83	77	50	81	69
3	111	e58	109	96	131	166	121	83	75	47	84	69
4	108	e60	109	97	133	172	115	81	77	45	95	67
5	100	e70	108	95	132	183	111	75	78	50	89	80
6	88	e90	117	e92	131	191	107	e75	79	46	90	76
7	97	113	122	e90	138	188	112	e74	80	44	97	78
8	101	127	119	e86	134	195	118	74	78	40	88	70
9	99	132	115	e80	131	199	116	71	77	63	75	71
10	98	129	112	e80	136	183	106	69	75	90	71	70
11	96	122	115	e86	139	178	103	72	74	75	69	72
12	95	111	115	e88	128	182	121	71	70	72	67	79
13	94	103	113	e86	134	186	120	70	69	72	66	82
14	88	104	108	e78	141	182	96	71	74	73	67	79
15	91	101	95	e65	137	179	101	71	71	72	68	81
16	95	104	101	e70	139	171	95	74	70	70	66	82
17	92	109	115	e80	154	164	93	70	71	69	66	81
18	88	111	102	e78	156	160	97	70	74	69	65	78
19	86	107	93	e80	142	153	92	69	74	70	71	76
20	89	108	101	e86	146	149	114	66	68	72	82	79
21	90	110	102	e90	151	148	125	66	69	72	65	79
22	90	110	95	e95	153	139	110	78	62	74	66	77
23	86	105	96	e102	162	137	88	73	56	71	67	76
24	84	101	94	e106	169	137	84	73	55	71	68	e68
25	85	100	90	e110	166	132	81	73	53	80	71	e72
26	88	102	94	e115	173	127	87	69	59	73	74	e69
27	90	107	94	e120	182	127	78	72	59	69	74	e70
28	89	104	90	e125	183	125	75	71	59	69	72	e68
29	62	106	96	126	177	124	76	71	59	73	69	e73
30	58	97	90	127	---	122	78	69	54	78	65	e75
31	e58	---	87	128	---	122	---	71	---	74	66	---
TOTAL	2818	3021	3197	2944	4258	4960	3069	2255	2071	2046	2287	2234
MEAN	90.9	101	103	95.0	147	160	102	72.7	69.0	66.0	73.8	74.5
MAX	114	132	122	128	183	199	125	83	80	90	97	82
MIN	58	58	87	65	128	122	75	66	53	40	65	67
AC-FT	5590	5990	6340	5840	8450	9840	6090	4470	4110	4060	4540	4430

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1992, BY WATER YEAR (WY)

MEAN	76.4	80.6	73.9	75.5	113	160	148	152	134	79.9	77.5	71.5
MAX	93.8	111	103	97.3	161	252	239	268	281	143	161	110
(WY)	1983	1984	1992	1987	1982	1987	1987	1983	1991	1982	1983	1986
MIN	55.5	56.0	51.1	51.1	60.3	106	94.9	72.7	50.8	54.0	45.4	45.2
(WY)	1990	1986	1990	1982	1989	1990	1982	1992	1985	1985	1989	1984

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1982 - 1992
ANNUAL TOTAL	47333	35160	110a
ANNUAL MEAN	130	96.1	103
HIGHEST ANNUAL MEAN			123
LOWEST ANNUAL MEAN			74.0
HIGHEST DAILY MEAN	891	May 17	891
LOWEST DAILY MEAN	40	Jan 1	20
ANNUAL SEVEN-DAY MINIMUM	53	Jan 1	46
INSTANTANEOUS PEAK FLOW			215
INSTANTANEOUS PEAK STAGE			2.10
ANNUAL RUNOFF (AC-FT)	93880	69740	74620
10 PERCENT EXCEEDS	178	139	170
50 PERCENT EXCEEDS	109	88	85
90 PERCENT EXCEEDS	80	67	53

e Estimated

a Median of annual mean discharges, 110 ft³/s.

b Gage height, 1.86 ft.

c Gage height, 3.51 ft.

d Backwater from ice.

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 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT 03...	0935	112	363	8.1	10.0	13.5	60	696	8.9	94	780
NOV 13...	1530	102	332	8.0	14.0	7.0	35	690	10.5	96	100
JAN 09...	1310	55	332	8.0	-1.5	0.5	14	697	12.3	93	250
FEB 19...	1815	132	284	--	3.5	5.0	--	--	--	--	K6
APR 01...	0940	111	305	7.9	0.0	2.5	27	701	10.4	83	--
MAY 05...	1345	72	315	8.7	23.0	20.0	30	704	--	--	140
JUN 09...	0925	75	294	8.3	17.5	17.5	17	710	9.0	101	K210
JUL 09...	1650	71	298	--	19.0	25.5	--	--	--	--	1700
AUG 19...	1010	65	305	8.2	25.0	21.0	18	699	8.0	98	230

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	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)	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)
OCT 03...	120	39	6.7	26	29	1	12	171	18	4.2
NOV 13...	120	37	5.6	21	26	0.9	11	155	16	4.8
JAN 09...	120	39	5.8	20	25	0.8	9.8	158	17	5.3
FEB 19...	--	--	--	--	--	--	--	--	--	--
APR 01...	110	37	5.3	19	25	0.8	8.6	144	17	3.8
MAY 05...	99	32	4.7	20	28	0.9	9.1	146	14	5.5
JUN 09...	110	35	4.6	18	25	0.8	8.6	139	12	3.2
JUL 09...	--	--	--	--	--	--	--	--	--	--
AUG 19...	110	34	5.1	18	25	0.8	9.1	143	12	5.0

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)
OCT 03...	0.60	258	284	212	0.35	78.0	--	0.020	--	0.420
NOV 13...	0.40	228	116	192	0.31	62.8	--	<0.010	--	--
JAN 09...	0.50	221	27	196	0.30	32.6	--	<0.010	--	--
FEB 19...	--	--	--	--	--	--	--	--	--	--
APR 01...	0.50	224	96	181	0.30	67.1	--	0.030	--	0.540
MAY 05...	0.50	216	110	175	0.29	42.0	0.030	<0.010	0.330	--
JUN 09...	0.40	218	84	168	0.30	44.2	--	<0.010	--	--
JUL 09...	--	--	--	--	--	--	--	--	--	--
AUG 19...	0.50	212	78	172	0.29	36.9	0.020	0.010	0.490	0.510

WHITE RIVER BASIN

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06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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, TOTAL (MG/L AS NO3) (71887)	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)
OCT 03...	--	0.440	--	0.030	0.04	--	--	--	--	0.350
NOV 13...	--	0.660	--	0.020	0.03	--	--	--	--	0.200
JAN 09...	--	0.720	--	0.020	0.03	--	--	--	--	0.150
FEB 19...	--	--	--	--	--	--	--	--	--	--
APR 01...	--	0.570	--	0.040	0.05	--	--	--	0.190	0.160
MAY 05...	0.360	0.350	0.080	0.040	0.05	0.50	3.8	0.140	--	0.080
JUN 09...	--	0.540	--	<0.010	--	--	--	--	0.120	0.120
JUL 09...	--	--	--	--	--	--	--	--	--	--
AUG 19...	0.510	0.520	0.050	0.050	0.06	0.40	4.0	0.220	0.160	0.140

DATE	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	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)	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)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)
OCT 03...	--	10	60	--	<10	10	--	40	<1	--
NOV 13...	--	8	40	--	<10	3	--	18	<1	--
JAN 09...	--	7	50	--	<10	3	--	8	<1	--
FEB 19...	--	--	--	--	--	--	--	--	--	--
APR 01...	4	6	40	<1	<10	2	2900	15	<1	60
MAY 05...	7	6	40	<1	<10	8	1500	30	<1	70
JUN 09...	--	6	40	--	<10	1	--	9	<1	--
JUL 09...	--	--	--	--	--	--	--	--	--	--
AUG 19...	7	7	50	<1	<10	2	1300	<10	<1	70

DATE	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CYANIDE TOTAL (MG/L AS CN) (00720)	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 03...	2	0.1	--	<1	<3	--	<0.01	528	160	--
NOV 13...	2	<0.1	--	<1	14	--	<0.01	488	134	48
JAN 09...	3	<0.1	--	<1	10	--	<0.01	289	43	22
FEB 19...	--	--	--	--	--	--	--	--	--	--
APR 01...	1	<0.1	<1	<1	<3	<0.010	<0.01	378	113	34
MAY 05...	3	<0.1	1	<1	<3	<0.010	<0.01	368	72	37
JUN 09...	1	<0.1	--	<1	11	--	<0.01	262	53	34
JUL 09...	--	--	--	--	--	--	--	--	--	--
AUG 19...	<10	<0.1	<1	<1	<10	<0.010	<0.01	218	38	41

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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 SATUR- ATION (00301)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, DIS- SOLVED TOTAL (UG/L) (39331)
MAY 05...	1345	72	315	8.7	23.0	20.0	704	--	--	<0.10	<0.010	<0.01
AUG 19...	1010	65	305	8.2	25.0	21.0	699	8.0	98	<0.10	<0.010	<0.01

DATE	AME- TRYNE TOTAL (82184)	ATRA- ZINE, TOTAL (UG/L) (39630)	CHLOR- DANE, TOTAL (UG/L) (39350)	CHLOR- DANE, DIS- SOLVED TOTAL (UG/L) (39352)	CYAN- AZINE TOTAL (UG/L) (81757)	DDD, TOTAL (UG/L) (39360)	DDD, DIS- SOLVED TOTAL (UG/L) (39361)	DDE, TOTAL (UG/L) (39365)	DDE, DIS- SOLVED TOTAL (UG/L) (39366)	DDT, TOTAL (UG/L) (39370)	DDT, DIS- SOLVED TOTAL (UG/L) (39371)	DI- AZINON, TOTAL (UG/L) (39570)
MAY 05...	<0.10	<0.10	<0.1	<0.1	<0.20	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
AUG 19...	<0.10	<0.10	<0.1	<0.1	<0.20	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

DATE	DI- AZINON, DIS- SOLVED TOTAL (UG/L) (39572)	DI- ELDRIN TOTAL (UG/L) (39380)	DI- ELDRIN DIS- SOLVED TOTAL (UG/L) (39381)	ENDO- SULFAN, TOTAL (UG/L) (39388)	ENDO- SULFAN DISSOLV TOTAL (UG/L) (82354)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, DIS- SOLVED TOTAL (UG/L) (39391)	ETHION, TOTAL (UG/L) (39398)	ETHION DISSOLV TOTAL (UG/L) (82346)	HEPTA- CHLOR, TOTAL (UG/L) (39410)	HEPTA- CHLOR, DIS- SOLVED TOTAL (UG/L) (39411)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L) (39420)
MAY 05...	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010
AUG 19...	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010

DATE	HEPTA- CHLOR EPOXIDE DIS- SOLVED TOTAL (UG/L) (39421)	LINDANE TOTAL (UG/L) (39340)	LINDANE DIS- SOLVED TOTAL (UG/L) (39341)	MALA- THION, TOTAL (UG/L) (39530)	MALA- THION, DIS- SOLVED TOTAL (UG/L) (39532)	METH- OXY- CHLOR, TOTAL (UG/L) (39480)	METH- OXY- CHLOR DISSOLV TOTAL (UG/L) (82350)	METHYL PARA- THION, TOTAL (UG/L) (39600)	METHYL PARA- THION, DIS- SOLVED TOTAL (UG/L) (39602)	METHYL- TRI- THION DISSOLV TOTAL (UG/L) (82344)	MIREX, TOTAL (UG/L) (39755)
MAY 05...	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
AUG 19...	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.01

DATE	MIREX, DIS- SOLVED TOTAL (UG/L) (39756)	PARA- THION, TOTAL (UG/L) (39540)	PARA- THION, DIS- SOLVED TOTAL (UG/L) (39542)	PCB, TOTAL (UG/L) (39516)	PCB, DIS- SOLVED TOTAL (UG/L) (39517)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) (39250)	PCN DISSOLV TOTAL (UG/L) (82360)	PER- THANE TOTAL (UG/L) (39034)	PER- THANE DISSOLV TOTAL (UG/L) (82348)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)
MAY 05...	<0.01	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.10	<0.2	<0.1
AUG 19...	<0.01	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.10	<0.2	<0.1

DATE	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)	TOX- APHENE, DIS- SOLVED TOTAL (UG/L) (39401)	TOTAL TRI- THION DISSOLV TOTAL (UG/L) (39786)	TRI- THION DISSOLV TOTAL (UG/L) (82342)	2,4-D, TOTAL (UG/L) (39730)	2, 4-DP TOTAL (UG/L) (82183)	2,4,5-T TOTAL (UG/L) (39740)
MAY 05...	<0.10	<0.01	<0.10	<0.1	<1	<1.0	<0.01	<0.01	<0.01	<0.01	<0.01
AUG 19...	<0.10	<0.01	<0.10	<0.1	<1	<1.0	<0.01	<0.01	<0.01	<0.01	<0.01

06449400 ROSEBUD CREEK AT ROSEBUD, SD

LOCATION.--Lat 43°14'14", long 100°51'26", in SW1/4SW1/4NE1/4 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 mi², approximately.

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,531.91 ft above sea level. October 1963 to September 1970, low-flow partial-record station 0.26 mi² upstream at different datum.

REMARKS.--Records good 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	7.3	7.3	8.3	7.4	6.5	7.4	4.4	6.7	6.4	5.5	6.2
2	5.8	7.0	7.7	8.2	e7.2	6.5	7.4	6.4	6.6	6.8	5.6	6.2
3	6.5	7.7	e7.5	8.1	e6.4	6.3	7.8	6.5	6.5	6.5	5.8	5.9
4	6.7	7.8	8.4	8.1	e6.0	6.7	7.8	6.4	6.1	6.3	6.3	5.9
5	6.0	9.4	8.4	8.1	e6.5	9.2	7.1	6.4	6.7	11	6.1	10
6	5.7	10	8.1	e8.0	e7.0	8.2	7.6	6.7	6.9	7.3	5.4	3.1
7	6.1	10	8.4	e7.6	e7.0	6.9	7.2	6.8	6.6	6.4	6.2	5.5
8	5.5	8.7	8.9	e7.9	e7.0	7.1	7.0	6.8	6.9	6.5	5.6	20
9	5.6	12	7.8	e7.6	e7.0	7.9	7.8	6.8	5.1	6.7	5.8	.13
10	6.0	11	7.8	7.6	e6.6	5.3	7.7	6.7	5.2	7.3	5.7	.97
11	6.2	8.9	7.7	7.5	e6.0	6.3	8.9	7.0	4.9	10	5.9	4.5
12	6.1	8.6	7.7	7.4	e5.2	6.9	8.4	6.9	4.8	6.7	5.7	2.7
13	6.8	e8.3	7.7	7.4	4.6	6.7	8.8	6.2	4.9	7.0	5.7	2.6
14	7.2	8.0	7.3	e7.2	6.4	6.6	6.9	6.0	14	6.7	5.6	3.6
15	7.5	7.7	7.6	e7.0	6.3	6.2	9.8	6.0	8.2	6.1	5.7	5.8
16	7.7	7.7	7.7	e6.8	6.6	6.6	8.6	5.9	13	5.2	5.7	2.5
17	8.1	8.3	7.7	e7.2	7.1	6.0	9.3	5.8	22	5.2	5.7	1.8
18	11	8.2	7.6	e7.4	7.6	6.8	10	5.6	6.9	5.8	5.5	19
19	9.6	7.9	7.7	6.9	7.4	6.9	7.5	5.5	9.2	5.9	5.2	11
20	7.5	8.1	7.7	7.1	6.7	7.4	7.0	5.2	7.0	6.0	5.4	4.7
21	7.2	7.6	7.5	7.4	6.3	7.3	7.2	5.2	7.0	8.2	5.8	4.0
22	7.4	7.7	7.7	7.2	6.6	7.2	7.3	6.8	6.9	8.2	5.9	4.8
23	6.9	7.4	7.4	6.9	7.2	7.4	6.9	5.7	6.6	6.6	6.0	4.6
24	7.4	7.7	7.5	7.1	7.0	7.2	7.0	5.5	6.5	5.9	6.7	.08
25	7.5	7.7	7.7	7.3	6.6	6.9	6.9	6.4	6.4	6.0	7.1	17
26	7.4	8.3	7.7	7.4	6.5	9.0	6.9	6.6	6.3	5.5	7.8	.36
27	8.1	7.6	7.6	7.4	6.8	6.8	6.9	6.6	6.3	5.4	7.0	6.7
28	9.9	8.0	7.9	7.3	6.7	6.7	6.7	6.6	6.5	5.4	6.3	9.1
29	11	8.2	8.1	7.4	6.6	7.0	6.8	6.5	6.4	6.1	6.1	9.0
30	8.8	7.2	7.9	7.4	---	6.9	12	6.4	6.3	6.0	5.9	15
31	7.4	---	7.9	7.4	---	7.1	---	6.7	---	5.8	6.1	---
TOTAL	226.3	250.0	241.6	231.6	192.3	216.5	234.6	193.0	223.4	204.9	184.8	192.74
MEAN	7.30	8.33	7.79	7.47	6.63	6.98	7.82	6.23	7.45	6.61	5.96	6.42
MAX	11	12	8.9	8.3	7.6	9.2	12	7.0	22	11	7.8	20
MIN	5.5	7.0	7.3	6.8	4.6	5.3	6.7	4.4	4.8	5.2	5.2	.08
AC-FT	449	496	479	459	381	429	465	383	443	406	367	382

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1992, BY WATER YEAR (WY)

	7.53	7.64	7.07	7.00	7.75	9.41	8.99	8.83	7.50	6.18	5.81	5.64
MEAN	7.53	7.64	7.07	7.00	7.75	9.41	8.99	8.83	7.50	6.18	5.81	5.64
MAX	13.7	9.12	8.36	8.88	10.1	21.6	13.5	16.4	10.9	8.34	11.6	7.79
(WY)	1982	1981	1986	1979	1986	1978	1986	1988	1979	1990	1981	1977
MIN	5.30	5.64	5.58	5.40	6.18	6.73	5.69	5.64	3.43	3.96	3.79	1.96
(WY)	1977	1976	1982	1982	1975	1976	1981	1976	1978	1980	1976	1979

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1975 - 1992

ANNUAL TOTAL	2780.6	2591.74	
ANNUAL MEAN	7.62	7.08	
HIGHEST ANNUAL MEAN			7.44
LOWEST ANNUAL MEAN			8.84
HIGHEST DAILY MEAN	37	May 28	22
LOWEST DAILY MEAN	1.2	Jul 30	.08
ANNUAL SEVEN-DAY MINIMUM	3.9	Aug 24	2.9
INSTANTANEOUS PEAK FLOW			88
INSTANTANEOUS PEAK STAGE			5.68
ANNUAL RUNOFF (AC-FT)	5520	5140	5390
10 PERCENT EXCEEDS	10	8.6	10
50 PERCENT EXCEEDS	7.5	6.9	7.0
90 PERCENT EXCEEDS	4.6	5.5	4.5

e Estimated

a Gage height, 5.57 ft.

b Backwater from ice.

WHITE RIVER BASIN

06449500 LITTLE WHITE RIVER NEAR ROSEBUD, SD

LOCATION.--Lat 43°19'32", long 100°53'00", in SW1/4NW1/4 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 mi², approximately, of which about 760 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--May 1943 to current year. Prior to October 1965, published as South Fork White River near Rosebud.

REVISED RECORDS.--WSP 1056: Drainage area. WSP 1309: 1946(M).

GAGE.--Water-stage recorder. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	e74	109	114	130	159	118	105	83	89	98	80
2	100	e72	124	115	133	158	113	102	85	89	102	83
3	104	e70	144	113	135	159	115	101	85	89	109	76
4	103	e73	147	123	136	159	123	102	83	90	116	73
5	92	e80	167	124	137	184	120	96	84	98	124	102
6	87	e80	158	124	140	197	119	96	82	98	117	93
7	95	e80	164	132	140	192	114	97	84	94	125	96
8	103	e84	162	104	134	199	108	104	78	91	121	82
9	104	e90	152	78	144	221	105	105	79	95	102	76
10	104	e110	149	72	154	195	104	102	79	107	90	71
11	104	e120	142	e78	139	188	106	100	78	109	83	78
12	100	136	152	e88	141	195	99	99	77	103	77	89
13	99	183	155	e86	142	202	97	81	76	98	73	95
14	84	185	130	e80	163	193	103	76	89	98	73	93
15	89	181	122	e76	159	190	111	81	87	94	70	99
16	92	172	130	e84	160	184	104	84	85	86	72	93
17	94	173	116	e95	168	176	100	77	95	81	72	92
18	84	173	105	e90	165	174	113	78	94	80	71	84
19	76	169	115	e89	151	170	104	78	99	80	76	90
20	78	165	135	e95	157	165	99	78	93	82	107	88
21	82	167	123	e105	159	161	98	78	92	86	75	91
22	91	166	124	e115	158	158	97	95	92	98	70	85
23	86	156	122	e118	162	153	102	80	86	90	73	87
24	79	142	121	e120	168	153	99	80	86	95	73	79
25	79	137	106	e124	158	151	96	78	83	100	80	84
26	83	147	110	e126	164	147	98	71	86	107	85	74
27	86	150	115	e128	175	141	99	74	90	88	89	76
28	e90	139	116	e127	170	133	100	77	93	87	89	74
29	e85	136	116	e125	164	125	102	79	92	97	85	79
30	e80	117	111	124	---	121	109	79	92	103	74	87
31	e77	---	107	128	---	128	---	79	---	101	74	---
TOTAL	2820	3927	4049	3300	4406	5231	3175	2712	2587	2903	2745	2549
MEAN	91.0	131	131	106	152	169	106	87.5	86.2	93.6	88.5	85.0
MAX	110	185	167	132	175	221	123	105	99	109	125	102
MIN	76	70	105	72	130	121	96	71	76	80	70	71
AC-FT	5590	7790	8030	6550	8740	10380	6300	5380	5130	5760	5440	5060

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1992, BY WATER YEAR (WY)

	78.4	86.3	80.3	75.4	102	190	180	156	142	94.3	74.9	69.7
MEAN	78.4	86.3	80.3	75.4	102	190	180	156	142	94.3	74.9	69.7
MAX	118	131	131	112	168	396	401	282	417	228	164	116
(WY)	1947	1992	1992	1974	1982	1949	1977	1983	1967	1944	1983	1991
MIN	61.1	60.0	52.2	23.1	60.2	91.6	85.9	87.5	62.5	44.1	45.3	50.2
(WY)	1979	1979	1952	1962	1949	1981	1981	1992	1985	1974	1973	1975

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1944 - 1992

ANNUAL TOTAL	53711	40404	
ANNUAL MEAN	147	110	111
HIGHEST ANNUAL MEAN			154
LOWEST ANNUAL MEAN			78.0
HIGHEST DAILY MEAN	1140	May 17	1810
LOWEST DAILY MEAN	45	Jan 1	10
ANNUAL SEVEN-DAY MINIMUM	59	Jan 1	72
INSTANTANEOUS PEAK FLOW			229
INSTANTANEOUS PEAK STAGE			8.55
ANNUAL RUNOFF (AC-FT)	106500	80140	80420
10 PERCENT EXCEEDS	236	162	189
50 PERCENT EXCEEDS	120	100	89
90 PERCENT EXCEEDS	87	78	56

e Estimated

a Also Aug. 15, 22.

b Also Feb. 20, 1955.

c From rating curve extended above 1,300 ft³/s.

d Backwater from ice.

06450500 LITTLE WHITE RIVER BELOW WHITE RIVER, SD

LOCATION.--Lat 43°36'05", long 100°44'58", in SW1/4NW1/4 sec.23, T.42 N., R.29 W., Mellette County, Hydrologic Unit 10140203, on left bank at downstream side of bridge on U.S. Highway 83, 1.3 mi downstream from Pine Creek, and 2.0 mi north of town of White River.

DRAINAGE AREA.--1,570 mi², approximately, of which about 1,310 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--October 1949 to current year. Prior to October 1965, published as South Fork White River below White River.

REVISED RECORDS.--WDR SD-85-1: Location.

GAGE.--Water-stage recorder. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	e65	100	e161	e228	171	127	97	81	98	118	62
2	96	e62	86	e174	e215	151	114	85	71	94	102	68
3	109	e56	e80	e158	e203	187	100	92	87	102	152	62
4	112	e65	e80	e150	e193	161	115	92	81	87	102	68
5	107	e82	e98	e130	e217	214	98	96	118	123	102	93
6	95	e90	e130	e160	e193	227	137	104	84	114	102	112
7	82	e80	e180	e127	e183	207	104	127	63	106	189	106
8	85	e98	e230	e110	e139	221	110	138	71	94	84	82
9	89	e140	e205	e88	e155	245	128	137	87	102	74	76
10	92	e170	e205	e78	153	235	112	102	87	132	63	71
11	105	e150	e204	e58	e170	199	124	118	87	181	71	67
12	88	e169	e204	e119	e160	202	127	94	84	106	68	81
13	86	181	e200	e199	e135	203	111	110	84	87	74	93
14	93	165	e185	e200	161	194	106	106	102	84	51	105
15	86	149	e162	e117	170	199	116	118	106	84	63	114
16	82	140	e150	e95	173	164	121	189	118	91	43	113
17	87	142	e175	e45	182	188	113	163	81	91	55	105
18	83	135	e174	e85	183	173	90	137	87	84	58	40
19	87	132	e142	e268	171	182	123	74	146	91	61	94
20	87	132	e148	e233	e175	176	105	102	110	84	76	81
21	77	138	e147	e295	178	180	77	123	102	84	91	90
22	82	130	e154	e267	159	173	96	142	102	87	61	88
23	75	141	e133	e225	169	158	98	132	87	94	68	97
24	83	138	e130	e176	188	151	104	94	91	e96	76	89
25	91	131	e124	e200	176	161	105	118	87	98	77	75
26	79	128	e133	e229	190	156	99	118	84	87	79	82
27	87	140	e125	e229	208	153	92	91	91	84	78	57
28	e71	143	e116	e207	195	153	77	102	106	84	74	68
29	e71	136	e129	e197	173	148	79	87	102	84	79	59
30	e81	108	e132	e214	---	143	82	81	102	84	65	93
31	e60	---	e134	e236	---	142	---	87	---	91	61	---
TOTAL	2706	3736	4595	5230	5195	5617	3190	3456	2789	3008	2517	2491
MEAN	87.3	125	148	169	179	181	106	111	93.0	97.0	81.2	83.0
MAX	112	181	230	295	228	245	137	189	146	181	189	114
MIN	60	56	80	45	135	142	77	74	63	84	43	40
AC-FT	5370	7410	9110	10370	10300	11140	6330	6850	5530	5970	4990	4940

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1992, BY WATER YEAR (WY)

	MEAN	77.7	82.7	81.0	79.7	110	238	217	197	199	105	72.6	69.0
MAX	141	125	148	169	236	815	613	614	931	574	143	120	
(WY)	1983	1983	1992	1992	1987	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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1950 - 1992

ANNUAL TOTAL	59102	44530	
ANNUAL MEAN	162	122	
HIGHEST ANNUAL MEAN			127a
LOWEST ANNUAL MEAN			218
HIGHEST DAILY MEAN	2220	Jun 4	1962
LOWEST DAILY MEAN	56	Nov 3	1976
ANNUAL SEVEN-DAY MINIMUM	62	Jul 20	79.0
INSTANTANEOUS PEAK FLOW			7590
INSTANTANEOUS PEAK STAGE			7.0
ANNUAL RUNOFF (AC-FT)	117200	88330	11
10 PERCENT EXCEEDS	247	194	Aug 31 1952b
50 PERCENT EXCEEDS	115	106	13700
90 PERCENT EXCEEDS	78	74	15.46
			Jun 12 1967d
			Jun 7 1968g

e Estimated

a Median of annual mean discharges, 120 ft³/s.

b Also Aug. 31 and Sept. 1, 1952.

c Gage height, 4.31 ft.

d Gage height, 10.02 ft, site and datum then in use.

f Backwater from ice.

g From floodmark; maximum gage height at previous site and datum, 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 SE1/4SW1/4 sec.3, T.103 N., R.73 W., Lyman County, Hydrologic Unit 10140204, on left bank at downstream side of bridge on State Highway 47, 1.5 mi downstream from Wagner Draw, 1.8 mi upstream from high-water line of Lake Francis Case, and 8.8 mi southwest of Oacoma.

DRAINAGE AREA.--10,200 mi², approximately.

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	e70	e180	e154	e270	822	237	176	153	281	286	467
2	120	e60	e170	e150	e300	652	215	173	126	259	e224	309
3	116	e60	e160	e147	e350	519	207	e156	107	215	211	227
4	155	e60	e150	e145	e400	432	195	144	94	264	176	180
5	152	e70	e150	e140	e1000	445	e187	136	79	286	300	200
6	149	e75	e155	e130	e1600	471	173	128	86	373	458	153
7	142	e70	e160	e130	e1500	420	166	119	e246	420	379	211
8	312	e85	e165	e130	e1600	569	184	114	491	2390	362	232
9	374	e100	e170	e110	e1500	2520	156	107	367	1490	e362	211
10	309	e120	e180	e100	e1600	1260	169	e98	259	1240	246	169
11	251	e140	e200	e95	e1000	2210	139	92	305	847	203	150
12	212	e160	e215	e90	e700	2420	e142	88	300	635	139	176
13	191	e300	e230	e88	e550	1600	144	79	272	1060	145	e150
14	186	e950	e250	e84	e500	1320	136	81	232	1140	123	121
15	163	892	e250	e80	e1000	1120	173	79	228	704	110	100
16	144	807	e245	e75	e1400	989	159	77	232	458	98	100
17	133	707	e230	e80	e4000	1070	134	e74	648	426	90	96
18	128	662	e225	e82	e3500	864	144	70	595	478	86	98
19	119	591	e215	e85	e1000	678	e156	77	498	464	82	90
20	114	475	e200	e90	e400	564	163	75	929	286	77	e86
21	114	394	e190	e95	e275	484	142	105	1140	203	74	86
22	110	342	e180	e100	e280	445	184	92	881	295	72	74
23	97	296	e175	e115	e330	426	163	77	774	351	65	74
24	92	e270	e170	e130	e360	420	163	e60	1220	330	73	70
25	90	e250	e165	e150	356	384	150	e63	1150	479	92	67
26	95	e225	e160	e150	536	346	e153	270	1210	2320	87	64
27	89	e245	e158	e160	1690	320	163	686	695	1370	83	e63
28	114	e225	e157	e170	1500	291	224	484	478	847	122	61
29	e100	e210	e155	e185	1040	e277	228	396	356	722	252	61
30	e90	e200	e155	e215	---	272	224	281	286	541	214	67
31	e80	---	e155	e250	---	241	---	e207	---	414	516	---
TOTAL	4665	9111	5720	3905	30537	24851	5173	4864	14437	21588	5807	4213
MEAN	150	304	185	126	1053	802	172	157	481	696	187	140
MAX	374	950	250	250	4000	2520	237	686	1220	2390	516	467
MIN	80	60	150	75	270	241	134	60	79	203	65	61
AC-FT	9250	18070	11350	7750	60570	49290	10260	9650	28640	42820	11520	8360

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1992, BY WATER YEAR (WY)

	MEAN	168	129	72.2	63.2	236	1291	968	1221	1208	467	281	176
MAX	1016	433	206	197	1086	5856	4726	13630	5985	3553	1181	926	
(WY)	1983	1930	1947	1948	1982	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1928 - 1992

ANNUAL TOTAL	279792.39	134871	
ANNUAL MEAN	767	368	524a
HIGHEST ANNUAL MEAN			1729
LOWEST ANNUAL MEAN			151
HIGHEST DAILY MEAN	23100	Jun 5	44000
LOWEST DAILY MEAN	.04	Jan 8	60
ANNUAL SEVEN-DAY MINIMUM	.05	Jan 3	65
INSTANTANEOUS PEAK FLOW			7100
INSTANTANEOUS PEAK STAGE			9.59
ANNUAL RUNOFF (AC-FT)	555000	267500	379600
10 PERCENT EXCEEDS	1540	935	1110
50 PERCENT EXCEEDS	203	193	147
90 PERCENT EXCEEDS	28	81	30

e Estimated

a Median of annual mean discharges, 440 ft³/s.

b Also Nov. 3, 4, and May 24.

c No flow some days in 1971, 1974, 1976, 1980, 1989.

d Gage height, 15.40 ft, site and datum then in use.

f Backwater from ice.

g Ice jam.

WHITE RIVER BASIN

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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 Oct. 29 to Nov. 14 and Nov. 24 to Feb. 24. 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, 0 mg/L, July 17-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976, Aug. 11-23, Aug. 26 to Sept. 5, 1989.

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, 40,900 mg/L, July 26; minimum daily mean, 38 mg/L, Jan. 22.

SEDIMENT LOAD: Maximum daily, 256,000 tons, July 26; minimum daily, 9.7 tons, Jan. 15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CAC03 (39086)	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)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
NOV 22...	1230	340	--	--	--	1.0	1.0	1200	729	11.3	--	K870
JAN 16...	1550	78	718	8.0	224	6.5	0.5	29	718	13.5	100	K20
APR 03...	1515	202	592	8.2	188	22.5	14.0	120	714	10.1	105	--
MAY 06...	1205	129	626	8.5	194	24.5	18.0	920	727	--	--	K200
JUL 07...	1350	400	515	8.2	156	29.0	26.0	5200	721	7.4	97	6800
DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	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)	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)
NOV 22...	K3900	120	43	2.1	79	59	3	3.7	155	38	88	0.50
JAN 16...	K70	200	65	9.2	84	46	3	8.4	231	130	12	0.50
APR 03...	K50	130	46	4.3	76	54	3	5.3	188	110	9.1	0.60
MAY 06...	<200	100	34	4.5	96	65	4	7.8	210	98	12	0.60
JUL 07...	K2900	20	6.9	0.70	100	89	10	5.5	175	70	9.0	0.70
DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
NOV 22...	22	335	374	0.46	308	0.010	<0.010	0.530	0.540	0.520	<0.010	0.010
JAN 16...	47	439	494	0.60	92.5	0.020	<0.010	0.570	0.590	0.600	0.020	0.010
APR 03...	32	400	397	0.54	218	<0.010	<0.010	--	0.059	0.050	0.020	0.050
MAY 06...	35	407	404	0.55	142	0.060	<0.010	0.019	0.079	<0.050	0.020	0.030
JUL 07...	32	336	323	0.46	363	0.120	<0.010	1.18	1.30	1.10	0.040	0.030

WHITE RIVER BASIN

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTH- TOTAL (MG/L AS P) (70507)	PHOS- PHORUS ORTH- 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 22...	0.01	1.0	6.8	2.00	0.710	0.700	0.730	--	--	--	--
JAN 16...	0.01	0.50	4.8	0.170	0.130	0.130	0.100	<10	52	<3	4
APR 03...	0.06	0.80	3.8	0.340	0.070	0.030	0.020	10	31	<3	10
MAY 06...	0.04	<0.20	--	0.080	0.030	0.030	<0.010	<10	31	<3	4
JUL 07...	0.04	0.30	7.1	1.80	0.280	0.060	0.050	30	8	<3	43

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- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, PENDE (T/DAY) (80155)	SED. SUSP. DIS- SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 22...	--	--	--	--	--	--	--	--	4150	3810	100
JAN 16...	45	8	<10	2	2	<1.0	480	9	78	16	98
APR 03...	34	2	<10	2	1	<1.0	310	10	411	224	99
MAY 06...	38	<1	<10	<1	2	<1.0	250	21	2720	947	100
JUL 07...	24	5	<10	<1	4	<1.0	57	41	16700	18000	100

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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	124	e3590	1200	e70	e540	102	e180	e410	199
2	120	3580	1160	e60	e499	81	e170	e370	170
3	116	3580	1120	e60	e450	73	e160	e340	147
4	155	3600	1510	e60	e400	65	e150	305	124
5	152	3200	1310	e70	e360	68	e150	e300	121
6	149	e2550	1030	e75	280	57	e155	e295	123
7	142	2050	786	e70	e230	43	e160	e280	121
8	312	14200	15200	e85	e220	50	e165	e270	120
9	374	26200	26500	e100	e170	46	e170	e250	115
10	309	20800	17400	e120	e120	39	e180	e240	117
11	251	20000	13600	e140	e150	57	e200	245	132
12	212	15400	8810	e160	e320	138	e215	e350	203
13	191	e9600	4950	e300	5230	4240	e230	e490	304
14	186	e6600	3310	e950	25500	65400	e250	e500	337
15	163	7000	3080	892	22300	53700	e250	e445	300
16	144	6900	2680	807	17300	37700	e245	e410	271
17	133	5400	1940	707	e15000	28600	e230	400	248
18	128	5400	1870	662	11600	20700	e225	399	242
19	119	3800	1220	591	8700	13900	e215	550	319
20	114	e3000	923	475	6600	8460	e200	980	529
21	114	2800	862	394	5500	5850	e190	1500	769
22	110	2270	674	342	4150	3830	e180	e1900	923
23	97	1920	503	296	3250	2600	e175	2600	1230
24	92	1670	415	e270	e2800	2040	e170	1960	900
25	90	1170	284	e250	e2600	1750	e165	e1700	757
26	95	920	236	e225	2300	1400	e160	1390	600
27	89	e950	228	e245	1790	1180	e158	1140	486
28	114	1150	354	e225	e1030	626	e157	1150	487
29	e100	730	197	e210	655	371	e155	e860	360
30	e90	e640	156	e200	e490	265	e155	560	234
31	e80	e580	125	---	---	---	e155	560	234
TOTAL	4665	---	113633	9111	---	253431	5720	---	11222

e Estimated

WHITE RIVER BASIN

199

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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	e154	e475	198	e270	155	113	822	e14700	32600
2	e150	345	140	e300	e195	158	652	13200	23200
3	e147	292	116	e350	245	232	519	7820	11000
4	e145	226	88	e400	292	315	432	7210	8410
5	e140	e150	57	e1000	1470	3970	445	5820	6990
6	e130	90	32	e1600	1470	6350	471	4700	5980
7	e130	138	48	e1500	1750	7090	420	3440	3900
8	e130	610	214	e1600	1730	7470	569	e3280	5680
9	e110	390	116	e1500	e1340	5430	2520	21900	149000
10	e100	310	84	e1600	1060	4580	1260	23100	78600
11	e95	120	31	e1000	900	2430	2210	27800	166000
12	e90	e60	15	e700	e800	1510	2420	33700	220000
13	e88	50	12	e550	e720	1070	1600	29300	127000
14	e84	50	11	e500	e650	877	1320	23900	85200
15	e80	e45	9.7	e1000	e970	2620	1120	e18700	56500
16	e75	78	16	e1400	e1200	4540	989	14500	38700
17	e80	e99	21	e4000	e2450	26500	1070	12400	35800
18	e82	104	23	e3500	1600	15100	864	9150	21300
19	e85	e70	16	e1000	1630	4400	678	6950	12700
20	e90	e48	12	e400	1430	1540	564	5300	8070
21	e95	40	10	e275	1200	891	484	4200	5490
22	e100	38	10	e280	1110	839	445	e3400	4090
23	e115	40	12	e330	e1350	1200	426	2800	3220
24	e130	58	20	e360	1580	1540	420	2190	2480
25	e150	60	24	356	1440	1380	384	1680	1740
26	e150	e62	25	536	2300	4040	346	1290	1210
27	e160	62	27	1690	13000	59300	320	980	847
28	e170	62	28	1500	17400	70500	291	800	629
29	e185	62	31	1040	15600	43800	e277	e720	538
30	e215	80	46	---	---	---	272	675	496
31	e250	105	71	---	---	---	241	620	403
TOTAL	3905	---	1563.7	30537	---	279785	24851	---	1117773
APRIL			MAY			JUNE			
1	237	510	326	176	4450	2110	153	e16800	6940
2	215	425	247	173	6160	2880	126	e14600	4970
3	207	390	218	e156	e5920	2490	107	e12700	3670
4	195	428	225	144	4850	1890	94	e10700	2720
5	e187	e464	234	136	3840	1410	79	8700	1860
6	173	465	217	128	2810	971	86	6900	1600
7	166	417	187	119	1640	527	e246	e18200	21000
8	184	368	183	114	1520	468	491	33100	43900
9	156	342	144	107	1500	433	367	25800	25600
10	169	372	170	e98	e1400	370	259	18800	13100
11	139	380	143	92	1200	298	305	19400	16000
12	e142	e377	145	88	765	182	300	15700	12700
13	144	334	130	79	440	94	272	13600	9990
14	136	322	118	81	408	89	232	e11500	7200
15	173	371	173	79	386	82	228	9800	6030
16	159	310	133	77	e379	79	232	8500	5320
17	134	268	97	e74	e387	77	648	14400	25200
18	144	500	194	70	402	76	595	8900	14300
19	e156	e423	178	77	409	85	498	8000	10800
20	163	362	159	75	420	85	929	14600	48900
21	142	348	133	105	565	160	1140	e38000	117000
22	184	384	191	92	560	139	881	36200	86100
23	163	371	163	77	522	109	774	31400	65600
24	163	342	151	e60	e458	74	1220	34600	114000
25	150	320	130	e63	e372	63	1150	34200	106000
26	e153	e317	131	270	750	1010	1210	33400	109000
27	163	364	160	686	11500	21300	695	25700	48200
28	224	625	378	484	33000	43100	478	e19700	25400
29	228	672	414	396	e31800	34000	356	17000	16300
30	224	1180	714	281	e26200	19900	286	14400	11100
31	---	---	---	e207	e21000	11700	---	---	---
TOTAL	5173	---	6186	4864	---	146251	14437	---	980500

e Estimated

WHITE RIVER BASIN

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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	281	12700	9640	286	10000	7720	467	28600	36100
2	259	10600	7410	e224	e8700	5260	309	24000	20000
3	215	10000	5800	211	7800	4440	227	18100	11100
4	264	e10700	7630	176	5600	2660	180	17800	8650
5	286	e11000	8490	300	5900	4780	200	16800	9070
6	373	11500	11600	458	7500	9270	153	e13800	5700
7	420	15700	17800	379	4600	4710	211	e10000	5700
8	2390	34700	224000	362	4500	4400	232	9500	5950
9	1490	39200	158000	e362	e4400	4300	211	6800	3870
10	1240	33100	111000	246	3050	2030	169	6200	2830
11	847	27800	63600	203	2300	1260	150	6400	2590
12	635	e23200	39800	139	1200	450	176	8400	3990
13	1060	23400	67000	145	1200	470	e150	e9300	3770
14	1140	13800	42500	123	1340	445	121	8000	2610
15	704	11600	22000	110	920	273	100	4900	1320
16	458	10900	13500	98	e850	225	100	3600	972
17	426	9300	10700	90	1000	243	96	3500	907
18	478	11200	14500	86	1260	293	98	3300	873
19	464	e13100	16400	82	1290	286	90	2700	656
20	286	12800	9880	77	970	202	e86	e2500	580
21	203	11800	6470	74	687	137	86	2100	488
22	295	9300	7410	72	639	124	74	1700	340
23	351	9000	8530	65	e502	88	74	905	181
24	330	7250	6460	73	425	84	70	700	132
25	479	6590	15700	92	507	126	67	e528	96
26	2320	e40900	256000	87	440	103	64	458	79
27	1370	38700	143000	83	332	74	e63	e440	75
28	847	32800	75000	122	897	295	61	372	61
29	722	23700	46200	252	5550	3780	61	293	48
30	541	15000	21900	214	e4600	2660	67	280	51
31	414	11500	12900	516	16600	23100	---	---	---
TOTAL	21588	---	1460820	5807	---	84288	4213	---	128789
YEAR	134871		4584241.7						

e Estimated

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1991					
07...	1505	139	13.0	1990	--
NOV					
22...	1230	340	1.0	4150	100
JAN 1992					
16...	1550	78	0.5	78	98
FEB					
21...	1110	308	0.0	1050	96
APR					
03...	1515	202	14.0	411	99
MAY					
06...	1205	129	18.0	2720	100
JUN					
11...	1015	290	18.5	19300	100
JUL					
07...	1730	400	26.0	16700	100
AUG					
21...	1530	69	25.5	479	100

MISSOURI-FORT RANDALL RIVER BASIN

201

06452278 LAKE FRANCIS CASE (FT. RANDALL RESERVOIR) NEAR PLATTE, SD

LOCATION.--Lat 43°23'37", long 99°07'11", in SE1/4SW1/4NW1/4 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. Elevation of gage is 1,365 ft above sea level, from topographic map.

REMARKS.--Records 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54.81	---	---	42.40	48.89	53.64	55.08	55.61	54.21	55.10	56.13	53.73
2	54.06	---	---	42.49	48.69	53.65	55.19	55.61	54.23	55.45	55.70	53.83
3	53.38	---	---	42.65	48.58	53.87	55.48	55.27	54.38	55.69	55.37	53.76
4	52.78	---	---	42.87	48.85	54.21	55.45	54.96	54.60	55.61	55.35	53.79
5	---	---	37.68	42.86	49.06	54.57	55.11	54.83	54.57	55.24	55.49	53.76
6	---	---	38.43	42.69	49.38	55.00	55.02	54.59	54.69	55.06	55.56	53.24
7	---	---	39.15	42.85	49.71	55.16	55.02	54.66	54.33	55.26	55.81	53.04
8	---	---	39.37	43.17	49.55	55.05	54.93	54.67	54.08	55.38	55.93	52.69
9	---	---	39.14	43.56	49.17	55.21	54.94	54.38	54.34	55.77	55.61	52.94
10	---	---	39.14	43.97	48.99	55.15	55.19	54.15	54.47	56.00	55.38	52.78
11	---	---	39.61	44.21	49.03	55.26	55.16	54.07	54.37	55.87	55.42	52.25
12	---	---	40.28	44.01	49.10	55.32	54.70	54.18	54.69	55.76	55.49	51.73
13	---	---	40.98	43.69	49.21	55.61	54.62	54.39	54.82	55.53	55.47	51.23
14	---	---	41.51	43.59	49.41	55.69	54.73	54.61	54.53	55.88	55.57	50.66
15	---	---	41.57	43.60	49.51	55.63	54.84	54.74	54.40	56.24	55.40	50.33
16	---	---	41.40	43.55	49.36	55.80	54.99	55.03	54.52	56.38	54.94	50.26
17	---	---	41.56	43.72	49.32	55.79	55.06	54.97	54.43	56.42	54.53	50.23
18	---	---	42.04	43.99	49.91	55.72	55.14	54.80	54.07	56.25	54.59	50.14
19	---	---	42.62	44.07	50.50	55.61	55.10	55.20	53.73	55.76	54.60	49.78
20	---	---	43.20	44.00	51.23	55.43	55.03	55.40	53.39	55.34	54.71	49.32
21	---	---	43.68	44.16	51.70	55.19	55.26	55.55	53.41	55.28	54.77	48.89
22	---	---	43.69	44.61	52.17	54.83	55.33	55.79	53.21	55.23	54.56	48.68
23	---	---	43.51	45.30	52.20	54.46	55.39	55.63	53.34	55.11	54.25	48.28
24	---	---	43.51	46.00	52.23	54.55	55.44	55.08	53.74	55.18	53.84	47.74
25	---	38.29	43.62	46.71	52.60	54.60	55.37	54.90	54.09	55.40	53.96	47.07
26	---	38.10	43.58	46.71	52.88	54.70	55.07	54.76	54.36	55.29	54.12	46.43
27	---	38.04	43.52	46.67	53.09	54.81	54.91	54.70	54.53	55.32	54.33	---
28	---	37.84	43.39	47.09	53.43	54.93	55.12	54.84	54.54	55.93	54.56	---
29	---	37.65	43.13	47.57	53.67	54.82	55.27	54.92	54.43	56.27	54.66	---
30	---	---	42.75	48.05	---	54.69	55.37	54.71	54.71	56.43	54.19	---
31	---	---	42.53	48.54	---	54.91	---	54.47	---	56.34	53.73	---
MEAN	---	---	---	44.50	50.39	54.96	55.11	54.89	54.24	55.67	54.97	---
MAX	---	---	---	48.54	53.67	55.80	55.48	55.79	54.82	56.43	56.13	---
MIN	---	---	---	42.40	48.58	53.64	54.62	54.07	53.21	55.06	53.73	---

MISSOURI-FORT RANDALL RIVER BASIN

06452320 PLATTE CREEK NEAR PLATTE, SD

LOCATION.--Lat 43°19'38", long 98°58'13", in NW1/4NW1/4NE1/4 sec.11, T.98 N., R.69 W., Charles Mix County, Hydrologic Unit 10140101, on right bank at upstream side of bridge on State Highway 1804, 0.5 mi above high-water line of Fort Randall Reservoir, and 8.0 mi southwest of Platte.

DRAINAGE AREA.--741 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 1,370 ft above sea level, from topographic map.

REMARKS.--Records fair 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.01	.01	.01	.01	.38	.04	.08	.03	.00	.03	.26
2	.01	.02	.01	.01	.01	.28	.04	.03	.03	.00	.02	13
3	.01	.02	.01	.01	.01	.19	.04	.03	.04	.00	.01	8.4
4	.01	.01	.00	.01	.01	.25	.03	.03	.03	.00	.02	5.0
5	.01	.01	.00	.01	.01	.45	.02	.02	.05	.00	.34	4.9
6	.01	.01	.01	.01	.01	1.1	.02	.02	.05	.00	.08	2.4
7	.01	.01	.01	.01	.01	.92	.02	.02	.03	.00	.56	5.4
8	.01	.01	.01	.01	.01	.81	.02	.01	.03	.01	1.0	5.4
9	.01	.01	.00	.00	.01	1.5	.01	.01	.03	.01	.74	5.0
10	.01	.01	.00	.00	.01	.99	.02	.01	.02	.00	.44	2.7
11	.01	.01	.00	.00	.01	.80	.02	.01	.00	.00	.12	1.3
12	.01	.01	.00	.01	.01	.73	.02	.01	.00	.02	.05	.41
13	.01	.01	.00	.01	.01	.71	.03	.00	.00	3.4	.04	.26
14	.01	.01	.01	.01	.01	.65	.02	.00	.00	3.7	.04	.07
15	.01	.01	.01	.01	.01	.40	.03	.00	.00	1.1	.05	.05
16	.01	.01	.01	.01	.01	.30	2.4	.00	.00	.42	.05	.05
17	.01	.01	.01	.01	.05	.18	2.0	.00	.00	.10	.05	.05
18	.01	.01	.00	.01	.46	.18	1.2	.00	.00	.04	.05	.05
19	.01	.01	.00	.01	.66	.18	.80	.00	.00	.57	.05	.05
20	.01	.01	.00	.01	.61	.16	.48	.00	.00	5.0	.03	.05
21	.01	.02	.00	.01	.44	.16	.54	.00	.00	5.5	.05	.10
22	.01	.01	.00	.01	.34	.13	.37	.00	.00	6.6	.05	.09
23	.01	.00	.00	.01	.35	.11	.44	.00	.00	4.7	.04	.09
24	.01	.00	.00	.01	.42	.11	.36	.00	.00	2.1	.04	.06
25	.02	.00	.00	.01	.40	.09	.22	.00	.00	e1.3	.05	.05
26	.02	.00	.00	.01	.36	.10	.17	.00	.00	e.74	.05	.05
27	.01	.00	.00	.01	.40	.11	.09	.04	.00	e.23	.05	.06
28	.03	.00	.00	.01	.33	.10	.08	.03	.00	.08	1.2	.07
29	.03	.00	.00	.01	.35	.08	.07	.03	.00	.12	.82	.08
30	.01	.01	.00	.01	---	.05	.09	.03	.00	.08	.18	.07
31	.01	---	.00	.01	---	.04	---	.03	---	.04	.04	---
TOTAL	0.37	0.26	0.10	0.28	5.33	12.24	9.69	0.44	0.34	35.86	6.34	55.52
MEAN	.012	.009	.003	.009	.18	.39	.32	.014	.011	1.16	.20	1.85
MAX	.03	.02	.01	.01	.66	1.5	2.4	.08	.05	6.6	1.2	13
MIN	.01	.00	.00	.00	.01	.04	.01	.00	.00	.00	.01	.05
AC-FT	.7	.5	.2	.6	11	24	19	.9	.7	71	13	110

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989
MEAN	.22	.32	.27	.25	.54	1.54	2.55	14.0	12.2	.48	.075	.46
MAX	.87	1.27	1.05	.76	1.13	3.73	6.92	49.0	32.9	1.16	.20	1.85
(WY)	1989	1989	1989	1989	1989	1989	1989	1990	1991	1992	1992	1992
MIN	.000	.002	.003	.009	.18	.39	.26	.014	.011	.15	.000	.000
(WY)	1990	1991	1990	1992	1992	1992	1990	1992	1992	1990	1991	1989

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1989 - 1992

ANNUAL TOTAL	1442.70	126.77	
ANNUAL MEAN	3.95	.35	2.74
HIGHEST ANNUAL MEAN			5.62
LOWEST ANNUAL MEAN			.35
HIGHEST DAILY MEAN	121	Jun 5	355
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 18	.00
INSTANTANEOUS PEAK FLOW		29	447
INSTANTANEOUS PEAK STAGE		3.09	5.14
ANNUAL RUNOFF (AC-FT)	2860	251	1990
10 PERCENT EXCEEDS	5.1	.67	2.1
50 PERCENT EXCEEDS	.01	.01	.06
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a No flow at times in each year.

MISSOURI-FORT RANDALL RIVER BASIN

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06452380 ANDES CREEK NEAR ARMOUR, SD

LOCATION.--Lat 43°15'23", long 97°24'08", in SW1/4NW1/4 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 is greater than 2 ft³/s. No water-quality samples collected this water year; discharge at times of inspections less than 2 ft³/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 SW1/4NE1/4 sec.5, T.97 N. (revised), 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 taken when discharge exceeds 2 ft³/s. No water-quality samples collected this water year; discharge at times of inspections less than 2 ft³/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 SE1/4SE1/4 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 taken only when discharge exceeds 2 ft³/s. No water-quality samples collected this water year; discharge at times of inspections less than 2 ft³/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 NE1/4NE1/4SE1/4 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 taken when discharge exceeds 2 ft³/s. No water-quality samples collected this water year; discharge at times of inspections less than 2 ft³/s.

MISSOURI-FORT RANDALL RIVER BASIN

06452390 LAKE ANDES ABOVE RAVINIA, SD

LOCATION.--Lat 43°13'15", long 98°24'55", in SW1/4SW1/4NE1/4 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 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)
NOV 14...	0920	5330	8.0	1.0	0.5	716	11.9	90	2100	400	260	380
FEB 25...	0915	3590	8.7	0.5	2.0	742	12.7	96	1400	290	170	290
APR 22...	0930	4230	8.2	8.5	2.5	733	13.5	105	1800	340	220	350
JUN 30...	0900	11500	8.1	21.0	20.0	729	11.2	134	5200	810	760	1100
AUG 11...	0930	4830	8.4	21.0	21.5	741	5.4	64	2100	460	230	400
SEP 16...	1045	3920	8.6	27.5	22.0	717	11.0	136	1600	330	190	310

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINIT 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, RESIDUE AT 180 DEG. C SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
NOV 14...	28	4	78	83	2400	200	0.30	5.0	4130	3770	5.62	<0.010
FEB 25...	29	3	70	133	1800	150	0.20	8.0	2910	2860	3.96	0.010
APR 22...	29	4	89	109	2100	200	0.30	0.40	3620	3370	4.92	<0.010
JUN 30...	30	7	240	354	7100	640	1.0	25	13500	10900	18.4	<0.010
AUG 11...	28	4	120	222	2500	230	0.50	38	4420	4120	6.01	<0.010
SEP 16...	28	3	110	151	2000	160	0.30	6.9	3390	3200	4.61	0.030

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	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)	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 14...	--	0.055	0.780	1.0	0.810	0.160	5	<1.0	<1	<0.1	<1
FEB 25...	0.730	0.740	1.50	1.9	0.470	0.030	11	<1.0	<1	<0.1	2
APR 22...	--	<0.050	0.040	0.05	0.550	<0.010	4	<1.0	<1	<0.1	<1
JUN 30...	--	<0.050	0.320	0.41	7.00	1.10	32	<1.0	<1	<0.1	<1
AUG 11...	--	<0.050	0.110	0.14	1.70	1.10	30	<1.0	<1	<0.1	<1
SEP 16...	--	<0.050	0.080	0.10	2.40	0.650	16	<1.0	<1	<0.1	<1

MISSOURI-FORT RANDALL RIVER BASIN

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06452390 LAKE ANDES ABOVE RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION) (00301)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, DIS- SOLVED TOTAL (UG/L) (39331)	AME- TRYNE TOTAL (82184)
APR 22...	0930	4230	8.2	8.5	2.5	733	13.5	105	<0.10	<0.010	<0.01	<0.10
JUN 30...	0900	11500	8.1	21.0	20.0	729	11.2	134	<0.10	<0.010	<0.01	<0.10
DATE	ATRA- ZINE, TOTAL (UG/L) (39630)	CHLOR- DANE, TOTAL (UG/L) (39350)	CHLOR- DANE, DIS- SOLVED TOTAL (UG/L) (39352)	CYAN- AZINE TOTAL (UG/L) (81757)	DDD, TOTAL (UG/L) (39360)	DDD, DIS- SOLVED TOTAL (UG/L) (39361)	DDE, TOTAL (UG/L) (39365)	DDE, DIS- SOLVED TOTAL (UG/L) (39366)	DDT, TOTAL (UG/L) (39370)	DDT, DIS- SOLVED TOTAL (UG/L) (39371)	DI- AZINON, TOTAL (UG/L) (39570)	DI- AZINON, DIS- SOLVED TOTAL (UG/L) (39572)
APR 22...	<0.10	<0.1	<0.1	<0.20	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01
JUN 30...	0.10	<0.1	<0.1	<0.20	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01
DATE	DI- ELDRIN TOTAL (UG/L) (39380)	DI- ELDRIN DIS- SOLVED TOTAL (UG/L) (39381)	ENDO- SULFAN, TOTAL (UG/L) (39388)	ENDO- SULFAN DISSOLV TOTAL (UG/L) (82354)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, DIS- SOLVED TOTAL (UG/L) (39391)	ETHION, TOTAL (UG/L) (39398)	ETHION DISSOLV TOTAL (UG/L) (82346)	HEPTA- CHLOR, TOTAL (UG/L) (39410)	HEPTA- CHLOR, DIS- SOLVED TOTAL (UG/L) (39411)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L) (39420)	
APR 22...	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010	
JUN 30...	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010	
DATE	HEPTA- CHLOR EPOXIDE DIS- SOLVED TOTAL (UG/L) (39421)	LINDANE TOTAL (UG/L) (39340)	LINDANE DIS- SOLVED TOTAL (UG/L) (39341)	MALA- THION, TOTAL (UG/L) (39530)	MALA- THION, DIS- SOLVED TOTAL (UG/L) (39532)	METH- OXY- CHLOR, TOTAL (UG/L) (39480)	METH- OXY- CHLOR DISSOLV TOTAL (UG/L) (82350)	METHYL PARA- THION, TOTAL (UG/L) (39600)	METHYL PARA- THION, DIS- SOLVED TOTAL (UG/L) (39602)	METHYL- TRI- THION DISSOLV TOTAL (UG/L) (82344)	MIREX, TOTAL (UG/L) (39755)	
APR 22...	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
JUN 30...	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.01	
DATE	MIREX, DIS- SOLVED TOTAL (UG/L) (39756)	PARA- THION, TOTAL (UG/L) (39540)	PARA- THION, DIS- SOLVED TOTAL (UG/L) (39542)	PCB, TOTAL (UG/L) (39516)	PCB, DIS- SOLVED TOTAL (UG/L) (39517)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) (39250)	PCN DISSOLV TOTAL (UG/L) (82360)	PER- THANE TOTAL (UG/L) (39034)	PER- THANE DISSOLV TOTAL (UG/L) (82348)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)	
APR 22...	<0.01	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.10	<0.2	<0.1	
JUN 30...	<0.01	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.10	<0.2	<0.1	
DATE	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)	TOX- APHENE, DIS- SOLVED TOTAL (UG/L) (39401)	TOTAL TRI- THION TOTAL (UG/L) (39786)	TRI- THION DISSOLV TOTAL (UG/L) (82342)	2,4-D, TOTAL (UG/L) (39730)	2, 4-DP TOTAL (UG/L) (82183)	2,4,5-T TOTAL (UG/L) (39740)	
APR 22...	<0.10	<0.01	<0.10	<0.1	<1	<1.0	<0.01	<0.01	0.02	<0.01	<0.01	
JUN 30...	<0.10	<0.01	--	<0.1	<1	<1.0	<0.01	<0.01	0.05	0.20	<0.01	

MISSOURI-FORT RANDALL RIVER BASIN

06452390 LAKE ANDES ABOVE RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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)
04-22-92	0930	65	12	8.0	17	1.4	52000	10
08-11-92	0930	48	13	7.3	18	1.5	53000	<10
09-16-92	1045	48	12	7.3	17	1.6	51000	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)
610	1	<10	<2	47	44	12	25
590	1	<10	<2	50	51	11	26
220	1	<10	<2	46	51	12	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	13	<8	<4	26000	29	18	27
<2	14	<8	<4	27000	30	16	28
<2	12	<8	<4	28000	29	18	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)
2000	2	26	35	7	7	2.3	<2	380
1800	<2	23	38	8	8	2.8	<2	340
1800	<2	25	38	8	8	2.7	<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	7	<5	1900	<100	120	2	18	110
<40	7	<5	1900	<100	120	2	20	97
<40	8	<5	2200	<100	120	2	18	110

06452391 LAKE ANDES NEAR RAVINIA, SD

LOCATION.--Lat 43°11'05", long 98°26'10", in SW1/4SW1/4SE1/4 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. The percent difference between cations and anions (in milliequivalents per liter) for the Nov. 14 and Sept. 16 samples exceeded 5 percent; these data should be used with caution.

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM (00095)	PH (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 (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CAO3) (00900)	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)
NOV 14...	0955	4310	7.4	3.0	0.5	716	12.7	95	1800	340	220	290
FEB 25...	1045	4390	8.7	0.5	2.5	742	14.2	108	1900	350	240	330
APR 22...	1100	4630	8.0	2.0	2.0	733	13.8	105	1900	330	250	350
JUN 30...	1045	6490	9.7	21.0	20.0	729	6.7	79	2800	510	370	580
AUG 11...	1100	6080	9.4	24.0	23.0	741	8.4	103	2400	450	320	480
SEP 16...	1215	6150	9.1	27.5	22.5	717	12.6	158	2300	460	270	520

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CAO3) (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, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
NOV 14...	25	3	140	100	1800	200	0.60	2.6	3090	3050	4.20	<0.010
FEB 25...	26	3	140	117	2300	260	0.40	0.10	3750	3690	5.10	0.020
APR 22...	27	4	140	106	2100	250	0.50	<0.10	3780	3480	5.14	<0.010
JUN 30...	29	5	220	157	3400	410	1.1	12	6520	5600	8.87	<0.010
AUG 11...	28	4	190	97	3200	390	0.70	25	5540	5110	7.53	<0.010
SEP 16...	33	5	37	243	3100	370	0.70	32	5730	4940	7.79	0.070

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTH, DIS- SOLVED (MG/L AS P) (00671)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	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 14...	--	<0.050	1.10	1.4	0.420	0.030	<1	<1.0	<1	<0.1	<1
FEB 25...	0.180	0.200	1.40	1.8	0.520	<0.010	15	<1.0	<1	<0.1	<1
APR 22...	--	<0.050	0.060	0.08	0.580	<0.010	4	<1.0	<1	<0.1	<1
JUN 30...	--	<0.050	1.30	1.7	2.10	<0.010	8	<1.0	<1	<0.1	<1
AUG 11...	--	<0.050	0.090	0.12	1.40	<0.010	20	<1.0	<1	<0.1	<1
SEP 16...	0.00	0.061	0.450	0.58	2.10	0.190	13	<1.0	<1	<0.1	<1

06452391 LAKE ANDES NEAR RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, DIS- SOLVED (UG/L) (39331)	AME- TRYNE TOTAL (82184)
APR 22...	1100	4630	8.0	2.0	2.0	733	13.8	105	<0.10	<0.010	<0.01	<0.10
JUN 30...	1045	6490	9.7	21.0	20.0	729	6.7	79	<0.10	<0.010	<0.01	<0.10
DATE	ATRA- ZINE, TOTAL (UG/L) (39630)	CHLOR- DANE, TOTAL (UG/L) (39350)	CHLOR- DANE, DIS- SOLVED (UG/L) (39352)	CYAN- AZINE TOTAL (UG/L) (81757)	DDD, TOTAL (UG/L) (39360)	DDD, DIS- SOLVED (UG/L) (39361)	DDE, TOTAL (UG/L) (39365)	DDE, DIS- SOLVED (UG/L) (39366)	DDT, TOTAL (UG/L) (39370)	DDT, DIS- SOLVED (UG/L) (39371)	DI- AZINON, TOTAL (UG/L) (39570)	DI- AZINON, DIS- SOLVED (UG/L) (39572)
APR 22...	<0.10	<0.1	<0.1	<0.20	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01
JUN 30...	0.10	<0.1	<0.1	<0.20	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01
DATE	DI- ELDRIN TOTAL (UG/L) (39380)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	ENDO- SULFAN, TOTAL (UG/L) (39388)	ENDO- SULFAN DISSOLV TOTAL (UG/L) (82354)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, DIS- SOLVED (UG/L) (39391)	ETHION, TOTAL (UG/L) (39398)	ETHION DISSOLV TOTAL (UG/L) (82346)	HEPTA- CHLOR, TOTAL (UG/L) (39410)	HEPTA- CHLOR, DIS- SOLVED (UG/L) (39411)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L) (39420)	
APR 22...	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010	
JUN 30...	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010	
DATE	HEPTA- CHLOR EPOXIDE DIS- SOLVED (UG/L) (39421)	LINDANE TOTAL (UG/L) (39340)	LINDANE DIS- SOLVED (UG/L) (39341)	MALA- THION, TOTAL (UG/L) (39530)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METH- OXY- CHLOR, TOTAL (UG/L) (39480)	METH- OXY- CHLOR DISSOLV TOTAL (UG/L) (82350)	METHYL PARA- THION, TOTAL (UG/L) (39600)	METHYL PARA- THION, DIS- SOLVED (UG/L) (39602)	METHYL- TRI- THION DISSOLV TOTAL (UG/L) (82344)	MIREX, TOTAL (UG/L) (39755)	
APR 22...	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
JUN 30...	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.01	
DATE	MIREX, DIS- SOLVED (UG/L) (39756)	PARA- THION, TOTAL (UG/L) (39540)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PCB, TOTAL (UG/L) (39516)	PCB, DIS- SOLVED (UG/L) (39517)	NAPH- THA- LENES, POLY- CHLOR, TOTAL (UG/L) (39250)	PCN DISSOLV TOTAL (UG/L) (82360)	PER- THANE TOTAL (UG/L) (39034)	PER- THANE DISSOLV TOTAL (UG/L) (82348)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)	
APR 22...	<0.01	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.10	<0.2	<0.1	
JUN 30...	<0.01	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.10	<0.2	<0.1	
DATE	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)	TOX- APHENE, DIS- SOLVED (UG/L) (39401)	TOTAL TRI- THION TOTAL (UG/L) (39786)	TRI- THION DISSOLV TOTAL (UG/L) (82342)	2,4-D, TOTAL (UG/L) (39730)	2, 4-DP TOTAL (UG/L) (82183)	2,4,5-T TOTAL (UG/L) (39740)	
APR 22...	<0.10	<0.01	<0.10	<0.1	<1	<1.0	<0.01	<0.01	0.01	<0.01	<0.01	
JUN 30...	<0.10	<0.01	<0.10	<0.1	<1	<1.0	<0.01	<0.01	<0.01	0.13	<0.01	

MISSOURI-FORT RANDALL RIVER BASIN

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06452391 LAKE ANDES NEAR RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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)
04-22-92	1100	66	12	7.4	18	1.6	50000	10
08-22-92	1100	53	11	7.4	18	1.3	50000	<10
09-16-92	1215	69	13	8.9	15	1.5	43000	<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)
460	1	<10	<2	43	45	12	30
630	1	<10	<2	55	47	12	25
180	1	<10	<2	41	41	10	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	14	<8	<4	26000	26	18	29
<2	14	<8	<4	24000	30	14	27
<2	12	<8	<4	23000	25	14	22

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)
2500	3	24	40	7	7	2.1	<2	490
1700	2	25	40	8	7	1.7	<2	420
3500	2	20	32	6	6	1.7	<2	480

TAN- TALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITAN- IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URAN- IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANA- DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTER- BIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
<40	7	<5	2000	<100	120	2	16	110
<40	8	<5	2000	<100	120	2	19	94
<40	6	<5	1700	<100	94	2	15	93

MISSOURI-FORT RANDALL RIVER BASIN

06452403 OWENS BAY NEAR RAVINIA, SD

LOCATION.--Lat 43°09'40", long 98°26'45", in NW1/4NW1/4SW1/4 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 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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 (PER- CENT SATUR- ATION) (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)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)
NOV 14...	1045	3740	7.4	2.0	2.0	716	5.2	40	1500	410	110	190
FEB 25...	1130	3110	7.8	6.5	2.5	742	11.8	90	1400	380	110	190
APR 22...	1215	3330	8.1	3.0	3.0	733	13.5	106	1500	420	120	180
JUN 30...	1230	4440	9.8	26.5	24.0	729	11.6	146	2000	550	160	300
AUG 11...	1200	3970	9.0	25.0	25.0	741	11.2	141	1800	480	150	260
SEP 16...	1250	3920	8.8	20.5	23.0	717	11.6	145	1800	480	150	260

DATE	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, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV 14...	21	2	35	101	1400	250	2.4	11	2680	2470	3.64
FEB 25...	22	2	35	104	1400	230	1.9	3.8	2480	2410	3.37
APR 22...	20	2	41	97	1500	240	2.2	2.8	2660	2560	3.62
JUN 30...	24	3	55	54	2100	380	3.2	7.8	4040	3590	5.49
AUG 11...	24	3	9.8	61	1900	350	3.1	9.4	3500	3200	4.76
SEP 16...	23	3	50	69	1900	310	3.0	14	3410	3210	4.64

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	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)	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 14...	<0.010	<0.050	4.50	5.8	0.100	<0.010	2	<1.0	<1	<0.1	<1
FEB 25...	<0.010	0.150	0.680	0.88	0.120	<0.010	4	<1.0	<1	<0.1	1
APR 22...	<0.010	<0.050	0.040	0.05	0.140	<0.010	1	<1.0	<1	<0.1	<1
JUN 30...	<0.010	<0.050	0.120	0.15	0.080	<0.010	5	<1.0	<1	<0.1	<1
AUG 11...	<0.010	<0.050	0.080	0.10	0.060	0.010	12	<1.0	<1	<0.1	<1
SEP 16...	<0.010	<0.050	0.110	0.14	0.110	<0.010	8	<1.0	<1	<0.1	<1

MISSOURI-FORT RANDALL RIVER BASIN

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06452403 OWENS BAY NEAR RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	ALA- CHLOR TOTAL RECOVER (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, DIS- SOLVED (UG/L)	AME- TRYNE TOTAL
		(US/CM) (00095)	(00400)	(00020)	(00010)	(00025)	(00300)	(00301)	(77825)	(39330)	(39331)	(82184)
APR 22...	1215	3330	8.1	3.0	3.0	733	13.5	106	<0.10	<0.010	<0.01	<0.10
JUN 30...	1230	4440	9.8	26.5	24.0	729	11.6	146	<0.10	<0.010	<0.01	<0.10
DATE	ATRA- ZINE, TOTAL (UG/L) (39630)	CHLOR- DANE, TOTAL (UG/L) (39350)	CHLOR- DANE, DIS- SOLVED (UG/L) (39352)	CYAN- AZINE TOTAL (UG/L) (81757)	DDD, TOTAL (UG/L) (39360)	DDD, DIS- SOLVED (UG/L) (39361)	DDE, TOTAL (UG/L) (39365)	DDE, DIS- SOLVED (UG/L) (39366)	DDT, TOTAL (UG/L) (39370)	DDT, DIS- SOLVED (UG/L) (39371)	DI- AZINON, TOTAL (UG/L) (39570)	DI- AZINON, DIS- SOLVED (UG/L) (39572)
APR 22...	<0.10	<0.1	<0.1	<0.20	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01
JUN 30...	0.10	<0.1	<0.1	<0.20	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01
DATE	DI- ELDRIN TOTAL (UG/L) (39380)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	ENDO- SULFAN, TOTAL (UG/L) (39388)	ENDO- SULFAN DISSOLV (UG/L) (82354)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, DIS- SOLVED (UG/L) (39391)	ETHION, TOTAL (UG/L) (39398)	ETHION DISSOLV (UG/L) (82346)	HEPTA- CHLOR, TOTAL (UG/L) (39410)	HEPTA- CHLOR, DIS- SOLVED (UG/L) (39411)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L) (39420)	
APR 22...	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010	
JUN 30...	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010	
DATE	HEPTA- CHLOR EPOXIDE DIS- SOLVED (UG/L) (39421)	LINDANE TOTAL (UG/L) (39340)	LINDANE DIS- SOLVED (UG/L) (39341)	MALA- THION, TOTAL (UG/L) (39530)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METH- OXY- CHLOR, TOTAL (UG/L) (39480)	METH- OXY- CHLOR DISSOLV (UG/L) (82350)	METHYL PARA- THION, TOTAL (UG/L) (39600)	METHYL PARA- THION, DIS- SOLVED (UG/L) (39602)	METHYL- TRI- THION DISSOLV (UG/L) (82344)	MIREX, TOTAL (UG/L) (39755)	
APR 22...	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
JUN 30...	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
DATE	MIREX, DIS- SOLVED (UG/L) (39756)	PARA- THION, TOTAL (UG/L) (39540)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PCB, TOTAL (UG/L) (39516)	PCB, DIS- SOLVED (UG/L) (39517)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) (39250)	PCN DISSOLV (UG/L) (82360)	PER- THANE TOTAL (UG/L) (39034)	PER- THANE DISSOLV (UG/L) (82348)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)	
APR 22...	<0.01	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.10	<0.2	<0.1	
JUN 30...	<0.01	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.10	<0.2	<0.1	
DATE	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)	TOX- APHENE, DIS- SOLVED (UG/L) (39401)	TOTAL TRI- THION TOTAL (UG/L) (39786)	TRI- THION DISSOLV (UG/L) (82342)	2,4-D, TOTAL (UG/L) (39730)	2, 4-DP TOTAL (UG/L) (82183)	2,4,5-T TOTAL (UG/L) (39740)	
APR 22...	<0.10	<0.01	<0.10	<0.1	<1	<1.0	<0.01	<0.01	0.05	<0.01	<0.01	
JUN 30...	<0.10	<0.01	<0.10	<0.1	<1	<1.0	<0.01	<0.01	0.08	<0.01	<0.01	

MISSOURI-FORT RANDALL RIVER BASIN

06452403 OWENS BAY NEAR RAVINIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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)
04-22-92	1215	45	11	1.1	15	1.0	46000	10
08-11-92	1200	53	6.8	1.1	13	1.2	41000	<10
09-16-92	1250	47	8.1	1.1	15	1.1	44000	<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)
960	<1	<10	<2	37	31	12	17
780	<1	<10	<2	40	29	8	9
620	1	<10	<2	61	39	8	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	11	<8	<4	18000	22	14	19
<2	11	<8	<4	15000	23	9	15
<2	9	<8	<4	18000	35	11	17

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)
2900	2	18	24	5	5	0.8	<2	400
1900	<2	17	17	6	5	0.6	<2	510
1100	<2	29	20	6	6	0.5	<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	1600	<100	65	1	13	58
<40	4	<5	1500	<100	55	2	15	28
<40	9	<5	2300	<100	64	2	17	54

MISSOURI-FORT RANDALL RIVER BASIN

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06452406 LAKE ANDES ABOVE LAKE ANDES, SD

LOCATION.--Lat 43°09'40", long 98°29'10", in NW1/4NW1/4SW1/4 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 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)
NOV 14...	1145	4500	7.8	2.5	1.0	716	15.7	120	2200	490	230	310
FEB 25...	1215	4110	8.5	9.0	2.5	742	14.1	108	1800	420	180	260
APR 22...	1400	4020	8.0	2.5	3.0	733	13.2	103	1700	390	180	250
JUN 30...	1345	4810	8.7	27.5	22.5	729	9.0	111	2100	470	230	320
AUG 11...	1330	4700	9.0	26.5	25.5	741	8.7	111	2200	500	230	320
SEP 16...	1430	4590	8.2	19.5	21.0	717	7.3	89	2200	490	240	330

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINEITY 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 SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
NOV 14...	22	3	140	102	2300	250	1.1	11	4110	3790	5.59	<0.010
FEB 25...	23	3	100	119	2100	210	0.70	4.9	3390	3350	4.61	0.010
APR 22...	23	3	99	90	1800	210	1.1	<0.10	3420	2980	4.65	<0.010
JUN 30...	23	3	140	90	2500	290	1.2	0.90	4440	4010	6.04	<0.010
AUG 11...	23	3	140	79	2500	310	1.2	6.9	4320	4060	5.88	<0.010
SEP 16...	23	3	140	119	2400	270	1.2	7.4	4400	3950	5.98	<0.010

DATE	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	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)	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 14...	--	<0.050	0.930	1.2	0.370	<0.010	3	<1.0	<1	<0.1	<1
FEB 25...	0.170	0.180	1.40	1.8	0.230	<0.010	10	<1.0	<1	<0.1	<1
APR 22...	--	<0.050	0.050	0.06	0.330	<0.010	3	<1.0	<1	<0.1	<1
JUN 30...	--	0.110	0.130	0.17	0.890	0.020	4	<1.0	<1	<0.1	<1
AUG 11...	--	<0.050	0.060	0.08	0.650	<0.010	13	<1.0	<1	<0.1	<1
SEP 16...	--	<0.050	0.090	0.12	0.680	<0.010	6	<1.0	<1	<0.1	<1

MISSOURI-FORT RANDALL RIVER BASIN

06452406 LAKE ANDES ABOVE LAKE ANDES, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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 (MG/L) (00301)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, DIS- SOLVED (UG/L) (39331)	AME- TRYNE TOTAL (82184)
APR 22...	1400	4020	8.0	2.5	3.0	733	13.2	103	<0.10	<0.010	<0.01	<0.10
JUN 30...	1345	4810	8.7	27.5	22.5	729	9.0	111	<0.10	<0.010	<0.01	<0.10

DATE	ATRA- ZINE, TOTAL (UG/L) (39630)	CHLOR- DANE, TOTAL (UG/L) (39350)	CHLOR- DANE, DIS- SOLVED (UG/L) (39352)	CYAN- AZINE TOTAL (UG/L) (81757)	DDD, TOTAL (UG/L) (39360)	DDD, DIS- SOLVED (UG/L) (39361)	DDE, TOTAL (UG/L) (39365)	DDE, DIS- SOLVED (UG/L) (39366)	DDT, TOTAL (UG/L) (39370)	DDT, DIS- SOLVED (UG/L) (39371)	DI- AZINON, DIS- SOLVED (UG/L) (39570)	DI- AZINON, DIS- SOLVED (UG/L) (39572)
APR 22...	<0.10	<0.1	<0.1	<0.20	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01
JUN 30...	0.10	<0.1	<0.1	<0.20	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01

DATE	DI- ELDRIN TOTAL (UG/L) (39380)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	ENDO- SULFAN, TOTAL (UG/L) (39388)	ENDO- SULFAN DISSOLV (UG/L) (82354)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, DIS- SOLVED (UG/L) (39391)	ETHION, TOTAL (UG/L) (39398)	ETHION, DISSOLV (UG/L) (82346)	HEPTA- CHLOR, TOTAL (UG/L) (39410)	HEPTA- CHLOR, DIS- SOLVED (UG/L) (39411)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L) (39420)
APR 22...	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010
JUN 30...	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010	<0.01	<0.010

DATE	HEPTA- CHLOR EPOXIDE DIS- SOLVED (UG/L) (39421)	LINDANE TOTAL (UG/L) (39340)	LINDANE DIS- SOLVED (UG/L) (39341)	MALA- THION, TOTAL (UG/L) (39530)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METH- OXY- CHLOR, TOTAL (UG/L) (39480)	METH- OXY- CHLOR DISSOLV (UG/L) (82350)	METHYL PARA- THION, TOTAL (UG/L) (39600)	METHYL PARA- THION, DIS- SOLVED (UG/L) (39602)	METHYL- TRI- THION DISSOLV (UG/L) (82344)	MIREX, TOTAL (UG/L) (39755)
APR 22...	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
JUN 30...	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.01

DATE	MIREX, DIS- SOLVED (UG/L) (39756)	PARA- THION, TOTAL (UG/L) (39540)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PCB, TOTAL (UG/L) (39516)	PCB, DIS- SOLVED (UG/L) (39517)	NAPH- THA- LENES, POLY- CHLOR, TOTAL (UG/L) (39250)	PCN DISSOLV (UG/L) (82360)	PER- THANE TOTAL (UG/L) (39034)	PER- THANE DISSOLV (UG/L) (82348)	PROME- TONE TOTAL (UG/L) (39056)	PROME- TRYNE TOTAL (UG/L) (39057)
APR 22...	<0.01	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.10	<0.2	<0.1
JUN 30...	<0.01	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.1	<0.10	<0.2	<0.1

DATE	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)	TOX- APHENE, DIS- SOLVED (UG/L) (39401)	TOTAL TRI- THION (UG/L) (39786)	TRI- THION DISSOLV (UG/L) (82342)	2,4-D, TOTAL (UG/L) (39730)	2, 4-DP TOTAL (UG/L) (82183)	2, 4, 5-T TOTAL (UG/L) (39740)
APR 22...	<0.10	<0.01	<0.10	<0.1	<1	<1.0	<0.01	<0.01	0.04	<0.01	<0.01
JUN 30...	<0.10	<0.01	<0.10	<0.1	<1	<1.0	<0.01	<0.01	<0.01	<0.01	<0.01

06452406 LAKE ANDES ABOVE LAKE ANDES, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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)
04-22-92	1400	73	10	5.4	17	1.7	51000	20
08-11-92	1330	68	11	5.2	17	1.4	53000	<10
09-16-92	1430	66	11	7.8	15	1.3	45000	<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)
350	1	<10	<2	39	47	13	34
590	1	<10	<2	53	52	12	25
250	1	<10	<2	75	69	12	19

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	16	<8	<4	28000	25	19	34
<2	16	<8	<4	28000	31	15	33
<2	11	<8	<4	29000	44	17	23

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)
3300	2	20	40	6	8	2.0	<2	640
2500	4	24	41	9	9	1.8	<2	620
2300	2	34	36	10	9	0.7	<2	570

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	1700	<100	120	2	15	120
<40	8	<5	2100	<100	130	2	20	110
<40	10	<5	3700	<100	100	2	21	92

MISSOURI-FORT RANDALL RIVER BASIN

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 mi², approximately.

PERIOD OF RECORD.--December 1952 to current year (monthend contents only). Prior to October 1964, published as Fort Randall Reservoir at Pickstown.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 25, 1953, elevations determined from temporary nonrecording gages.

REMARKS.--Reservoir is formed by earthfill dam; storage began in December 1952; initial closure made July 1952. Maximum capacity, 5,574,000 acre-ft below elevation 1,375.0 ft (top of spillway gates). Normal maximum, 4,589,000 acre-ft below elevation 1,365.0 ft. Inactive storage, 1,184,000 acre-ft below elevation 1,310.0 ft. No dead storage; elevation of invert of lowest outlet is 1,227.0 ft. Figures given herein represent elevations at outlet works and total contents adjusted for wind effect. The spillway consists of 21 taintor gates, each 40 ft wide by 29 ft high; spillway capacity, 490,000 ft³/s at pool elevation 1,375 ft. Crest of spillway is at elevation 1,346 ft. Normal releases are through 12 tunnels 22 ft in diameter. Installation of power units in 8 of these tunnels was completed in January 1956; maximum release through power tunnels is 46,000 ft³/s; maximum release through 4 other tunnels is 130,000 ft³/s at pool elevation 1,375 ft. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,087,000 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, 3,729,000 acre-ft, July 16; minimum contents, 2,317,000 acre-ft, Nov. 19.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,354.81	3,603,000	-
Oct. 31	1,338.94	2,417,000	-1,186,000
Nov. 30	1,337.27	2,342,000	-75,000
Dec. 31	1,342.54	2,664,000	+322,000
CAL YR 1991	-	-	+41,000
Jan. 31	1,348.73	3,092,000	+428,000
Feb. 29	1,353.68	3,489,000	+397,000
Mar. 31	1,355.11	3,600,000	+111,000
Apr. 30	1,355.50	3,628,000	+28,000
May 31	1,354.17	3,531,000	-97,000
June 30	1,354.96	3,593,000	+62,000
July 31	1,356.28	3,705,000	+112,000
Aug. 31	1,353.68	3,490,000	-215,000
Sept. 30	1,343.22	2,712,000	-778,000
WTR YR 1992	-	-	-891,000

NOTE.--Lake did not freeze over.

MISSOURI-LEWIS AND CLARK RIVER BASIN

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06453020 MISSOURI RIVER BELOW GREENWOOD, SD

LOCATION.--Lat 42°54'19", long 98°20'58", in SE1/4NE1/4NE1/4 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. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.10	22.25	22.75	22.80	22.02	20.15	24.87	24.53	25.96	26.16	25.82	25.34
2	27.30	21.77	23.80	21.85	22.04	20.18	24.56	24.69	26.30	25.45	25.46	25.49
3	26.99	21.75	23.37	22.08	22.04	20.11	24.95	24.95	25.63	25.18	25.16	25.18
4	26.75	22.00	23.39	22.16	22.07	20.07	25.02	25.53	26.00	26.13	25.01	24.80
5	26.85	21.95	23.07	21.84	21.98	20.12	25.40	25.90	26.29	26.10	25.06	24.35
6	26.83	21.80	23.11	22.10	22.01	20.16	25.41	26.43	25.62	25.41	24.34	24.80
7	26.65	21.54	22.54	22.07	22.55	20.36	25.65	25.62	26.11	26.11	24.80	24.45
8	26.22	21.39	22.25	22.19	23.16	21.14	26.40	25.99	26.17	25.60	24.55	24.55
9	26.09	21.59	22.54	21.99	23.18	21.01	26.18	26.33	25.30	25.43	24.80	23.80
10	26.35	21.58	22.54	22.49	23.46	21.20	26.23	25.59	25.89	26.08	25.05	23.97
11	26.05	21.49	22.42	23.41	23.56	20.70	26.29	26.01	25.95	25.94	25.10	24.14
12	26.26	21.43	22.10	23.62	23.54	20.47	26.10	25.99	24.98	25.27	24.54	25.11
13	26.32	21.50	21.56	23.66	23.43	20.00	25.73	25.27	25.73	25.60	24.91	25.35
14	26.48	21.44	21.69	23.77	22.98	19.86	25.60	25.97	26.30	24.15	24.62	25.47
15	26.67	21.45	22.21	24.22	22.85	20.64	25.48	26.15	25.81	24.29	25.30	25.56
16	26.89	20.04	22.16	25.46	22.37	21.31	25.00	25.30	26.27	24.85	25.07	25.01
17	26.86	20.63	22.11	24.80	21.42	22.53	24.92	25.53	26.40	24.80	25.06	24.00
18	26.52	20.86	22.27	25.61	21.46	23.45	24.91	25.47	25.73	25.24	25.18	23.30
19	26.76	20.82	22.36	26.11	20.70	24.40	24.93	24.68	26.18	25.26	25.54	23.51
20	26.38	20.61	22.04	25.46	20.22	24.87	24.99	25.62	26.42	25.36	25.50	24.52
21	26.85	20.06	21.98	23.95	20.13	25.30	24.89	26.10	25.79	25.78	25.38	24.40
22	26.33	20.98	22.33	23.16	20.55	25.29	24.85	25.50	26.28	26.11	25.44	23.68
23	26.08	22.39	22.25	21.74	20.21	25.39	24.89	25.89	26.37	25.97	25.43	25.09
24	25.60	22.96	22.58	21.34	20.31	25.48	25.14	26.20	25.52	25.31	25.63	25.37
25	25.49	23.35	22.81	20.88	20.46	25.38	24.90	25.54	25.68	24.98	25.50	26.18
26	25.07	22.37	22.95	21.19	22.18	25.36	24.64	25.90	26.04	24.35	25.23	26.71
27	24.33	22.09	23.11	21.01	22.31	25.30	24.73	26.23	25.45	23.72	25.14	26.84
28	24.42	22.31	22.98	21.70	20.53	25.40	24.75	25.62	26.17	24.36	25.03	26.59
29	23.37	22.19	22.83	22.42	19.96	25.47	24.91	26.09	26.23	24.52	24.85	26.90
30	23.27	22.84	23.03	22.36	---	25.15	24.74	26.14	25.62	25.15	24.73	26.34
31	22.32	---	22.86	21.92	---	25.10	---	25.54	---	25.03	25.00	---
MEAN	25.98	21.65	22.58	22.88	21.85	22.62	25.24	25.69	25.94	25.28	25.10	25.03
MAX	27.30	23.35	23.80	26.11	23.56	25.48	26.40	26.43	26.42	26.16	25.82	26.90
MIN	22.32	20.04	21.56	20.88	19.96	19.86	24.56	24.53	24.98	23.72	24.34	23.30

MISSOURI-FORT RANDALL RIVER BASIN

06453120 MISSOURI RIVER ABOVE CHOTEAU CREEK, NEAR VERDEL, NE

LOCATION.--Lat 42°50'40", long 98°11'50", in NE1/4SW1/4SE1/4 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 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)
NOV 15...	1110	781	8.6	14.0	6.0	736	11.8	98	240	60	23	68
FEB 26...	1030	830	8.6	9.0	2.5	740	14.0	106	250	61	23	72
APR 23...	1100	804	8.1	6.5	5.5	741	12.0	98	250	61	23	69
JUL 01...	1015	789	8.4	21.0	18.5	734	8.4	93	250	62	23	69
AUG 12...	1130	760	8.4	23.0	21.5	749	8.2	94	240	60	23	71
SEP 17...	1100	747	8.5	15.0	19.5	735	8.4	95	230	56	22	69

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB 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, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV 15...	37	2	4.9	164	220	15	0.60	6.0	509	496	0.69
FEB 26...	38	2	4.8	168	230	17	0.60	6.0	553	515	0.75
APR 23...	37	2	5.4	164	210	15	0.60	5.0	506	487	0.69
JUL 01...	37	2	4.6	170	220	16	0.70	4.6	506	502	0.69
AUG 12...	38	2	4.8	164	210	13	0.60	4.9	491	486	0.67
SEP 17...	39	2	5.3	163	210	14	0.60	5.3	492	480	0.67

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	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)	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 15...	<0.010	<0.050	0.010	0.01	0.010	<0.010	2	<1.0	<1	<0.1	1
FEB 26...	<0.010	<0.050	0.010	0.01	0.040	<0.010	3	<1.0	<1	<0.1	2
APR 23...	<0.010	<0.050	0.020	0.03	<0.010	<0.010	2	<1.0	<1	<0.1	1
JUL 01...	<0.010	<0.050	0.020	0.03	<0.010	<0.010	3	<1.0	<1	<0.1	1
AUG 12...	<0.010	<0.050	<0.010	--	<0.010	<0.010	2	<1.0	<1	<0.1	1
SEP 17...	<0.010	<0.050	0.010	0.01	0.020	<0.010	2	<1.0	<1	<0.1	<1

MISSOURI-FORT RANDALL RIVER BASIN

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06453120 MISSOURI RIVER ABOVE CHOTEAU CREEK, NEAR VERDEL, NE

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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)
04-23-92	1100	21	2.6	9.5	18	0.8	32000	20
08-12-92	1130	25	3.0	9.6	18	0.8	33000	20
09-17-92	1100	65	8.2	10	14	1.1	44000	<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)
1300	<1	<10	<2	31	9	12	7
1100	<1	<10	<2	36	12	12	6
1200	1	<10	<2	65	45	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	8	<8	<4	26000	21	15	7
<2	8	<8	<4	24000	22	12	7
<2	14	<8	<4	27000	39	11	16

MANGA- NESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYB- DENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODY- MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCAN- DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELE- NIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRON- TIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
2600	2	14	30	<4	3	1.3	<2	190
2600	<2	14	30	<4	3	1.0	<2	200
5100	<2	31	36	5	7	3.1	<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	4	<5	600	<100	31	2	15	52
<40	<4	<5	700	<100	32	2	18	51
<40	11	<5	2600	<100	100	2	21	75

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. (revised), 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.--No flow at times of inspection in water year 1992.

MISSOURI-LEWIS AND CLARK RIVER BASIN

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06453252 CHOTEAU CREEK NEAR DANTE, SD

LOCATION.--Lat 43°01'32", long 98°10'03", on section line between sec.21 and 22, T.95 N., R.62 W., Charles Mix County, Hydrologic Unit 10170101, at bridge on section line road 0.9 mi southeast of Dante.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (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, (PER-CENT SATUR-ATION) (00301)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
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APR 22...	1730	0.05	2440	7.7	12.0	5.0	724	14.8	123	1200
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DATE	TIME	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	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)
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APR 22...	280	130	73	11	0.9	20	78	1300	44	0.20
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DATE	TIME	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
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APR 22...	0.80	2090	1890	2.84	0.28	<0.010	<0.050	0.030	0.04	0.030
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DATE	TIME	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)	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-SOLVED CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
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APR 22...	<0.010	1	<1.0	<1	<0.1	11	2	0.00	100
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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)
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04- -92	71	11	5.4	17	1.1	60000	20
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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)
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530	1	<10	2	48	59	14	25
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EURO-PYUM, 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)
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<2	15	<8	<4	35000	31	20	33
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MISSOURI-LEWIS AND CLARK RIVER BASIN

06453252 CHOTEAU CREEK NEAR DANTE, SD

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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)
2500	<2	27	46	8	10	8.2	<2	320
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)	YTERBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
<40	9	<5	2300	<100	180	2	19	130

MISSOURI-LEWIS AND CLARK RIVER BASIN

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06453255 CHOTEAU CREEK NEAR AVON, SD

LOCATION.--Lat 42°55'24", long 98°06'21", in NW1/4NW1/4NW1/4 sec.31, T.94 N., R.61 W., Bon Homme County, Hydrologic Unit 10170101, on left bank at downstream side of highway bridge, 6.3 mi southwest of Avon, 0.7 mi downstream from Dry Choteau Creek, and 12.7 mi upstream from mouth.

DRAINAGE AREA.--602 mi².

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

REVISED RECORDS.--WDR SD-86-1: 1984(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,290 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	1.0	.49	e.36	.48	e.80	.73	.21	e2.4	.17	e.03	.36
2	.09	1.0	.38	.39	e.65	e.70	.51	.15	e3.0	e1.8	e.01	2.1
3	.10	e1.0	e.39	.37	e.80	e.57	.65	.18	e3.0	e2.6	e.02	2.0
4	.21	e.90	e.35	.32	e1.2	.50	.56	.16	e2.0	e4.1	e.07	1.4
5	.27	e.90	e.30	.32	e1.6	.59	.61	.17	e3.0	e5.0	e.47	7.6
6	.16	e.80	e.30	.31	e2.0	.58	.49	.38	e4.0	e6.0	e.55	9.8
7	.18	e.80	e.38	.46	e3.0	.50	.43	.29	e2.3	e6.0	e1.4	7.3
8	.16	e.70	e.35	.65	e1.5	.68	.45	.17	7.9	e6.0	e.40	3.9
9	.15	e.70	e.37	.45	e.80	.91	.39	.14	5.0	e8.0	e.12	2.6
10	.11	e.60	e.40	.38	e.50	.66	.30	.17	5.5	e6.0	e.04	2.0
11	.10	e.50	e.42	.41	e.30	.58	.30	.32	3.0	e7.0	e.02	1.3
12	.10	e.42	.48	.42	e.20	.63	.28	.18	2.4	e8.0	e.10	1.1
13	.12	.35	.49	.38	e.10	.67	.35	.15	1.2	e8.0	e.30	1.1
14	.13	.30	.46	.31	e.15	.53	.40	e1.0	1.0	e6.0	e.15	e1.2
15	.17	.35	.39	e.30	e.18	.54	.60	e6.0	1.3	e4.0	e.09	e.96
16	.34	.32	.35	e.30	e.19	.60	.55	e41	1.2	e1.0	e.05	e.10
17	.39	.35	.38	e.30	e.20	.41	.32	e15	5.0	e.40	e.03	e.03
18	.35	.42	.37	e.30	e.23	.48	.58	e5.0	4.6	e.10	e.02	.05
19	.41	.47	.35	.31	e.28	.47	.55	e3.5	1.2	e.06	e.02	.05
20	.48	.50	.35	.35	e.30	.51	.33	e3.5	.41	e.04	e.01	.01
21	.42	.48	.36	.32	.44	.64	.48	e3.0	.13	e.03	e.01	.01
22	.51	.47	.38	.29	.50	.71	.41	e3.0	.07	e.07	e.01	.04
23	.42	.39	.37	e.26	.50	.82	.36	e3.0	.05	.17	e.01	.04
24	.42	.42	.34	e.25	.65	.97	.46	e2.7	.06	.34	e.18	.03
25	.49	.28	.35	e.25	.77	.80	.40	e2.6	.06	.39	4.2	.01
26	.74	.45	.33	e.25	.76	.84	.29	e2.5	.07	.21	3.6	.00
27	.80	.49	.30	e.24	.60	.58	.22	e2.4	.08	.21	2.3	.00
28	1.1	.44	.31	.24	e.64	1.0	.27	e2.3	.11	.08	1.7	.00
29	1.5	.42	e.35	.25	e.70	1.0	.22	e2.2	.11	.03	1.1	.00
30	.76	.49	e.40	.19	---	.70	.22	e2.1	.14	e.07	.48	e.00
31	.84	---	e.40	.34	---	.66	---	e2.0	---	e.10	.38	---
TOTAL	12.11	16.71	11.64	10.27	20.22	20.63	12.71	105.47	60.29	81.97	17.87	45.09
MEAN	.39	.56	.38	.33	.70	.67	.42	3.40	2.01	2.64	.58	1.50
MAX	1.5	1.0	.49	.65	3.0	1.0	.73	.41	7.9	8.0	4.2	9.8
MIN	.09	.28	.30	.19	.10	.41	.22	.14	.05	.03	.01	.00
AC-FT	24	33	23	20	40	41	25	209	120	163	35	89

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1992, BY WATER YEAR (WY)

	MEAN	7.03	4.30	3.66	2.69	19.9	164	197	82.3	148	35.6	5.41	13.1
MAX	42.0	14.5	10.4	6.79	103	914	653	339	910	138	17.3	98.2	
(WY)	1987	1987	1987	1987	1983	1987	1986	1986	1984	1984	1983	1986	
MIN	.39	.56	.38	.15	.70	.62	.42	1.17	2.01	.24	.067	.027	
(WY)	1992	1992	1992	1991	1992	1991	1992	1989	1992	1991	1991	1991	

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1982 - 1992

ANNUAL TOTAL	449.41	414.98	
ANNUAL MEAN	1.23	1.13	56.8a
HIGHEST ANNUAL MEAN			168
LOWEST ANNUAL MEAN			1.13
HIGHEST DAILY MEAN	149	May 30	5020
LOWEST DAILY MEAN	.00	Aug 23	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 23	.00
INSTANTANEOUS PEAK FLOW		100	7280
INSTANTANEOUS PEAK STAGE		3.59	13.93
ANNUAL RUNOFF (AC-FT)	891	823	41150
10 PERCENT EXCEEDS	.90	3.0	113
50 PERCENT EXCEEDS	.32	.41	3.2
90 PERCENT EXCEEDS	.06	.07	.38

e Estimated

a Median of yearly mean discharges, 18 ft³/s.

b Also Aug. 24 to Sept. 10, Sept. 15-18, 1991, and Sept. 26-30, 1992.

c Backwater from beaver dam.

06453300 CHOTEAU CREEK BELOW AVON, SD

LOCATION.--Lat 42°51'40", long 98°08'25", in SW1/4SW1/4NE1/4 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 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 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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 (PER- CENT SATUR- ATION) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)
NOV 14...	1550	1.8	1550	8.1	13.0	2.0	721	15.6	120	790
FEB 25...	1710	2.1	1490	8.3	5.5	3.0	746	14.2	108	700
APR 23...	1245	2.2	1590	8.0	8.5	9.5	741	11.9	108	710
JUL 01...	1205	0.83	1730	8.0	23.0	22.5	734	4.9	59	790
AUG 12...	1325	1.1	1570	7.8	26.0	25.0	749	6.3	78	710
SEP 17...	1220	0.74	1510	7.5	22.0	19.5	735	5.5	62	670

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)	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)
NOV 14...	220	58	75	17	1	15	257	630	24	0.30
FEB 25...	190	54	69	17	1	12	155	700	25	0.20
APR 23...	190	57	75	18	1	13	214	650	24	0.30
JUL 01...	210	64	86	19	1	18	186	730	30	0.30
AUG 12...	190	57	80	19	1	15	180	690	26	0.30
SEP 17...	180	53	75	19	1	17	192	590	25	0.20

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 14...	18	1330	1190	1.81	6.46	<0.010	<0.050	0.040	0.05	0.040
FEB 25...	15	1130	1160	1.54	6.41	<0.010	<0.050	0.020	0.03	0.020
APR 23...	13	1260	1150	1.71	7.48	<0.010	<0.050	0.020	0.03	0.030
JUL 01...	12	1350	1260	1.84	3.03	<0.010	<0.050	0.050	0.06	0.120
AUG 12...	14	1240	1180	1.69	3.68	<0.010	<0.050	0.020	0.03	0.040
SEP 17...	13	1150	1070	1.56	2.30	<0.010	<0.050	0.020	0.03	0.080

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)	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- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 14...	<0.010	2	<1.0	<1	<0.1	2	177	0.86	20
FEB 25...	<0.010	2	<1.0	<1	<0.1	3	42	0.24	21
APR 23...	<0.010	2	<1.0	<1	<0.1	2	111	0.66	47
JUL 01...	<0.010	2	<1.0	<1	<0.1	1	139	0.31	57
AUG 12...	<0.010	2	<1.0	<1	<0.1	1	64	0.19	89
SEP 17...	<0.010	2	<1.0	<1	<0.1	<1	124	0.25	54

MISSOURI-LEWIS AND CLARK RIVER BASIN

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06453300 CHOTEAU CREEK BELOW AVON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
04-23-92	1245	110	18	14	15	1.9	40000	21
08-12-92	1325	110	24	13	13	1.1	40000	10
09-17-92	1220	55	8.5	13	14	0.8	40000	10

BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYL- LIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHRO- MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G)
1100	<1	<10	<2	30	19	13	3
2600	<1	<10	<2	34	34	17	12
1100	<1	<10	<2	36	20	9	8

EURO- PIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTH- ANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
<2	18	<8	<4	29000	21	9	12
<2	30	<8	<4	31000	22	7	12
<2	12	<8	<4	19000	24	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)
12000	5	16	30	<4	4	1.9	<2	380
15000	6	14	36	5	6	1.6	<2	370
4700	<2	17	23	<4	4	1.9	<2	290

TAN- TALUM, TOTAL IN BOTTOM MATERIAL (UG/G)	THORIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	TIN, TOTAL IN BOTTOM MATERIAL (UG/G)	TITAN- IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	URAN- IUM, TOTAL IN BOTTOM MATERIAL (UG/G)	VANA- DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTER- BIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	YTTRIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G)
<40	7	<5	800	<100	58	2	16	59
<40	10	<5	1200	<100	74	2	18	59
<40	6	<5	1100	<100	56	1	14	52

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 NW1/4SW1/4NW1/4 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 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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 SATUR- ATION (MG/L) (00301)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	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)
NOV												
15...	1140	788	8.6	14.0	6.0	736	11.7	98	240	60	23	71
FEB												
26...	1100	810	8.4	9.0	2.5	740	14.3	108	250	61	23	72
APR												
23...	1010	800	8.2	6.5	5.5	741	12.0	98	250	61	23	69
JUL												
01...	0945	789	8.3	21.0	19.0	734	8.4	94	250	61	23	69
AUG												
12...	1015	760	8.4	19.5	21.5	747	8.2	95	240	60	23	71
SEP												
17...	1000	750	8.5	15.0	19.5	735	8.4	95	230	56	22	69
DATE		SODIUM AD- SORP- TION RATIO (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, RESIDUE AT 180 DEG. C SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
NOV												
15...		38	2	4.8	164	230	15	0.60	6.0	522	509	0.71
FEB												
26...		38	2	4.7	168	230	17	0.50	6.0	548	515	0.75
APR												
23...		37	2	5.4	164	210	15	0.50	5.1	504	487	0.69
JUL												
01...		37	2	4.6	170	220	16	0.60	4.7	508	501	0.69
AUG												
12...		38	2	4.8	164	210	13	0.60	5.1	480	486	0.65
SEP												
17...		39	2	5.3	163	210	14	0.60	5.2	490	480	0.67
DATE		NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	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)	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												
15...		<0.010	<0.050	0.020	0.03	0.020	<0.010	<1	<1.0	<1	<0.1	2
FEB												
26...		<0.010	<0.050	0.020	0.03	0.020	<0.010	2	<1.0	<1	<0.1	2
APR												
23...		<0.010	<0.050	0.020	0.03	0.010	<0.010	2	<1.0	<1	<0.1	<1
JUL												
01...		<0.010	<0.050	0.020	0.03	0.020	<0.010	1	<1.0	<1	<0.1	<1
AUG												
12...		<0.010	<0.050	<0.010	--	<0.010	<0.010	2	<1.0	<1	<0.1	1
SEP												
17...		<0.010	<0.050	0.040	0.05	0.050	0.010	2	<1.0	<1	<0.1	<1

MISSOURI-LEWIS AND CLARK RIVER BASIN

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06453305 MISSOURI RIVER BELOW CHOTEAU CREEK, NEAR VERDEL, NE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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)
04-23-92	1010	13	3.8	13	15	0.5	40000	<10
08-12-92	1015	22	2.8	10	19	0.7	35000	10
09-17-92	1000	23	9.5	11	13	0.7	40000	10

BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BERYL- LIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	BISMUTH, TOTAL IN BOTTOM MATERIAL (UG/G)	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CERIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	CHRO- MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G)	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G)
980	<1	<10	<2	36	23	9	4
1000	<1	<10	<2	36	12	12	7
2000	<1	<10	<2	110	87	12	4

EURO- PIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GALLIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	GOLD, TOTAL IN BOTTOM MATERIAL (UG/G)	HOLMIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	IRON, TOTAL IN BOTTOM MATERIAL (UG/G)	LANTH- ANUM, TOTAL IN BOTTOM MATERIAL (UG/G)	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G)	LITHIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
<2	6	<8	<4	15000	22	15	10
<2	10	<8	<4	22000	22	14	8
<2	8	<8	<4	31000	67	12	12

MANGA- NESE, TOTAL IN BOTTOM MATERIAL (UG/G)	MOLYB- DENUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NEODY- MIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G)	NIOBIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SCAN- DIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SELE- NIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G)	STRON- TIUM, TOTAL IN BOTTOM MATERIAL (UG/G)
440	<2	16	18	<4	4	0.2	<2	250
2300	<2	17	29	<4	3	0.8	<2	200
1000	<2	45	23	11	9	0.3	<2	260

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	1200	<100	34	<1	10	32
<40	6	<5	600	<100	30	2	15	42
<40	12	<5	5500	<100	71	2	22	46

NIOBRARA RIVER BASIN

06464100 KEYA PAHA RIVER NEAR KEYAPAHA, SD

LOCATION.--Lat 43°07'45", long 100°06'24", in NW1/4SW1/4SW1/4 sec.17, T.96 N., R.78 W., Tripp County, Hydrologic Unit 10150006, on left bank at downstream side of highway bridge, 2.0 mi northeast of Keyapaha, and 2.0 mi upstream from Sand Creek.

DRAINAGE AREA.--466 mi², approximately.

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

GAGE.--Water-stage recorder. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	e8.0	e9.0	e14	e22	45	27	23	13	26	39	19
2	11	e9.0	e10	e14	e25	42	26	22	16	26	37	19
3	12	e10	e11	e15	e30	41	26	22	15	24	36	18
4	13	e11	e12	e14	e28	40	26	21	15	24	65	18
5	14	e12	e14	e14	e27	45	25	21	15	43	85	20
6	14	e12	e16	e15	e26	47	25	22	16	46	53	21
7	14	e14	e17	e16	e24	47	24	21	16	41	45	24
8	13	e16	e18	e15	e23	47	24	20	16	37	44	24
9	12	e18	e17	e14	e22	48	24	19	16	38	42	24
10	12	e19	e16	e13	e22	48	24	19	16	47	39	23
11	12	e22	e16	e14	e21	49	24	18	15	61	38	22
12	12	e25	e16	e16	e20	50	25	18	14	90	35	21
13	11	e28	e16	e15	e25	48	26	18	13	90	33	21
14	12	25	e15	e14	e30	46	26	18	17	75	32	20
15	12	21	e14	e13	e39	44	29	18	21	65	32	20
16	12	21	e15	e14	37	42	32	17	27	57	29	20
17	12	21	e16	e15	38	41	32	17	29	51	29	20
18	13	22	e15	e14	40	39	34	17	30	46	28	19
19	13	21	e15	e14	38	38	34	16	35	44	24	19
20	13	21	e15	e15	36	38	32	15	37	42	18	18
21	14	20	e15	e16	37	38	32	14	37	46	18	17
22	13	20	e16	e15	39	36	32	14	37	57	17	17
23	13	e15	e15	e15	41	35	31	15	36	64	16	17
24	14	e14	e15	e15	43	36	30	15	37	58	18	16
25	14	e13	e15	e16	44	35	28	15	36	56	21	16
26	15	e14	e15	e17	44	36	27	16	33	54	23	15
27	15	e15	e15	e17	48	33	27	15	31	51	24	15
28	15	e14	e14	e17	49	31	26	15	29	46	23	15
29	e12	e13	e14	e18	47	30	25	14	28	44	21	15
30	e10	e12	e14	e19	---	29	24	14	26	42	20	15
31	e7.5	---	e14	e20	---	28	---	12	---	42	19	---
TOTAL	390.5	506.0	455.0	473	965	1252	827	541	722	1533	1003	568
MEAN	12.6	16.9	14.7	15.3	33.3	40.4	27.6	17.5	24.1	49.5	32.4	18.9
MAX	15	28	18	20	49	50	34	23	37	90	85	24
MIN	7.5	8.0	9.0	13	20	28	24	12	13	24	16	15
AC-FT	775	1000	902	938	1910	2480	1640	1070	1430	3040	1990	1130

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1992, BY WATER YEAR (WY)

MEAN	19.2	20.9	17.4	15.5	44.5	78.1	66.6	68.5	53.2	29.0	18.1	15.9
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1982 - 1992

ANNUAL TOTAL	11263.9	9235.5	
ANNUAL MEAN	30.9	25.2	
HIGHEST ANNUAL MEAN			37.2a
LOWEST ANNUAL MEAN			57.0
HIGHEST DAILY MEAN	516	Jun 5	18.5
LOWEST DAILY MEAN	2.4	Jan 6	700
ANNUAL SEVEN-DAY MINIMUM	2.5	Jan 1	2.4
INSTANTANEOUS PEAK FLOW			2.5
INSTANTANEOUS PEAK STAGE			820
ANNUAL RUNOFF (AC-FT)	22340	18320	9.45
10 PERCENT EXCEEDS	58	44	26950
50 PERCENT EXCEEDS	16	21	75
90 PERCENT EXCEEDS	8.5	13	22
			11

e Estimated

a Median of annual mean discharges, 42 ft³/s.

b Also July 13.

c Gage height, 7.95 ft.

d Backwater from ice.

06464500 KEYA PAHA RIVER AT WEWELA, SD

LOCATION.--Lat 43°01'44", long 99°46'49", in NW1/4SW1/4SE1/4 sec.24, T.95 N., R.76 W., Tripp County, Hydrologic Unit 10150006, on right bank at downstream side of bridge on U.S. Highway 183, 1.0 mi north of Wewela, 4.5 mi upstream from Holt Creek, and 11.5 mi downstream from Lost Creek.

DRAINAGE AREA.--1,070 mi², approximately.

PERIOD OF RECORD.--November 1937 to September 1940, October 1947 to current year. Monthly discharge only for October 1947, published in WSP 1309.

GAGE.--Water-stage recorder. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	e25	e30	e33	e46	72	56	48	30	47	74	48
2	23	e26	e30	e32	e50	69	54	45	30	54	69	47
3	25	e26	e31	e34	e90	66	54	43	31	53	62	47
4	29	e27	e29	e33	e140	67	52	41	34	55	96	43
5	28	e29	e30	e32	139	78	51	42	35	77	217	46
6	28	e33	e31	e33	108	85	51	42	38	131	195	48
7	28	e32	e32	e34	91	92	50	40	37	129	214	53
8	27	e37	e34	e32	77	86	48	40	38	102	175	55
9	26	e42	e35	e31	75	93	47	38	35	82	136	55
10	25	e48	e36	e30	85	89	47	38	33	124	109	55
11	26	e55	e38	e31	87	94	47	38	31	147	91	53
12	26	e66	e40	e32	87	104	47	38	30	124	76	46
13	27	e72	e40	e31	94	107	49	37	29	139	65	43
14	26	e70	e39	e30	111	99	52	37	35	133	63	41
15	27	68	e38	e29	108	89	60	36	52	114	56	43
16	28	58	e39	e28	103	83	69	36	54	99	54	42
17	27	52	e40	e30	95	77	69	35	64	88	56	42
18	27	46	e39	e29	89	74	72	34	64	84	54	40
19	28	44	e38	e30	82	73	74	33	61	72	50	38
20	29	44	e38	e31	76	73	73	31	61	68	46	37
21	30	41	e37	e33	75	72	71	31	60	70	42	37
22	31	43	e38	e32	77	69	70	30	62	93	39	35
23	30	e40	e37	e31	78	68	68	30	58	102	38	34
24	30	e34	e36	e30	80	66	65	32	63	105	44	33
25	30	e30	e35	e31	79	64	62	34	68	106	59	32
26	32	e32	e35	e32	78	64	58	34	65	116	64	33
27	33	e34	e34	e33	79	62	55	33	61	105	69	32
28	37	e33	e34	e33	79	62	53	32	56	91	66	32
29	28	e32	e33	e35	75	63	52	32	51	79	66	33
30	e25	e31	e33	e37	---	61	49	31	47	79	62	33
31	e23	---	e33	e40	---	59	---	30	---	77	53	---
TOTAL	863	1250	1092	992	2533	2380	1725	1121	1413	2945	2560	1256
MEAN	27.8	41.7	35.2	32.0	87.3	76.8	57.5	36.2	47.1	95.0	82.6	41.9
MAX	37	72	40	40	140	107	74	48	68	147	217	55
MIN	23	25	29	28	46	59	47	30	29	47	38	32
AC-FT	1710	2480	2170	1970	5020	4720	3420	2220	2800	5840	5080	2490

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939-1940, 1948-1992, BY WATER YEAR (WY)

	34.7	39.3	31.0	26.4	52.9	175	151	122	93.0	60.5	32.5	27.3
MEAN	34.7	39.3	31.0	26.4	52.9	175	151	122	93.0	60.5	32.5	27.3
MAX	82.2	77.6	64.5	85.5	178	598	605	358	512	607	143	69.5
(WY)	1983	1983	1983	1983	1982	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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1939-1940, 1948-1992

ANNUAL TOTAL	20696.7	20130	
ANNUAL MEAN	56.7	55.0	
HIGHEST ANNUAL MEAN			70.6a
LOWEST ANNUAL MEAN			175
HIGHEST DAILY MEAN			19.5
LOWEST DAILY MEAN	574	Jun 6	4930
ANNUAL SEVEN-DAY MINIMUM	2.9	Jan 6	.00
INSTANTANEOUS PEAK FLOW	3.3	Jan 1	.00
INSTANTANEOUS PEAK STAGE			5430
ANNUAL RUNOFF (AC-FT)	41050	39930	51120
10 PERCENT EXCEEDS	110	92	139
50 PERCENT EXCEEDS	35	46	38
90 PERCENT EXCEEDS	12	30	14

e Estimated

a Median of annual mean discharges, 58 ft³/s.

b Also Oct. 31.

c Also Jan. 11 to Feb. 15, 1949, and Aug. 19 to Sept. 14, 1976.

d Gage height, 13.08 ft.

f Backwater from ice.

NIOBRARA RIVER BASIN

06464900 KEYA PAHA RIVER NEAR NAPER, NE

LOCATION.--Lat 42°55'00", long 99°05'50", in SE1/4SE1/4 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 Napier, and 8.8 mi (revised) upstream from mouth.

DRAINAGE AREA.--1,630 mi², approximately.

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, 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, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	e33	e56	e70	140	128	106	95	58	123	98	122
2	38	e32	e52	e66	120	125	108	89	62	153	86	116
3	45	e30	e50	e69	120	117	100	84	63	157	74	88
4	58	e32	e60	e66	123	122	96	81	69	146	99	81
5	55	e36	e74	e62	98	147	93	78	71	172	383	104
6	52	e34	e82	e64	119	169	89	74	90	201	708	123
7	50	e33	e86	e60	113	194	98	73	83	296	628	128
8	47	e32	e80	e58	75	197	98	70	111	241	778	146
9	45	e34	e74	e56	79	270	95	70	100	189	666	126
10	46	e35	e76	e58	77	216	97	73	94	186	380	114
11	45	e40	e78	e58	60	239	91	70	84	193	255	106
12	42	e45	e72	e62	73	268	85	65	78	559	191	92
13	42	e56	e66	e56	106	266	83	64	71	217	158	88
14	39	e62	e60	e45	100	257	89	66	83	182	137	81
15	43	e80	e60	e45	109	238	109	79	111	154	119	76
16	44	e72	e64	e62	155	204	119	111	200	117	106	74
17	38	e70	e60	e58	153	173	127	90	351	88	100	75
18	34	e70	e64	e60	164	152	158	82	166	79	96	69
19	43	e66	e64	e68	147	143	160	78	167	75	87	65
20	55	e72	e67	e66	146	143	149	71	152	77	81	66
21	53	e74	e72	e63	130	135	153	67	158	77	76	67
22	52	e70	e72	e60	113	131	149	62	144	117	68	64
23	49	e65	e70	e56	124	127	143	59	129	185	62	61
24	48	e58	e68	e56	129	125	139	60	121	227	99	59
25	50	e66	e64	e60	126	118	124	62	124	274	203	56
26	55	e77	e62	e58	133	116	112	67	169	205	316	56
27	58	e74	e62	e70	139	114	100	66	162	165	333	63
28	71	e66	e70	e80	135	116	100	65	139	143	282	62
29	67	e58	e78	e90	132	122	95	63	124	123	214	63
30	e35	e54	e80	e94	---	116	95	60	113	109	152	62
31	e33	---	e78	e100	---	113	---	57	---	103	125	---
TOTAL	1469	1626	2121	1996	3438	5101	3360	2251	3647	5333	7160	2553
MEAN	47.4	54.2	68.4	64.4	119	165	112	72.6	122	172	231	85.1
MAX	71	80	86	100	164	270	160	111	351	559	778	146
MIN	33	30	50	45	60	113	83	57	58	75	62	56
AC-FT	2910	3230	4210	3960	6820	10120	6660	4460	7230	10580	14200	5060

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1992, BY WATER YEAR (WY)

	MEAN	67.5	76.0	63.0	57.1	116	317	284	229	193	129	59.3	47.7
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1958 - 1992

ANNUAL TOTAL	40469.7	40055	
ANNUAL MEAN	111	109	137
HIGHEST ANNUAL MEAN			389
LOWEST ANNUAL MEAN			44.5
HIGHEST DAILY MEAN	746	Jun 7	6500
LOWEST DAILY MEAN	9.2	Sep 4	30
ANNUAL SEVEN-DAY MINIMUM	11	Sep 1	33
INSTANTANEOUS PEAK FLOW (STAGE)			2540
INSTANTANEOUS PEAK STAGE			8.17
ANNUAL RUNOFF (AC-FT)	80270		79450
10 PERCENT EXCEEDS	234		185
50 PERCENT EXCEEDS	65		82
90 PERCENT EXCEEDS	25		51

e Estimated.

* Backwater from ice.

MISSOURI-LEWIS AND CLARK RIVER BASIN

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06466700 LEWIS AND CLARK LAKE AT SPRINGFIELD, SD

LOCATION.--Lat 42°51'21", long 97°53'06", in SW1/4NE1/4SW1/4 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 except those for July 15-29, which are fair. Stage regulated by Gavins Point Dam 21.2 mi downstream. U.S. Army Corps of Engineers satellite data-collection platform at station. Prior to Oct. 1, 1980, gage heights in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.38	8.03	7.83	7.89	7.45	6.62	7.44	7.34	7.72	7.89	7.50	7.85
2	9.51	7.96	7.77	7.91	7.43	6.56	7.29	7.07	7.94	8.11	7.71	7.94
3	9.66	8.27	8.03	7.80	7.37	6.59	7.15	7.12	7.88	7.77	7.61	8.10
4	9.68	8.29	8.13	7.78	7.36	6.60	7.18	7.21	7.72	7.75	7.61	8.10
5	9.66	8.20	8.23	7.69	7.33	6.56	7.25	7.49	7.96	8.16	7.63	8.07
6	9.78	8.30	8.07	7.61	7.22	6.57	7.29	7.65	7.98	8.02	7.53	8.06
7	9.85	8.26	7.94	7.56	7.09	6.67	7.30	7.81	7.90	7.88	7.41	8.08
8	9.75	8.24	7.92	7.31	7.09	6.72	7.72	7.68	8.15	8.06	7.39	8.10
9	9.61	8.15	7.95	7.51	7.17	6.72	7.96	7.97	8.06	7.85	7.30	7.93
10	9.50	8.18	8.08	7.73	7.15	6.61	8.07	7.82	7.83	7.81	7.39	7.64
11	9.38	8.22	8.19	7.53	7.47	6.59	8.22	7.70	8.05	8.14	7.43	7.54
12	9.29	8.29	8.24	7.29	8.75	6.62	8.57	7.90	7.78	7.99	7.40	7.56
13	9.11	8.41	8.14	7.40	9.35	6.51	8.66	7.77	7.46	7.92	7.28	7.62
14	9.00	8.54	7.92	7.45	8.32	6.47	8.65	7.58	7.81	7.85	7.34	7.86
15	9.07	8.55	7.83	8.24	7.90	6.53	8.65	7.92	7.84	7.35	7.34	7.96
16	9.12	8.63	7.67	8.20	7.98	6.41	8.68	8.36	7.81	7.11	7.46	7.99
17	9.15	8.48	7.49	8.64	8.02	6.55	8.61	8.20	8.01	7.27	7.38	7.86
18	9.20	8.27	7.48	8.17	7.82	6.58	8.46	8.28	8.03	7.24	7.46	7.40
19	9.14	8.17	7.42	8.21	7.81	6.68	8.32	7.91	7.78	7.33	7.50	6.95
20	9.16	8.09	7.32	8.49	7.61	7.04	8.14	7.61	8.04	7.35	7.59	6.72
21	9.13	7.94	7.20	8.69	7.47	7.23	8.21	7.90	8.08	7.53	7.61	6.92
22	9.18	7.51	7.11	8.63	7.20	7.35	8.25	7.72	7.83	7.85	7.63	6.55
23	9.03	7.15	7.09	8.61	7.00	7.41	8.19	7.69	8.09	7.98	7.57	6.68
24	8.77	7.27	7.04	8.42	6.71	7.46	8.08	7.93	8.15	7.90	7.68	7.03
25	8.52	7.57	7.13	8.17	6.54	7.48	8.12	7.80	7.69	7.76	7.94	7.18
26	8.33	7.79	7.19	7.85	6.37	7.53	8.01	7.69	7.95	7.66	8.06	7.67
27	8.22	7.90	7.35	7.62	6.61	7.55	7.91	7.90	7.88	7.25	8.07	7.96
28	7.99	8.01	7.47	7.35	6.74	7.59	7.73	7.84	7.76	7.10	8.01	8.07
29	7.89	7.98	7.59	7.38	6.77	7.69	7.59	7.72	8.15	7.27	7.87	8.12
30	8.18	7.72	7.66	7.48	---	7.65	7.59	7.94	8.06	7.33	7.79	8.25
31	8.34	---	7.78	7.45	---	7.53	---	7.81	---	7.44	7.77	---
MEAN	9.08	8.08	7.69	7.87	7.42	6.92	7.98	7.75	7.91	7.67	7.59	7.66
MAX	9.85	8.63	8.24	8.69	9.35	7.69	8.68	8.36	8.15	8.16	8.07	8.25
MIN	7.89	7.15	7.04	7.29	6.37	6.41	7.15	7.07	7.46	7.10	7.28	6.55

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 mi², approximately.

PERIOD OF RECORD.--July 1955 to current year (monthend contents only). Prior to October 1955, published as Gavins Point Reservoir near Yankton.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Dec. 9, 1955, recorder at temporary location on wall of intake structure unit 3.

REMARKS.--Reservoir is formed by earthfill dam; storage began in July 1955. Maximum capacity, 504,000 acre-ft below elevation 1,210.0 ft (top of spillway gates). Normal maximum, 442,600 acre-ft below elevation 1,208.0 ft. Inactive storage, 157,000 acre-ft below elevation 1,195.0 ft. Dead storage, 23,000 acre-ft below elevation 1,180.0 ft (crest of spillway). From capacity table put into use Nov. 1, 1986; maximum capacity, 491,700 acre-ft. Normal maximum, 432,000 acre-ft. Inactive storage, 149,400 acre-ft. Dead storage, 17,700 acre-ft. Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of 14 taintor gates, each 40 ft wide by 30 ft high; spillway capacity, 280,000 ft³/s at pool elevation 1,210.0 ft. Crest of spillway is at elevation 1,180.0 ft. Normal releases are through 3 power units, installation completed in January 1957; maximum release through power units is 35,000 ft³/s at pool elevation, 1,210.0 ft. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 565,000 acre-ft, Apr. 1, 1960, affected by wind; minimum since initial filling, 61,950 acre-ft, Apr. 23, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 455,000 acre-ft, Oct. 7; minimum contents, 326,000 acre-ft, Sept. 24.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,208.15	436,000	-
Oct. 31	1,208.20	432,000	-4,000
Nov. 30	1,207.57	419,000	-13,000
Dec. 31	1,207.49	417,000	-2,000
CAL YR 1991	-	-	+6,000
Jan. 31	1,207.16	408,000	-9,000
Feb. 29	1,206.57	392,000	-16,000
Mar. 31	1,206.31	387,000	-5,000
Apr. 30	1,206.48	390,000	+3,000
May 31	1,206.17	381,000	-9,000
June 30	1,206.17	382,000	+1,000
July 31	1,205.44	363,000	-19,000
Aug. 31	1,206.66	396,000	+33,000
Sept. 30	1,206.51	390,000	-6,000
WTR YR 1992	-	-	-46,000

NOTE.--Lake did not freeze over.

06467500 MISSOURI RIVER AT YANKTON, SD

LOCATION.--Lat 42°51'58", long 97°23'37", in SW1/4SW1/4 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 mi², 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 ft³/s, Apr. 13, 1952, maximum gage height, 35.5 ft, Apr. 13, 14, 1952 (present datum); minimum daily discharge, 2,700 ft³/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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31100	10300	e14000	12200	e11000	6990	23500	23100	24100	25000	22900	23600
2	30800	10200	e14500	12200	e11000	6340	23600	23000	28300	26500	23100	23000
3	30700	10900	e15000	12200	e11000	5680	23500	23200	24600	25100	23300	22000
4	30500	10300	e14500	12300	e11000	5350	23600	23700	24200	24900	23400	21300
5	30100	9210	e13000	12300	e11500	5260	23600	24100	28100	26500	23300	21200
6	30300	9100	13000	12300	e12500	5070	23600	24200	24400	25200	23500	21100
7	30200	9100	12500	12500	e13500	5480	23600	24100	24100	25100	23400	21000
8	30000	9140	11900	12200	e14000	8950	23600	24300	28300	26800	23300	21400
9	29700	9110	11900	12300	e14000	10300	23500	29100	24800	25400	23000	21300
10	29800	9020	11900	13100	e14000	9790	23600	e23500	24400	25200	22300	21400
11	29800	9070	11900	14800	e13500	8710	23500	e23500	28200	27000	21900	21700
12	29900	9070	11800	e15000	e13000	7360	23600	e29000	25200	25500	21900	22400
13	29800	9060	12300	e15000	e13000	6090	23600	24000	24800	24500	21900	22800
14	30000	9010	13200	e15500	e12000	6140	23600	23900	28200	23400	22100	22900
15	30200	9060	13500	e16000	e12000	6090	23600	28700	25300	23600	22000	22900
16	30200	9050	12800	e16000	e12000	7850	23700	24700	24800	23500	22100	22500
17	30300	9070	12200	e16000	e11500	11600	23700	23900	26100	23600	22400	22300
18	30300	8980	11800	e15500	11300	14900	23600	28600	27400	23600	22700	22300
19	30100	8920	12100	e14500	10300	18100	23300	25200	26400	23700	23300	22800
20	30300	8980	12000	e12700	9720	21400	23300	25300	25300	23700	23300	22900
21	30300	9590	12100	12500	9780	23400	23200	28700	28000	23700	23300	23400
22	30400	11400	12100	12500	9710	23400	23500	24300	25100	23800	23400	23500
23	30300	11900	12200	12300	9670	23600	23300	23900	24600	23800	23800	23600
24	29900	12000	12200	12500	9620	23500	22600	28400	26100	23800	24000	24200
25	29800	10700	12100	12400	9180	23500	22500	24800	25500	23800	24000	24300
26	26400	9960	12100	e12000	8750	23700	22700	24400	26400	23800	23800	24300
27	22400	9950	12200	e12000	8450	23600	22700	28500	24900	23900	23400	24300
28	18600	10400	12200	e12000	7650	23700	23000	24700	24800	23200	23200	24400
29	14500	13200	12300	e11500	7140	23600	23100	24200	26400	23000	23000	24300
30	12800	14200	12200	e11000	---	23500	23200	28400	25100	22900	23300	24300
31	10900	---	12100	e11000	---	23500	---	24700	---	22900	23300	---
TOTAL	860400	299950	389600	406300	321770	436450	701000	784100	773900	756400	713600	683300
MEAN	27750	9998	12570	13110	11100	14080	23370	25290	25800	24400	23020	22780
MAX	31100	14200	15000	16000	14000	23700	23700	29100	28300	27000	24000	24400
MIN	10900	8920	11800	11000	7140	5070	22500	23000	24100	22900	21900	21000
AC-FT	1707000	595000	772800	805900	638200	865700	1390000	1555000	1535000	1500000	1415000	1355000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1992, BY WATER YEAR (WY)

	MEAN	37250	32790	20880	17650	17430	19060	25980	29100	29960	33120	34610	34850
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	27430	8979	12390	11510	10300	10930	15320	20090	17100	24400	23020	22780	
(WY)	1991	1991	1991	1990	1991	1991	1984	1984	1984	1992	1992	1992	

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1976 - 1992*
ANNUAL TOTAL	7534250	7126770	
ANNUAL MEAN	20640	19470	27760
HIGHEST ANNUAL MEAN			38220
LOWEST ANNUAL MEAN			19470
HIGHEST DAILY MEAN	32100	Sep 5	63400
LOWEST DAILY MEAN	7080	Mar 23	5070
ANNUAL SEVEN-DAY MINIMUM	7580	Mar 17	5740
INSTANTANEOUS PEAK FLOW		31300	63700
INSTANTANEOUS PEAK STAGE		15.87	23.17
ANNUAL RUNOFF (AC-FT)	14940000	14140000	20110000
10 PERCENT EXCEEDS	30400	28200	39000
50 PERCENT EXCEEDS	23500	23000	28900
90 PERCENT EXCEEDS	9100	9610	14200

e Estimated

* Period of record since main-stem reservoirs reached maximum pool elevation (1976-92). See REMARKS.

a Gage height, 23.07 ft.

JAMES RIVER BASIN

06470875 JAMES RIVER AT DAKOTA LAKE DAM NEAR LUDDEN, ND

LOCATION.--Lat 45°56'52", long 98°10'29", in SE1/4NE1/4NE1/4 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 mi², of which about 3,300 mi² 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 fair 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 LaMoore.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	e.60	17	5.7	7.6	66	128	20	34	31	12	.00
2	.01	e.62	e14	5.7	8.2	73	59	24	27	36	9.4	.03
3	.00	e.64	e12	5.7	11	78	106	1.1	13	20	11	.00
4	.03	e.68	e10	6.0	13	82	37	9.0	47	19	3.0	.00
5	5.0	e.75	e9.0	6.8	16	105	9.1	.28	52	13	1.3	.00
6	.00	e.80	e10	7.6	19	126	52	.00	65	4.5	.65	1.3
7	.00	e1.0	9.7	8.0	22	145	72	.00	35	6.6	.80	3.5
8	.36	e1.5	9.8	11	25	157	54	.00	36	13	.32	.00
9	.04	e3.0	10	11	28	153	101	.00	30	9.1	4.4	.01
10	.00	e4.5	9.6	10	29	156	61	.00	19	24	6.1	1.1
11	1.2	6.7	7.9	e9.0	30	159	120	.02	7.6	7.6	.33	.00
12	.00	7.5	9.5	e8.5	30	161	20	1.0	8.0	22	1.1	.00
13	1.4	9.6	9.4	e7.5	30	157	11	.00	12	8.5	.00	.00
14	12	11	8.8	e7.0	30	157	38	.00	26	1.8	.00	.15
15	.00	11	9.6	e6.5	30	141	61	.00	29	8.1	.00	.09
16	.00	11	8.6	e6.0	30	152	71	.13	14	13	.00	21
17	2.3	13	7.9	e5.8	30	159	24	2.9	58	19	.05	1.0
18	.00	14	7.6	e5.6	30	153	9.2	.00	37	5.9	.00	5.7
19	.00	15	7.0	6.1	30	151	e40	.00	73	36	.00	.29
20	.00	17	6.7	6.7	29	167	e45	.00	22	15	.00	.01
21	.00	21	6.7	6.7	30	164	e25	.00	6.5	4.8	.00	27
22	2.0	29	6.7	6.9	25	138	e14	34	24	12	.00	1.1
23	3.9	30	6.7	6.7	25	153	e16	34	36	3.6	.00	.07
24	4.3	28	6.7	6.7	25	178	e20	15	16	.14	.00	.00
25	.00	27	6.7	6.7	22	179	e15	73	33	7.6	.05	.00
26	.00	25	6.7	6.6	24	186	e7.0	19	8.1	4.9	.00	.00
27	.00	25	6.7	5.7	29	76	e3.0	23	.37	3.2	.00	8.1
28	13	25	5.8	5.7	41	67	e22	11	22	6.4	.00	.03
29	21	27	5.7	5.7	50	224	e5.0	5.5	18	1.2	2.5	.00
30	.63	23	5.7	5.7	---	157	1.4	32	30	3.2	.98	.03
31	e.62	---	5.7	6.8	---	235	---	24	---	1.2	.00	---
TOTAL	67.79	389.89	263.9	216.1	748.8	4455	1246.7	328.93	838.57	361.34	53.98	70.51
MEAN	2.19	13.0	8.51	6.97	25.8	144	41.6	10.6	28.0	11.7	1.74	2.35
MAX	21	30	17	11	50	235	128	73	73	36	12	27
MIN	.00	.60	5.7	5.6	7.6	66	1.4	.00	.37	.14	.00	.00
AC-FT	134	773	523	429	1490	8840	2470	652	1660	717	107	140

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1992, BY WATER YEAR (WY)

	MEAN	67.0	48.6	21.4	11.3	13.5	248	400	197	135	92.5	65.5	56.9
MAX	206	178	71.7	45.5	51.6	800	977	579	373	227	207	210	
(WY)	1988	1988	1987	1987	1987	1987	1987	1987	1987	1987	1983	1987	
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1982 - 1992

ANNUAL TOTAL	10217.32	9041.51	113
ANNUAL MEAN	28.0	24.7	312
HIGHEST ANNUAL MEAN			10.3
LOWEST ANNUAL MEAN			2210
HIGHEST DAILY MEAN	316	235	Mar 31
LOWEST DAILY MEAN	.00	.00	Oct 1
ANNUAL SEVEN-DAY MINIMUM	.00	.00	Aug 18
INSTANTANEOUS PEAK FLOW		308	Mar 31
INSTANTANEOUS PEAK STAGE		10.12	Mar 31
ANNUAL RUNOFF (AC-FT)	20270	17930	82010
10 PERCENT EXCEEDS	82	71	290
50 PERCENT EXCEEDS	10	8.1	23
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a About.

06470878 JAMES RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'10", long 98°10'26", in SE1/4SE1/4 sec.34, T.129 N., R.60 W., Dickey County, Hydrologic Unit 10160003, at bridge on North Dakota-South Dakota State line road 6.5 mi south, and 1 mi west from Ludden, ND.

DRAINAGE AREA.--5,480 mi², approximately, revised, of which about 3,300 mi² is probably noncontributing.

WATER-STAGE 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 recorded, 89.09 ft, April 18; minimum recorded, 88.07 ft, Aug. 30 and Sept. 6.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	88.66	88.75	88.70	88.60	88.21
2	---	---	---	---	---	---	---	88.66	88.75	88.71	88.52	88.16
3	---	---	---	---	---	---	---	88.71	88.80	88.72	88.48	88.13
4	---	---	---	---	---	---	---	88.62	88.79	88.72	88.49	88.15
5	---	---	---	---	---	---	---	88.66	88.76	88.70	88.50	88.26
6	---	---	---	---	---	---	---	88.87	88.78	88.75	88.53	88.07
7	---	---	---	---	---	---	88.94	88.97	88.80	88.72	88.53	88.09
8	---	---	---	---	---	---	88.98	88.78	88.85	88.72	88.54	---
9	---	---	---	---	---	---	88.91	88.88	88.83	88.70	88.50	---
10	---	---	---	---	---	---	88.90	89.04	88.81	88.69	88.39	---
11	---	---	---	---	---	---	88.85	88.59	88.83	88.68	88.38	---
12	---	---	---	---	---	---	88.95	88.43	88.82	88.66	88.36	---
13	---	---	---	---	---	---	89.02	88.55	88.77	88.70	88.39	---
14	---	---	---	---	---	---	88.93	88.63	88.71	88.80	88.42	---
15	---	---	---	---	---	---	88.89	88.54	88.66	88.75	88.45	88.21
16	---	---	---	---	---	---	88.87	88.53	88.76	88.72	88.46	88.15
17	---	---	---	---	---	---	88.97	88.42	88.86	88.65	88.32	---
18	---	---	---	---	---	---	89.09	88.73	88.94	88.70	88.23	---
19	---	---	---	---	---	---	88.94	88.93	88.93	88.70	88.32	---
20	---	---	---	---	---	---	88.90	88.97	88.93	88.67	88.40	---
21	---	---	---	---	---	---	88.96	88.91	88.95	88.70	88.14	---
22	---	---	---	---	---	---	88.83	88.55	88.94	88.67	88.39	---
23	---	---	---	---	---	---	88.88	88.52	88.86	88.66	88.34	---
24	---	---	---	---	---	---	88.82	88.65	88.84	88.73	88.14	---
25	---	---	---	---	---	---	88.76	88.60	88.81	88.66	88.15	---
26	---	---	---	---	---	---	88.76	88.68	88.78	88.59	88.26	---
27	---	---	---	---	---	---	88.94	88.72	88.82	88.61	88.31	---
28	---	---	---	---	---	---	88.97	88.81	88.85	88.57	88.32	---
29	---	---	---	---	---	---	88.76	88.85	88.71	88.54	88.11	---
30	---	---	---	---	---	---	88.89	88.75	88.70	88.56	88.07	---
31	---	---	---	---	---	---	---	88.78	---	88.59	88.14	---
MEAN	---	---	---	---	---	---	---	88.71	88.81	88.68	88.36	---
MAX	---	---	---	---	---	---	---	89.04	88.95	88.80	88.60	---
MIN	---	---	---	---	---	---	---	88.42	88.66	88.54	88.07	---

JAMES RIVER BASIN

06470990 SAND LAKE - OPEN PLATFORM 1

LOCATION.--Lat 45°44'02", long 98°16'51", in NE1/4NE1/4NW1/4 sec.15, T.126 N., R.62 W., Brown County, Hydrologic Unit 10160003, on floating platform or ice, 8.2 mi north of Columbia.

DRAINAGE AREA.--5,759 mi², of which 3,376 mi² is probably noncontributing.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: August 1988 to current year (seasonal records only).
 pH: August 1988 to current year (seasonal records only).
 WATER TEMPERATURE: April 1988 to current year (seasonal records only).
 DISSOLVED OXYGEN: August 1988 to current year (seasonal records only).
 TURBIDITY: April 1988 to August 1990, (seasonal records only).
 WIND SPEED: April 1988 to August 1990 (seasonal records only).
 WIND DIRECTION: April 1988 to August 1990 (seasonal records only).
 INCIDENT LIGHT INTENSITY: April 1988 to August 1990 (seasonal records only).

REMARKS.--Specific conductance, pH, water temperature, and dissolved oxygen data were recorded at hourly intervals by a water-quality monitor operated from Jan. 30 to Feb. 18. No daily dissolved oxygen data for 1992 water year were obtained due to malfunctions in the sensors or recording equipment.

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	
		(00095)	(00400)	(00020)	(00010)	(00025)	(00300)	(00301)	(00615)	(00613)	(00618)	(00630)	
JAN													
31...	0845	1840	8.2	4.0	2.5	728	11.0	85	<0.010	0.010	0.090	0.082	
FEB													
06...	1005	1760	8.1	3.0	4.0	740	9.3	74	<0.010	<0.010	--	<0.050	
13...	1025	1780	8.2	-2.5	4.0	738	11.8	94	--	--	--	--	
18...	1145	1800	8.3	4.0	3.0	738	14.0	108	<0.010	<0.010	--	0.160	
DATE		NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70954)
JAN													
31...	0.100	0.080	0.080	0.10	3.1	14	0.720	0.560	0.530	0.510	27.0	<0.400	
FEB													
06...	<0.050	0.020	0.030	0.04	2.1	--	0.250	0.100	0.120	0.070	130	<1.80	
13...	--	--	--	--	--	--	--	--	--	--	1.70	<0.400	
18...	0.170	0.140	0.140	0.18	3.3	15	0.330	0.210	0.180	0.180	17.0	<0.500	

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06470990 SAND LAKE - OPEN PLATFORM 1--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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	---	---	---	---	---	---	---	---	---	1880	1760	1800
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
FEBRUARY				MARCH			APRIL			MAY		
1	1830	1730	1770	---	---	---	---	---	---	---	---	---
2	1890	1740	1790	---	---	---	---	---	---	---	---	---
3	1880	1750	1800	---	---	---	---	---	---	---	---	---
4	1870	1750	1790	---	---	---	---	---	---	---	---	---
5	1900	1760	1800	---	---	---	---	---	---	---	---	---
6	1890	1730	1790	---	---	---	---	---	---	---	---	---
7	1890	1710	1770	---	---	---	---	---	---	---	---	---
8	1860	1720	1760	---	---	---	---	---	---	---	---	---
9	1900	1740	1780	---	---	---	---	---	---	---	---	---
10	1830	1630	1730	---	---	---	---	---	---	---	---	---
11	1770	1600	1660	---	---	---	---	---	---	---	---	---
12	1840	1650	1710	---	---	---	---	---	---	---	---	---
13	1810	1680	1740	---	---	---	---	---	---	---	---	---
14	1840	1730	1760	---	---	---	---	---	---	---	---	---
15	1860	1720	1770	---	---	---	---	---	---	---	---	---
16	1880	1730	1780	---	---	---	---	---	---	---	---	---
17	1830	1740	1770	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

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06470990 SAND LAKE - OPEN PLATFORM 1--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

JAMES RIVER BASIN

06470992 SAND LAKE NEAR COLUMBIA, SD

LOCATION.--Lat 45°40'10", long 98°18'31", in NW1/4SW1/4 sec.4, T.125 N., R.62 W., Brown County, Hydrologic Unit 10160003, near outlet control structure 3 mi north of Columbia.

DRAINAGE AREA.--5,759 mi², of which 3,376 mi² is probably noncontributing.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1985 to current year (prior to October 1987, seasonal records only).

WATER TEMPERATURE: May 1985 to current year (prior to October 1987, seasonal records only).

pH: May to September 1985 and November 1987 to September 1988 (seasonal records only).

DISSOLVED OXYGEN: May to September 1985 and November 1987 to September 1988 (seasonal records only).

REMARKS.--Specific conductance and water temperature data were recorded at hourly intervals by a water-quality monitor.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum observed, 4,980 microsiemens, Feb. 1, 1991; minimum observed, 100 microsiemens, Mar. 6, 1991.

WATER TEMPERATURE: Maximum daily, 32.5°C, July 31, 1987; minimum daily, 0.0°C on several days during 1985-91.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum observed, 2,300 microsiemens, Jan. 29; minimum observed, 990 microsiemens, Mar. 9.

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
MAY 06...	1245	1330	8.3	26.0	15.5	19	<0.010	<0.050	0.020	0.03	0.090
JUN 24...	1030	1320	8.4	18.0	22.0	21	<0.010	<0.050	0.020	0.03	0.130
AUG 31...	1030	1380	8.6	15.5	16.0	35	<0.010	<0.050	0.030	0.04	0.140

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1340	1320	1320	1530	1480	1500	---	---	---	1980	1950	1970
2	1330	1320	1330	1590	1530	1570	---	---	---	1960	1930	1950
3	---	---	---	1670	1590	1630	---	---	---	1960	1930	1950
4	---	---	---	1690	1650	1670	---	---	---	1950	1930	1940
5	1390	1370	1380	1790	1670	1690	---	---	---	1950	1930	1940
6	1400	1380	1390	1700	1670	1680	1880	1860	1870	1960	1940	1950
7	---	---	---	---	---	---	1870	1860	1870	1980	1950	1960
8	---	---	---	---	---	---	1860	1840	1860	1990	1970	1980
9	---	---	---	---	---	---	1850	1840	1840	1990	1970	1980
10	1400	1380	1390	---	---	---	1850	1840	1840	1980	1960	1980
11	---	---	---	---	---	---	1850	1830	1840	1980	1960	1970
12	---	---	---	---	---	---	1830	1810	1820	1980	1970	1970
13	---	---	---	---	---	---	1830	1800	1820	1980	1960	1980
14	---	---	---	---	---	---	1860	1810	1830	2000	1970	1980
15	---	---	---	---	---	---	1890	1850	1870	2070	1990	2020
16	---	---	---	---	---	---	1890	1860	1880	2110	2070	2090
17	---	---	---	---	---	---	1880	1860	1870	2140	2110	2120
18	---	---	---	---	---	---	1910	1870	1880	2190	2140	2170
19	---	---	---	---	---	---	1920	1900	1910	2230	2190	2200
20	---	---	---	---	---	---	1940	1910	1930	2230	2220	2220
21	---	---	---	---	---	---	1940	1920	1930	2230	2210	2220
22	---	---	---	---	---	---	1940	1920	1930	2220	2210	2220
23	1450	1440	1450	---	---	---	1940	1920	1930	2220	2200	2210
24	1460	1440	1450	---	---	---	1950	1920	1950	2230	2210	2220
25	1480	1450	1460	---	---	---	1970	1940	1950	2250	2220	2240
26	1470	1450	1470	---	---	---	1970	1960	1960	2260	2240	2250
27	---	---	---	---	---	---	1960	1940	1960	2270	2250	2260
28	---	---	---	---	---	---	1960	1950	1960	2290	2260	2270
29	1410	1390	1400	---	---	---	1970	1950	1960	2300	2260	2280
30	1470	1410	1430	---	---	---	1980	1960	1970	2290	2150	2230
31	1500	1460	1480	---	---	---	1980	1960	1970	2170	2110	2140
MONTH	---	---	---	---	---	---	---	---	---	2300	1930	2090

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06470992 SAND LAKE NEAR COLUMBIA, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	2120	2060	2080	1620	1520	1580	1170	1150	1160	1360	1340	1350
2	2080	2020	2050	1530	1460	1500	1170	1150	1160	1360	1330	1350
3	2070	2030	2040	1460	1440	1450	1160	1150	1160	1370	1340	1350
4	2090	2020	2060	1450	1430	1440	1170	1160	1160	1370	1340	1360
5	2070	1980	2030	1430	1410	1420	1190	1160	1170	1320	1290	1310
6	2020	1980	2000	1420	1370	1390	1190	1180	1180	1340	1210	1310
7	2010	1910	1960	1350	1240	1320	1200	1180	1190	1320	1310	1320
8	1930	1870	1910	1250	990	1140	1220	1180	1200	1330	1320	1330
9	1890	1840	1870	1070	1060	1070	1230	1200	1210	1340	1330	1330
10	1900	1860	1870	1110	1070	1090	1210	1190	1200	1370	1330	1340
11	1910	1870	1890	1140	1100	1120	1220	1190	1200	1390	1320	1350
12	1930	1900	1910	1130	1110	1120	1230	1210	1220	1470	1380	1420
13	1940	1910	1920	1130	1090	1110	1230	1210	1220	1520	1470	1500
14	1940	1920	1930	1120	1090	1110	1230	1200	1210	1530	1490	1510
15	1940	1920	1930	1120	1090	1110	1210	1180	1200	1510	1440	1480
16	1940	1910	1920	1100	1090	1100	1270	1200	1220	1460	1430	1450
17	1920	1890	1900	1110	1090	1100	1320	1240	1260	1560	1460	1500
18	1920	1880	1900	1110	1090	1100	1330	1260	1310	1580	1480	1550
19	1910	1870	1890	1110	1090	1100	1280	1200	1250	1660	1530	1580
20	1880	1820	1860	1110	1090	1100	1300	1270	1290	1740	1670	1700
21	1870	1800	1830	1100	1080	1100	1340	1290	1310	1790	1720	1760
22	1820	1800	1810	1110	1090	1100	1320	1260	1290	1820	1780	1800
23	1820	1800	1810	1110	1090	1100	1280	1260	1270	1820	1770	1780
24	1820	1790	1800	1110	1100	1110	1280	1250	1280	1790	1720	1740
25	1820	1790	1810	1120	1100	1110	1330	1270	1290	1790	1730	1760
26	1820	1790	1800	1130	1110	1120	1350	1310	1330	1770	1730	1750
27	1810	1760	1790	1130	1120	1130	1370	1310	1340	1760	1690	1720
28	1770	1700	1730	1140	1120	1130	1340	1280	1300	1720	1630	1670
29	1700	1620	1670	1140	1130	1130	1290	1230	1270	1730	1680	1710
30	---	---	---	1150	1130	1140	1350	1300	1340	1700	1580	1650
31	---	---	---	1160	1140	1150	---	---	---	1600	1540	1570
MONTH	2120	1620	1900	1620	990	1190	1370	1150	1240	1820	1210	1530
JUNE				JULY			AUGUST			SEPTEMBER		
1	1550	1460	1520	1300	1290	1300	1380	1330	1350	1370	1350	1360
2	1480	1410	1450	1310	1300	1300	1380	1330	1340	1380	1360	1370
3	1440	1330	1370	1330	1300	1310	1370	1320	1340	1400	1360	1380
4	1460	1400	1430	1330	1310	1320	1340	1320	1330	1390	1360	1380
5	1510	1460	1490	1350	1320	1330	1340	1320	1330	1410	1370	1380
6	1520	1510	1510	1350	1320	1340	1340	1330	1330	1390	1270	1370
7	1530	1460	1490	1360	1330	1340	1340	1310	1330	1290	1260	1280
8	1500	1390	1460	1350	1320	1340	1370	1320	1340	1280	1260	1270
9	1480	1390	1460	1330	1320	1330	1370	1330	1340	1300	1260	1280
10	1540	1430	1490	1330	1320	1320	1380	1320	1340	1290	1270	1280
11	1510	1420	1480	1330	1300	1320	1350	1330	1340	1290	1250	1270
12	1610	1430	1510	1310	1290	1300	1360	1320	1340	1280	1260	1270
13	1490	1400	1460	1310	1290	1300	1370	1320	1340	1300	1270	1290
14	1510	1320	1410	1310	1290	1300	1380	1320	1340	1310	1270	1290
15	1490	1370	1430	1300	1290	1300	1370	1320	1340	1300	1270	1290
16	1350	1190	1280	1310	1290	1300	1380	1330	1350	1290	1280	1290
17	1320	1210	1270	1310	1300	1300	1390	1340	1350	1290	1270	1280
18	1470	1190	1290	1320	1300	1310	1380	1330	1360	1300	1280	1290
19	1450	1360	1410	1310	1300	1300	1390	1340	1360	1300	1270	1290
20	1400	1290	1360	1310	1300	1310	1400	1350	1370	1330	1280	1290
21	1380	1240	1320	1320	1300	1310	1360	1330	1350	1310	1280	1290
22	1260	1240	1250	1340	1300	1320	1380	1340	1360	1300	1280	1290
23	1280	1250	1270	1330	1310	1320	1360	1310	1330	1320	1280	1300
24	1280	1260	1270	1340	1320	1330	1320	1310	1310	1340	1310	1330
25	1290	1260	1280	1370	1320	1340	1330	1300	1310	1350	1300	1330
26	1290	1270	1280	1380	1330	1350	1320	1300	1310	1360	1330	1350
27	1290	1260	1280	1390	1340	1360	1330	1300	1310	1360	1310	1340
28	1320	1280	1290	1390	1350	1360	1360	1310	1330	1360	1310	1340
29	1330	1310	1320	1370	1350	1360	1330	1310	1320	1370	1290	1340
30	1330	1280	1310	1380	1340	1350	1340	1310	1320	1390	1320	1350
31	---	---	---	1380	1330	1350	1380	1300	1340	---	---	---
MONTH	1610	1190	1380	1390	1290	1320	1400	1300	1340	1410	1250	1320

06470992 SAND LAKE NEAR COLUMBIA, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	14.5	12.5	13.5	3.0	2.0	2.5	---	---	---	3.5	3.0	3.0
2	14.5	12.5	13.5	2.5	1.0	2.0	---	---	---	4.0	3.0	3.5
3	14.0	11.0	12.5	3.0	1.5	2.0	---	---	---	4.5	3.5	4.0
4	13.5	11.0	12.0	3.5	2.5	3.0	---	---	---	4.5	4.0	4.5
5	10.5	7.5	9.0	4.5	3.0	3.5	---	---	---	4.5	4.0	4.5
6	8.5	6.0	7.5	4.0	3.0	3.5	---	---	---	5.0	4.0	4.5
7	10.0	7.0	8.0	---	---	---	3.0	2.5	2.5	4.5	4.0	4.5
8	12.5	9.5	10.5	---	---	---	3.0	2.5	2.5	4.0	4.0	4.0
9	12.0	11.0	11.5	---	---	---	3.0	3.0	3.0	4.0	3.5	3.5
10	13.0	10.0	11.0	---	---	---	3.5	3.0	3.0	3.5	3.0	3.5
11	14.5	12.0	13.5	---	---	---	3.5	3.0	3.0	3.5	3.0	3.0
12	14.5	12.5	13.5	---	---	---	3.5	3.0	3.5	3.0	3.0	3.0
13	13.0	10.0	11.5	---	---	---	3.5	3.0	3.5	3.0	2.5	3.0
14	10.0	7.0	8.5	---	---	---	3.5	3.0	3.0	3.0	2.5	2.5
15	9.0	6.5	7.5	---	---	---	3.0	3.0	3.0	2.5	2.0	2.5
16	11.0	8.0	9.0	---	---	---	3.0	3.0	3.0	2.0	2.0	2.0
17	11.0	9.5	10.5	---	---	---	3.5	3.0	3.5	2.0	2.0	2.0
18	9.5	7.0	8.0	---	---	---	3.5	3.0	3.0	2.0	2.0	2.0
19	8.0	6.0	7.5	---	---	---	3.0	3.0	3.0	2.0	1.5	2.0
20	8.5	5.5	7.5	---	---	---	3.5	3.0	3.0	2.5	2.0	2.0
21	9.5	7.5	8.5	---	---	---	3.5	3.0	3.5	3.0	2.5	2.5
22	9.0	7.5	8.5	---	---	---	3.5	3.0	3.5	3.0	2.5	2.5
23	7.5	5.5	6.5	---	---	---	4.0	3.5	3.5	3.0	2.5	2.5
24	6.0	4.0	5.0	---	---	---	4.0	3.5	3.5	3.0	2.5	2.5
25	4.5	2.5	3.0	---	---	---	4.0	3.5	3.5	2.5	2.0	2.5
26	6.0	2.0	3.5	---	---	---	3.5	3.5	3.5	2.5	2.0	2.5
27	10.0	5.5	7.0	---	---	---	3.5	3.0	3.5	2.5	2.0	2.5
28	10.5	6.0	9.5	---	---	---	3.5	3.0	3.0	2.5	1.5	2.0
29	5.5	1.0	3.5	---	---	---	3.5	3.0	3.5	2.5	1.5	2.0
30	2.5	1.5	2.0	---	---	---	3.5	3.0	3.0	3.0	2.0	2.5
31	3.0	2.5	3.0	---	---	---	3.5	3.0	3.0	3.5	2.5	3.0
MONTH	14.5	1.0	8.6	---	---	---	---	---	---	5.0	1.5	2.9
FEBRUARY			MARCH			APRIL			MAY			
1	4.0	3.0	3.5	6.5	5.5	5.5	---	---	---	---	---	---
2	4.5	3.5	4.0	7.0	6.0	6.0	---	---	---	---	---	---
3	4.5	3.5	4.0	6.5	6.0	6.5	---	---	---	---	---	---
4	4.5	3.5	4.0	6.0	5.5	6.0	---	---	---	---	---	---
5	5.0	4.0	4.5	5.5	5.5	5.5	---	---	---	---	---	---
6	5.5	4.0	4.5	5.5	5.5	5.5	---	---	---	---	---	---
7	5.5	4.0	4.5	5.5	5.0	5.0	---	---	---	---	---	---
8	4.5	4.0	4.5	5.0	4.5	4.5	---	---	---	---	---	---
9	4.5	3.5	4.0	---	---	---	---	---	---	21.5	18.5	20.0
10	4.5	3.0	3.5	---	---	---	---	---	---	19.5	16.5	17.5
11	4.5	3.0	4.0	---	---	---	---	---	---	---	---	---
12	3.5	2.5	3.0	---	---	---	---	---	---	---	---	---
13	4.0	3.0	3.5	---	---	---	---	---	---	---	---	---
14	3.5	3.0	3.5	---	---	---	---	---	---	---	---	---
15	3.5	3.5	3.5	---	---	---	---	---	---	---	---	---
16	3.5	3.0	3.5	---	---	---	---	---	---	---	---	---
17	3.5	2.5	3.0	---	---	---	---	---	---	---	---	---
18	3.5	3.0	3.5	---	---	---	---	---	---	20.0	16.5	18.5
19	3.5	3.0	3.5	---	---	---	---	---	---	22.0	17.5	19.5
20	3.5	2.5	3.0	---	---	---	---	---	---	23.0	19.0	21.0
21	3.5	2.5	3.0	---	---	---	---	---	---	24.5	20.5	22.5
22	3.0	2.0	2.5	---	---	---	---	---	---	23.0	15.5	18.5
23	---	---	---	---	---	---	---	---	---	16.0	13.0	14.5
24	3.0	2.0	2.5	---	---	---	---	---	---	---	---	---
25	3.5	2.5	3.0	---	---	---	---	---	---	---	---	---
26	3.5	2.5	3.0	---	---	---	---	---	---	---	---	---
27	4.0	3.0	3.5	---	---	---	---	---	---	---	---	---
28	5.0	4.0	4.0	---	---	---	---	---	---	---	---	---
29	6.0	4.0	5.0	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

JAMES RIVER BASIN

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WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	17.0	16.0	16.5	25.0	21.5	23.0	19.5	17.5	18.5
2	---	---	---	16.5	16.0	16.0	23.5	21.0	22.0	21.0	18.0	19.0
3	---	---	---	18.5	15.0	16.5	24.5	20.5	22.5	21.5	17.5	19.5
4	21.0	19.0	20.0	22.0	17.0	19.0	23.0	20.0	21.0	22.0	19.0	20.5
5	20.5	18.0	19.0	24.0	19.0	21.5	21.5	19.0	20.5	22.0	20.0	21.0
6	18.5	16.5	17.5	22.0	19.5	20.5	21.0	20.0	20.5	20.5	17.5	19.5
7	17.5	16.0	16.5	21.5	20.0	20.5	22.0	20.5	21.0	17.5	15.0	16.0
8	19.0	15.0	17.0	23.0	19.5	21.5	28.0	21.5	24.5	15.0	13.0	14.5
9	18.5	17.5	18.0	23.0	21.0	22.0	28.0	25.5	26.5	15.5	13.5	14.5
10	24.5	19.5	21.5	---	---	---	27.0	23.5	25.0	15.0	12.5	14.0
11	25.0	21.0	23.0	---	---	---	24.5	22.5	23.0	17.0	13.0	15.0
12	26.0	22.5	24.5	---	---	---	23.5	20.0	21.5	18.5	15.5	17.0
13	26.5	23.0	25.0	---	---	---	24.0	20.0	22.0	20.0	18.0	19.0
14	25.5	22.5	24.0	---	---	---	24.0	20.5	22.0	21.0	17.5	19.5
15	24.0	21.0	22.0	---	---	---	23.0	19.5	21.5	20.0	18.0	19.0
16	23.0	20.0	21.0	---	---	---	23.5	20.0	21.5	19.5	17.5	18.5
17	20.0	19.5	19.5	---	---	---	24.0	21.5	23.0	17.0	15.5	16.0
18	---	---	---	---	---	---	26.0	21.5	23.0	15.0	13.5	14.5
19	---	---	---	---	---	---	25.0	22.5	24.0	15.5	12.0	14.0
20	---	---	---	---	---	---	26.0	21.5	23.5	17.5	13.5	15.5
21	19.0	17.5	18.5	---	---	---	24.0	21.5	23.0	17.0	15.0	16.5
22	21.0	17.5	19.0	21.0	19.0	20.0	24.5	21.5	23.0	15.5	13.5	14.5
23	23.0	20.0	21.5	20.5	19.0	20.0	23.5	20.0	22.5	17.5	13.0	15.0
24	23.5	21.5	22.5	20.5	18.0	19.5	19.5	17.5	18.5	18.5	14.5	16.5
25	23.0	20.5	22.0	23.5	20.0	21.5	18.5	16.5	17.5	15.5	13.5	15.0
26	24.5	20.0	22.0	23.0	21.0	22.0	18.0	16.5	17.0	15.5	14.0	15.0
27	23.5	20.5	22.0	26.0	22.0	23.5	20.0	16.0	17.5	14.5	12.5	13.5
28	23.0	21.0	21.5	26.5	23.0	24.5	23.5	17.0	19.5	12.5	10.5	11.5
29	23.0	19.5	21.0	25.0	23.5	24.0	21.0	17.5	19.5	13.5	10.0	11.5
30	21.0	16.5	18.5	23.5	22.0	22.5	18.5	15.0	17.0	17.5	11.5	14.0
31	---	---	---	24.0	21.0	22.5	21.5	16.0	18.5	---	---	---
MONTH	---	---	---	---	---	---	28.0	15.0	21.5	22.0	10.0	16.3

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD
(National stream-quality accounting network station)

LOCATION.--Lat 45°36'13", long 98°18'36", in NW1/4NW1/4 sec.33, T.12S 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 mi², of which about 3,376 mi² 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 good except those for estimated daily discharges: Oct. 20 to Mar. 17, Mar. 22, May 11-24, June 5-17, 26-30, July 27 to Aug. 5, Aug. 28 to Sept. 3, and Sept. 12-21. Estimated daily discharges fair except those for Oct. 20 to Mar. 17 and Mar. 22, which are poor. Flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, which reached maximum pool elevation in May 1974. Maximum discharge prior to Sept. 30, 1974, 5,420 ft³/s, May 24, 25, 1950, gage height, 16.89 ft, from graph based on gage readings; maximum daily reverse flow, 1,860 ft³/s, Apr. 8, 1952, backwater from Elm River. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	e.20	e.40	e.30	e.80	e5.0	1.0	1.7	.49	24	e11	e19
2	.00	e.10	e.40	e.50	e.90	e5.2	.91	.73	.01	24	e11	e22
3	.00	e.00	e.30	e.70	e.90	e5.5	.77	.33	.08	26	e11	e24
4	.00	e.00	e.30	e.80	e1.0	e5.3	.58	1.0	.10	27	e12	25
5	.00	e.00	e.30	e.70	e1.5	e5.2	.40	1.6	e.01	27	e15	25
6	.00	e.00	e.30	e.70	e1.5	e5.1	.43	1.8	e.01	26	15	26
7	.00	e.00	e.40	e.70	e1.3	e4.9	.43	2.0	e.01	24	16	32
8	.00	e.00	e.40	e.60	e1.2	e4.7	.48	2.2	e.01	23	15	31
9	.00	e.10	e.40	e.50	e1.1	e4.0	.57	1.5	e.01	21	14	30
10	.00	e.20	e.40	e.50	e1.0	e4.3	.63	1.3	e.01	19	13	32
11	.00	e1.0	e.40	e.50	e.80	e4.1	.65	e.53	e.00	18	12	35
12	.00	e1.5	e.40	e.50	e.70	e4.0	.53	e.10	e.00	19	11	e35
13	.00	e1.5	e.50	e.50	e.70	e3.8	.63	e.01	e.00	18	10	e35
14	.00	e1.5	e.60	e.40	e.70	e5.0	.65	e.01	e.00	18	9.5	e34
15	.00	e1.0	e.40	e.40	e.60	e4.6	.64	e.01	e.00	18	8.9	e32
16	.00	e1.0	e.40	e.50	e.70	e3.0	.85	e.01	e.00	17	8.3	e30
17	.00	e.80	e.30	e.40	e.90	e2.8	.92	e.01	e.50	17	8.3	e29
18	.00	e.70	e.30	e.40	e1.0	2.4	1.0	e.01	3.8	17	6.5	e29
19	.00	e.50	e.30	e.40	e1.5	2.2	.94	e.01	5.0	17	6.2	e28
20	e.00	e.50	e.40	e.50	e1.3	2.1	.90	e.00	4.6	16	5.5	e28
21	e.00	e.60	e.50	e.70	e1.2	2.0	.68	e.00	3.6	15	5.1	e28
22	e.00	e.50	e.60	e.70	e1.2	e1.8	1.8	e.00	3.5	15	5.0	28
23	e.00	e.50	e.60	e.60	e1.1	1.6	3.9	e.00	2.6	14	6.2	27
24	e.00	e.40	e.50	e.70	e1.1	1.4	3.4	e.05	1.6	14	6.7	25
25	e.00	e.40	e.50	e.80	e1.2	1.3	2.7	2.6	1.0	13	6.5	24
26	e.00	e.40	e.40	e.80	e1.3	1.1	2.8	3.5	e5.0	12	7.1	24
27	e.00	e.40	e.40	e.80	e2.0	.72	3.3	3.4	e7.0	e12	9.3	23
28	.64	e.40	e.30	e.80	e3.0	.80	3.6	2.9	e8.0	e11	e11	22
29	1.3	e.40	e.30	e.80	e4.0	.88	3.2	1.9	e9.0	e11	e12	21
30	e.90	e.40	e.30	e.80	---	.98	2.6	1.2	16	e12	e13	20
31	e.50	---	e.30	e.80	---	1.1	---	.76	---	e11	e17	---
TOTAL	3.34	15.00	12.30	18.80	36.20	96.88	41.89	31.17	71.94	556	318.1	823
MEAN	.11	.50	.40	.61	1.25	3.13	1.40	1.01	2.40	17.9	10.3	27.4
MAX	1.3	1.5	.60	.80	4.0	5.5	3.9	3.5	16	27	17	35
MIN	.00	.00	.30	.30	.60	.72	.40	.00	.00	11	5.0	19
AC-FT	6.6	30	24	37	72	192	83	62	143	1100	631	1630

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1992, BY WATER YEAR (WY)*

	MEAN	67.0	82.2	29.8	7.54	8.48	29.4	324	332	145	159	99.9	60.8
MAX	305	285	128	41.0	43.7	247	1113	1501	666	1173	660	382	
(WY)	1976	1976	1980	1987	1984	1987	1987	1979	1979	1975	1975	1975	
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	1977	

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1975 - 1992*

ANNUAL TOTAL	3511.78	2024.62	
ANNUAL MEAN	9.62	5.53	
HIGHEST ANNUAL MEAN			112a
LOWEST ANNUAL MEAN			292
HIGHEST DAILY MEAN	120	Jul 12	35
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW			2310
INSTANTANEOUS PEAK STAGE			-980
ANNUAL RUNOFF (AC-FT)	6970	4020	-525
10 PERCENT EXCEEDS	47	21	2340
50 PERCENT EXCEEDS	.30	.99	17.11
90 PERCENT EXCEEDS	.00	.00	344
			7.5
			.00

e Estimated

* Regulated period only (1975-92). See REMARKS.

a Median of yearly mean discharges, 92 ft³/s.

b No flow many days.

c Backwater from Elm River.

d Gage height, 16.15 ft.

06471000 JAMES RIVER AT COLUMBIA, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1948 to September 1964, October 1966 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1966 to September 1981; April 1986 to current year (seasonal records only).
pH: December 1987 to current year (seasonal records only).

WATER TEMPERATURE: October 1966 to September 1981; April 1986 to current year (seasonal records only).

DISSOLVED OXYGEN: November 1987 to current year (seasonal records only).

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 Dec. 6 to Mar. 25. Other interruptions in record were due to malfunction of the sensors or recording instruments. The percent difference between cations and anions (in milliequivalents per liter) for the May 6 sample exceeded 5 percent; these data should be used with caution.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum observed, 3,080 microsiemens, Nov. 11, 1991; minimum observed, 240 microsiemens, Mar. 17, 1972.

WATER TEMPERATURE: Maximum observed, 36.5°C, June 21, 1988; minimum observed, 0.0°C on many days during winter periods.

pH: Maximum observed, 9.9, Mar. 18, 1988; minimum observed, 7.2, May 9, 10, 1992.

DISSOLVED OXYGEN: Maximum observed, 19.8 mg/L, Apr. 20, 1989; minimum observed, 0.0 mg/L, June 2, 1988, July 4-21, 1991.

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CAC03 (39086)	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)	
JAN 29...	1320	0.76	2550	7.7	672	5.0	0.5	1.9	727	8.4	62	
MAR 30...	1115	0.97	1840	8.5	426	16.0	10.5	4.9	731	14.4	135	
MAY 06...	1500	1.8	1620	8.7	473	31.0	21.0	6.0	730	13.6	160	
JUL 22...	1100	15	1320	8.0	422	18.0	20.0	7.5	742	5.7	65	
AUG 20...	0910	5.4	1440	8.1	--	21.0	21.0	4.9	724	5.9	70	
SEP 23...	1030	28	1360	8.1	398	20.0	14.0	110	726	7.0	72	
DATE		OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CAC03) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00932)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CAC03) (90410)	
JAN 29...	--		K1	27	650	120	85	300	49	5	657	
MAR 30...	--		--	--	530	100	68	210	45	4	436	
MAY 06...	--		110	110	410	70	57	200	50	4	447	
JUL 22...	2.1		340	430	360	70	45	150	46	3	424	
AUG 20...	--		--	--	360	68	47	170	49	4	454	
SEP 23...	--		K160	K62	360	69	46	150	46	3	406	
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, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00613)
JAN 29...	430		180	0.50	28	1640	4	1570	2.23	3.37	<0.010	<0.010
MAR 30...	330		150	0.20	3.8	1170	6	1140	1.59	3.06	<0.010	<0.010
MAY 06...	170		80	0.30	12	1030	--	896	1.40	5.01	0.020	<0.010
JUL 22...	160		95	0.40	30	863	--	827	1.17	35.0	0.010	0.010
AUG 20...	190		100	0.40	--	934	34	872	1.27	13.7	--	<0.010
SEP 23...	200		92	0.30	30	896	--	847	1.22	67.7	<0.010	<0.010

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHOPHOS- PHATE TOTAL (MG/L AS P) (70507)	PHOS- PHORUS ORTHOPHOS- PHATE DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)
JAN 29...	<0.050	<0.050	0.050	0.050	0.06	2.9	0.260	0.210	0.180	0.170	10
MAR 30...	<0.050	<0.050	0.030	0.030	0.04	2.3	0.140	0.080	0.020	0.020	<10
MAY 06...	<0.050	<0.050	0.030	0.040	0.05	2.5	0.280	0.170	0.130	0.130	<10
JUL 22...	<0.050	<0.050	0.050	0.060	0.08	2.2	0.960	0.870	0.910	0.880	<10
AUG 20...	--	<0.050	--	0.040	0.05	--	--	0.660	--	0.560	--
SEP 23...	<0.050	<0.050	0.030	0.030	0.04	1.8	0.280	0.250	0.210	0.210	--

DATE	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	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)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	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)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)
JAN 29...	--	6	200	460	--	<10	<1	1	--	30	<1
MAR 30...	--	4	82	390	--	<10	<3	2	--	10	<1
MAY 06...	--	--	49	--	--	--	<3	--	--	10	--
JUL 22...	--	--	63	--	--	--	<3	--	--	36	--
AUG 20...	8	10	--	450	<1	<10	--	<1	520	7	<1
SEP 23...	--	--	--	--	--	--	--	--	--	--	--

DATE	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 DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	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, 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)
JAN 29...	180	--	810	<0.1	3	6	--	<1	<1.0	660	6
MAR 30...	130	--	120	<0.1	<10	<1	--	<1	<1.0	520	<6
MAY 06...	120	--	120	--	10	5	--	<1	<1.0	410	<6
JUL 22...	94	--	360	--	<10	4	--	<1	<1.0	380	<6
AUG 20...	--	510	390	<0.1	--	--	<1	<1	--	--	--
SEP 23...	--	--	--	--	--	--	--	--	--	--	--

DATE	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS- SOLVED (MG/L AS CN) (00723)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) (70954)	PLANK- TON BIOMASS ASH WT (MG/L) (81353)	PLANK- TON BIOMASS DRY WT (MG/L) (81354)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) (80155)	SED. SUSP. SIEVE DIAM. & FINER THAN .062 MM (70331)
JAN 29...	<10	--	<0.01	--	--	--	--	213	0.44	40
MAR 30...	7	--	<0.01	--	--	--	--	8	0.02	79
MAY 06...	--	--	--	--	--	--	--	80	0.39	68
JUL 22...	--	--	--	2.30	0.300	790	800	25	1.0	95
AUG 20...	3	<0.010	<0.01	--	--	--	--	--	--	--
SEP 23...	--	--	--	--	--	--	--	41	3.1	75

JAMES RIVER BASIN

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06471000 JAMES RIVER AT COLUMBIA, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	1900	1780	1840	---	---	---	---	---	---
2	---	---	---	2040	1910	1970	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	2330	2300	2310	---	---	---	---	---	---
10	---	---	---	2350	2290	2320	---	---	---	---	---	---
11	---	---	---	3080	2350	2540	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	1780	1650	1720	---	---	---	---	---	---	---	---	---
29	1650	1540	1590	---	---	---	---	---	---	---	---	---
30	1780	1630	1710	---	---	---	---	---	---	---	---	---
31	1840	1720	1790	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	1880	1760	1830	1580	1520	1560
2	---	---	---	---	---	---	1750	1660	1710	1600	1520	1570
3	---	---	---	---	---	---	1660	1590	1620	1660	1570	1600
4	---	---	---	---	---	---	1620	1590	1610	1690	1600	1640
5	---	---	---	---	---	---	1670	1610	1640	1750	1650	1700
6	---	---	---	---	---	---	1760	1640	1710	1700	1590	1660
7	---	---	---	---	---	---	1880	1750	1810	1620	1590	1610
8	---	---	---	---	---	---	2000	1880	1940	1630	1590	1610
9	---	---	---	---	---	---	2070	1980	2050	1640	1590	1610
10	---	---	---	---	---	---	2070	2020	2040	1650	1620	1640
11	---	---	---	---	---	---	2050	2000	2030	1710	1630	1660
12	---	---	---	---	---	---	2040	1940	2010	1660	1630	1650
13	---	---	---	---	---	---	2000	1910	1960	1660	1630	1640
14	---	---	---	---	---	---	1980	1890	1940	1710	1640	1680
15	---	---	---	---	---	---	1930	1810	1860	1730	1670	1700
16	---	---	---	---	---	---	1900	1770	1830	1730	1660	1700
17	---	---	---	---	---	---	1900	1830	1880	1710	1660	1690
18	---	---	---	---	---	---	1820	1760	1780	1680	1660	1670
19	---	---	---	---	---	---	1770	1690	1740	---	---	---
20	---	---	---	---	---	---	1830	1690	1760	---	---	---
21	---	---	---	---	---	---	1810	1720	1770	---	---	---
22	---	---	---	---	---	---	1810	1680	1770	---	---	---
23	---	---	---	---	---	---	1720	1530	1590	---	---	---
24	---	---	---	---	---	---	1650	1570	1600	1480	1440	1460
25	---	---	---	---	---	---	1740	1660	1710	1770	1480	1580
26	---	---	---	---	---	---	1760	1680	1740	1790	1630	1680
27	---	---	---	1710	1670	1690	1730	1610	1690	1620	1580	1610
28	---	---	---	1750	1710	1740	1650	1570	1620	1610	1580	1590
29	---	---	---	1790	1740	1760	1600	1520	1570	1660	1610	1640
30	---	---	---	1860	1770	1810	1580	1520	1550	1660	1620	1640
31	---	---	---	1880	1860	1870	---	---	---	1660	1620	1640
MONTH	---	---	---	---	---	---	2070	1520	1780	---	---	---

06471000 JAMES RIVER AT COLUMBIA. SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS. WATER YEAR 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	1640	1610	1630	1290	1070	1180	1430	1390	1410	1470	1460	1460
2	1630	1600	1610	1290	1200	1270	1390	1380	1380	1470	1460	1470
3	1620	1560	1600	1310	1260	1300	1410	1380	1390	1490	1460	1470
4	1620	1490	1540	1320	1290	1300	1410	1380	1400	1500	1480	1490
5	1560	1510	1540	1340	1310	1320	1400	1370	1390	1490	1470	1480
6	1540	1490	1510	1330	1310	1320	1430	1400	1410	1490	1400	1470
7	1520	1470	1490	1330	1300	1320	1420	1390	1410	1390	1310	1340
8	1490	1430	1460	1340	1290	1320	1440	1400	1420	1310	1290	1300
9	1470	1440	1450	1350	1330	1340	1450	1430	1430	1340	1300	1320
10	1470	1440	1460	1360	1330	1340	1440	1420	1430	1340	1320	1340
11	---	---	---	1360	1320	1350	1420	1400	1410	1320	1300	1310
12	---	---	---	1350	1310	1330	1420	1390	1410	1340	1310	1320
13	---	---	---	1350	1320	1330	1430	1400	1410	1340	1320	1330
14	---	---	---	1370	1320	1340	1440	1410	1420	1330	1310	1320
15	---	---	---	1360	1300	1330	1450	1420	1430	1320	1310	1320
16	---	---	---	1340	1310	1330	1460	1430	1450	1320	1310	1320
17	1360	1120	1240	1330	1310	1320	1470	1450	1460	1330	1310	1320
18	1440	1250	1390	1350	1310	1330	1470	1440	1460	1330	1310	1320
19	1510	1300	1380	1330	1310	1320	1480	1450	1470	1340	1320	1330
20	1450	1360	1410	1360	1310	1330	1500	1460	1480	1360	1330	1350
21	1480	1440	1460	1340	1320	1330	1490	1450	1470	1370	1350	1360
22	1460	1410	1430	1350	1310	1320	1470	1450	1460	1380	1360	1370
23	1450	1390	1410	1350	1330	1340	1470	1350	1410	1380	1360	1370
24	1420	1400	1410	1350	1330	1330	1410	1390	1400	1400	1380	1380
25	1410	1370	1390	1410	1350	1370	1420	1400	1410	1400	1390	1400
26	1450	1390	1420	1410	1370	1390	1440	1400	1420	1410	1390	1400
27	1510	1430	1470	1420	1400	1410	1430	1410	1420	1410	1390	1400
28	1490	1450	1470	1420	1390	1410	1430	1410	1420	1410	1390	1410
29	1470	1440	1450	1410	1390	1400	1440	1420	1430	1420	1400	1410
30	1450	1270	1410	1400	1380	1390	1450	1420	1430	1420	1410	1420
31	---	---	---	1420	1380	1400	1470	1440	1450	---	---	---
MONTH	---	---	---	1420	1070	1340	1500	1350	1430	1500	1290	1380

PH, IN STANDARD UNITS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

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PH, IN STANDARD UNITS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	9.3	9.2	8.3	8.2	8.0	7.9	8.1	8.0
2	---	---	---	---	9.3	9.2	8.2	8.1	8.0	7.9	8.1	7.9
3	---	---	---	---	9.3	9.3	8.2	8.1	8.0	7.9	8.1	8.0
4	---	---	---	---	9.4	9.2	8.2	8.0	8.0	7.9	8.1	8.0
5	---	---	---	---	9.5	9.4	8.1	8.0	7.9	7.9	8.1	8.0
6	---	---	---	---	9.6	9.5	8.0	7.9	7.9	7.9	8.1	8.0
7	---	---	---	---	9.7	9.6	7.9	7.8	7.9	7.8	8.1	8.1
8	---	---	8.7	7.4	9.8	9.7	7.9	7.8	7.8	7.8	8.1	8.0
9	---	---	7.3	7.2	9.7	9.6	7.9	7.8	7.8	7.7	8.1	8.0
10	---	---	7.3	7.2	9.7	9.6	7.9	7.7	7.9	7.8	8.1	8.0
11	---	---	8.5	7.3	---	---	7.9	7.8	7.9	7.8	8.0	7.9
12	---	---	8.8	8.5	---	---	7.8	7.6	7.9	7.9	7.9	7.9
13	---	---	8.8	8.7	---	---	7.9	7.7	7.9	7.8	7.9	7.8
14	---	---	8.9	8.8	---	---	7.9	7.8	7.9	7.8	7.9	7.8
15	---	---	8.9	8.9	---	---	7.8	7.8	8.0	7.8	7.7	7.6
16	---	---	9.0	8.9	---	---	7.9	7.8	8.0	7.9	7.8	7.6
17	---	---	9.0	8.8	9.8	9.5	7.9	7.7	8.0	7.9	7.8	7.8
18	---	---	9.0	8.9	9.6	9.0	7.9	7.7	8.1	7.9	7.8	7.8
19	---	---	9.0	8.9	9.5	9.1	8.0	7.9	8.1	8.0	7.9	7.8
20	---	---	---	---	9.1	8.9	8.0	7.9	8.1	8.0	7.9	7.8
21	---	---	---	---	9.1	8.8	8.0	7.9	8.1	8.0	8.0	7.8
22	---	---	---	---	9.0	8.8	8.0	7.9	8.2	8.0	8.1	7.9
23	---	---	---	---	9.1	8.8	8.0	7.9	8.2	8.1	8.0	7.8
24	---	---	9.1	9.0	9.1	8.8	8.0	7.9	8.2	8.1	8.1	7.9
25	---	---	9.1	9.0	9.2	8.9	7.9	7.9	8.2	8.1	8.2	8.1
26	---	---	9.1	8.9	9.2	9.0	7.9	7.9	8.2	8.1	8.1	8.0
27	---	---	9.2	9.1	9.0	8.6	8.0	7.8	8.2	8.1	8.1	8.0
28	---	---	9.2	9.1	8.6	8.5	8.0	7.8	8.2	8.1	8.2	8.0
29	---	---	9.2	9.1	8.5	8.4	7.9	7.8	8.2	8.1	8.1	8.0
30	---	---	9.3	9.2	8.4	8.3	8.0	7.8	8.3	8.2	8.0	7.8
31	---	---	9.3	9.2	---	---	7.9	7.8	8.2	8.1	---	---
MONTH	---	---	---	---	---	---	8.3	7.6	8.3	7.7	8.2	7.6

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	10.0	1.0	4.5	23.0	15.5	19.0
2	---	---	---	---	---	---	10.0	2.0	5.5	20.0	11.0	15.5
3	---	---	---	---	---	---	16.0	6.0	10.5	22.0	10.0	15.5
4	---	---	---	---	---	---	14.0	6.5	10.0	23.0	12.0	17.0
5	---	---	---	---	---	---	16.5	8.5	12.0	23.5	11.5	17.5
6	---	---	---	---	---	---	18.0	10.5	13.5	23.5	13.0	18.0
7	---	---	---	---	---	---	14.5	8.0	11.5	25.5	13.5	19.0
8	---	---	---	---	---	---	15.0	7.5	11.0	26.5	15.5	21.0
9	---	---	---	---	---	---	12.0	6.5	9.5	24.0	17.5	20.5
10	---	---	---	---	---	---	7.5	4.5	6.0	19.0	17.0	17.5
11	---	---	---	---	---	---	7.5	3.5	5.0	29.0	13.5	19.5
12	---	---	---	---	---	---	4.0	1.5	3.0	23.0	16.0	19.5
13	---	---	---	---	---	---	11.5	1.0	5.5	17.0	14.0	15.5
14	---	---	---	---	---	---	11.0	6.5	9.0	23.0	12.0	17.0
15	---	---	---	---	---	---	15.5	8.5	11.5	24.5	14.5	19.0
16	---	---	---	---	---	---	12.5	9.5	11.0	23.5	17.0	19.0
17	---	---	---	---	---	---	16.5	8.0	12.0	25.5	14.5	19.0
18	---	---	---	---	---	---	12.5	10.0	11.0	23.0	15.5	19.5
19	---	---	---	---	---	---	13.5	7.5	10.0	25.5	16.5	20.5
20	---	---	---	---	---	---	7.0	1.5	4.5	---	---	---
21	---	---	---	---	---	---	2.5	.0	1.5	---	---	---
22	---	---	---	---	---	---	6.5	.5	3.0	---	---	---
23	---	---	---	---	---	---	7.0	3.5	5.0	---	---	---
24	---	---	---	---	---	---	10.5	4.5	7.5	15.5	13.5	14.5
25	---	---	---	---	---	---	12.5	5.5	8.5	14.5	10.0	12.5
26	---	---	---	---	---	---	16.5	4.5	10.0	20.5	8.5	14.5
27	---	---	---	9.5	2.5	6.0	17.0	7.5	12.0	23.0	13.0	18.0
28	---	---	---	10.0	4.0	7.0	19.5	9.5	14.0	24.0	14.0	18.5
29	---	---	---	13.5	4.5	8.5	23.0	13.0	17.5	25.5	14.0	19.5
30	---	---	---	14.0	4.0	8.5	25.0	15.0	20.0	27.5	16.0	21.0
31	---	---	---	7.5	2.5	5.0	---	---	---	25.0	17.0	21.0
MONTH	---	---	---	---	---	---	25.0	.0	9.2	---	---	---
	JUNE			JULY			AUGUST			SEPTEMBER		
1	24.0	18.5	21.0	17.0	15.5	16.5	27.0	21.5	23.5	18.5	18.0	18.0
2	22.0	18.5	20.0	16.5	16.0	16.5	24.5	20.5	22.5	20.5	17.0	18.5
3	23.5	18.0	20.5	19.5	14.5	17.0	24.5	19.5	22.0	19.5	16.5	18.5
4	25.5	17.5	21.5	21.0	16.5	19.0	22.0	19.0	20.0	20.5	18.0	19.5
5	20.0	17.0	18.5	23.5	18.5	21.0	21.0	18.0	19.5	21.5	19.0	20.5
6	22.0	14.0	18.0	21.5	20.0	20.5	20.5	20.0	20.5	20.0	17.5	19.0
7	16.5	14.0	15.0	22.0	20.0	20.5	25.5	19.5	22.0	17.5	14.5	16.0
8	19.5	12.5	15.5	24.0	19.5	21.5	28.0	23.5	25.5	14.5	12.5	13.5
9	25.5	16.5	20.5	24.5	21.5	23.0	28.5	25.5	26.5	15.5	13.0	14.0
10	25.5	19.5	22.5	24.5	21.5	23.0	26.5	23.0	25.0	15.0	12.0	14.0
11	---	---	---	22.5	20.5	21.5	23.5	20.5	22.0	17.0	13.0	15.0
12	---	---	---	23.0	19.5	21.0	23.0	18.5	20.5	18.0	15.0	16.5
13	---	---	---	23.5	21.0	22.0	23.5	18.5	21.0	19.5	17.0	18.5
14	---	---	---	25.5	20.0	23.0	24.5	18.5	21.5	19.0	16.5	18.0
15	---	---	---	26.0	21.5	23.5	24.5	18.5	21.0	18.5	16.5	17.5
16	---	---	---	23.0	20.5	22.0	24.5	19.0	21.5	18.5	16.5	17.5
17	22.5	19.0	20.5	23.5	20.0	21.5	25.5	21.0	23.0	16.0	14.5	15.0
18	27.5	17.5	22.0	25.5	20.0	22.5	26.0	19.0	22.5	14.5	12.0	13.5
19	23.5	18.0	20.0	23.5	21.0	22.0	25.5	19.0	22.0	14.5	11.0	13.0
20	24.5	16.0	19.5	23.5	19.0	21.5	27.0	20.5	23.5	17.0	12.5	14.5
21	21.5	16.5	19.0	21.5	19.5	21.0	24.5	21.0	23.0	17.0	15.0	16.0
22	26.0	17.0	21.5	22.0	18.5	20.0	25.5	21.0	23.0	14.5	12.5	13.5
23	28.0	19.0	23.5	21.0	18.0	19.5	23.5	19.5	21.5	16.0	12.0	14.0
24	28.5	21.0	24.5	21.0	18.0	19.5	19.5	17.0	18.0	16.5	14.0	15.5
25	27.5	19.0	23.0	25.5	20.0	22.0	19.5	15.5	17.0	15.5	13.5	15.0
26	27.0	18.5	22.5	26.0	20.5	23.5	18.0	14.5	16.5	15.0	13.0	14.5
27	26.0	20.5	23.0	27.5	21.5	24.0	21.0	14.5	17.5	13.5	11.5	12.5
28	24.5	20.5	22.5	27.0	22.5	24.5	23.0	17.0	19.5	11.5	9.0	10.5
29	24.0	19.5	21.5	24.0	21.5	23.0	21.0	18.0	20.0	12.5	9.5	11.0
30	21.0	16.5	19.0	24.0	20.0	22.0	19.0	15.5	17.0	14.0	11.0	12.5
31	---	---	---	25.5	20.0	23.0	19.5	16.0	17.5	---	---	---
MONTH	---	---	---	27.5	14.5	21.3	28.5	14.5	21.2	21.5	9.0	15.5

JAMES RIVER BASIN

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06471000 JAMES RIVER AT COLUMBIA, SD--Continued

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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	---	---	---	---	---	---	---	---	---	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	15.0	12.3	13.4	10.6	4.2	6.9
2	---	---	---	---	---	---	15.1	12.5	13.7	10.6	4.1	7.4
3	---	---	---	---	---	---	14.3	11.1	12.5	9.4	4.1	6.4
4	---	---	---	---	---	---	13.6	8.2	11.0	9.9	4.6	7.3
5	---	---	---	---	---	---	11.6	8.5	9.9	12.0	5.6	8.5
6	---	---	---	---	---	---	12.3	5.0	8.6	12.1	6.4	9.0
7	---	---	---	---	---	---	12.4	5.1	8.8	12.6	5.6	8.8
8	---	---	---	---	---	---	12.2	6.2	9.6	13.0	5.5	8.9
9	---	---	---	---	---	---	12.4	6.5	9.5	9.4	4.6	7.2
10	---	---	---	---	---	---	12.1	8.3	9.9	9.7	6.0	7.3
11	---	---	---	---	---	---	13.5	9.4	11.4	13.0	5.6	9.0
12	---	---	---	---	---	---	13.5	10.2	11.8	10.8	5.4	8.5
13	---	---	---	---	---	---	13.5	10.7	12.2	8.9	6.7	7.8
14	---	---	---	---	---	---	12.0	8.7	10.3	10.2	7.0	8.8
15	---	---	---	---	---	---	11.8	7.3	9.6	11.0	8.1	9.2
16	---	---	---	---	---	---	11.3	8.1	9.4	9.1	6.1	7.8
17	---	---	---	---	---	---	11.8	8.0	9.9	9.8	5.9	7.6
18	---	---	---	---	---	---	10.0	6.9	8.5	9.8	6.2	7.8
19	---	---	---	---	---	---	11.6	6.4	8.9	9.2	5.9	7.2
20	---	---	---	---	---	---	12.6	9.0	10.8	---	---	---
21	---	---	---	---	---	---	13.0	11.3	12.1	---	---	---
22	---	---	---	---	---	---	12.8	10.8	11.9	---	---	---
23	---	---	---	---	---	---	13.0	11.1	11.7	---	---	---
24	---	---	---	---	---	---	13.9	10.5	12.2	11.0	7.8	9.0
25	---	---	---	---	---	---	13.4	9.6	11.4	13.4	6.3	9.8
26	---	---	---	---	---	---	13.6	9.2	11.2	15.5	7.9	11.1
27	---	---	---	15.2	12.1	13.8	12.4	8.5	10.5	14.4	7.1	10.2
28	---	---	---	15.0	10.4	12.7	11.1	7.3	8.7	14.7	6.3	9.8
29	---	---	---	15.0	10.9	13.1	10.3	5.8	7.9	15.9	5.4	9.9
30	---	---	---	14.8	10.5	12.7	9.6	5.0	7.1	15.0	4.3	9.1
31	---	---	---	14.2	10.6	12.4	---	---	---	14.0	4.7	9.0
MONTH	---	---	---	---	---	---	15.1	5.0	10.5	---	---	---

JAMES RIVER BASIN

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

DISSOLVED OXYGEN, IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	14.2	4.1	8.8	7.5	5.3	6.1	---	---	---	6.8	5.2	6.3
2	9.4	3.7	7.2	6.0	4.2	5.1	---	---	---	6.4	4.6	5.5
3	9.8	4.4	7.5	8.3	4.0	6.1	---	---	---	6.6	5.7	6.1
4	11.3	2.8	7.2	7.9	4.7	6.1	---	---	---	5.8	5.0	5.4
5	11.9	7.3	9.2	6.9	3.4	4.9	---	---	---	5.9	4.3	5.2
6	12.8	7.3	10.0	4.0	2.3	3.3	---	---	---	5.4	4.1	4.6
7	11.8	9.1	10.5	3.8	2.1	2.9	6.7	3.6	4.9	5.8	5.2	5.5
8	14.9	8.7	11.4	5.4	2.2	3.7	6.1	2.8	4.4	6.3	5.1	5.6
9	14.2	10.0	11.9	5.0	2.3	3.6	5.7	2.4	4.0	6.6	5.6	6.2
10	15.2	8.0	10.9	5.8	2.3	4.1	6.9	2.7	4.7	6.6	5.9	6.2
11	---	---	---	4.1	2.5	3.3	5.8	4.2	5.1	6.1	5.3	5.8
12	---	---	---	5.6	2.7	3.9	7.3	4.5	5.9	6.0	4.7	5.2
13	---	---	---	4.6	2.4	3.4	7.3	5.2	6.2	5.0	3.9	4.5
14	---	---	---	5.1	1.9	3.4	7.7	4.8	6.1	4.8	3.5	4.2
15	---	---	---	5.5	2.8	4.0	8.0	4.8	6.2	4.3	3.1	3.5
16	---	---	---	5.0	2.6	3.9	7.9	4.4	5.9	3.8	2.6	3.2
17	17.3	4.8	8.3	---	---	---	7.2	4.0	5.3	3.7	3.0	3.4
18	16.9	4.9	10.2	---	---	---	7.9	4.0	5.5	5.2	3.7	4.5
19	9.4	4.3	6.8	---	---	---	9.1	4.3	6.1	5.6	4.6	5.1
20	17.2	5.5	9.8	---	---	---	8.7	4.3	6.0	5.3	4.6	4.9
21	16.1	6.3	10.5	---	---	---	8.3	4.1	5.8	5.2	4.1	4.6
22	18.1	6.3	11.4	---	---	---	9.9	4.5	6.6	5.7	4.9	5.2
23	18.0	4.6	10.4	---	---	---	6.2	4.4	5.2	6.2	5.2	5.6
24	16.0	4.0	9.6	---	---	---	6.3	4.4	5.2	7.3	5.7	6.3
25	19.1	3.8	10.4	---	---	---	10.0	4.7	6.8	7.3	5.9	6.4
26	17.6	5.1	10.8	---	---	---	9.5	5.8	7.3	6.3	5.2	5.8
27	14.0	6.6	9.6	---	---	---	10.7	5.6	7.6	6.8	5.7	6.2
28	10.5	5.6	7.6	---	---	---	10.6	5.9	7.6	7.4	6.3	6.7
29	11.0	5.0	7.8	---	---	---	9.7	6.3	7.7	7.8	6.3	7.0
30	7.7	4.8	5.9	---	---	---	9.9	7.5	8.4	7.7	6.1	6.9
31	---	---	---	---	---	---	8.7	6.6	8.0	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	7.8	2.6	5.4

JAMES RIVER BASIN

253

06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'20", long 98°27'08", in SW1/4SE1/4 sec.33, T.129 N., R.62 W., Dickey County, ND, Hydrologic Unit 10160004, on left bank 0.4 mi upstream from State line, 7.8 mi northeast of Frederick, SD, and 15.7 mi upstream from mouth.

DRAINAGE AREA.--716 mi², of which about 332 mi² is probably noncontributing.

PERIOD OF RECORD.--June 1956 to current year.

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

GAGE.--Water-stage recorder 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	e.03	.00	.00	.00	24	.00	.00
2	.00	.00	.00	.00	.00	e.06	.00	.00	.00	20	.00	.00
3	.00	.00	.00	.00	.00	.08	.00	.00	.00	19	.00	.00
4	.00	.00	.00	.00	.00	.10	.00	.00	.00	18	.00	.00
5	.00	.00	.00	.00	.00	.17	.00	.00	.00	16	.00	.00
6	.00	.00	.00	.00	.00	.14	.00	.00	.00	13	.00	.00
7	.00	.00	.00	.00	.00	.10	.00	.00	.00	11	.00	.00
8	.00	.00	.00	.00	.00	.08	.00	.00	.00	9.1	.00	.00
9	.00	.00	.00	.00	.00	.06	.00	.00	.00	6.7	.00	.00
10	.00	.00	.00	.00	.00	.02	.00	.00	.00	5.1	.00	.00
11	.00	.00	.00	.00	.00	.01	.00	.00	.00	3.8	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.5	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.6	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.9	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.5	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.2	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.94	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.72	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.58	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.37	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.25	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	12	.04	.00	.00
26	.00	.00	.00	.00	e.00	.00	.00	.00	42	.01	.00	.00
27	.00	.00	.00	.00	e.00	.00	.00	.00	36	.00	.00	.00
28	.00	.00	.00	.00	e.01	.00	.00	.00	32	.00	.00	.00
29	.00	.00	.00	.00	e.02	.00	.00	.00	26	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	24	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.03	0.85	0.00	0.00	172.00	159.59	0.00	0.00
MEAN	.000	.000	.000	.000	.001	.027	.000	.000	5.73	5.15	.000	.000
MAX	.00	.00	.00	.00	.02	.17	.00	.00	42	24	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.06	1.7	.00	.00	341	317	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1992, BY WATER YEAR (WY)

MEAN	1.10	.46	.28	.075	.30	67.9	83.1	21.3	16.8	24.4	5.61	1.19
MAX	18.3	6.37	4.16	1.16	4.47	419	788	106	131	446	142	9.43
(WY)	1987	1987	1987	1987	1984	1966	1969	1986	1964	1962	1966	1962
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	1956

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1956 - 1992

ANNUAL TOTAL	2490.59	332.47	
ANNUAL MEAN	6.82	.91	18.7a
HIGHEST ANNUAL MEAN			70.5
LOWEST ANNUAL MEAN			.000
HIGHEST DAILY MEAN	167	May 24	5500
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW			5930
INSTANTANEOUS PEAK STAGE			16.05
ANNUAL RUNOFF (AC-FT)	4940	659	13560
10 PERCENT EXCEEDS	22	.06	23
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a Median of annual mean discharges, 10 ft³/s.

b Also 1988 and 1990.

c No flow for long periods in each year.

d Backwater from ice.

JAMES RIVER BASIN

06471500 ELM RIVER AT WESTPORT, SD

LOCATION.--Lat 45°39'22", long 98°29'48", in SW1/4NW1/4 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 mi², of which about 444 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1945 to current year.

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

GAGE.--Water-stage recorder. Datum of gage is 1,309.3 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	e5.5	e2.4	e4.0	e4.0	e30	1.5	8.7	13	5.9	1.3	9.9
2	6.1	e5.0	e2.4	e4.0	e4.1	e12	1.2	8.5	13	21	1.3	10
3	5.9	e6.3	e2.4	e3.9	e4.0	e7.5	.92	7.5	12	22	1.4	10
4	5.9	e7.2	e2.4	e3.0	e3.9	e6.0	.99	7.4	11	19	1.3	11
5	5.9	e7.4	e2.5	e2.8	e3.8	e6.0	1.1	7.1	3.5	17	1.3	12
6	5.9	e7.5	e2.6	e2.8	e3.8	e4.3	1.2	7.1	1.7	17	1.3	16
7	5.9	e7.5	e2.6	e3.3	e3.8	e3.1	1.2	7.1	1.0	17	2.0	16
8	5.9	e7.5	e2.6	e4.0	e3.8	e2.5	.98	8.3	1.0	18	4.0	3.5
9	5.9	e7.5	e2.6	e4.2	e3.8	e1.9	.76	11	.84	15	4.3	2.1
10	5.9	e7.5	e2.6	e4.5	e3.6	1.6	.69	11	6.5	13	2.9	1.8
11	5.9	e7.5	e2.6	e4.4	e3.5	1.4	.69	13	9.5	11	2.2	1.5
12	5.9	e7.5	e2.5	e4.1	e3.3	1.3	.81	13	12	13	1.5	1.4
13	5.9	e7.5	e2.3	e3.8	e3.2	1.3	.80	11	11	10	4.1	1.3
14	5.5	e7.3	e2.3	e3.3	e2.8	1.3	.62	8.4	11	10	12	1.2
15	5.4	e5.4	e2.2	e2.8	e1.7	1.2	.59	8.2	10	9.8	14	1.0
16	5.5	e4.8	e2.7	e3.1	e1.2	1.2	.59	10	3.6	7.9	14	.98
17	5.6	e4.0	e3.2	e3.6	e1.2	1.1	.59	11	3.2	6.4	14	.98
18	5.3	e3.9	e3.8	e3.6	e1.4	.98	.63	11	1.7	6.0	16	1.1
19	5.7	e3.5	e4.2	e3.6	e1.6	.93	.80	11	1.1	5.7	16	4.7
20	6.6	e3.4	e4.2	e3.9	e1.8	1.5	1.3	11	.71	5.3	17	6.0
21	7.2	e3.3	e4.2	e4.0	e1.9	2.5	1.6	11	.53	4.6	15	6.1
22	7.5	e3.0	e4.1	e3.6	e2.0	2.8	1.4	13	.50	4.2	12	5.9
23	7.6	e2.8	e4.0	e3.6	e2.1	2.9	.89	2.9	.49	3.8	12	5.9
24	7.4	e2.7	e4.0	e3.6	e2.1	2.8	.63	1.5	5.2	3.0	12	6.2
25	7.3	e2.7	e4.0	e3.6	e2.4	2.8	.60	1.1	8.9	2.8	4.5	6.5
26	7.1	e2.7	e4.0	e3.6	e3.0	2.2	.64	.86	9.0	2.6	1.8	6.5
27	7.1	e2.7	e4.0	e3.6	e5.0	1.7	.56	.73	9.2	2.0	1.2	6.2
28	8.8	e2.7	e4.0	e3.6	e9.0	1.6	.50	3.1	9.2	1.8	.96	6.5
29	8.2	e2.7	e4.0	e4.0	e22	1.6	.99	16	9.2	1.6	4.2	9.2
30	7.1	e2.4	e4.0	e4.3	---	1.6	4.1	14	15	1.5	6.1	9.8
31	e6.3	---	e4.0	e4.1	---	1.5	---	13	---	1.4	6.5	---
TOTAL	198.7	151.4	99.4	114.3	109.8	111.11	29.87	268.49	194.57	279.3	208.16	181.26
MEAN	6.41	5.05	3.21	3.69	3.79	3.58	1.00	8.66	6.49	9.01	6.71	6.04
MAX	8.8	7.5	4.2	4.5	22	30	4.1	16	15	22	17	16
MIN	5.3	3.4	2.2	2.8	1.2	.93	.50	.73	.49	1.4	.96	.98
AC-FT	394	200	197	227	218	220	59	533	386	554	413	363

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1992, BY WATER YEAR (WY)

MEAN	6.13	4.83	3.68	3.19	4.40	123	217	55.5	53.1	44.6	11.5	5.91
MAX	21.9	9.58	8.55	19.9	24.7	904	2399	464	584	606	150	13.2
(WY)	1987	1987	1985	1946	1984	1966	1969	1950	1964	1962	1966	1966
MIN	.79	.74	.20	.20	.000	1.03	.99	.63	.61	2.81	.53	.34
(WY)	1979		1946	1950	1949	1952	1957	1959	1946	1949	1946	1944

SUMMARY STATISTICS

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1946 - 1992	
ANNUAL TOTAL	4445.87		1946.36			
ANNUAL MEAN	12.2		5.32		44.4a	
HIGHEST ANNUAL MEAN					222	
LOWEST ANNUAL MEAN					4.17	
HIGHEST DAILY MEAN	205	Jun 28	30	Mar 1	11900	Apr 10 1969
LOWEST DAILY MEAN	.20	Jan 2	.49	Jun 23	.00	Jan 27 1946b
ANNUAL SEVEN-DAY MINIMUM	.20	Jan 2	.66	Apr 13	.00	Jan 27 1946
INSTANTANEOUS PEAK FLOW			59	Sep 6	12600	Apr 10 1969
INSTANTANEOUS PEAK STAGE			4.98	Sep 6	22.11	Apr 10 1969
ANNUAL RUNOFF (AC-FT)	8820		3860		32170	
10 PERCENT EXCEEDS	27		12		45	
50 PERCENT EXCEEDS	4.0		4.0		4.9	
90 PERCENT EXCEEDS	.27		1.1		1.0	

e Estimated

a Median of annual mean discharges, 23 ft³/s.

b No flow for many days in most years prior to 1960.

JAMES RIVER BASIN

255

06471550 JAMES RIVER BELOW COLUMBIA, SD

LOCATION.--Lat 45°36'17", long 98°18'15", in SW1/4SE1/4SW1/4 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 mi², of which 3,820 mi² is probably noncontributing.

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

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 good except those for estimated daily discharges, June 12-15 and Sept. 19-23, which are fair, and those for estimated daily discharges, Oct. 29, 30, Nov. 23 to Dec. 3, Jan. 8 to Feb. 10, and Feb. 17 to Mar. 11, 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.2	e.80	1.0	e2.0	e33	2.4	3.1	.73	31	16	23
2	.00	.75	e.80	1.5	e2.0	e35	2.3	1.9	.33	29	17	25
3	.00	.38	e.70	2.1	e2.0	e36	2.2	1.3	.24	30	18	26
4	.00	.30	.57	1.5	e2.0	e35	1.8	1.6	.28	30	19	27
5	.00	.43	.52	1.4	e2.5	e35	2.1	2.2	.17	30	20	27
6	.00	.32	.55	1.6	e2.0	e38	1.4	2.5	.16	29	20	28
7	.00	.19	.62	1.2	e2.0	e40	1.2	2.6	.13	28	21	37
8	.00	.30	.81	e1.0	e1.5	e35	1.1	2.9	.18	27	20	41
9	.00	.63	.90	e1.0	e1.5	e28	1.3	8.4	.15	24	19	40
10	.00	.62	.98	e1.0	e1.0	e27	1.5	7.3	.11	22	17	39
11	.00	1.1	.99	e1.0	.92	e25	1.5	2.4	.06	23	15	37
12	.00	1.6	1.1	e1.0	.85	20	1.6	.81	e.03	28	15	36
13	.00	1.6	1.0	e1.0	.88	17	2.0	.33	e.02	27	14	36
14	.00	1.7	.81	e.90	.72	18	1.9	.24	e.01	28	14	35
15	.00	1.4	.58	e.90	.59	17	1.8	.18	e.02	28	13	33
16	.00	1.5	.65	e.90	.75	15	2.0	.19	.06	27	12	31
17	.00	1.4	.71	e.90	e2.0	15	2.5	.18	.51	26	11	30
18	.00	1.5	.60	e.90	e4.0	13	2.8	.19	3.4	25	9.5	30
19	.01	1.6	.50	e.90	e6.0	10	2.3	.17	5.4	25	8.2	e30
20	.07	1.7	.48	e.80	e8.0	9.2	1.9	.10	4.9	23	7.2	e30
21	.11	1.9	.59	e.80	e11	9.1	1.6	.04	4.1	22	6.7	e30
22	.16	1.3	.68	e.80	e15	8.9	3.1	.42	3.8	22	7.2	e30
23	.22	e1.0	.79	e.90	e18	7.9	7.5	.33	3.1	20	8.9	e30
24	.21	e.90	.77	e1.0	e22	6.6	7.2	.18	2.6	19	9.2	31
25	.26	e.80	.73	e1.0	e25	5.5	5.1	2.3	1.6	17	8.9	29
26	.35	e1.0	.79	e1.0	e28	4.4	5.1	4.7	4.7	17	9.7	28
27	.23	e1.0	.79	e1.5	e30	3.8	6.1	4.8	7.9	16	12	27
28	1.1	e1.0	.73	e1.5	e31	4.9	6.7	4.1	11	16	15	26
29	e3.0	e1.0	.66	e1.5	e32	4.3	6.0	2.7	13	16	17	25
30	e2.0	e.90	.66	e1.5	---	3.2	5.0	1.6	21	17	19	24
31	1.4	---	.75	e2.0	---	2.3	---	1.0	---	16	22	---
TOTAL	9.12	31.02	22.61	36.00	255.21	562.1	91.0	60.76	89.69	738	441.5	921
MEAN	.29	1.03	.73	1.16	8.80	18.1	3.03	1.96	2.99	23.8	14.2	30.7
MAX	3.0	1.9	1.1	2.1	32	40	7.5	8.4	21	31	22	41
MIN	.00	.19	.48	.80	.59	2.3	1.1	.04	.01	16	6.7	23
AC-FT	18	62	45	71	506	1110	180	121	178	1460	876	1830

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1992, BY WATER YEAR (WY)

	1989	1990	1991	1992	1989	1990	1991	1992
MEAN	.24	.86	.45	.41	2.52	44.2	240	27.2
MAX	.52	1.35	.73	1.16	8.80	150	951	73.1
(WY)	1990	1991	1992	1992	1992	1989	1989	1991
MIN	.011	.22	.27	.096	.11	2.16	2.06	1.75
(WY)	1989	1989	1989	1989	1989	1991	1991	1990

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1989 - 1992

ANNUAL TOTAL	6867.71	3258.01	31.8
ANNUAL MEAN	18.8	8.90	98.0
HIGHEST ANNUAL MEAN			1.44
LOWEST ANNUAL MEAN			1989
HIGHEST DAILY MEAN	220	Jul 1	1600
LOWEST DAILY MEAN	.00	Oct 1a	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Oct 1	.00
INSTANTANEOUS PEAK FLOW		Sep 8b	1700
INSTANTANEOUS PEAK STAGE		Mar 7c	15.26
ANNUAL RUNOFF (AC-FT)	13620	6460	23010
10 PERCENT EXCEEDS	72	28	28
50 PERCENT EXCEEDS	1.5	2.0	1.0
90 PERCENT EXCEEDS	.00	.18	.05

e Estimated

a Some days most years.

b Gage height, 3.55 ft.

c Backwater from ice.

JAMES RIVER BASIN

06473000 JAMES RIVER AT ASHTON, SD

LOCATION.--Lat 44°59'54", long 98°28'50", in NW1/4NW1/4NE1/4 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 mi², of which 4,069 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1209: 1947. WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,244.4 ft above sea level. Prior to Nov. 26, 1957, nonrecording gage at present site and Nov. 26, 1957, to Oct. 7, 1974, water-stage recorder at site 900 ft upstream, all at present datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. Occasional backwater and reverse flow caused by Snake Creek during most years. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.50	e.60	e.30	e1.1	e1.2	e5.0	e18	e4.4	e.33	357	90	6.9
2	e.50	e.60	e.30	e1.1	e1.4	e5.0	e17	e4.4	e.20	358	79	5.8
3	e.50	e.55	e.20	e1.1	e1.5	e5.5	e18	e5.0	e.10	355	71	4.8
4	e.50	e.50	e.20	e1.1	e1.5	e6.0	e16	e4.9	e.05	351	65	3.8
5	e.50	e.45	e.20	e1.1	e1.5	e8.0	e15	e4.0	e.10	342	63	3.0
6	e.50	e.40	e.25	e1.0	e2.0	e15	e15	e2.8	e.12	330	57	3.1
7	e.50	e.40	e.25	e1.0	e1.8	e20	e14	e2.3	e.09	317	52	5.2
8	e.50	e.40	e.25	e.90	e1.5	e25	e13	e2.0	e.21	302	49	5.2
9	e.50	e.40	e.30	e.80	e1.5	e30	e13	e1.9	e.24	285	45	5.6
10	e.45	e.40	e.35	e.80	e1.5	e30	e11	e1.8	e.23	269	42	6.2
11	e.45	e.40	e.40	e.90	e1.5	e33	e9.2	e1.6	e.24	253	38	6.4
12	e.45	e.40	e.50	e.90	e1.5	e35	e7.4	e1.2	e.23	236	35	6.4
13	e.40	e.45	e.60	e.90	e1.5	e45	e6.6	e1.2	e.24	214	33	6.2
14	e.30	e.45	e.60	e.80	e1.5	e49	e6.4	e1.2	e.23	188	31	6.7
15	e.45	e.45	e.55	e.80	e2.0	e51	e6.3	e1.1	e.32	160	28	7.5
16	e.50	e.40	e.70	e.80	e2.0	e51	e6.0	e.96	e10	130	28	7.9
17	e.40	e.45	e.65	e.80	e2.5	e49	e5.8	e1.0	e50	109	28	e9.0
18	e.40	e.45	e.60	e.80	e2.5	e47	e6.2	e1.1	e70	96	27	e10
19	e.40	e.50	e.70	e.90	e2.5	e44	e6.6	e.78	65	92	24	e13
20	e.40	e.50	e.80	e1.0	e2.5	e42	e5.9	e.68	71	92	22	e15
21	e.40	e.55	e.90	e1.1	e2.5	e39	e5.7	e.69	95	90	21	e20
22	e.40	e.50	e1.0	e1.1	e3.0	e36	e5.5	e.73	110	87	19	e20
23	e.40	e.50	e1.0	e1.1	e3.0	e35	e5.2	e.69	121	83	19	e20
24	e.40	e.45	e1.0	e1.0	e3.5	e32	e5.2	e.62	138	81	20	e19
25	e.40	e.40	e1.0	e1.0	e3.5	e29	e4.8	e.60	171	90	19	e18
26	e.40	e.40	e1.0	e1.0	e4.0	e27	e4.3	e.56	222	116	18	e18
27	e.45	e.30	e.90	e1.0	e4.0	e24	e3.4	e.51	277	139	16	e17
28	e.50	e.30	e.90	e1.0	e4.5	e22	e3.7	e.44	316	148	14	e17
29	e.60	e.30	e1.0	e1.0	e4.5	e21	e4.3	e.43	334	143	12	e17
30	e.60	e.30	e1.1	e1.1	---	e20	e3.9	e.42	347	128	9.5	e17
31	e.60	---	e1.1	e1.1	---	e19	---	e.37	---	108	8.1	---
TOTAL	14.25	13.15	19.60	30.10	67.9	899.5	262.4	50.38	2399.93	6049	1082.6	320.7
MEAN	.46	.44	.63	.97	2.34	29.0	8.75	1.63	80.0	195	34.9	10.7
MAX	.60	.60	1.1	1.1	4.5	51	18	5.0	347	358	90	20
MIN	.30	.30	.20	.80	1.2	5.0	3.4	.37	.05	81	8.1	3.0
AC-FT	28	26	39	60	135	1780	520	100	4760	12000	2150	636

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1992, BY WATER YEAR (WY)

	MEAN	34.9	42.4	30.1	9.73	5.91	62.7	407	541	331	217	141	56.1
MAX	332	291	187	75.6	53.9	380	2321	2984	2440	938	1024	690	
(WY)	1976	1976	1980	1970	1987	1987	1969	1950	1950	1950	1975	1962	
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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1946 - 1992

ANNUAL TOTAL	13286.22	11209.51	
ANNUAL MEAN	36.4	30.6	157a
HIGHEST ANNUAL MEAN			639
LOWEST ANNUAL MEAN			.000
HIGHEST DAILY MEAN	300	May 29	5670
LOWEST DAILY MEAN	.00	Jan 1	-2100
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	-876
INSTANTANEOUS PEAK FLOW			360
INSTANTANEOUS PEAK STAGE			7.22
ANNUAL RUNOFF (AC-FT)	26350	22230	113700
10 PERCENT EXCEEDS	131	91	528
50 PERCENT EXCEEDS	1.0	2.5	16
90 PERCENT EXCEEDS	.02	.40	.00

e Estimated

a Median of annual discharges, 110 ft³/s.

b Backwater from Snake Creek.

c Gage height, 20.63 ft.

06476000 JAMES RIVER AT HURON, SD

LOCATION.--Lat 44°21'49", long 98°11'56", in SW1/4SE1/4NE1/4 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 mi², of which 4,148 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to September 1932, August 1943 to current year. Monthly discharge only for some periods from August 1928 to September 1932, published in WSP 1309. Gage-height records collected at site about 100 ft downstream for period of open water each year July 1902 to June 1914 and for period March to June 1915-23 are in reports of the National Weather Service.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder, wire-weight gage, and concrete dam. Datum of gage is 1,223.44 ft above sea level. Aug. 29, 1928, to Mar. 15, 1929, nonrecording gage at site 100 ft downstream at about same datum. Mar. 16, 1929, to June 30, 1932, nonrecording gage 165 ft downstream at present datum. Aug. 3, 1943, to Oct. 17, 1951, nonrecording gage at site 15 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since May 1974. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	.00	13	11	21	51	e45	e20	.00	563	237	44
2	15	.00	13	11	24	54	e40	e20	.00	657	233	48
3	9.2	.00	12	11	28	53	e45	e15	.00	654	220	39
4	16	.00	11	12	26	56	e30	e20	.00	632	191	33
5	16	e1.0	12	13	29	60	e15	e10	.00	628	191	42
6	14	e5.0	11	13	31	65	e30	e5.0	.00	580	169	34
7	10	e1.0	11	14	32	62	e35	e1.0	.00	598	170	66
8	11	e1.0	11	17	32	72	e30	e1.0	.00	649	155	48
9	9.1	e5.0	11	14	32	66	e35	e1.0	.00	563	154	61
10	6.6	9.2	11	15	32	49	e35	e1.0	.00	496	138	51
11	10	11	11	15	e32	65	e40	e1.0	.00	437	123	33
12	4.5	11	11	16	e32	56	e20	e1.0	.00	410	113	29
13	2.2	11	11	15	32	61	e20	e1.0	.00	389	103	35
14	6.8	11	10	16	32	60	e30	e1.0	.00	343	94	32
15	7.8	11	11	13	32	54	e30	e1.0	.00	326	85	17
16	2.6	11	11	13	32	62	e30	e1.0	.00	340	80	26
17	6.3	13	11	11	38	56	e15	e1.0	.00	321	81	20
18	4.8	15	11	11	47	58	e20	e1.0	235	276	74	19
19	.00	13	10	11	46	56	e35	.00	1050	254	65	7.9
20	.00	12	11	12	43	62	e50	.00	922	239	59	9.4
21	.00	13	11	12	44	60	e45	.00	672	212	69	20
22	.71	14	12	11	45	55	e35	.00	620	236	47	9.2
23	2.9	15	12	11	45	60	e35	.00	582	226	56	1.3
24	2.6	13	12	12	45	63	e40	.00	526	208	65	.00
25	.00	13	12	12	43	58	e40	.00	491	232	64	.00
26	.00	13	12	13	46	e60	e35	.00	406	231	57	.00
27	.00	13	11	13	51	e40	e15	.00	364	213	55	.58
28	.00	13	11	13	52	e15	e15	.00	431	221	54	3.9
29	e.10	15	11	14	51	e50	e25	.00	443	218	53	3.7
30	e1.0	13	11	15	---	e40	e10	.00	465	233	49	9.0
31	e1.0	---	11	18	---	e50	---	.00	---	233	46	---
TOTAL	168.91	276.20	350	408	1075	1729	925	102.00	7207.00	11818	3350	741.98
MEAN	5.45	9.21	11.3	13.2	37.1	55.8	30.8	3.29	240	381	108	24.7
MAX	16	15	13	18	52	72	50	20	1050	657	237	66
MIN	.00	.00	10	11	21	15	10	.00	.00	208	46	.00
AC-FT	335	548	694	809	2130	3430	1830	202	14300	23440	6640	1470

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1992, BY WATER YEAR (WY)

	MEAN	39.4	41.9	36.2	21.1	22.0	343	814	673	456	257	170	70.7
MAX	313	275	211	159	157	2007	5510	3617	2834	1053	1334	746	
(WY)	1976	1976	1980	1970	1984	1986	1969	1986	1950	1950	1953	1962	
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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1929-1932, 1943-1992

ANNUAL TOTAL	44755.67	28151.09	246a	
ANNUAL MEAN	123	76.9	1010	1969
HIGHEST ANNUAL MEAN			.51	1959
LOWEST ANNUAL MEAN				1959
HIGHEST DAILY MEAN	1550	1050	8940	Apr 12 1969
LOWEST DAILY MEAN	.00 Jan 1	.00 Oct 19b	.00	Oct 12 1944b
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 1	.00 May 19	.00	Sep 29 1945c
INSTANTANEOUS PEAK FLOW		1110	9000	Apr 13 1969
INSTANTANEOUS PEAK STAGE		10.11	16.70	Apr 13 1969
ANNUAL RUNOFF (AC-FT)	88770	55840	172400	
10 PERCENT EXCEEDS	300	233	746c	
50 PERCENT EXCEEDS	12	16	37c	
90 PERCENT EXCEEDS	.00	.00	.00c	

e Estimated

a Median of yearly mean discharges, 130 ft³/s.

b No flow for long periods in most years.

c Reflects water years 1943-92 only.

JAMES RIVER BASIN

06476000 JAMES RIVER AT HURON, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1948 to September 1952, October 1955 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 1956 to October 1970, September 1971 to current year.

WATER TEMPERATURE: September 1956 to October 1970, September 1971 to current year.

REMARKS.--Water temperature and specific conductance samples collected once daily by observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,170 microsiemens, Mar. 14, 1965; minimum daily, 175 microsiemens, Mar. 30, Apr. 2, 1960.

WATER TEMPERATURE: Maximum daily, 32.5°C, June 27, 1990; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum observed daily, 2,250 microsiemens, Jan. 2; minimum observed daily, 420 microsiemens, June 30.

WATER TEMPERATURE: Maximum observed, 25.0°C, Aug. 9, 10; minimum observed daily, 1.0°C, Dec. 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25 °CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1420	---	1680	1880	2050	---	1480	1800	---	440	720	1080
2	1460	---	1670	2250	2050	1380	1480	1800	---	600	720	1100
3	1460	---	1670	1800	2050	1320	1460	1820	---	680	720	1100
4	1460	---	1700	1900	2000	1360	1460	1810	---	680	730	1100
5	1400	1600	1700	1900	2000	1370	1460	1850	---	510	740	1100
6	1490	1640	1720	1850	2000	1380	1450	---	---	540	760	1100
7	1480	1650	1720	1900	2000	1400	1460	---	---	510	800	1080
8	1480	1670	1730	1900	2000	1380	1460	---	---	540	820	1090
9	1460	1670	1730	1880	2000	1360	1480	---	---	570	840	1100
10	1500	1670	1750	1900	1970	1340	1500	---	---	570	850	1090
11	1440	1700	1750	1900	1970	1320	1490	---	---	580	860	1080
12	1530	1700	1750	1900	1970	1300	1500	---	---	600	890	1090
13	1500	1700	1750	1930	1970	1310	1500	---	---	620	910	1100
14	1500	1700	1770	1950	1950	1310	1500	---	---	630	930	1100
15	1500	1700	1800	1950	1840	1320	1510	---	---	630	950	1100
16	1510	1670	1790	1900	1960	1320	1530	---	---	640	990	1110
17	1530	1700	1790	1950	1930	1330	1550	---	---	640	1000	1200
18	1500	1680	1800	2060	1820	1340	1540	---	1880	640	1020	1120
19	---	1680	1800	2000	1850	1360	1570	---	1440	640	1030	1140
20	---	1650	1850	2000	1750	1380	1600	---	1070	640	1060	1140
21	---	1660	1800	2000	1750	1400	1630	---	760	640	1060	1140
22	1470	1650	1800	1980	1750	1410	1610	---	730	640	1080	---
23	1450	1650	1810	2000	1750	1430	1610	---	520	640	1080	---
24	1550	1650	1820	2010	1750	1470	1630	---	460	640	1080	---
25	---	1680	1850	2010	1740	1500	1650	---	510	640	1080	---
26	---	1650	1850	2010	1680	1550	1670	---	530	650	1080	---
27	---	1650	1850	2050	1650	1600	1690	---	550	690	1100	---
28	---	1660	1850	1650	1530	1600	1700	---	540	680	1100	---
29	1200	1660	1850	2050	---	1600	1710	---	460	700	1100	---
30	1460	1680	1860	2050	---	1600	1740	---	420	650	1100	1200
31	1480	---	---	2100	---	1600	---	---	---	710	1100	---

JAMES RIVER BASIN

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06476000 JAMES RIVER AT HURON, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	---	3.0	---	---	---	8.0	18.0	---	19.5	23.0	18.0
2	18.0	---	4.0	---	---	---	9.0	8.0	---	19.0	23.0	19.0
3	18.0	---	1.0	---	---	---	5.5	11.0	---	21.0	24.0	19.0
4	16.0	---	3.0	---	---	---	6.0	9.5	---	21.0	21.5	20.0
5	12.0	4.0	4.0	---	---	---	7.5	10.5	---	22.0	21.5	19.5
6	14.0	2.0	5.0	---	---	---	7.0	11.5	---	21.0	22.0	20.0
7	16.0	3.0	4.0	---	---	---	7.0	12.5	---	22.5	24.0	18.0
8	15.0	2.0	4.0	---	---	---	7.5	12.5	---	22.0	24.0	18.0
9	16.0	4.0	5.0	---	---	---	6.0	10.5	---	22.0	25.0	18.0
10	18.0	3.0	5.0	---	---	---	5.0	11.5	---	21.5	25.0	17.0
11	16.0	4.0	4.0	---	---	---	5.0	9.5	---	21.5	24.5	17.0
12	17.0	5.0	4.0	---	---	---	5.0	9.0	---	21.5	24.0	18.0
13	15.0	6.0	3.0	---	---	---	6.5	8.0	---	21.5	24.0	18.0
14	12.0	5.0	4.0	---	---	---	6.0	7.5	---	22.0	22.5	18.0
15	13.0	4.0	3.0	---	---	---	6.0	8.0	---	21.5	22.5	20.0
16	20.0	5.0	4.0	---	---	---	8.5	9.0	---	22.0	22.0	18.0
17	13.0	5.0	3.0	---	---	---	6.5	9.5	---	22.0	22.5	18.0
18	12.0	5.0	3.5	---	---	---	6.5	9.5	19.0	22.0	23.0	17.5
19	---	6.0	5.0	---	---	---	6.5	10.0	20.0	22.5	23.0	19.0
20	---	6.0	4.5	---	---	---	5.5	7.5	20.0	22.5	24.0	18.5
21	---	6.0	5.5	---	---	---	5.0	4.5	20.5	20.5	24.5	18.0
22	14.0	5.0	5.0	---	---	---	6.5	5.5	21.0	19.0	23.0	---
23	11.0	4.0	5.0	---	---	---	7.5	5.5	21.5	19.5	24.0	---
24	8.0	4.0	5.0	---	---	---	8.5	5.5	23.0	20.0	22.0	---
25	---	4.0	4.5	---	---	---	8.0	7.5	22.0	20.5	19.5	---
26	---	4.0	5.0	---	---	---	8.0	9.0	23.0	22.0	18.0	---
27	---	5.0	6.0	---	---	---	8.0	11.0	22.5	22.5	18.5	---
28	---	4.0	4.5	---	---	---	6.5	13.0	23.5	24.0	19.0	---
29	4.0	5.0	5.0	---	---	---	8.0	14.5	21.5	23.0	18.5	---
30	4.0	6.0	4.5	---	---	---	9.0	14.5	21.5	22.0	19.0	---
31	4.0	---	5.0	---	---	---	7.5	---	---	22.0	18.5	---

06477000 JAMES RIVER NEAR FORESTBURG, SD

LOCATION.--Lat 43°58'26", long 98°04'14", in SW1/4SW1/4NW1/4 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 mi², of which about 4,148 mi² is probably noncontributing.

PERIOD OF RECORD.--March 1950 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,208.34 ft above 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, and those for May 20-25, 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 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	e4.7	e18	9.5	13	153	60	34	5.3	515	223	59
2	6.1	e4.5	e17	9.7	14	160	57	34	5.4	599	224	64
3	6.5	e4.2	e17	11	15	175	57	29	4.5	654	226	67
4	7.0	e4.2	e18	10	15	193	52	27	4.7	668	222	62
5	7.7	e4.6	18	10	17	200	42	26	5.1	663	229	62
6	8.7	e5.0	18	10	19	211	46	23	5.9	652	226	58
7	8.6	e5.6	18	11	19	214	45	19	5.9	644	219	67
8	8.4	6.0	18	12	20	203	42	20	7.3	632	206	82
9	9.6	6.3	16	13	20	199	39	20	6.6	644	197	95
10	12	6.6	17	e14	22	178	38	18	6.0	632	187	92
11	8.9	6.8	15	e15	23	161	41	23	5.5	583	175	81
12	9.4	7.4	15	e14	24	148	38	27	4.9	539	161	74
13	8.0	8.0	15	e14	26	140	32	25	4.6	474	147	71
14	8.5	7.9	12	e13	27	135	34	23	4.3	425	132	64
15	8.1	8.2	13	e10	28	121	36	24	4.4	386	117	57
16	7.6	8.0	13	e12	29	116	37	39	5.6	362	108	54
17	6.4	14	12	e11	44	111	35	51	13	354	103	48
18	6.3	32	10	e10	66	104	37	42	12	331	97	45
19	5.6	32	e8.0	e11	89	98	46	34	16	298	88	39
20	5.1	28	e9.0	e13	87	95	52	26	376	269	78	37
21	5.2	25	10	e14	79	93	61	20	715	250	84	39
22	5.1	23	11	e12	67	91	55	19	725	243	81	34
23	5.0	e23	10	e10	60	90	54	21	654	245	77	28
24	4.7	e19	10	e9.0	57	88	54	13	607	239	83	20
25	4.5	17	9.6	e8.5	59	85	55	15	556	241	86	19
26	4.5	17	9.7	e8.0	62	84	54	13	528	244	86	25
27	4.8	17	9.5	e8.5	81	74	49	9.9	454	236	83	25
28	5.1	17	9.5	e9.0	117	75	46	8.6	410	227	77	22
29	5.6	18	9.5	e10	156	87	46	7.5	408	214	72	17
30	5.0	18	9.5	e11	---	70	36	6.4	443	215	65	15
31	4.8	---	9.5	e13	---	64	---	5.8	---	220	59	---
TOTAL	208.8	398.0	404.8	346.2	1355	4016	1376	703.2	6003.0	12898	4218	1522
MEAN	6.74	13.3	13.1	11.2	46.7	130	45.9	22.7	200	416	136	50.7
MAX	12	32	18	15	156	214	61	51	725	668	229	95
MIN	4.5	4.2	8.0	8.0	13	64	32	5.8	4.3	214	59	15
AC-FT	414	789	803	687	2690	7970	2730	1390	11910	25580	8370	3020

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1992, BY WATER YEAR (WY)

	MEAN	54.3	54.6	44.7	26.5	26.0	423	1029	801	590	305	198	88.9
MAX	429	282	196	173	104	2481	6284	5396	3244	1414	1375	747	
(WY)	1987	1976	1976	1970	1987	1986	1969	1986	1950	1962	1953	1962	
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1950 - 1992

ANNUAL TOTAL	66006.7	33449.0		
ANNUAL MEAN	181	91.4		
HIGHEST ANNUAL MEAN			293a	
LOWEST ANNUAL MEAN			1321	1986
HIGHEST DAILY MEAN	2510	Jun 10	4.75	1959
LOWEST DAILY MEAN	1.0	Jan 2	.00	Mar 1 1950c
ANNUAL SEVEN-DAY MINIMUM	1.0	Jan 2	.00	Aug 9 1959
INSTANTANEOUS PEAK FLOW			743	Apr 9 1969
INSTANTANEOUS PEAK STAGE			6.78	Apr 9 1969
ANNUAL RUNOFF (AC-FT)	130900	66350	212300	
10 PERCENT EXCEEDS	370	240	813	
50 PERCENT EXCEEDS	14	27	45	
90 PERCENT EXCEEDS	3.3	6.0	2.0	

e Estimated

a Median of annual mean discharges, 160 ft³/s.

b Also Nov. 4.

c No flow at times in some years.

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LOCATION.--Lat 43°46'30", long 98°14'33", in SW1/4SW1/4 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.

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 and June 1-23, which are poor. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	e.26	e.02	e.03	e.04	7.0	1.1	1.1	.00	2.5	.03	15
2	.03	e.20	e.02	e.03	e.04	19	1.1	1.0	.02	5.3	.03	14
3	.03	e.10	e.01	e.03	e.04	16	.93	.83	.01	9.1	.02	12
4	.04	e.06	e.01	e.02	e.04	15	.59	.88	.01	5.1	.03	11
5	.04	e.08	e.01	e.03	e.04	15	.46	.49	.02	2.2	.38	11
6	.04	e.03	e.01	e.03	e.04	13	.38	.42	.03	.93	.98	9.7
7	.05	e.01	e.01	e.03	e.03	10	.33	.31	.03	.90	386	17
8	.22	e.02	e.02	e.03	e.03	8.1	.39	.16	.03	.43	1670	19
9	.19	e.10	e.02	e.02	e.02	7.5	.51	.06	.02	.23	680	25
10	.18	e.30	e.02	e.02	e.02	5.7	.49	.04	.02	.24	279	32
11	.15	e.40	e.02	e.03	e.02	6.5	.44	.03	.02	.30	168	27
12	.15	e.30	e.02	e.04	e.02	8.3	.40	.02	.02	.74	108	22
13	.12	e.15	e.02	e.03	e.02	9.0	.69	.03	.01	.50	72	19
14	.11	e.20	e.02	e.02	e.03	8.8	.74	.03	.00	2.1	55	18
15	.13	e.10	e.02	e.01	e.04	9.2	.99	.03	.01	1.7	48	17
16	.13	e.08	e.01	e.02	e.07	8.9	1.3	.03	.01	.88	38	20
17	.13	e.10	e.02	e.01	e.10	7.6	.93	.03	.03	.36	32	19
18	.12	e.10	e.02	e.01	e.20	6.8	1.3	.02	.03	.13	28	17
19	.12	e.10	e.01	e.01	e.34	6.1	1.6	.01	.02	.06	24	14
20	.15	e.10	e.02	e.02	e.20	5.3	1.4	.00	.02	.04	19	13
21	.14	e.10	e.02	e.02	.37	4.5	1.7	.00	.01	.04	16	11
22	.16	e.08	e.02	e.02	4.2	3.9	1.6	.00	.01	.09	15	9.3
23	.17	e.07	e.02	e.02	25	3.4	1.5	.00	.00	.12	12	8.1
24	.21	e.06	e.02	e.01	15	3.1	1.9	.00	.00	.07	13	6.6
25	.20	e.05	e.02	e.02	9.9	2.8	2.1	.00	.00	.05	23	5.4
26	.21	e.06	e.02	e.02	9.0	2.4	1.9	.00	.00	.04	35	5.0
27	.21	e.05	e.02	e.02	8.9	2.1	1.6	.00	.00	.03	32	5.0
28	.29	e.04	e.03	e.03	7.4	1.7	1.5	.00	.01	.03	30	4.2
29	.38	e.05	e.03	e.04	5.8	1.6	1.6	.00	2.4	.03	27	3.8
30	.33	e.03	e.03	e.04	---	1.6	1.5	.00	2.7	.04	22	3.5
31	.31	---	e.03	e.04	---	1.3	---	.00	---	.04	17	---
TOTAL	4.77	3.28	0.59	0.75	86.95	221.2	32.97	5.52	5.49	34.32	3850.47	413.6
MEAN	.15	.11	.019	.024	3.00	7.14	1.10	.18	.18	1.11	124	13.8
MAX	.38	.40	.03	.04	25	19	2.1	1.1	2.7	9.1	1670	32
MIN	.03	.01	.01	.01	.02	1.3	.33	.00	.00	.03	.02	3.5
AC-FT	9.5	6.5	1.2	1.5	172	439	65	11	11	68	7640	822

MEAN	1.59	.42	.27	.98	4.52	79.4	71.1	44.6	69.8	9.08	7.79	.75
MAX	39.2	5.01	2.40	23.3	75.1	455	623	514	1097	123	124	13.8
(WY)	1983	1983	1963	1973	1973	1960	1969	1962	1962	1962	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	1955

ANNUAL TOTAL	4676.69		4659.91						
ANNUAL MEAN	12.8		12.7			24.2a			
HIGHEST ANNUAL MEAN						203			1962
LOWEST ANNUAL MEAN									1980
HIGHEST DAILY MEAN	507	Jun 8	1670	Aug 8	5820	.033	Apr 4		1969
LOWEST DAILY MEAN	.00	Aug 25	.00	May 20b	.00		Sep 1		1955b
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 25	.00	May 20	.00		Sep 1		1955
INSTANTANEOUS PEAK FLOW			1940	Aug 8	6610		Apr 4		1969c
INSTANTANEOUS PEAK STAGE			11.21	Aug 8	17.12		Apr 3		1969d
ANNUAL RUNOFF (AC-FT)	9280		9240		17530				
10 PERCENT EXCEEDS	12		16		16				
50 PERCENT EXCEEDS	.06		.13		.09				
90 PERCENT EXCEEDS	.02		.01		.00				

e Estimated
a Median of annual mean discharges, 9.7 ft³/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 SW1/4SW1/4 sec.30, T.97 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 5.0 ft downstream from highway bridge, 0.3 mi upstream from Dawson Creek, and 5.2 mi northeast of Scotland.

DRAINAGE AREA.--20,653 mi², of which 4,148 mi² is probably noncontributing.

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 (revised) above National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1972, at site 0.25 mi downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are 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 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	e15	e31	e34	e34	150	100	113	24	449	331	202
2	9.0	e16	e29	e35	e35	136	100	98	24	493	302	318
3	9.2	e17	e28	e36	e37	143	93	103	20	478	279	310
4	11	e19	e27	e35	e38	167	79	88	22	503	257	312
5	13	e22	e28	e35	e39	196	68	77	21	536	245	317
6	14	e24	e29	e35	e40	235	60	67	23	565	253	320
7	15	e27	e30	e36	e41	292	55	58	22	596	347	311
8	15	e29	e33	e44	e32	326	60	49	22	656	459	300
9	15	e32	e35	e35	e30	362	58	41	21	672	556	272
10	15	e38	e36	e39	e30	367	55	41	20	689	637	257
11	16	e43	e36	e46	e31	349	51	42	20	687	839	245
12	15	e47	e37	e47	e34	334	51	44	18	715	919	226
13	17	e49	e38	e45	e37	314	51	48	16	741	796	221
14	16	e50	e38	e41	e40	297	45	50	15	702	629	220
15	15	e52	e32	e20	e44	278	45	44	17	654	488	e218
16	17	e52	e35	e25	e50	247	50	53	19	600	397	216
17	20	e53	e36	e28	e60	222	50	53	23	537	347	205
18	19	e56	e36	e30	e90	212	49	51	26	476	315	193
19	18	e55	e35	e30	144	196	49	49	26	426	282	181
20	18	e51	e34	e31	150	175	61	41	28	393	243	167
21	19	e49	e34	e31	150	155	98	34	59	371	215	153
22	19	e49	e34	e32	145	148	116	32	85	358	195	147
23	18	e44	e34	e35	154	142	112	34	84	341	175	130
24	19	e40	e34	e35	170	131	108	43	211	334	178	106
25	17	e40	e34	e32	e190	127	122	46	476	326	213	87
26	18	e40	e34	e30	e200	124	132	41	597	304	248	81
27	17	e44	e33	e30	198	111	138	39	586	302	268	89
28	20	e43	e33	e30	178	100	132	36	555	302	267	88
29	20	e43	e32	e32	168	90	126	31	515	296	237	77
30	e18	e35	e32	e33	---	99	121	28	489	298	215	70
31	e17	---	e32	e33	---	106	---	25	---	323	199	---
TOTAL	498.4	1174	1029	1060	2589	6331	2435	1599	4084	15123	11331	6039
MEAN	16.1	39.1	33.2	34.2	89.3	204	81.2	51.6	136	488	366	201
MAX	20	56	38	47	200	367	138	113	597	741	919	320
MIN	9.0	15	27	20	30	90	45	25	15	296	175	70
AC-FT	989	2330	2040	2100	5140	12560	4830	3170	8100	30000	22480	11980

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1992, BY WATER YEAR (WY)

	MEAN	78.6	71.2	55.3	39.3	84.2	679	1364	924	884	437	228	123
MAX	909	417	243	171	640	2942	8188	7302	7585	3845	1436	1411	
(WY)	1987	1987	1987	1970	1952	1987	1969	1986	1984	1962	1953	1986	
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1928 - 1992

ANNUAL TOTAL	78713.3	53292.4	
ANNUAL MEAN	216	146	414a
HIGHEST ANNUAL MEAN			2042
LOWEST ANNUAL MEAN			13.8
HIGHEST DAILY MEAN	2300	919	27600
LOWEST DAILY MEAN	5.5	9.0	.00
ANNUAL SEVEN-DAY MINIMUM	6.1	11	.00
INSTANTANEOUS PEAK FLOW		933	29400
INSTANTANEOUS PEAK STAGE		7.11	20.45
ANNUAL RUNOFF (AC-FT)	156100	105700	299900
10 PERCENT EXCEEDS	511	368	1050
50 PERCENT EXCEEDS	37	51	67
90 PERCENT EXCEEDS	9.0	19	7.7

e Estimated

a Median of yearly mean discharges, 210 ft³/s.

b No flow for many days in some years.

JAMES RIVER BASIN

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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 1991 TO SEPTEMBER 1992

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT 09...	0900	15	1650	8.4	308	11.0	11.5	13	736	9.3	89	100
FEB 18...	1145	90	2040	8.1	310	1.0	2.0	2.3	740	15.3	115	K11
MAY 20...	1005	41	1930	8.4	277	25.5	22.5	20	738	6.6	79	100
AUG 26...	1115	250	1010	8.5	206	17.5	18.0	21	738	8.0	88	>1200

DATE	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00932) (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)	
OCT 09...	120	610	140	62	140	33	2	20	303	550	79	0.50
FEB 18...	180	900	210	90	150	26	2	14	325	750	76	0.40
MAY 20...	250	710	160	75	130	28	2	18	257	630	69	0.40
AUG 26...	K3800	370	87	38	72	28	2	17	202	280	37	0.30

DATE	SILICA, DIS- SOLVED (MG/L STO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00613)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00608)
OCT 09...	18	1160	1200	1.58	47.0	0.010	0.020	0.051	0.061	<0.050	0.010	0.010
FEB 18...	12	1510	1490	2.06	367	0.010	<0.010	--	<0.050	<0.050	0.050	0.050
MAY 20...	11	1410	1260	1.92	156	0.010	<0.010	--	<0.050	<0.050	0.020	0.010
AUG 26...	14	702	670	0.95	474	<0.010	<0.010	--	<0.050	<0.050	<0.010	0.020

JAMES RIVER BASIN

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	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)
OCT 09...	0.01	1.3	6.0	0.250	0.090	0.090	0.080	<10	89	<3	13
FEB 18...	0.06	1.3	--	0.170	0.100	0.090	0.070	<10	<100	<1	<10
MAY 20...	0.01	2.0	--	0.400	0.100	0.150	0.070	<10	98	<3	5
AUG 26...	0.03	1.4	--	0.320	0.110	0.090	0.070	<10	59	<3	5

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- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 09...	110	66	<10	5	<1	<1.0	1300	<6	98	4.0	46
FEB 18...	150	380	2	4	1	<1.0	2200	3	146	35	22
MAY 20...	140	3100	<10	7	<1	<1.0	1700	<6	93	10	97
AUG 26...	60	66	<10	5	<1	<1.0	750	7	75	51	99

JAMES RIVER BASIN

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06478513 JAMES RIVER NEAR YANKTON, SD

LOCATION.--Lat 42°59'45", long 97°22'10", in NE1/4NW1/4 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 mi², of which 4,148 mi² 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 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 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	e27	e30	e28	170	116	142	31	474	320	256
2	15	14	e25	e30	e28	154	115	131	31	455	326	506
3	14	14	e24	e31	e28	139	114	117	29	463	315	378
4	15	e20	e24	e31	e29	138	108	114	29	468	303	345
5	16	e23	e24	e32	e30	154	98	112	27	486	292	327
6	16	e23	e25	e32	e30	184	91	96	30	514	284	327
7	15	e24	e26	e33	e35	210	75	87	28	548	344	383
8	17	e26	e27	e35	e30	255	66	79	31	605	411	386
9	18	e28	e29	e30	e28	322	63	60	31	644	457	350
10	19	e31	e30	e33	e27	349	66	62	30	781	503	308
11	20	e36	e30	e37	e27	366	65	51	29	707	579	286
12	18	e42	e30	e40	e26	357	54	51	27	758	782	273
13	17	e47	e30	e40	e28	340	53	44	25	778	906	263
14	17	e51	e30	e32	e30	322	60	49	25	751	835	348
15	16	e54	e27	e27	e32	303	61	57	38	712	675	287
16	16	e54	e28	e27	e35	290	59	101	41	661	532	264
17	16	e55	e30	e29	e40	261	56	85	30	605	424	252
18	14	e57	e29	e30	e50	236	63	67	27	549	353	244
19	15	e56	e29	e30	e60	224	63	62	27	492	314	227
20	17	e52	e30	e30	e90	208	57	59	26	444	294	213
21	18	e50	e30	e30	e130	191	65	55	27	408	274	196
22	19	e46	e30	e30	e160	173	86	50	29	390	255	178
23	19	e40	e30	e30	e150	161	122	40	57	368	234	170
24	19	e35	e30	e29	e151	155	141	35	84	358	215	161
25	17	e30	e29	e29	145	146	139	40	125	369	226	146
26	19	e32	e29	e28	165	140	139	45	307	402	249	127
27	17	e37	e29	e27	193	135	144	51	469	370	265	106
28	19	e40	e29	e25	193	134	152	47	526	327	275	98
29	23	e35	e30	e26	182	128	151	43	515	329	277	105
30	21	e30	e30	e27	---	111	145	39	495	332	265	102
31	18	---	e30	e28	---	110	---	34	---	322	249	---
TOTAL	535	1097	880	948	2180	6566	2787	2105	3226	15870	12033	7612
MEAN	17.3	36.6	28.4	30.6	75.2	212	92.9	67.9	108	512	388	254
MAX	23	57	30	40	193	366	152	142	526	781	906	506
MIN	14	14	24	25	26	110	53	34	25	322	215	98
AC-FT	1060	2180	1750	1880	4320	13020	5530	4180	6400	31480	23870	15100

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1992, BY WATER YEAR (WY)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	190	153	118	74.5	140	931	2217	1501	1540	706	205	217	
MAX	1119	426	286	179	580	2512	7756	8083	7806	3828	451	1248	
(WY)	1987	1987	1987	1987	1983	1987	1986	1986	1984	1984	1984	1986	
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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1982 - 1992

	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1982 - 1992
ANNUAL TOTAL	77982.0	55839	
ANNUAL MEAN	214	153	
HIGHEST ANNUAL MEAN			666a
LOWEST ANNUAL MEAN			2084
HIGHEST DAILY MEAN	2200	906	56.5
LOWEST DAILY MEAN	6.0	14	26000
ANNUAL SEVEN-DAY MINIMUM	7.6	15	.78
INSTANTANEOUS PEAK FLOW		921	2.2
INSTANTANEOUS PEAK STAGE		7.15	26400
ANNUAL RUNOFF (AC-FT)	154700	110800	24.34
10 PERCENT EXCEEDS	524	404	481100
50 PERCENT EXCEEDS	35	57	1750
90 PERCENT EXCEEDS	14	23	160
			19

e Estimated

a Median of annual mean discharges, 310 ft³/s.

b Also Oct. 18 and Nov. 2, 3.

MISSOURI-LEWIS AND CLARK RIVER BASIN

06478515 MISSOURI RIVER NEAR GAYVILLE, SD

LOCATION.--Lat 42°51'01", long 97°13'12", in SW1/4NW1/4 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. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48.29	44.93	45.78	45.35	45.01	44.19	47.17	47.09	47.33	47.54	47.05	47.25
2	48.24	45.26	45.88	45.35	45.00	44.17	47.18	47.09	47.81	47.71	47.06	47.16
3	48.22	45.21	45.94	45.34	45.01	44.16	47.16	47.09	47.52	47.59	47.10	47.02
4	48.19	45.11	46.56	45.34	44.98	44.17	47.16	47.16	47.35	47.50	47.09	46.96
5	48.16	44.85	46.37	45.36	45.04	44.19	47.23	47.23	47.80	47.69	47.08	46.87
6	48.16	44.74	45.83	45.35	45.21	44.18	47.17	47.28	47.50	47.58	47.12	46.89
7	48.17	44.71	45.73	45.37	45.39	44.15	47.17	47.30	47.34	47.54	47.14	46.89
8	48.15	44.71	45.47	45.35	45.55	44.33	47.14	47.28	47.81	47.72	47.11	46.94
9	48.09	44.72	45.33	45.47	45.59	44.75	47.15	47.86	47.56	47.62	47.09	46.88
10	48.11	44.67	45.28	45.44	45.55	44.78	47.16	47.50	47.41	47.56	46.99	46.92
11	48.10	44.68	45.25	45.80	45.51	44.57	47.15	47.26	47.83	47.74	46.91	47.03
12	48.11	44.67	45.26	45.95	45.51	44.36	47.14	47.78	47.62	47.65	46.91	47.09
13	48.13	44.67	45.32	45.94	45.30	44.20	47.16	47.43	47.47	47.50	46.94	47.15
14	48.13	44.67	45.56	45.99	45.14	44.17	47.17	47.25	47.85	47.30	46.95	47.15
15	48.16	44.67	45.70	46.30	45.12	44.18	47.17	47.81	47.64	47.29	46.94	47.10
16	48.17	44.66	45.50	46.30	45.12	44.25	47.18	47.53	47.52	47.29	46.93	47.06
17	48.16	44.68	45.41	46.07	45.09	44.91	47.17	47.27	47.66	47.27	46.95	47.00
18	48.16	44.69	45.26	46.03	44.90	45.61	47.19	47.80	47.81	47.27	46.99	47.00
19	48.16	44.65	45.34	45.80	44.69	46.25	47.14	47.58	47.78	47.26	47.07	47.12
20	48.16	44.66	45.33	45.49	44.53	46.80	47.12	47.49	47.54	47.24	47.09	47.12
21	48.16	44.67	45.33	45.26	44.53	47.16	47.12	47.88	47.87	47.22	47.08	47.14
22	48.17	45.04	45.34	45.24	44.52	47.23	47.13	47.47	47.62	47.23	47.14	47.16
23	48.15	45.15	45.35	45.19	44.55	47.21	47.13	47.25	47.45	47.23	47.16	47.26
24	48.12	45.29	45.33	45.22	44.54	47.22	47.04	47.77	47.64	47.23	47.16	47.34
25	48.08	45.04	45.35	45.18	44.48	47.22	46.98	47.52	47.59	47.24	47.26	47.37
26	47.74	44.84	45.35	45.22	44.38	47.21	47.01	47.35	47.71	47.21	47.25	47.33
27	47.21	44.78	45.33	45.20	44.30	47.24	47.02	47.81	47.57	47.23	47.20	47.32
28	46.58	44.78	45.36	45.23	44.27	47.20	47.06	47.51	47.54	47.15	47.15	47.30
29	45.77	45.27	45.37	45.14	44.21	47.19	47.08	47.34	47.69	47.06	47.10	47.30
30	45.40	45.55	45.37	45.00	---	47.19	47.15	47.80	47.60	47.05	47.17	47.32
31	45.11	---	45.32	44.99	---	47.16	---	47.53	---	47.05	47.15	---
MEAN	47.80	44.87	45.51	45.49	44.93	45.54	47.13	47.46	47.61	47.38	47.08	47.11
MAX	48.29	45.55	46.56	46.30	45.59	47.24	47.23	47.88	47.87	47.74	47.26	47.37
MIN	45.11	44.65	45.25	44.99	44.21	44.15	46.98	47.09	47.33	47.05	46.91	46.87

MISSOURI-LEWIS AND CLARK RIVER BASIN

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06478530 LAKE THOMPSON NEAR OLDHAM, SD

LOCATION.--Lat 44°13'24", long 97°26'46", in SW1/4SE1/4SW1/4 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 mi².

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. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.20	2.25	2.02	2.00	2.07	2.22	2.29	2.29	1.94	2.00	2.03	1.83
2	2.23	2.14	2.02	2.01	2.08	2.22	2.23	2.31	1.93	2.08	2.05	1.88
3	2.21	1.96	2.02	2.00	2.08	2.22	2.22	2.31	1.90	2.03	2.06	1.87
4	2.23	1.95	2.01	2.01	2.07	2.27	2.19	2.29	1.93	2.01	2.01	1.77
5	2.22	1.96	2.01	2.01	2.08	2.26	2.05	2.27	1.92	2.00	2.01	1.85
6	2.18	1.95	2.01	2.00	2.08	2.31	2.16	2.18	1.96	1.93	1.97	1.90
7	2.14	1.94	2.01	2.01	2.08	2.32	2.20	2.11	1.91	1.99	2.02	1.98
8	2.16	1.95	2.01	2.06	2.07	2.33	2.21	2.16	1.94	2.03	2.01	1.91
9	2.16	1.95	2.01	2.04	2.06	2.39	2.20	2.04	1.93	2.01	2.03	1.90
10	2.14	1.95	2.01	2.04	2.07	2.36	2.20	2.03	1.92	2.07	2.06	1.93
11	2.15	1.95	2.01	2.05	2.07	2.35	2.26	2.18	1.92	2.04	2.02	1.83
12	2.12	1.96	2.01	2.05	2.09	2.34	2.19	2.20	1.92	2.10	2.01	1.79
13	2.01	1.96	2.01	2.05	2.09	2.34	2.13	2.16	1.91	2.09	1.98	1.83
14	2.15	1.96	2.01	2.06	2.09	2.34	2.18	2.13	1.89	2.06	1.95	1.88
15	2.08	1.97	2.00	2.06	2.10	2.32	2.23	2.14	1.89	2.05	1.90	1.85
16	2.01	1.96	2.00	2.06	2.10	2.29	2.25	2.08	1.99	2.07	1.87	1.86
17	2.02	1.99	2.00	2.06	2.11	2.33	2.17	2.18	2.18	2.08	1.88	1.85
18	2.07	2.01	2.00	2.05	2.16	2.32	2.17	2.08	2.20	2.06	1.90	1.87
19	1.97	2.01	2.00	2.05	2.17	2.31	2.27	1.98	2.19	2.05	1.84	1.75
20	2.00	2.01	2.00	2.05	2.17	2.30	2.34	2.01	2.16	2.05	1.79	1.77
21	1.99	2.01	2.00	2.05	2.17	2.33	2.53	1.99	2.09	2.00	1.87	1.80
22	1.98	2.01	2.00	2.05	2.17	2.31	2.38	2.04	2.10	2.04	1.78	1.80
23	2.03	2.02	2.00	2.06	2.18	2.29	2.34	2.12	2.12	2.06	1.82	1.64
24	2.02	2.00	1.99	2.06	2.18	2.29	2.36	2.03	2.09	2.01	1.99	1.41
25	1.96	1.99	2.00	2.07	2.18	2.30	2.37	2.04	2.10	2.05	2.04	1.51
26	1.93	2.00	2.00	2.07	2.18	2.30	2.36	2.04	2.05	2.07	2.01	1.67
27	1.88	2.00	1.99	2.07	2.19	2.18	2.29	2.01	1.94	2.02	1.97	1.66
28	1.88	1.99	2.00	2.07	2.21	2.10	2.25	1.98	1.98	2.05	1.92	1.70
29	2.02	2.01	2.00	2.07	2.21	2.25	2.33	1.96	2.01	2.03	1.89	1.61
30	2.03	2.03	2.00	2.06	---	2.26	2.25	1.96	1.96	2.06	1.91	1.65
31	2.01	---	2.00	2.06	---	2.26	---	1.93	---	2.04	1.88	---
MEAN	2.07	1.99	2.00	2.05	2.12	2.29	2.25	2.10	2.00	2.04	1.95	1.78
MAX	2.23	2.25	2.02	2.07	2.21	2.39	2.53	2.31	2.20	2.10	2.06	1.98
MIN	1.88	1.94	1.99	2.00	2.06	2.10	2.05	1.93	1.89	1.93	1.78	1.41

MISSOURI-LEWIS AND CLARK RIVER BASIN

06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD
(Hydrologic bench-mark station)

LOCATION.--Lat 43°47'39", long 97°22'02", in SW1/4 sec.19, T.104 N., R.54 W., McCook County, Hydrologic Unit 10170102, on right bank near downstream end of culvert on county highway, 2.0 mi upstream from small left-bank tributary, and 5.2 mi northeast of Salem.

DRAINAGE AREA.--78.6 mi².

PERIOD OF RECORD.--October 1966 to current year.

REVISED RECORDS.--WDR SD-84-1, WDR SD-89-1: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and concrete dam. Elevation of gage is 1,510 ft above 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	39	.42	3.9	.00	.00	20	36
2	.00	.00	.00	.00	.00	32	.34	2.5	.00	.00	21	35
3	.00	.00	.00	.00	.00	23	.34	1.7	.00	.00	22	34
4	.00	.00	.00	.00	.00	18	.28	1.2	.00	.00	22	36
5	.00	.00	.00	.00	.00	14	.21	.84	.00	.00	23	35
6	.00	.00	.00	.00	.00	13	.14	.60	.00	.00	24	33
7	.00	.00	.00	.00	.00	11	.08	.41	.00	.00	39	35
8	.00	.00	.00	.00	.00	e10	.15	.25	.00	.00	108	39
9	.00	.00	.00	.00	.00	e10	.28	.13	.00	.00	161	46
10	.00	.00	.00	.00	.00	e9.4	.29	.03	.00	.00	122	45
11	.00	.00	.00	.00	.00	8.4	.25	.03	.00	.00	91	41
12	.00	.00	.00	.00	.00	7.7	.19	.02	.00	.00	73	36
13	.00	.00	.00	.00	.00	6.9	.18	.01	.00	.00	58	31
14	.00	.00	.00	.00	e.00	6.3	.21	.01	.00	49	46	26
15	.00	.00	.00	.00	e.00	5.4	.31	.01	.00	71	38	22
16	.00	.00	.00	.00	e.10	4.8	.47	.10	.00	73	32	19
17	.00	.00	.00	.00	e.50	4.2	.50	.08	.00	68	27	17
18	.00	.00	.00	.00	e1.0	3.8	.65	.04	.00	60	24	14
19	.00	.00	.00	.00	e2.0	3.3	.82	.03	.00	50	21	12
20	.00	.00	.00	.00	e4.0	3.1	.81	.02	.00	42	18	11
21	.00	.00	.00	.00	e7.0	2.9	1.1	.01	.00	36	15	9.0
22	.00	.00	.00	.00	e4.0	2.2	1.2	.00	.00	35	12	7.6
23	.00	.00	.00	.00	e3.0	1.9	2.3	.00	.00	32	9.2	6.3
24	.00	.00	.00	.00	e2.0	1.6	4.4	.00	.00	28	12	5.2
25	.00	.00	.00	.00	e1.0	1.3	4.6	.00	.00	25	35	4.3
26	.00	.00	.00	.00	e1.0	.96	5.3	.00	.00	23	96	3.7
27	.00	.00	.00	.00	e1.0	.78	5.3	.00	.00	20	121	3.2
28	.00	.00	.00	.00	e5.0	.68	6.4	.00	.00	17	97	2.5
29	.00	.00	.00	.00	37	.78	6.3	.00	.00	16	73	2.2
30	.00	.00	.00	.00	---	.70	5.3	.00	.00	17	55	2.0
31	.00	---	.00	.00	---	.60	---	.00	---	19	43	---
TOTAL	0.00	0.00	0.00	0.00	68.60	247.70	49.12	11.92	0.00	681.00	1558.2	649.0
MEAN	.000	.000	.000	.000	2.37	7.99	1.64	.38	.000	22.0	50.3	21.6
MAX	.00	.00	.00	.00	37	39	6.4	3.9	.00	73	161	46
MIN	.00	.00	.00	.00	.00	.60	.08	.00	.00	.00	9.2	2.0
AC-FT	.00	.00	.00	.00	136	491	97	24	.00	1350	3090	1290

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1992, BY WATER YEAR (WY)

MEAN	1.19	.65	.20	.040	2.29	15.3	13.4	3.03	10.3	1.97	2.04	3.26
MAX	21.5	14.2	4.08	.91	40.7	68.3	87.5	23.6	169	22.0	50.3	63.0
(WY)	1987	1983	1983	1983	1983	1985	1984	1986	1984	1992	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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1967 - 1992
ANNUAL TOTAL	217.48	3265.54	
ANNUAL MEAN	.60	8.92	4.46a
HIGHEST ANNUAL MEAN			24.8
LOWEST ANNUAL MEAN			.000
HIGHEST DAILY MEAN	11 Jun 20	161 Aug 9	800 Jun 21 1984
LOWEST DAILY MEAN	.00 Jan 1	.00 Oct 1c	.00 Oct 1 1966c
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 1	.00 Oct 1	.00 Oct 1 1966
INSTANTANEOUS PEAK FLOW		169 Aug 9	900 Jun 20 1984
INSTANTANEOUS PEAK STAGE		7.56 Aug 9	9.88 Jun 20 1984d
ANNUAL RUNOFF (AC-FT)	431	6480	3230
10 PERCENT EXCEEDS	2.7	35	4.1
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

a Median of annual mean discharges, 2.1 ft³/s.

b Also 1975 and 1981 water years.

c No flow for many days in each year.

d Backwater from tributary.

06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD

LOCATION.--Lat 43°24'55", long 97°12'18", in NE1/4NE1/4 sec.10, T.99 N., R.54 W., Turner County, Hydrologic Unit 10170102, on right bank 10 ft downstream from bridge, 3.7 mi northwest of Parker, and 13.9 mi upstream from confluence with East Fork Vermillion River.

DRAINAGE AREA.--377 mi².

PERIOD OF RECORD.--August 1961 to current year.

REVISED RECORDS.--WDR SD-89-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,340 ft above 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. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	e.02	.00	e.10	e.50	47	5.7	14	.31	1.0	16	69
2	.00	e.02	.00	e.11	e1.0	43	5.3	11	.20	13	13	206
3	.00	e.02	.00	e.12	e.80	47	5.3	9.1	.22	15	9.9	116
4	.00	e.02	.00	e.12	e.70	61	4.9	8.6	.22	5.5	8.7	77
5	.00	e.02	.00	e.14	e.70	55	4.3	6.7	.22	2.2	9.9	64
6	.00	e.02	.00	e.14	e.60	50	4.0	6.0	.25	.93	12	61
7	.01	e.01	.00	e.14	e.50	47	3.7	5.4	.20	.39	220	62
8	.05	.00	e.01	e.50	e.40	43	4.2	5.2	.18	.50	199	59
9	.09	.00	e.01	e.40	e.40	42	4.1	4.4	.15	1.3	147	52
10	.09	.00	e.02	e.30	e.30	37	4.4	4.0	.17	61	109	50
11	.08	.00	e.03	e.30	e.20	34	4.6	3.5	.26	62	110	50
12	.08	e.00	e.04	e.30	e.30	33	4.4	3.3	.40	63	98	50
13	.04	e.00	e.04	e.30	e.40	31	4.3	2.8	.53	129	83	46
14	.02	e.01	e.03	e.20	e.50	31	4.4	2.2	.64	62	70	42
15	e.01	e.02	e.03	e.10	e1.0	30	4.5	2.5	.82	40	59	37
16	.01	e.30	e.02	e.20	e10	29	4.1	5.1	.88	28	50	32
17	.03	e.20	e.02	e.20	e50	26	3.8	7.7	.93	17	42	27
18	e.01	e.10	e.02	e.10	e150	23	5.0	5.4	.90	12	37	23
19	e.01	e.05	e.02	e.20	e200	20	5.2	4.0	.95	22	30	20
20	e.01	e.02	e.02	e.25	e125	16	4.3	2.9	.99	24	24	18
21	.01	.00	e.04	e.30	e115	14	7.2	2.1	.99	19	19	16
22	.04	.00	e.05	e.30	e110	13	7.5	1.8	.97	18	16	13
23	.03	.00	e.06	e.30	e59	12	5.3	1.1	.90	15	13	11
24	.03	.00	e.08	e.25	e75	12	13	.92	.90	14	13	9.9
25	.03	.00	e.10	e.25	e84	11	17	.77	.90	40	19	8.3
26	.03	.00	e.10	e.25	e75	9.9	26	.70	1.0	66	25	7.7
27	.03	.00	e.08	e.25	98	8.5	27	.67	.84	32	28	7.1
28	.08	.00	e.08	e.25	78	6.9	28	.59	.82	21	57	6.1
29	.04	.00	e.08	e.30	55	7.4	26	.48	.86	15	79	5.4
30	e.02	.00	e.08	e.35	---	6.6	19	.43	.74	13	75	5.1
31	e.02	---	e.08	e.40	---	6.2	---	.33	---	18	72	---
TOTAL	0.90	0.83	1.14	7.42	1292.30	852.5	266.5	123.69	18.34	830.82	1763.5	1250.6
MEAN	.029	.028	.037	.24	44.6	27.5	8.88	3.99	.61	26.8	56.9	41.7
MAX	.09	.30	.10	.50	200	61	28	14	1.0	129	220	206
MIN	.00	.00	.00	.10	.20	6.2	3.7	.33	.15	.39	8.7	5.1
AC-FT	1.8	1.6	2.3	15	2560	1690	529	245	36	1650	3500	2480

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1992, BY WATER YEAR (WY)

	3.77	4.89	1.77	.89	18.1	110	95.8	29.3	72.7	21.5	4.91	12.4
MEAN	3.77	4.89	1.77	.89	18.1	110	95.8	29.3	72.7	21.5	4.91	12.4
MAX	40.5	105	27.9	9.05	267	453	698	227	1345	201	56.9	324
(WY)	1987	1983	1983	1983	1983	1983	1984	1986	1984	1962	1992	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 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1961 - 1992	
ANNUAL TOTAL	3246.34		6408.54			
ANNUAL MEAN	8.89		17.5		31.3a	
HIGHEST ANNUAL MEAN					200	
LOWEST ANNUAL MEAN					.019	
HIGHEST DAILY MEAN	576	Jun 22	220	Aug 7	3910	Apr 13 1984
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Sep 3 1961b
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Nov 21	.00	Sep 14 1961
INSTANTANEOUS PEAK FLOW			304	Aug 7	4800	Jun 16 1984
INSTANTANEOUS PEAK STAGE			4.43	Aug 7	12.57	Jun 16 1984
ANNUAL RUNOFF (AC-FT)	6440		12710		22680	
10 PERCENT EXCEEDS	27		59		40	
50 PERCENT EXCEEDS	.01		1.9		.50	
90 PERCENT EXCEEDS	.00		.01		.00	

e Estimated

a Median of annual mean discharges, 8.9 ft³/s.

b No flow for many days in most years.

MISSOURI-LEWIS AND CLARK RIVER BASIN

06479010 VERMILLION RIVER NEAR VERMILLION, SD

LOCATION.--Lat 42°49'02", long 96°55'26", in SE1/4SE1/4NW1/4 sec.1, T.92 N., R.52 W., Clay County, Hydrologic Unit 10170102, on left bank 30 ft downstream from bridge, 2.7 mi north of Vermillion, 2.9 mi upstream from Clay Creek, and 10.8 mi upstream from mouth.

DRAINAGE AREA.--2,302 mi², of which 494 mi² usually is noncontributing (area was contributing during 1986-88).

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.

REMARKS.--Records good except those for estimated daily discharges, which are poor, and those for June 12-24, which are fair. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	e7.5	e9.0	e8.0	e8.0	436	71	148	54	23	311	268
2	4.7	e6.0	e8.0	e8.0	e8.0	337	71	129	53	23	318	686
3	4.2	e7.0	e8.0	e8.0	e8.0	265	69	112	51	22	307	823
4	5.2	e8.0	e7.0	e7.5	e8.0	224	65	97	49	24	232	948
5	5.2	e9.0	e7.0	e7.5	e8.0	222	62	88	48	225	180	977
6	4.6	e10	e7.5	e7.5	e9.0	242	59	82	48	249	152	926
7	5.3	e11	e7.5	e7.5	e8.0	261	56	77	46	155	273	779
8	5.3	e12	e8.0	e7.5	e7.0	252	56	71	45	152	313	710
9	4.7	e13	e8.0	e6.0	e7.0	266	55	67	46	144	269	684
10	3.6	e14	e8.5	e7.0	e8.0	251	54	67	46	173	516	700
11	3.9	e15	e8.5	e7.0	e8.0	224	52	66	47	155	771	586
12	4.4	e15	e9.0	e7.0	e8.0	208	52	63	45	330	748	480
13	6.7	e15	e9.0	e7.0	e8.0	201	52	60	43	536	716	423
14	18	e15	e9.0	e6.5	e8.0	187	52	58	41	450	636	439
15	5.9	e15	e8.0	e6.0	e9.0	188	52	55	41	458	561	520
16	6.1	e14	e7.0	e6.0	e10	197	51	242	42	423	502	483
17	4.1	e14	e7.0	e6.5	e13	197	50	213	44	348	436	433
18	3.6	e13	e7.0	e7.0	e17	186	51	203	52	259	377	375
19	12	e13	e7.0	e7.0	26	181	53	282	63	192	320	325
20	6.0	e12	e7.0	e7.5	99	167	55	171	54	148	273	288
21	4.0	e11	e7.0	e8.0	386	145	e60	122	46	124	235	257
22	6.5	e11	e7.5	e8.0	470	128	e60	101	41	132	204	229
23	7.3	e11	e7.5	e8.0	427	115	59	88	35	131	175	207
24	8.6	e11	e7.5	e7.5	327	106	69	80	32	147	153	188
25	8.1	e11	e7.5	e7.5	273	98	105	74	34	152	177	172
26	9.3	e12	e7.5	e7.5	263	91	157	71	34	169	252	160
27	8.5	e13	e7.5	e8.0	360	85	200	68	32	207	243	148
28	8.4	e13	e7.5	e8.0	398	82	200	64	30	417	259	133
29	10	e13	e7.5	e8.0	470	80	183	62	25	496	261	125
30	7.3	e10	e8.0	e8.0	---	78	166	58	24	416	227	121
31	e9.3	---	e8.0	e8.0	---	73	---	55	---	367	201	---
TOTAL	204.8	354.5	240.0	228.5	3659.0	5773	2397	3194	1291	7247	10598	13593
MEAN	6.61	11.8	7.74	7.37	126	186	79.9	103	43.0	234	342	453
MAX	18	15	9.0	8.0	470	436	200	282	63	536	771	977
MIN	3.6	6.0	7.0	6.0	7.0	73	50	55	24	22	152	121
AC-FT	406	703	476	453	7260	11450	4750	6340	2560	14370	21020	26960

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1992, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	121	69.0	49.8	32.9	64.0	476	948	481	829
MAX	643	234	144	67.7	138	1286	4405	1638	6062
(WY)	1987	1987	1987	1987	1984	1986	1984	1984	1984
MIN	5.54	7.99	7.37	6.71	9.00	15.3	13.1	21.8	15.4
(WY)	1990	1990	1991	1991	1989	1991	1990	1991	1989

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1984 - 1992

ANNUAL TOTAL	10254.0	48779.8	
ANNUAL MEAN	28.1	133	297
HIGHEST ANNUAL MEAN			1209
LOWEST ANNUAL MEAN			27.9
HIGHEST DAILY MEAN	463	Jun 25	20200
LOWEST DAILY MEAN	3.6	Oct 10	3.6
ANNUAL SEVEN-DAY MINIMUM	4.5	Oct 6	4.5
INSTANTANEOUS PEAK FLOW			21400
INSTANTANEOUS PEAK STAGE		12.31	31.77
ANNUAL RUNOFF (AC-FT)	20340	96750	215200
10 PERCENT EXCEEDS	69	390	550
50 PERCENT EXCEEDS	12	54	56
90 PERCENT EXCEEDS	5.4	7.0	8.0

e Estimated

a Also Oct. 18, 1991.

BIG SIOUX RIVER BASIN

271

06479215 BIG SIOUX RIVER NEAR FLORENCE, SD

LOCATION.--Lat 45°10'51", long 97°11'09", in NE1/4NE1/4NE1/4 sec.17, T.120 N., R.52 W., Grant County, Hydrologic Unit 10170202, on right bank near downstream side of county highway bridge, 11.0 mi northeast of Florence, and 2.2 mi upstream from Indian Creek.

DRAINAGE AREA.--638 mi², of which 570 mi² 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 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.5	e1.0	e.90	e.85	e40	e4.0	18	.54	137	.99	.49
2	1.4	e1.3	e1.0	e.90	e1.0	28	4.0	16	.54	49	.92	1.2
3	1.2	e1.3	e.95	e.90	e.90	22	3.6	14	.53	22	.79	.67
4	1.1	e1.5	e.80	e.80	e.80	18	3.4	13	.54	16	.70	.48
5	.93	e1.7	e.90	e.90	e1.0	19	3.2	11	.51	19	.66	.68
6	.93	e1.6	e.95	e.90	e1.0	43	3.7	10	.52	19	.68	.74
7	.93	e1.0	e1.0	e.90	e.80	43	4.4	8.7	.61	16	.64	2.7
8	.89	e1.3	e1.0	e.90	e.70	31	5.3	7.2	.82	13	.62	3.1
9	.75	e1.7	e1.0	e.80	e.80	e22	6.3	5.9	.84	9.9	.56	5.0
10	.69	e1.6	e1.0	e.70	e.80	e18	6.8	4.5	.79	68	.48	4.9
11	.68	e1.7	e1.0	e.80	e.70	e14	7.1	3.8	.79	32	.43	3.2
12	.59	e1.8	e1.0	e.80	e.80	e12	7.1	2.9	.75	17	.42	2.1
13	.54	e2.0	e1.0	e.80	e1.0	e10	e7.0	2.2	.73	13	.40	1.4
14	.46	e1.8	e1.0	e.75	e1.2	e9.2	7.2	1.8	.69	8.3	.37	1.1
15	.46	e1.7	e.90	e.70	e1.5	e8.5	6.8	1.5	1.0	6.8	.32	.87
16	.47	e1.7	e1.0	e.60	e1.7	8.1	7.2	1.6	8.4	6.7	.31	.82
17	.48	e1.7	e.90	e.65	e2.0	6.4	7.4	1.8	19	5.5	.28	.77
18	.42	e1.7	e.80	e.70	e1.9	5.2	10	1.4	50	4.7	.28	.68
19	.42	e1.8	e.90	e.50	e1.8	4.4	23	1.1	61	4.1	.27	.66
20	.42	e1.8	e.95	e.60	e1.7	e4.0	25	.92	64	3.1	.27	.59
21	.42	e1.7	e1.0	e.60	e1.6	e3.5	e18	.80	39	2.7	.27	.59
22	.43	e1.4	e1.0	e.60	e1.8	e3.0	19	.78	39	3.1	.28	.54
23	.44	e1.1	e1.0	e.60	e1.9	3.4	19	.74	37	3.3	.27	.53
24	.42	e.90	e1.0	e.40	e1.6	3.9	21	.65	29	3.1	.30	.49
25	.39	e.80	e1.0	e.50	e1.4	4.4	21	.74	21	2.6	.34	.44
26	.39	e.90	e1.0	e.50	e1.6	e4.4	19	.79	16	2.3	.34	.45
27	.42	e1.0	e.90	e.55	e2.0	4.5	16	.81	12	2.1	.36	.41
28	.60	e1.0	e.90	e.60	e6.0	4.5	25	.77	9.4	1.7	.32	.39
29	.82	e1.0	e.90	e.60	e15	4.4	24	.66	6.3	1.3	.26	.41
30	.76	e1.0	e.90	e.70	---	4.1	20	.62	60	1.2	.23	.42
31	1.1	---	e.90	e.70	---	4.2	---	.58	---	1.1	.23	---
TOTAL	21.55	43.00	29.55	21.85	55.85	410.1	354.5	135.26	481.30	494.6	13.59	36.82
MEAN	.70	1.43	.95	.70	1.93	13.2	11.8	4.36	16.0	16.0	.44	1.23
MAX	1.6	2.0	1.0	.90	.15	43	25	18	64	137	.99	5.0
MIN	.39	.80	.80	.40	.70	3.0	3.2	.58	.51	1.1	.23	.39
AC-FT	43	85	59	43	111	813	703	268	955	981	27	73

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1992, BY WATER YEAR (WY)

MEAN	2.90	1.63	.78	.33	1.08	37.3	22.9	9.79	14.1	6.31	5.25	4.57
MAX	10.4	4.69	2.54	1.27	3.88	111	115	36.8	61.1	27.2	37.9	20.6
(WY)	1987	1985	1987	1987	1985	1986	1986	1986	1986	1991	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1984 - 1992

ANNUAL TOTAL	3653.96	2097.97		
ANNUAL MEAN	10.0	5.73	9.07	
HIGHEST ANNUAL MEAN			30.8	1986
LOWEST ANNUAL MEAN			.62	1988
HIGHEST DAILY MEAN	173	Aug 2	1140	Mar 30 1986
LOWEST DAILY MEAN	.00	Feb 16	.00	Aug 9 1985b
ANNUAL SEVEN-DAY MINIMUM	.00	Feb 16	.00	Dec 16 1989
INSTANTANEOUS PEAK FLOW			268	Jun 30 1986
INSTANTANEOUS PEAK STAGE			7.72	Jun 30 1986
ANNUAL RUNOFF (AC-FT)	7250	4160	6570	
10 PERCENT EXCEEDS	29	18	19	
50 PERCENT EXCEEDS	1.7	1.0	.77	
90 PERCENT EXCEEDS	.02	.44	.03	

e Estimated

a Also Aug. 31.

b No flow Aug. 9-11, 1985, Dec. 16 to Mar. 5, 1990, and Feb. 16-25, 1991.

BIG SIOUX RIVER BASIN

06479438 BIG SIOUX RIVER NEAR WATERTOWN, SD

LOCATION.--Lat 45°00'22", long 97°09'53", in NE1/4NE1/4NE1/4 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.--1,007 mi², of which 779 mi² is probably noncontributing.

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, and those for Nov. 8-12, Apr. 2-4, 11-17, and Sept. 9, 10, which are fair. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	e10	e8.0	e5.0	e3.5	89	22	47	4.3	142	19	4.2
2	12	e11	e8.0	e5.0	e4.0	69	21	41	4.0	637	18	12
3	11	e10	e7.5	e5.0	e3.0	62	21	37	3.7	358	17	31
4	10	e9.5	e6.0	e5.0	e4.0	56	20	34	3.3	205	16	29
5	9.5	e9.0	e6.0	e5.0	e6.0	58	20	30	2.8	127	16	29
6	9.2	e8.5	e6.0	e5.0	e8.0	62	19	28	2.9	89	15	28
7	9.0	e7.9	e6.0	e5.0	e7.0	85	20	25	3.4	71	14	26
8	8.7	6.7	e6.0	e4.5	e7.0	122	22	24	5.2	59	14	29
9	8.1	6.6	e6.0	e4.0	e6.0	97	23	22	5.4	51	12	31
10	7.8	6.7	e6.0	e4.0	e5.0	71	25	19	5.5	48	11	31
11	7.6	6.7	e6.0	e4.0	e4.0	66	27	18	5.4	68	11	29
12	7.4	6.8	e6.0	e4.0	e4.0	60	27	16	4.6	163	10	26
13	7.0	7.4	e5.0	e4.0	e4.0	47	27	15	3.9	137	9.7	23
14	6.2	8.4	e4.5	e3.5	e4.5	42	26	13	3.3	93	8.0	20
15	6.1	9.2	e4.5	e3.0	e5.0	38	26	12	3.3	72	6.2	18
16	6.4	10	e5.0	e2.5	e5.0	35	26	11	12	60	5.8	16
17	6.3	11	e5.0	e2.5	e5.0	32	26	11	62	49	5.5	14
18	6.1	13	e4.5	e2.5	e5.0	30	29	13	252	41	5.0	13
19	6.1	13	e5.0	e2.5	e8.0	28	36	12	208	36	4.8	12
20	5.9	14	e5.0	e2.5	e12	26	48	10	408	32	3.7	11
21	5.8	14	e5.0	e3.0	e14	26	57	9.0	273	29	3.6	9.6
22	5.8	13	e5.0	e3.0	e14	24	58	7.6	173	29	4.3	9.4
23	5.6	e12	e5.0	e2.5	e14	24	53	7.0	110	30	3.7	9.1
24	5.5	e10	e5.0	e2.5	e14	23	55	6.4	82	33	4.0	8.4
25	5.5	e9.0	e5.0	e2.5	e14	24	59	6.7	64	33	4.9	7.0
26	5.2	e8.0	e5.0	e2.5	e12	24	63	7.3	51	32	5.2	6.1
27	5.5	e8.0	e5.0	e3.0	13	24	63	7.9	41	29	5.2	6.1
28	7.0	e8.0	e5.0	e3.0	27	26	54	7.8	36	26	4.9	5.7
29	8.4	e8.0	e5.0	e3.0	76	26	50	6.8	32	24	4.0	5.0
30	8.3	e8.0	e5.0	e3.0	---	25	52	5.6	35	23	3.7	5.0
31	e10	---	e5.0	e3.0	---	23	---	4.9	---	22	3.5	---
TOTAL	236.0	283.4	171.0	109.5	308.0	1444	1075	515.0	1900.0	2848	268.7	503.6
MEAN	7.61	9.45	5.52	3.53	10.6	46.6	35.8	16.6	63.3	91.9	8.67	16.8
MAX	13	14	8.0	5.0	76	122	63	47	408	637	19	31
MIN	5.2	6.6	4.5	2.5	3.0	23	19	4.9	2.8	22	3.5	4.2
AC-FT	468	562	339	217	611	2860	2130	1020	3770	5650	533	999

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1992, BY WATER YEAR (WY)

	4.99	5.13	2.20	.96	4.39	88.1	85.7	28.6	35.6	17.1	11.9	7.28
MEAN	4.99	5.13	2.20	.96	4.39	88.1	85.7	28.6	35.6	17.1	11.9	7.28
MAX	33.0	19.0	10.6	6.81	36.7	321	403	170	157	111	120	49.6
(WY)	1987	1987	1987	1987	1984	1986	1986	1986	1991	1991	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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1973 - 1992
ANNUAL TOTAL	14516.50	9662.2	
ANNUAL MEAN	39.8	26.4	24.4a
HIGHEST ANNUAL MEAN			96.6
LOWEST ANNUAL MEAN			2.22
HIGHEST DAILY MEAN	1800	Jun 21	4300
LOWEST DAILY MEAN	.00	Feb 17	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Feb 17	.00
INSTANTANEOUS PEAK FLOW		736	4970
INSTANTANEOUS PEAK STAGE		8.07	11.13a
ANNUAL RUNOFF (AC-FT)	28790	19160	17680
10 PERCENT EXCEEDS	81	59	44
50 PERCENT EXCEEDS	10	10	2.5
90 PERCENT EXCEEDS	.04	4.0	.03

e Estimated

a Median of annual mean discharges, 15 ft³/s.

b No flow at times in 1974-82, 1984, 1988-91.

c Gage height, 11.08 ft.

d Backwater.

BIG SIOUX RIVER BASIN

273

06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD

LOCATION.--Lat 44°43'54", long 97°02'39", in SW1/4SW1/4 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.--1,997 mi², of which 1,427 mi² is probably noncontributing.

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	e14	e10	e18	e15	e82	43	69	16	128	99	33
2	49	e14	e10	e15	e15	e82	35	63	17	172	105	46
3	46	e14	e10	e15	e15	e82	38	63	21	185	98	46
4	45	e14	e10	e15	e12	e80	33	50	23	184	88	44
5	42	e14	e10	e15	e15	e80	34	44	23	163	83	70
6	45	e14	e15	e15	e15	e80	44	46	19	152	81	80
7	41	e18	e15	e15	e12	e80	39	53	22	150	80	75
8	37	e18	e15	e12	e9.0	e80	40	50	30	147	79	80
9	37	e18	e15	e9.0	e7.0	e80	43	41	24	145	79	78
10	38	e18	e15	e8.0	e7.0	e80	40	49	25	143	73	83
11	40	e18	e15	e8.0	e6.0	e80	45	44	25	143	66	66
12	36	e20	e15	e8.0	e7.0	e70	46	34	24	141	62	65
13	33	e20	e15	e8.0	e9.0	e65	49	36	23	138	55	60
14	37	e20	e20	e7.0	e12	63	47	31	18	134	51	56
15	34	e20	e20	e6.0	e18	60	44	32	18	138	49	50
16	30	e20	e20	e5.0	e25	59	47	30	55	139	48	53
17	29	e20	e20	e5.5	e25	54	49	45	440	137	46	50
18	29	e20	e20	e6.0	e28	50	57	26	485	128	41	51
19	26	e20	e22	e6.0	e28	50	70	28	517	119	40	48
20	27	e20	e22	e7.0	e28	54	72	32	513	114	37	48
21	27	e20	e22	e8.0	e25	44	76	26	262	105	38	42
22	24	e15	e22	e8.0	e25	51	84	25	212	118	46	38
23	24	e10	e22	e8.0	e25	54	78	22	192	136	53	34
24	21	e10	e22	e7.0	e30	51	76	15	174	142	50	39
25	23	e10	e22	e6.0	e40	51	78	19	156	143	54	42
26	24	e10	e22	e6.0	e50	52	76	21	140	132	52	32
27	24	e10	e20	e6.0	e60	46	73	23	130	123	49	28
28	25	e10	e20	e8.0	e70	49	78	23	127	117	49	28
29	e20	e10	e20	e10	e80	45	70	23	102	102	47	24
30	e18	e10	e20	e15	---	40	65	19	92	99	51	23
31	e15	---	e20	e15	---	44	---	17	---	98	41	---
TOTAL	996	469	546	300.5	713.0	1938	1669	1099	3925	4215	1890	1512
MEAN	32.1	15.6	17.6	9.69	24.6	62.5	55.6	35.5	131	136	61.0	50.4
MAX	50	20	22	18	80	82	84	69	517	185	105	83
MIN	15	10	10	5.0	6.0	40	33	15	16	98	37	23
AC-FT	1980	930	1080	596	1410	3840	3310	2180	7790	8360	3750	3000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1992, BY WATER YEAR (WY)

MEAN	22.7	19.5	12.2	6.53	14.2	104	202	97.5	90.8	46.8	35.5	31.2
MAX	97.2	72.4	47.6	38.4	53.4	502	1310	613	380	140	143	122
(WY)	1987	1987	1987	1987	1984	1985	1986	1986	1984	1986	1991	1985
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 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1977 - 1992	
ANNUAL TOTAL	18315.02		19272.5			
ANNUAL MEAN	50.2		52.7		56.9a	
HIGHEST ANNUAL MEAN					250	
LOWEST ANNUAL MEAN					8.15	
HIGHEST DAILY MEAN	1150		517		2020	
LOWEST DAILY MEAN	.00		5.0		.00	
ANNUAL SEVEN-DAY MINIMUM	.00		6.1		.00	
INSTANTANEOUS PEAK FLOW			657		2250	
INSTANTANEOUS PEAK STAGE			9.15		11.73	
ANNUAL RUNOFF (AC-FT)	36330		38230		41220	
10 PERCENT EXCEEDS	141		118		130	
50 PERCENT EXCEEDS	22		37		12	
90 PERCENT EXCEEDS	.00		10		.56	

e Estimated

a Median of annual mean discharges, 40 ft³/s.

b No flow for many days in some years.

BIG SIOUX RIVER BASIN

06479928 BATTLE CREEK NEAR NUNDA, SD

LOCATION.--Lat 44°09'10", long 96°53'18", in SE1/4SE1/4SE1/4 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 mi², of which 4.8 mi² 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	e.03	e.50	e.25	e.70	285	12	14	.53	20	15	40
2	.06	e.02	e.50	e.30	e.80	181	10	12	.54	22	13	44
3	.07	e.01	e.40	e.40	e1.0	128	11	8.8	.45	21	13	45
4	.10	e.02	e.10	e.30	e.70	98	9.7	7.5	.48	19	11	45
5	.11	e.07	e.20	e.20	e.50	84	8.2	5.9	.68	17	9.8	45
6	.11	e.05	e.30	e.25	e2.5	87	8.0	5.0	.91	14	8.0	40
7	.10	e.03	e.50	e.30	e4.0	106	7.2	4.6	.75	14	10	41
8	.10	e.04	e.60	e.30	e2.0	100	7.5	4.1	1.3	13	11	45
9	.10	e.05	e.70	e.20	e1.0	82	8.4	3.5	1.4	13	11	46
10	.08	e.07	e.70	e.20	e1.0	77	8.2	3.0	1.5	17	15	47
11	.04	e.10	e.70	e.25	e.80	56	8.4	3.1	1.3	16	17	43
12	.01	.17	e.70	e.30	e.70	46	7.6	2.9	1.1	19	15	37
13	.00	.30	e.70	e.40	e.70	43	7.1	2.5	.63	21	10	31
14	.00	1.1	e.70	e.40	e.70	45	7.0	2.3	.70	22	7.6	27
15	.00	1.5	e.60	e.30	e.80	41	7.9	2.7	2.6	26	5.0	23
16	.04	1.2	e.40	e.20	e1.0	42	9.0	3.7	17	27	3.7	23
17	.09	1.3	e.40	e.20	e10	40	8.4	3.4	95	25	3.1	22
18	.07	2.5	e.20	e.20	e150	37	10	2.8	117	23	2.8	22
19	.08	2.2	e.20	e.20	e125	34	13	2.7	97	21	2.1	21
20	.07	1.7	e.27	e.30	e100	31	14	2.5	84	19	1.7	19
21	.10	1.9	e.30	e.40	e60	28	17	2.2	63	17	1.5	16
22	.10	1.8	e.30	e.50	e40	31	13	2.2	47	19	1.5	12
23	.09	1.4	e.30	e.50	e30	24	16	1.8	37	22	1.3	8.9
24	.08	1.1	e.30	e.50	e25	21	19	1.5	32	22	3.0	6.7
25	.07	e.90	e.25	e.40	e20	20	22	1.5	28	24	9.3	6.5
26	e.06	.97	e.20	e.30	e20	18	23	1.6	26	25	20	5.4
27	.07	1.0	e.20	e.30	e40	16	23	1.6	24	23	30	5.0
28	.10	1.0	e.20	e.30	e200	15	22	1.5	22	22	46	5.4
29	.17	1.0	e.20	e.40	e280	15	21	1.2	21	20	54	6.0
30	.10	e.80	e.20	e.50	---	13	16	.87	20	18	50	6.7
31	.06	---	e.20	e.70	---	13	---	.63	---	17	43	---
TOTAL	2.30	24.33	12.02	10.25	1118.90	1857	374.6	113.60	744.87	618	444.4	784.6
MEAN	.074	.81	.39	.33	38.6	59.9	12.5	3.66	24.8	19.9	14.3	26.2
MAX	.17	2.5	.70	.70	280	285	23	14	117	27	54	47
MIN	.00	.01	.10	.20	.50	13	7.0	.63	.45	13	1.3	5.0
AC-FT	4.6	48	24	20	2220	3680	743	225	1480	1230	881	1560

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1992, BY WATER YEAR (WY)

MEAN	.038	.22	.12	.16	7.94	23.1	8.31	8.72	34.8	9.55	4.07	5.36
MAX	.079	.81	.39	.47	38.6	59.9	21.8	22.2	113	20.5	14.3	26.2
(WY)	1991	1992	1992	1988	1992	1992	1988	1991	1990	1990	1992	1992
MIN	.000	.000	.000	.000	.000	.053	.10	.59	.083	.009	.000	.000
(WY)	1989	1990	1990	1989	1989	1990	1990	1989	1989	1988	1988	1988

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1988 - 1992

ANNUAL TOTAL	2137.88	6104.87	
ANNUAL MEAN	5.86	16.7	9.55
HIGHEST ANNUAL MEAN			16.7
LOWEST ANNUAL MEAN			3.16
HIGHEST DAILY MEAN	139	May 18	456
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
INSTANTANEOUS PEAK FLOW		323	578
INSTANTANEOUS PEAK STAGE		8.21	9.64
ANNUAL RUNOFF (AC-FT)	4240	12110	6920
10 PERCENT EXCEEDS	23	43	23
50 PERCENT EXCEEDS	.50	3.6	.20
90 PERCENT EXCEEDS	.00	.10	.00

e Estimated

a Also Oct. 14, 15.

b No flow at times in most years.

c Gage height, 7.70 ft.

d Backwater from ice.

BIG SIOUX RIVER BASIN

275

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD

LOCATION.--Lat 44°10'48", long 96°44'55", in NW1/4NW1/4 sec.8, T.108 N., R.49 W., Moody County, Hydrologic Unit 10170203, on right bank 3 ft downstream from highway bridge, 2.2 mi downstream from Medary Creek, and 9.5 mi southeast of Brookings.

DRAINAGE AREA.--3,898 mi², of which 1,479 mi² is probably noncontributing.

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. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	e60	e30	e40	e80	e1000	243	289	85	1240	481	434
2	103	e50	e30	e40	e90	e1100	239	254	81	1120	454	430
3	100	e45	e30	e40	e100	1050	235	236	78	1010	440	413
4	99	e45	e30	e40	e100	785	230	226	77	971	436	393
5	99	e45	e33	e40	e100	656	227	215	73	976	430	392
6	96	e40	e35	e40	e125	681	224	204	79	988	406	388
7	94	e43	e35	e40	e130	873	215	194	77	975	419	404
8	93	e44	e35	e35	e125	1080	221	184	85	909	414	479
9	94	e45	e35	e30	e120	1130	237	177	83	816	405	502
10	90	e45	e40	e30	e110	901	246	173	81	796	388	498
11	92	e45	e40	e30	e100	736	249	166	80	777	366	483
12	88	e45	e40	e30	e100	626	243	164	75	768	350	452
13	85	e48	e40	e30	e100	560	241	157	72	775	336	408
14	84	e50	e40	e30	e100	533	237	148	69	787	313	364
15	83	e55	e40	e30	e100	510	240	147	103	761	295	335
16	83	e60	e40	e30	e100	481	258	158	247	727	279	319
17	84	e70	e40	e30	e150	445	274	148	694	716	266	302
18	81	e80	e40	e30	e300	418	287	142	1120	697	253	287
19	76	e85	e40	e30	e400	391	308	138	1710	658	242	279
20	75	e85	e40	e30	e600	374	319	132	5310	615	232	273
21	76	e85	e40	e35	e550	353	340	124	4920	577	226	258
22	75	e80	e40	e40	e500	321	351	119	4300	553	228	241
23	74	e70	e40	e40	e400	322	361	113	3750	571	227	229
24	72	e50	e40	e40	e350	312	373	107	3230	615	289	225
25	70	e35	e40	e40	e300	304	374	108	2750	679	482	210
26	69	e35	e40	e40	e300	291	358	106	2340	726	637	197
27	69	e35	e40	e40	e350	283	344	101	2010	732	738	187
28	72	e30	e40	e45	e450	285	334	98	1750	681	768	175
29	81	e30	e40	e50	e700	272	312	95	1560	605	726	166
30	76	e30	e40	e60	---	265	302	93	1400	550	621	163
31	66	---	e40	e70	---	258	---	89	---	516	507	---
TOTAL	2602	1565	1173	1175	7030	17596	8422	4805	38289	23887	12654	9886
MEAN	83.9	52.2	37.8	37.9	242	568	281	155	1276	771	408	330
MAX	103	85	40	70	700	1130	374	289	5310	1240	768	502
MIN	66	30	30	30	80	258	215	89	69	516	226	163
AC-FT	5160	3100	2330	2330	13940	34900	16710	9530	75950	47380	25100	19610

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1992, BY WATER YEAR (WY)

	MEAN	88.5	70.5	38.9	20.5	44.8	449	689	350	415	212	108	111
MAX	767	411	208	179	270	2037	4445	2804	3432	1480	607	1693	
(WY)	1987	1985	1987	1987	1983	1985	1969	1986	1984	1962	1986	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 1991 CALENDAR YEAR FOR 1992 WATER YEAR WATER YEARS 1954 - 1992

ANNUAL TOTAL	70548.0	129084	
ANNUAL MEAN	193	353	
HIGHEST ANNUAL MEAN			217a
LOWEST ANNUAL MEAN			1143
HIGHEST DAILY MEAN	1430	Jun 25	31200
LOWEST DAILY MEAN	6.0	Jan 4	15.5
ANNUAL SEVEN-DAY MINIMUM	6.0	Jan 4	30
INSTANTANEOUS PEAK FLOW			5760
INSTANTANEOUS PEAK STAGE			12.28
ANNUAL RUNOFF (AC-FT)	139900	256000	157200
10 PERCENT EXCEEDS	446	763	514
50 PERCENT EXCEEDS	92	190	46
90 PERCENT EXCEEDS	12	40	3.7

e Estimated

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

b Also Nov. 29 to Dec. 4 and Jan. 9-20.

c No flow at times in 1956, 1959, 1976, 1977, 1982.

BIG SIOUX RIVER BASIN

06480400 SPRING CREEK NEAR FLANDREAU, SD

LOCATION.--Lat 44°07'18", long 96°35'19", in SE1/4NE1/4NE1/4 sec.33, T.108 N., R.48 W., Moody County, Hydrologic Unit 10170203, on left bank at downstream side of bridge on State Highway 13, 5.0 mi north of Flandreau, and 6.6 mi upstream from mouth.

DRAINAGE AREA.--63.2 mi².

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

REVISED RECORDS.--WDR SD-84-1: Drainage area.

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, and those for Mar. 9, 19, 21-23, 26, 27, 30, Apr. 1, 2, 12, and 27, 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	e2.0	e1.7	e4.0	e6.0	e100	5.3	4.1	1.7	3.5	2.8	e4.0
2	1.9	e1.0	e1.4	e4.0	e6.0	e50	5.1	3.7	2.0	4.6	2.6	e6.0
3	1.9	e.30	e1.2	e4.0	e6.0	e25	5.0	3.2	2.0	6.1	2.5	e8.0
4	2.0	e.20	e1.0	e3.0	e5.5	17	5.0	3.3	2.3	7.5	2.4	e10
5	2.0	e.08	e2.0	e4.0	e5.0	14	4.9	3.1	2.3	5.8	2.3	e10
6	2.1	e.10	e3.0	e4.0	e4.5	38	5.0	2.8	2.5	4.8	2.3	e12
7	2.1	e.06	e4.0	e4.0	e4.0	69	5.5	2.5	2.7	4.4	3.6	e13
8	2.1	e.06	e4.5	e6.0	e3.5	62	6.2	2.5	2.7	4.1	4.5	e14
9	1.9	e.10	e4.5	e3.0	e3.0	38	9.4	2.4	3.0	4.3	4.3	e14
10	1.9	e1.0	e4.5	e4.0	e2.7	33	10	2.3	3.1	5.3	4.1	e13
11	1.9	e2.0	e4.0	e5.0	e2.5	30	9.8	2.6	2.8	11	3.6	e12
12	1.8	e6.0	e4.5	e4.0	e2.5	30	8.4	2.8	2.5	16	3.6	e11
13	e1.7	e5.5	e4.5	e3.0	e2.5	14	6.7	2.6	2.1	13	6.3	e10
14	e1.7	e5.0	e4.0	e2.0	e2.7	11	6.5	2.8	2.0	13	4.3	e9.0
15	e1.7	e4.5	e3.5	e1.0	e3.0	10	6.7	3.4	4.9	10	2.9	e8.0
16	e1.7	e4.0	e4.0	e2.0	e4.0	11	7.1	4.1	12	7.9	2.4	e9.0
17	e1.7	e4.0	e3.0	e2.0	e10	11	7.1	4.0	55	7.6	2.0	e10
18	e1.7	e5.0	e2.0	e1.0	e50	11	7.2	3.3	48	6.3	1.9	e9.0
19	e1.7	e6.0	e3.0	e3.0	e40	8.1	8.8	2.8	37	5.1	1.8	e8.0
20	e1.6	e3.0	e3.2	e4.0	e20	7.3	9.0	2.6	50	4.5	1.8	e7.0
21	e1.8	e4.0	e3.0	e4.0	e10	7.0	10	2.3	27	4.1	1.8	e6.0
22	e2.0	e3.0	e4.0	e3.0	e8.0	7.2	9.9	2.4	15	4.4	1.8	e5.0
23	e2.0	e2.0	e3.5	e2.4	e6.0	6.7	9.7	2.4	8.0	4.9	1.9	e4.5
24	e2.3	e2.0	e3.0	e2.0	e5.0	6.0	9.7	2.3	5.9	5.4	2.5	e4.0
25	e2.5	e2.0	e3.0	e2.0	e4.0	5.9	8.2	2.5	5.0	5.4	4.5	e3.0
26	e2.8	e3.0	e3.0	e3.0	e8.0	5.6	7.0	2.9	4.5	5.2	7.4	e3.5
27	e3.0	e3.0	e3.5	e2.5	e50	5.0	6.0	2.6	4.2	4.8	9.0	e4.5
28	e3.0	e3.0	e4.0	e2.0	e375	5.3	5.5	2.4	3.8	4.3	8.2	e5.5
29	e3.0	e3.0	e4.0	e3.0	e250	5.6	5.0	2.1	3.4	3.6	7.0	e6.0
30	e3.0	e2.0	e4.0	e4.0	---	5.6	4.6	2.0	3.2	3.4	e6.0	e5.0
31	e2.9	---	e4.0	e6.0	---	5.5	---	1.7	---	3.1	e5.0	---
TOTAL	65.3	76.90	102.5	100.9	899.4	654.8	214.3	86.5	320.6	193.4	117.1	244.0
MEAN	2.11	2.56	3.31	3.25	31.0	21.1	7.14	2.79	10.7	6.24	3.78	8.13
MAX	3.0	6.0	4.5	6.0	375	100	10	4.1	55	16	9.0	14
MIN	1.6	.06	1.0	1.0	2.5	5.0	4.6	1.7	1.7	3.1	1.8	3.0
AC-FT	130	153	203	200	1780	1300	425	172	636	384	232	484

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1992, BY WATER YEAR (WY)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MEAN	11.5	11.8	5.41	4.03	16.5	54.5	36.3	18.7	37.3	11.6
MAX	27.5	42.9	12.2	8.63	75.8	182	111	56.3	224	40.3
(WY)	1985	1983	1983	1984	1983	1986	1984	1986	1984	1986
MIN	2.11	2.55	.34	.029	.20	5.71	5.39	2.79	2.56	1.33
(WY)	1992	1991	1990	1990	1989	1991	1990	1992	1988	1988

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1983 - 1992
ANNUAL TOTAL	1576.64	3075.70	
ANNUAL MEAN	4.32	8.40	19.1a
HIGHEST ANNUAL MEAN			43.9
LOWEST ANNUAL MEAN			4.17
HIGHEST DAILY MEAN	78 Jun 23	375 Feb 28	1420 Jun 20 1984
LOWEST DAILY MEAN	.04 Jan 1	.06 Nov 7b	.00 Dec 26 1989c
ANNUAL SEVEN-DAY MINIMUM	.04 Jan 1	.13 Nov 3	.00 Dec 26 1989
INSTANTANEOUS PEAK FLOW		450 Feb 28	2030 Jun 20 1984
INSTANTANEOUS PEAK STAGE		13.27 Feb 28d	15.72 Jun 20 1984
ANNUAL RUNOFF (AC-FT)	3130	6100	13840
10 PERCENT EXCEEDS	8.7	11	32
50 PERCENT EXCEEDS	2.7	4.0	5.8
90 PERCENT EXCEEDS	.09	1.9	1.4

e Estimated

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

b Also Nov. 8.

c Also Dec. 27, 1989, to Jan. 13, 1990.

d Backwater from ice.

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LOCATION.--Lat 43°47'25", long 96°44'42", in NW1/4NW1/4 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.

PERIOD OF RECORD.--May 1948 to current year.

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.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1992, BY WATER YEAR (WY)

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1948 - 1992
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e Estimated
a Median of annual mean discharges, 210 ft³/s.
b No flow Aug. 25 to Oct. 17, 1976.

06481500 SKUNK CREEK AT SIOUX FALLS, SD

LOCATION.--Lat 43°32'01", long 96°47'26", in NW1/4SW1/4 sec.24, T.101 N., R.50 W., Minnehaha County, Hydrologic Unit 10170203, on left bank 5 ft downstream from bridge on Marion Road, 1.3 mi upstream from mouth, 1.8 mi downstream from small right-bank tributary, and 4.0 mi southwest of Sioux Falls.

DRAINAGE AREA.--622 mi², of which 8.51 mi² is probably noncontributing.

PERIOD OF RECORD.--May 1948 to 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 benchmark). 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, and those for Mar. 8-17, 22-24, Apr. 6 to May 6, and June 11 to Sept. 30, 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.89	e1.9	e1.9	e2.3	e9.0	e400	42	49	6.5	74	127	274
2	.89	e1.9	e1.8	e2.3	e12	336	40	44	6.9	264	124	553
3	.83	e1.8	e1.7	e2.2	e13	268	38	44	6.4	221	117	512
4	.88	e1.8	e1.5	e2.3	e15	228	37	39	6.8	145	112	352
5	.93	e1.7	e1.4	e2.1	e17	221	33	34	6.1	119	106	322
6	.86	e1.7	e1.5	e2.0	e17	230	30	28	6.3	84	102	292
7	.93	e1.8	e1.6	e2.0	e16	249	28	24	6.2	58	448	386
8	.91	e1.9	e1.7	e2.0	e15	242	27	21	6.9	58	821	426
9	.96	e2.0	e1.8	e1.9	e13	192	28	20	6.4	65	617	342
10	1.1	e2.0	e1.9	e2.0	e11	146	30	17	6.1	276	1020	298
11	.92	e2.0	e2.1	e2.1	e10	142	30	16	5.6	474	896	260
12	.90	e2.2	e2.3	e2.0	e10	140	29	15	5.2	779	785	236
13	.88	e2.6	e2.7	e1.6	e11	134	27	14	5.2	891	635	221
14	.83	e2.5	e2.6	e1.3	e12	131	27	13	4.3	600	528	211
15	.97	e2.5	e2.3	e.90	e13	131	28	20	5.1	368	448	202
16	1.1	e2.6	e2.6	e1.1	e16	125	30	43	4.4	269	396	199
17	1.1	e4.0	e2.5	e1.1	e200	122	31	31	5.8	221	352	192
18	1.1	e4.5	e2.3	e1.0	e500	105	34	24	7.1	178	329	186
19	1.2	e5.0	e2.2	e1.4	e400	91	37	19	11	149	304	179
20	1.3	e4.8	e2.2	e1.7	e340	82	43	15	17	139	289	172
21	1.3	e4.2	e2.3	e2.5	e300	77	45	12	22	136	274	166
22	1.3	e4.0	e2.4	e3.4	e250	73	40	11	20	155	260	160
23	1.2	e3.7	e2.5	e3.3	e280	71	63	10	18	161	242	156
24	1.0	e3.4	e2.5	e3.3	e300	66	81	9.2	15	167	255	148
25	1.0	e3.1	e2.6	e3.0	e280	59	97	9.2	13	200	310	142
26	1.1	e3.0	e2.7	e3.2	e800	55	88	9.2	10	221	375	134
27	1.3	e2.8	e2.6	e3.3	e700	51	73	9.2	8.8	226	368	129
28	3.7	e2.7	e2.5	e3.6	e600	49	65	9.0	8.0	188	345	124
29	2.6	e2.6	e2.4	e4.5	e500	48	60	8.1	9.6	161	310	120
30	e2.2	e2.3	e2.3	e5.5	---	49	53	7.5	12	142	274	115
31	e2.0	---	e2.3	e7.0	---	47	---	6.8	---	133	247	---
TOTAL	38.18	83.0	67.7	77.90	5660.0	4360	1314	631.2	271.7	7322	11816	7209
MEAN	1.23	2.77	2.18	2.51	195	141	43.8	20.4	9.06	236	381	240
MAX	3.7	5.0	2.7	7.0	800	400	97	49	22	891	1020	553
MIN	.83	1.7	1.4	.90	9.0	47	27	6.8	4.3	58	102	115
AC-FT	76	165	134	155	11230	8650	2610	1250	539	14520	23440	14300

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1992, BY WATER YEAR (WY)

	MEAN	23.0	18.9	9.99	4.97	28.7	173	220	91.3	117	62.2	31.3	36.5
MAX	405	316	126	50.2	321	869	1530	585	1903	434	381	240	798
(WY)	1987	1983	1983	1987	1983	1983	1984	1984	1984	1984	1992	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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1948 - 1992
ANNUAL TOTAL	3113.16	38850.68	
ANNUAL MEAN	8.53	106	67.4a
HIGHEST ANNUAL MEAN			403
LOWEST ANNUAL MEAN			1.55
HIGHEST DAILY MEAN	311 Jun 23	1020 Aug 10	11500 Jun 17 1957
LOWEST DAILY MEAN	.34 Jan 30	.83 Oct 3b	.00 Jan 26 1951c
ANNUAL SEVEN-DAY MINIMUM	.35 Jan 4	.89 Oct 1	.00 Jan 26 1951
INSTANTANEOUS PEAK FLOW		1180 Aug 10	29400 Jun 17 1957d
INSTANTANEOUS PEAK STAGE		4.49 Aug 10	17.78 Jun 17 1957d
ANNUAL RUNOFF (AC-FT)	6170	77060	48830
10 PERCENT EXCEEDS	17	314	131
50 PERCENT EXCEEDS	2.6	17	6.0
90 PERCENT EXCEEDS	.60	1.6	.50

e Estimated

a Median of annual mean discharges, 31 ft³/s.

b Also Oct. 14.

c No flow at times in some years.

d Site and datum then in use, from rating curve extended above 8,100 ft³/s on basis of slope-area measurement of peak flow.

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD

LOCATION.--Lat 43°34'01", long 96°42'39", in SW1/4NW1/4 sec.10, T.101 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on right bank 20 ft downstream from bridge on North Cliff Avenue and 4.1 mi upstream from Slip Up Creek.

DRAINAGE AREA.--5,216 mi², of which 1,487 mi² is probably noncontributing.

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 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 ft³/s.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	61	e55	60	63	2790	371	397	115	2310	807	1230
2	114	e65	e55	64	66	2720	362	365	110	3200	785	1460
3	103	64	e55	64	73	2330	358	348	103	1840	736	1330
4	106	66	68	64	81	1820	344	331	110	1520	687	1090
5	107	69	68	64	90	1440	332	309	101	1330	661	1070
6	103	70	68	66	96	1270	335	291	111	1200	643	970
7	102	54	69	e65	95	1170	298	276	105	1140	1720	1150
8	104	54	68	e65	93	1250	345	267	108	1230	3090	1160
9	104	59	69	e65	98	1420	325	253	101	1240	1990	1050
10	99	64	70	e65	105	1350	324	248	96	1550	1860	1010
11	101	64	71	e65	104	1300	332	242	96	1510	2010	982
12	97	71	78	e65	99	1140	328	237	90	2070	1630	935
13	99	73	78	e65	99	992	336	216	88	2890	1390	897
14	94	85	72	e65	96	904	332	203	91	2050	1230	844
15	87	88	71	e65	107	839	349	274	171	1510	1110	789
16	91	85	69	e65	111	749	338	331	113	1390	1000	738
17	102	115	68	e60	700	756	326	244	167	1230	915	692
18	97	136	62	59	1620	721	347	219	292	1130	846	655
19	89	111	64	59	1240	662	357	196	408	1060	782	621
20	90	107	60	59	840	616	400	180	678	996	732	602
21	91	121	63	60	577	584	460	174	920	935	687	576
22	92	136	61	61	498	537	449	174	1420	993	646	542
23	88	e60	59	60	562	502	455	169	2480	923	613	514
24	82	e55	58	58	572	485	501	162	3440	923	750	489
25	80	e55	56	56	459	463	514	165	3830	1070	878	463
26	80	e55	58	53	430	478	507	146	3740	1040	905	448
27	82	e55	57	54	853	431	486	148	3360	1090	1070	428
28	112	e55	57	53	1300	420	463	135	2970	1040	1150	405
29	116	e55	60	54	2080	427	444	128	2820	994	1180	391
30	94	e55	58	57	---	404	414	128	2190	949	1170	382
31	91	---	59	61	---	391	---	120	---	878	1120	---
TOTAL	3013	2263	1984	1896	13207	31361	11532	7076	30424	43231	34793	23913
MEAN	97.2	75.4	64.0	61.2	455	1012	384	228	1014	1395	1122	797
MAX	116	136	78	66	2080	2790	514	397	3830	3200	3090	1460
MIN	80	54	55	53	63	391	298	120	88	878	613	382
AC-FT	5980	4490	3940	3760	26200	62200	22870	14040	60350	85750	69010	47430

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1992, BY WATER YEAR (WY)

	MEAN	238	207	125	68.6	144	1046	1351	784	879	478	265	334
MAX	1580	1009	476	289	798	3479	6543	4516	6880	1730	1122	3468	
(WY)	1987	1983	1983	1987	1983	1985	1986	1986	1984	1984	1992	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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1972 - 1992
ANNUAL TOTAL	80877.0	204693	
ANNUAL MEAN	222	559	494a
HIGHEST ANNUAL MEAN			1914
LOWEST ANNUAL MEAN			50.4
HIGHEST DAILY MEAN	1490	Jun 10	20700
LOWEST DAILY MEAN	8.0	Jan 5	.81
ANNUAL SEVEN-DAY MINIMUM	9.4	Jan 1	1.3
INSTANTANEOUS PEAK FLOW		55	Nov 24
INSTANTANEOUS PEAK STAGE		5080	Jul 1
ANNUAL RUNOFF (AC-FT)	160400	15.53	Jul 1
10 PERCENT EXCEEDS	559	406000	357900
50 PERCENT EXCEEDS	108	1360	1250
90 PERCENT EXCEEDS	17	303	123
		60	21

e Estimated

a Median of annual mean discharges, 240 ft³/s.

b Also Jan. 28.

BIG SIOUX RIVER BASIN

06483500 ROCK RIVER NEAR ROCK VALLEY, IA

LOCATION.--Lat 43°12'52", long 96°17'39", in SW1/4SW1/4 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 mi².

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: Oct. 31 to Nov. 14, Nov. 23 to Feb. 15, Feb. 19-22, and Feb. 27 to Mar. 2. 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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	12	22	46	124	2500	447	502	225	405	1220	969
2	16	9.0	20	47	216	2270	413	447	216	430	1130	2400
3	16	7.0	17	47	519	1310	388	400	204	3500	1000	3420
4	18	8.4	18	48	665	1430	366	372	195	4830	901	3140
5	18	9.8	19	51	490	1260	340	344	182	2650	812	2340
6	18	9.0	20	49	350	1180	319	322	177	1820	739	2070
7	18	6.0	22	51	250	1280	296	300	165	1410	1180	1900
8	18	7.0	25	69	180	1390	296	297	167	1240	2690	1890
9	17	8.8	28	100	200	910	321	283	177	2880	3140	1860
10	16	11	30	70	220	944	343	266	177	3360	2380	1650
11	15	13	35	61	180	912	366	290	169	4420	1820	1370
12	15	16	50	73	150	907	350	336	161	4230	1510	1170
13	14	20	70	63	180	930	327	356	153	4940	1250	1060
14	13	25	80	54	160	907	314	338	146	4560	1080	1120
15	14	29	65	45	140	888	310	299	154	3070	978	1200
16	14	31	50	70	568	885	295	470	509	2390	894	1130
17	13	37	34	60	847	918	287	658	664	1970	799	1080
18	13	50	39	50	1260	969	302	837	628	1660	1150	1010
19	14	57	39	60	2500	985	352	762	650	1610	1380	948
20	15	70	38	80	3000	916	407	637	830	1310	1050	898
21	17	90	40	76	2500	820	693	583	627	1110	881	849
22	15	111	40	70	1900	743	1090	507	523	1070	727	786
23	14	64	42	68	967	704	1150	427	442	1230	622	724
24	15	35	44	65	1140	682	1070	375	373	1740	551	669
25	16	20	43	68	813	638	958	355	327	1970	648	624
26	16	28	42	64	690	633	853	335	287	3080	1200	596
27	16	32	40	62	1430	604	757	308	259	3560	1830	564
28	21	35	42	60	1810	555	675	286	236	2650	1870	533
29	31	29	43	62	1970	530	617	272	293	2040	1530	499
30	30	25	44	64	---	505	559	254	361	1690	1210	484
31	16	---	43	70	---	481	---	238	---	1440	1030	---
TOTAL	516	905.0	1184	1923	25419	30586	15261	12456	9677	74265	39202	38953
MEAN	16.6	30.2	38.2	62.0	877	987	509	402	323	2396	1265	1298
MAX	31	111	80	100	3000	2500	1150	837	830	4940	3140	3420
MIN	13	6.0	17	45	124	481	287	238	146	405	551	484
AC-FT	1020	1800	2350	3810	50420	60670	30270	24710	19190	147300	77760	77260
CFSM	.01	.02	.02	.04	.55	.62	.32	.25	.20	1.50	.79	.82
IN.	.01	.02	.03	.04	.59	.71	.36	.29	.23	1.74	.92	.91

STATISTICS OF MONTHLY MEAN DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
MEAN	152	185	101	53.5	194	871	1122	463	671	381	198	144
MAX	1075	2039	676	432	1059	3421	6507	3002	5516	2396	1809	1298
(WY)	1983	1980	1983	1983	1966	1983	1969	1984	1984	1992	1979	1992
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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

PERIOD OF RECORD

ANNUAL TOTAL	42369.0	250347.0	
ANNUAL MEAN	116	684	377
HIGHEST ANNUAL MEAN			1645
LOWEST ANNUAL MEAN			31.0
HIGHEST DAILY MEAN	1320	Jun 6	4940 Jul 13
LOWEST DAILY MEAN	5.2	Jan 21	6.0 Nov 7
ANNUAL SEVEN-DAY MINIMUM	7.0	Jan 12	8.0 Nov 3
INSTANTANEOUS PEAK FLOW			5470 Jul 13
INSTANTANEOUS PEAK STAGE			13.12 Jul 13
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	84040	496600	273300
ANNUAL RUNOFF (CFSM)	.073	.43	.24
ANNUAL RUNOFF (INCHES)	.99	5.85	3.22
10 PERCENT EXCEEDS	337	1840	905
50 PERCENT EXCEEDS	38	350	96
90 PERCENT EXCEEDS	9.0	18	13

a Former site and datum in use prior to May 5, 1976.

06485500 BIG SIOUX RIVER AT AKRON, IA
(National stream-quality accounting network station)

LOCATION.--Lat 42°50'14", long 96°33'41", in SW1/4SE1/4SW1/4 sec.30, T.93 N., R.48 W., Plymouth County, Hydrologic Unit 10170203, on left bank 15 ft downstream from Iowa Highway 403 bridge, 0.5 mi northwest of Akron, and 2.9 mi upstream from Union Creek.

DRAINAGE AREA.--8,424 mi², of which 1,487 mi² is probably noncontributing.

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	205	e165	e200	e165	e250	5770	1290	1460	687	3190	2700	2430
2	202	e160	e200	e170	e300	6650	1240	1360	670	2760	2500	2640
3	201	e160	e175	e170	e350	7350	1190	1270	648	3480	2380	3870
4	201	e155	e150	e175	e400	6400	1140	1190	628	5790	2230	4910
5	200	e155	e155	e175	e450	4660	1100	1120	603	8300	2090	4750
6	196	e150	e155	e180	e500	3720	1060	1060	584	7880	1950	3800
7	195	e150	e160	e180	e480	3220	1030	1010	572	4100	2060	3400
8	196	e150	e160	e185	e450	3100	1010	955	561	3740	3100	3200
9	191	e155	e165	e190	e400	3240	1010	910	572	3060	5060	3390
10	185	e160	e165	e185	e350	3230	1010	869	568	5190	5920	3280
11	185	e165	e170	e185	e300	3000	1040	903	563	5960	5230	2990
12	181	e170	e175	e195	e250	2740	1020	894	545	6620	4220	2710
13	179	e175	e180	e200	e250	2630	1020	869	529	6820	3810	2510
14	174	e200	e180	e180	e250	2480	1010	883	513	7130	3280	2420
15	173	e230	e175	e170	e260	2340	1000	867	506	8060	2880	2500
16	175	e250	e175	e170	e400	2260	991	994	575	6990	2590	2430
17	176	e240	e170	e175	e600	2200	976	1180	692	4830	2360	2250
18	174	e260	e165	e180	e1000	2160	1000	1360	897	3890	2190	2120
19	173	276	e160	e180	e1300	2160	1000	1340	855	3330	2260	1990
20	177	287	e155	e185	e2800	2120	1030	1230	922	3090	2310	1890
21	182	314	e155	e195	e2700	1990	1150	1120	1110	2770	2060	1800
22	183	316	e155	e195	2260	1880	1360	1040	1260	2610	1890	1720
23	179	e300	e155	e200	1950	1770	1720	969	1420	2510	1750	1640
24	177	e300	e155	e200	1860	1670	1890	919	1670	2640	1640	1560
25	174	e275	e155	e200	e2000	1590	1920	881	2280	2950	1660	1480
26	174	e275	e155	e200	2070	1530	1880	851	2980	3480	1910	1430
27	174	e250	e155	e200	2140	1490	1810	826	3450	4750	2410	1380
28	177	e250	e155	e200	3120	1480	1710	800	3630	4860	2800	1320
29	182	e225	e155	e200	4750	1440	1620	775	3520	4070	2910	1280
30	e170	e225	e160	e205	---	1370	1530	745	3350	3350	2730	1230
31	e165	---	e165	e210	---	1340	---	711	---	2940	2550	---
TOTAL	5676	6543	5110	5800	34190	88980	37757	31361	37360	141140	85430	74320
MEAN	183	218	165	187	1179	2870	1259	1012	1245	4553	2756	2477
MAX	205	316	200	210	4750	7350	1920	1460	3630	8300	5920	4910
MIN	165	150	150	165	250	1340	976	711	506	2510	1640	1230
AC-FT	11260	12980	10140	11500	67820	176500	74890	62200	74100	280000	169500	147400

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1992, BY WATER YEAR (WY)

	MEAN	414	391	255	163	464	2251	2846	1394	1780	1065	596	607
MAX	4039	3022	1967	841	2399	8866	20690	7946	15820	4703	2756	7313	
(WY)	1987	1980	1983	1983	1966	1983	1969	1986	1984	1983	1992	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 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1929 - 1992
ANNUAL TOTAL	169451	553667	
ANNUAL MEAN	464	1513	1020a
HIGHEST ANNUAL MEAN			4272
LOWEST ANNUAL MEAN			120
HIGHEST DAILY MEAN	2150	Jun 12	77500
LOWEST DAILY MEAN	50	Jan 7	4.0
ANNUAL SEVEN-DAY MINIMUM	51	Jan 5	4.4
INSTANTANEOUS PEAK FLOW		9710	80800
INSTANTANEOUS PEAK STAGE		18.00	22.99
ANNUAL RUNOFF (AC-FT)	336100	1098000	738000
10 PERCENT EXCEEDS	1110	3480	2320
50 PERCENT EXCEEDS	295	1000	310
90 PERCENT EXCEEDS	70	170	67

e Estimated

a Median of annual mean discharges, 740 ft³/s.

b Also Nov. 7, 8, and Dec. 4.

BIG SIOUX RIVER BASIN

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 1991 TO SEPTEMBER 1992

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (STAND-ARD UNITS) (00400)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	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)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	
OCT 09...	1040	192	930	9.0	136	15.0	11.5	24	735	18.0	172	--	
DEC 18...	1220	163	1440	8.3	287	-2.0	0.0	5.9	744	15.0	106	160	
MAR 31...	1155	1340	976	8.6	267	6.0	5.5	17	738	15.0	123	110	
JUN 26...	0925	2860	478	7.9	146	27.0	23.0	85	745	5.9	71	400	
SEP 23...	1035	1640	1050	8.5	302	19.0	16.5	3.5	726	9.8	106	270	
DATE		STREP-TOCOCCEI, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00932)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	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)	
OCT 09...	80	360	64	48	67	28	2	8.9	181	250	84	0.50	
DEC 18...	840	540	130	51	84	25	2	8.8	306	270	110	0.40	
MAR 31...	97	450	110	42	31	13	0.6	6.1	258	210	40	0.50	
JUN 26...	790	220	54	20	9.6	--	0.3	<0.10	149	69	10	0.30	
SEP 23...	K97	510	120	52	31	11	0.6	6.1	310	220	35	0.30	
DATE		SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRITE (MG/L AS N) (00615)	NITRO-GEN, NITRATE (MG/L AS N) (00613)	NITRO-GEN, NITRATE (MG/L AS N) (00620)	NITRO-GEN, NITRATE (MG/L AS N) (00618)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA (MG/L AS N) (00610)
OCT 09...	<0.01	612	610	0.83	317	0.040	0.040	1.06	1.06	1.10	1.10	0.030	
DEC 18...	12	944	868	1.28	415	0.050	0.050	5.85	5.85	5.90	5.90	0.190	
MAR 31...	12	632	630	0.86	2290	0.030	0.030	3.67	3.77	3.70	3.80	0.020	
JUN 26...	18	301	--	--	--	0.050	0.050	1.75	1.85	1.80	1.90	0.120	
SEP 23...	16	724	685	0.98	3210	0.020	<0.010	5.08	--	5.10	5.20	0.020	
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, TOTAL (MG/L AS NO3) (71887)	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) (70507)	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)
OCT 09...	0.010	0.01	3.7	21	0.720	0.020	0.080	<0.010	<10	51	<3	<3	8
DEC 18...	0.180	0.23	1.3	32	0.950	0.750	0.760	<10	76	<3	<3	<3	12
MAR 31...	0.010	0.01	1.4	23	0.360	0.150	0.170	<10	80	<3	<3	<3	15
JUN 26...	0.110	0.14	1.8	16	0.500	0.160	0.150	<10	63	<3	<3	<3	29
SEP 23...	<0.010	--	1.2	28	0.420	0.200	0.190	<10	99	<3	<3	<3	<3

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

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, DIS- SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 09...	39	5	<10	3	2	<1.0	350	<6	119	62	97
DEC 18...	44	69	<10	3	4	<1.0	490	<6	16	7.0	73
MAR 31...	32	19	<10	3	<1	<1.0	380	<6	175	633	76
JUN 26...	15	5	<10	4	<1	<1.0	200	6	477	3680	94
SEP 23...	38	6	<10	3	3	<1.0	480	<6	180	797	91

BIG SIOUX RIVER BASIN

06485696 BRULE CREEK NEAR ELK POINT, SD

LOCATION.--Lat 42°48'32", long 96°41'11", in SW1/4SW1/4 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 mi².

REVISED RECORDS.--WDR SD-84-1: Drainage area.

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

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 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	9.4	e3.0	e8.0	e10	e100	18	31	20	10	49	37
2	3.5	e4.2	e2.0	e9.0	e10	e60	16	24	20	10	41	304
3	3.2	e2.0	e3.0	e8.0	e12	e40	16	20	19	9.7	36	291
4	3.5	e1.0	e2.0	e7.0	e13	29	15	18	17	9.4	35	215
5	3.5	e1.0	e2.0	e7.0	e10	31	14	17	16	9.6	32	101
6	2.2	e1.0	e2.5	e8.0	e10	61	13	16	15	8.8	31	82
7	2.5	e.90	e3.0	e9.0	e9.0	80	13	14	15	18	227	92
8	2.5	e.70	e4.0	e10	e8.0	e60	13	13	14	354	163	92
9	1.7	e1.3	e5.0	e10	e7.0	e50	13	13	19	145	111	71
10	1.7	e3.0	e6.0	e9.0	e8.0	e40	14	12	19	252	64	57
11	1.6	e2.5	e5.0	e8.0	e9.0	e50	14	31	17	211	47	49
12	1.1	e3.8	e6.0	e8.0	e7.0	e69	13	81	15	593	42	44
13	1.1	7.4	e10	e10	e7.0	e65	12	49	14	237	39	40
14	.90	5.9	e10	e8.0	e7.0	e80	13	31	13	132	35	51
15	.71	5.2	e10	e6.0	e10	82	13	29	15	77	32	140
16	.90	5.0	e9.0	e6.0	e20	67	13	612	118	58	28	102
17	.90	5.3	e10	e7.0	e30	58	12	258	32	48	25	64
18	.90	8.5	e7.5	e8.0	e25	47	13	118	17	42	23	50
19	.71	16	e5.0	e9.0	e65	35	14	80	14	39	21	43
20	4.1	26	e7.0	e10	e60	30	e13	63	13	37	19	38
21	1.3	20	e9.0	e10	e55	27	e15	53	12	32	18	36
22	.43	e12	e8.0	e10	e50	24	e9.4	47	11	41	17	33
23	.58	e8.0	e7.5	e12	e66	22	e14	41	11	42	16	31
24	1.3	e5.0	e7.0	e10	118	21	64	36	11	50	15	28
25	2.0	e3.0	e7.0	e10	307	20	123	35	11	52	43	26
26	2.3	e4.0	e6.5	e9.0	e200	18	100	35	10	90	79	26
27	2.7	e5.0	e6.0	e10	e140	17	76	33	9.4	96	76	24
28	2.5	e6.0	e6.0	e9.0	e100	18	67	29	10	189	45	23
29	2.3	e5.0	e6.0	e9.0	e200	20	57	27	9.6	92	35	22
30	4.1	e4.0	e6.0	e10	---	22	42	22	10	80	28	21
31	5.3	---	e7.0	e10	---	20	---	21	---	62	23	---
TOTAL	66.93	182.10	188.0	274.0	1573.0	1363	842.4	1909	547.0	3126.5	1495	2233
MEAN	2.16	6.07	6.06	8.84	54.2	44.0	28.1	61.6	18.2	101	48.2	74.4
MAX	5.3	26	10	12	307	100	123	612	118	593	227	304
MIN	.43	.70	2.0	6.0	7.0	17	9.4	12	9.4	8.8	15	21
AC-FT	133	361	373	543	3120	2700	1670	3790	1080	6200	2970	4430

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1992, BY WATER YEAR (WY)

	MEAN	26.8	23.1	16.9	12.4	33.0	134	147	82.8	157	46.3	19.3	30.6
MAX	66.3	47.0	34.4	28.7	65.0	358	597	298	696	166	48.2	97.9	
(WY)	1986	1987	1987	1986	1988	1986	1984	1984	1983	1983	1992	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 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1983 - 1992

ANNUAL TOTAL	3258.63	13799.93	
ANNUAL MEAN	8.93	37.7	60.6a
HIGHEST ANNUAL MEAN			160
LOWEST ANNUAL MEAN			8.63
HIGHEST DAILY MEAN	205	Jul 28	5520
LOWEST DAILY MEAN	.43	Oct 22	.43
ANNUAL SEVEN-DAY MINIMUM	.87	Oct 13	.77
INSTANTANEOUS PEAK FLOW			6290
INSTANTANEOUS PEAK STAGE			22.39
ANNUAL RUNOFF (AC-FT)	6460	27370	43900
10 PERCENT EXCEEDS	17	82	107
50 PERCENT EXCEEDS	6.0	15	18
90 PERCENT EXCEEDS	2.0	3.0	3.1

e Estimated

a Median of annual mean discharges, 39.0 ft³/s.

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 mi², approximately. The 3,959 mi² 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: Feb. 7-13. 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 ft³/s Apr. 14, 1952, gage height, 24.28 ft, datum then in use; minimum, 2,500 ft³/s, Dec. 29, 1941; minimum gage height, 7.83 ft, Jan. 9, 1989.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31300	12400	13800	12900	11700	13500	24500	24600	26700	29400	26200	25900
2	31200	10600	13900	13200	12000	14100	24100	24600	25100	28800	25700	27200
3	31000	10300	14000	13100	12200	14100	24300	24300	27700	29700	25400	27700
4	31000	9940	10500	12900	12300	14300	24100	24200	26900	29700	25800	27800
5	30800	11400	10900	12900	12200	14200	24000	24500	24900	30600	26200	28400
6	30200	10700	14100	12900	12400	12900	24000	24600	27200	33100	26200	28300
7	30000	9550	15200	12900	12600	11500	24100	24700	26000	33500	27400	27400
8	30200	9440	14600	13100	13200	11000	24000	24600	24100	32000	27600	26800
9	30200	10100	13500	12400	13800	13300	24100	24500	27400	31700	27400	26200
10	29800	10100	13400	12300	14200	15400	24100	27300	26800	31100	28800	25800
11	29900	9830	13400	13600	14400	15500	24000	27100	25100	31600	30400	25300
12	29700	9950	14000	14500	14000	14600	24000	24700	27600	35000	28800	25100
13	29900	10100	14400	15400	14300	13500	23900	27500	27000	34900	27500	25600
14	30100	10100	12900	15300	14400	11900	23900	26600	25500	33200	26900	26000
15	30100	10000	11600	13900	13700	11400	24100	24400	27900	31100	26400	26500
16	30200	9950	16300	12700	13500	11200	24300	29900	28800	31100	25800	26600
17	30200	10000	14200	18500	13600	11700	24200	30500	27600	31100	25400	26100
18	30300	10200	13300	16500	14100	13800	24200	26100	27200	29100	25300	25200
19	30500	10100	12100	16100	13400	16900	24500	28600	28100	27300	25300	24700
20	30300	9880	13100	16300	12800	19600	24300	27900	28400	26700	25600	24900
21	30300	9810	13400	14900	13500	22400	24800	26500	26400	26200	25500	25000
22	30300	9950	12900	13100	13500	24700	24500	28500	28600	26800	25000	25100
23	30400	11200	12800	12600	12900	25100	24700	26900	27700	26500	24300	25100
24	30400	11500	12800	12000	13000	24800	25400	24600	26400	26600	24400	25000
25	30200	11900	12800	12100	12600	24800	25100	27500	27800	27200	26100	25300
26	29700	11700	12900	12100	12900	24700	24700	26900	28200	27600	26700	25900
27	27000	11600	12800	12600	12200	24600	24700	25000	29300	27700	26400	25600
28	23400	10700	12800	12100	12100	24900	24600	27700	28900	29200	26200	25400
29	19700	10900	12900	12600	12800	25000	24800	26800	28300	29300	26100	25300
30	15700	11800	13000	12400	---	24800	24700	24900	30000	28000	26000	25200
31	13800	---	12900	11700	---	24600	---	27500	---	27200	25800	---
TOTAL	887800	315700	411200	419600	380300	544800	730700	814000	817600	923000	816600	780400
MEAN	28640	10520	13260	13540	13110	17570	24360	26260	27250	29770	26340	26010
MAX	31300	12400	16300	18500	14400	25100	25400	30500	30000	35000	30400	28400
MIN	13800	9440	10500	11700	11700	11000	23900	24200	24100	26200	24300	24700
AC-FT	1761000	626200	815600	832300	754300	1081000	1449000	1615000	1622000	1831000	1620000	1548000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1992, BY WATER YEAR (WY) a

	MEAN	35670	31050	18550	15820	16680	21780	32600	32250	33750	35110	36310	36080
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	25640	25790	
(WY)	1962	1962	1962	1964	1963	1958	1961	1962	1960	1958	1962	1962	

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR	FOR 1992 WATER YEAR	WATER YEARS 1958 - 1992a
ANNUAL TOTAL	7778910	7841700	
ANNUAL MEAN	21310	21430	28850
HIGHEST ANNUAL MEAN			40750
LOWEST ANNUAL MEAN			20030
HIGHEST DAILY MEAN	32600	Sep 11	103000
LOWEST DAILY MEAN	8880	Mar 7	3000
ANNUAL SEVEN-DAY MINIMUM	9270	Mar 3	5430
INSTANTANEOUS PEAK FLOW			10100
INSTANTANEOUS PEAK STAGE			30.65
ANNUAL RUNOFF (AC-FT)	15430000	15550000	20900000
10 PERCENT EXCEEDS	30500	30000	43700
50 PERCENT EXCEEDS	24300	24600	30000
90 PERCENT EXCEEDS	10100	11700	11600

a Post-regulation period.

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 1992 maximum		Period of record maximum			
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (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†, 1992 1989-92	1992	--	(a)	3-29-78	11.49	1,340
BELLE FOURCHE RIVER BASIN								
Bear Butte Creek near Sturgis, SD (06437500)	Lat 44°28'53", long 103°16'31", in NW1/4SE1/4 sec.16, T.6 N., R.7 E., Meade County, Hydro- logic 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, 1992 1962-72†, 1990-92	1992	--	(a)	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 NE1/4NE1/4SW1/4 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 topo- graphic map. Drainage area is 21.5 mi ² .	1990-92	7-30-92	0.20	<10	6- 5-91	5.21	(b)
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 .	1989-92	3- 5-92	.46	<2.0	6-15-91	6.82	(b)

DISCHARGE AT PARTIAL-RECORD STATIONS

287

Maximum discharge at crest-stage partial-record stations

Station name and number	Location and drainage area	Period of record	Water year 1992 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis-charge (ft ³ /s)	Date	Gage height (ft)	Dis-charge (ft ³ /s)
MISSOURI-FORT RANDALL RIVER BASIN--Continued								
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 .	1989-92	8- 4-92	1.62	17	5-30-91	2.72	^c 49
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†, 1991-92	7-12-92	8.84	62	6- 5-91	12.98	6,370
Medicine Creek at Kennebec, SD (06442500)	Lat 43°54'17", long 99°52'35", in NW1/4NE1/4 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†, 1991-92	8- 6-92	8.89	881	6- 4-91	19.11	16,100
Campbell Creek near Geddes, SD (06452330)	Lat 43°11'08", long 98°48'19", in SE1/4 sec.30, T.97 N., R.67 W., Charles Mix County, Hydrologic Unit 10140101, at bridge on county highway, 1.1 mi upstream from mouth and 7.5 mi southwest of Geddes. Elevation of gage is 1,415 ft above sea level, from topographic map. Drainage area is 8.37 mi ² .	1989-92	6- 6-92	4.95	2.4	5-24-90	9.83	678
NIOBRARA RIVER BASIN								
Antelope Creek near Mission, SD (06463900)	Lat 43°16'26", long 100°40'56", in SE1/4SW1/4 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 .	1990-92	6-18-92	5.71	49	6-18-92	5.71	49
JAMES RIVER BASIN								
Turtle Creek near Tulare, SD (06474000)	Lat 44°44'06", long 98°35'09", in SE1/4SE1/4 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†, 1990-92	unknown	unknown	<20	4- 5-69	^d 18.51	6,000
James River near Redfield, SD (06475000)	Lat 44°54'38", long 98°28'18", in NW1/4NW1/4 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†, 1991-92	7- 2-92	6.09	462	4-13-69	24.93	7,310

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 1992 maximum		Period of record maximum				
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)	
JAMES RIVER BASIN--Continued									
Sand Creek near Alpena, SD (06476500)	Lat 44°09'15", long 98°26'06", in NE1/4NE1/4 sec.19, T.108 N., R.63 W., Jerauld County, Hydro- logic Unit 10160006, at down- stream 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†, 1990-92	(e)	d 9.59	100	3-28-60	f 13.35	2,240	
Rock Creek near Fulton, SD (06477150)	Lat 43°45'39", long 97°54'25", in NW1/4NW1/4 sec.3, T.103 N., R.59 W., Hanson County, Hydro- logic 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, 1989-92	(e)	d 7.64	40	4- 7-69	g 10.21	2,040	
Enemy Creek near Mitchell, SD (06478052)	Lat 43°38'33", long 97°59'09", in NW1/4NW1/4 sec.13, T.102 N., R.60 W., Davison County, Hydro- logic 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†, 1989-92	(h)	unknown	<185	6-22-84	15.15	4,280	
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, 1989-92	(i)	1.82	2.7	3-27-60	g 12.70	4,210	
Wolf Creek near Clayton, SD (06478390)	Lat 43°22'18", long 97°36'12", in NW1/4NE1/4 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†, 1989-92	7- 2-92	7.64	310	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 SW1/4NW1/4 sec.2, T.94 N., R.52 W., Clay County, Hydro- logic Unit 10170102, at right downstream wingwall of State Highway 19, 4.3 mi downstream from Frog Creek, 7.4 mi south- east 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†, 1989-92	9- 4-92	10.65	950	6-23-84	17.62	17,000	

DISCHARGE AT PARTIAL-RECORD STATIONS

289

Maximum discharge at crest-stage partial-record stations

Station name and number	Location and drainage area	Period of record	Water year 1992 maximum		Period of record maximum	
			Date	Gage height (ft)	Date	Gage height (ft)
				Dis- charge (ft ³ /s)		Dis- charge (ft ³ /s)
BIG SIOUX RIVER BASIN						
Hidewood Creek near Estelline, SD (06479640)	Lat 44°36'42", long 96°54'17", in SW1/4NW1/4 sec.12, T.113 N., R.51 W., Hamlin County, Hydro logic 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†, 1990-92	6-16-92	j 13.10 k 17,300	6-16-92	j 13.10 k 17,300
Medary Creek near Brookings, SD (06479980)	Lat 44°13'27", long 96°46'06", in NE1/4NE1/4NE1/4 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	2-29-92	d 7.66 400	6-21-84	11.27 2,590
Flandreau Creek above Flandreau, SD (06480650)	Lat 44°03'45", long 96°29'15", in SE1/4NE1/4NE1/4 sec.20, T.107 N., R.47 W., Moody County, Hydrologic Unit 10170203, on right bank at county highway bridge (revised), 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	2-28-92	d 9.06 800	6-20-84	11.02 2,650
Split Rock Creek at Corson, SD (06482610)	Lat 43°36'59", long 96°33'54", in NE1/4NW1/4 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†, 1990-92	7- 1-92	10.69 4,800	4- 8-69	15.00 17,800
Beaver Creek at Canton, SD (06482848)	Lat 43°17'12", long 96°35'46", in SW1/4SW1/4SE1/4 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†, 1990-92	8- 7-92	7.50 1,100	6-17-84	l 13.72 2,570

† Operated as a continuous-record gaging station.

a No evidence of any flow during the water year.

b Discharge not determined

c Estimated.

d Backwater from ice.

e Sometime between Feb. 29 to Mar. 2.

f Maximum gage height, 14.1 ft, Mar. 28, 1950, backwater from ice.

g At different datum.

h July 2 or 3.

i Sometime between Apr. 18-22.

j From floodmark.

k Based on contracted opening and flow-over-road indirect measurement of peak flow, 1.1 mi north of gage.

l Maximum gage height, 14.61 ft, June 20, 1983.

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 NW1/4SE1/4SW1/4 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.--9 years, 22.47 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.04	.00	.00	.00	.00	.00	.22	e.21	.27	.01	e.00
2	.00	.00	.05	.00	.00	.00	.00	.00	e.02	.03	.00	e.00
3	.31	.00	.10	.00	.00	.00	.00	.00	e.04	.01	.00	e.07
4	.24	.03	.00	.00	.00	.47	.00	.00	e.00	.00	.00	e.00
5	.02	.21	.00	.00	.00	.02	.00	.00	e.10	.11	.04	e.06
6	.00	.17	.00	.00	.00	.00	.00	.00	e.06	.03	.00	e.00
7	.00	.00	.00	.15	.00	.00	.00	.00	e.12	.17	.00	e.39
8	.00	.00	.05	.00	.00	.73	.00	.02	.00	.03	.00	e.00
9	.00	.00	.00	.00	.00	.05	.00	1.08	.00	.06	.00	e.00
10	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00	.00	e.00
11	.00	.00	.00	.00	.00	.30	.34	.00	.00	.06	.00	e.00
12	.00	.00	.00	.03	.00	.02	.02	.00	.55	.66	.00	e.00
13	.00	.00	.00	.05	.00	.00	.00	.00	.16	.12	.00	e.00
14	.06	.19	.00	.28	.12	.00	.00	.00	.00	.03	.00	e.00
15	.00	.02	.00	.00	.00	.00	.00	.00	.33	.00	.00	e.00
16	.00	.00	.00	.05	.00	.00	.00	.04	.76	.00	.12	e.00
17	.07	.00	.00	.00	.00	.19	.06	.00	.14	.00	.00	e.00
18	.12	.00	.00	.02	.09	.23	.88	.00	.02	.00	.00	e.00
19	.00	.00	.00	.00	.00	.00	1.56	.00	.08	.06	.00	e.00
20	.00	.00	.00	.00	.00	.03	.58	.00	.06	.00	.12	e.00
21	.00	.24	.00	.00	.00	.00	.00	.00	.07	.16	.08	e.00
22	.00	.13	.00	.00	.11	.00	.07	e.66	.01	.00	.25	e.00
23	.00	.05	.00	.02	.42	.00	.21	e.00	.00	.00	.45	.00
24	.00	.00	.00	.10	.00	.00	.00	e.00	.07	.05	.19	.00
25	.00	.00	.00	.00	.00	.00	.08	e.00	.00	.00	.00	.00
26	.00	.15	.00	.00	.00	.00	.00	e.00	.01	.03	.00	.00
27	.02	.24	.00	.00	.00	.00	.00	e.00	.00	.00	.05	.00
28	1.03	.07	.00	.00	.00	.00	.00	e.00	.18	.00	.15	.00
29	.05	.57	.00	.00	.00	.00	.00	e.00	.03	.24	e.00	.00
30	.00	.00	.00	.00	---	.00	.00	e.60	.03	.00	e.00	.00
31	.00	---	.00	.00	---	.00	---	e.14	---	.00	e.04	---
TOTAL	1.92	2.11	0.20	0.70	0.74	2.04	3.92	2.76	3.05	2.12	1.50	0.52

CAL YR 1991 TOTAL 30.35

WTR YR 1992 TOTAL 21.58

e Estimated

CHEYENNE RIVER BASIN

291

433758103353300 PRECIP AT BEAVER VALLEY NEAR PRINGLE, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°37'58", long 103°35'33", in NE1/4NW1/4SE1/4NW1/4 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 poor.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.33	.90	.00	.27
2	.00	.02	.00	.00	.00	.00	.00	.00	.03	.36	.02	.02
3	.52	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00
4	.05	.00	.00	.00	.00	1.20	.00	.00	.03	.00	.00	.18
5	.00	.00	.00	.00	.00	.20	.00	.00	.58	.30	.00	.02
6	.00	.18	.00	.00	.00	.02	.00	.00	.04	.34	.04	.02
7	.00	.00	.03	.13	.00	.02	.00	.00	.06	.02	.00	.02
8	.00	.00	.00	.00	.00	.77	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.05	.00	1.52	.00	.00	.00	.00
10	.00	.02	.05	.00	.00	.00	.39	.25	.00	.02	.00	.00
11	.10	.00	.00	.00	.00	.00	.15	.00	.00	.02	.00	.00
12	.00	.00	.00	.00	.00	.00	.08	.00	.00	.82	.00	.00
13	.00	.00	.00	.06	.00	.00	.01	.00	.00	.04	.00	.00
14	.00	.00	.07	.00	.00	.00	.00	.03	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.01	.97	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.04	.00	.02	.02	.08	.00
18	.00	.08	.00	.00	.00	.39	.18	.00	.02	.00	.00	.00
19	.00	.02	.00	.00	.00	.10	.02	.00	.00	.02	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.26	.08	.00	.02
21	.00	.16	.00	.00	.00	.08	.00	1.00	.10	.76	.00	.00
22	.00	.06	.00	.00	.13	.00	.13	.34	.00	.02	.16	.00
23	.00	.02	.00	.00	.30	.00	.00	.00	.00	.00	.25	.00
24	.00	.00	.00	.00	.00	.00	.00	.12	.08	.00	.16	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.03	.26	.00	.92	.00
27	.02	.20	.00	.00	.00	.00	.00	.02	.12	.00	.00	.02
28	.76	.16	.00	.00	.04	.00	.00	.00	.24	.16	.02	.00
29	.08	.00	.00	.00	.00	.00	.00	.00	.00	.26	.00	.00
30	.00	.02	.00	.00	---	.00	.00	.15	.00	.02	.00	.00
31	.00	---	.00	.00	---	.00	---	1.12	---	.00	.00	---
TOTAL	1.53	0.94	0.15	0.19	0.47	2.83	1.00	4.59	3.43	4.16	1.65	0.57

CAL YR 1991 TOTAL 22.93
WTR YR 1992 TOTAL 21.51

CHEYENNE RIVER BASIN

434732103305500 PRECIP AT BISMARCK LAKE NEAR CUSTER, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°47'32", long 103°30'55", in NW1/4NE1/4SW1/4NW1/4 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.53	e.82	.00	.16
2	---	---	---	---	---	---	---	.00	.00	e.00	.00	.00
3	---	---	---	---	---	---	---	.00	.18	e.00	.04	.00
4	---	---	---	---	---	---	---	.00	.50	e.00	.00	e.15
5	---	---	---	---	---	---	---	.00	.02	e.50	.03	e.00
6	---	---	---	---	---	---	---	.00	.02	.05	.00	e.00
7	---	---	---	---	---	---	---	.00	.19	.00	.00	e.00
8	---	---	---	---	---	---	---	.00	.00	.00	.00	e.00
9	---	---	---	---	---	---	---	1.39	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.03	.00
11	---	---	---	---	---	---	---	.00	.00	.04	.00	.00
12	---	---	---	---	---	---	---	.04	.00	.94	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.01	.00	.00
14	---	---	---	---	---	---	---	.00	.03	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.70	.00	.00	.00
16	---	---	---	---	---	---	---	.00	.13	.00	.14	.00
17	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.27	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.97	.05	.00	.00
20	---	---	---	---	---	---	---	.00	.00	.25	.00	.00
21	---	---	---	---	---	---	---	.92	.21	.27	.00	.00
22	---	---	---	---	---	---	---	.02	.01	.00	.63	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.06	.00
24	---	---	---	---	---	---	---	.13	.02	.00	.12	.00
25	---	---	---	---	---	---	---	.00	.00	.41	.36	.00
26	---	---	---	---	---	---	---	.05	.05	.62	.05	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.04	.16	.00	.00
29	---	---	---	---	---	---	---	.00	.01	.50	.00	.00
30	---	---	---	---	---	---	---	.60	.00	.00	.00	.00
31	---	---	---	---	---	---	---	.22	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	3.37	3.88	4.62	1.46	0.31

e Estimated

BELLE FOURCHE RIVER BASIN

293

442343103363900 PRECIP AT BOULDER PARK NEAR STURGIS, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°23'43", long 103°36'39", in SE1/4SE1/4NE1/4 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.-- 4 years, 22.88 in.

REMARKS.--Records fair except those for estimated period, 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.20	.00	.10	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.90	.00	.00
5	.30	.00	.00	.00	.00	.00	.00	.00	.10	.10	.00	.00
6	.00	.40	.00	.00	.00	.50	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.05
8	.00	.00	.20	.10	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	1.10	.00	.00	.00	.00	.10	.00
10	.00	.00	.00	.00	.00	.40	.00	1.20	.00	.20	.00	.00
11	.00	.00	.00	.00	.00	.00	.40	.00	.60	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.60	.00	.00	.20	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.60	.00	.00
14	.00	.20	.00	.00	.00	.00	.00	.00	.40	.00	.00	.00
15	.00	.20	.00	.30	.30	.00	.00	.00	.10	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.70	.00	.00	.00
17	.00	.00	.00	.00	.00	.40	.00	.00	.10	.00	.10	.00
18	.30	.00	.00	.00	.10	.00	.00	.00	.30	.00	.00	.00
19	.00	.00	.00	.00	.00	.20	1.20	.00	.30	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	1.10	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.40	.00	.10	.00	.20	.00
22	.00	.40	.00	.00	.00	.00	e.10	1.00	.00	.30	.00	.00
23	.00	.10	.00	.00	.20	.00	e.23	.00	.00	.00	.50	.00
24	.00	.00	.00	.00	.30	.00	e.00	.00	.00	.10	.00	.00
25	.00	.00	.00	.00	.00	.00	e.07	.00	.00	.10	.00	.00
26	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.20	.00	.00	.00	.00	.00	.20	.00
28	.40	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.80	.00	.00	.00	.00	.00	.00	.00	.40	.00	.00	.00
30	.00	.70	.00	.00	---	.00	.00	.40	.00	.10	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	1.80	2.20	0.30	0.40	1.10	2.60	4.10	2.80	3.20	2.70	1.10	0.05

CAL YR 1991 TOTAL 27.10
WTR YR 1992 TOTAL 22.35

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 NW1/4NW1/4SW1/4 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.--2 years (water years 1990, 1992), 23.75 in.

REMARKS.--Records good.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.42	.73	.04	.23
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.02	.00
3	.03	.00	.00	.00	.00	.00	.00	.00	.76	.00	.05	.00
4	.00	.00	.00	.00	.00	.87	.00	.00	.03	.00	.00	.07
5	.00	.04	.00	.00	.00	.03	.00	.00	.34	.63	.33	.00
6	.00	.16	.00	.00	.00	.14	.00	.00	.00	.03	.00	.10
7	.00	.00	.00	.12	.00	.00	.00	.00	.05	.02	.00	.00
8	.00	.00	.00	.00	.00	.68	.00	.00	.02	.00	.00	.00
9	.00	.00	.00	.00	.00	.01	.00	.96	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.03	.60	.18	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.20	.00	.00	.07	.00	.00
12	.00	.00	.00	.00	.00	.01	.08	.00	.00	.88	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.00
14	.00	.05	.00	.02	.00	.00	.06	.00	.03	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.59	.00	.00	.00
16	.00	.00	.00	.00	.00	.11	.00	.02	.16	.00	.07	.00
17	.00	.02	.00	.00	.00	.00	.02	.00	.00	.00	.25	.00
18	.09	.08	.00	.00	.00	.44	.06	.00	.02	.00	.00	.00
19	.00	.00	.00	.00	.00	.03	.06	.00	.38	.04	.00	.00
20	.00	.00	.00	.00	.00	.00	.05	.00	1.22	.04	.00	.00
21	.00	.57	.00	.00	.00	.00	.00	.66	1.00	.51	.00	.00
22	.00	.00	.00	.00	.12	.00	.06	.21	.00	.00	.20	.00
23	.00	.00	.00	.00	.33	.00	.01	.00	.00	.00	.41	.00
24	.00	.00	.00	.00	.00	.00	.00	.12	.15	.04	.15	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.02	.09	.26	.36	.00
27	.02	.48	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
28	.71	.18	.00	.00	.00	.00	.00	.00	.38	.00	.00	.00
29	.05	.00	.00	.00	.00	.00	.00	.00	.03	1.03	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.20	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.52	---	.00	.00	---
TOTAL	0.90	1.58	0.00	0.14	0.45	2.35	1.20	2.89	5.67	4.49	1.88	0.40

WTR YR 1992 TOTAL 21.95

CHEYENNE RIVER BASIN

295

434807103235400 PRECIP AT CENTER LAKE NEAR HAYWARD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°48'07", long 103°23'54", in SW1/4NW1/4NW1/4SW1/4, 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.--3 years, 23.23 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
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.11	.68	.02	.11
2	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	.02	.00	.00
3	.03	.00	.00	.00	.00	.00	.00	e.00	e.50	.02	.08	.00
4	.00	.00	.00	.00	.00	.41	.00	e.00	e.00	.02	.00	.22
5	.00	.03	.00	.00	.00	.42	.00	e.00	e.52	.48	.14	.00
6	.00	.14	.00	.00	.00	.12	.00	e.00	e.06	.00	.00	.00
7	.00	.00	.00	.13	.00	.00	.00	e.00	e.02	.02	.00	.00
8	.00	.00	.00	.00	.00	.49	.00	e.00	e.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.08	.00	e1.07	e.00	.36	.00	.00
10	.00	.00	.00	.00	.00	.00	.27	e.15	e.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.03	.41	e.00	e.00	.02	.00	.00
12	.00	.00	.00	.00	.00	.02	.10	e.02	.00	1.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.04	.00	.00
14	.00	.00	.00	.06	.00	.00	.04	e.00	.00	.04	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	e.12	.56	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	e.04	.12	.00	.03	.00
17	.00	.07	.00	.00	.00	.00	.03	e.00	.02	.00	.17	.00
18	.07	.04	.00	.00	.00	.57	.00	e.00	.14	.00	.00	.00
19	.00	.00	.00	.00	.00	.09	.06	e.00	.14	.02	.00	.00
20	.00	.01	.00	.00	.00	.00	.05	e.00	.96	.08	.00	.00
21	.00	.55	.00	.00	.00	.00	.00	e.73	.56	.46	.00	.00
22	.00	.00	.00	.00	.07	.00	.09	e.30	.00	.00	.13	.00
23	.00	.00	.00	.00	.34	.00	e.03	e.00	.00	.02	.28	.00
24	.00	.00	.00	.00	.00	.00	e.00	e.08	.04	.12	.08	.00
25	.00	.00	.00	.00	.00	.00	e.00	e.00	.00	.02	.00	.00
26	.00	.00	.00	.00	.00	.00	e.00	e.06	.08	.06	.42	.00
27	.03	.38	.00	.00	.00	.00	e.00	e.00	.00	.02	.00	.00
28	.57	.26	.00	.00	.00	.00	e.00	e.00	.28	.18	.00	.00
29	.03	.04	.00	.00	.00	.00	e.00	e.00	.02	.86	.00	.00
30	.00	.00	.00	.00	---	.00	e.00	e.33	.02	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	e.50	---	.00	.00	---
TOTAL	0.73	1.52	0.00	0.19	0.41	2.23	1.08	3.40	4.15	4.54	1.35	0.33

CAL YR 1991 TOTAL 26.53

WTR YR 1992 TOTAL 19.93

e Estimated

BELLE FOURCHE RIVER BASIN

441832103523200 PRECIP AT CHEYENNE CROSSING NEAR LEAD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°18'32", long 103°52'32", in NE1/4SE1/4SE1/4NE1/4, 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.--4 years, 17.25 in.

REMARKS.--Records fair.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.01	.00	.00	.00	.00	.14	.05	.21	.05	.08
2	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.32	.00	.02	.00	.00	.00	.00	.00	.01	.00	.00	.00
4	.07	.00	.00	.00	.00	.31	.00	.00	.00	.11	.00	.02
5	.00	.13	.00	.00	.00	.06	.00	.00	.22	.01	.04	.00
6	.00	.09	.00	.00	.00	.02	.00	.00	.04	.00	.00	.27
7	.00	.00	.00	.00	.00	.00	.00	.00	.09	.02	.00	.13
8	.00	.00	.00	.00	.00	.46	.00	.01	.00	.00	.00	.00
9	.00	.03	.00	.00	.00	.00	.00	.47	.12	.03	.00	.00
10	.00	.00	.00	.00	.00	.00	.22	.30	.01	.00	.00	.00
11	.00	.00	.00	.00	.00	.41	.22	.00	.04	.00	.00	.00
12	.00	.00	.00	.00	.00	.03	.00	.00	.42	.52	.00	.00
13	.00	.00	.00	.04	.00	.00	.00	.00	.01	.00	.00	.00
14	.03	.03	.00	.09	.22	.00	.00	.00	.00	.01	.00	.00
15	.00	.00	.00	.02	.00	.00	.00	.00	.40	.00	.00	.00
16	.00	.00	.00	.01	.00	.00	.00	.06	.03	.00	.12	.00
17	.00	.00	.00	.00	.00	.30	.03	.00	.05	.00	.00	.00
18	.09	.00	.00	.00	.06	.08	.70	.00	.10	.00	.01	.00
19	.00	.00	.00	.00	.00	.00	.44	.00	.00	.02	.00	.00
20	.00	.00	.00	.00	.00	.00	.52	.00	.12	.00	.16	.00
21	.00	.18	.00	.00	.00	.00	.09	.49	.67	.28	.07	.03
22	.00	.02	.00	.00	.14	.00	.07	.20	.00	.00	.09	.00
23	.00	.01	.00	.00	.42	.00	.07	.00	.01	.05	.81	.00
24	.00	.00	.00	.10	.00	.00	.03	.00	.13	.13	.00	.03
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.03
26	.00	.10	.00	.00	.03	.00	.00	.00	.50	.00	.27	.00
27	.00	.12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.54	.01	.00	.00	.00	.00	.00	.00	.15	.00	.00	.00
29	.14	.34	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.02	.02	.00	.00	---	.00	.00	.55	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.20	---	.00	.00	---
TOTAL	1.21	1.08	0.04	0.26	0.87	1.67	2.39	2.42	3.17	1.42	1.62	0.53

CAL YR 1991	TOTAL 20.38
WTR YR 1992	TOTAL 16.74

297

PRECIPITATION RECORDS

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

REMARKS.--Records poor.

[illegible]

BELLE FOURCHE RIVER BASIN

442745103434500 PRECIP AT ELKHORN PEAK NEAR WHITEWOOD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°27'45", long 103°43'45", in NE1/4SE1/4SE1/4 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.--4 years, 17.58 in.

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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.60	.00	.00
4	.00	.00	.00	.00	.00	.30	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00
6	.00	.00	.00	.00	.00	.20	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.40	.10	.00	.20
8	.00	.40	.00	.10	.00	.00	.00	.00	.10	.00	.00	.40
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.50	.00	.70	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.30	.00	.10	.00	.00
12	.00	.00	.00	.00	.00	.30	.30	.00	.00	.20	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.50	.00	.00
14	.00	.30	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00
15	.00	.00	.00	.20	.00	.00	.00	.00	.00	.20	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.50	.00	.00	.00
17	.00	.00	.00	.00	.00	.20	.00	.00	.30	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	1.50	.00	.10	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.40	.00	.00	.00	.00	.00
21	.00	.20	.00	.00	.00	.00	.40	.00	.00	.00	.10	.00
22	.00	.00	.00	.00	.20	.00	.00	.30	.00	.30	.00	.00
23	.00	.00	.00	.00	.00	.00	.10	.20	.00	.00	.20	.00
24	.00	.00	.00	.00	.50	.00	.00	.00	.00	.00	.20	.00
25	.40	.00	.00	.00	.10	.00	.20	.00	.00	.00	.00	.00
26	.00	.50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.70	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	1.60	.00	.00	.00
30	.00	.40	.00	.00	---	.00	.10	.00	.30	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.60	---	.00	.10	---
TOTAL	1.10	1.80	0.00	0.30	0.80	1.50	3.00	2.10	3.70	2.00	0.60	0.60

CAL YR 1991 TOTAL 18.50
WTR YR 1992 TOTAL 17.50

PRECIPITATION RECORDS

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

AVERAGE ANNUAL PRECIPITATION.--4 years, 23.05 in.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

[illegible]

CHEYENNE RIVER BASIN

431806103351800 PRECIP AT HIGHLAND CEMETERY NEAR HOT SPRINGS, SD

LOCATION.--Lat 43°18'06", long 103°35'18", in NW1/4NE1/4 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.20	.10	.72	.00	.17
2	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
3	---	---	---	---	---	---	---	.00	.42	.00	.16	.00
4	---	---	---	---	---	---	---	.00	.00	.00	.00	.04
5	---	---	---	---	---	---	---	.00	.35	.00	.00	.00
6	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
7	---	---	---	---	---	---	---	.00	.01	.00	.00	.00
8	---	---	---	---	---	---	---	.00	.00	.33	.03	.00
9	---	---	---	---	---	---	---	.85	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.75	.03	.00
12	---	---	---	---	---	---	---	.00	.00	.33	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
14	---	---	---	---	---	---	---	.00	.03	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.78	.00	.00	.00
16	---	---	---	---	---	---	---	.00	.22	.00	.00	.00
17	---	---	---	---	---	---	---	.00	.00	.00	.15	.00
18	---	---	---	---	---	---	---	.00	.12	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.00	.12	.00	.00
20	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
21	---	---	---	---	---	---	---	.00	.00	.57	.00	.00
22	---	---	---	---	---	---	---	2.00	.00	.29	.00	.00
23	---	---	---	---	---	---	---	.50	.00	.00	.35	.00
24	---	---	---	---	---	---	---	.00	.00	.03	.30	.00
25	---	---	---	---	---	---	---	.03	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.26	.07	.42	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.13	.11	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.64	.00	.00
30	---	---	---	---	---	---	---	.27	.00	.00	.00	.00
31	---	---	---	---	---	---	---	1.21	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	5.06	2.42	3.96	1.44	0.21

CHEYENNE RIVER BASIN

301

434358103494800 PRECIP AT JEWEL CAVE NEAR CUSTER, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°43'58", long 103°49'87", in SW1/4SE1/4NW1/4, 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 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	.00	.00	---	.00	.00	.00	.00	.62	e.13	.00	.02
2	---	.00	.00	---	.00	.00	.00	.00	.01	e.13	.00	.05
3	---	.00	.00	---	.00	.00	.00	.00	.00	e1.05	.00	.00
4	---	.00	.10	.00	.00	.00	.00	.00	.44	e.00	.00	.00
5	---	.00	.00	.00	.00	.59	.00	.00	.65	e.13	.00	.01
6	---	.18	.00	.00	.00	.02	.00	.00	.06	e.00	.00	.00
7	---	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.22
8	---	.00	.00	---	.00	.04	.00	.00	.25	.00	.00	.01
9	---	.00	.00	---	.00	.26	.00	.00	.00	.00	.00	.00
10	---	.00	.00	.00	.00	.00	.00	.82	.00	.00	.00	.00
11	---	.00	.00	.00	.00	.00	.30	.00	.05	.00	.00	.00
12	---	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
13	---	.00	.00	.00	.00	.00	.00	.00	.00	.80	.00	.00
14	---	.00	.00	.05	.00	.00	.00	.10	.00	.00	.00	.00
15	---	.00	.00	.10	.00	.00	.00	.00	.75	.00	.00	.00
16	---	.00	.00	---	.00	.00	.03	.07	.00	.00	.00	.00
17	---	.00	.00	---	.00	.01	.00	.00	.30	.00	.13	.00
18	---	.00	.00	.00	.00	.22	.05	.00	.00	.00	.00	.00
19	---	.00	.00	.00	.00	.33	.81	.00	.00	.00	.00	.00
20	---	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
21	---	.00	.00	---	.00	.00	.00	.00	.00	.60	.00	.00
22	---	.30	.00	.00	.00	.00	.00	e1.42	.00	.00	.00	.00
23	---	.00	.00	---	.28	.00	.14	e.05	.53	.06	.20	.00
24	---	.00	.00	.00	.00	.00	.00	e.00	.00	.17	.42	.00
25	---	.00	.00	.15	.00	.00	.00	e.14	.20	.00	.15	.01
26	---	.00	.00	.00	.00	.00	.00	.00	.00	.00	.55	.00
27	---	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00
28	---	.23	.00	---	.00	.00	.00	.00	.00	.00	.00	.00
29	---	.00	.00	---	.00	.00	.00	.00	.00	.00	.00	.00
30	---	.00	.00	---	---	.00	.00	.00	.00	.00	.00	.00
31	---	---	.00	---	---	.00	---	.31	---	.00	.00	---
TOTAL	---	0.73	0.10	---	0.28	1.49	1.33	2.91	3.86	3.09	1.45	0.32

e Estimated

PRECIPITATION RECORDS

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

AVERAGE ANNUAL PRECIPITATION.--4 years, 20.02 in.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

[illegible]

CHEYENNE RIVER BASIN

303

435827104032500 PRECIP AT LITTLE BEAR RUN NEAR NEWCASTLE, WY

PRECIPITATION RECORDS

LOCATION.--Lat 43°58'27", long 104°03'25", in NW1/4SW1/4SW1/4 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 September 1992.

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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.03	.04	.00	.00	.00	.00	.02	.00	.53	.04	.00
2	.00	.03	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.21	.00	.09	.00	.00	.00	.00	.00	.11	.00	.00	.00
4	.11	.04	.00	.00	.00	.31	.00	.00	.15	.52	.00	.05
5	.00	.10	.00	.00	.00	.02	.00	.00	.01	.00	.14	.00
6	.00	.11	.00	.00	.00	.00	.00	.00	.03	.00	.00	.44
7	.00	.01	.00	.00	.00	.22	.00	.00	.02	.03	.00	.00
8	.00	.00	.02	.00	.00	.32	.00	.00	.00	.02	.00	.00
9	.00	.00	.00	.00	.02	.01	.00	.74	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.01	.66	.00	.00	.00	.03	.00
11	.00	.00	.00	.00	.00	.14	.08	.00	.00	.22	.00	.00
12	.00	.00	.05	.02	.00	.00	.00	.00	.22	1.70	.00	.00
13	.00	.01	.01	.09	.08	.00	.00	.00	.00	.01	.00	.00
14	.00	.01	.00	.23	.16	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.05	.93	.00	.01	.00
16	.00	.00	.00	.00	.00	.06	.02	.05	.15	.00	.10	.00
17	.03	.00	.00	.00	.02	.26	.05	.00	.08	.00	.00	.00
18	.06	.01	.00	.00	.00	.29	.87	.00	.08	.00	.33	.00
19	.00	.00	.00	.00	.00	.01	.33	.00	.28	.03	.00	.00
20	.00	.01	.00	.00	.00	.01	.00	.00	.00	.30	.00	.00
21	.00	.62	.00	.01	.00	.00	.00	.96	.09	.15	.00	.00
22	.00	.09	.00	.00	.37	.00	.17	.00	.00	.00	.98	.00
23	.00	.00	.00	.01	.11	.00	.11	.00	.00	.05	.20	.00
24	.00	.03	.00	.16	.00	.00	.00	.00	.02	.00	.11	.12
25	.00	.04	.00	.00	.00	.00	.00	.00	.01	.00	.33	.00
26	.00	.03	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00
27	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.28	.11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.02	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.01	.00	.00	---	.03	.00	.81	.00	.02	.00	.00
31	.00	---	.00	.00	---	.00	---	.15	---	.00	.17	---
TOTAL	0.71	1.48	0.24	0.52	0.76	1.69	2.29	2.78	2.22	3.58	2.44	0.61

WTR YR 1992 TOTAL 19.32

CHEYENNE RIVER BASIN

435355103432800 PRECIP AT MEDICINE MOUNTAIN NEAR CUSTER, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°53'55", long 103°43'28", in SW1/4SW1/4SE1/4 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.--3 years (water years 1989-90, 1991), 19.44 in.

REMARKS.--Records fair except those for estimated periods, which are 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.10	.10	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.60	.00
3	e.72	.00	.10	.00	.00	.00	.00	.00	.40	.80	.00	.00
4	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00
5	e.00	.00	.00	.00	.00	.90	.00	.00	.10	.10	.20	.40
6	e.00	.10	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00
7	e.00	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	e.00	.00	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00
9	e.00	.00	.00	.00	.00	.50	.00	.00	.00	.00	.00	.20
10	e.00	.00	.00	.00	.00	.00	.50	.20	.00	.10	.10	.00
11	e.00	.00	.00	.00	.00	.00	.20	.00	.20	.00	.00	.00
12	e.00	.00	.00	.00	.00	.20	.00	.00	.00	.20	.00	.00
13	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.50	.00	.00
14	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	e.00	.00	.00	.20	.00	.00	.00	.20	.00	.00	.00	.00
16	e.00	.00	.00	.00	.00	.00	.00	.00	.70	.00	.00	.00
17	e.00	.00	.00	.00	.00	.00	.00	.00	.30	.20	.00	.00
18	e.08	.00	.00	.00	.00	.40	.30	.00	.00	.00	.00	.00
19	e.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	e.00	.00	.00	.00	.00	.30	.00	.00	.70	.00	.00	e.00
21	e.00	.00	.00	.00	.00	.00	.00	.00	.30	.20	.00	e.00
22	.00	.50	.00	.00	.00	e.00	.00	.00	.00	.00	.50	e.00
23	.00	.00	.00	.00	.40	e.00	e.30	.00	.00	.00	.00	e.00
24	.00	.00	.00	.00	.00	e.00	e.00	.00	.40	.00	.30	e.00
25	.00	.00	.00	.30	.00	e.00	e.00	.00	.20	.00	.00	e.00
26	.00	.10	.00	.00	.00	e.00	e.00	.10	.30	.20	.00	e.00
27	.00	.10	.00	.00	.00	e.00	e.00	.10	.40	.00	.10	e.00
28	.00	.30	.00	.00	.00	e.00	e.00	.00	.00	.10	.00	e.00
29	.60	.00	.00	.00	.00	e.00	e.00	.50	.00	.00	.00	e.00
30	.00	.00	.00	.00	---	e.00	e.00	.00	.30	.00	.00	e.00
31	.00	---	.00	.00	---	.10	---	.00	---	.00	.00	---
TOTAL	1.40	1.20	0.10	0.60	0.40	2.40	1.30	1.10	4.40	2.60	2.10	0.60

WTR YR 1992 TOTAL 18.20

e Estimated

434928103214800 PRECIP AT NORTH FARM AT CUSTER STATE PARK, NEAR HAYWARD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°49'28", long 103°21'48", in NW1/4NW1/4NE1/4NE1/4 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	e.00	---	---	---	---	---	.00	.05	.00	.00	.27
2	.00	e.00	---	---	---	---	---	.00	.00	.62	.00	.00
3	.00	e.00	---	---	---	---	---	.00	.17	.00	.00	.00
4	.70	e.00	---	---	---	---	---	.00	.62	.00	.00	.00
5	e.00	e.04	---	---	---	---	---	.00	.00	.71	.34	.42
6	e.00	e.13	---	---	---	---	---	.00	.19	.00	.00	.00
7	e.00	e.00	---	---	---	---	---	.00	.04	.00	.00	.05
8	e.00	e.00	---	---	---	---	---	.06	.00	.09	.00	.00
9	e.00	e.00	---	---	---	---	---	.36	.00	.26	.00	.00
10	e.00	e.00	---	---	---	---	---	.87	.00	.00	.00	.00
11	e.00	e.00	---	---	---	---	---	.00	.00	.00	.00	.00
12	e.00	e.00	---	---	---	---	---	.00	.00	.82	.00	.00
13	e.00	e.00	---	---	---	---	---	.03	.00	.37	.00	.00
14	e.00	e.00	---	---	---	---	---	.00	.31	.00	.00	.00
15	e.00	e.00	---	---	---	---	---	.02	.68	e.00	.00	.00
16	e.00	e.00	---	---	---	---	---	.00	.09	e.00	.00	.00
17	e.00	e.06	---	---	---	---	---	.00	.00	e.00	.23	.00
18	e.04	e.02	---	---	---	---	---	.00	.14	e.00	.00	.00
19	e.00	e.00	---	---	---	---	---	.00	.19	e.01	.00	.00
20	e.00	e.01	---	---	---	---	---	.00	.62	e.05	.00	.00
21	e.00	e.54	---	---	---	---	---	.95	.28	e.27	.00	.00
22	e.00	---	---	---	---	---	---	.00	.00	e.00	.00	.00
23	e.00	---	---	---	---	---	---	.00	.00	e.03	.36	.00
24	e.00	---	---	---	---	---	---	.16	.00	e.07	.00	.00
25	e.00	---	---	---	---	---	---	.00	.00	e.01	.00	.00
26	e.00	---	---	---	---	---	---	.00	.14	e.00	.44	.00
27	e.02	---	---	---	---	---	---	.00	.00	e.00	.00	.00
28	e.37	---	---	---	---	---	---	.00	.13	e.15	.00	.00
29	e.03	---	---	---	---	---	---	.00	.08	e.42	.00	.00
30	e.00	---	---	---	---	---	---	.00	.00	.00	.00	.00
31	e.00	---	---	---	---	---	---	.89	---	.00	.00	---
TOTAL	1.16	---	---	---	---	---	---	3.34	3.73	3.88	1.37	0.74

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 NW1/4SW1/4SE1/4 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.--4 years, 23.12 in.

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

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.03	.00	.00	e.00	e.00	.00	.21	.23	.00	.00	.00
2	.00	.04	.10	.00	e.00	.00	.00	.02	.28	.23	.00	.00
3	.52	.00	.09	.00	e.00	.00	.00	.00	.03	.11	.00	.09
4	.22	.13	.03	.02	e.00	.23	.00	.00	.13	.40	.00	.00
5	.00	.17	.00	.00	e.00	.11	.00	.00	.00	.02	.00	.08
6	.00	.25	.00	.00	e.00	.06	.05	.00	.15	.00	.00	.00
7	.00	.00	.00	.00	e.00	.02	.00	.04	.03	.05	.00	.52
8	.00	.00	.00	e.00	e.00	.42	.00	.00	.10	.02	.00	.00
9	.00	.00	.00	e.00	e.00	.11	.00	.68	.00	.02	.00	.00
10	.00	.02	.00	e.00	e.00	.02	.23	.13	.18	.00	.00	.00
11	.00	.01	.00	e.00	e.00	.37	.41	.00	.00	.00	.00	.00
12	.00	.00	.00	e.04	e.00	.00	.04	.02	.00	.81	.00	.00
13	.00	.00	.00	e.06	e.00	.00	.00	.00	.00	.02	.00	.00
14	.00	.07	.00	e.36	e.18	.00	.00	.01	.00	.07	.00	.00
15	.00	.00	.00	e.00	e.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	e.06	e.00	.01	.02	.10	.67	.00	.09	.00
17	.05	.00	.00	e.00	e.04	.15	.10	.00	.01	.00	.02	.00
18	.09	.03	.00	e.00	e.08	.32	.61	.00	.24	.00	.00	.00
19	.02	.01	.00	e.00	e.00	.00	1.12	.03	.00	.01	.18	.00
20	.00	.02	.00	e.00	e.00	.00	.20	.00	.10	.12	.03	.00
21	.00	.44	.00	e.00	e.00	.00	.00	.52	.05	.39	.02	.00
22	.00	.11	.00	e.00	e.03	.00	.08	.22	.37	.01	.88	.05
23	.00	.07	.00	e.00	e.53	.00	.27	.00	.03	.03	.00	.00
24	.00	.00	.00	e.13	e.00	.00	.04	.00	.00	.02	.05	.07
25	.00	.03	.00	e.00	e.00	.00	.00	.00	.07	.00	.00	.25
26	.00	.10	.00	e.00	e.10	.00	.00	.00	.00	.00	.50	.00
27	.00	.20	.00	e.00	e.00	.00	.01	.00	.56	.00	.00	.00
28	.58	.05	.00	e.00	e.00	.02	.00	.00	.00	.00	.00	.00
29	.07	.13	.00	e.00	e.00	.00	.00	.00	.51	.00	.00	.00
30	.00	.01	.00	e.00	---	.00	.00	.70	.00	.00	.00	.00
31	.00	---	.00	e.00	---	.00	---	.03	---	.00	.06	---
TOTAL	1.55	1.92	0.22	0.67	0.96	1.84	3.18	2.71	3.74	2.33	1.83	1.06

CAL YR 1991 TOTAL 27.64

WTR YR 1992 TOTAL 22.01

e Estimated

CHEYENNE RIVER BASIN

307

432343103421500 PRECIP AT PARKER PEAK NEAR MINNEKAHTA, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°23'43", long 103°42'15", in SW1/4NW1/4NW1/4SE1/4, 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.05	.43	.70	.00	.13
2	---	---	---	---	---	---	---	.00	.00	.24	.00	.00
3	---	---	---	---	---	---	---	.00	.65	.00	.07	.00
4	---	---	---	---	---	---	---	.00	.37	.00	.00	.00
5	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
6	---	---	---	---	---	---	---	.00	.00	.06	.00	.00
7	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
8	---	---	---	---	---	---	---	.00	.00	.05	.00	.00
9	---	---	---	---	---	---	---	.80	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.26	.00	.00
12	---	---	---	---	---	---	---	.00	.00	.26	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
14	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.82	.00	.00	.00
16	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
17	---	---	---	---	---	---	---	.00	.21	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.25	.00	.00	.00
20	---	---	---	---	---	---	---	.00	.00	.40	.00	.00
21	---	---	---	---	---	---	---	.00	.00	.32	.00	.00
22	---	---	---	---	---	---	---	1.42	.00	.00	.38	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.74	.00
24	---	---	---	---	---	---	---	.05	.13	.13	.00	.00
25	---	---	---	---	---	---	---	.00	.74	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.00	.11	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.19	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.95	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
31	---	---	---	---	---	---	---	.40	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	2.72	3.60	3.67	1.19	0.13

CHEYENNE RIVER BASIN

434002103214500 PRECIP AT RACETRACK BUTTE, NEAR FAIRBURN, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°40'02", long 103°21'45", in SW1/4SE1/4SE1/4 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.--9 years, 15.98 in.

REMARKS.--Records fair.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.30	.52	.00	.10
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00
3	.35	.00	.00	.00	.00	.00	.00	.00	.16	.02	.00	.00
4	.00	.00	.00	.00	.00	.83	.00	.00	.00	.02	.00	.00
5	.00	.04	.00	.00	.00	.03	.00	.00	.53	.39	.00	.00
6	.00	.11	.00	.00	.00	.14	.00	.00	.00	.08	.00	.00
7	.00	.00	.00	.10	.00	.00	.00	.00	.02	.00	.00	.00
8	.00	.00	.00	.00	.00	.48	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.09	.00	1.00	.00	.11	.00	.00
10	.00	.00	.00	.00	.00	.00	.37	.19	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.15	.00	.00	.03	.00	.00
12	.00	.00	.00	.00	.00	.00	.12	.00	.00	.85	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	.00	.00
14	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.72	.00	.00	.00
16	.00	.00	.00	.00	.00	.03	.00	.06	.10	.00	.00	.00
17	.00	.11	.00	.00	.00	.00	.03	.00	.00	.00	.11	.00
18	.09	.11	.00	.00	.00	.45	.00	.00	.15	.00	.02	.00
19	.00	.00	.00	.00	.00	.00	.03	.00	.14	.05	.00	.00
20	.00	.00	.00	.00	.00	.00	.02	.00	.71	.05	.00	.00
21	.00	.27	.00	.00	.00	.00	.00	.91	.19	.00	.00	.00
22	.00	.05	.00	.00	.00	.00	.10	.13	.00	.80	.08	.00
23	.00	.00	.00	.00	.33	.00	.00	.01	.00	.00	.25	.00
24	.00	.00	.00	.00	.00	.00	.00	.07	.02	.11	.06	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.02	.14	.00	.76	.00
27	.03	.36	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.55	.11	.00	.00	.00	.00	.00	.00	.29	.07	.00	.00
29	.06	.00	.00	.00	.00	.00	.00	.00	.00	.46	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.12	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.93	---	.03	.00	---
TOTAL	1.08	1.16	0.00	0.15	0.33	2.05	0.82	3.44	3.47	3.71	1.28	0.10

CAL YR 1991 TOTAL 18.90

WTR YR 1992 TOTAL 17.59

CHEYENNE RIVER BASIN

309

434751104005100 PRECIP AT REDBIRD CANYON NEAR NEWCASTLE, WY

PRECIPITATION RECORDS

LOCATION.--Lat 43°47'51", long 104°00'51", in SW1/4SW1/4SW1/4, 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	e.02	e.00	e.59	e.04	.09
2	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	e.00	e.00	.02
3	.24	.02	.08	.00	.00	.00	.00	e.00	e.12	e.00	e.00	.00
4	.08	.00	.00	.00	.00	.11	.00	e.00	e.17	e.58	e.00	.00
5	.00	.02	.00	.00	.00	.11	.00	e.00	e.01	e.00	e.16	.00
6	.00	.14	.02	.00	.00	.00	.00	e.00	e.03	e.00	e.00	.18
7	.00	.00	.00	.00	.00	.00	.00	e.00	e.02	e.03	.00	.16
8	.00	.02	.00	.00	.00	.19	.00	e.00	e.00	e.02	.00	.02
9	.02	.00	.00	.00	.00	.00	.00	e.83	e.00	e.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.29	e.00	e.00	e.00	.00	.00
11	.02	.00	.00	.00	.00	.04	.27	e.00	e.00	e.24	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	e.00	e.25	e1.86	.00	.00
13	.00	.00	.00	.00	.00	.00	.05	e.00	e.00	e.01	.00	.02
14	.00	.00	.00	.00	.00	.00	.00	e.00	e.00	e.00	.00	.00
15	.00	.00	.00	.02	.00	.00	.00	e.06	e1.04	e.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	e.06	e.17	e.00	.00	.00
17	.00	.02	.00	.00	.00	.00	.12	e.04	e.09	e.00	.00	.00
18	.00	.00	.00	.00	.00	.17	1.05	e.04	e.09	e.00	.00	.00
19	.00	.00	.00	.00	.00	.10	.12	e.00	e.31	e.02	.00	.00
20	.00	.00	.00	.00	.00	.00	.21	e.00	e.00	e.33	.00	.00
21	.00	.36	.00	.00	.00	.02	.02	e1.08	e.10	e.17	.00	.00
22	.00	.02	.00	.00	.00	.00	.21	e.00	e.00	e.00	.00	.00
23	.00	.00	.00	.00	.13	.00	.00	e.00	e.00	e.06	.42	.00
24	.00	.00	.00	.00	.00	.00	.00	e.00	e.02	e.00	.18	.00
25	.00	.00	.00	.00	.00	.02	.00	e.00	e.01	e.00	.09	.04
26	.00	.00	.00	.00	.00	.00	.02	e.00	e.04	e.00	.40	.02
27	.00	.12	.00	.00	.02	.00	e.00	e.00	e.00	e.00	.00	.00
28	.04	.14	.00	.00	.00	.00	e.00	e.00	e.00	e.00	.02	.02
29	.02	.02	.00	.00	.00	.00	e.00	e.00	e.00	e.00	.00	.00
30	.00	.00	.00	.00	---	.00	e.00	e.91	e.00	e.02	.00	.00
31	.00	---	.00	.00	---	.00	---	e.17	---	e.00	.22	---
TOTAL	0.42	0.88	0.10	0.02	0.15	0.76	2.36	3.21	2.47	3.93	1.53	0.57

WTR YR 1992 TOTAL 16.40

e Estimated

CHEYENNE RIVER BASIN

440242103520600 PRECIP AT REYNOLDS PRAIRIE NEAR HILL CITY, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°02'42", long 103°52'06", in NW1/4NE1/4SW1/4, 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.--4 years, 18.71 in.

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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.30	.00	.00
3	.50	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00
5	.00	.00	.00	.00	.00	.30	.00	.00	.00	.80	.00	.00
6	.00	.00	.00	.00	.00	.60	.00	.00	.10	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.30
8	.00	.50	.00	.00	.00	.50	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	1.00	.00	.00	.00	.50
11	.00	.00	.00	.00	.00	.00	.80	.00	.20	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.10	.90	.00	.00
14	.00	.00	.00	.20	.00	.00	.00	.00	.10	.00	.00	.00
15	.00	.00	.00	.30	.00	.00	.00	.00	.60	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.10	.00
17	.00	.00	.00	.00	.00	.10	.00	.00	.10	.00	.10	.00
18	.00	.00	.00	.10	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.40	.40	.00	.20	.00	.00	.00
20	.00	.30	.00	.00	.00	.00	.20	.00	.00	.20	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.10	.00
22	.00	.00	.00	.00	.00	.00	.00	2.10	.30	.00	.00	.00
23	.00	.00	.00	.20	.20	.00	.70	.00	.00	.20	.60	.00
24	.00	.00	.00	.00	.10	.00	.00	.00	.00	.10	.50	.00
25	.00	.00	.00	.20	.20	.00	.10	.00	.00	.00	.00	.50
26	.00	.40	.00	.00	.10	.00	.10	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00
28	.50	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.20	.00	.00
31	.00	---	.00	.00	---	.00	---	.40	---	.00	.00	---
TOTAL	1.00	1.40	0.20	1.00	0.60	1.90	2.30	3.50	2.50	2.90	1.40	1.30

CAL YR 1991 TOTAL 21.55
WTR YR 1992 TOTAL 20.00

434638103253500 PRECIP AT ROAD CAMP AT CUSTER STATE PARK, NEAR CUSTER, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°46'38", long 103°25'35", in NE1/4NW1/4SW1/4NE1/4, 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.--3 years, 21.19 in.

REMARKS.--Records fair except those for estimated periods, which are 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.20	e.68	e.42	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.14	e.00	.30
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.00	e.13	.00
4	1.40	.00	.00	.00	.00	.00	.00	.00	.65	e.00	.00	.00
5	.00	.00	.00	.00	.00	.45	.00	.00	.40	e.49	.00	.15
6	.00	.15	.00	.00	.00	.00	.00	.00	.25	.00	.00	.00
7	.00	.00	.00	.00	.00	.60	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.10	.00	.00	.00	.00	.10	.00	.00	.00
9	.00	.00	.00	.00	.00	.50	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	1.35	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00	.10	.00
12	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.95	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	e.22	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.40	.00	e.58	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	e.12	.00	.15	.00
18	.00	.15	.00	.00	.00	.00	.00	.00	e.03	.00	.00	.00
19	.10	.00	.00	.00	.00	.00	.00	.00	e.20	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	e.91	.00	e.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	e.25	.00	e.00	.00
22	.00	1.25	.00	.00	.00	.00	.00	.80	e.00	.20	e.00	.00
23	.00	.00	.00	.00	.30	.00	.00	.00	e.00	.00	e.44	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	e.08	.00	e.13	.00
25	.00	.00	.00	.00	.00	.00	.00	.20	e.00	.00	e.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	e.08	.30	e.54	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.20	e.00	.00
28	.00	.00	.00	.00	.00	.10	.00	.00	e.22	.00	.00	.00
29	.60	.00	.00	.00	.00	.45	.00	.00	e.04	.10	.00	.00
30	.05	.00	.00	.00	---	.00	.30	.50	e.00	.10	.00	.00
31	.00	---	.00	.10	---	.10	---	.00	---	.00	.00	---
TOTAL	2.15	1.55	0.00	0.20	0.30	2.20	1.10	2.85	4.33	3.16	1.91	0.45

CAL YR 1991 TOTAL 24.23

WTR YR 1992 TOTAL 20.20

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 NW1/4SE1/4NE1/4, 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.57	.09	.22
2	---	---	---	---	---	---	---	.00	.00	.03	.00	.00
3	---	---	---	---	---	---	---	.00	.22	.00	.00	.00
4	---	---	---	---	---	---	---	.00	.50	.41	.00	.10
5	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
6	---	---	---	---	---	---	---	.00	.00	.31	.00	.12
7	---	---	---	---	---	---	---	.00	.20	.02	.00	.00
8	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
9	---	---	---	---	---	---	---	1.10	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.10	.00	.00
12	---	---	---	---	---	---	---	.05	.00	1.00	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
14	---	---	---	---	---	---	---	.00	.26	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.54	.00	.00	.00
16	---	---	---	---	---	---	---	.02	.16	.00	.14	.00
17	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.40	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.00	.08	.00	.00
20	---	---	---	---	---	---	---	.00	.00	.42	.00	.00
21	---	---	---	---	---	---	---	1.70	.08	.48	.00	.00
22	---	---	---	---	---	---	---	.05	.00	.00	.00	.00
23	---	---	---	---	---	---	---	.20	.25	.00	.61	.00
24	---	---	---	---	---	---	---	.00	.00	.00	.15	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.08	.00
26	---	---	---	---	---	---	---	.00	.14	.00	.62	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.37	.00	.00
29	---	---	---	---	---	---	---	.00	.10	.10	.00	.00
30	---	---	---	---	---	---	---	.21	.00	.00	.00	.00
31	---	---	---	---	---	---	---	.70	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	4.03	2.85	3.89	1.69	0.44

CHEYENNE RIVER BASIN

313

440022103195200 PRECIP AT SHERIDAN LAKE ROAD NEAR RAPID CITY, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°00'22", long 103°19'52", in SW1/4SW1/4NW1/4 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. 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.02	.00	.06
2	---	---	---	---	---	---	---	.00	.00	.53	.00	.00
3	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
4	---	---	---	---	---	---	---	.00	.30	.00	.00	.00
5	---	---	---	---	---	---	---	.00	.15	.00	.00	.04
6	---	---	---	---	---	---	---	.00	.00	.85	.00	.00
7	---	---	---	---	---	---	---	.00	.00	.08	.00	.29
8	---	---	---	---	---	---	---	.00	.10	.00	.00	.00
9	---	---	---	---	---	---	---	.20	.00	.00	.00	.00
10	---	---	---	---	---	---	---	1.03	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.23	.00	.00
12	---	---	---	---	---	---	---	.00	.00	.23	.00	.00
13	---	---	---	---	---	---	---	.02	.00	.90	.00	.00
14	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.46	.00	.00	.00
16	---	---	---	---	---	---	---	.01	.62	.00	.00	.00
17	---	---	---	---	---	---	---	.00	.05	.00	.06	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.16	.00	.00	.00
20	---	---	---	---	---	---	---	.00	.00	.17	.00	.00
21	---	---	---	---	---	---	---	.00	.00	.24	.00	.00
22	---	---	---	---	---	---	---	.84	.35	.00	.00	.00
23	---	---	---	---	---	---	---	.02	.00	.00	.27	.00
24	---	---	---	---	---	---	---	.00	.00	.10	.13	.00
25	---	---	---	---	---	---	---	.00	.06	.84	.02	.00
26	---	---	---	---	---	---	---	.00	.00	.00	.23	.00
27	---	---	---	---	---	---	---	.04	.14	.03	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.73	.06	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.29	.00	.00
31	---	---	---	---	---	---	---	.50	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	2.66	3.12	4.57	0.71	0.39

CHEYENNE RIVER BASIN

440756103450300 PRECIP AT TELEGRAPH GULCH ABOVE ROCHFORD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°07'56", long 103°45'03", in SW1/4NW1/4NE1/4SW1/4 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.--2 years, 21.13 in.

REMARKS.--Records fair except those for estimated period, which are 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.23	.00	.00	.12
2	.00	.00	.00	.00	.00	.00	.00	.05	.13	.43	.00	.18
3	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.51	.00	.06	.00	.00	.00	.00	.00	.05	.00	.22	.00
5	.06	.03	.00	.00	.00	.69	.00	.00	.17	.50	.00	.06
6	.00	.15	.00	.00	.00	.18	.00	.00	.02	.00	.59	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.08	.05	.00	.38
8	.00	.00	.00	.04	.00	.00	.00	.00	.08	.00	.00	.00
9	.00	.00	.00	.00	.00	.55	.00	1.02	.00	.00	.00	.02
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
11	.00	.00	.00	.00	.00	.00	.62	.00	.14	.03	.00	.00
12	.00	.00	.00	.00	.00	.29	.03	.00	.01	.23	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.04	.89	.00	.00
14	.00	.00	.00	.10	.00	.00	.00	.00	.02	.00	.00	.00
15	.14	.00	.00	.20	.05	.00	.00	.00	.04	.05	.00	.00
16	.00	.01	.00	.00	.00	.00	.00	.00	.50	.00	.04	.00
17	.00	.00	.00	.00	.00	.15	.00	.00	.78	.00	.10	.00
18	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.23	.82	.00	.06	.06	.00	.00
20	.00	.00	.00	.00	.00	.00	.21	.00	.00	.08	.00	.00
21	.00	.00	.00	.00	.00	.00	.07	1.01	.11	.18	.03	.00
22	.00	.30	.00	.00	.00	.00	.00	.00	.19	.11	.00	.00
23	.00	.05	.00	.00	.13	.00	.00	.00	.00	.00	.84	.00
24	.00	.00	.00	.00	.00	.00	.04	.00	.18	.00	.02	.00
25	.00	.00	.00	.15	.00	.00	.04	.00	.00	.00	.02	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.08	.00	.27	.00
27	.00	.00	.00	.00	.04	.00	.00	.00	.15	.00	.00	.00
28	.21	.26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.31	.00	.00	.00	.00	.00	.00	.00	.56	.12	.00	.00
30	.00	.11	.00	.00	---	.00	.00	.00	.00	.02	.00	.00
31	.00	---	.00	.00	---	.00	---	.64	---	.00	.00	---
TOTAL	1.37	0.93	0.06	0.49	0.22	2.09	1.83	2.72	3.62	2.76	2.13	0.76

CAL YR 1991 TOTAL 23.94

WTR YR 1992 TOTAL 18.98

BELLE FOURCHE RIVER BASIN

315

442104103414400 PRECIP AT TWO BIT GULCH NEAR DEADWOOD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°21'04", long 103°41'44", in NW1/4NE1/4NW1/4SE1/4 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 except those for estimated periods, which are poor. 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.25	e.00	.00	e.00
2	---	---	---	---	---	---	---	.00	.00	e.06	.00	e.00
3	---	---	---	---	---	---	---	.00	.00	e.00	.00	e.00
4	---	---	---	---	---	---	---	.00	.03	e.51	.00	e.00
5	---	---	---	---	---	---	---	.00	.25	e.06	.00	.16
6	---	---	---	---	---	---	---	.00	.20	e.00	.00	.00
7	---	---	---	---	---	---	---	.00	.13	e.00	.00	.00
8	---	---	---	---	---	---	---	.00	.00	e.00	.00	.60
9	---	---	---	---	---	---	---	.00	.00	e.00	.00	.00
10	---	---	---	---	---	---	---	.90	.00	e.11	.00	.00
11	---	---	---	---	---	---	---	.00	.04	.06	.00	.00
12	---	---	---	---	---	---	---	.00	.08	e.19	.00	.00
13	---	---	---	---	---	---	---	.00	.19	e.56	.00	.00
14	---	---	---	---	---	---	---	.00	1.43	e.00	.00	.00
15	---	---	---	---	---	---	---	.00	.10	.07	.00	.00
16	---	---	---	---	---	---	---	.00	.58	.00	.08	.00
17	---	---	---	---	---	---	---	.05	.34	.00	.09	.00
18	---	---	---	---	---	---	---	.00	.09	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.09	.03	.00	.00
20	---	---	---	---	---	---	---	.00	.02	.02	.00	.00
21	---	---	---	---	---	---	---	.00	.00	.16	.27	.05
22	---	---	---	---	---	---	---	.95	.12	.09	.00	.00
23	---	---	---	---	---	---	---	.00	.04	.00	.68	.00
24	---	---	---	---	---	---	---	.00	.07	.07	.05	.00
25	---	---	---	---	---	---	---	.00	.00	.10	.03	.04
26	---	---	---	---	---	---	---	.00	.00	.00	.14	.00
27	---	---	---	---	---	---	---	.00	.03	.07	.00	.00
28	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.24	.06	.00	.00
30	---	---	---	---	---	---	---	.00	e.00	.26	.00	.00
31	---	---	---	---	---	---	---	1.02	---	.03	.00	---
TOTAL	---	---	---	---	---	---	---	2.92	4.32	2.51	1.34	0.85

e Estimated

CHEYENNE RIVER BASIN

441810104062300 PRECIP AT WAGON CANYON NEAR SUNDANCE, WY

PRECIPITATION RECORDS

LOCATION.--Lat 44°18'10", long 104°06'23", in SW1/4NE1/4SW1/4 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.

AVERAGE ANNUAL PRECIPITATION.--3 years, 22.35 in.

REMARKS.--Records fair except those for estimated periods, which are 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	e.00	.00	.00	.00	.00	.70	e.20	.00	e.08
2	.00	.00	.00	e.00	.00	.00	.00	.00	.00	e.14	.00	e.00
3	.00	.00	.20	e.00	.00	.00	.00	.00	.00	e.00	.00	e.00
4	.30	.00	.00	e.00	.00	.00	.00	.00	.00	e.00	.00	e.00
5	.20	.00	.00	e.00	.00	.10	.00	.00	.20	e.00	.00	e.00
6	.00	.40	.00	e.00	.00	.10	.00	.00	.10	e.00	.00	e.72
7	.00	.00	.10	e.12	.00	.00	.00	.00	.10	e.14	.00	e.60
8	.00	.00	.00	e.00	.00	.00	.00	.00	.20	e.01	.00	.00
9	.00	.00	.00	e.03	.00	.20	.00	.00	.00	e.00	.00	.00
10	.00	.00	.00	e.00	.10	.10	.00	.60	.00	e.05	.00	.00
11	.00	.00	.00	e.00	.00	.00	.40	.00	.00	e.00	.00	.00
12	.00	.00	.00	e.06	.00	.50	.00	.00	.00	.40	.00	.00
13	.00	.20	.00	e.12	.00	.00	.00	.00	.00	.70	.00	.00
14	.00	.00	.00	e.18	.20	.10	.00	.00	.40	.00	.00	.00
15	.00	.00	.00	e.00	.00	.00	.00	.00	.50	.20	.00	.00
16	.00	.00	.00	e.18	.00	.00	.10	.00	.00	.00	.00	.00
17	.00	.00	.00	e.00	.00	.20	.00	.10	.10	.00	.10	.00
18	.20	.10	.00	e.00	.20	.10	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	e.00	.00	.20	1.00	.00	.20	.00	.10	.00
20	.00	.00	.00	e.00	.00	.10	1.30	.00	.00	.00	.00	.00
21	.00	.00	.00	e.00	.00	.00	.00	.50	.00	.30	.30	.00
22	.00	.00	.00	e.00	.00	.00	.00	.00	.30	.00	.00	.00
23	.00	.70	.00	e.06	.70	.00	.10	.00	.00	.00	.50	.00
24	.00	.00	.00	e.00	.00	.00	.50	.00	.20	.30	.20	.00
25	.00	.00	.00	e.06	.00	.00	.00	.00	.00	.00	.00	.60
26	.00	.00	.00	e.00	.00	.00	.00	.00	e.00	.00	.50	.00
27	.00	.00	.00	e.00	.00	.00	.00	.00	e.09	.00	.00	.00
28	.50	.00	.00	e.00	.10	.00	.00	.00	e.00	.00	.00	.00
29	.30	.00	.00	e.00	.00	.00	.00	.00	e.31	.10	.00	.00
30	.00	.90	.00	e.00	---	.00	.00	.00	.00	.00	.00	.00
31	.10	---	.00	e.00	---	.00	---	.50	---	e.00	.00	---
TOTAL	1.60	2.30	0.30	0.81	1.30	1.70	3.40	1.70	3.40	2.54	1.70	2.00

CAL YR 1991 TOTAL 24.05
WTR YR 1992 TOTAL 22.75

e Estimated

CHEYENNE RIVER BASIN

317

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 NE1/4SW1/4NE1/4 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. 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.33	.67	.10	.18
2	---	---	---	---	---	---	---	.00	.00	.14	.00	.00
3	---	---	---	---	---	---	---	.00	.00	.00	.03	.00
4	---	---	---	---	---	---	---	.00	.61	.00	.00	.20
5	---	---	---	---	---	---	---	.00	.50	.48	.00	.00
6	---	---	---	---	---	---	---	.00	.00	.00	.02	.00
7	---	---	---	---	---	---	---	.00	.04	.03	.00	.05
8	---	---	---	---	---	---	---	.00	.00	.02	.00	.00
9	---	---	---	---	---	---	---	.00	.00	.07	.00	.00
10	---	---	---	---	---	---	---	1.54	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.00	.04	.00
12	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
13	---	---	---	---	---	---	---	.06	.00	1.15	.00	.00
14	---	---	---	---	---	---	---	.00	.22	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.57	.00	.00	.00
16	---	---	---	---	---	---	---	.00	.00	.00	.05	.00
17	---	---	---	---	---	---	---	.00	.12	.00	.19	.00
18	---	---	---	---	---	---	---	.05	.03	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.20	.06	.00	.00
20	---	---	---	---	---	---	---	.00	.90	.00	.00	.00
21	---	---	---	---	---	---	---	.00	.25	.63	.00	.00
22	---	---	---	---	---	---	---	.95	.00	.02	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.38	.00
24	---	---	---	---	---	---	---	.00	.08	.15	.11	.00
25	---	---	---	---	---	---	---	.11	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.08	.12	.47	.00
27	---	---	---	---	---	---	---	.06	.00	.09	.00	.00
28	---	---	---	---	---	---	---	.00	.22	.03	.00	.00
29	---	---	---	---	---	---	---	.00	.04	1.02	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
31	---	---	---	---	---	---	---	.72	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	3.49	4.19	4.68	1.39	0.43

BELLE FOURCHE RIVER BASIN

441632103482400 PRECIP NEAR ENGLEWOOD NEAR LEAD, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°16'32", long 103°48'24", in SW1/4SE1/4NE1/4SW1/4 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.24	.33	.29	.00	.76
2	---	---	---	---	---	---	---	.00	.02	.00	.00	.00
3	---	---	---	---	---	---	---	.00	.05	.00	.03	.00
4	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
5	---	---	---	---	---	---	---	.00	.15	.00	.17	.03
6	---	---	---	---	---	---	---	.00	.10	.19	.00	.59
7	---	---	---	---	---	---	---	.00	.18	.06	.00	.00
8	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
9	---	---	---	---	---	---	---	.70	.26	.05	.00	.00
10	---	---	---	---	---	---	---	.00	.02	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.37	.02	.00	.00
12	---	---	---	---	---	---	---	.00	.60	.03	.00	.00
13	---	---	---	---	---	---	---	.00	.03	.77	.00	.00
14	---	---	---	---	---	---	---	.00	.02	.05	.00	.00
15	---	---	---	---	---	---	---	.00	.03	.00	.00	.00
16	---	---	---	---	---	---	---	.12	.04	.00	.18	.00
17	---	---	---	---	---	---	---	.00	.22	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.18	.00	.03	.00
19	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
20	---	---	---	---	---	---	---	.00	.03	.00	.17	.00
21	---	---	---	---	---	---	---	1.07	.59	.28	.06	.05
22	---	---	---	---	---	---	---	.00	.03	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.79	.00
24	---	---	---	---	---	---	---	.00	.28	.05	.02	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.00	.09
26	---	---	---	---	---	---	---	.00	.66	.00	.22	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.20	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	---	.95	.00	.00	.00	.00
31	---	---	---	---	---	---	---	.20	---	.00	2.00	---
TOTAL	---	---	---	---	---	---	---	3.28	4.39	1.79	3.67	1.52

CHEYENNE RIVER BASIN

319

433702103411200 PRECIP NEAR HOPKINS FLATS NEAR PRINGLE, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°37'02", long 103°41'12", in NW1/4SW1/4NE1/4, 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. 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.59	.00	.25
2	---	---	---	---	---	---	---	.00	1.05	.00	.00	.00
3	---	---	---	---	---	---	---	.00	.18	.00	.00	.00
4	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
5	---	---	---	---	---	---	---	.00	.13	.00	.00	.19
6	---	---	---	---	---	---	---	.00	.00	.35	.00	.08
7	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
8	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
9	---	---	---	---	---	---	---	1.11	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
12	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.84	.00	.00
14	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
15	---	---	---	---	---	---	---	.04	.20	.00	.00	.00
16	---	---	---	---	---	---	---	.00	.66	.00	.00	.00
17	---	---	---	---	---	---	---	.00	.12	.00	.23	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.17	.08	.00	.00
20	---	---	---	---	---	---	---	.00	.03	.00	.00	.00
21	---	---	---	---	---	---	---	.00	.00	1.08	.00	.00
22	---	---	---	---	---	---	---	1.12	.00	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.85	.00
24	---	---	---	---	---	---	---	.09	.16	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
26	---	---	---	---	---	---	---	.00	.09	.30	.00	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.20	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
31	---	---	---	---	---	---	---	.42	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	2.78	2.99	3.24	1.08	0.52

CHEYENNE RIVER BASIN

434534103290500 PRECIP NEAR MT. COOLIDGE NEAR CUSTER, SD

PRECIPITATION RECORDS

LOCATION.--Lat 43°45'34", long 103°29'05", in NW1/4NE1/4NW1/4SE1/4 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.--3 years, 22.94 in.

REMARKS.--Records fair.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

[illegible]

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 to September 1992 (seasonal record).

INSTRUMENTATION.--Non-shielded, 4.0-in. diameter plastic gage with 11-in. capacity. Elevation of gage is 40,900 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.03	.00	.00	.12
2	---	---	---	---	---	---	---	.00	.00	.67	.00	.00
3	---	---	---	---	---	---	---	.00	.20	.15	.00	.00
4	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
5	---	---	---	---	---	---	---	.00	.24	.17	.00	.00
6	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
7	---	---	---	---	---	---	---	.00	.00	.00	.00	.09
8	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
9	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
10	---	---	---	---	---	---	---	.53	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.00	.13	.00	.00
12	---	---	---	---	---	---	---	.00	.00	.54	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
14	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
15	---	---	---	---	---	---	---	.00	.75	.00	.00	.00
16	---	---	---	---	---	---	---	.00	.15	.00	.00	.00
17	---	---	---	---	---	---	---	.00	.05	.00	.00	.00
18	---	---	---	---	---	---	---	.00	.31	.00	.04	.00
19	---	---	---	---	---	---	---	.00	.00	.00	.11	.00
20	---	---	---	---	---	---	---	.00	.00	.06	.00	.00
21	---	---	---	---	---	---	---	.00	.07	.00	.00	.00
22	---	---	---	---	---	---	---	.87	.00	.00	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.18	.00
24	---	---	---	---	---	---	---	.00	.14	.04	.07	.00
25	---	---	---	---	---	---	---	.06	.00	.00	.06	.00
26	---	---	---	---	---	---	---	.00	.47	.00	.60	.00
27	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	---	.00	.02	.00	.00	.00
29	---	---	---	---	---	---	---	.00	.10	1.45	.00	.00
30	---	---	---	---	---	---	---	.12	.00	.00	.00	.00
31	---	---	---	---	---	---	---	.25	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	1.83	2.53	3.21	1.06	0.21

CHEYENNE RIVER BASIN

440001103300200 PRECIP NEAR SHERIDAN LAKE NEAR HILL CITY, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°00'01", long 103°30'02", in NE1/4SE1/4NW1/4 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 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
2	---	---	---	---	---	---	---	.00	.02	.64	.02	.24
3	---	---	---	---	---	---	---	.00	.00	.03	.03	---
4	---	---	---	---	---	---	---	.00	.18	.00	.09	---
5	---	---	---	---	---	---	---	.00	.12	.53	.00	---
6	---	---	---	---	---	---	---	.00	.03	.00	.09	---
7	---	---	---	---	---	---	---	.00	.12	.16	.00	---
8	---	---	---	---	---	---	---	.00	.05	.00	.00	---
9	---	---	---	---	---	---	---	.09	.00	.00	.07	---
10	---	---	---	---	---	---	---	1.06	.11	.11	.00	---
11	---	---	---	---	---	---	---	.00	.00	.00	.00	---
12	---	---	---	---	---	---	---	.00	.00	.36	.00	---
13	---	---	---	---	---	---	---	.00	.12	.84	.00	---
14	---	---	---	---	---	---	---	.00	.11	.00	.00	---
15	---	---	---	---	---	---	---	.00	.03	.00	.00	---
16	---	---	---	---	---	---	---	.00	.56	.00	.00	---
17	---	---	---	---	---	---	---	.00	.13	.00	.12	.00
18	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	---	.00	.12	.00	.00	.00
20	---	---	---	---	---	---	---	.00	.00	.09	.00	.00
21	---	---	---	---	---	---	---	.36	.00	.37	.00	.00
22	---	---	---	---	---	---	---	.56	.29	.09	.00	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.50	.00
24	---	---	---	---	---	---	---	.00	.12	.00	.00	.00
25	---	---	---	---	---	---	---	.00	.03	.12	.08	.00
26	---	---	---	---	---	---	---	.00	.03	.00	.22	.00
27	---	---	---	---	---	---	---	.00	.23	1.06	.06	.00
28	---	---	---	---	---	---	---	.00	.00	.02	.00	.00
29	---	---	---	---	---	---	---	.02	.89	.04	.00	.00
30	---	---	---	---	---	---	---	.00	.00	.23	.00	.00
31	---	---	---	---	---	---	---	.46	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	2.55	3.29	4.69	1.28	---

MISCELLANEOUS WATER QUALITY DATA

323

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 (NADP) and National Trends Network.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	<.01	.00	.00	.00	.00	.00	.00	.00	<.01	.36	.57	---
2	.00	.00	.00	.00	.00	.00	<.01	.00	<.01	<.01	.19	---
3	.05	.00	.00	.00	.00	.00	<.01	.00	.19	.00	.01	---
4	.14	<.01	.00	<.01	.00	.10	.00	.00	.00	.00	.90	---
5	<.01	.04	.00	.00	.00	.30	<.01	.00	.39	<.01	.07	---
6	.00	---	.00	.00	.00	.15	.11	.00	.00	.00	.03	---
7	.00	---	.00	.37	.00	.00	<.01	.00	.35	.73	<.01	---
8	.00	---	.00	.00	.00	.22	.29	.00	.00	.00	<.01	<.01
9	.00	---	.00	.00	.00	.00	.01	.00	.00	.72	.00	<.01
10	.00	---	.00	.00	<.01	.00	.00	.01	.00	.00	.00	.00
11	.00	---	.00	.00	.26	.04	.06	.00	.00	.29	<.01	.00
12	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00	<.01	.00
13	<.01	.00	.01	<.01	.00	.00	.00	.04	.00	.05	<.01	<.01
14	.00	.00	.00	.17	.05	.00	<.01	<.01	.21	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.16	.01	.81	.25	<.01	.01
16	.00	.06	.00	.00	.00	.00	.00	<.01	1.60	<.01	<.01	.01
17	<.01	.18	.00	.00	.37	.00	.26	.00	.11	<.01	<.01	.00
18	.00	.00	.00	<.01	.43	.00	.45	.00	.00	.00	.01	.00
19	.00	.00	.10	.00	.00	<.01	.02	.00	.00	.03	<.01	.00
20	.00	.00	.00	.00	.00	.00	---	.00	.00	.00	<.01	.10
21	.00	<.01	.00	.00	.15	.00	---	.07	.03	.55	.77	.05
22	.00	.00	.00	.00	.00	.00	.00	.03	.00	.55	.00	.00
23	.00	.00	.00	.00	<.01	.00	<.01	.00	.00	<.01	<.01	.00
24	.00	.00	.00	.15	.00	.00	.01	.21	.05	.00	.52	.00
25	<.01	.00	.00	.00	.00	.00	.00	.00	.00	.03	.21	<.01
26	.00	.09	.00	.00	.02	.00	.00	.00	.00	<.01	<.01	.00
27	.00	.00	.00	.00	.00	<.01	.00	.00	.00	<.01	.00	.00
28	.92	.00	.00	.00	.00	<.01	<.01	.00	.00	<.01	.00	.00
29	.00	.26	.00	.00	.00	.00	.00	.00	.01	.05	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	1.70	.77	.00	.00
31	.00	---	.00	.00	---	<.01	---	.00	---	<.01	.05	---

< 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, Champaign, Illinois. The records of precipitation water-quality provided by the CAL are not reviewed for accuracy or consistency.

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DATE	TOTAL PRECIP- ITATION FOR DEFINED PERIOD (IN) (00193)	VOLUME ATM DEP WET (L) (83177)	COL- LECTOR EFFI- CIENCY WET DEPOS. PERCENT (82284)	SPEC. CONDUCT- TANCE CK.SOL. ATM DEP WET TOT (US/CM) (83152)	SPEC. CONDUCT- TANCE FIELD ATM DEP WET TOT (US/CM) (83154)	SPEC. CONDUCT- 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 01-08	0.19	0.325	99	21.1	12.3	10.6	4.35	6.06	6.52
OCT 08-15	--	0.002	--	--	--	--	4.38	--	--
OCT 15-22	--	0.00	--	--	--	--	--	--	--
OCT 22-29	0.92	1.595	101	20.9	5.7	4.6	4.35	5.30	5.22
OCT 29-NOV 05	0.04	0.063	91	--	--	7.0	--	--	6.07
NOV 05-12	--	0.322	--	21.0	3.4	3.1	4.35	5.95	5.98
NOV 12-19	0.24	0.393	95	21.5	7.0	5.1	4.36	5.28	5.28
NOV 19-26	--	0.00	--	--	--	--	--	--	--
NOV 26-DEC 03	0.35	0.220	36	21.3	4.8	4.2	4.36	5.72	6.08
DEC 03-10	0.0	0.001	--	--	--	--	4.37	--	--
DEC 10-17	0.01	0.015	87	--	--	12.3	4.37	--	6.51
DEC 17-24	0.10	0.098	57	21.1	5.4	7.2	4.35	5.97	6.45
DEC 24-31	0.0	0.00	--	--	--	--	4.35	--	--
DEC 31 1991-JAN 07 1992	--	0.003	--	--	--	--	4.35	--	--
JAN 07-14	0.37	0.612	96	20.8	17.6	17.0	4.35	4.73	4.76
JAN 14-21	0.17	0.011	3.9	--	--	14.6	4.35	--	6.64
JAN 21-28	0.15	0.00	2.9	--	--	17.8	4.35	--	6.77
JAN 28-FEB 04	0.0	0.00	--	--	--	1.4	--	--	5.86
FEB 04-11	0.15	0.00	9.1	--	--	21.8	4.36	--	6.70
FEB 11-19	1.00	1.008	58	21.3	12.5	9.7	4.32	5.09	5.35
FEB 19-25	0.15	0.067	26	--	--	4.5	4.35	--	5.32
FEB 25-MAR 03	0.02	0.019	55	--	--	14.5	4.34	--	6.70
MAR 03-10	0.77	1.259	95	20.2	9.6	7.7	4.37	5.64	5.79
MAR 10-17	0.04	0.066	95	--	--	10.1	--	--	6.34
MAR 17-24	--	0.00	--	--	--	--	4.34	--	--
MAR 24-31	--	0.00	--	--	--	2.5	--	--	6.22
MAR 31-APR 07	0.11	0.177	94	20.7	22.2	21.9	4.37	6.29	6.70
APR 07-14	0.36	0.633	102	20.8	14.4	13.9	4.34	6.06	6.59
APR 14-21	0.93	1.516	95	20.7	16.1	15.5	4.34	6.03	6.49
APR 21-28	0.02	0.037	107	--	--	29.0	4.34	--	6.76
APR 28-MAY 05	--	0.00	--	--	--	2.8	--	--	5.79
MAY 05-12	0.01	0.00	68	--	--	47.1	4.36	--	7.01
MAY 12-19	0.05	0.084	98	20.8	55.4	66.5	4.38	7.15	7.09
MAY 19-26	0.31	0.471	88	20.5	12.8	12.5	4.35	6.26	6.59
MAY 26-JUN 02	--	0.002	--	--	--	--	4.35	--	--

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WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

MISCELLANEOUS WATER QUALITY DATA

00430061 HURON WELL FIELD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible][illegible]

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00430061 HURON WELL FIELD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

[illegible]

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 1991 TO SEPTEMBER 1992

STATION NAME	STATION NUMBER	DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
LAGOON 1	434415096371501	05-13-92	1100	1300	7.4	11.0	16.5	180	736
EROS LAKE	434405096365501	05-13-92	1300	1730	7.9	11.0	17.0	74	1120
103N48W 5CACA	434508096372701	05-14-92	1000	860	7.4	12.0	10.5	<10	585
103N48W 9CCDA	434400096362201	05-14-92	1200	1640	7.3	14.5	10.0	23	980
103N48W17ACCC	434332096371501	05-14-92	0830	900	7.3	11.0	10.0	12	591

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL) (01105)	BORON, TOTAL RECOV- ERABLE (UG/L AS B) (01022)	
LAGOON 1	05-13-92	0.630	0.150	0.780	27.0	35	3.40	240	950
EROS LAKE	05-13-92	0.010	0.089	0.099	0.190	0.24	0.060	30	1200
103N48W 5CACA	05-14-92	<0.010	--	0.080	0.030	0.04	0.010	20	190
103N48W 9CCDA	05-14-92	<0.010	--	64.0	0.020	0.03	0.030	<10	70
103N48W17ACCC	05-14-92	<0.010	--	<0.050	0.150	0.19	0.010	<10	290

DATE	BROMIDE DIS- SOLVED (MG/L AS BR) (71870)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	CYANIDE TOTAL (MG/L AS CN) (00720)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IODIDE, DIS- SOLVED (MG/L AS I) (71865)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	
LAGOON 1	05-13-92	0.050	20	0.070	2800	0.015	75	3.0	70
EROS LAKE	05-13-92	4.0	4	<0.010	120	0.098	<1	<1.0	<10
103N48W 5CACA	05-14-92	0.060	<1	<0.010	510	0.004	<1	<1.0	60
103N48W 9CCDA	05-14-92	0.37	<1	0.050	20	0.023	<1	<1.0	20
103N48W17ACCC	05-14-92	0.070	<1	<0.010	160	0.008	<1	<1.0	<10

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)					
FEB 1992					
18...	1045	E0.04	0.0	8.0	1960
MAR					
02...	1025	1.6	0.5	1.5	850
APR					
07...	1055	0.30	6.5	8.0	1100
MAY					
20...	0930	0.02	19.0	18.5	1310
JUN					
17...	1245	19	17.0	20.0	660
23...	1305	5.4	20.5	25.0	740
JUL					
28...	0935	0.17	18.0	19.5	1100
AUG					
25...	1140	0.08	13.0	14.0	1200
05289985 BIG COULEE CR NEAR PEEVER SD (LAT 45 29 14N LONG 097 57 34W)					
OCT 1991					
01...	1435	0.97	14.0	24.0	1380
NOV					
06...	1305	0.69	1.0	-4.0	1600
DEC					
17...	1150	0.60	0.5	2.5	1560
FEB 1992					
18...	1410	1.2	0.0	1.0	1280
MAR					
02...	1300	6.5	1.5	3.0	800
APR					
07...	1330	2.2	10.5	12.5	1260
MAY					
20...	1115	0.43	18.0	29.0	1400
JUN					
17...	1650	18	18.0	17.0	980
23...	0955	1.3	17.0	22.0	1280
JUL					
28...	1220	0.34	18.5	27.5	1370
AUG					
25...	1405	0.02	13.5	16.0	1550
05292704 NORTH FORK YELLOW BANK RIVER NEAR ODESSA, MN (LAT 45 11 21N LONG 096 24 54W)					
OCT 1991					
02...	0845	4.5	14.5	19.5	1000
NOV					
07...	0955	5.2	1.0	-8.0	1110
DEC					
18...	1030	6.0	0.0	-15.0	--
FEB 1992					
18...	1730	17	0.0	0.0	920
MAR					
02...	1745	56	0.5	2.0	550
APR					
07...	1925	6.5	22.0	26.0	1010
JUN					
17...	1800	900	18.5	19.0	320
18...	0935	2000	20.0	21.5	380
19...	1545	1020	18.0	18.0	400
22...	1840	226	19.5	22.0	670
JUL					
28...	1440	33	23.5	25.5	1090
AUG					
25...	1625	7.9	17.0	15.0	910
05299700 COBB CREEK NEAR GARY SD (LAT 44 44 22N LONG 096 27 26W)					
MAR 1992					
03...	1405	18	0.5	6.0	500
APR					
08...	1325	4.5	8.0	8.0	700
MAY					
01...	1530	4.5	21.5	29.0	560
21...	1255	1.8	23.0	26.0	740
JUN					
17...	1410	714	17.0	20.0	250
18...	1600	257	20.0	24.0	360
24...	1440	138	22.0	24.0	450
JUL					
29...	1300	26	21.0	24.5	750
AUG					
26...	1650	24	14.0	17.0	790

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)
06334500 LITTLE MISSOURI R AT CAMP CROOK SD (LAT 45 32 49N LONG 103 58 23W)					
OCT 1991					
02...	1520	0.60	14.0	15.0	1440
NOV					
13...	1510	4.0	0.5	--	1430
JAN 1992					
07...	1540	1.4	0.0	-1.0	1630
FEB					
14...	1015	1.7	1.0	2.0	1660
MAR					
25...	0935	1.2	3.5	6.0	1400
APR					
21...	1700	7.0	8.5	7.0	895
MAY					
28...	1000	0.87	--	14.5	1700
JUN					
29...	1650	0.38	--	19.5	1820
JUL					
29...	1505	29	22.0	21.5	809
SEP					
10...	1045	0.54	11.0	16.0	1690
06354882 OAK CR NEAR WAKPALA SD (LAT 45 42 43N LONG 100 33 32W)					
JAN 1992					
06...	1645	0.47	0.5	5.0	--
FEB					
11...	0950	0.65	0.5	-13.0	528
MAR					
23...	1630	2.4	3.0	15.0	463
APR					
23...	1030	0.72	5.5	4.5	686
JUL					
22...	1035	0.01	16.5	14.0	460
06355500 NORTH FORK GRAND R NEAR WHITE BUTTE SD (LAT 45 48 10N LONG 102 21 45W)					
JAN 1992					
08...	1250	1.4	0.0	-5.0	5000
FEB					
13...	1445	3.0	1.0	2.0	3420
MAR					
24...	1320	3.0	6.5	10.0	2170
APR					
22...	1145	1.3	7.0	5.5	2740
MAY					
27...	1145	0.10	15.0	15.0	3540
JUN					
30...	1500	12	14.0	11.0	1810
JUL					
23...	1325	1.9	18.0	19.0	2270
06356000 SOUTH FORK GRAND R AT BUFFALO SD (LAT 45 34 34N LONG 103 32 38W)					
OCT 1991					
02...	1720	1.7	15.0	15.0	1930
NOV					
13...	1750	14	0.5	4.0	970
JAN 1992					
07...	1730	1.7	0.0	-1.0	1890
FEB					
14...	1230	2.8	1.5	3.0	1790
MAR					
24...	1800	2.3	6.5	5.0	1990
APR					
21...	1455	6.5	5.0	4.5	1920
MAY					
27...	1640	1.7	17.0	17.5	2040
JUN					
30...	0910	25	13.0	13.0	1140
JUL					
29...	1320	2.2	19.5	20.5	1380
SEP					
10...	1235	1.6	11.0	18.0	1920

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)
06356500 SOUTH FORK GRAND R NEAR CASH SD (LAT 45 38 56N LONG 102 38 27W)					
OCT 1991					
02...	1220	5.4	12.0	15.0	2760
NOV					
13...	1130	15	0.5	6.5	3020
JAN 1992					
08...	1110	3.5	0.0	-5.5	2790
FEB					
13...	1715	6.2	1.0	-2.0	2330
MAR					
24...	1450	11	6.5	11.0	2130
APR					
22...	0955	23	4.0	2.5	2280
MAY					
27...	1410	6.5	15.5	15.0	2450
JUN					
17...	1000	239	17.0	15.5	--
30...	1230	202	14.0	11.5	1560
JUL					
23...	1710	12	17.0	16.0	1480
SEP					
09...	1430	7.3	13.5	16.0	2520
06357500 GRAND R AT SHADEHILL SD (LAT 45 45 23N LONG 102 11 44W)					
OCT 1991					
02...	0920	19	13.5	16.5	2070
NOV					
12...	1620	12	4.0	10.0	2060
JAN 1992					
08...	1440	15	0.0	-2.0	2190
FEB					
13...	1245	12	1.5	-1.0	2200
APR					
22...	1450	21	9.0	--	2130
MAY					
27...	1010	12	13.0	14.5	2150
SEP					
09...	1120	16	15.0	14.0	2140
06357800 GRAND R AT LITTLE EAGLE SD (LAT 45 39 28N LONG 100 49 04W)					
OCT 1991					
01...	1250	12	15.0	26.5	2640
NOV					
07...	1430	2.4	3.0	-2.5	3770
JAN 1992					
06...	1530	4.2	0.0	-1.5	--
FEB					
11...	1300	24	0.5	-10.0	1730
MAR					
23...	1440	27	6.0	13.0	1600
APR					
22...	1835	27	12.0	8.5	2390
MAY					
26...	1500	7.5	19.0	18.0	2820
JUN					
19...	1545	543	--	--	768
JUL					
01...	1350	48	15.0	13.5	536
21...	1725	41	17.5	13.0	1070
SEP					
08...	1400	9.0	14.0	16.0	2520
06359500 MOREAU R NEAR FAITH SD (LAT 45 11 52N LONG 102 09 22W)					
NOV 1991					
12...	1400	9.2	0.5	11.0	3010
JAN 1992					
07...	1215	5.6	0.0	1.0	3120
FEB					
13...	1010	8.0	0.5	-2.0	2190
MAR					
25...	1305	6.0	6.0	9.0	1630
APR					
21...	1150	5.2	2.0	3.0	2090
MAY					
28...	1320	8.0	19.0	20.5	2540
JUN					
16...	1410	152	19.5	--	--
JUL					
24...	0915	105	16.5	16.0	791
SEP					
10...	1550	2.4	19.0	23.0	1720

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)
06360500 MOREAU R NEAR WHITEHORSE SD (LAT 45 15 21N LONG 100 50 33W)					
FEB 1992					
10...	1430	0.75	0.5	-4.0	1560
MAR					
23...	1130	10	6.0	12.0	1540
APR					
23...	1230	0.23	5.5	4.5	2300
JUN					
19...	1225	726	--	--	885
JUL					
21...	1315	140	16.5	--	800
SEP					
08...	1140	1.1	14.0	16.0	1640
06395000 CHEYENNE R AT EDMONT SD (LAT 43 18 20N LONG 103 49 14W)					
OCT 1991					
08...	1200	13	13.0	23.0	5800
NOV					
25...	1100	14	1.0	2.0	5680
JAN 1992					
08...	1055	10	0.0	-2.0	4380
MAR					
10...	1020	48	0.0	-2.0	4470
APR					
07...	1145	9.0	11.0	12.0	5440
MAY					
19...	0850	4.9	16.0	26.0	7210
JUN					
23...	0940	11	20.5	23.0	5610
AUG					
18...	0830	1.2	17.0	20.0	5440
06400000 HAT CR NEAR EDMONT SD (LAT 43 14 24N LONG 103 35 16W)					
OCT 1991					
08...	0930	0.00	--	--	--
NOV					
25...	1305	1.2	3.0	9.0	2780
JAN 1992					
08...	1300	0.47	0.0	-1.0	4730
MAR					
10...	1300	0.49	6.0	4.0	2900
APR					
07...	1405	0.43	14.0	16.0	2850
MAY					
19...	1045	0.19	22.0	35.0	3310
JUN					
23...	1240	2.6	24.5	30.5	2420
06400497 CASCADE SPRINGS NEAR HOT SPRINGS SD (LAT 43 20 10N LONG 103 33 07W)					
OCT 1991					
08...	0840	18	20.0	9.5	2640
NOV					
25...	1545	18	20.0	2.0	2670
JAN 1992					
08...	1500	19	19.0	-2.0	2600
MAR					
10...	1430	19	20.0	5.0	2600
APR					
07...	1545	18	20.0	15.0	2670
MAY					
19...	1230	17	20.5	32.0	2600
JUN					
23...	1410	17	20.5	25.5	2660
AUG					
18...	1400	18	20.5	27.0	2660
06400875 HORSEHEAD CR AT OELRICHS SD (LAT 43 11 17N LONG 103 13 34W)					
JAN 1992					
09...	1345	E0.05	0.0	6.0	3450
MAR					
11...	0845	E1.4	5.0	6.0	2590
APR					
08...	1625	E0.40	20.0	20.0	3500

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 1991					
10...	0950	3.1	13.0	18.0	1850
MAR 1992					
11...	1210	1.4	9.0	12.0	2090
APR					
09...	1100	1.3	12.0	10.0	2190
MAY					
21...	0910	1.4	19.0	24.0	2170
JUN					
23...	1630	1.5	27.0	25.0	2150
AUG					
20...	0930	2.2	19.0	25.0	2210
06402000 FALL R AT HOT SPRINGS SD (LAT 43 25 50N LONG 103 28 33W)					
OCT 1991					
10...	1200	21	25.0	23.0	1350
NOV					
27...	0830	23	21.0	3.0	1310
JAN 1992					
10...	0840	20	19.0	-2.0	1340
MAR					
11...	1400	22	23.0	9.0	1340
APR					
09...	1250	22	24.0	14.0	1300
MAY					
21...	1500	21	24.0	21.0	1310
JUN					
22...	1620	21	25.5	23.0	1290
AUG					
20...	1400	20	27.0	31.0	1280
06402430 BEAVER CREEK NEAR PRINGLE, SD (LAT 43 34 53N LONG 103 28 34W)					
OCT 1991					
07...	0930	0.08	10.0	22.0	596
NOV					
22...	0945	0.29	4.5	1.5	545
JAN 1992					
06...	1245	0.14	6.0	11.0	584
MAR					
09...	1045	0.48	0.0	0.0	510
APR					
06...	1015	0.38	10.0	10.0	536
MAY					
18...	0915	0.31	14.0	27.0	553
JUN					
22...	1000	0.62	17.0	23.0	545
AUG					
17...	1030	0.31	16.5	23.0	570
06402470 BEAVER CREEK ABOVE BUFFALO GAP, SD (LAT 43 31 20N LONG 103 21 23W)					
OCT 1991					
07...	1130	8.1	16.0	24.0	2380
NOV					
22...	1315	8.7	12.0	-0.5	2350
JAN 1992					
06...	1445	8.2	12.0	12.0	2400
MAR					
09...	1300	8.3	12.0	-1.0	2400
APR					
06...	1350	8.3	16.0	17.0	2410
MAY					
18...	1405	7.8	20.0	29.0	2370
JUN					
22...	1320	7.3	20.0	23.0	2410
AUG					
17...	1345	8.7	20.5	24.5	2390

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 27 56N LONG 103 18 22W)					
OCT 1991					
07...	1420	9.6	14.0	30.0	2470
NOV					
27...	1135	9.1	6.0	2.0	2500
JAN 1992					
10...	1035	9.1	3.0	6.0	2520
MAR					
09...	1440	9.1	5.0	0.0	2430
APR					
06...	1620	7.8	15.0	17.0	2470
MAY					
21...	1315	0.57	22.0	27.0	2890
JUN					
22...	1500	8.2	21.0	22.0	2460
AUG					
20...	1205	5.9	20.0	31.5	2430
06402990 FRENCH CREEK BELOW CUSTER, SD (LAT 43 46 14N LONG 103 33 04W)					
OCT 1991					
22...	1120	1.6	7.0	20.0	502
NOV					
15...	1605	3.2	2.0	-0.5	447
DEC					
12...	1345	1.5	0.0	2.5	486
JAN 1992					
23...	0950	0.17	0.0	-1.0	707
MAR					
12...	1155	3.2	3.0	9.0	400
APR					
10...	1055	2.7	8.5	15.5	441
JUN					
22...	1310	4.3	16.5	23.0	412
06402995 FRENCH CREEK ABOVE STOCKADE LAKE NEAR CUSTER, SD (LAT 43 46 10N LONG 103 32 10W)					
OCT 1991					
22...	1240	1.8	9.0	19.0	461
DEC					
12...	1615	1.7	0.0	-1.5	453
JAN 1992					
23...	1305	0.52	0.0	2.0	563
FEB					
26...	0945	1.9	0.0	12.0	401
APR					
09...	1450	2.7	13.0	11.0	381
MAY					
19...	1115	0.87	16.0	25.0	456
JUN					
22...	1535	9.5	18.0	27.0	254
JUL					
23...	1625	3.9	18.0	19.0	324
SEP					
10...	1440	0.54	15.0	21.0	374
06403300 FRENCH CR ABOVE FAIRBURN SD (LAT 43 43 02N LONG 103 22 03W)					
OCT 1991					
18...	1050	3.9	7.0	3.0	303
DEC					
06...	1310	4.0	0.5	10.0	310
JAN 1992					
22...	1205	1.5	0.0	4.0	308
MAR					
11...	1005	8.6	1.0	9.0	277
APR					
16...	1350	4.9	9.5	14.0	314
MAY					
18...	1255	2.5	18.0	31.0	325
JUN					
23...	1540	15	20.5	27.0	304
JUL					
27...	1100	12	18.0	29.0	319
SEP					
11...	1220	1.6	14.0	32.0	316

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 1991					
11...	1100	2.0	11.0	22.0	399
NOV					
15...	1140	3.1	2.0	5.0	360
JAN 1992					
16...	0940	1.4	0.0	0.0	387
MAR					
23...	1410	4.5	8.0	13.0	302
MAY					
26...	1330	2.3	12.0	9.5	340
JUL					
01...	1320	7.8	17.0	15.0	240
AUG					
21...	1010	1.2	16.0	17.5	286
06404800 GRACE COOLIDGE CREEK NEAR HAYWARD, SD (LAT 43 48 07N LONG 103 26 03W)					
OCT 1991					
24...	1355	0.48	6.0	4.5	95
DEC					
11...	0830	0.36	0.0	-1.5	94
JAN 1992					
22...	1535	0.22	0.0	2.5	90
FEB					
26...	1305	0.17	4.5	10.5	89
APR					
07...	1345	0.44	8.0	12.0	82
MAY					
19...	1310	0.25	16.0	27.5	92
JUN					
22...	1020	7.8	13.0	23.0	66
JUL					
23...	1810	2.3	16.0	19.5	88
AUG					
31...	1440	1.2	14.0	18.0	94
06404998 GRACE COOLIDGE CR NR GAME LODGE NR CUSTER SD (LAT 43 45 40N LONG 103 21 49W)					
OCT 1991					
18...	1300	2.5	8.5	3.5	225
DEC					
06...	1545	2.9	0.5	4.0	202
JAN 1992					
22...	1420	1.3	1.0	--	209
MAR					
11...	1220	2.5	4.5	9.5	202
APR					
09...	1205	1.8	11.5	12.5	204
MAY					
19...	1430	1.6	22.0	31.5	228
JUN					
23...	1200	11	18.0	25.5	163
JUL					
24...	1140	6.5	18.0	26.0	186
SEP					
10...	1150	2.3	13.0	20.0	206
06405800 BEAR GULCH NEAR HAYWARD, SD (LAT 43 47 30N LONG 103 20 47W)					
OCT 1991					
21...	1550	0.06	11.0	16.0	182
APR 1992					
07...	1210	0.11	7.0	11.0	143
MAY					
14...	0925	0.56	12.0	20.0	158
JUN					
23...	0905	3.6	13.0	17.5	128
JUL					
14...	1025	3.6	14.5	26.0	--

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 1991					
11...	0900	6.4	12.0	20.0	690
NOV					
15...	0955	6.6	6.0	5.0	679
JAN 1992					
14...	1305	5.3	0.0	2.0	683
MAR					
23...	1245	5.6	8.0	15.0	655
MAY					
26...	1015	4.5	11.0	8.0	670
JUL					
01...	1050	4.3	17.5	16.0	671
AUG					
21...	0845	3.9	17.0	17.0	698
06406500 BATTLE CR BELOW HERMOSA SD (LAT 43 43 30N LONG 102 54 15W)					
OCT 1991					
11...	1245	5.6	15.0	32.0	840
NOV					
14...	0930	7.9	4.0	5.0	756
JAN 1992					
14...	1035	6.2	0.0	0.5	840
MAR					
23...	1100	5.8	6.0	16.0	800
MAY					
26...	1150	4.0	11.5	10.0	790
JUN					
19...	1030	4.7	19.0	20.5	778
AUG					
21...	1250	1.0	19.5	19.0	823
06406920 SPRING CREEK ABOVE SHERIDAN LAKE NEAR KEYSTONE, SD (LAT 43 57 39N LONG 103 29 18W)					
OCT 1991					
15...	1345	5.0	10.0	--	302
NOV					
19...	1020	7.0	--	--	--
23...	0930	6.5	0.5	-2.5	400
DEC					
11...	1222	6.0	0.5	8.0	367
JAN 1992					
13...	1220	--	0.0	1.0	400
16...	1130	2.6	0.5	5.0	--
MAR					
04...	1100	5.4	1.5	9.5	339
APR					
07...	0830	6.9	4.0	0.0	400
MAY					
08...	0850	4.1	13.0	19.5	380
JUN					
11...	1100	4.6	12.5	17.0	362
JUL					
07...	0830	12	17.5	19.5	299
AUG					
27...	0915	7.9	10.0	9.0	347
435828103271400 SHERIDAN LAKE STATION NO.1 (LAT 43 58 28N LONG 103 27 14W)					
OCT 1991					
26...	1300	--	10.5	16.0	--
FEB 1992					
09...	1100	--	1.0	3.0	--
09...	1200	--	1.0	3.0	--
435829103280300 SHERIDAN LAKE STATION NO.2 (LAT 43 58 29N LONG 103 28 03W)					
OCT 1991					
26...	1300	--	10.5	17.5	--
JAN 1992					
25...	1300	--	--	--	--
FEB					
09...	1300	--	1.0	4.0	--
09...	1400	--	1.0	3.0	--

WATER QUALITY DATA

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	TEMPER- ATURE AIR (DEG C) (00020)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)
435823103283200 SHERIDAN LAKE STATION NO.3 (LAT 43 58 23N LONG 103 28 32W)					
OCT 1991					
26...	1300	--	10.5	14.5	--
DEC					
30...	1300	--	--	--	--
JAN 1992					
25...	1300	--	0.5	10.0	--
FEB					
09...	1500	--	1.0	4.0	--
09...	1600	--	1.0	4.0	--
06407500 SPRING CR NEAR KEYSTONE SD (LAT 43 58 45N LONG 103 20 25W)					
OCT 1991					
15...	1550	6.4	9.5	--	296
DEC					
11...	1000	6.3	0.5	9.0	327
FEB 1992					
03...	1140	4.7	0.0	8.0	295
MAR					
04...	1410	8.2	1.0	5.0	263
APR					
02...	1200	7.9	6.5	12.0	303
MAY					
08...	1100	4.2	17.0	25.0	332
JUN					
11...	1430	3.9	23.0	19.0	303
JUL					
07...	1150	18	21.5	22.0	291
AUG					
27...	1145	7.2	14.0	21.5	295
06408500 SPRING CR NEAR HERMOSA SD (LAT 43 56 30N LONG 103 09 33W)					
OCT 1991					
11...	1515	1.7	14.0	26.0	1140
NOV					
15...	0815	2.0	4.0	2.0	1130
JAN 1992					
16...	1200	1.8	0.0	8.0	1240
MAR					
24...	0900	1.0	6.0	8.0	1180
MAY					
22...	0920	0.55	14.0	10.0	1190
JUL					
01...	0915	0.41	17.0	15.5	1140
AUG					
24...	1315	EO.19	15.0	16.5	1220
06408700 RHOADS FORK NEAR ROCHFORD SD (LAT 44 08 12N LONG 103 51 29W)					
OCT 1991					
17...	0930	4.1	6.0	5.0	458
DEC					
09...	1240	3.6	5.0	4.0	454
JAN 1992					
24...	1120	3.7	5.0	4.0	455
MAR					
20...	1225	3.5	8.5	10.0	458
APR					
13...	1525	3.8	17.0	21.5	451
MAY					
21...	1015	3.9	10.0	21.0	439
JUN					
24...	1125	3.8	15.0	20.0	442
JUL					
22...	1325	3.8	11.0	18.5	450
SEP					
01...	1043	3.7	8.5	10.5	464

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)
06408860 RAPID CREEK NEAR ROCHFORD, SD (LAT 44 06 17N LONG 103 38 35W)					
OCT 1991					
17...	1145	11	9.0	9.0	410
DEC					
09...	1540	13	0.5	0.0	410
JAN 1992					
24...	1605	9.7	0.5	5.0	423
MAR					
10...	0930	8.2	0.0	-0.5	373
APR					
13...	1730	17	10.5	16.0	393
MAY					
21...	1300	11	17.0	23.5	401
JUN					
24...	1345	14	19.5	28.0	395
JUL					
22...	1615	17	16.0	18.5	389
SEP					
01...	1255	10	14.0	22.0	407
06409000 CASTLE CR ABOVE DEERFIELD RES NEAR HILL CITY SD (LAT 44 00 49N LONG 103 49 48W)					
OCT 1991					
18...	1120	9.9	3.0	0.0	468
MAR 1992					
02...	1410	11	3.0	15.5	454
APR					
03...	1135	12	6.0	18.0	465
JUN					
22...	1300	11	15.0	20.5	445
SEP					
04...	1010	9.2	10.0	19.0	471
06410000 CASTLE CR BELOW DEERFIELD DAM SD (LAT 44 01 45N LONG 103 46 53W)					
OCT 1991					
18...	0955	2.2	9.0	-0.5	396
MAR 1992					
02...	1205	2.3	6.5	7.0	424
APR					
03...	0950	16	4.5	10.5	431
24...	1040	15	6.0	6.0	381
JUN					
05...	1030	15	7.0	10.0	383
JUL					
16...	1000	14	8.5	15.5	396
AUG					
13...	1230	15	10.0	22.0	401
SEP					
04...	1130	10	10.0	20.5	403
06410500 RAPID CR ABOVE PACTOLA RES AT SILVER CITY, SD (LAT 44 05 05N LONG 103 34 48W)					
OCT 1991					
17...	1345	16	9.0	9.0	388
DEC					
10...	1115	18	0.5	3.5	386
JAN 1992					
21...	1115	13	0.5	3.0	400
FEB					
27...	0850	21	0.0	6.5	364
MAR					
10...	1140	25	0.0	0.0	392
APR					
10...	1455	35	7.0	8.0	386
MAY					
20...	1500	31	18.5	27.5	384
JUN					
24...	1605	32	--	24.0	377
JUL					
22...	1040	41	12.0	12.0	387
SEP					
02...	1425	28	14.0	20.5	--

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)
06411500 RAPID CR BELOW PACTOLA DAM SD (LAT 44 04 36N LONG 103 28 54W)					
OCT 1991					
20...	1010	24.2	8.0	--	300
22...	1045	13	9.0	5.0	386
DEC					
10...	1500	15	3.5	2.0	345
JAN 1992					
21...	1330	--	3.0	12.0	400
21...	1410	16	3.0	10.0	349
MAR					
10...	1435	18	4.0	4.0	343
APR					
14...	1200	17	6.0	15.0	359
MAY					
08...	1340	64	7.0	22.5	--
12...	0815	--	6.5	10.0	374
21...	1510	105	7.5	18.5	364
JUN					
25...	0900	37	7.5	19.5	363
JUL					
18...	1230	--	--	--	--
23...	1025	25	8.5	18.0	376
AUG					
12...	0900	--	7.0	16.0	400
SEP					
09...	1500	33	8.5	14.5	379
06412200 RAPID CREEK AB VICTORIA CR NR RAPID CITY, SD (LAT 44 02 48N LONG 103 21 06W)					
OCT 1991					
22...	1358	17	9.5	20.0	390
DEC					
09...	1400	21	0.5	3.0	367
JAN 1992					
27...	1220	24	0.0	10.0	361
MAR					
06...	1210	23	6.5	9.5	352
APR					
07...	1115	21	7.5	13.0	400
MAY					
08...	1355	74	15.0	18.0	377
JUN					
10...	1310	35	18.5	23.0	357
17...	1030	38	12.5	19.5	400
JUL					
09...	1210	38	18.0	21.5	355
AUG					
28...	1335	49	15.0	25.0	370
06412500 RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD (LAT 44 03 04N LONG 103 18 47W)					
OCT 1991					
22...	1545	6.4	11.0	--	390
DEC					
18...	1420	4.0	1.5	8.0	395
JAN 1992					
29...	1115	11	1.5	12.0	378
MAR					
05...	1500	14	6.0	10.0	326
APR					
08...	1000	11	6.0	13.0	382
27...	1450	10	13.0	23.0	364
MAY					
11...	1040	54	11.0	12.5	367
JUN					
12...	0945	25	15.5	23.0	368
JUL					
09...	1025	27	16.5	17.0	360
AUG					
28...	1105	36	13.5	25.0	379
440332103175000 CLEGHORN SPRINGS IN PUMPHOUSE AT RAPID CITY,SD (LAT 44 03 32N LONG 103 17 50W)					
MAY 1992					
22...	1015	--	11.0	14.0	400
JUN					
23...	0945	--	11.0	27.0	347

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)
06412600 CLEGHORN SPGS MAIN CH AT FISH HATCH AT RC, SD (LAT 44 03 32N LONG 103 17 54W)					
DEC 1991					
16...	1245	9.0	10.5	5.0	374
MAY 1992					
22...	1215	--	11.0	12.0	400
JUN					
23...	1115	--	13.5	28.0	365
JUL					
06...	0600	--	11.0	18.0	368
06...	0900	--	12.0	28.0	368
06...	1200	--	14.0	29.0	377
06...	1500	--	14.0	25.0	375
06...	1800	--	13.0	--	379
06...	2100	--	12.0	17.0	381
09...	0600	--	11.0	14.0	372
09...	0900	--	12.0	19.0	376
09...	1200	--	13.0	25.0	375
09...	1500	--	13.0	19.5	374
09...	1800	--	13.0	19.0	377
09...	2100	--	11.5	15.5	381
20...	0600	--	11.5	15.0	400
20...	0900	--	11.5	15.0	377
20...	1200	--	12.0	18.5	400
20...	1500	--	12.0	18.0	400
20...	1800	--	12.0	17.0	377
20...	2100	--	12.0	15.0	400
23...	0600	--	11.0	12.0	400
23...	0900	--	12.0	16.0	400
23...	1200	--	13.0	20.0	400
23...	1500	--	14.0	25.0	400
23...	1800	--	13.0	22.0	400
23...	2100	--	12.0	18.0	400
SEP					
16...	1700	9.1	13.5	18.5	381
06412700 CLEGHORN SPGS S CHANNEL AT FISH HATCH AT RC, SD (LAT 44 03 31N LONG 103 17 56W)					
DEC 1991					
16...	1555	0.93	11.0	6.0	371
JAN 1992					
27...	1515	1.3	11.0	11.0	365
MAY					
22...	1300	--	11.5	16.0	400
JUN					
23...	1215	--	12.0	31.0	372
06412800 CLEGHORN SPGS N CHANNEL AT FISH HATCH AT RC, SD (LAT 44 03 32N LONG 103 17 54W)					
DEC 1991					
16...	1400	0.75	11.0	6.0	373
MAY 1992					
22...	1130	--	11.0	12.0	400
JUN					
23...	1015	--	11.5	28.0	377
06412900 RAPID CREEK BLW CLEGHORN SPGS AT RAPID CITY SD (LAT 44 03 33N LONG 103 17 49W)					
OCT 1991					
11...	1418	21	--	--	398
20...	1215	18	11.0	22.0	300
NOV					
16...	1530	--	9.5	7.0	400
DEC					
18...	1500	18	8.5	5.0	394
20...	1415	--	9.0	15.5	300
JAN 1992					
21...	1530	--	7.0	7.5	400
29...	1435	23	7.0	13.0	375
FEB					
29...	0930	--	8.0	12.5	400
MAR					
06...	1015	25	9.5	9.0	372
22...	1030	--	8.0	9.5	400
APR					
08...	0820	23	9.0	6.0	381
MAY					
06...	1450	59	15.0	29.0	371
12...	1230	--	13.0	24.0	400
JUN					
02...	1315	--	14.5	25.0	400
10...	1045	38	14.5	23.0	374
16...	1230	--	12.5	16.0	400

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)--Continued					
JUL					
08...	1215	44	16.5	21.0	381
14...	1200	--	16.0	28.0	400
AUG					
12...	1400	--	16.0	28.0	400
28...	0850	54	12.5	14.0	384
440340103172900 CANYON LAKE N ISLAND @ RAPID CITY, SD (LAT 44 03 40N LONG 103 17 29W)					
OCT 1991					
20...	1400	--	11.0	20.0	200
NOV					
16...	1300	--	7.0	11.0	300
DEC					
20...	1530	--	6.5	15.5	300
JAN 1992					
23...	1130	--	3.5	9.0	400
FEB					
29...	1030	--	8.0	25.0	400
MAR					
21...	1300	--	7.0	0.0	400
MAY					
13...	0900	--	12.0	13.0	300
JUN					
03...	0930	--	16.0	23.0	400
15...	1830	--	17.0	20.0	400
JUL					
15...	1230	--	19.0	--	349
AUG					
13...	1000	--	13.5	25.0	400
440331103172300 CANYON LAKE SE ISLAND @ RAPID CITY, SD (LAT 44 03 31N LONG 103 17 23W)					
OCT 1991					
20...	1515	--	11.0	17.0	200
NOV					
16...	1330	--	7.0	11.0	300
DEC					
20...	1630	--	6.5	12.0	300
JAN 1992					
23...	1230	--	4.0	9.0	400
FEB					
29...	1130	--	8.0	25.0	400
MAR					
21...	1200	--	7.0	0.0	400
MAY					
13...	1000	--	13.0	16.0	400
JUN					
03...	1100	--	16.0	23.0	400
15...	1930	--	17.0	19.0	400
JUL					
15...	1330	--	18.0	--	400
AUG					
13...	1030	--	17.0	21.0	400
06413650 LIME CREEK AT MOUTH AT RAPID CITY, SD (LAT 44 04 27N LONG 103 15 53W)					
OCT 1991					
24...	1110	0.94	7.5	7.5	1660
DEC					
18...	1615	0.52	3.0	7.0	1520
JAN 1992					
23...	1630	0.49	4.0	2.5	1510
MAR					
12...	0825	0.69	6.0	6.0	1250
APR					
08...	1600	0.45	13.0	13.5	1370
JUN					
08...	1310	0.56	15.5	21.0	1380
06414000 RAPID CR AT RAPID CITY SD (LAT 44 05 09N LONG 103 14 31W)					
OCT 1991					
21...	1430	25	10.5	--	604
DEC					
18...	1320	24	5.0	6.0	630
JAN 1992					
31...	1400	30	8.0	18.0	579
MAR					
05...	1230	38	9.0	11.5	574
APR					
06...	0855	26	8.0	7.5	576
MAY					
07...	1330	51	20.5	28.5	436

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)
06414000 RAPID CR AT RAPID CITY SD (LAT 44 05 09N LONG 103 14 31W)--Continued					
JUN 10...	0840	36	16.0	18.0	509
JUL 09...	0810	45	15.5	17.5	525
AUG 27...	1400	55	17.0	24.0	453
06418900 RAPID CR BL SEWAGE TREATMENT PL NR RAPID CITY, SD (LAT 44 01 24N LONG 103 05 43W)					
OCT 1991 21...	1230	36	10.0	--	1050
DEC 18...	1525	51	5.0	4.0	964
JAN 1992 31...	1105	52	7.0	18.0	1010
MAR 03...	1000	46	9.5	16.0	1090
APR 02...	0920	47	--	--	968
MAY 07...	0900	20	17.0	19.0	1370
JUN 08...	1105	40	17.0	17.0	990
16...	1405	51	--	--	--
JUL 06...	0935	50	20.0	22.0	854
AUG 24...	0955	64	15.0	10.0	729
06421500 RAPID CR NEAR FARMINGDALE SD (LAT 43 56 31N LONG 102 51 12W)					
OCT 1991 21...	1015	27	7.5	--	1310
JAN 1992 30...	1055	49	1.0	11.0	904
MAR 03...	1400	47	9.5	20.0	1010
APR 06...	1115	28	12.0	11.5	1000
MAY 07...	1115	10	18.5	24.0	1270
JUN 08...	1405	19	17.5	21.0	1110
18...	0945	32	18.0	22.5	1000
JUL 06...	1200	98	23.5	26.0	646
AUG 06...	1030	20	22.0	26.5	1000
24...	1215	66	14.0	10.0	1020
06422500 BOXELDER CR NEAR NEMO SD (LAT 44 08 38N LONG 103 27 16W)					
OCT 1991 22...	1148	5.6	7.0	18.0	341
DEC 11...	1448	6.3	--	9.0	285
FEB 1992 04...	1015	4.7	0.0	-1.0	330
MAR 05...	0940	17	3.0	9.0	250
APR 08...	1345	5.8	10.0	9.0	308
MAY 11...	1405	11	17.5	15.0	260
JUN 09...	0810	5.3	13.5	11.0	316
JUL 08...	0930	6.9	17.0	17.0	381
AUG 31...	1330	4.0	16.5	17.5	336

WATER QUALITY DATA

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	TEMPER- ATURE AIR (DEG C) (00020)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)
06423500 CHEYENNE RIVER NEAR WASTA,SD (LAT 44 04 52N LONG 102 24 03W)					
OCT 1991					
03...	1715	89	12.5	10.5	2160
NOV					
14...	1345	297	2.0	5.0	1040
JAN 1992					
14...	1515	101	0.0	1.0	1970
FEB					
26...	1320	173	3.0	9.0	1510
APR					
08...	0910	86	6.0	4.0	2020
MAY					
20...	1745	43	26.0	34.0	2410
JUN					
10...	1425	84	25.5	31.0	2160
JUL					
15...	0910	228	19.5	16.5	1190
AUG					
26...	1805	93	17.0	20.0	1770
06424000 ELK CR NEAR ROUBAIX SD (LAT 44 17 41N LONG 103 35 47W)					
DEC 1991					
09...	1115	2.9	0.5	6.5	356
JAN 1992					
10...	1030	1.8	0.0	14.0	387
FEB					
25...	1000	2.3	0.0	3.5	337
MAR					
27...	1600	2.9	11.0	16.5	307
APR					
28...	1315	10	14.0	19.5	240
JUN					
05...	1120	4.8	11.5	8.5	320
JUL					
13...	1000	8.2	14.0	17.5	302
AUG					
18...	1415	1.9	18.5	23.5	300
06425500 ELK CR NEAR ELM SPRINGS SD (LAT 44 14 54N LONG 102 30 10W)					
NOV 1991					
18...	1355	0.08	6.0	14.0	4220
FEB 1992					
26...	1115	0.18	2.0	8.5	3110
06428500 BELLE FOURCHE R AT WY-SD STATE LINE (LAT 44 44 59N LONG 104 02 49W)					
OCT 1991					
15...	1320	11	14.0	25.0	2240
NOV					
13...	1335	21	1.0	16.0	2190
JAN 1992					
06...	1405	4.1	0.0	7.0	2880
MAR					
03...	1110	20	7.0	21.5	1890
30...	1125	12	10.0	15.0	2210
APR					
30...	1000	15	17.0	28.0	2110
JUN					
01...	1235	28	19.5	18.0	1690
30...	0940	47	17.0	19.5	1700
JUL					
27...	1345	36	28.0	28.5	1770
AUG					
28...	1430	82	22.5	29.0	1540
06429997 MURRAY DITCH AB HEADGATE AT WY-SD STATE LINE (LAT 44 34 35N LONG 104 03 20W)					
OCT 1991					
16...	1510	6.5	14.0	29.0	1380
MAY 1992					
13...	1135	8.0	12.0	13.0	1670
JUN					
04...	1225	18	16.0	21.0	1410
JUL					
23...	1030	6.6	15.0	23.5	1680
AUG					
25...	1120	8.6	11.5	14.0	1620

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)
06430500 REDWATER CR AT WY-SD STATE LINE (LAT 44 34 26N LONG 104 02 54W)					
OCT 1991					
16...	1400	18	13.5	29.0	1470
DEC					
10...	1120	26	4.5	5.5	1490
JAN 1992					
10...	1450	27	5.0	12.5	1470
FEB					
24...	1030	25	4.0	6.0	1390
APR					
03...	1400	25	14.5	26.0	--
MAY					
13...	1345	9.6	14.0	15.0	1710
JUN					
04...	1345	5.0	19.0	25.5	1660
04...	1445	4.7	--	--	--
JUL					
23...	1200	11	17.5	22.5	1800
AUG					
25...	1355	14	12.0	13.5	1770
06430540 COX LAKE OUTLET NEAR BEULAH, WY (LAT 44 33 56N LONG 103 59 37W)					
OCT 1991					
16...	1100	4.3	11.5	27.5	1210
DEC					
10...	1355	4.2	7.5	8.0	1270
JAN 1992					
09...	1405	3.9	6.0	7.5	1260
FEB					
21...	1505	4.3	8.5	12.0	1340
MAR					
27...	1320	4.5	13.5	18.0	1260
MAY					
14...	1135	3.8	14.0	20.5	1220
JUL					
23...	1335	3.8	19.0	27.0	1140
AUG					
25...	1535	4.2	--	13.5	1180
06430770 SPEARFISH CREEK NEAR LEAD, SD (LAT 44 17 56N LONG 103 52 02W)					
OCT 1991					
07...	1535	15	7.5	22.0	453
NOV					
25...	1500	13	3.5	3.5	462
JAN 1992					
07...	1530	13	2.0	-7.0	458
FEB					
19...	0955	10	1.0	-6.0	450
MAR					
24...	1600	14	4.0	4.5	454
APR					
30...	1320	21	11.0	26.0	449
JUN					
02...	1545	16	12.5	23.0	441
JUL					
16...	1325	16	11.0	17.5	446
AUG					
21...	1145	13	11.0	25.5	452

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)
06430800 ANNIE CREEK NEAR LEAD, SD (LAT 44 19 37N LONG 103 53 38W)					
OCT 1991					
21...	1410	0.15	4.5	15.0	390
DEC					
03...	1500	0.17	0.5	-4.5	400
JAN 1992					
08...	1445	0.15	0.5	1.5	407
MAR					
31...	1330	0.20	2.0	4.0	300
MAY					
01...	1200	7.5	5.5	10.5	157
JUN					
03...	1230	0.60	12.5	25.0	300
JUL					
21...	1115	0.36	12.5	22.0	340
SEP					
09...	1100	0.08	8.0	14.0	386
06430850 LITTLE SPEARFISH CREEK NEAR LEAD, SD (LAT 44 20 58N LONG 103 56 08W)					
OCT 1991					
15...	1450	12	10.0	22.0	470
NOV					
26...	1120	13	6.5	3.5	416
JAN 1992					
08...	1400	12	6.0	-4.5	477
FEB					
19...	1310	13	2.0	8.0	440
MAR					
25...	1235	12	7.5	9.0	471
MAY					
01...	1340	13	7.5	8.5	470
JUN					
08...	1250	14	12.0	24.0	465
JUL					
21...	1325	13	9.5	15.0	474
AUG					
26...	1115	14	8.5	20.0	482
06430898 SQUAW CREEK NEAR SPEARFISH, SD (LAT 44 24 04N LONG 103 53 35W)					
OCT 1991					
15...	1330	0.37	9.0	24.0	344
DEC					
04...	1300	0.43	0.5	6.0	300
JAN 1992					
08...	1030	0.29	0.0	-2.0	350
FEB					
19...	1515	0.33	--	--	334
MAR					
04...	1200	0.50	--	--	--
31...	1530	1.3	2.5	3.5	274
APR					
30...	1455	14	10.0	30.0	156
JUN					
08...	1520	1.3	15.5	27.5	292
JUL					
15...	1115	1.1	15.0	22.5	352
AUG					
13...	1145	0.26	17.5	28.0	400
06430900 SPEARFISH CREEK ABOVE SPEARFISH, SD (LAT 44 24 06N LONG 103 53 40W)					
OCT 1991					
15...	1230	39	7.5	24.0	448
NOV					
26...	1310	38	4.5	7.5	443
JAN 1992					
08...	1200	26	2.0	-2.0	458
FEB					
20...	1020	36	3.0	4.0	451
MAR					
25...	1405	39	5.0	11.5	440
APR					
30...	1610	68	11.5	28.5	378
JUN					
08...	1415	42	11.5	24.5	427
JUL					
21...	1510	43	10.5	15.5	437
AUG					
26...	1315	39	9.0	14.5	441

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)
06431500 SPEARFISH CR AT SPEARFISH SD (LAT 44 28 57N LONG 103 51 40W)					
OCT 1991					
18...	1400	39	6.0	10.0	441
NOV					
26...	1435	38	4.5	5.5	437
JAN 1992					
09...	1000	39	1.5	6.0	451
FEB					
20...	1310	37	3.0	1.0	432
MAR					
25...	1545	39	4.0	13.0	437
MAY					
12...	1355	58	8.0	17.0	422
JUN					
09...	1120	34	11.0	23.0	426
JUL					
22...	1100	35	10.0	14.0	438
AUG					
21...	1405	33	13.0	25.0	431
06432020 SPEARFISH CREEK BELOW SPEARFISH, SD (LAT 44 34 48N LONG 103 53 37W)					
OCT 1991					
18...	1125	43	9.5	9.0	697
NOV					
27...	1355	46	5.5	4.5	662
JAN 1992					
09...	1200	45	2.5	8.5	--
FEB					
21...	1025	45	2.5	3.5	709
APR					
02...	1315	40	10.0	18.0	600
MAY					
12...	1555	30	16.5	18.5	565
JUN					
09...	1305	18	17.0	27.5	644
JUL					
15...	1500	17	17.5	22.5	831
AUG					
26...	1535	21	14.5	20.0	818
06433000 REDWATER RIVER ABOVE BELLE FOURCHE SD (LAT 44 40 02N LONG 103 50 20W)					
OCT 1991					
15...	1625	105	11.0	17.0	1250
NOV					
15...	1005	138	6.0	3.0	1210
JAN 1992					
07...	1230	118	1.5	-4.0	1230
MAR					
03...	1450	115	10.0	20.0	1190
30...	1500	116	11.5	17.5	1180
APR					
30...	1310	121	18.5	30.0	1050
JUN					
01...	1545	3.2	19.5	20.0	1650
30...	1220	33	17.5	15.0	1320
JUL					
28...	1410	43	24.5	28.5	1340
AUG					
31...	1440	26	18.5	20.0	1450
06433500 HAY CR AT BELLE FOURCHE SD (LAT 44 40 01N LONG 103 50 46W)					
OCT 1991					
15...	1500	0.01	14.5	26.5	2630
NOV					
13...	1500	0.18	7.5	13.0	1630
JAN 1992					
06...	1530	E0.01	0.0	6.0	2690
MAR					
03...	1330	0.64	8.0	20.0	1200
30...	1300	E0.01	--	25.0	--
APR					
02...	0830	E0.01	--	--	--
30...	1115	0.02	20.5	29.0	2810
JUN					
01...	1430	0.02	19.5	20.5	1740

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)
06434500 INLET CANAL NEAR BELLE FOURCHE (LAT 44 42 14N LONG 103 49 23W)					
MAY 1992					
29...	1155	51	17.5	26.0	1690
AUG					
11...	1405	13	24.5	26.0	1870
19...	1040	59	21.5	27.0	1710
28...	1230	84	18.5	30.0	1560
SEP					
24...	1130	--	16.0	27.5	1000
06436000 BELLE FOURCHE R NEAR FRUITDALE SD (LAT 44 41 27N LONG 103 44 14W)					
OCT 1991					
16...	1250	7.7	14.0	27.0	2210
NOV					
15...	1150	7.1	2.5	8.0	1660
JAN 1992					
09...	0935	3.8	1.0	3.0	2210
MAR					
04...	0920	7.2	7.0	3.5	1760
APR					
02...	0955	7.6	7.5	12.0	1830
MAY					
05...	1410	5.4	20.5	27.0	1840
JUN					
02...	1335	9.4	21.5	24.0	2010
30...	1420	6.3	19.0	19.0	1990
JUL					
29...	0920	12	22.0	15.0	1840
AUG					
28...	1025	16	17.0	22.5	1960
06436156 WHITETAIL CREEK AT LEAD, SD (LAT 44 20 36N LONG 103 45 57W)					
OCT 1991					
07...	1235	0.97	8.0	23.5	454
DEC					
03...	1115	1.0	0.5	-4.0	400
JAN 1992					
07...	1300	0.51	0.0	0.0	456
FEB					
18...	1200	0.88	0.0	2.0	425
MAR					
30...	1600	1.4	8.0	16.0	500
APR					
29...	1320	9.4	11.0	25.5	448
JUN					
02...	1330	2.7	14.5	22.0	458
JUL					
14...	1430	1.9	16.5	29.0	457
AUG					
17...	1300	1.1	16.0	23.5	449
06436170 WHITEWOOD CREEK AT DEADWOOD (LAT 44 22 48N LONG 103 43 25W)					
OCT 1991					
07...	1040	12	12.0	13.5	1430
NOV					
25...	1045	12	8.5	4.0	1400
JAN 1992					
07...	1030	8.0	6.5	-6.0	1650
FEB					
18...	0940	9.8	5.0	0.0	1220
MAR					
24...	1245	12	7.5	5.0	1130
MAY					
12...	1155	21	12.5	11.5	941
JUN					
02...	1130	17	15.0	20.5	1080
JUL					
13...	1215	18	17.5	20.0	1080
AUG					
17...	1100	10	18.0	26.5	1400
06436180 WHITEWOOD CR ABOVE WHITEWOOD, SD (LAT 44 26 32N LONG 103 37 44W)					
SEP 1992					
25...	0930	--	13.0	16.0	1000

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 1991					
16...	1525	10	12.0	17.5	1360
NOV					
18...	1505	15	8.0	9.0	1290
JAN 1992					
09...	1250	12	2.0	6.0	1390
MAR					
05...	0855	27	7.5	7.5	1110
APR					
02...	1250	15	11.5	14.5	1180
MAY					
04...	1510	35	19.0	23.0	767
JUN					
04...	1125	15	17.5	25.0	1050
JUL					
01...	1625	14	20.0	17.0	1060
31...	1235	10	21.5	27.0	1180
SEP					
01...	1235	7.0	17.0	23.0	1340
06436198 WHITEWOOD CR ABOVE VALE SD (LAT 44 37 04N LONG 103 28 52W)					
SEP 1992					
25...	1055	--	15.0	17.0	1000
06436760 HORSE CR ABOVE VALE SD (LAT 44 39 08N LONG 103 21 59W)					
OCT 1991					
17...	0830	1.1	12.0	10.0	4000
NOV					
18...	1300	3.6	1.0	7.0	4480
JAN 1992					
08...	0915	1.4	0.5	-3.0	6300
MAR					
04...	1220	2.4	6.0	12.0	3910
APR					
01...	1500	0.72	9.0	14.5	4870
MAY					
04...	1255	0.29	19.5	23.0	5470
JUN					
04...	0915	25	17.0	17.5	1960
JUL					
01...	1435	8.3	20.5	20.5	2000
31...	1030	35	20.5	25.0	1480
SEP					
01...	1100	13	18.0	20.5	2180
06437000 BELLE FOURCHE R NEAR STURGIS SD (LAT 44 30 47N LONG 103 08 11W)					
JUL 1992					
31...	0825	121	19.5	15.0	1570
SEP					
01...	0910	135	17.5	18.0	2040
25...	1235	--	17.5	21.0	2000
06437020 BEAR BUTTE CREEK NEAR DEADWOOD, SD (LAT 44 20 08N LONG 103 38 06W)					
OCT 1991					
21...	1120	1.2	4.5	17.5	300
DEC					
05...	1245	1.2	0.5	4.5	300
JAN 1992					
10...	1200	0.62	0.0	12.0	313
FEB					
24...	1510	1.7	0.5	8.0	303
MAR					
30...	1300	2.20	9.0	13.5	300
APR					
27...	1600	10	13.5	25.0	273
28...	1500	12	14.0	22.0	254
JUN					
05...	1335	3.9	11.0	11.0	285
JUL					
14...	1145	2.5	15.0	19.0	329
AUG					
18...	1145	0.64	16.5	24.0	379

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)
06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS (LAT 44 22 11N LONG 102 33 56W)					
FEB 1992					
26...	0915	40	1.0	7.0	1790
JUN					
10...	1135	70	22.5	29.0	2070
JUL					
13...	1205 1410		19.0	17.0	995
06439000 CHERRY CR NEAR PLAINVIEW SD (LAT 44 44 35N LONG 102 03 11W)					
JUL 1992					
30...	0930	16	19.0	17.5	1380
06439300 CHEYENNE RIVER AT CHERRY CREEK, SD (LAT 44 36 10N LONG 101 29 24W)					
NOV 1991					
08...	1310	85	0.5	4.5	2870
FEB 1992					
12...	1430	140	0.5	1.0	2060
MAR					
05...	1125	221	--	7.0	2090
27...	1230	165	9.0	18.5	2290
MAY					
28...	1710	165	19.0	24.0	2160
JUN					
19...	1255	722	20.0	23.5	916
SEP					
11...	1145	195	--	--	2350
06439430 COTTONWOOD CR NR CHERRY CR SD (LAT 44 40 28N LONG 101 24 16W)					
JUL 1992					
30...	1420	1.1	22.0	22.0	904
06439960 CHANTIER CREEK NEAR HAYES, SD (LAT 44 31 20N LONG 100 42 13W)					
JUL 1992					
30...	1625	3.1	22.5	22.0	2310
06440200 SOUTH FORK BAD R NEAR COTTONWOOD SD (LAT 43 58 31N LONG 101 45 39W)					
OCT 1991					
04...	1030	0.01	11.0	5.5	1430
NOV					
18...	1150	4.5	2.5	12.0	315
FEB 1992					
26...	1640	30	2.0	11.0	278
APR					
08...	1110	0.01	7.0	7.0	2140
JUN					
10...	1320	0.08	26.0	28.0	831
25...	1510	2.8	22.0	25.0	468
JUL					
14...	1545	25	23.0	31.0	396
06441000 BAD R NEAR MIDLAND SD (LAT 44 04 01N LONG 101 09 36W)					
JAN 1992					
09...	1400	--	0.0	--	2510
JUN					
29...	1610	155	15.5	20.0	324
JUL					
14...	1210	161	20.5	23.5	491
06441110 PLUM CREEK BELOW HAYES, SD (LAT 44 12 38N LONG 100 43 34W)					
FEB 1992					
25...	1010	5.5	1.0	2.5	2400
JUL					
13...	1300	98	19.0	23.0	1240
15...	1500	9.6	19.0	25.0	1750
AUG					
27...	1105	0.01	16.0	18.0	1870

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)
06441500 BAD R NEAR FORT PIERRE SD (LAT 44 19 36N LONG 100 23 02W)					
FEB 1992					
03...	1540	48	0.5	4.5	3740
MAR					
02...	1015	67	3.0	4.0	1710
APR					
01...	1000	0.76	4.0	2.5	1790
MAY					
01...	1015	0.02	16.5	21.5	2570
JUL					
01...	1200	231	18.0	18.0	1220
13...	1600	1460	20.0	25.0	--
31...	1100	253	19.0	23.0	1460
AUG					
31...	1540	1.1	20.5	26.0	2310
06442500 MEDICINE CR AT KENNEBEC SD (LAT 43 54 17N LONG 099 52 35W)					
JUN 1992					
22...	1335	43	21.0	21.0	916
06442718 CAMPBELL C NR LEE'S CORNER (LAT 44 04 39N LONG 099 22 51W)					
NOV 1991					
08...	1110	0.02	0.0	1.5	3640
JAN 1992					
13...	1035	0.21	0.5	-1.0	2570
FEB					
24...	1055	1.7	0.0	0.0	1140
APR					
03...	1045	0.24	9.0	14.0	3100
MAY					
07...	1040	0.15	15.0	20.0	3470
JUN					
12...	1125	0.05	20.5	22.5	3570
JUL					
07...	1240	74	21.5	31.5	1450
AUG					
17...	1040	0.06	19.0	21.5	2860
06442900 ELM CR NEAR GANN VALLEY SD (LAT 44 04 38N LONG 099 09 03W)					
OCT 1991					
07...	1135	0.01	11.0	10.0	1690
JAN 1992					
13...	1155	0.64	0.5	-3.0	1560
FEB					
24...	1245	29	0.0	0.0	420
APR					
02...	1515	0.86	1.0	1.0	1190
MAY					
07...	1155	0.19	19.5	19.0	1460
JUN					
10...	1720	0.03	25.5	24.0	1640
JUL					
07...	1425	5.0	24.5	29.5	740
AUG					
17...	1140	0.30	21.0	21.0	1160
06445685 WHITE R NR NE-SD STATE LINE (LAT 43 00 53N LONG 102 50 07W)					
OCT 1991					
09...	0945	17	11.0	14.0	853
NOV					
26...	0910	13	1.0	5.0	917
JAN 1992					
07...	0910	16	0.0	-2.0	926
MAR					
12...	0930	102	5.0	11.0	663
APR					
08...	0850	19	10.0	8.0	850
MAY					
20...	0900	6.0	20.0	24.0	1100
JUN					
24...	0905	36	21.5	24.0	575
AUG					
19...	0900	1.1	19.5	21.0	790

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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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)
06445700 WHITE RIVER NEAR SLIM BUTTE, SD (LAT 43 05 23N LONG 102 47 52W)					
OCT 1991					
01...	1100	6.1	15.0	18.0	782
NOV					
26...	1050	14	1.5	6.0	1000
JAN 1992					
07...	1110	18	0.0	-2.0	926
MAR					
12...	1220	126	7.0	15.0	677
APR					
08...	1030	22	11.0	10.0	813
MAY					
20...	1030	9.4	21.0	28.0	1590
JUN					
25...	1130	24	21.5	26.0	615
AUG					
19...	1025	0.96	21.0	27.0	990
06445980 WHITE CLAY CR NEAR OGLALA SD (LAT 43 08 46N LONG 102 40 58W)					
OCT 1991					
09...	1340	4.2	12.0	21.0	576
NOV					
26...	1300	7.7	3.0	8.0	619
JAN 1992					
09...	1015	85.0	0.0	3.0	527
MAR					
13...	0935	18	7.0	12.0	495
APR					
08...	1320	3.9	11.0	11.0	638
MAY					
20...	1320	7.6	23.0	29.5	508
JUN					
24...	1500	13	21.5	24.0	433
AUG					
19...	1350	6.0	21.0	30.0	508
06446000 WHITE R NEAR OGLALA SD (LAT 43 15 17N LONG 102 49 29W)					
OCT 1991					
09...	1515	5.6	12.0	24.0	763
NOV					
26...	1445	20	2.0	9.0	843
JAN 1992					
09...	1200	17	0.0	4.0	1010
MAR					
12...	1535	112	6.0	15.0	593
APR					
08...	1515	26	12.5	13.0	790
MAY					
20...	1500	12	24.0	32.0	1080
JUN					
24...	1225	31	20.5	26.0	1200
AUG					
19...	1525	3.2	24.5	31.5	752
06447000 WHITE R NEAR KADOKA SD (LAT 43 45 09N LONG 101 31 28W)					
OCT 1991					
04...	1300	659	11.0	22.0	393
NOV					
21...	1635	195	3.0	6.0	437
JAN 1992					
14...	1325	17	0.0	0.0	802
FEB					
25...	1630	809	5.0	16.0	384
APR					
08...	1530	65	14.5	--	667
MAY					
19...	1300	24	30.0	25.0	705
JUN					
10...	1135	80	20.0	27.5	504
JUL					
15...	1155	176	--	--	498
AUG					
24...	1435	124	13.5	11.5	386

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)
06447500 LITTLE WHITE R NEAR MARTIN SD (LAT 43 10 00N LONG 101 37 47W)					
OCT 1991					
02...	0905	10	14.5	12.0	252
NOV					
13...	0925	31	0.0	7.0	193
JAN 1992					
08...	1035	11	0.0	-7.0	228
FEB					
19...	0950	16	0.0	-8.0	234
MAR					
30...	1940	20	10.0	3.0	331
MAY					
20...	1005	8.4	18.0	22.0	282
JUN					
09...	1800	12	22.0	26.0	252
JUL					
14...	1815	16	26.5	29.0	312
AUG					
25...	1705	14	17.0	16.0	203
06449000 LAKE CR BELOW REFUGE NEAR TUTHILL SD (LAT 43 08 46N LONG 101 30 38W)					
OCT 1991					
02...	1230	32	16.0	17.5	496
NOV					
13...	1100	12	3.0	14.0	397
JAN 1992					
08...	1235	33	1.5	-6.0	330
FEB					
19...	1210	34	1.0	0.0	272
MAR					
31...	0855	14	6.0	6.0	326
MAY					
20...	1305	0.79	18.0	26.0	505
JUN					
09...	1645	0.10	--	27.0	572
JUL					
14...	1600	2.0	29.0	30.0	580
AUG					
25...	1435	0.89	16.0	16.0	550
06449100 LITTLE WHITE R NEAR VETAL SD (LAT 43 06 03N LONG 101 13 49W)					
OCT 1991					
02...	1455	66	18.0	19.0	421
NOV					
03...	1335	57	6.0	16.5	356
JAN 1992					
08...	1515	18	0.0	-7.0	314
FEB					
19...	1450	74	3.0	4.0	282
MAR					
31...	1205	50	9.0	9.0	339
MAY					
19...	1635	24	26.0	35.0	339
JUN					
09...	1450	29	23.5	27.0	324
JUL					
14...	1330	35	27.0	30.0	322
AUG					
25...	1025	25	11.5	10.5	324
06449400 ROSEBUD CR AT ROSEBUD SD (LAT 43 14 09N LONG 100 51 12W)					
OCT 1991					
02...	1720	5.9	17.0	16.0	351
NOV					
14...	0930	8.2	4.0	3.0	357
JAN 1992					
09...	1020	7.6	0.0	-6.0	356
FEB					
20...	0920	7.2	2.0	0.0	352
MAR					
31...	1420	6.7	9.0	9.0	340
MAY					
13...	0940	5.9	15.0	10.0	323
JUN					
08...	1735	7.9	17.0	18.0	355
JUL					
09...	1325	6.5	22.5	22.0	331
AUG					
18...	1740	5.8	23.0	25.5	330

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)
06449500 LITTLE WHITE R NEAR ROSEBUD SD (LAT 43 19 32N LONG 100 53 00W)					
OCT 1991					
01...	1740	110	20.0	31.5	374
NOV					
12...	1620	164	0.5	15.0	301
JAN 1992					
07...	1420	126	0.0	-2.0	313
FEB					
18...	1630	164	1.5	0.0	291
MAR					
30...	1710	126	11.0	16.5	322
MAY					
13...	1315	74	15.0	15.0	316
JUN					
08...	1600	77	18.0	17.5	309
JUL					
10...	0910	110	18.0	17.0	297
AUG					
18...	1555	70	26.5	27.5	309
06450500 LITTLE WHITE R BELOW WHITE RIVER SD (LAT 43 36 05N LONG 100 44 58W)					
OCT 1991					
01...	1425	95	21.0	29.0	391
NOV					
12...	1300	154	1.0	20.0	337
JAN 1992					
07...	1120	138	0.0	0.5	332
FEB					
18...	1350	181	0.5	0.0	305
MAR					
30...	1420	144	14.5	17.0	348
MAY					
05...	1120	107	16.0	18.5	353
JUN					
08...	1315	79	18.0	19.5	321
JUL					
10...	1125	119	22.5	20.0	317
AUG					
18...	1305	71	26.5	27.0	331
06452000 WHITE R NEAR OACOMA SD (LAT 43 44 54N LONG 099 33 22W)					
OCT 1991					
07...	1505	139	13.0	24.0	472
FEB 1992					
21...	1110	308	0.0	1.0	510
JUN					
11...	0920	290	18.5	19.5	515
AUG					
21...	1450	69	25.5	25.5	660
06452320 PLATTE CREEK NEAR PLATTE, SD (LAT 43 19 38N LONG 098 58 13W)					
OCT 1991					
04...	1345	0.01	12.0	9.0	2160
NOV					
15...	0840	0.01	2.0	0.5	2120
JAN 1992					
13...	1430	0.01	0.0	0.0	2220
FEB					
20...	1820	0.55	1.5	-2.0	2290
APR					
02...	1000	0.04	3.5	5.5	2190
MAY					
12...	1350	0.01	18.0	16.0	2560
JUN					
10...	1235	0.03	19.5	20.0	2380
JUL					
08...	1330	0.02	21.5	23.0	2210
AUG					
20...	1420	0.05	23.0	27.5	2070
06452330 CAMPBELL CREEK NEAR GEDDES, SD (LAT 43 11 08N LONG 098 48 19W)					
APR 1992					
02...	1050	0.29	3.5	11.0	3210
MAY					
12...	1245	0.01	17.0	17.0	3760
JUN					
10...	1350	0.27	19.0	22.0	3070

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)
06453255 CHOTEAU CR NR AVON SD (LAT 42 55 24N LONG 098 06 21W)					
OCT 1991					
08...	1010	0.15	10.5	12.0	1470
NOV					
12...	0930	0.44	2.0	6.0	1550
DEC					
17...	0915	0.44	0.0	2.0	1110
FEB 1992					
20...	1315	0.32	4.5	--	1260
MAR					
16...	1045	0.56	9.0	17.0	1510
APR					
15...	1600	0.55	9.0	9.0	1350
MAY					
13...	0750	0.16	15.0	10.0	1550
JUN					
23...	1300	0.06	25.0	27.0	1490
JUL					
29...	1520	0.06	29.0	22.0	1360
AUG					
24...	1510	0.03	17.5	14.5	1220
SEP					
22...	1330	0.01	19.5	17.5	1190
06463900 ANTELOPE CR NEAR MISSION SD (LAT 43 16 26N LONG 100 40 56W)					
MAR 1992					
31...	1550	2.4	9.0	9.0	425
MAY					
13...	0735	0.53	11.5	5.5	402
JUN					
09...	1335	0.91	22.5	26.0	406
06464100 KEYA PAHA R NEAR KEYAPAHA SD (LAT 43 07 45N LONG 100 06 24W)					
OCT 1991					
03...	1535	12	13.0	11.5	403
NOV					
14...	1235	28	0.5	6.0	450
JAN 1992					
10...	1230	14	0.0	5.0	504
FEB					
20...	1205	37	2.0	0.5	452
APR					
01...	1350	28	6.0	6.0	455
MAY					
12...	1900	18	20.5	17.5	420
JUN					
09...	1555	16	25.0	24.0	407
JUL					
09...	0920	34	19.0	20.0	441
AUG					
19...	1750	19	26.5	23.5	443
06464500 KEYA PAHA R AT WEWELA SD (LAT 43 01 44N LONG 099 46 49W)					
OCT 1991					
04...	0925	30	10.5	6.0	398
NOV					
14...	1435	70	0.5	7.0	383
JAN 1992					
10...	1035	30	0.0	-1.0	465
FEB					
20...	1445	77	2.0	2.0	429
APR					
01...	1540	58	9.0	6.0	447
MAY					
12...	1705	34	23.0	20.0	434
JUN					
10...	0855	36	19.5	18.0	425
JUL					
08...	1750	95	25.0	27.0	416
AUG					
20...	0900	48	20.0	20.0	462

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)
06467500 MISSOURI R AT YANKTON SD (LAT 42 51 58N LONG 097 23 37W)					
OCT 1991					
10...	1145	29400	--	18.0	740
NOV					
13...	1040	9050	3.0	13.0	760
DEC					
26...	1530	12100	2.0	2.0	560
JAN 1992					
23...	1515	12300	4.5	1.5	740
FEB					
19...	1035	10600	2.0	0.5	750
MAR					
17...	1020	11800	6.0	5.0	710
APR					
15...	1015	23600	7.0	11.0	740
MAY					
13...	1615	24200	16.0	11.5	750
JUN					
24...	1130	26200	22.0	19.0	760
JUL					
29...	1055	23000	20.5	18.5	760
AUG					
27...	1025	23300	21.0	18.0	730
SEP					
22...	1045	23000	19.0	15.0	730
06471000 JAMES R AT COLUMBIA SD (LAT 45 36 13N LONG 098 18 36W)					
DEC 1991					
05...	1505	0.29	0.5	-8.0	2860
MAR 1992					
02...	1200	5.2	2.0	9.0	1530
APR					
09...	1035	0.60	8.0	9.0	2060
JUN					
04...	0820	0.16	15.0	17.5	1570
19...	1650	5.0	20.0	16.0	1310
JUL					
09...	0905	21	21.5	19.5	1350
AUG					
06...	0955	15	20.0	18.5	1480
06471200 MAPLE R AT ND-SD STATE LINE (LAT 45 56 20N LONG 098 27 08W)					
MAR 1992					
03...	0930	0.06	0.5	1.0	520
JUL					
08...	1320	9.1	22.0	23.0	820
06471500 ELM R AT WESTPORT SD (LAT 45 39 22N LONG 098 29 48W)					
OCT 1991					
02...	1140	6.2	12.0	14.0	1000
NOV					
07...	1045	7.6	0.5	-10.0	1570
DEC					
06...	0850	2.6	0.5	-5.0	1210
JAN 1992					
30...	0900	4.4	0.5	2.0	1420
MAR					
03...	1130	8.7	3.5	3.5	900
APR					
08...	1145	0.98	10.0	11.0	900
MAY					
07...	0810	7.0	14.0	16.0	740
JUN					
03...	1455	11	24.0	28.0	950
JUL					
08...	1040	19	21.0	22.0	920
AUG					
19...	1430	16	25.0	28.0	1270
SEP					
24...	0845	6.3	13.0	16.0	1010
06471550 JAMES RIVER BELOW COLUMBIA, SD (LAT 45 36 17N LONG 098 18 18W)					
NOV 1991					
06...	1115	0.33	1.0	-7.0	1730
DEC					
05...	1120	0.66	0.5	-8.0	2540
JAN 1992					
29...	1030	1.4	0.0	2.0	2020
MAR					
02...	1430	35	0.5	10.0	920

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)
06471550 JAMES RIVER BELOW COLUMBIA, SD (LAT 45 36 17N LONG 098 18 18W)--Continued					
APR 09...	0855	1.5	8.0	3.0	1390
MAY 07...	1130	2.4	17.0	25.0	1590
JUN 04...	1100	0.20	21.0	27.0	1620
JUL 09...	1050	24	22.0	22.0	1330
AUG 19...	1030	8.5	20.0	23.5	1440
SEP 24...	1200	30	16.0	21.5	1410
06473000 JAMES R AT ASHTON SD (LAT 45 00 02N LONG 098 28 57W)					
OCT 1991 04...	1030	<0.50	12.0	6.0	1720
NOV 04...	1415	<0.50	3.0	3.0	2330
DEC 11...	1030	0.37	2.0	6.0	2200
JAN 1992 31...	0940	1.1	1.0	2.0	2700
MAR 03...	1600	5.4	3.0	7.0	1760
APR 08...	0905	13	10.0	7.0	1680
MAY 08...	0915	2.2	17.5	21.0	1890
JUN 05...	1245	0.06	18.5	14.0	1670
JUL 19...	1300	66	20.0	16.0	760
JUL 02...	1100	358	18.0	20.0	690
AUG 10...	1340	268	23.0	23.0	640
AUG 21...	0925	21	22.0	18.0	1510
SEP 25...	1040	17	16.5	18.5	1640
06474000 TURTLE CR NEAR TULARE SD (LAT 44 44 06N LONG 098 35 09W)					
OCT 1991 02...	0845	0.06	12.0	10.0	990
NOV 04...	0955	0.31	3.0	-5.0	1500
MAR 1992 04...	0915	1.5	5.0	5.5	850
APR 07...	0845	0.13	11.0	5.5	780
MAY 08...	1200	0.01	20.0	22.0	970
06475000 JAMES R NEAR REDFIELD SD (LAT 44 54 33N LONG 098 27 34W)					
OCT 1991 04...	1150	7.3	12.0	9.0	1360
NOV 04...	1215	<10	1.0	-2.0	1870
MAR 1992 04...	1130	E35	3.0	11.0	1160
JUL 10...	1045	317	22.0	19.0	650
06476000 JAMES R AT HURON SD (LAT 44 21 49N LONG 098 11 56W)					
JUL 1992 17...	0850	332	22.0	18.0	630
SEP 28...	1400	2.4	16.0	16.0	1230
06476500 SAND CR NEAR ALPENA SD (LAT 44 09 15N LONG 098 26 06W)					
FEB 1992 27...	1345	31	1.5	13.5	580

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 1991					
07...	1505	8.3	12.0	23.0	1430
NOV					
08...	1345	6.3	1.0	2.0	1940
DEC					
04...	1315	18	0.5	-8.0	2170
FEB 1992					
03...	1300	16	2.5	8.0	1770
19...	1335	90	2.5	4.0	1380
APR					
06...	1415	49	13.0	20.0	1420
MAY					
04...	1300	27	19.0	27.0	1690
JUN					
01...	1435	5.3	19.0	20.0	--
23...	1115	654	23.0	24.0	1160
JUL					
13...	1310	470	22.5	24.5	620
AUG					
17...	0915	102	22.0	18.5	950
SEP					
21...	1300	38	20.0	25.0	1120
06477150 ROCK CR NEAR FULTON SD (LAT 43 45 39N LONG 097 54 25W)					
FEB 1992					
21...	1200	E0.10	--	--	--
MAR					
18...	1315	4.6	6.5	11.5	780
AUG					
24...	1115	7.9	19.0	16.0	1240
06477500 FIRESTEEL CR NEAR MOUNT VERNON SD (LAT 43 46 30N LONG 098 14 33W)					
OCT 1991					
07...	1140	0.06	12.0	17.0	2480
NOV					
08...	1100	0.02	2.0	3.5	3420
DEC					
04...	1115	0.01	0.5	-8.0	3650
FEB 1992					
03...	1030	0.04	2.5	5.5	2270
19...	1555	0.34	4.0	1.0	1310
27...	0945	9.2	1.0	8.5	650
APR					
06...	1145	0.36	13.0	13.0	1140
MAY					
04...	1020	0.94	16.0	23.0	1510
JUL					
13...	1020	0.50	21.0	22.0	1280
AUG					
10...	1105	277	25.0	21.0	290
17...	1220	32	22.5	22.0	1000
SEP					
21...	1025	11	18.5	23.0	980
06478390 WOLF CR NEAR CLAYTON SD (LAT 43 22 18N LONG 097 36 12W)					
FEB 1992					
20...	1630	61	0.5	-0.5	800
AUG					
10...	1500	43	26.0	27.0	290
06478500 JAMES R NEAR SCOTLAND SD (LAT 43 11 09N LONG 097 38 07W)					
NOV 1991					
14...	0945	50	0.0	1.0	1970
DEC					
26...	0955	34	0.0	-3.5	1800
JAN 1992					
23...	1005	35	0.5	-1.0	2180
MAR					
18...	0925	208	6.0	2.0	1470
APR					
14...	1105	46	5.5	8.5	1510
JUN					
23...	1015	84	23.0	18.5	2010
JUL					
28...	1150	303	24.0	24.0	810
AUG					
11...	1410	862	27.0	28.0	880
SEP					
21...	1400	156	20.0	24.0	1280

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)
06478513 JAMES RIVER NR YANKTON SD (LAT 42 59 45N LONG 097 22 10W)					
OCT 1991					
08...	1350	18	14.0	23.5	1640
NOV					
12...	1340	58	0.0	5.5	1920
DEC					
27...	1000	29	0.0	-2.5	1790
FEB 1992					
20...	0940	41	0.5	3.5	1800
MAR					
05...	0830	148	8.5	11.5	1560
16...	1540	288	9.5	23.0	1580
APR					
14...	1355	61	6.5	13.5	1490
MAY					
14...	0840	48	15.0	13.0	1920
JUN					
24...	1340	87	25.5	28.0	2000
JUL					
28...	1530	324	25.0	25.5	820
AUG					
26...	0815	247	18.5	15.0	1090
SEP					
21...	1600	194	20.5	24.0	1350
06478540 LITTLE VERMILLION R NEAR SALEM SD (LAT 43 47 39N LONG 097 22 02W)					
FEB 1992					
20...	1610	4.0	0.0	-4.0	300
MAR					
03...	1205	23	6.0	10.5	300
APR					
02...	1300	0.36	8.0	12.0	1090
MAY					
06...	1510	0.64	19.0	20.0	1300
JUL					
21...	1110	36	20.0	22.0	400
AUG					
11...	1635	85	27.5	27.5	390
25...	0905	23	16.0	16.0	710
06478690 WEST FORK VERMILLION R NEAR PARKER SD (LAT 43 24 55N LONG 097 12 18W)					
OCT 1991					
08...	0920	<0.05	8.5	10.5	1500
NOV					
06...	0945	<0.02	0.0	-11.0	1730
DEC					
17...	1140	0.02	0.5	-1.0	1520
FEB 1992					
20...	1250	127	0.0	0.0	280
MAR					
03...	1430	49	7.0	5.5	500
APR					
01...	1450	5.7	7.0	5.0	1380
MAY					
06...	1735	5.8	20.0	25.5	1830
JUN					
08...	1530	0.15	18.5	17.5	1580
JUL					
14...	1820	49	24.0	22.0	400
21...	1430	18	20.5	17.0	780
AUG					
11...	1055	111	25.0	26.0	600
25...	1155	18	16.5	14.0	800
06479000 VERMILLION R NEAR WAKONDA SD (LAT 42 59 27N LONG 096 57 49W)					
FEB 1992					
27...	0925	339	0.5	10.0	660
MAY					
29...	1300	E10	--	--	--
06479010 VERMILLION RIVER NR VERMILLION SD (LAT 42 49 02N LONG 096 55 26W)					
OCT 1991					
08...	1600	5.6	18.0	26.0	1730
NOV					
13...	1410	15	0.0	4.0	1530
DEC					
27...	1435	7.8	0.0	1.5	1240
FEB 1992					
19...	1500	27	3.5	4.0	1340
26...	1815	255	3.0	9.0	620

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)
06479010 VERMILLION RIVER NR VERMILLION SD (LAT 42 49 02N LONG 096 55 26W)--Continued					
MAR					
17...	1315	198	8.0	10.0	1360
APR					
14...	1735	52	6.0	15.0	1400
MAY					
12...	1645	68	22.0	21.0	1540
JUN					
24...	1705	32	25.0	26.0	1500
JUL					
15...	1750	464	23.0	27.0	840
30...	0950	423	22.0	15.0	860
AUG					
10...	1800	598	26.5	23.0	1000
25...	1520	190	18.5	16.5	1000
SEP					
24...	0840	191	15.0	14.0	1450
06479215 BIG SIOUX RIVER NR FLORENCE SD (LAT 45 10 51N LONG 097 11 09W)					
OCT 1991					
01...	1655	1.6	17.5	21.5	690
NOV					
06...	1655	1.6	0.5	-15.0	1000
DEC					
17...	1420	0.88	0.5	--	930
JAN 1992					
22...	0910	0.59	0.0	1.0	860
FEB					
19...	1225	1.8	0.0	5.0	620
MAR					
02...	1535	28	2.0	4.0	330
APR					
07...	1545	4.6	12.5	9.0	660
MAY					
20...	1605	0.87	23.0	24.0	580
JUN					
18...	0910	49	18.0	24.0	490
23...	1800	35	22.0	22.5	560
JUL					
28...	1710	1.6	25.5	27.0	620
AUG					
25...	1845	0.34	15.0	14.0	650
06479438 BIG SIOUX R NEAR WATERTOWN SD (LAT 45 00 22N LONG 097 09 53W)					
OCT 1991					
02...	1145	12	14.0	20.0	580
NOV					
07...	1405	8.5	1.5	-2.0	810
DEC					
18...	1320	4.4	--	-5.0	810
JAN 1992					
22...	1155	3.0	0.0	4.0	820
FEB					
19...	1520	7.8	0.0	7.0	610
MAR					
03...	0925	63	0.5	0.0	310
APR					
08...	0925	21	8.5	6.0	610
MAY					
21...	0750	9.3	19.0	19.0	640
JUN					
18...	1335	275	18.0	23.0	400
24...	0830	84	20.5	20.0	590
JUL					
29...	0800	24	20.5	17.0	700
AUG					
26...	1145	5.1	16.0	20.0	580
06479525 BIG SIOUX R NEAR CASTLEWOOD SD (LAT 44 43 54N LONG 097 02 39W)					
OCT 1991					
02...	1350	47	16.5	17.0	720
NOV					
07...	1705	18	0.5	-1.5	980
DEC					
18...	1615	20	0.0	-7.0	1020
JAN 1992					
22...	1505	8.2	0.0	3.0	1330
FEB					
19...	0945	28	0.0	1.0	730
MAR					
03...	1130	82	0.5	3.5	470
APR					
08...	1125	41	8.5	7.0	800

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)
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06479525 BIG SIOUX R NEAR CASTLEWOOD SD (LAT 44 43 54N LONG 097 02 39W)--Continued

MAY					
21...	1005	28	20.0	22.5	650
JUN					
17...	1920	549	18.0	22.0	320
24...	1140	176	21.0	23.5	710
JUL					
29...	1010	102	21.0	17.5	820
AUG					
26...	1420	52	15.5	19.0	750

06479640 HIDEWOOD CR NEAR ESTELLINE SD (LAT 44 36 42N LONG 096 54 17W)

FEB 1992					
20...	1510	27	0.0	-4.0	360
21...	0855	32	0.0	-4.0	330
28...	1040	209	1.5	4.5	270
APR					
08...	1630	46	9.5	9.0	770
JUN					
17...	1700	2930	19.0	20.0	180
24...	1710	361	22.0	25.0	590

06479928 BATTLE CR NEAR NUNDA SD (LAT 44 09 10N LONG 096 53 18W)

OCT 1991					
03...	1305	0.05	15.0	16.0	840
NOV					
08...	1500	0.04	1.0	1.0	1360
DEC					
20...	1405	0.27	0.5	2.0	1650
FEB 1992					
28...	1730	183	1.5	6.5	260
MAR					
04...	1555	95	6.0	10.0	660
APR					
09...	1450	8.8	11.0	12.0	1380
MAY					
22...	1020	2.4	19.0	16.5	1570
JUN					
17...	1800	118	20.0	18.0	940
25...	1355	28	24.0	20.0	1220
JUL					
30...	1535	19	20.0	20.0	1550
AUG					
27...	1440	30	18.0	21.0	1730

06479980 MEDARY CR NEAR BROOKINGS, SD (LAT 44 13 27N LONG 096 46 06W)

FEB 1992					
21...	0855	32	0.0	-4.0	332
APR					
08...	1630	46	9.5	9.0	770

06480000 BIG SIOUX RIVER NEAR BROOKINGS SD (LAT 44 10 48N LONG 096 44 55W)

OCT 1991					
02...	1705	101	16.0	17.0	880
NOV					
08...	0925	44	1.0	-7.0	1170
DEC					
19...	1115	40	0.0	-2.0	1070
JAN 1992					
23...	1000	39	0.0	-1.0	1030
FEB					
28...	1405	444	1.5	7.0	550
MAR					
04...	0930	809	3.5	6.5	520
APR					
09...	0835	235	6.0	0.0	890
MAY					
22...	0835	120	21.0	21.0	910
JUN					
17...	1550	779	20.0	24.0	460
20...	1140	5930	18.0	13.0	300
22...	1530	4280	22.0	24.0	--
25...	1125	2690	21.5	19.0	490
JUL					
30...	1315	548	20.0	19.0	950
AUG					
27...	1205	737	15.0	21.0	830

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

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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)
06480400 SPRING CR NEAR FLANDREAU SD (LAT 44 07 18N LONG 096 35 19W)					
OCT 1991					
03...	1105	1.9	12.0	17.0	530
NOV					
08...	1330	0.06	1.0	5.0	920
DEC					
20...	1215	3.2	0.5	2.0	780
JAN 1992					
23...	1240	2.4	0.0	-2.5	640
FEB					
20...	1045	21	0.5	-2.0	270
28...	1445	387	2.5	8.0	180
MAR					
04...	1355	16	5.5	10.5	490
APR					
09...	1250	9.3	11.0	9.0	660
MAY					
05...	1115	3.2	12.5	16.0	630
JUN					
09...	1230	3.2	17.0	21.0	570
JUL					
22...	0950	4.4	15.5	14.0	700
AUG					
26...	0855	6.8	13.0	14.0	700
06480650 FLANDREAU CR ABOVE FLANDREAU SD (LAT 44 03 45N LONG 096 29 14W)					
OCT 1991					
03...	0905	1.9	13.0	9.0	880
NOV					
08...	1145	0.60	1.0	-2.0	1170
DEC					
19...	1500	2.1	0.0	-2.5	1100
FEB 1992					
20...	1240	28	0.5	-2.0	250
MAR					
04...	1155	49	3.5	9.5	400
APR					
09...	1055	21	8.0	5.5	760
MAY					
05...	1315	9.8	15.0	17.0	880
06481000 BIG SIOUX R NEAR DELL RAPIDS SD (LAT 43 47 25N LONG 096 44 42W)					
OCT 1991					
10...	1055	105	10.5	8.0	880
NOV					
06...	1345	65	0.0	-10.0	1000
DEC					
19...	1020	64	0.0	-4.0	1040
FEB 1992					
28...	1130	830	1.5	10.0	390
MAR					
03...	0900	2100	2.0	7.5	360
APR					
01...	1750	333	5.0	3.0	880
MAY					
05...	1600	283	18.0	19.0	970
JUN					
09...	1630	106	19.5	25.0	850
23...	1555	3910	22.0	27.0	350
JUL					
22...	1240	737	18.5	15.5	900
AUG					
26...	1305	561	16.5	18.5	970

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)
06481500 SKUNK CR AT SIOUX FALLS SD (LAT 43 32 01N LONG 096 47 26W)					
OCT 1991					
08...	1525	0.97	15.0	23.0	1210
NOV					
06...	1705	1.7	0.5	-7.0	1080
DEC					
17...	1610	2.5	0.5	-2.0	1210
JAN 1992					
24...	1710	3.3	0.0	-4.0	1090
FEB					
20...	0930	344	0.0	1.0	230
27...	1215	702	1.5	8.5	260
MAR					
02...	1415	336	7.0	20.0	340
APR					
02...	0750	39	3.0	1.5	1140
MAY					
06...	0945	29	15.0	14.5	1340
JUN					
11...	1020	5.9	22.0	23.0	1160
JUL					
15...	1255	350	22.5	23.0	520
22...	1515	152	17.5	18.0	840
AUG					
10...	1240	1240	25.5	24.0	520
26...	1605	404	16.0	18.0	1100
06482020 BIG SIOUX R AT NORTH CLIFF AVE AT SIOUX FALLS SD (LAT 43 34 01N LONG 096 42 39W)					
OCT 1991					
08...	1320	104	13.5	21.5	1120
NOV					
06...	1525	70	3.5	-6.0	1280
DEC					
17...	1420	64	2.5	0.0	1460
JAN 1992					
24...	1330	57	1.5	-5.0	1280
FEB					
18...	1445	1580	1.0	1.0	470
MAR					
03...	1810	2330	--	--	--
APR					
02...	1010	360	5.0	1.5	1020
MAY					
06...	1200	288	16.0	19.5	1040
JUN					
11...	1510	97	23.0	32.0	1050
25...	1015	3840	22.5	24.5	400
JUL					
23...	1020	928	17.0	16.0	900
AUG					
27...	1000	1070	17.0	17.0	1080
06482610 SPLIT ROCK CR AT CORSON SD (LAT 43 36 59N LONG 096 33 54W)					
MAR 1992					
02...	1630	1010	6.0	17.5	230
06482848 BEAVER CR AT CANTON SD (LAT 43 17 12N LONG 096 35 46W)					
FEB 1992					
28...	0815	108	3.0	2.0	460
06485500 BIG SIOUX R AT AKRON IA (LAT 42 50 14N LONG 096 33 41W)					
NOV 1991					
07...	1310	147	0.0	-5.0	1130
JAN 1992					
24...	1020	200	0.5	-5.0	1160
FEB					
19...	1330	1220	0.0	2.5	610
27...	1730	2310	4.5	18.0	480
MAR					
04...	1120	6650	5.0	16.0	310
MAY					
19...	1100	1360	20.0	22.0	920
JUL					
16...	1010	7470	21.5	26.5	600
30...	1555	3310	21.0	16.5	900
AUG					
25...	1130	1640	20.0	14.0	940

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)
06485696 BRULE CREEK NR ELK POINT SD (LAT 42 48 32N LONG 096 41 11W)					
OCT 1991					
09...	0830	1.2	9.5	6.5	1070
NOV					
07...	1035	0.93	0.0	-9.0	1210
DEC					
18...	0920	7.4	0.0	-11.0	1100
FEB 1992					
19...	1000	64	0.0	2.0	530
MAR					
04...	1325	27	8.0	14.5	1100
APR					
01...	0720	19	4.0	-4.0	--
MAY					
14...	1540	30	19.0	24.0	1170
JUN					
25...	1400	11	25.0	26.0	1100
JUL					
30...	1220	60	19.5	19.0	1040
AUG					
25...	0920	30	17.0	13.5	1020
SEP					
23...	0830	30	14.0	11.0	1230

MISCELLANEOUS DISCHARGE MEASUREMENTS

The following miscellaneous discharge measurements were made in the state. Sites are listed in downstream order.

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)
05299750 FLORIDA CREEK NEAR BURR, MN (LAT 44 49 00N LONG 096 25 10W)					
JUN 1992					
18...	1335	275	20.0	21.0	330
06406950 HORSE CREEK AT HIGHWAY 385 NEAR HILL CITY, SD (LAT 43 59 05N LONG 103 29 13W)					
NOV 1991					
24...	0930	0.56	2.0	-5.0	300
JAN 1992					
13...	1500	--	3.0	0.0	300
06406960 SHERIDAN LK TRIB NR CALUMET RIDGE NR KEYSTONE, SD (LAT 43 57 51N LONG 103 27 35W)					
NOV 1991					
24...	1130	0.10	0.5	-1.0	400
30...	1340	0.17	--	--	--
JAN 1992					
25...	1345	0.01	1.5	7.0	400
06406994 SPRING CR BLW SHERIDAN LAKE NR KEYSTONE, SD (LAT 43 58 43N LONG 103 26 54W)					
NOV 1991					
19...	1300	8.0	--	--	--
19...	1500	45	--	--	--
21...	1243	7.8	--	--	--
21...	1430	23	--	--	--
23...	1300	9.0	2.5	0.0	200
23...	1500	11	3.0	0.0	--
06407000 SPRING CR NEAR HILL CITY SD (LAT 43 59 00N LONG 103 26 00W)					
NOV 1991					
14...	1200	11	--	--	--
DEC					
31...	1120	4.1	0.5	2.0	300
JAN 1992					
25...	1157	8.0	1.5	10.5	300
06412300 TITTLE SPRINGS AT RAPID CITY, SD (LAT 44 02 42N LONG 103 19 37W)					
JAN 1992					
27...	1425	1.7	5.0	12.0	--
FEB					
07...	1000	1.7	--	--	--
MAR					
06...	1350	1.8	4.5	--	364
APR					
07...	1500	1.6	5.0	12.0	392
MAY					
08...	1435	2.4	8.0	18.0	367
JUN					
10...	1340	2.1	9.5	29.0	384
JUL					
08...	1315	2.3	13.0	25.5	379
AUG					
27...	1450	2.3	14.0	20.5	390
06413200 RAPID CREEK BELOW PARK DRIVE AT RAPID CITY SD (LAT 44 03 33N LONG 103 17 02W)					
OCT 1991					
20...	2005	18	10.0	5.0	200
NOV					
16...	1700	23	6.5	4.5	400
DEC					
20...	1215	--	4.5	17.0	300
22...	1250	24	--	--	--
JAN 1992					
21...	1700	24	4.0	1.0	400
FEB					
29...	1230	23	9.0	18.0	400
MAR					
20...	1210	24	--	--	--
22...	1230	--	8.0	13.0	400
MAY					
13...	1300	85	12.0	27.0	400
JUN					
02...	1200	41	14.0	25.0	400
07...	1200	--	--	--	--
16...	1115	46	15.0	25.0	400
JUL					
14...	1315	--	17.0	30.0	362
AUG					
13...	1400	--	17.0	28.0	400

MISCELLANEOUS DISCHARGE MEASUREMENTS

365

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)
440327103180401 RAPID CREEK JUST BELOW JACKSON SPRINGS (LAT 44 03 27N LONG 103 18 04W)					
OCT 1991					
20...	1815	6.3	11.0	13.0	200
NOV					
16...	1445	9.0	6.5	8.5	400
DEC					
20...	1100	--	2.5	11.0	300
22...	1150	9.6	--	--	--
JAN 1992					
23...	0900	13	1.5	5.5	400
FEB					
29...	0830	9.2	3.5	10.0	400
MAR					
20...	1100	9.9	--	--	--
22...	0930	--	2.5	0.5	400
MAY					
12...	1045	62	12.0	15.0	400
JUN					
02...	1030	26	12.0	22.0	400
16...	0930	34	12.5	21.0	400
JUL					
14...	0930	--	15.0	24.0	400
AUG					
12...	1130	--	15.0	23.0	400
06429920 BEAR GULCH NEAR MAURICE, SD (LAT 44 25 14N LONG 104 02 26W)					
JUL 1992					
21...	1200	0.58	--	--	--
AUG					
28...	1155	0.18	21.0	29.0	248
06430520 BEAVER CREEK NEAR MAURICE, SD (LAT 44 22 57N LONG 104 00 13W)					
JUL 1992					
21...	1200	1.7	--	--	--
AUG					
28...	1335	0.35	19.0	27.0	247
06430528 McNENNY ST F HATCH VIEW POND OUTLET NR BEULAH, WY (LAT 44 33 31N LONG 104 00 36W)					
OCT 1991					
04...	1500	0.91	--	--	--
11...	1500	0.91	--	--	--
18...	0930	0.91	--	--	--
26...	1000	0.91	--	--	--
NOV					
01...	1500	0.91	--	--	--
08...	1000	0.91	--	--	--
15...	1500	0.91	--	--	--
22...	1400	0.91	--	--	--
29...	1500	0.91	--	--	--
DEC					
06...	1500	0.91	--	--	--
13...	0900	0.91	--	--	--
20...	1400	0.83	--	--	--
27...	1300	0.91	--	--	--
JAN 1992					
03...	1500	0.91	--	--	--
10...	1300	0.91	--	--	--
17...	1500	0.91	--	--	--
24...	1500	0.91	--	--	--
31...	1100	0.91	--	--	--
FEB					
07...	1400	0.91	--	--	--
14...	1500	0.91	--	--	--
21...	1500	0.91	--	--	--
28...	1300	0.91	--	--	--
MAR					
06...	1000	0.91	--	--	--
13...	1400	0.91	--	--	--
20...	1500	0.91	--	--	--
27...	1100	0.91	--	--	--
APR					
03...	1400	0.91	--	--	--
10...	0900	0.91	--	--	--
24...	1500	0.91	--	--	--
MAY					
01...	1500	0.91	--	--	--
08...	0900	0.91	--	--	--
14...	1245	0.91	--	--	673
15...	0900	0.91	--	--	--
22...	1100	0.91	--	--	--
29...	1100	0.91	--	--	--

MISCELLANEOUS DISCHARGE MEASUREMENTS

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)
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06430528 McNENNY ST F HATCH VIEW POND OUTLET NR BEULAH, WY (LAT 44 33 31N LONG 104 00 36W)--Continued

JUN					
05...	1500	0.91	--	--	--
12...	1500	0.91	--	--	--
19...	1300	0.91	--	--	--
26...	1500	0.91	--	--	--
JUL					
02...	1500	0.91	--	--	--
10...	1500	0.91	--	--	--
17...	1500	0.91	--	--	--
22...	1230	0.87	13.0	21.0	681
24...	1500	0.91	--	--	--
31...	1500	0.91	--	--	--
AUG					
07...	1500	0.91	--	--	--
14...	1500	0.91	--	--	--
19...	1400	0.71	14.5	32.5	670
21...	1500	0.91	--	--	--
28...	1500	0.91	--	--	--
SEP					
04...	1500	0.91	--	--	--
11...	1500	0.91	--	--	--
18...	1500	0.91	--	--	--
25...	1500	0.91	--	--	--

06430525 McNENNY ST F HATCH REARING POND OUT NR BEULAH, WY (LAT 44 33 30N LONG 104 00 34W)

OCT 1991					
04...	1500	0.95	--	--	--
11...	1500	0.95	--	--	--
18...	0930	0.95	--	--	--
26...	1000	0.95	--	--	--
NOV					
01...	1500	0.95	--	--	--
08...	1000	0.95	--	--	--
15...	1500	0.95	--	--	--
22...	1400	0.95	--	--	--
29...	1500	0.95	--	--	--
DEC					
06...	1500	0.95	--	--	--
13...	0900	0.95	--	--	--
20...	1400	0.95	--	--	--
JAN 1992					
03...	1500	0.95	--	--	--
04...	1250	0.95	8.0	0.0	656
10...	1300	0.95	--	--	--
17...	1500	0.95	--	--	--
24...	1500	0.95	--	--	--
31...	1100	0.95	--	--	--
FEB					
07...	1400	0.95	--	--	--
14...	1500	0.95	--	--	--
21...	1500	0.95	--	--	--
28...	1300	0.95	--	--	--
MAR					
06...	1000	0.95	--	--	--
13...	1400	0.95	--	--	--
20...	1500	0.95	--	--	--
27...	1100	0.95	--	--	--
APR					
03...	1400	0.95	--	--	--
10...	0900	0.95	--	--	--
24...	1500	0.95	--	--	--
MAY					
01...	1500	0.95	--	--	--
08...	0900	0.95	--	--	--
14...	1230	0.95	--	--	640
15...	0900	0.95	--	--	--
22...	1100	0.95	--	--	--
29...	1100	0.95	--	--	--
JUN					
05...	1500	0.95	--	--	--
12...	1500	0.95	--	--	--
19...	1300	0.95	--	--	--
26...	1500	0.95	--	--	--
JUL					
02...	1500	0.95	--	--	--
10...	1500	0.95	--	--	--
17...	1500	0.95	--	--	--
22...	1230	0.95	13.0	21.0	648
24...	1500	0.95	--	--	--
31...	1500	0.95	--	--	--
AUG					
07...	1500	0.95	--	--	--
14...	1500	0.95	--	--	--
19...	1350	0.95	15.0	32.5	639
21...	1500	0.95	--	--	--
28...	1500	0.95	--	--	--

MISCELLANEOUS DISCHARGE MEASUREMENTS

367

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)
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06430525 MCNENNY ST F HATCH REARING POND OUT NR BEULAH, WY (LAT 44 33 30N LONG 104 00 34W)--Continued

SEP					
04...	1500	0.95	--	--	--
11...	1500	0.95	--	--	--
18...	1500	0.95	--	--	--
25...	1500	0.95	--	--	--

06430532 CROW CREEK NEAR BEULAH, WY (LAT 44 34 14N LONG 104 00 19W)

DEC 1991					
10...	1255	28	9.5	6.0	1370
JAN 1992					
09...	1535	27	9.0	9.0	1370
FEB					
21...	1315	26	10.0	14.0	1510
MAR					
27...	1430	31	14.0	22.0	1350
27...	1505	20	--	--	--
APR					
03...	1405	34	--	--	1330
03...	1445	33	--	--	--
03...	1520	22	--	--	--
15...	1140	32	14.0	20.0	--
15...	1320	23	14.0	20.0	--
MAY					
13...	1600	31	13.5	16.5	1350
JUN					
09...	1515	30	18.5	27.0	1360
JUL					
23...	1500	33	16.5	28.5	1340
AUG					
19...	1145	25	14.0	29.0	1000

06430765 EAST SPEARFISH CREEK NEAR LEAD, SD (LAT 44 17 44N LONG 103 52 10W)

OCT 1991					
07...	1200	5.4	--	--	400
NOV					
25...	1215	5.2	2.5	3.0	500
JAN 1992					
07...	1430	4.0	1.0	-7.0	500
FEB					
18...	1355	4.8	2.0	0.0	400
MAR					
24...	1430	4.6	3.0	3.0	400
APR					
30...	1020	9.6	6.0	8.5	400
JUN					
02...	1430	5.7	13.5	22.0	430
JUL					
16...	1110	5.9	9.0	15.5	447
AUG					
17...	1430	4.8	13.0	23.0	426

06430950 SPEARFISH CR BL ROBISON GULCH NR SPEARFISH (LAT 44 26 14N LONG 103 52 32W)

OCT 1991					
23...	1415	2.4	7.5	3.5	400
DEC					
04...	1515	2.4	1.0	3.5	400
JAN 1992					
22...	1100	2.4	1.5	3.5	400
APR					
02...	1615	2.4	10.0	15.5	400
MAY					
19...	1215	2.8	16.5	28.5	400
JUN					
03...	1500	2.6	17.5	24.5	400
AUG					
13...	1345	2.1	18.0	25.5	400
SEP					
09...	1330	2.2	13.5	18.5	400

06470992 SAND LAKE NR COLUMBIA SD (LAT 45 40 10N LONG 098 18 31W)

AUG 1992					
06...	1220	15	20.5	19.0	1400

MISCELLANEOUS DISCHARGE MEASUREMENTS

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)
06478920 VERMILLION RIVER NEAR CENTERVILLE, SD (LAT 43 03 27N LONG 096 57 48W)					
JUL 1992					
15...	1010	389	22.0	25.0	640
06479450 LAKE KAMPESKA INLET/OUTLET AT WATERTOWN, SD (LAT 44 56 56N LONG 097 10 30W)					
JUN 1992					
18...	1620	270	20.0	25.0	450
06480655 BIG SIOUX RIVER AT FLANDREAU, SD (LAT 44 03 07N LONG 096 35 13W)					
JUN 1992					
20...	1605	1620	20.0	18.0	450
22...	1855	4350	--	--	--

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 SW1/4SW1/4SW1/4NW1/4 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 1991 TO SEPTEMBER 1992
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	60.19	59.08	58.46	57.92	57.44	57.19	56.87	56.85	67.42	70.18	62.42
2	---	60.12	59.02	58.40	57.89	57.48	57.15	56.93	56.83	66.82	70.47	62.17
3	61.99	60.12	59.00	58.34	57.96	57.49	57.06	56.94	56.78	65.66	70.63	62.10
4	61.91	60.10	59.01	58.35	57.98	57.45	57.06	56.93	57.16	65.92	70.19	62.02
5	61.86	59.94	58.89	58.29	57.92	57.39	57.03	56.96	58.65	65.88	70.19	61.87
6	61.81	59.98	58.88	58.29	57.85	57.31	57.06	56.97	59.66	66.45	70.35	61.80
7	61.72	59.99	58.75	58.26	57.88	57.34	57.11	56.92	60.34	66.86	70.02	61.73
8	61.53	59.95	58.77	58.23	57.89	57.35	57.10	56.88	60.94	67.23	68.57	61.66
9	61.53	59.84	58.80	58.24	57.88	57.36	57.06	56.83	61.43	67.46	67.77	61.45
10	61.51	59.88	58.75	58.24	57.89	57.37	57.01	56.84	61.90	67.74	67.21	61.43
11	61.36	59.84	58.77	58.17	57.92	57.31	57.15	56.84	62.33	67.87	66.79	61.40
12	61.30	59.77	58.69	58.14	57.91	57.30	57.18	56.95	62.68	67.86	66.36	61.26
13	61.21	59.65	58.70	58.17	57.76	57.30	57.13	56.97	63.00	66.86	66.02	61.11
14	61.18	59.58	58.75	58.17	57.74	57.29	57.05	56.92	63.31	67.41	65.69	61.09
15	61.13	59.68	58.75	58.23	57.71	57.32	57.00	56.86	63.39	67.82	65.40	61.04
16	61.01	59.68	58.69	58.13	57.71	57.24	57.00	56.85	63.57	68.14	65.09	60.91
17	60.97	59.58	58.73	58.16	57.66	57.26	56.99	56.93	64.01	68.44	64.83	60.87
18	61.02	59.37	58.74	58.17	57.66	57.25	56.88	56.93	64.49	68.64	64.62	60.82
19	61.00	59.46	58.69	58.12	57.68	57.26	56.88	56.88	64.86	68.88	64.42	60.78
20	60.87	59.46	58.65	58.05	57.67	57.24	56.91	56.87	65.24	69.04	64.19	60.60
21	60.71	59.34	58.65	58.02	57.68	57.22	56.91	56.86	65.41	68.56	64.00	60.56
22	60.59	59.38	58.50	57.94	57.64	57.22	56.95	56.95	65.64	68.79	63.79	60.60
23	60.60	59.39	58.54	58.01	57.64	57.18	56.97	56.97	65.84	69.08	63.58	60.53
24	60.55	59.34	58.53	58.02	57.65	57.18	56.98	56.95	66.05	69.28	63.48	60.41
25	60.54	59.32	58.50	58.04	57.65	57.19	56.98	56.88	66.31	69.35	63.34	60.31
26	60.48	59.21	58.55	58.02	57.61	57.21	57.00	56.89	66.51	68.50	63.19	60.29
27	60.41	59.14	58.56	58.06	57.55	57.21	56.98	56.86	66.77	69.00	63.05	60.28
28	60.33	59.15	58.54	58.05	57.49	57.14	56.91	56.86	67.03	69.37	62.86	60.31
29	60.35	59.11	58.43	57.97	57.50	57.19	56.86	56.83	67.20	69.57	62.68	60.26
30	60.39	59.08	58.44	57.97	---	57.20	56.84	56.83	67.27	69.82	62.61	60.14
31	60.34	---	58.45	57.95	---	57.19	---	56.84	---	70.02	62.54	---
MAX	---	60.19	59.08	58.46	57.98	57.49	57.19	56.97	67.27	70.02	70.63	62.42

GROUND-WATER LEVELS

BEADLE COUNTY

442112098174001.

LOCATION.--Lat 44°21'12", long 98°17'40", in SW1/4SW1/4SW1/4NW1/4 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, 29.49 ft below land-surface datum, June 28, 1987.

DEPTH, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39.79	44.11	44.47	44.18	44.12	43.50	43.58	38.58	39.38	38.88	37.95	37.05
2	39.89	44.25	43.90	44.09	44.09	43.92	41.98	38.65	39.40	38.91	37.92	36.79
3	39.89	44.44	44.28	43.86	44.33	44.00	40.96	38.66	39.34	38.96	37.91	36.88
4	39.94	44.17	44.19	43.84	44.18	44.03	40.67	38.59	39.31	38.97	37.90	36.82
5	39.97	44.44	44.43	44.10	43.66	43.87	40.33	38.64	39.29	38.94	37.81	36.72
6	40.01	44.69	43.84	44.12	43.87	43.60	40.17	38.62	39.42	38.92	37.77	36.79
7	39.85	44.72	43.75	44.09	43.96	43.13	40.12	38.46	39.46	38.78	37.58	36.77
8	39.74	44.47	44.18	43.68	43.90	43.31	39.99	38.36	39.48	38.79	37.57	36.78
9	39.84	43.99	44.28	43.86	43.67	43.57	39.83	38.22	39.46	38.79	37.55	36.61
10	39.83	44.28	44.55	43.91	43.71	43.45	39.61	38.24	39.41	38.74	37.68	36.74
11	39.60	44.40	44.32	43.85	43.97	43.53	39.92	38.24	39.45	38.73	37.68	36.74
12	39.62	44.23	44.25	44.17	43.76	43.42	39.94	38.57	39.45	38.54	37.69	36.61
13	39.54	44.22	44.26	44.26	43.39	43.09	39.70	38.64	39.32	38.54	37.69	36.48
14	39.52	44.39	44.26	43.82	43.48	43.41	39.52	38.55	39.26	38.51	37.69	36.54
15	39.48	44.74	44.29	43.82	43.66	43.33	39.37	38.56	39.17	38.43	37.65	36.54
16	39.26	44.21	44.41	43.99	43.51	43.47	39.34	38.72	38.96	38.44	37.52	36.43
17	39.85	43.73	44.67	44.37	43.32	43.57	39.29	38.95	38.90	38.49	37.44	36.44
18	40.17	44.10	44.30	44.36	43.61	43.65	38.89	38.96	39.04	38.50	37.50	36.51
19	40.15	43.93	44.12	44.24	43.48	43.54	38.93	38.93	39.13	38.44	37.51	36.50
20	40.18	43.90	44.53	44.22	44.03	43.02	38.95	38.98	39.16	38.51	37.43	36.24
21	40.14	44.22	44.22	43.79	43.57	43.41	38.81	39.00	39.15	38.49	37.38	36.34
22	40.49	44.56	44.36	43.65	43.50	43.37	38.88	39.29	38.95	38.32	37.30	36.47
23	40.54	44.59	43.97	43.57	43.35	43.38	38.93	39.36	38.90	38.33	37.19	36.42
24	42.90	44.16	43.93	43.15	43.42	43.59	38.96	39.32	38.81	38.28	37.29	36.27
25	42.77	44.12	44.13	43.72	43.49	43.47	38.97	39.33	38.88	38.18	37.33	36.14
26	43.37	44.25	44.53	43.80	43.49	43.41	39.03	39.35	38.91	38.20	37.35	36.25
27	43.80	43.76	44.58	44.12	43.39	43.01	38.97	39.31	38.87	38.15	37.32	36.35
28	43.49	43.97	44.36	44.42	43.20	43.29	38.70	39.31	38.90	38.08	37.15	36.52
29	44.38	44.00	44.40	44.72	42.90	43.55	38.64	39.25	39.02	38.06	37.03	38.13
30	44.65	44.49	43.99	45.14	---	43.44	38.54	39.33	38.99	38.00	37.10	39.21
31	44.71	---	44.07	44.66	---	43.70	---	39.37	---	38.01	37.11	---
MAX	44.71	44.74	44.67	45.14	44.33	44.03	43.58	39.37	39.48	38.97	37.95	39.21

GROUND-WATER LEVELS

371

CODINGTON COUNTY

450905097072202.

LOCATION.--Lat 45°09'05", long 97°07'22", in NW1/4NW1/4NW1/4 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.--Electronic data logger with transducer records minimum water level each hour.

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, 11.88 ft below land-surface datum, July 4, 1986.

DEPTH, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.73	15.62	14.83	14.56	14.46	14.18	13.80	13.59	17.91	14.95	15.33	27.57
2	17.69	15.59	14.76	14.49	14.43	14.15	13.80	13.56	17.76	14.77	15.19	26.43
3	17.59	15.62	14.73	14.56	14.36	14.08	13.77	13.66	17.76	14.74	15.91	25.64
4	17.38	15.59	14.80	14.49	14.36	14.08	13.80	13.58	17.59	14.70	17.44	25.00
5	17.28	15.48	14.77	14.46	14.36	14.01	13.80	13.65	17.61	14.63	18.74	24.38
6	17.31	15.52	14.78	14.46	14.36	13.98	13.80	13.72	17.33	14.42	18.60	23.79
7	17.21	15.59	14.74	14.43	14.29	13.98	13.80	13.96	16.99	14.45	18.47	23.31
8	17.17	15.45	14.78	14.39	14.32	13.98	13.80	14.09	16.71	14.38	18.29	22.78
9	17.10	15.42	14.75	14.43	14.22	13.94	13.76	14.06	16.60	14.37	18.28	22.30
10	17.03	15.35	14.75	14.46	14.25	13.98	13.65	14.02	16.39	14.34	18.52	22.09
11	17.00	15.32	14.75	14.46	14.25	13.87	13.72	14.27	16.36	14.17	18.49	22.46
12	16.93	15.29	14.69	14.36	14.18	13.98	13.72	15.95	17.04	14.17	19.94	22.29
13	16.65	15.33	14.66	14.43	14.22	13.94	13.71	16.50	16.60	14.03	22.64	21.53
14	16.55	15.23	14.69	14.36	14.15	13.91	13.68	17.23	18.37	13.98	24.78	21.38
15	16.62	15.26	14.69	14.39	14.15	13.98	13.68	16.67	18.39	13.91	25.90	21.07
16	16.62	15.27	14.70	14.36	14.15	13.91	13.71	15.87	17.37	13.84	27.49	20.65
17	16.48	15.13	14.70	14.39	14.15	13.94	13.63	15.63	16.79	13.88	28.98	20.33
18	16.41	15.03	14.70	14.43	14.15	13.94	13.57	15.41	16.58	13.90	29.65	20.05
19	16.34	15.18	14.63	14.39	14.25	13.98	13.57	15.62	16.20	14.28	---	19.74
20	16.24	15.11	14.70	14.43	14.15	13.91	13.50	16.15	16.01	14.28	---	19.55
21	16.27	15.04	14.63	14.43	14.18	13.87	13.42	17.56	15.81	14.11	---	19.35
22	16.28	14.98	14.63	14.36	14.18	13.91	13.56	18.31	15.67	13.94	---	19.30
23	16.14	14.98	14.63	14.32	14.15	13.94	13.52	18.59	15.52	14.34	---	19.09
24	16.04	14.98	14.67	14.29	14.18	13.94	13.55	18.59	15.45	14.48	---	19.12
25	16.04	14.98	14.63	14.43	14.22	13.80	13.48	18.68	15.28	14.45	---	18.98
26	16.04	14.88	14.63	14.49	14.15	13.84	13.55	17.81	15.24	14.34	e30.54	18.81
27	15.93	14.92	14.60	14.49	14.15	13.80	13.54	17.19	15.13	14.19	29.52	18.59
28	15.90	14.88	14.56	14.43	14.11	13.73	13.60	16.95	15.10	14.44	29.66	18.49
29	15.76	14.83	14.56	14.46	14.15	13.80	13.64	16.63	15.37	14.68	29.59	18.30
30	15.86	14.86	14.56	14.46	---	13.80	13.57	17.21	15.20	14.75	28.16	18.20
31	15.76	---	14.56	14.46	---	13.77	---	17.74	---	15.05	27.56	---
MAX	17.73	15.62	14.83	14.56	14.46	14.18	13.80	18.68	18.39	15.05	---	27.57

e Estimated

GROUND-WATER LEVELS

LINCOLN COUNTY

431619096460202.

LOCATION.--Lat 43°16'19", long 96°46'02", in NE1/4NE1/4NE1/4 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.--Electronic data logger with transducer records minimum water level each hour.

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, 170.73 ft below land-surface datum, Sept. 29, 30, 1990; minimum water level, 151.81 ft below land-surface datum, Feb. 21-23, 1981.

DEPTH, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	168.77	167.84	166.85	167.34	168.14	168.72	169.40	169.54	169.65
2	---	---	---	168.73	167.84	166.77	167.44	168.00	168.89	169.35	169.58	169.74
3	---	---	---	168.81	167.60	166.63	167.52	168.19	168.89	169.44	169.58	169.79
4	---	---	---	168.67	167.74	166.68	167.43	168.14	168.89	169.54	169.49	169.70
5	---	---	---	168.67	167.70	166.64	167.52	168.18	168.89	169.58	169.49	169.70
6	---	---	168.73	168.66	167.59	166.60	167.47	168.18	168.94	169.54	169.54	169.74
7	---	---	168.67	168.62	167.45	166.69	167.55	168.22	168.97	169.58	169.58	169.56
8	---	---	168.58	168.57	167.55	166.56	167.51	168.27	169.02	169.54	169.55	169.56
9	---	---	168.58	168.57	167.40	166.56	167.60	168.21	169.07	169.54	169.64	169.57
10	---	---	168.61	168.70	167.35	166.76	167.60	168.17	169.11	169.58	169.59	169.61
11	---	---	168.61	168.65	167.31	166.71	167.54	168.21	169.20	169.58	169.69	169.66
12	---	---	168.52	168.42	167.39	166.80	167.59	168.21	169.25	169.49	169.64	169.61
13	---	---	168.47	168.37	167.43	166.77	167.68	168.25	169.25	169.44	169.78	169.66
14	---	---	168.51	168.46	167.20	166.77	167.78	168.39	169.20	169.58	169.73	169.66
15	---	---	168.60	168.32	167.19	166.87	167.72	168.48	169.20	169.58	169.73	169.57
16	---	---	168.69	168.45	167.19	166.87	167.72	168.34	169.16	169.54	169.73	169.57
17	---	---	168.59	168.31	167.10	166.82	167.72	168.47	169.07	169.58	169.73	169.43
18	---	---	168.73	168.40	167.00	166.83	167.72	168.47	169.20	169.63	169.78	169.47
19	---	---	168.68	168.35	167.09	166.88	167.76	168.52	169.25	169.58	169.73	169.47
20	---	---	168.81	168.35	166.95	166.97	167.62	168.56	169.30	169.63	169.73	169.52
21	---	---	168.86	168.25	166.92	166.80	167.62	168.55	169.34	169.58	169.73	169.53
22	---	---	168.80	168.01	167.01	166.98	167.76	168.51	169.39	169.49	169.73	169.58
23	---	---	168.76	168.01	166.83	167.18	167.88	168.60	169.39	169.54	169.73	169.58
24	---	---	168.80	167.92	166.93	167.13	167.84	168.69	169.43	169.58	169.59	169.53
25	---	---	168.84	167.96	167.02	167.04	167.93	168.55	169.34	169.54	169.64	169.53
26	---	---	168.84	168.05	166.94	167.09	167.98	168.68	169.48	169.68	169.73	169.48
27	---	---	168.75	167.96	166.89	167.14	168.06	168.77	169.39	169.54	169.87	169.53
28	---	---	168.78	167.90	166.80	167.06	168.10	168.77	169.58	169.58	169.78	169.62
29	---	---	168.74	167.99	166.85	167.15	168.15	168.82	169.44	169.40	169.73	169.62
30	---	---	168.74	167.95	---	167.33	168.10	168.86	169.49	169.35	169.73	169.72
31	---	---	168.82	167.89	---	167.25	---	168.81	---	169.49	169.83	---
MAX	---	---	---	168.81	167.84	167.33	168.15	168.86	169.58	169.68	169.87	169.79

GROUND-WATER LEVELS

373

MARSHALL COUNTY

454745097450401.

LOCATION.--Lat 45°47'45", long 97°45'04", in SE1/4NE1/4SE1/4 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, 41.23 ft below land-surface datum, Mar. 5, 1991.

DEPTH, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41.85	41.78	41.81	41.83	41.68	41.70	41.88	41.72	41.82	41.37	41.19	41.16
2	41.78	41.82	41.72	41.72	41.70	41.79	41.82	41.84	41.80	41.39	41.22	41.05
3	41.82	41.86	41.85	41.74	41.86	41.79	41.64	41.86	41.70	41.43	41.24	41.13
4	41.90	41.86	41.86	41.74	41.86	41.73	41.70	41.86	41.65	41.46	41.26	41.06
5	41.97	41.75	41.72	41.72	41.69	41.70	41.63	41.87	41.65	41.47	41.26	41.09
6	41.98	41.86	41.71	41.72	41.69	41.61	41.70	41.83	41.72	41.44	41.21	41.15
7	41.91	41.87	41.58	41.69	41.77	41.70	41.78	41.75	41.73	41.40	41.10	41.02
8	41.90	41.82	41.68	41.69	41.81	41.81	41.74	41.71	41.73	41.45	41.12	41.02
9	41.93	41.81	41.73	41.70	41.77	41.88	41.75	41.68	41.70	41.47	41.17	---
10	41.93	41.84	41.70	41.69	41.88	41.88	41.68	41.72	41.69	41.49	41.30	40.97
11	41.85	41.78	41.72	41.56	41.93	42.09	41.93	41.74	41.75	41.46	41.29	40.94
12	41.86	41.73	41.56	41.68	41.86	42.23	41.94	41.92	41.76	41.37	41.34	40.87
13	41.75	41.58	41.72	41.69	41.70	42.30	41.85	41.92	41.72	41.36	41.30	40.88
14	41.79	41.68	41.83	41.84	41.68	42.48	41.75	41.82	41.67	41.31	41.34	40.93
15	41.78	41.83	41.86	41.84	41.70	42.51	41.72	41.75	41.67	41.24	41.31	40.90
16	41.63	41.82	41.78	41.66	41.71	42.37	41.74	41.77	41.52	41.25	41.24	40.89
17	41.89	41.71	41.94	41.83	41.71	42.31	41.70	41.91	41.34	41.34	41.25	40.89
18	42.00	41.61	41.93	41.83	41.75	42.18	41.51	41.86	41.49	41.33	41.29	40.93
19	41.93	41.76	41.79	41.71	41.76	42.06	41.59	41.77	41.53	41.31	41.28	40.90
20	41.85	41.75	41.86	41.71	41.81	41.98	41.62	41.75	41.58	41.35	41.20	40.77
21	41.70	41.71	41.85	41.64	41.81	41.93	41.58	41.73	41.56	41.33	41.26	40.94
22	41.77	41.83	41.76	41.53	41.75	41.90	41.66	41.87	41.42	41.29	41.15	41.04
23	41.78	41.84	41.78	41.69	41.82	41.78	41.71	41.91	41.40	41.33	41.15	40.93
24	41.83	41.84	41.75	41.70	41.82	41.80	41.74	41.88	41.45	41.28	41.23	40.84
25	41.84	41.85	41.75	41.76	41.81	41.79	41.80	41.81	41.50	41.26	41.28	40.86
26	41.81	41.66	41.89	41.76	41.70	41.86	41.83	41.80	41.55	41.30	41.29	40.92
27	41.82	41.76	41.89	41.84	41.69	41.85	41.82	41.76	41.49	41.23	41.23	41.05
28	41.74	41.77	41.83	41.76	41.78	41.78	41.64	41.76	41.50	41.29	41.13	41.09
29	41.96	41.68	41.75	41.73	41.77	41.87	41.64	41.72	41.55	41.28	41.10	41.04
30	42.03	41.80	41.81	41.72	---	41.87	41.62	41.75	41.47	41.21	41.18	40.94
31	41.92	---	41.84	41.71	---	41.87	---	41.80	---	41.21	41.22	---
MAX	42.03	41.87	41.94	41.84	41.93	42.51	41.94	41.92	41.82	41.49	41.34	---

GROUND-WATER LEVELS

SHANNON COUNTY

430027102311801.

LOCATION.--Lat 43°00'27", long 102°03'18", in SW1/4NW1/4SE1/4 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, 43.09 ft below land-surface datum, Sept. 24, 1992; minimum water level, 42.74 ft below land-surface datum, Mar. 11, 1990.

DEPTH, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42.91	42.98	42.98	42.96	42.93	42.95	42.99	43.04	42.98	43.00	43.01	42.97
2	42.96	42.98	42.98	42.92	42.99	42.96	42.96	43.03	42.95	43.01	43.03	43.01
3	42.99	42.97	42.97	42.98	43.01	42.94	42.92	43.00	43.03	43.00	42.99	42.99
4	42.98	42.92	42.93	42.93	43.00	42.92	42.93	43.00	42.98	42.98	43.01	43.01
5	42.98	42.96	42.96	42.96	42.96	42.93	42.99	42.98	42.98	43.01	43.01	43.01
6	42.97	43.00	42.91	42.92	42.95	42.95	43.00	42.97	42.98	42.97	42.97	43.03
7	42.91	42.98	42.95	42.96	42.96	42.95	43.01	42.95	43.00	43.01	42.97	43.04
8	42.99	42.94	42.99	42.98	42.94	42.95	42.98	42.94	43.00	43.03	42.98	42.99
9	42.99	43.00	42.99	42.98	42.94	43.00	42.96	42.97	42.97	43.02	43.03	43.05
10	42.97	42.97	42.97	42.96	42.99	42.96	42.99	42.97	42.98	43.01	43.06	43.05
11	42.95	42.97	42.95	42.91	42.98	42.94	43.06	43.01	43.00	43.03	43.04	42.97
12	42.91	42.92	42.94	42.97	42.92	42.95	43.04	43.03	42.97	42.98	43.03	42.96
13	42.98	42.91	43.05	42.96	42.92	42.97	42.95	42.98	42.97	42.98	43.03	43.00
14	42.96	42.98	43.01	43.06	42.94	42.97	42.96	42.96	42.97	42.97	43.03	43.02
15	42.93	43.01	42.98	43.03	42.95	42.96	42.96	42.95	42.96	43.01	42.99	42.98
16	42.90	42.95	43.01	42.99	42.93	42.96	42.97	43.03	42.97	43.02	42.99	43.02
17	43.03	42.87	43.01	42.99	42.96	42.97	42.93	43.03	43.01	43.02	43.01	43.08
18	43.03	42.97	42.96	42.98	42.98	42.99	42.92	42.97	43.05	42.99	43.01	43.05
19	42.96	43.03	42.99	42.96	42.96	42.98	42.99	42.96	43.01	43.04	42.99	42.96
20	42.95	42.94	43.03	42.95	42.99	42.96	42.97	42.95	43.01	43.02	43.07	42.97
21	42.90	42.96	42.95	42.90	42.97	42.98	42.95	43.01	42.99	43.00	43.02	43.07
22	42.96	43.00	42.98	42.95	42.95	42.96	42.98	43.06	42.99	43.01	43.00	43.03
23	42.95	42.98	42.98	42.95	43.01	42.93	43.04	43.03	42.97	42.99	43.02	42.98
24	42.96	42.95	42.95	43.01	42.99	43.00	43.03	42.98	42.99	42.99	43.04	42.96
25	42.95	42.92	42.97	43.01	42.99	42.98	43.01	43.00	43.00	43.03	43.03	43.04
26	42.93	42.95	42.99	42.99	42.97	42.97	43.00	42.97	42.97	43.01	43.03	43.07
27	42.96	42.93	42.97	42.98	42.96	42.92	42.95	42.98	42.96	42.98	42.99	43.09
28	42.96	42.96	42.91	42.94	42.96	43.01	42.97	42.97	43.00	43.01	42.96	43.07
29	43.05	42.99	42.94	43.00	42.94	43.04	42.97	42.95	42.99	43.01	43.04	43.01
30	43.04	43.00	42.96	42.96	---	42.97	42.94	42.98	42.98	43.01	43.02	43.01
31	42.96	---	42.97	42.94	---	43.01	---	42.98	---	43.01	42.98	---
MAX	43.05	43.03	43.05	43.06	43.01	43.04	43.06	43.06	43.05	43.04	43.07	43.09

GROUND-WATER LEVELS

375

SHANNON COUNTY--Continued

430027102311806.

LOCATION.--Lat 43°00'27", long 102°31'18" in SW1/4NW1/4SE1/4 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, 36.52 ft below land-surface datum, Apr. 26, 1991.

DEPTH, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
MAXIMUM DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36.83	36.93	36.85	36.88	36.81	36.77	36.88	36.85	36.79	36.76	36.75	36.69
2	36.84	36.94	36.81	36.81	36.87	36.77	36.79	36.92	36.74	36.81	36.79	36.71
3	36.83	36.93	36.83	36.82	36.95	36.77	36.70	36.90	36.71	36.80	36.75	36.72
4	36.90	36.86	36.82	36.79	36.95	36.73	36.68	36.89	36.73	36.78	36.74	36.67
5	36.94	36.81	36.78	36.77	36.83	36.67	36.72	36.87	36.68	36.78	36.78	36.71
6	36.94	36.86	36.72	36.76	36.83	36.70	36.77	36.84	36.70	36.72	36.71	36.74
7	36.84	36.91	36.72	36.73	36.82	36.73	36.83	36.78	36.73	36.77	36.71	36.81
8	36.92	36.91	36.84	36.78	36.81	36.72	36.77	36.75	36.78	36.85	36.72	36.78
9	36.94	36.89	36.86	36.82	36.75	36.76	36.75	36.66	36.76	36.82	36.80	36.80
10	36.95	36.90	36.84	36.82	36.82	36.75	36.73	36.71	36.76	36.85	36.88	36.83
11	36.89	36.85	36.84	36.69	36.87	36.69	36.92	36.75	36.80	36.76	36.86	36.75
12	36.86	36.81	36.73	36.78	36.81	36.71	36.91	36.86	36.79	36.78	36.88	36.71
13	36.90	36.75	36.94	36.78	36.74	36.75	36.78	36.84	36.70	36.77	36.85	36.71
14	36.91	36.81	36.94	36.92	36.74	36.77	36.77	36.78	36.73	36.75	36.86	36.74
15	36.85	36.90	36.93	36.91	36.74	36.76	36.78	36.75	36.68	36.81	36.82	36.70
16	36.77	36.87	36.94	36.85	36.73	36.72	36.80	36.85	36.64	36.84	36.79	36.73
17	36.95	36.75	36.94	36.87	36.78	36.73	36.74	36.89	36.70	36.87	36.81	36.80
18	37.02	36.79	36.93	36.87	36.82	36.79	36.61	36.83	36.76	36.85	36.83	36.84
19	36.95	36.90	36.89	36.84	36.82	36.81	36.73	36.79	36.77	36.88	36.79	36.71
20	36.94	36.89	36.97	36.84	36.81	36.78	36.73	36.76	36.77	36.88	36.78	36.64
21	36.80	36.83	36.96	36.75	36.80	36.78	36.69	36.81	36.76	36.81	36.80	36.81
22	36.85	36.95	36.87	36.77	36.78	36.77	36.70	36.91	36.76	36.78	36.68	36.82
23	36.85	36.95	36.90	36.77	36.87	36.71	36.83	36.91	36.73	36.78	36.76	36.75
24	36.85	36.90	36.88	36.79	36.88	36.81	36.89	36.84	36.72	36.75	36.82	36.68
25	36.85	36.84	36.85	36.85	36.87	36.81	36.88	36.86	36.78	36.83	36.87	36.78
26	36.82	36.77	36.91	36.85	36.84	36.77	36.88	36.83	36.77	36.85	36.82	36.82
27	36.79	36.77	36.90	36.86	36.83	36.73	36.82	36.81	36.73	36.80	36.77	36.93
28	36.82	36.78	36.81	36.82	36.83	36.80	36.80	36.81	36.76	36.80	36.71	36.94
29	36.97	36.78	36.78	36.87	36.81	36.86	36.81	36.78	36.80	36.78	36.77	36.86
30	37.01	36.85	36.84	36.85	---	36.84	36.69	36.78	36.68	36.77	36.78	36.86
31	36.88	---	36.89	36.83	---	36.88	---	36.81	---	36.77	36.73	---
MAX	37.02	36.95	36.97	36.92	36.95	36.88	36.92	36.92	36.80	36.88	36.88	36.94

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	2.54×10^1	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^0	kilometers (km)
<i>Area</i>		
acres	4.047×10^3	square meters (m ²)
	4.047×10^{-1}	square hectometers (hm ²)
	4.047×10^{-3}	square kilometers (km ²)
square miles (mi ²)	2.590×10^0	square kilometers (km ²)
<i>Volume</i>		
gallons (gal)	3.785×10^0	liters (L)
	3.785×10^0	cubic decimeters (dm ³)
	3.785×10^{-3}	cubic meters (m ³)
million gallons	3.785×10^3	cubic meters (m ³)
	3.785×10^{-3}	cubic hectometers (hm ³)
cubic feet (ft ³)	2.832×10^1	cubic decimeters (dm ³)
	2.832×10^{-2}	cubic meters (m ³)
cfs-days	2.447×10^3	cubic meters (m ³)
	2.447×10^{-3}	cubic hectometers (hm ³)
acre-feet (acre-ft)	1.233×10^3	cubic meters (m ³)
	1.233×10^{-3}	cubic hectometers (hm ³)
	1.233×10^{-6}	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	2.832×10^1	liters per second (L/s)
	2.832×10^1	cubic decimeters per second (dm ³ /s)
	2.832×10^{-2}	cubic meters per second (m ³ /s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm ³ /s)
	6.309×10^{-5}	cubic meters per second (m ³ /s)
million gallons per day	4.381×10^1	cubic decimeters per second (dm ³ /s)
	4.381×10^{-2}	cubic meters per second (m ³ /s)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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