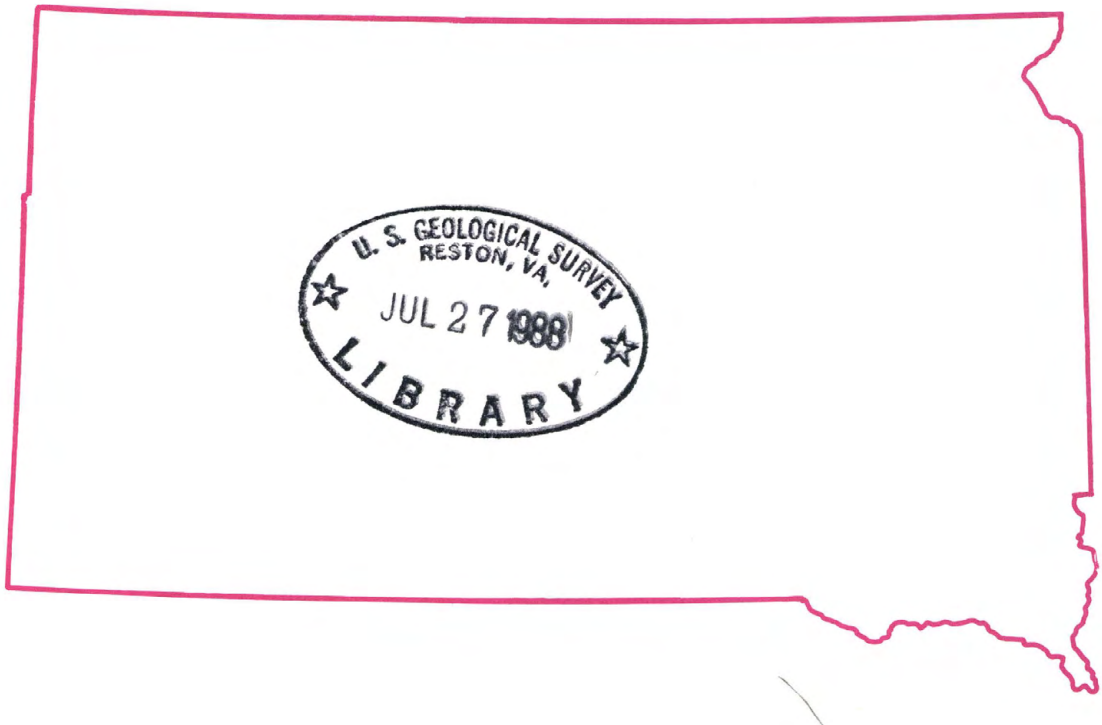
Water Resources Data South Dakota Water Year 1987



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT SD-87-1
Prepared in cooperation with the State of South Dakota
and with other agencies

CALENDAR FOR WATER YEAR 1987

1986

OCTOBER

S	M	T	W	T	F	S
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1987

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JUNE

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AUGUST

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SEPTEMBER

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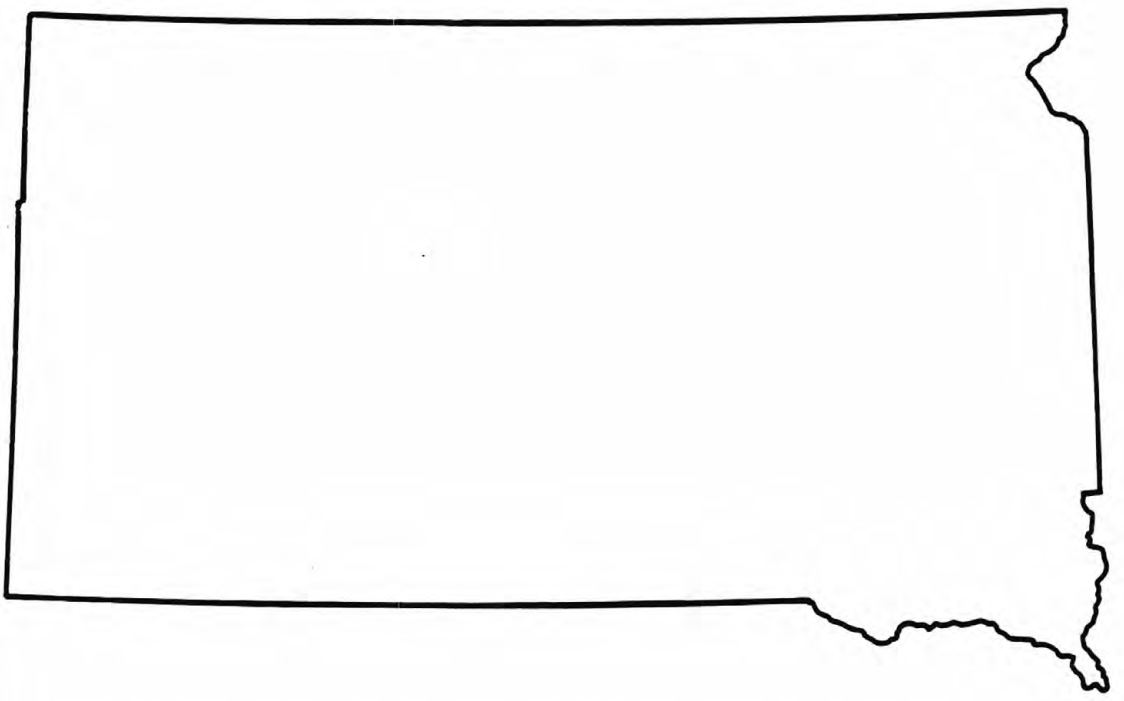
Water Resources Data South Dakota Water Year 1987

by E.B. Hoffman, R.D. Benson, and S.J. Lawrence



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT SD-87-1
Prepared in cooperation with the State of South Dakota
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in South Dakota write to
District Chief, Water Resources Division
U.S. Geological Survey
Room 317, Federal Building
200 4th St. SW
Huron, South Dakota 57350

1988

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, and James F. Blakey, Regional Hydrologist, Central Region. 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 Richard E. Fidler, District Chief, and John R. Little, 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:

D.W. Heyd	M.J. Burr	D.G. Hern	T.J. Wieters
T.K. Lockner	R.M. Crowfoot	K.M. Neitzert	D.R. Winter
M.D. Stevens	E.M. Decker	D.L. Rahder	V.J. Wipf
B.D. Baker	M.E. Freese	C.E. Solberg	G.R. Wisnieski
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16. Abstract (Limit: 200 words)

Water Resources Data for the 1987 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; and water levels in wells. This report contains discharge records for 114 streamflow-gaging stations; stage and contents records for 10 lakes and reservoirs, stage for 2 streams and 2 lakes; water-quality records for 25 stream-gaging stations, 3 wells, 6 ungaged streamsites, 3 lakes, 1 sewage lagoon, and 1 precipitation site; water levels for 31 wells; and precipitation records at 9 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, *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

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	20. Security Class (This Page) UNCLASSIFIED	22. Price

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ILLUSTRATIONS

TABLES

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

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

GROUND-WATER LEVELS

QUALITY OF GROUND WATER

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State 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 114 streamflow-gaging stations; (2) stage and contents records for 10 lakes and reservoirs, stage for 2 streams and 2 lakes; (3) water-quality records for 25 streamflow-gaging stations, 3 wells, 6 ungaged streamsites, 3 lakes, 1 sewage lagoon, and 1 precipitation site; (4) water levels for 30 wells; and (5) precipitation records at 9 sites.

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 Distribution Branch, Text Products Section, U.S. Geological Survey, 604 South Pickett Street, Alexandria, VA 22304.

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-87-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on back of title page.

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 agreement with the Survey are: Department of Water and Natural Resources; Department of Transportation; East Dakota Water Development District; West Dakota Water Development District; Tennessee Valley Authority; EROS Data Center; State of Wyoming; City of Rapid City; and City of Watertown.

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 the Missouri River basin development program for gaging and water-quality stations.

Organizations that supplied data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

By Rick D. Benson

Water year 1987 was a year of less than normal precipitation across much of South Dakota, even though greater than normal amounts were received during the second quarter (January-March). The northeast part of the State received the least amount of precipitation (14.70 inches), which was 4.90 inches less than normal (table 1). The only part of the State which maintained greater than normal precipitation at the end of each quarter of the water year was the northwestern part, which received 18.51 inches--3.23 inches greater than normal. The only other parts of the State which ended the water year with greater than normal precipitation were the central and south-central parts.

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.

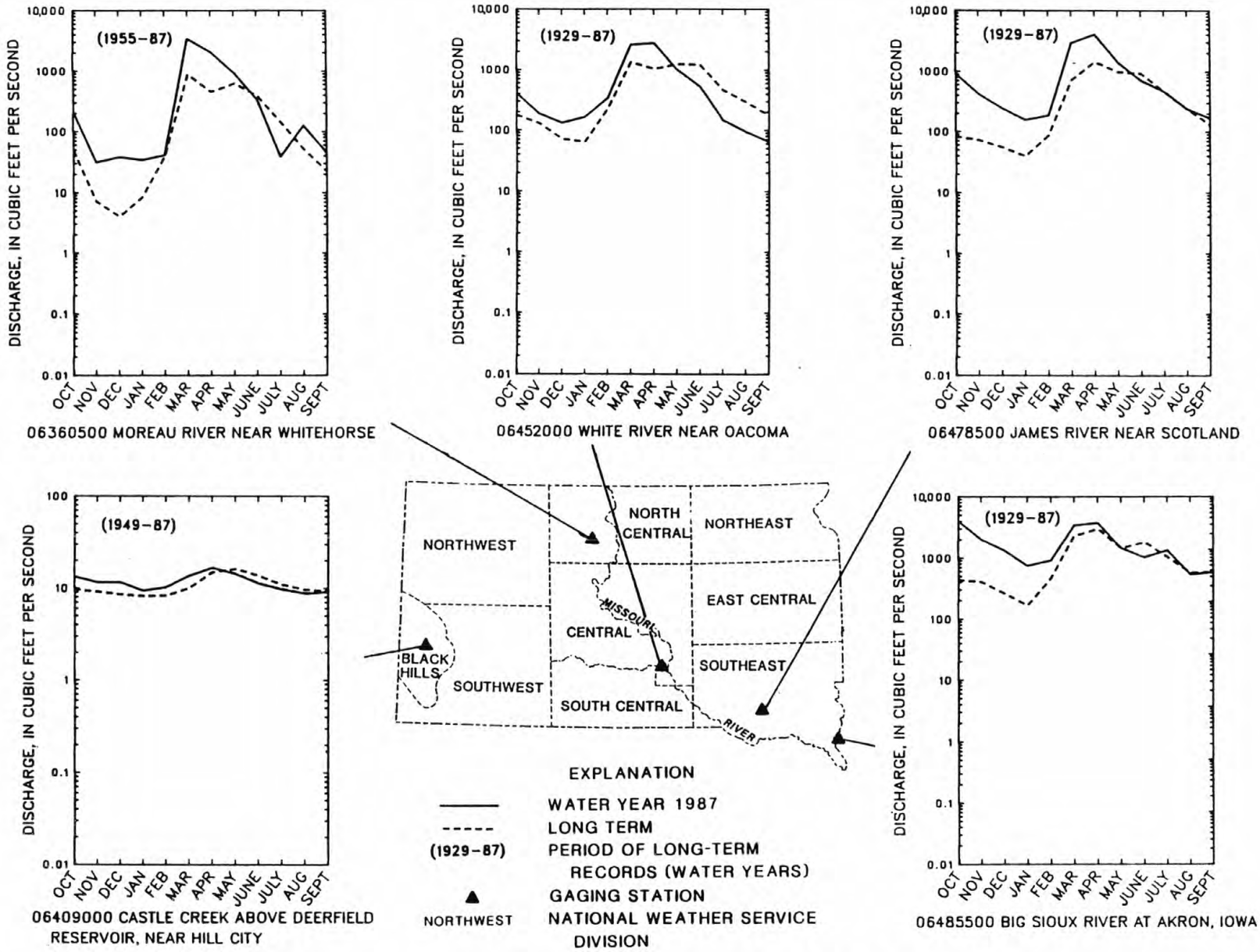


Figure 1.--Comparison of 1987 monthly mean to long-term monthly mean discharges.

Table 1.--Cumulative precipitation and departures from normal[1], in inches

National Weather Service Division[2]	October-December		October-March		October-June		October-September	
	Precipitation	Departure from normal	Precipitation	Departure from normal	Precipitation	Departure from normal	Precipitation	Departure from normal
Northwest	1.86	+0.18	5.61	+2.46	11.65	+1.03	18.51	+3.23
North Central	1.56	-0.44	5.10	+1.41	9.86	-1.92	15.67	-1.66
Northeast	1.24	-1.24	4.44	-0.01	7.96	-5.11	14.70	-4.90
Black Hills	3.50	+0.83	7.62	+2.18	12.95	-2.33	18.28	-3.02
Southwest	2.73	+0.97	6.66	+3.08	11.79	+0.15	15.79	-0.83
Central	1.65	-0.33	6.63	+2.88	11.67	+0.19	17.10	+0.20
East Central	1.32	-1.46	5.52	+0.48	9.54	-4.34	18.57	-2.33
South Central	2.06	-0.27	8.04	+3.44	14.60	+0.86	22.50	+2.35
Southeast	2.01	-0.94	8.47	+2.91	13.27	-1.66	22.45	-0.62

[1]Based on data from 1951 to 1980.
[2]Shown in figure 1.

Surface Water

In spite of less than normal precipitation across much of South Dakota during water year 1987, total streamflow for the water year was greater than normal at all five representative streamflow-gaging stations. The Moreau and James Rivers, which derive a major portion of their flow from surface runoff, discharged 272 and 229 percent, respectively, of their long-term means during the year. The Moreau River had greater than normal discharge during every month of the year except June and July and the James River had greater than normal discharge during every month except June (fig. 1). Precipitation within the northwest portion of South Dakota, which contains most of the Moreau basin, was 3.23 inches greater than normal (table 1). However, precipitation received within the areas containing the James basin was less than normal. The Big Sioux River discharged 169 percent of its long-term mean and the White River discharged 131 percent of its long-term mean. These streams also derive most of their flow from surface runoff. The Big Sioux River had greater than normal discharge during all months except June, August, and September and the White River had greater than normal discharge from October through April and less than normal discharge from May through September (fig. 1). Castle Creek, which derives most of its water from the Madison aquifer, also had greater than normal discharge from October through April and less than normal discharge from May through September (fig. 1). Castle Creek ended the year with total discharge at 108 percent of normal.

Maximum discharges at the representative streamflow-gaging stations indicate the effects of the greater than normal precipitation received throughout much of South Dakota during the second quarter of the water year--the peak discharge at all five stations occurred in March (table 2). The return interval for the 1987 peak discharge on the Moreau River is estimated to be 12 years and the return interval for the peak discharge on the James River is estimated to be 17 years. Because Castle Creek derives most of its water from the Madison aquifer, it had a peak discharge of only 31 cubic feet per second during 1987--a peak discharge of this magnitude can be expected at least once every 2 years. The White and Big Sioux Rivers had peak discharges with return intervals of 3 and 2 years, respectively.

Because low-flow analyses are done for the period from April 1 through March 31, the analysis for 1987 included the period from April 1, 1986, through March 31, 1987. The minimum 1-day and 7-day discharges that occurred during 1987 are compared with those from the long-term period for the representative gaging stations in table 3. As a further explanation of table 3, the minimum mean daily discharge for the Moreau River near Whitehorse during the 1987 low-flow year was 12 cubic feet per second and this discharge occurred on 3 days (August 20, 21, and 25, 1986), whereas minimum mean daily discharges of zero have occurred on many days during the long-term period of record. The lowest 7-day mean discharge during 1987 for the Moreau River near Whitehorse was 13 cubic feet per second (the recurrence interval of a 7-day minimum mean daily discharge of 13 cubic feet per second is about 1.3 years). There is only a 10-percent chance that mean discharge for 7 consecutive days will be equal to or less than 0.09 cubic feet per second for the Moreau River near Whitehorse. 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 24,787,000 acre-feet at the end of the water year, a decrease of 1,297,000 acre-feet from the same date a year ago.

Water Quality

The chemical quality of surface-water samples collected during water year 1987 is compared to median values for the period of record in figure 2. Of the 10 stations shown in figure 2, all are National stream-quality accounting network (NASQAN) stations except for two (Castle Creek above Deerfield Reservoir near Hill City and Little Vermillion River near Salem), which are hydrologic bench-mark stations. Dissolved-solids concentrations ranged from as little as 222 milligrams per

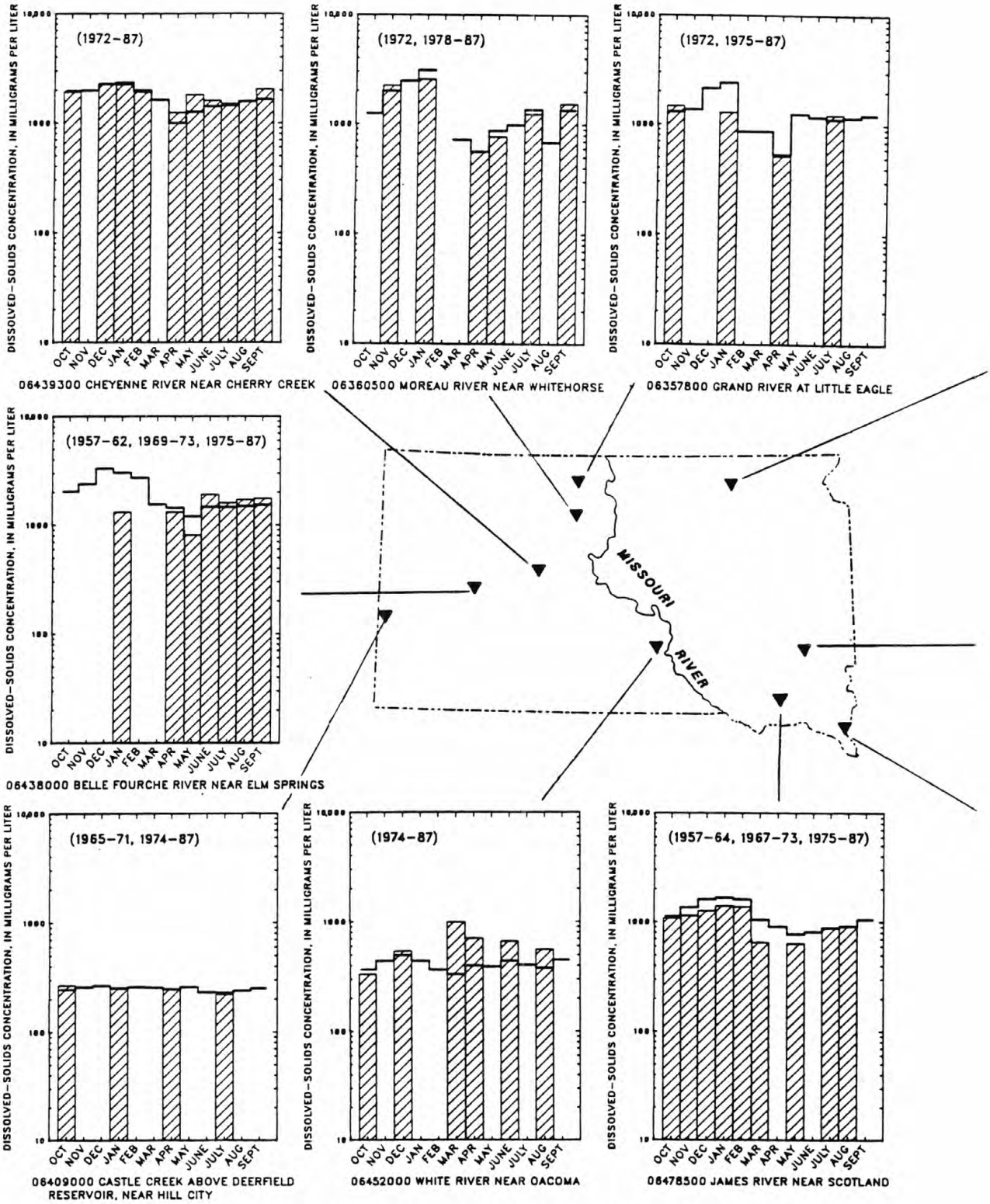
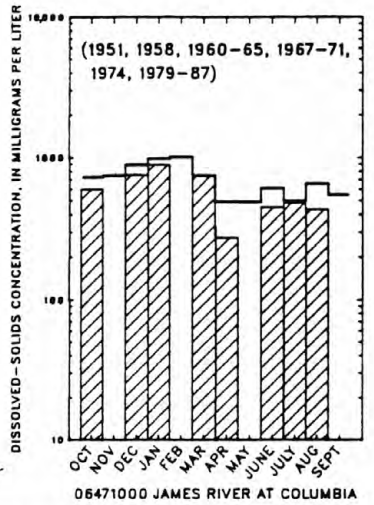
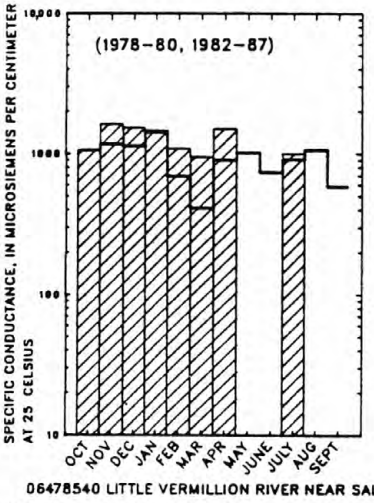
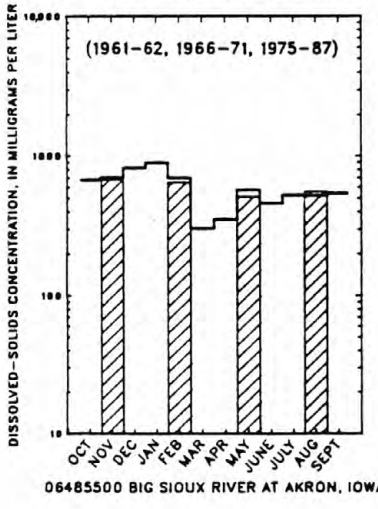


Figure 2.--Comparison of 1987 monthly dissolved-solids concentrations or specific conductance to the long-term median monthly values.







EXPLANATION

WATER YEAR 1987

LONG TERM MEDIAN

(1974-87) PERIOD OF LONG-TERM RECORDS (WATER YEARS)

▼ WATER-QUALITY STATION

Table 2.--Comparison of current-year maximum discharge to maximum for long-term periods

[ft³/s, cubic feet per second]

Gaging-station number and name		Long-term period used (water years)	Peak discharges					
			1987 Water Year			Long-term period		
			Peak (ft³/s)	Date	Recurrence interval (years)	Peak (ft³/s)	Date	Recurrence interval (years)[1]
06360500	Moreau River near Whitehorse	1955-87	21,200	3-23-87	12	27,700	5-24-82	23
06409000	Castle Creek above Deerfield Reservoir, near Hill City	1948-87	31	3- 7-87	<2	1,120	5-22-52	>100
06452000	White River near Oacoma	1929-87	13,700	3-22-87	3	51,900	3-30-52	>100
06478500	James River near Scotland	1929-87	11,500	3-26-87	17	29,400	6-23-84	>100
06485500	Big Sioux River at Akron, Iowa	1929-87	12,200	3-27-87	2	80,800	4- 9-69	>100

[1]Long-term period through water year 1987.

Table 3.--Comparison of current-year minimum discharge to minimum for long-term periods

[ft³/s, cubic feet per second]

Gaging-station number and name		Long-term period used (water years)	Minimum discharges					
			1987 Water year[1]			Long-term period		
			1-day		7-day (ft³/s)	1-day		7-day, 10-year (ft³/s)[1]
			(ft³/s)	Date		(ft³/s)	Date	
06360500	Moreau River near Whitehorse	1955-87	12	8-20,21,25-86	13	0.0	many days	0.09
06409000	Castle Creek above Deerfield Reservoir, near Hill City	1948-87	8.0	11-13-86	8.4	2.0	several days	4.1
06452000	White River near Oacoma	1929-87	64	9- 4-86	74	0.0	many days	3.7
06478500	James River near Scotland	1929-87	139	1- 2-87	146	0.0	many days	1.6
06485500	Big Sioux River at Akron, Iowa	1929-87	600	1-18-87	686	4.0	1-17-77	18.9

[1]Low-flow water year is April 1 to March 31.

liter in the July sample at the Castle Creek above Deerfield Reservoir station to as much as 2,560 milligrams per liter in the January sample at the Moreau River near Whitehorse station. The graph for the Little Vermillion River near Salem station is of specific conductance, which ranged from a minimum of 410 microsiemens per centimeter at 25 degrees Celsius (µS/cm) in the March sample to a maximum of 1,450 µS/cm in the January sample. The dissolved-solids concentrations of samples collected during 1987 are not consistently greater than or less than the long-term median for any station.

Ground Water

Water levels in wells and the quality of water from wells are key measurements in monitoring ground-water trends; however, these hydrologic measurements need to be integrated with other data from studies of ground-water systems in order to have the fullest meaning and usefulness. During 1987, the U.S. Geological Survey regularly monitored about 240 observation wells in South Dakota. About 120 other wells, known as project wells because they are used for specific (generally short-term) studies, were also monitored during 1987. The hydrographs in figure 3 are from six of the wells in the observation-well network. The well in Fall River County, which is only measured once per year, indicated a slight water-level rise from 1986. Of the four wells in eastern South Dakota, three (Aurora, Beadle, and Lincoln Counties) exhibited water level declines during 1987.

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. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The 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 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

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.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1986 water year that began October 1, 1985, and ended September 30, 1986. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 4 and 5. 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 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 wells and, in South Dakota, for surface-water stations where only miscellaneous measurements are made.

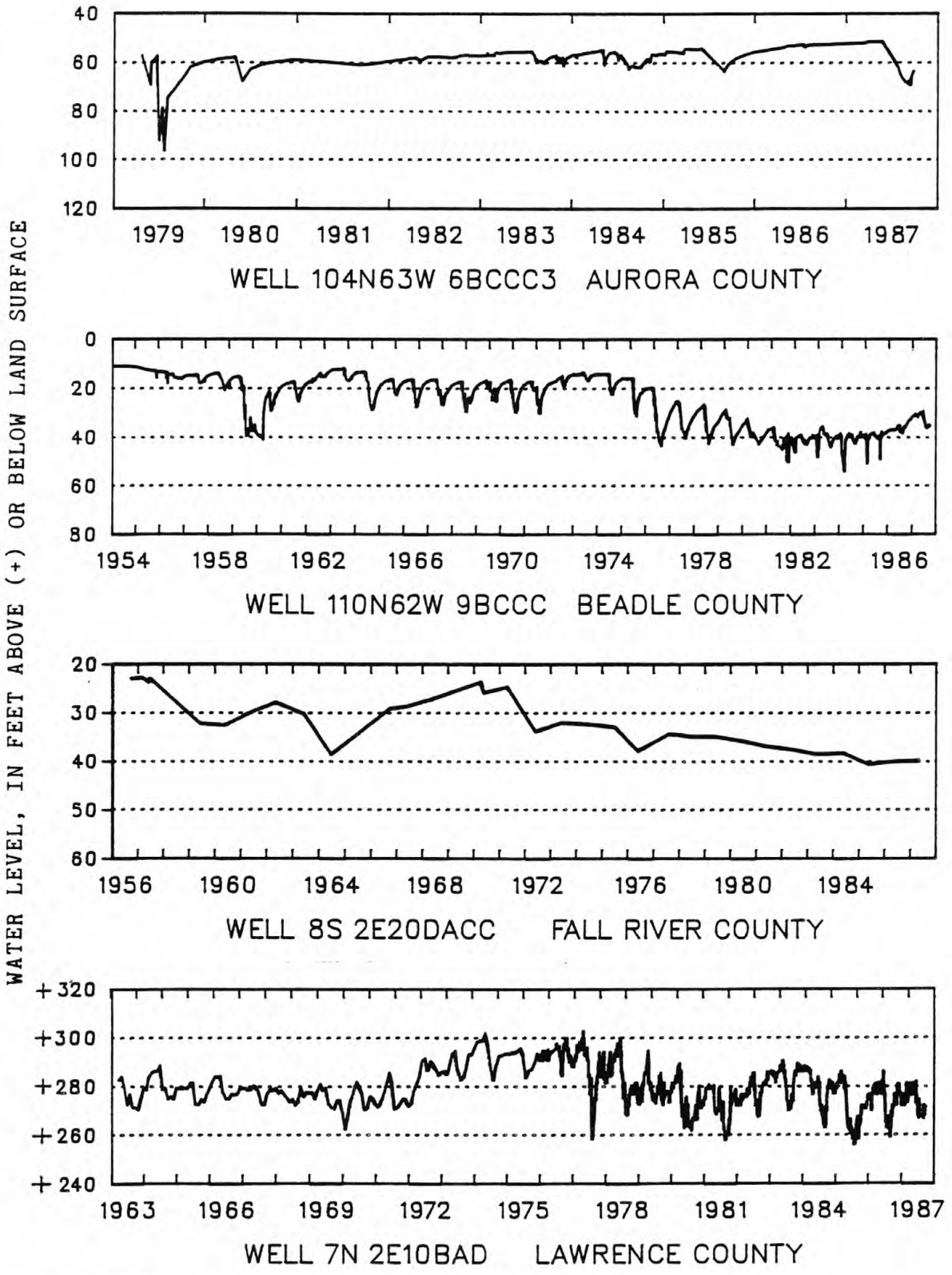
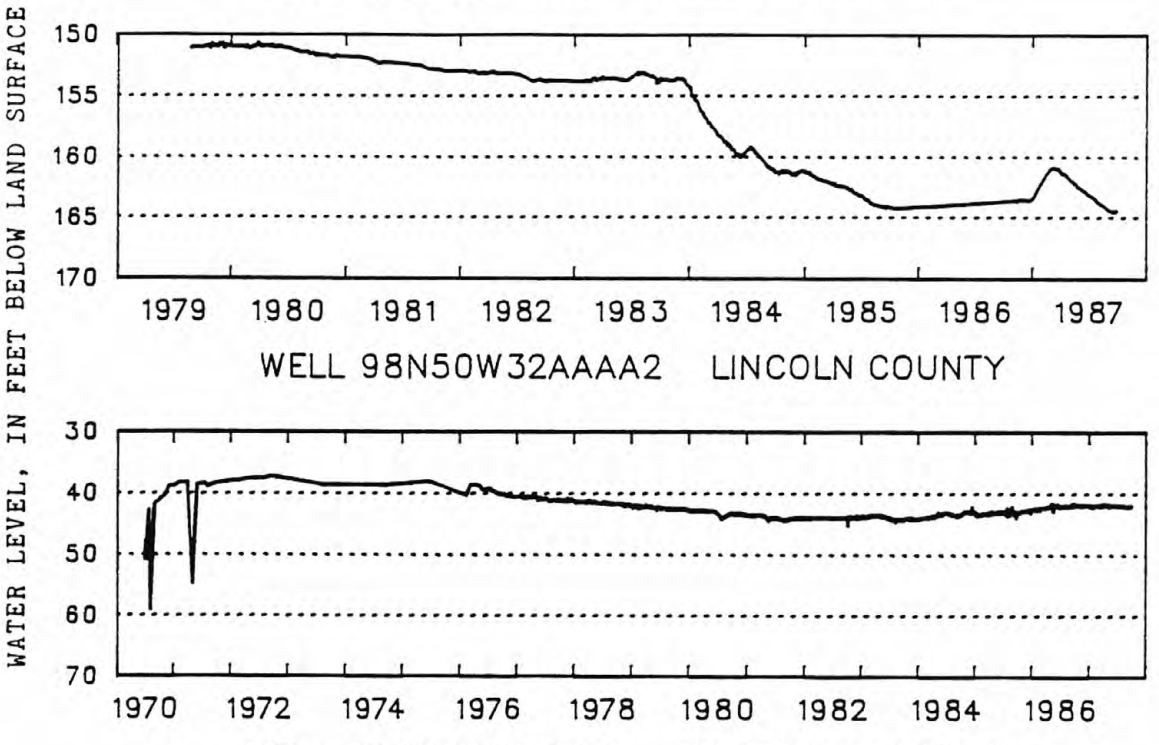
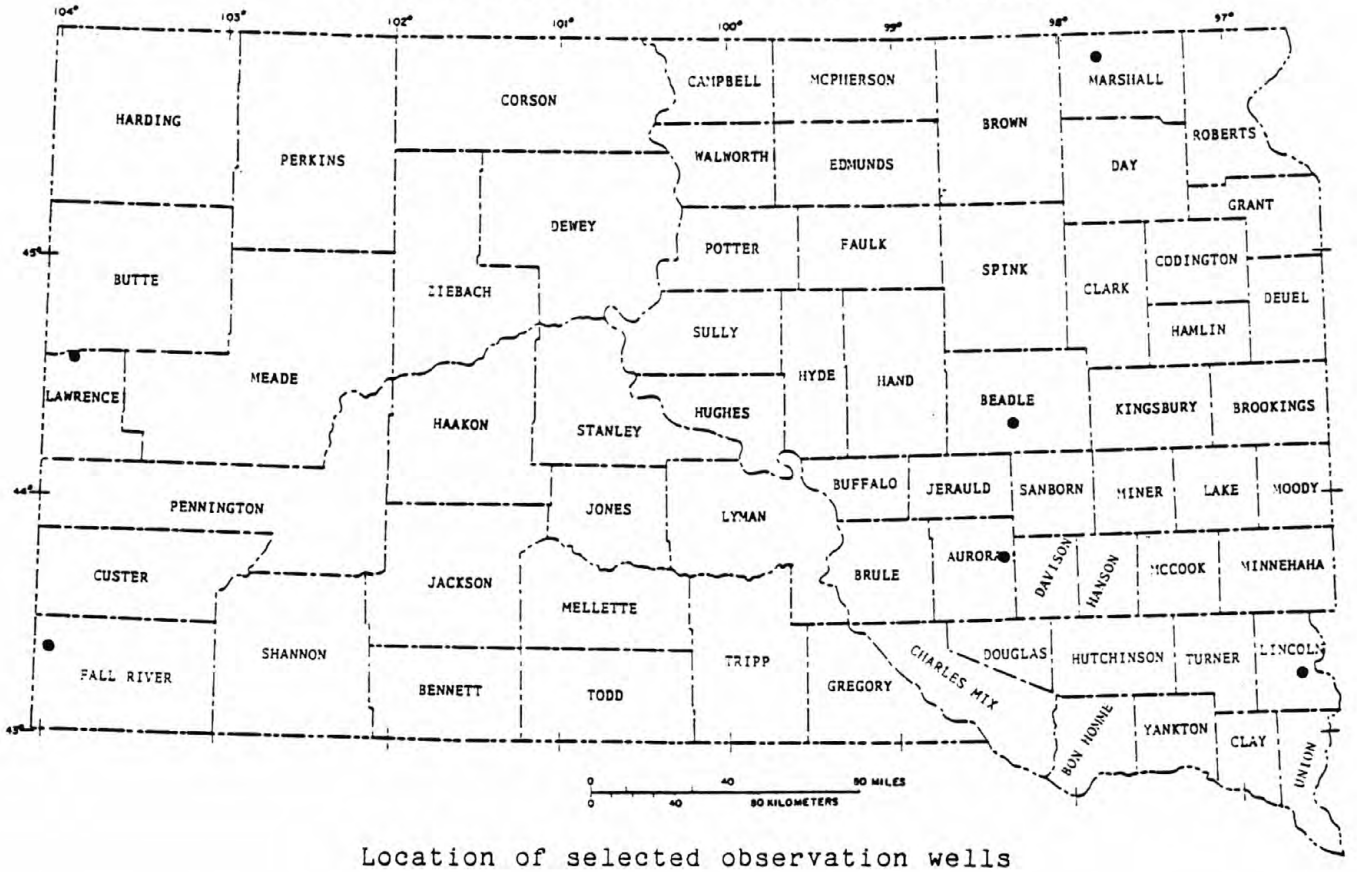


Figure 3.--Water levels from selected observation wells.





Location of selected observation wells

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

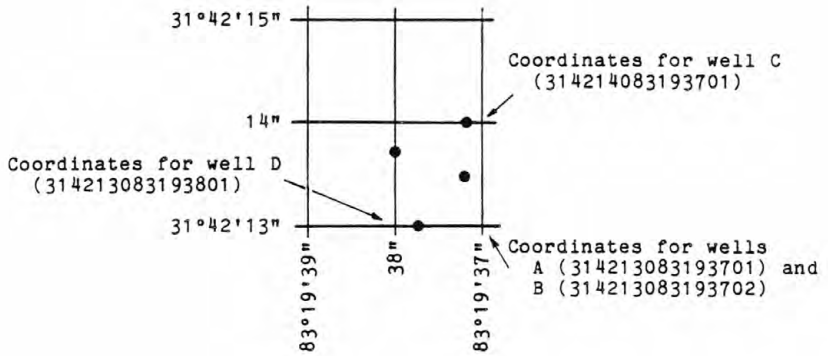
Downstream Order System

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

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 06442500, which appears just to the left of the station name, includes the two-digit Part number "06" plus the six-digit downstream-order number "442500." The Part number designates the major river basin; for example, part "06" is the Missouri River basin.

Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water 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 has no 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

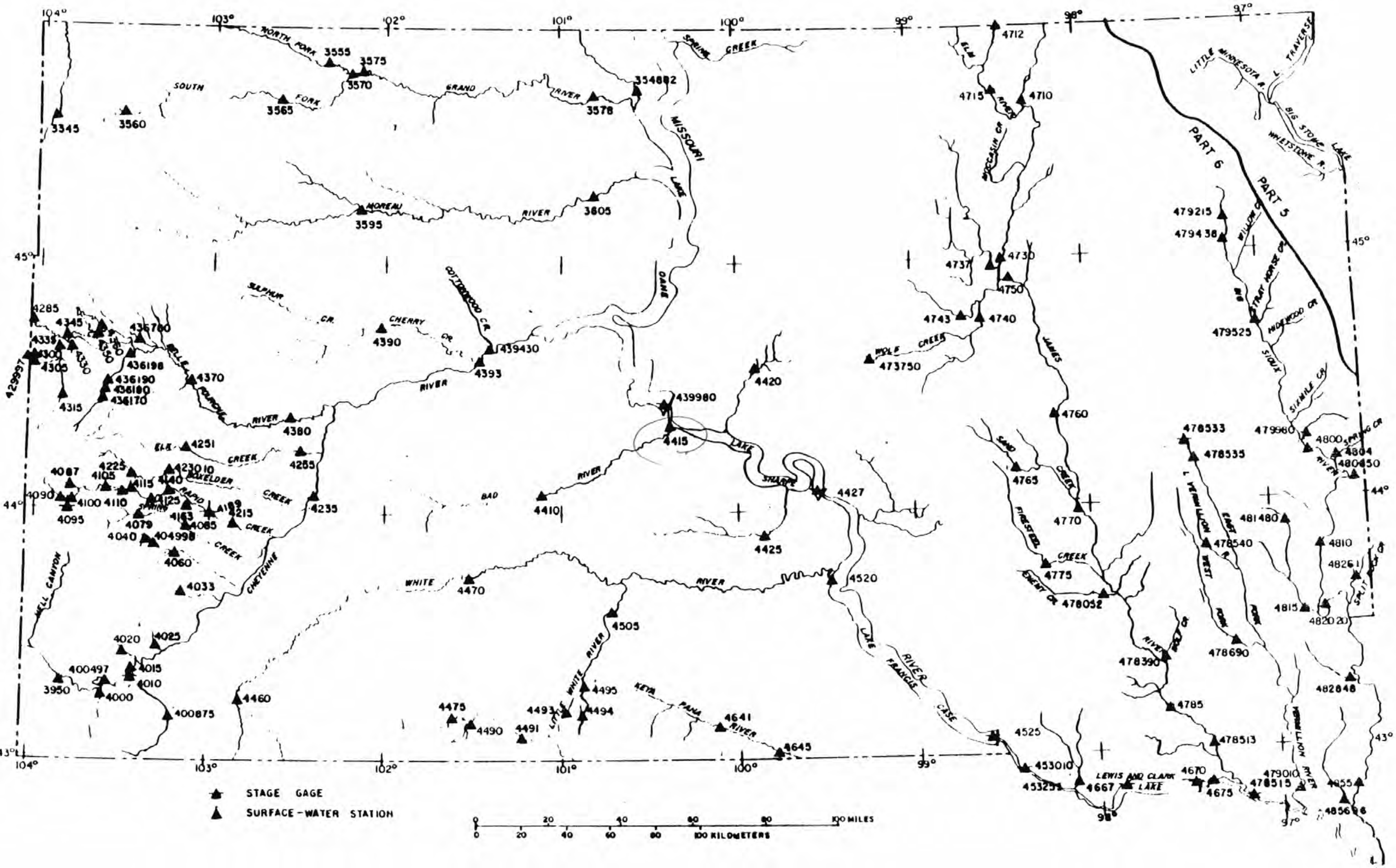


Figure 4.--Location of lake and stream-gaging stations.

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 or with digital recorders that punch stage values on paper tapes 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 measurments 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 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

The records published for each gaging station consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; 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 gage 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 there are published records 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 records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORD.--Published records, because of new information, 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 National Geodetic Vertical Datum of 1929 (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 record are identified by date in this paragraph of the station description for water-discharge stations. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement 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, to conditions that affect natural flow at the station 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 Geological Survey by a cooperating organization are identified here.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development. The median of yearly mean discharges also is given under this heading for stations having 10 or more water years of record, if the median differs from the average given by more than 10 percent.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

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.

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, exept the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

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

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District office to determine if the published records were ever revised after the station was discontinued. Of course, if the data 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.

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also is expressed in acre-feet (line headed "AC-FT"). In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations daily observed discharges are adjusted for diversions. These stations are identified by a statement in the "Remarks" paragraph.

Accuracy of the Records

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

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

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

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

Other Records Available

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

Records of Surface-Water Quality

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

Classification of records

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

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 on the quality of surface water appear in this report are shown in figure 5.

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 table of discharge measurements at miscellaneous sites.

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 on p. 25 and 26 of this report. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District office.

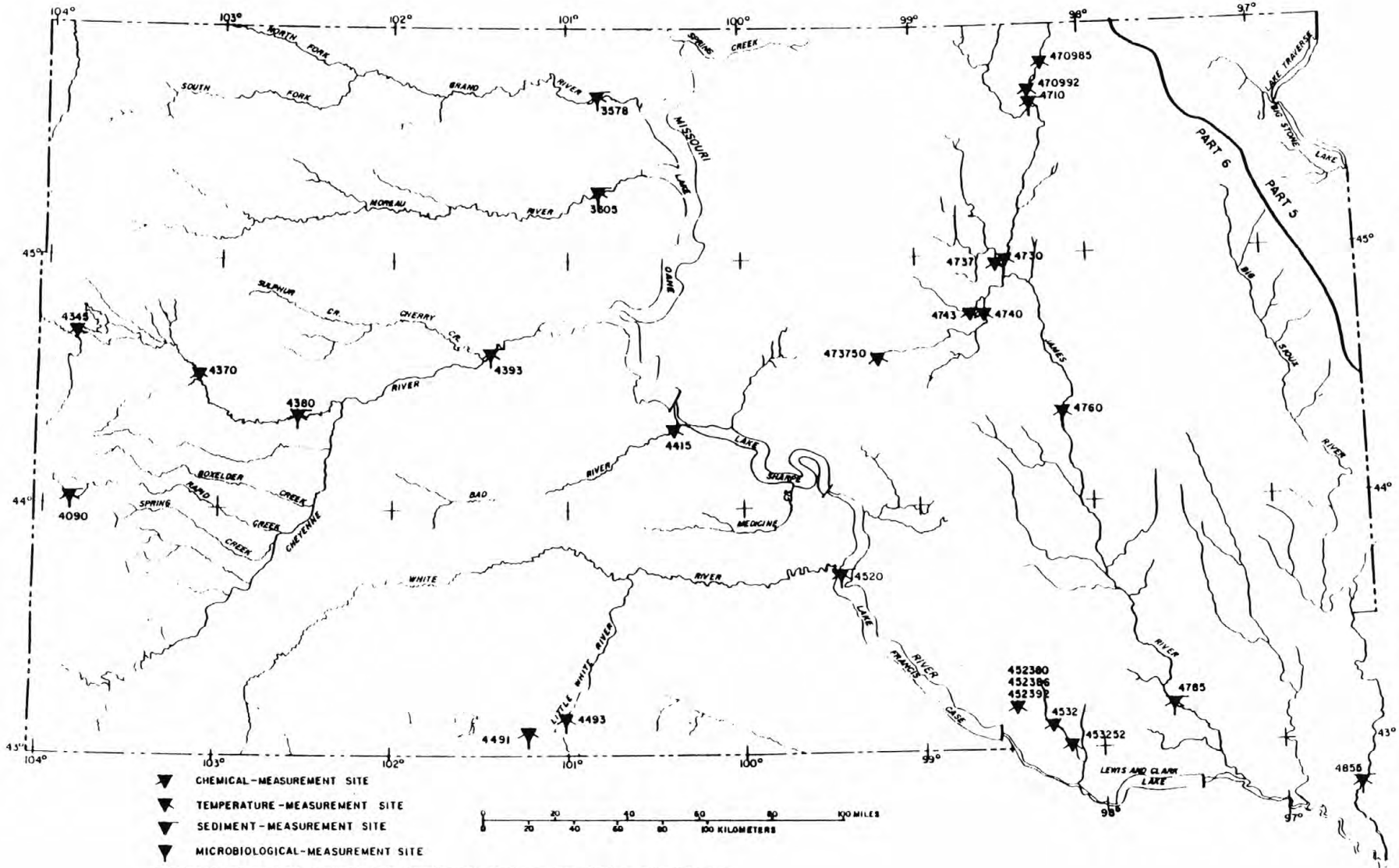


Figure 5.--Location of surface-water quality stations.

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 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. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the U.S.G.S. District office whose address is given on the back of the title page of this report.

Water Temperature

Water temperatures are measured at most 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 temperaure 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 are on file in the District office.

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 and bed material are included for some stations.

Laboratory Measurements

Samples for 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. Geolgoical 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:

PRINTED OUTPUT	REMARK
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant
TNTC	Too numerous to count

Records of Ground-Water Levels

Although, in this report, records of water levels are presented for 30 wells, records are obtained through cooperative efforts of many Federal, State, and local agencies for several thousand observation wells throughout South Dakota 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 or from the graph or punched tape of a water-stage recorder. 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. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

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 and so on), 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 depending on the method of determination.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication 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 below land-surface datum and all taped measurements of water level are listed. For wells equipped with recorders, only abbreviated tables are published; generally, only water-level lows are listed for every fifth day and at the end of the month (eom). The highest water levels of the water year and their dates of occurrence are shown on a line below the abbreviated table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. 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 ordinarily changes only slowly; therefore, for most general purposes one annual sampling, or only a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring for trends in nitrate concentration. In the special cases where the quality of ground water may change more rapidly, more frequent measurements are made to identify the nature of the changes.

Data Collection and Computation

The records of ground-water quality in this report were obtained as part of a special county study. As a result, the records for this year, by themselves, do not provide a balanced view of

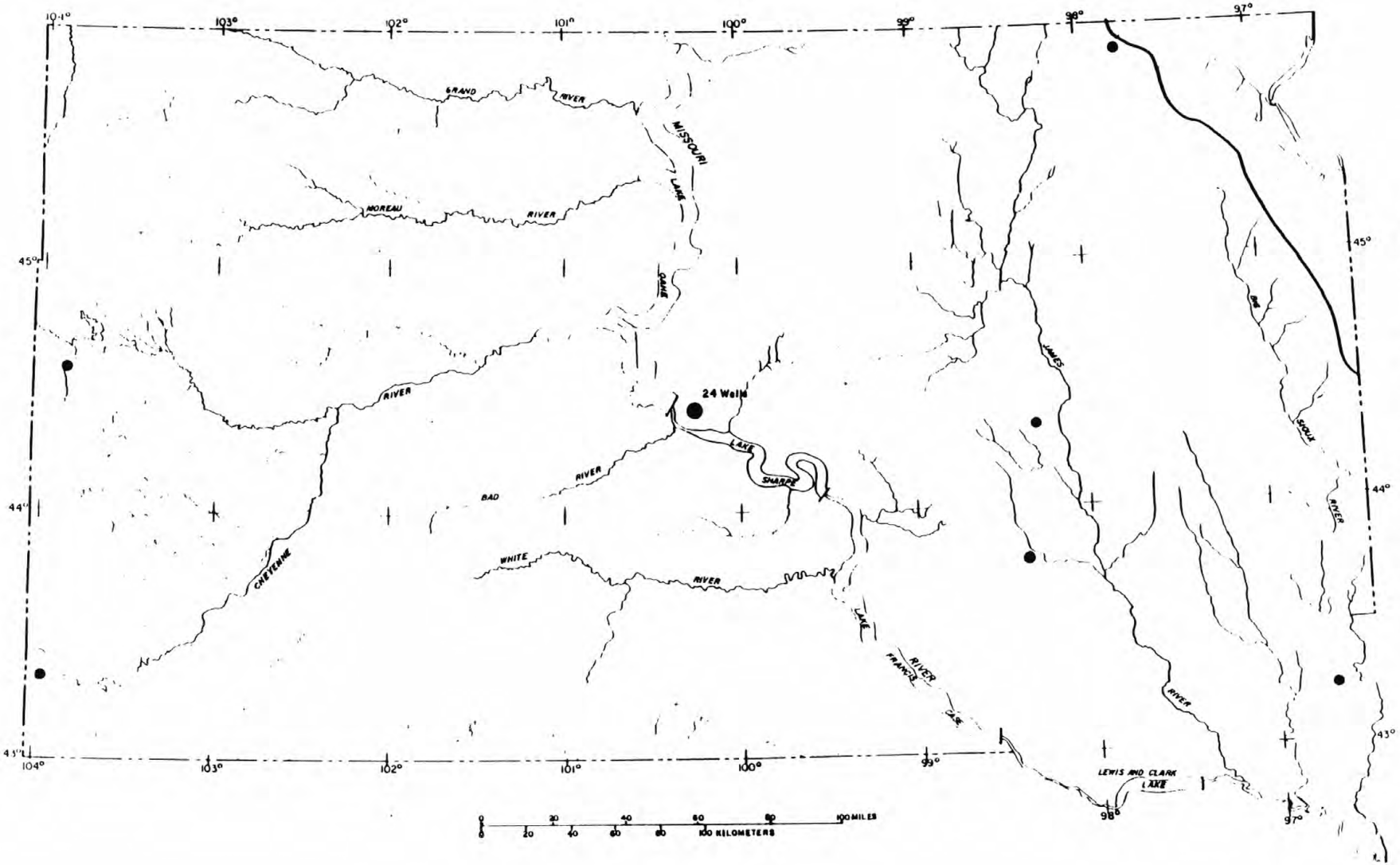


Figure 6.--Location of ground-water observation wells.

ground-water quality statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years.

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.

Data Presentation

The records of ground-water quality are published in a section titled QUALITY OF GROUND WATER. 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. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

ACCESS TO WATSTORE DATA

The National WATer Data STOrage and REtrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from each of the Water Resources Division's District offices (see address given on the back of the title page).

General inquiries about WATSTORE may be directed to:

Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, Virginia 22092

DEFINITION OF TERMS

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

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

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

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

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

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

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

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

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

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

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

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

Bottom material: See Bed material.

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

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

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

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

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

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

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

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

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

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

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

Dissolved refers to that material in a representative water sample which passes through a 0.45 µm membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

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

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

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

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

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

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

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

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

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

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

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

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

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

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity.

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

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

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

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

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

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

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

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation
Silt.....	.004 - .062	Sedimentation
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel.....	2.0 - 64.0	Sieve

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

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

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

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

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

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

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

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

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analtyical 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 (ft^3/s) x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total-sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

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

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

Sodium-adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

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

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

Substrate is the physical surface upon which an organism lives.

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

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

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

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

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

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

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

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the

analytical methodology used, is required to determine when the results should be reported as "suspended, total."

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

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

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

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

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY) is the quantity of substance in solution or suspension that passes a stream section during a 24-hour period.

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

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

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

Turbidity (NTU) is based on the comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension of Formazin polymer under the same conditions.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1986, is called the "1986 water year."

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

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

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, 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. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.

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

2-D1. *Application of surface geophysics to ground-water investigations,* by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

2-E1. *Application of borehole geophysics to water-resources investigations,* by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

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 and dispersion in streams by dye tracing,* by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.

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

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

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

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

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

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

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

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

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

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

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

4-A1. *Some statistical tools in hydrology,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

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

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

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

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

4-D1. *Computation of rate and volume of stream depletion by wells* by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments* by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.

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

5-A3. *Methods for analysis of organic substances in water,* by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples,* edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.

5-A5. *Methods for determination of radioactive substances in water and fluvial sediments,* by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sedments,* by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.

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

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments,* by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water,* by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. *A model for simulation of flow in singular and interconnected channels* by R. W. Schaffrannek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.

8-A1. *Methods of measuring water levels in deep wells,* by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages

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

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

06334500 LITTLE MISSOURI RIVER AT CAMP CROOK, SD

LOCATION.--Lat 45°32'49", long 103°58'23", in SW¼ sec.2, T.18 N., R.1 E., Harding County, Hydrologic Unit 10110201, on left bank 15 ft upstream from bridge on State Highway 20 at east edge of Camp Crook.

DRAINAGE AREA.--1,970 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 National Geodetic Vertical Datum of 1929. Sept. 2, 1903, to Nov. 30, 1906, nonrecording gage at site 0.5 mi upstream at different datum. May 1956 to Oct. 8, 1957, nonrecording gage at site 15 ft downstream, and Oct. 9, 1957, to Sept. 30, 1976, water-stage recorder at present site both at datum 2.00 ft higher.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 9 to Feb. 23, Feb. 26 to Mar. 3, Mar. 26-30. Small diversions upstream from station for irrigation. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--34 years, 133 ft³/s, 96,360 acre-ft/yr; median of yearly mean discharges, 120 ft³/s, 86,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft³/s, Mar. 24, 1978, gage height, 16.90 ft, present datum; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 6	0130	*2,240	*10.27	No other peak greater than base discharge.			

Minimum daily discharge, 4.7 ft³/s, June 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	560	47	45	13	19	15	19	25	56	5.8	30	6.1
2	330	44	45	12	20	16	35	24	45	5.8	21	5.6
3	247	41	45	13	22	17	228	36	34	5.5	16	5.3
4	323	38	43	16	22	20	818	31	28	5.6	13	5.6
5	271	37	40	18	21	24	1380	30	24	6.3	11	7.7
6	289	34	39	17	25	28	1980	28	19	5.3	29	19
7	334	33	38	16	30	37	1550	24	21	5.9	34	50
8	258	26	37	16	36	33	1090	21	20	6.7	28	199
9	183	24	36	16	40	24	937	21	19	6.6	126	108
10	126	22	25	15	46	27	695	19	18	7.2	166	78
11	96	20	29	16	55	25	460	17	17	9.0	58	57
12	79	18	28	16	65	25	290	18	18	20	44	44
13	70	16	27	17	55	32	223	17	13	12	57	35
14	64	15	26	16	46	33	191	16	11	9.2	45	30
15	63	16	26	15	37	28	147	15	15	8.3	33	25
16	58	17	25	15	35	24	119	15	12	16	26	21
17	53	17	24	13	33	22	103	15	10	21	23	18
18	49	18	24	16	33	20	91	15	8.4	16	20	16
19	49	18	24	17	28	18	80	15	6.8	14	17	16
20	50	19	23	16	25	18	72	20	20	13	16	15
21	46	19	23	16	25	24	64	35	23	24	14	17
22	42	20	23	16	27	33	56	26	13	153	10	19
23	41	21	22	14	31	28	49	26	8.8	161	9.3	18
24	39	22	19	14	31	26	46	24	8.9	228	7.7	15
25	37	30	18	16	28	21	42	21	10	159	5.9	13
26	103	70	17	16	27	20	38	21	9.2	76	8.0	12
27	161	60	16	17	25	18	33	49	6.6	55	11	9.9
28	114	45	16	17	17	17	31	414	5.4	46	9.6	10
29	75	45	16	17	---	17	29	191	4.9	37	7.7	9.3
30	59	45	15	18	---	16	26	106	4.7	40	7.0	8.3
31	50	---	15	18	---	20	---	69	---	35	6.4	---
TOTAL	4319	897	849	488	904	726	10922	1404	509.7	1213.2	909.6	892.8
MEAN	139	29.9	27.4	15.7	32.3	23.4	364	45.3	17.0	39.1	29.3	29.8
MAX	560	70	45	18	65	37	1980	414	56	228	166	199
MIN	37	15	15	12	17	15	19	15	4.7	5.3	5.9	5.3
AC-FT	8570	1780	1680	968	1790	1440	21660	2780	1010	2410	1800	1770

CAL YR 1986	TOTAL	84227.2	MEAN	231	MAX	4870	MIN	2.2	AC-FT	167100
WTR YR 1987	TOTAL	24034.3	MEAN	65.8	MAX	1980	MIN	4.7	AC-FT	47670

06342500 MISSOURI RIVER AT BISMARCK, ND

LOCATION.--Lat 46°48'51", long 100°49'12", in SE¼NW¼SE¼ sec.31, T.139 N., R.80 W., Burleigh County, Hydrologic Unit 10130101, on left bank 40 ft upstream from Bismarck city waterplant, 2,100 ft downstream from Burlington Northern Railway bridge, 1.6 mi northwest of Bismarck Post Office, 3.5 mi upstream from Heart River, and at mile 1,314.5.

DRAINAGE AREA.--186,400 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, revised, above National Geodetic Vertical Datum of 1929. See WSP 1729 or 1917 for history of changes prior to Sept. 30, 1937.

REMARKS.--Records good. Estimated daily discharges during water year: Dec. 10 to Apr. 12. Many diversions from tributaries. Flow regulated by Lake Sakakawea (station 06338000) 75.4 mi upstream since November 1953.

AVERAGE DISCHARGE.--59 years (water years 1929-86), 22,710 ft³/s, 16,450,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 500,000 ft³/s, Apr. 6, 1952, gage height, 27.90 ft. 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; minimum discharge, about 1,800 ft³/s, Jan. 3, 1940; minimum gage height, 1.35 ft, Sept. 4, 1934, present site and datum.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 35,000 ft³/s, Feb. 25, gage height, 13.92 ft; backwater from ice; minimum daily, 10,300 ft³/s, May 2.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21600	27800	23200	26500	28900	21600	14000	11400	20800	19600	22100	18400
2	22200	27900	21800	26100	28800	21800	14500	10300	19900	19800	21600	19400
3	24100	28200	21300	26200	28900	22000	15000	11200	19000	19900	21000	19400
4	24600	28100	21900	26500	30100	22600	15200	11100	20000	20200	21400	19500
5	23900	28200	23900	26500	30100	22300	16400	11500	19800	20700	22200	19600
6	24000	28300	23300	26200	30100	22000	15500	10600	19300	20800	21300	18500
7	22900	28200	22500	25800	30000	22700	15000	11000	19000	21000	20500	19800
8	19600	28800	22300	27000	30000	19800	15100	10300	20000	20600	20800	19000
9	21200	27000	22000	27000	30300	18800	12600	11100	20100	20100	21300	18600
10	20800	26800	22600	25800	30100	18700	12800	10800	20100	20600	20800	18500
11	20500	27300	22500	25200	30300	20900	12600	11400	20300	20700	20200	18900
12	21000	27400	20400	22900	29100	21700	12300	12700	20400	21400	20900	18400
13	20100	27400	18100	21900	29500	21400	12100	14900	20100	20900	20300	18000
14	20300	27600	17500	22100	30400	21500	13100	18100	20500	20600	20400	17800
15	20800	27300	17800	22100	30700	21700	12000	20100	19900	20600	20900	18000
16	20700	26300	17900	22000	30400	21300	12000	20100	20100	20700	21200	18000
17	20700	24900	18100	23000	30500	20900	11700	20100	20600	20400	21400	18100
18	20600	24900	18700	24300	30400	20700	12100	20500	20500	21200	20900	17700
19	20500	25000	21100	24100	30200	21500	10800	20100	19800	20800	19500	17100
20	20000	24800	21300	24100	30000	21400	11400	20400	20000	21500	20500	17800
21	22400	24900	20900	25400	30300	21300	11300	21400	19600	20700	20900	17700
22	23800	24300	21100	25400	30200	23100	10600	19800	19800	21400	21200	19100
23	25800	24600	21900	26700	30300	26800	11000	19900	19800	21400	20700	18200
24	26900	24900	23400	26700	30300	25100	10900	20200	20400	21400	21900	17800
25	26900	25400	24000	27400	30400	22500	11600	20200	20400	21300	20100	16200
26	27500	25200	24300	27300	29500	17700	11800	20200	20200	20700	20800	17500
27	27300	25400	25700	28600	25200	15900	10700	20800	20000	21300	21000	19700
28	27700	25200	25300	28200	21700	15100	11100	20400	18700	21400	20700	19000
29	27400	24900	25400	28700	---	15300	11200	20300	19400	21400	21200	16300
30	27000	23300	26400	28600	---	15200	11000	20500	19800	21100	21600	16600
31	27900	---	26100	28900	---	15000	---	20400	---	21200	19400	---
TOTAL	720700	790300	682700	797200	826700	638300	377400	511800	598300	645400	648700	548600
MEAN	23250	26340	22020	25720	29520	20590	12580	16510	19940	20820	20930	18290
MAX	27900	28800	26400	28900	30700	26800	16400	21400	20800	21500	22200	19800
MIN	19600	23300	17500	21900	21700	15000	10600	10300	18700	19600	19400	16200
AC-FT	1430000	1568000	1354000	1581000	1640000	1266000	748600	1015000	1187000	1280000	1287000	1088000

CAL YR 1986 TOTAL 8491000 MEAN 23260 MAX 34700 MIN 10100 AC-FT 16840000
WTR YR 1987 TOTAL 7786100 MEAN 21330 MAX 30700 MIN 10300 AC-FT 15440000

06354882 OAK CREEK NEAR WAKPALA, SD

LOCATION.--Lat 45°42'43", long 100°33'32", in SW¼SE¼NW¼ 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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records poor except for periods of estimated record, which are poor. Estimated daily discharges during water year: Oct. 1 to Mar. 30 and Apr. 16 to July 31. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,780 ft³/s, Mar. 4, 1986, gage height, 17.73 ft; maximum gage height, 18.35 ft, Mar. 23, 1987, backwater from ice; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 23	unknown	*2,500	a*18.35	Apr. 2	0945	1,990	14.44

a Backwater from ice.
No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.50	.75	1.8	2.6	9.5	10	1140	7.5	8.0	.64	.00	.00
2	2.0	.95	1.7	2.8	9.0	10	1290	10	7.0	.58	.00	.00
3	1.0	.95	1.7	2.8	9.0	11	647	12	6.0	.52	.00	.00
4	.50	1.0	1.7	2.8	10	12	496	15	5.3	.47	.00	.00
5	.45	.95	1.6	2.8	11	13	428	13	4.5	.44	.00	.00
6	.45	.85	1.6	2.8	12	15	276	12	4.0	.41	.00	.00
7	.50	.85	1.6	2.8	12	20	168	10	3.8	.39	.00	.00
8	.50	.80	1.5	3.0	11	30	112	8.0	3.6	.37	.00	.00
9	.50	.75	1.3	3.5	11	80	86	6.0	3.4	.36	.00	.00
10	.55	.75	1.3	4.0	11	70	68	5.0	3.0	.35	.00	.00
11	.55	.75	1.4	4.5	10	40	56	4.5	2.5	.38	.00	.00
12	.55	.85	1.5	4.5	9.5	28	48	4.3	2.0	.36	.00	.00
13	.60	1.0	1.5	4.0	9.0	25	42	5.3	1.8	.33	.00	.00
14	.61	1.5	1.6	3.9	9.0	22	38	5.8	1.7	.30	.00	.00
15	.60	2.0	1.7	3.5	9.0	21	35	5.8	1.6	.27	.00	.00
16	.60	2.4	1.7	3.0	9.5	20	30	7.2	1.3	.25	.00	.00
17	.60	2.5	1.7	3.0	9.5	19	25	8.7	1.2	.24	.00	.00
18	.58	2.6	1.8	3.5	9.5	19	22	11	1.1	.23	.00	.00
19	.56	2.6	1.8	3.5	10	20	20	13	1.4	.25	.00	.00
20	.56	2.7	1.9	3.3	10	100	17	14	1.8	.22	.00	.00
21	.56	2.7	2.0	3.3	9.5	400	15	20	1.4	.19	.00	.00
22	.55	2.8	2.1	3.5	9.0	1000	13	23	1.3	.16	.00	.00
23	.55	3.0	2.2	3.7	9.0	2000	12	22	1.4	.14	.00	.00
24	.55	3.0	2.2	4.0	9.0	2200	11	28	1.3	.16	.00	.00
25	.55	2.9	2.2	4.5	8.5	1440	10	20	1.2	.13	.00	.00
26	.60	2.7	2.2	5.5	8.5	780	9.0	18	1.1	.12	.00	.00
27	.60	2.6	2.2	6.5	8.5	395	8.5	19	1.0	.12	.00	.00
28	.60	2.6	2.2	7.0	9.0	230	8.0	17	.90	.10	.00	.00
29	.60	2.4	2.3	8.0	---	150	7.5	15	.80	.10	.00	.00
30	.60	2.0	2.3	9.0	---	115	7.0	12	.72	.05	.00	.00
31	.65	---	2.4	9.5	---	304	---	10	---	.02	.00	---
TOTAL	19.17	54.20	56.7	131.1	271.5	9599	5145.0	382.1	76.12	8.65	.00	.00
MEAN	.62	1.81	1.83	4.23	9.70	310	171	12.3	2.54	.28	.00	.00
MAX	2.0	3.0	2.4	9.5	12	2200	1290	28	8.0	.64	.00	.00
MIN	.45	.75	1.3	2.6	8.5	10	7.0	4.3	.72	.02	.00	.00
AC-FT	38	108	112	260	539	19040	10210	758	151	17	.00	.00

CAL YR 1986	TOTAL	25889.54	MEAN	70.9	MAX	3200	MIN	.00	AC-FT	51350
WTR YR 1987	TOTAL	15743.54	MEAN	43.1	MAX	2200	MIN	.00	AC-FT	31230

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, 300 ft south of post office at Haley, and 1 mi north of South Dakota state line.

DRAINAGE AREA.--509 mi².

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 National Geodetic Vertical Datum of 1929. 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 good except those for periods of estimated daily discharge, which are fair. Estimated daily discharges during water year: Nov. 8-13, Dec. 4 to Feb. 12, Feb. 15 to Mar. 2, 21-24, 29, 30, and June 4-5, 20-22. Flow regulated since August 1966 by Bowman-Haley Lake (station 06354988) 8 mi upstream.

AVERAGE DISCHARGE.--51 years (water years 1908-17, 1946-87), 27.3 ft³/s, 19,800 acre-ft/yr; median of yearly mean discharges, 21 ft³/s, 15,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 ft³/s, Apr. 7, 1952, gage height, 17.03 ft, from rating curve extended above 4,500 ft³/s on basis of discharge measurement at gage height, 15.09 ft, half of which was indirect measurement of flow over roadway outside of main channel; maximum gage height, 17.10 ft, Apr. 15, 1950; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 637 ft³/s, Apr. 6, gage height, 9.25 ft; minimum daily discharge, 1.0 ft³/s, Aug. 7, 8, Sept. 1-4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	8.4	7.9	5.0	6.5	5.5	16	16	9.0	1.5	1.5	1.0
2	4.1	3.7	8.4	6.5	6.0	7.0	20	15	9.4	1.5	1.5	1.0
3	4.2	4.8	7.0	6.5	5.7	10	24	16	9.9	1.5	1.5	1.0
4	4.6	5.0	5.2	6.5	5.3	11	45	19	9.0	1.3	1.5	1.0
5	4.8	3.9	5.0	5.0	5.5	9.5	250	19	4.6	1.3	1.3	1.1
6	5.3	3.8	5.0	5.0	5.7	9.0	597	19	3.5	1.3	1.2	1.4
7	5.9	2.9	4.5	3.0	5.7	9.3	598	19	2.9	1.3	1.0	1.7
8	5.8	2.0	5.0	3.5	5.2	8.7	504	19	3.0	1.4	1.0	1.8
9	6.2	2.5	4.0	5.0	4.9	13	414	18	3.2	1.5	1.1	1.8
10	7.3	2.0	3.5	5.0	4.9	11	343	17	3.2	1.5	1.2	1.7
11	10	2.5	4.0	8.0	5.4	11	262	17	3.0	1.5	1.3	1.6
12	8.3	3.0	5.0	9.0	6.1	10	214	16	3.7	1.6	1.3	1.6
13	5.0	4.0	6.0	7.0	5.7	9.7	176	14	3.7	1.6	1.3	1.6
14	4.2	5.0	5.5	5.0	5.9	9.5	147	13	3.7	1.8	1.3	1.8
15	5.8	4.5	7.0	4.5	6.5	9.9	124	11	3.1	1.8	1.4	2.2
16	4.4	3.2	7.5	4.5	6.5	9.3	106	9.3	2.9	1.8	1.5	1.7
17	4.1	2.9	7.0	5.0	6.0	9.7	91	8.1	2.7	1.6	1.5	1.6
18	3.5	2.9	7.5	5.0	6.0	11	80	6.4	2.7	1.6	1.5	1.6
19	3.6	2.4	11	7.0	6.0	11	73	5.2	2.4	1.5	1.5	1.6
20	3.7	2.3	9.5	8.0	6.5	11	67	7.7	2.2	1.5	1.5	1.6
21	3.7	2.3	11	9.0	6.5	10	52	11	2.0	1.5	1.5	1.6
22	3.4	2.5	13	9.0	6.0	15	43	9.4	1.8	1.5	1.5	1.6
23	3.5	3.4	15	9.0	6.0	20	38	7.7	1.6	1.5	1.5	1.6
24	3.4	4.3	12	9.0	5.5	15	33	7.4	2.8	1.6	1.5	1.6
25	3.4	4.6	8.5	9.5	5.5	17	30	7.7	3.2	1.3	1.5	1.5
26	3.6	4.5	8.5	8.5	5.0	17	27	7.9	2.2	1.3	1.5	1.5
27	4.9	4.7	8.5	10	5.0	17	24	8.1	2.2	1.3	1.5	1.5
28	4.2	5.2	7.5	11	5.5	18	22	8.3	2.2	1.3	1.7	1.5
29	6.5	6.0	7.5	8.5	---	16	20	8.6	2.1	1.4	1.4	1.5
30	4.0	6.8	7.5	7.5	---	15	18	8.7	1.6	1.5	1.2	1.5
31	3.8	---	8.5	7.0	---	14	---	9.0	---	1.5	1.1	---
TOTAL	149.2	116.0	233.0	212.0	161.0	370.1	4458	378.5	109.5	46.1	42.8	45.8
MEAN	4.81	3.87	7.52	6.84	5.75	11.9	149	12.2	3.65	1.49	1.38	1.53
MAX	10	8.4	15	11	6.5	20	598	19	9.9	1.8	1.7	2.2
MIN	3.4	2.0	3.5	3.0	4.9	5.5	16	5.2	1.6	1.3	1.0	1.0
AC-FT	296	230	462	421	319	734	8840	751	217	91	85	91

CAL YR 1986 TOTAL 13142.3 MEAN 36.0 MAX 700 MIN .90 AC-FT 26070
WTR YR 1987 TOTAL 6322.0 MEAN 17.3 MAX 598 MIN 1.0 AC-FT 12540

06355500 NORTH FORK GRAND RIVER NEAR WHITE BUTTE, SD

LOCATION.--Lat 45°47'39", long 102°21'59", in NE¼SE¼ sec.10, T.21 N., R.14 E., Perkins County, Hydrologic Unit 10130301, on right bank 1,400 ft upstream from 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 2,275 ft, by barometer. 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 1,300 ft downstream; Sept. 11, 1975, to Mar. 22, 1976, nonrecording gage at present site, and Mar. 23 to July 28, 1976, nonrecording gage at site 1,400 ft downstream, all at present datum.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 11 to Mar. 22. Flow regulated by Bowman-Haley Dam, capacity, 93,000 acre-ft, 71 mi upstream, beginning August 1966. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--42 years, 54.1 ft³/s, 39,200 acre-ft/yr; median of yearly mean discharges, 35 ft³/s, 25,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,090 ft³/s at 0815 hours, Apr. 6, gage height, 6.01 ft; maximum gage height, 8.49 ft, Mar. 9, backwater from ice; minimum daily discharge, 0.25 ft³/s, Aug. 24.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	13	12	12	13	12	94	50	77	2.5	10	.73
2	23	13	12	12	13	13	433	45	70	2.5	7.3	1.1
3	21	13	12	12	13	13	416	48	60	2.3	4.5	1.8
4	18	14	11	12	13	13	552	51	46	2.3	3.0	1.8
5	15	15	11	13	13	14	854	53	37	2.5	2.5	2.0
6	15	13	11	13	13	50	908	51	33	2.5	2.2	2.3
7	14	17	11	12	14	55	906	51	31	1.7	1.6	2.1
8	14	26	11	12	14	45	804	50	25	1.9	1.4	2.0
9	15	19	10	12	15	35	677	45	22	1.9	1.6	1.9
10	17	14	10	13	15	30	557	45	20	2.5	1.4	2.8
11	18	12	11	14	16	31	470	44	17	2.3	1.1	3.3
12	15	10	11	14	16	31	395	42	14	2.8	1.6	3.4
13	15	10	11	13	15	32	333	41	11	2.8	1.2	3.5
14	15	11	12	13	14	33	282	33	8.3	2.1	.92	4.1
15	15	11	12	12	14	33	245	32	9.1	1.9	.71	4.5
16	16	12	12	11	14	33	216	32	9.4	1.9	.81	3.9
17	17	12	12	10	14	32	194	34	8.2	1.7	.83	3.3
18	16	12	12	11	14	32	173	35	6.6	2.3	.70	2.8
19	16	12	12	11	14	35	156	33	5.7	2.8	.62	2.4
20	14	12	12	11	14	50	139	43	8.5	2.3	.52	2.4
21	14	13	12	11	14	350	124	67	8.7	46	.43	2.2
22	15	13	13	11	13	380	117	75	6.4	135	.38	2.0
23	15	13	13	11	13	282	106	64	5.7	61	.35	1.9
24	14	14	13	11	13	156	95	62	6.3	36	.25	1.7
25	13	14	13	12	13	132	86	51	5.3	25	.27	1.4
26	13	13	13	12	12	105	78	67	5.0	19	.36	1.7
27	13	13	13	12	12	95	69	62	4.8	14	.72	1.8
28	13	13	13	12	12	83	63	60	4.2	11	.87	1.7
29	13	13	13	12	---	102	58	95	4.2	8.2	.69	1.7
30	13	12	12	12	---	84	53	88	2.8	6.4	.56	1.6
31	13	---	12	13	---	79	---	79	---	8.1	.58	---
TOTAL	484	402	368	372	383	2470	9653	1628	572.2	415.2	49.97	69.83
MEAN	15.6	13.4	11.9	12.0	13.7	79.7	322	52.5	19.1	13.4	1.61	2.33
MAX	26	26	13	14	16	380	908	95	77	135	10	4.5
MIN	13	10	10	10	12	12	53	32	2.8	1.7	.25	.73
AC-FT	960	797	730	738	760	4900	19150	3230	1130	824	99	139

CAL YR 1986	TOTAL	24137.25	MEAN	66.1	MAX	1180	MIN	.80	AC-FT	47880
WTR YR 1987	TOTAL	16867.20	MEAN	46.2	MAX	908	MIN	.25	AC-FT	33460

06356000 SOUTH FORK GRAND RIVER AT BUFFALO, SD

LOCATION.--Lat 45°34'34", long 103°32'38", in SW¼ 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 National Geodetic Vertical Datum of 1929. Prior to May 5, 1970, nonrecording gage at same site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 9 to Feb. 21, Feb. 24, Feb. 27 to Mar. 12, and Mar. 29-31. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--32 years, 8.72 ft³/s, 6,320 acre-ft/yr; median of yearly mean discharges, 7.2 ft³/s, 5,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,780 ft³/s, June 14, 1963, gage height, 9.01 ft, from rating curve extended above 550 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1956-58, 1960, 1962, 1965, 1972.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 1	2030	245	5.59	June 20	1945	530	6.66
Apr. 5	0530	263	5.69	July 31	1630	*558	*6.73
May 21	0130	292	5.84	Sept. 6	0115	393	6.25

Minimum daily discharge, 1.5 ft³/s, Nov. 13, 14.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	3.5	3.0	3.0	4.5	3.0	119	4.2	4.3	3.7	50	2.8
2	9.5	3.6	3.0	2.5	5.0	2.5	148	4.5	4.1	3.5	8.3	2.7
3	66	3.5	3.0	2.5	5.0	2.5	94	17	3.9	3.5	5.2	2.7
4	20	3.5	3.0	3.0	4.5	3.0	73	12	3.8	3.6	4.3	2.9
5	7.0	3.5	2.5	3.0	4.0	3.0	115	5.9	3.8	4.3	3.9	69
6	4.6	3.3	2.5	3.0	4.0	3.5	49	4.8	3.7	3.4	3.4	131
7	4.0	3.5	2.5	2.5	4.5	3.5	20	5.0	3.7	3.4	3.7	8.0
8	3.9	2.1	2.5	2.5	5.0	4.0	13	4.4	3.7	3.6	3.5	4.4
9	3.8	2.0	2.5	2.5	4.5	4.0	9.9	4.3	3.7	3.0	3.2	3.7
10	3.8	2.0	2.0	2.5	5.5	4.5	8.6	4.2	3.7	2.9	3.2	3.4
11	3.6	2.0	2.0	3.5	5.5	4.5	7.5	4.0	3.7	16	3.0	4.5
12	3.5	2.0	2.5	4.5	5.5	4.5	6.6	4.0	3.6	38	5.5	4.0
13	3.5	1.5	2.5	4.5	5.5	4.3	6.1	3.9	3.5	17	6.1	4.4
14	3.6	1.5	2.5	4.0	4.5	4.3	5.6	3.8	3.4	4.8	4.9	3.6
15	3.5	2.0	3.0	3.5	4.0	4.4	5.4	3.7	3.4	3.7	3.7	3.2
16	3.6	2.0	3.0	3.0	4.0	4.4	5.0	3.7	3.3	3.1	3.5	3.1
17	3.5	2.0	3.0	2.5	4.0	4.7	4.9	3.8	3.3	3.0	3.1	2.9
18	3.5	2.0	3.0	2.5	4.0	4.9	4.7	4.1	3.3	6.7	3.0	2.9
19	3.4	2.0	3.0	3.0	4.0	7.7	4.6	4.9	3.3	6.6	3.0	2.8
20	3.5	2.0	2.5	3.0	3.5	8.2	4.4	66	173	6.5	2.8	2.8
21	3.5	2.5	3.0	3.0	4.0	16	4.7	213	75	8.4	2.6	2.7
22	3.7	3.0	3.0	3.0	4.7	15	5.2	27	7.0	33	3.2	2.7
23	3.7	3.5	3.0	3.0	4.4	27	5.4	6.9	4.7	41	3.1	2.6
24	3.6	4.0	3.0	2.5	4.0	25	5.3	5.1	5.7	5.8	2.8	2.6
25	3.5	4.5	3.0	3.0	3.4	49	5.9	5.4	5.3	4.3	2.9	2.6
26	3.4	4.0	3.0	3.5	3.2	44	5.7	5.5	5.5	4.0	5.5	2.5
27	3.4	3.5	3.0	3.5	3.0	51	5.5	83	4.7	3.7	5.4	2.6
28	3.5	3.0	3.0	3.5	3.0	61	4.1	31	4.4	4.2	5.2	2.5
29	3.5	3.0	3.0	4.0	---	40	4.1	8.5	4.0	3.4	3.9	2.5
30	3.5	3.0	3.0	4.0	---	35	4.3	5.8	3.9	3.5	3.1	2.5
31	3.7	---	3.0	4.5	---	40	---	4.8	---	161	3.0	---
TOTAL	200.4	83.5	86.5	98.5	120.7	488.4	754.5	564.2	362.4	412.6	168.0	290.6
MEAN	6.46	2.78	2.79	3.18	4.31	15.8	25.1	18.2	12.1	13.3	5.42	9.69
MAX	66	4.5	3.0	4.5	5.5	61	148	213	173	161	50	131
MIN	3.4	1.5	2.0	2.5	3.0	2.5	4.1	3.7	3.3	2.9	2.6	2.5
AC-FT	397	166	172	195	239	969	1500	1120	719	818	333	576

CAL YR 1986	TOTAL	5628.6	MEAN	15.4	MAX	551	MIN	1.5	AC-FT	11160
WTR YR 1987	TOTAL	3630.3	MEAN	9.95	MAX	213	MIN	1.5	AC-FT	7200

06356500 SOUTH FORK GRAND RIVER NEAR CASH, SD

LOCATION.--Lat 45°38'56", long 102°38'27", in SW¼SW¼ 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 National Geodetic Vertical Datum of 1929. 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 for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 7 to Apr. 7. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--42 years, 53.6 ft³/s, 38,830 acre-ft/yr; median of yearly mean discharges, 39 ft³/s, 28,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 ft³/s, Apr. 15, 1950, gage height, 15.40 ft, from rating curve extended above 14,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 3	unknown	*1,130	*5.51	No other peak greater than base discharge.			

Minimum daily discharge, 8.0 ft³/s, Dec. 10.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	18	13	14	43	25	350	23	49	13	18	13
2	40	19	12	15	40	26	500	23	43	13	18	11
3	37	19	11	16	38	26	1000	31	37	12	79	11
4	33	19	11	17	37	27	800	60	30	13	42	9.9
5	77	19	11	17	38	27	500	67	25	14	26	11
6	67	19	11	16	40	35	700	55	23	13	19	42
7	50	17	10	15	42	50	400	45	20	12	18	136
8	37	16	10	14	40	45	274	33	18	13	17	129
9	29	15	9.0	13	37	40	167	28	18	13	15	45
10	29	14	8.0	13	35	35	126	25	18	12	15	29
11	26	13	9.0	14	33	31	100	23	17	13	15	22
12	22	12	10	15	32	30	81	20	16	15	15	19
13	21	11	11	14	30	31	73	19	16	16	13	16
14	21	12	12	13	28	32	71	18	14	34	18	16
15	20	13	14	12	29	33	60	18	13	41	25	16
16	20	14	15	11	30	33	52	18	12	29	23	16
17	19	13	15	12	31	32	48	20	12	20	22	14
18	19	14	15	13	32	32	42	21	12	17	19	13
19	19	14	14	12	31	32	40	21	11	16	18	12
20	19	15	14	12	32	40	34	31	22	15	17	12
21	19	16	15	12	30	60	32	109	29	15	13	12
22	19	16	16	11	29	90	30	369	116	16	13	12
23	20	15	16	11	28	150	27	273	121	19	13	12
24	20	17	15	12	27	180	26	119	47	29	13	12
25	20	18	15	14	26	250	25	77	28	44	14	12
26	20	17	16	18	25	220	24	63	20	33	14	12
27	20	17	16	22	25	300	23	79	19	31	12	12
28	20	18	16	27	25	350	24	76	17	29	12	13
29	20	16	15	32	---	250	22	125	15	21	16	13
30	20	14	15	36	---	200	21	99	14	17	14	13
31	19	---	14	40	---	250	---	62	---	23	13	---
TOTAL	873	470	404.0	513	913	2962	5672	2050	852	621	599	715.9
MEAN	28.2	15.7	13.0	16.5	32.6	95.5	189	66.1	28.4	20.0	19.3	23.9
MAX	77	19	16	40	43	350	1000	369	121	44	79	136
MIN	19	11	8.0	11	25	25	21	18	11	12	12	9.9
AC-FT	1730	932	801	1020	1810	5880	11250	4070	1690	1230	1190	1420

CAL YR 1986	TOTAL	24311.30	MEAN	66.6	MAX	1530	MIN	.00	AC-FT	48220
WTR YR 1987	TOTAL	16644.9	MEAN	45.6	MAX	1000	MIN	8.0	AC-FT	33020

06357000 SHADEHILL RESERVOIR AT SHADEHILL, SD

LOCATION.--Lat 45°45'12", long 102°12'12", in E½ 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 National Geodetic Vertical Datum of 1929. Prior to Apr. 3, 1952, occasional elevations obtained by level circuits and Apr. 3, 1952, to Apr. 28, 1970, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by earthfill dam. Storage began July 1, 1950; dam completed August 1951. Conservation storage, 81,443 acre-ft between elevations 2,250.8 ft (invert of canal and river outlet) and elevation 2,272.0 ft (crest of morning-glory spillway). Dead storage, 58,231 acre-ft below elevation 2,250.8 ft. Flood control, 217,708 acre-ft between elevations 2,272.0 ft and 2,302.0 ft (crest of emergency spillway). Surcharge, 111,203 acre-ft at elevation 2,312.0 ft (maximum pool elevation). Total reservoir capacity is 468,585 acre-ft at elevation 2,312.0 ft. The reservoir provides flood control and water for irrigation purposes. Figures given herein represent usable contents above elevation 2,250.8 ft. Prior to Oct. 1, 1968, reservoir contents published as total contents and included dead storage.

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 84,239 acre-ft, May 31, elevation, 2,272.57 ft; minimum, 61,113 acre-ft, Feb. 28, elevation, 2,267.64 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,269.85	71,189	-
Oct. 31	2,269.15	67,947	-3,242
Nov. 30	2,268.29	64,029	-3,918
Dec. 31	2,268.06	62,993	-1,036
CAL YR 1986	-	-	-356
Jan. 31	2,267.66	61,203	-1,790
Feb. 28	2,267.64	61,113	-90
Mar. 31	2,271.94	81,150	+20,037
Apr. 30	2,272.35	83,155	+2,005
May 31	2,272.57	84,239	+1,084
June 30	2,271.78	80,372	-3,867
July 31	2,271.25	77,814	-2,558
Aug. 31	2,269.96	71,702	-6,112
Sept. 30	2,268.89	66,755	-4,947
WTR YR 1987	-	-	-4,434

06357500 GRAND RIVER AT SHADEHILL, SD

LOCATION.--Lat 45°45'23", long 102°11'44", in NW¼NW¼ 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.

PERIOD OF RECORD.--February 1943 to current year. 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 National Geodetic Vertical Datum of 1929. 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.

REMARKS.--Records good. Estimated daily discharge during water year: Dec. 10. Several observations of water temperature and specific conductance were made during the year. Flow completely regulated by Shadehill Dam since July 1, 1950. (See station 06357000.)

AVERAGE DISCHARGE.--44 years, 113 ft³/s, 81,870 acre-ft/yr; median of yearly mean discharges, 68 ft³/s, 49,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,220 ft³/s at 2400 hours, Apr. 8, gage height, 5.63 ft; minimum daily discharge, 32 ft³/s, Dec. 5.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	97	58	45	45	46	146	150	228	57	77	113
2	92	97	54	45	46	46	286	140	202	53	78	112
3	91	97	46	45	45	46	430	144	171	54	78	111
4	87	98	37	45	45	46	554	140	156	53	79	111
5	88	101	32	46	44	47	709	152	141	53	79	109
6	88	104	33	46	45	48	903	175	130	54	79	108
7	99	104	36	46	46	49	1090	168	116	54	81	107
8	104	104	38	46	46	50	1160	159	105	53	82	100
9	101	104	40	46	45	52	1160	150	93	52	82	93
10	100	104	40	46	44	53	1090	139	88	51	82	92
11	98	104	41	47	44	53	996	121	86	51	88	92
12	98	97	39	49	43	53	922	112	79	50	95	92
13	98	61	39	49	42	53	845	105	73	57	97	88
14	98	59	39	49	44	55	765	96	63	64	97	88
15	97	59	39	49	43	56	703	91	56	64	98	87
16	97	59	41	49	42	56	641	87	76	64	98	88
17	97	59	43	49	42	58	584	84	90	64	98	88
18	97	60	44	48	43	58	532	82	80	63	100	88
19	97	60	44	48	43	59	489	79	73	63	102	87
20	95	60	44	48	43	61	428	88	81	63	102	87
21	95	60	44	49	43	64	380	100	80	63	102	88
22	95	60	45	48	44	60	346	100	82	63	104	85
23	95	60	45	47	45	62	309	123	74	62	104	79
24	95	59	44	46	45	65	283	143	76	60	112	79
25	97	59	45	46	45	74	262	147	75	60	118	79
26	97	59	45	45	45	81	235	155	67	62	119	79
27	97	59	45	45	45	96	213	287	64	69	119	79
28	97	59	45	45	46	100	195	301	61	77	118	79
29	97	59	46	44	---	105	177	255	57	77	117	79
30	98	59	46	44	---	108	161	249	56	76	116	81
31	98	---	45	44	---	119	---	243	---	77	113	---
TOTAL	2976	2281	1322	1444	1238	1979	16994	4565	2879	1883	3014	2748
MEAN	96.0	76.0	42.6	46.6	44.2	63.8	566	147	96.0	60.7	97.2	91.6
MAX	104	104	58	49	46	119	1160	301	228	77	119	113
MIN	87	59	32	44	42	46	146	79	56	50	77	79
AC-FT	5900	4520	2620	2860	2460	3930	33710	9050	5710	3730	5980	5450

CAL YR 1986	TOTAL	53686	MEAN	147	MAX	968	MIN	13	AC-FT	106500
WTR YR 1987	TOTAL	43323	MEAN	119	MAX	1160	MIN	32	AC-FT	85930

06357800 GRAND RIVER AT LITTLE EAGLE, SD
(National stream-quality accounting network station)

LOCATION.--Lat 45°39'28", long 100°49'04", in NE¼NE¼ 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.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,628.63 ft above National Geodetic Vertical Datum of 1929. Prior to May 12, 1959, nonrecording gage, and May 12, 1959, to Aug. 11, 1970, water-stage recorder at site 0.6 mi downstream at datum 2.00 ft lower. U.S. Army Corps of Engineers satellite data-collection platform at station.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: May 24, 25, 31 and June 7. Flow regulated by Shadehill Dam 144 mi upstream. (See station 06357000.)

AVERAGE DISCHARGE.--29 years, 252 ft³/s, 182,600 acre-ft/yr; median of yearly mean discharges, 210 ft³/s, 152,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,000 ft³/s, Mar. 23, 1987, gage height, 19.16 ft; maximum gage height, 21.76 ft, Mar. 18, 1966, from floodmarks, ice jam, site and datum then in use; no flow at times in 1958-62, 1969, 1975, 1977-85.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31,000 ft³/s at 0400 hours, Mar. 23, gage height, 19.16 ft; minimum daily discharge, 42 ft³/s, Dec. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	162	116	100	55	72	75	4050	257	474	85	75	92
2	153	118	100	55	74	75	6210	241	439	78	61	90
3	145	118	95	55	76	80	2780	242	384	69	68	88
4	141	119	80	55	78	80	1850	264	324	77	225	87
5	142	120	65	55	80	80	1770	258	270	65	140	90
6	140	119	50	53	82	100	1480	255	232	61	110	94
7	133	115	48	53	85	150	1270	240	213	53	98	100
8	123	115	48	53	90	800	1240	222	197	53	93	98
9	120	110	50	53	92	6000	1310	240	181	55	89	96
10	119	110	45	54	94	4000	1280	229	175	91	82	94
11	126	105	42	56	96	3000	1290	215	141	62	76	99
12	129	90	43	58	96	2500	1220	196	126	64	87	97
13	129	80	45	56	95	2300	1120	184	113	80	84	92
14	127	70	47	55	90	2200	1080	169	99	80	95	100
15	124	70	48	55	80	2100	947	154	86	89	141	93
16	122	75	50	55	75	2000	868	144	69	74	124	88
17	121	75	52	55	70	2000	800	166	70	57	107	82
18	120	80	52	55	70	1900	733	168	64	97	97	82
19	120	82	53	55	70	1900	669	164	50	427	91	82
20	119	82	54	55	70	2000	598	275	52	2230	88	81
21	120	82	55	56	75	10000	544	384	81	937	85	83
22	121	83	55	56	75	19300	510	712	78	416	82	83
23	119	85	56	56	75	26500	459	971	140	251	82	83
24	119	85	57	56	70	14800	420	820	152	171	84	86
25	119	90	57	56	70	6420	392	715	123	143	90	86
26	119	95	57	57	70	2580	362	692	112	176	93	84
27	119	100	57	57	70	1900	336	1080	110	113	92	76
28	119	100	57	60	70	2140	317	998	107	89	103	73
29	118	105	56	62	---	1300	295	835	102	74	104	73
30	118	100	56	65	---	852	275	652	95	62	99	73
31	118	---	56	68	---	712	---	540	---	57	94	---
TOTAL	3924	2894	1786	1745	2210	119844	36475	12682	4859	6436	3039	2625
MEAN	127	96.5	57.6	56.3	78.9	3866	1216	409	162	208	98.0	87.5
MAX	162	120	100	68	96	26500	6210	1080	474	2230	225	100
MIN	118	70	42	53	70	75	275	144	50	53	61	73
AC-FT	7780	5740	3540	3460	4380	237700	72350	25150	9640	12770	6030	5210

CAL YR 1986 TOTAL 196144 MEAN 537 MAX 9680 MIN 12 AC-FT 389100
WTR YR 1987 TOTAL 198519 MEAN 544 MAX 26500 MIN 42 AC-FT 393800

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1955 to September 1956, October 1968 to September 1969, October 1971 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976.
SPECIFIC CONDUCTANCE: October 1975 to September 1976, October 1977 to September 1981.
WATER TEMPERATURE: October 1975 to September 1980.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 19,000 mg/L, May 2, 1972; minimum daily mean, 0 mg/L, Jan. 10, 11, Feb. 5-10, 1975.
SEDIMENT LOAD: Maximum daily, 259,000 tons, Mar. 12, 1972; minimum daily, 0 ton, Jan. 10, 11, Feb. 5-10, 1975.
SPECIFIC CONDUCTANCE: Maximum daily, 3,100 microsiemens, Dec. 4, 7-9, 1976; minimum daily, 290 microsiemens, Feb. 7, 1976.
WATER TEMPERATURE: Maximum daily, 33.0°C, Aug. 26, 1976; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	ALKA-LINITY WH WAT TOTAL 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, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT 22...	0830	119	1790	8.60	324	14.5	13.0	28	719	9.4	95
JAN 14...	0945	54	1850	8.96	355	-1.0	0.5	3.2	--	12.4	--
APR 07...	1030	1270	805	7.98	150	17.5	9.0	680	724	9.4	86
JUL 01...	0900	90	1700	7.76	291	21.0	21.0	17	717	8.9	107

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)
OCT 22...	--	--	270	0	50	35	330	72	9	8.4	331
JAN 14...	K4	56	280	0	53	36	330	71	9	7.4	370
APR 07...	K150	K10	180	26	44	16	89	51	3	7.1	--
JUL 01...	55	60	250	0	54	28	310	72	9	10	317

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
OCT 22...	660	11	0.30	2.6	1480	1300	2.0	476	<0.010	<0.100	--
JAN 14...	640	15	0.40	1.7	1300	1300	1.8	190	<0.010	0.340	--
APR 07...	290	4.4	0.20	6.0	515	550	0.70	1770	0.020	0.350	0.330
JUL 01...	630	16	0.30	6.9	1230	1200	1.7	299	<0.010	<0.100	--

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
OCT 22...	<0.010	0.080	--	0.80	0.030	<0.010	<0.010	<10	2	55
JAN 14...	0.010	<0.010	0.01	0.60	0.020	0.010	<0.010	20	1	44
APR 07...	0.130	0.250	0.17	0.90	0.280	0.050	<0.010	10	2	28
JUL 01...	0.010	0.050	0.01	0.20	0.050	0.010	<0.010	<10	1	55

DATE	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)
OCT 22...	<0.5	<1	<1	<3	4	<3	<5	62	1	<1.0
JAN 14...	<0.5	<1	<1	<3	13	10	<5	78	24	<0.1
APR 07...	<0.5	<1	<1	<3	20	47	<5	76	8	<0.1
JUL 01...	<0.5	<1	<1	<3	9	<3	<5	80	8	<0.1

DATE	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 22...	<10	3	2	<1	690	<6	<3	132	42	93
JAN 14...	<10	4	<1	<1	650	<6	20	--	--	--
APR 07...	<10	5	1	1	460	<6	8	350	1200	100
JUL 01...	10	4	1	1	770	<6	3	96	23	97

06359500 MOREAU RIVER NEAR FAITH, SD

LOCATION.--Lat 45°11'52", long 102°09'22", in NW¼NW¼ 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 National Geodetic Vertical Datum of 1929. Prior to Oct. 5, 1949, nonrecording gage 0.3 mi upstream and Oct. 5, 1949, to July 16, 1959, nonrecording gage and crest-stage gage at present site; both at datum 1.0 ft higher. July 17, 1959, to Sept. 1, 1971, recording gage at site 500 ft downstream at present datum.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 7 to Mar. 14. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--44 years, 138 ft³/s, 99,980 acre-ft/yr; median of yearly mean discharges, 97 ft³/s, 70,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,000 ft³/s, Apr. 9, 1944, gage height, 20.9 ft, from floodmarks, site and datum then in use, from rating curve extended above 12,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1944, 1946, 1948-51, 1955-66, 1968-71, 1974-75, 1978-81, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 7	1745	*6,000	a*13.09	May 27	0200	3,380	8.95
Mar. 21	0215	2,510	7.75	May 29	1515	1,850	6.73
Apr. 3	1015	3,070	8.53				

a Backwater from ice.
Minimum daily discharge, 9.2 ft³/s, Sept. 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	221	40	27	23	27	21	1390	48	442	20	30	66
2	181	37	26	22	26	21	2280	44	282	20	107	51
3	166	35	26	22	26	22	2920	60	236	20	88	39
4	155	33	25	21	26	22	2610	68	171	26	77	39
5	148	31	24	21	26	23	2380	97	128	37	50	32
6	302	29	24	21	27	50	2300	71	101	49	31	25
7	381	25	23	20	29	4000	2220	61	72	24	30	22
8	224	20	22	21	30	3500	1600	57	60	24	38	23
9	159	18	21	22	30	1300	1030	51	52	20	72	93
10	119	17	20	22	29	700	688	47	49	16	60	259
11	95	16	21	20	28	370	499	41	45	15	36	145
12	77	16	21	19	28	300	388	37	39	16	442	91
13	66	16	21	18	27	250	313	36	35	17	444	65
14	57	17	22	17	26	220	257	33	31	18	173	51
15	52	20	22	16	26	200	212	31	28	17	116	41
16	47	22	22	16	26	177	181	27	24	15	74	33
17	43	22	22	17	25	163	156	33	22	26	51	29
18	40	23	22	18	25	138	135	32	21	31	39	25
19	37	24	23	18	25	166	118	50	20	29	34	21
20	36	25	23	18	25	520	101	93	156	18	29	19
21	34	27	24	17	24	2260	90	158	108	15	24	18
22	33	30	24	17	24	1120	80	569	78	15	21	16
23	34	31	24	17	23	616	70	937	50	35	22	14
24	34	32	25	17	22	509	62	897	38	21	20	13
25	33	31	25	17	22	424	57	504	30	15	19	13
26	32	30	25	19	21	283	56	350	28	18	20	11
27	31	30	25	21	21	263	52	1320	29	20	22	11
28	33	29	24	23	20	274	48	522	25	16	20	11
29	33	29	24	25	---	182	44	1330	23	13	20	9.5
30	51	28	24	26	---	194	41	1370	21	12	16	9.2
31	44	---	23	27	---	294	---	808	---	12	33	---
TOTAL	2998	783	724	618	714	18582	22378	9782	2444	650	2258	1294.7
MEAN	96.7	26.1	23.4	19.9	25.5	599	746	316	81.5	21.0	72.8	43.2
MAX	381	40	27	27	30	4000	2920	1370	442	49	444	259
MIN	31	16	20	16	20	21	41	27	20	12	16	9.2
AC-FT	5950	1550	1440	1230	1420	36860	44390	19400	4850	1290	4480	2570

CAL YR 1986	TOTAL	115235.60	MEAN	316	MAX	10200	MIN	.00	AC-FT	228600
WTR YR 1987	TOTAL	63225.7	MEAN	173	MAX	4000	MIN	9.2	AC-FT	125400

06360500 MOREAU RIVER NEAR WHITEHORSE, SD

LOCATION.--Lat 45°15'21", long 100°50'33", in SW¼SE¼ sec.17, T.15 N., R.27 E., Dewey County, Hydrologic Unit 10130306, on left bank 30 ft downstream from bridge, 2.4 mi southeast of Whitehorse, 8.8 mi downstream from Little Moreau River, and 16.3 mi southeast of town of Timber Lake.

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

WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder. Datum of gage is 1,661.48 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 24, 1954, nonrecording gage at same site and datum. National Weather Service telemeter and U.S. Army Corps of Engineers satellite data-collection platform at station.

REMARKS.--Records fair except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 7 to Mar. 14.

AVERAGE DISCHARGE.--33 years, 225 ft³/s, 163,000 acre-ft/yr; median of yearly mean discharges, 140 ft³/s, 101,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,700 ft³/s, May 24, 1982, gage height, 26.00 ft; maximum gage height, 26.20 ft, Mar. 14, 1972, backwater from ice; no flow at times each year.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 9	1745	9,000	a*24.20	May 24	0545	8,150	14.98
Mar. 23	0445	*21,200	23.79	May 27	0400	8,000	14.83
Apr. 3	1600	11,400	17.94	May 31	1830	1,910	6.49

a Backwater from ice.
Minimum daily discharge, 12 ft³/s, Sept. 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1330	37	38	39	43	36	4430	237	1530	67	37	19
2	749	38	38	38	43	36	6330	253	1010	53	51	18
3	513	37	38	37	42	35	5390	245	677	40	423	17
4	367	40	38	36	40	35	6760	506	472	33	385	17
5	283	51	37	35	40	35	7910	679	362	27	239	15
6	251	50	37	34	44	34	6870	543	313	24	173	14
7	222	45	36	33	46	35	5110	367	254	22	125	33
8	187	35	36	33	47	300	3730	283	201	20	105	44
9	378	30	35	33	47	7000	2970	212	162	24	88	39
10	433	25	35	35	46	8120	2130	151	150	22	64	40
11	307	20	36	35	44	5980	1470	132	134	20	51	41
12	234	19	36	33	42	4180	1100	108	114	19	48	34
13	181	18	37	32	40	3100	835	115	95	18	42	250
14	150	18	39	28	40	1560	674	90	79	18	47	149
15	123	19	40	27	40	733	574	80	64	17	436	113
16	104	19	39	28	40	567	502	73	56	17	436	85
17	92	20	39	29	40	462	569	64	60	15	257	64
18	81	20	38	30	41	410	488	56	48	15	199	50
19	73	21	37	30	42	363	413	99	43	15	147	43
20	66	22	37	30	42	2140	380	204	114	14	101	39
21	62	24	38	29	41	8640	331	445	915	49	70	34
22	55	27	38	28	40	17800	327	727	1180	71	66	29
23	53	30	39	28	40	18700	341	961	603	67	59	27
24	47	32	39	30	39	10500	303	5640	415	62	49	22
25	46	36	40	33	38	5880	298	3770	370	58	39	20
26	46	40	40	36	38	2880	304	2920	226	74	37	18
27	44	42	40	40	37	2080	262	4460	143	79	34	16
28	42	42	41	40	36	1550	249	1260	110	93	31	14
29	42	40	41	43	---	1140	230	1460	98	60	27	14
30	41	40	41	45	---	928	219	1040	90	43	23	12
31	40	---	40	45	---	1010	---	1620	---	33	20	---
TOTAL	6642	937	1183	1052	1158	106269	61499	28800	10088	1189	3909	1330
MEAN	214	31.2	38.2	33.9	41.4	3428	2050	929	336	38.4	126	44.3
MAX	1330	51	41	45	47	18700	7910	5640	1530	93	436	250
MIN	40	18	35	27	36	34	219	56	43	14	20	12
AC-FT	13170	1860	2350	2090	2300	210800	122000	57120	20010	2360	7750	2640

CAL YR 1986 TOTAL 258345.58 MEAN 708 MAX 13600 MIN .00 AC-FT 512400
WTR YR 1987 TOTAL 224056 MEAN 614 MAX 18700 MIN 12 AC-FT 444400

06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued

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.

REMARKS.--No flow Oct. 1-26, Dec. 3 to Jan. 7, Feb. 9-25. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, U.S. Army Corps of Engineers, Omaha, NE. Some trace element data were not available from the laboratory at publication time.

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 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	ALKA-LINITY WH WAT TOTAL 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, DIS-SOLVED (PER-CENT SATUR-ATION)
NOV											
18...	1300	20	2950	8.03	338	-5.0	1.5	7.4	715	12.4	95
JAN											
13...	1300	31	3870	7.93	359	13.5	0.5	9.0	715	11.2	84
APR											
07...	1340	5160	727	7.02	--	18.5	17.0	120	728	10.1	110
MAY											
06...	0930	417	1060	8.02	118	12.5	17.0	980	728	8.2	89
JUL											
01...	1200	66	1660	8.87	152	24.0	22.5	20	716	9.8	121
SEP											
15...	1225	114	2110	8.41	218	20.0	20.0	68	716	8.2	97

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L. AS CACO3)
NOV											
18...	K8	K53	560	220	120	63	490	65	9	11	362
JAN											
13...	K8	45	600	240	97	87	560	67	10	9.0	407
APR											
07...	860	K20	140	70	33	14	130	65	5	7.5	157
MAY											
06...	K2100	K1700	250	130	58	25	140	54	4	8.2	152
JUL											
01...	K37	150	340	190	84	32	240	60	6	11	181
SEP											
15...	K1500	750	280	64	60	32	380	74	10	9.6	230

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
NOV											
18...	1300	28	0.40	8.8	2240	2200	3.0	123	<0.010	<0.100	--
JAN											
13...	1500	44	0.40	5.8	2560	2500	3.5	212	<0.010	2.80	--
APR											
07...	250	4.6	0.20	6.1	558	490	0.76	7770	0.020	0.490	0.470
MAY											
06...	390	14	0.30	7.2	766	710	1.0	862	0.020	0.650	0.630
JUL											
01...	680	14	0.30	7.8	1240	1200	1.7	221	<0.010	<0.100	--
SEP											
15...	890	12	0.40	4.2	1540	1500	2.1	474	<0.010	<0.100	--

06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
NOV 18...	0.020	0.040	0.03	0.60	0.040	0.020	<0.010	<10	2	100
JAN 13...	0.050	0.020	0.06	0.60	0.030	0.120	--	<10	<1	<100
APR 07...	0.030	0.500	0.04	1.3	3.70	0.050	<0.010	30	1	35
MAY 06...	0.130	0.100	0.17	4.7	0.750	0.050	<0.010	20	2	31
JUL 01...	0.070	0.060	0.09	1.1	0.120	0.030	<0.010	20	1	49
SEP 15...	<0.010	0.020	--	1.4	0.020	0.010	<0.010	--	--	--

DATE	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)
NOV 18...	<10	<1	<1	<1	7	20	<5	260	70	0.1
JAN 13...	<10	<1	<1	<1	3	20	<5	320	30	14
APR 07...	<0.5	<1	<1	<3	5	73	<5	34	7	<0.1
MAY 06...	<0.5	<1	<1	<3	7	15	6	120	2	<0.1
JUL 01...	<0.5	<1	<1	<3	8	5	<5	180	<1	<0.1
SEP 15...	--	--	--	--	--	--	--	--	--	--

DATE	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 18...	8	5	2	<1	1600	1	<10	--	--	--
JAN 13...	8	4	2	<1	1700	<1	10	--	--	--
APR 07...	<10	4	<1	1	370	<6	6	3200	44600	100
MAY 06...	<10	6	2	<1	650	<6	5	--	--	--
JUL 01...	<10	5	2	<1	920	<6	4	102	18	90
SEP 15...	--	--	--	--	--	--	--	203	62	98

06395000 CHEYENNE RIVER AT EDGEMONT, SD

LOCATION.--Lat 43°18'20", long 103°49'14", in SW¼SE¼SE¼ 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, 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 National Geodetic Vertical Datum of 1929. Prior to Dec. 1, 1906, nonrecording gage 20 ft upstream at datum 0.7 ft lower. Apr. 11, 1928, to Feb. 28, 1933, Oct. 4, 1946, to Oct. 23, 1947, and Jan. 11, 1961, to Apr. 24, 1963, nonrecording gage, and Oct. 24, 1947, to Jan. 10, 1961, and Apr. 25, 1963, to Sept. 30, 1972, water-stage recorder all at present site at datum 2.00 ft higher.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 10 to Mar. 5 and June 25 to July 7. Many small reservoirs above station used for stock and irrigation water, total capacity, about 45,000 acre-ft. Several observations of water temperature and specific conductance were made during the year. U.S. Bureau of Reclamation satellite data-collection platform at station.

AVERAGE DISCHARGE.--45 years, 96.4 ft³/s, 69,840 acre-ft/yr; median of yearly mean discharges, 80 ft³/s, 58,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,000 ft³/s, May 20, 1978, gage height, 13.65 ft, present datum; no flow at times most years.

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.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 8	0700	2,550	*6.24	No other peak greater than base discharge.			

Minimum daily discharge, 0.68 ft³/s, Sept. 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	44	28	30	26	46	119	38	195	40	2.9	4.1
2	109	43	23	22	22	55	124	30	133	45	2.2	3.6
3	435	42	23	26	22	56	137	33	111	40	5.0	3.0
4	667	40	20	27	21	65	255	66	89	55	4.2	3.1
5	1270	41	20	26	19	90	203	166	77	70	2.9	3.2
6	1030	39	24	27	23	332	171	128	63	50	2.5	2.8
7	452	46	26	26	28	1800	153	107	55	40	2.4	5.1
8	263	44	24	24	28	2240	149	74	46	34	1.8	4.8
9	198	12	23	22	33	1580	140	66	186	35	12	7.3
10	165	10	22	22	37	765	129	57	497	32	15	7.7
11	142	9.0	21	27	37	488	119	51	435	25	8.8	6.1
12	117	9.0	22	32	42	541	119	47	266	21	5.4	5.5
13	101	10	24	35	43	470	116	40	187	20	5.3	5.3
14	92	15	27	30	45	380	111	37	159	18	4.3	5.8
15	85	26	27	24	43	334	105	33	191	17	4.2	6.1
16	80	28	27	21	38	271	97	31	187	15	3.6	5.8
17	75	27	27	19	38	228	92	32	167	13	3.2	5.5
18	70	24	24	22	38	208	82	32	109	13	3.1	5.3
19	65	24	22	22	43	192	78	34	87	12	3.2	4.8
20	100	27	21	22	45	177	79	125	71	10	3.6	3.6
21	74	28	22	24	48	158	73	105	65	9.4	3.2	2.9
22	70	32	24	24	47	144	68	88	53	8.2	4.3	2.6
23	66	32	25	23	48	141	66	75	47	7.2	4.4	2.0
24	64	32	28	24	54	136	64	115	47	6.1	4.2	1.6
25	63	33	25	24	51	131	62	209	50	5.8	4.3	1.4
26	56	28	24	28	46	127	57	174	50	5.4	4.0	1.2
27	54	26	25	32	46	127	50	134	45	4.9	3.4	1.0
28	52	32	23	33	46	117	49	187	45	4.5	4.1	.71
29	52	28	24	33	---	119	49	252	40	4.3	4.9	.68
30	49	33	26	33	---	113	44	279	40	4.3	6.2	.72
31	47	---	30	32	---	113	---	180	---	4.2	5.3	---
TOTAL	6262	864.0	751	816	1057	11744	3160	3025	3793	669.3	143.9	113.31
MEAN	202	28.8	24.2	26.3	37.8	379	105	97.6	126	21.6	4.64	3.78
MAX	1270	46	30	35	54	2240	255	279	497	70	15	7.7
MIN	47	9.0	20	19	19	46	44	30	40	4.2	1.8	.68
AC-FT	12420	1710	1490	1620	2100	23290	6270	6000	7520	1330	285	225

CAL YR 1986	TOTAL	44616.6	MEAN	122	MAX	2620	MIN	2.0	AC-FT	88500
WTR YR 1987	TOTAL	32398.51	MEAN	88.8	MAX	2240	MIN	.68	AC-FT	64260

06400000 HAT CREEK NEAR EDGEMONT, SD

LOCATION.--Lat 43°14'24", long 103°35'16", in SW¼SE¼NE¼ 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 (revised) 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 National Geodetic Vertical Datum of 1929. Nonrecording gage Apr. 8, 1905, to May 2, 1906, at site 0.6 mi downstream and May 3 to July 7, 1906, at site 0.4 mi upstream at different datum. Nov. 6, 1950, to May 1, 1951, and July 18 to Sept. 7, 1975, nonrecording gage and May 2, 1951, to July 17, 1975, recording gage, at site 0.4 mi downstream at present datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 7-18, Dec. 4-9, Jan. 16-28, Feb. 4-6, and Mar. 8-9. 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. Several observations of water temperature and specific conductance were made during the year. Results of discharge measurements, in cubic feet per second, of Lander ditch during water year 1987 are given herewith:

Oct. 8	0	Mar. 11	0	June 3	0.07 (est.)
Dec. 10	0	Apr. 9	2.89	July 7	1.39
Jan. 20	0	May 6	3.11	Aug. 12	0
Feb. 25	0				

AVERAGE DISCHARGE.--38 years, 18.8 ft³/s, 13,620 acre-ft/yr; median of yearly mean discharges, 13 ft³/s, 9,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft³/s, June 16, 1967, gage height, 13.35 ft, from rating curve extended above 2,600 ft³/s on basis of slope-area measurement at 11.98 ft; maximum gage height, 14.16 ft, June 11, 1986; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 7	1430	*312	*10.45				

No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	4.2	7.0	5.9	8.1	4.7	40	4.0	40	.66	.00	.00
2	5.5	4.1	6.6	5.7	8.2	4.3	49	4.7	33	.45	.03	.00
3	18	4.1	5.2	6.1	8.2	5.2	37	5.6	27	.29	.00	.00
4	24	4.0	5.0	6.0	8.0	17	33	5.7	22	.31	.01	.00
5	30	4.3	4.5	6.0	7.5	47	28	11	18	.25	.00	.00
6	19	4.1	4.0	6.5	8.0	97	24	17	15	.13	.00	.00
7	22	4.5	4.5	6.5	12	192	25	9.7	13	.21	.01	.00
8	12	4.0	4.5	6.3	21	100	22	8.8	11	.21	.03	.00
9	8.1	3.5	4.5	6.1	17	70	14	7.4	11	.38	.02	.00
10	5.8	3.0	4.4	6.4	17	47	12	7.4	11	.63	.01	.00
11	4.3	2.5	5.7	6.8	16	50	9.4	6.7	9.0	.42	.01	.00
12	4.2	2.0	5.2	7.1	14	51	14	6.4	7.5	.21	.00	.00
13	4.1	2.0	4.9	7.1	11	40	12	5.3	6.2	.13	.00	.00
14	3.5	2.0	4.6	6.9	12	45	13	3.9	8.3	.07	.00	.00
15	8.5	2.5	4.5	6.5	14	79	15	3.6	9.5	.04	.00	.00
16	11	2.5	4.4	5.5	18	113	11	3.6	10	.04	.00	.00
17	8.7	3.0	4.4	4.5	13	106	10	3.5	8.9	.01	.00	.00
18	7.1	3.5	4.3	4.0	13	100	10	2.8	7.2	.05	.00	.00
19	5.4	3.9	4.5	4.5	15	93	9.2	2.4	5.0	.07	.00	.00
20	24	4.2	4.8	4.5	8.1	113	9.9	5.0	29	14	.00	.00
21	7.9	9.4	4.9	5.0	7.7	108	8.1	17	12	5.1	.00	.00
22	4.8	23	5.3	5.0	7.3	87	5.9	26	42	1.2	.00	.00
23	12	22	5.2	4.5	5.0	84	5.0	18	24	.21	.00	.00
24	44	18	5.6	4.5	4.3	84	7.8	37	10	.05	.00	.00
25	29	12	5.7	4.0	4.6	70	5.3	35	5.9	.03	.00	.00
26	34	10	5.6	5.0	4.1	50	4.7	48	3.5	.00	.00	.00
27	17	10	5.8	6.0	3.9	45	6.4	42	2.0	.01	.00	.00
28	9.3	8.6	5.7	6.5	5.1	47	6.1	31	1.2	.01	.00	.00
29	7.0	7.7	5.6	7.5	---	48	5.2	33	1.0	.01	.00	.00
30	5.6	6.5	5.9	7.5	---	41	4.7	32	.91	.00	.00	.00
31	4.6	---	6.0	8.2	---	40	---	35	---	.02	.00	---
TOTAL	401.8	195.1	158.8	182.6	291.1	2078.2	456.7	478.5	404.11	25.20	.12	.00
MEAN	13.0	6.50	5.12	5.89	10.4	67.0	15.2	15.4	13.5	.81	.00	.00
MAX	44	23	7.0	8.2	21	192	49	48	42	14	.03	.00
MIN	1.4	2.0	4.0	4.0	3.9	4.3	4.7	2.4	.91	.00	.00	.00
AC-FT	797	387	315	362	577	4120	906	949	802	50	.2	.00

CAL YR 1986	TOTAL	15352.74	MEAN	42.1	MAX	1640	MIN	.07	AC-FT	30450
WTR YR 1987	TOTAL	4672.23	MEAN	12.8	MAX	192	MIN	.00	AC-FT	9270

06400497 CASCADE SPRINGS NEAR HOT SPRINGS, SD

LOCATION.--Lat 43°20'10", long 103°33'07", in SE¼SW¼ 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 8.5 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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are fair. Estimated daily discharges during water year: Jan. 24 to Feb. 8 and Mar. 13-24. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--11 years, 20.4 ft³/s, 14,780 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49 ft³/s, July 4, 1977, gage height, 6.25 ft; minimum daily, 16 ft³/s, Mar. 16, 1981.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	22	21	21	20	19	22	21	22	22	22	21
2	22	22	21	21	20	19	22	21	22	23	22	21
3	22	22	21	21	20	19	22	21	22	23	21	21
4	22	22	21	21	20	19	23	21	22	23	21	21
5	22	22	21	21	21	19	22	22	22	23	21	21
6	22	21	21	21	21	19	21	22	22	23	21	21
7	22	21	21	21	21	19	21	22	22	23	21	21
8	22	21	21	21	21	18	20	22	22	23	21	21
9	22	21	21	21	22	18	21	22	22	23	21	21
10	22	21	21	21	21	18	21	22	22	23	21	21
11	22	21	21	20	21	18	21	22	22	23	21	21
12	22	21	21	21	21	20	21	22	22	22	21	21
13	22	21	21	21	21	20	21	22	23	22	21	21
14	22	21	21	21	21	20	21	22	22	22	21	22
15	22	21	21	21	21	20	21	22	22	22	21	21
16	22	21	21	21	21	20	21	22	22	22	21	21
17	22	21	21	21	21	20	21	22	22	22	21	21
18	22	21	21	20	21	20	21	22	22	22	22	21
19	22	21	21	20	21	20	21	22	22	22	22	21
20	22	21	21	20	21	20	21	22	22	22	22	21
21	22	21	21	20	21	21	21	21	22	22	22	21
22	22	21	21	20	20	21	21	22	23	22	22	21
23	22	21	21	20	21	21	21	22	22	22	22	21
24	22	21	21	20	20	22	21	22	23	22	21	21
25	22	21	21	20	20	22	21	22	23	22	21	21
26	22	21	21	20	20	23	22	22	23	22	21	21
27	22	21	21	20	19	23	22	22	23	22	21	21
28	22	21	21	20	19	22	22	22	23	22	21	21
29	22	21	21	20	---	21	21	22	23	22	21	21
30	22	21	21	20	---	21	21	22	23	22	21	21
31	22	---	21	20	---	22	---	22	---	21	21	---
TOTAL	682	635	651	636	577	624	638	677	669	691	659	631
MEAN	22.0	21.2	21.0	20.5	20.6	20.1	21.3	21.8	22.3	22.3	21.3	21.0
MAX	22	22	21	21	22	23	23	22	23	23	22	22
MIN	22	21	21	20	19	18	20	21	22	21	21	21
AC-FT	1350	1260	1290	1260	1140	1240	1270	1340	1330	1370	1310	1250

CAL YR 1986	TOTAL	7746	MEAN	21.2	MAX	23	MIN	20	AC-FT	15360
WTR YR 1987	TOTAL	7770	MEAN	21.3	MAX	23	MIN	18	AC-FT	15410

06400875 HORSEHEAD CREEK AT OELRICHS, SD

LOCATION.--Lat 43°11'17", long 103°13'34", in SW¼SW¼SW¼ 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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 12 to Jan. 19, Feb. 7 to Mar. 12, and Mar. 29-31. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,620 ft³/s, June 11, 1986, gage height, 17.23 ft, no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 322 ft³/s at 0415 hours, Apr. 2, gage height, 6.94 ft; no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.17	.05	.20	.00	.10	97	2.9	1.3	.16	.00	.00
2	.00	.17	.05	.20	.00	.10	265	1.9	.98	.08	.00	.00
3	.01	.18	.05	.20	.00	.15	161	1.9	.32	.05	.00	.00
4	.03	.00	.05	.20	.00	.15	112	1.9	.28	.01	.00	.00
5	.51	.00	.05	.25	.00	.50	115	1.9	.27	.00	.00	.00
6	.40	.00	.10	.25	.02	1.0	127	1.2	.17	.11	.00	.00
7	.28	.04	.15	.20	.10	6.0	102	1.1	.36	.00	.00	.00
8	.19	.05	.20	.20	.15	5.0	89	.96	.32	.00	.00	.00
9	.13	.03	.20	.20	.15	2.5	74	.88	.36	.00	.00	.00
10	.05	.04	.15	.20	.20	3.0	62	.73	.54	.00	.00	.00
11	.00	.05	.15	.25	.20	5.0	52	.56	1.0	.00	.00	.00
12	.00	.05	.15	.30	.20	6.0	39	.45	1.7	.00	.00	.00
13	.00	.05	.15	.35	.20	8.2	19	.37	2.6	.00	.00	.00
14	.00	.05	.20	.35	.15	8.2	11	.27	2.7	.00	.00	.00
15	.00	.05	.20	.30	.15	8.4	8.8	.24	2.5	.00	.00	.00
16	.00	.10	.20	.25	.20	14	6.8	.27	2.4	.00	.00	.00
17	.00	.10	.20	.25	.15	17	4.6	.14	2.2	.00	.00	.00
18	.00	.05	.20	.30	.20	19	4.6	.24	3.2	.00	.00	.00
19	.00	.05	.20	.35	.20	23	4.1	.68	2.6	.00	.00	.00
20	.02	.05	.15	.35	.20	30	2.8	2.2	3.1	.00	.00	.00
21	.05	.10	.15	.33	.20	42	4.2	7.0	3.5	.00	.00	.00
22	.07	.10	.15	.03	.20	52	5.3	5.8	2.4	.00	.00	.00
23	.13	.10	.15	.03	.15	32	5.5	3.2	1.6	.00	.00	.00
24	.16	.10	.20	.04	.10	34	5.8	2.3	1.2	.00	.00	.00
25	.13	.10	.15	.07	.10	35	5.5	2.0	1.0	.00	.00	.00
26	.14	.10	.15	.05	.05	29	4.9	2.1	.86	.00	.00	.00
27	.18	.10	.15	.04	.05	30	4.3	6.0	.69	.00	.00	.00
28	.19	.10	.20	.02	.05	33	4.4	3.8	.51	.00	.00	.00
29	.21	.10	.20	.01	---	35	4.6	1.9	.37	.00	.00	.00
30	.19	.10	.20	.00	---	40	3.8	1.7	.28	.00	.00	.00
31	.18	---	.20	.00	---	55	---	1.3	---	.00	.00	---
TOTAL	3.25	2.28	4.75	5.77	3.37	574.30	1405.0	57.89	41.31	.41	.00	.00
MEAN	.10	.08	.15	.19	.12	18.5	46.8	1.87	1.38	.01	.00	.00
MAX	.51	.18	.20	.35	.20	55	265	7.0	3.5	.16	.00	.00
MIN	.00	.00	.05	.00	.00	.10	2.8	.14	.17	.00	.00	.00
AC-FT	6.4	4.5	9.4	11	6.7	1140	2790	115	82	.8	.00	.00

CAL YR 1986	TOTAL	10690.59	MEAN	29.3	MAX	2920	MIN	.00	AC-FT	21200
WTR YR 1987	TOTAL	2098.33	MEAN	5.75	MAX	265	MIN	.00	AC-FT	4160

06401000 ANGOSTURA RESERVOIR NEAR HOT SPRINGS, SD

LOCATION.--Lat 43°20'35", long 103°26'16", in SW¼NW¼ 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 National Geodetic Vertical Datum of 1929. Prior to Aug. 26, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by concrete gravity dam with earth embankment with gated concrete gravity spillway section. Storage began Oct. 3, 1949; dam completed December 1949. Conservation capacity, 82,443 acre-ft between elevations 3,139.75 ft (invert of lowest outlet) and 3,187.2 ft (top of spillway gates). Dead storage below elevation 3,139.75 ft, 8,598 acre-ft. Figures given herein represent contents above elevation 3,139.75 ft. Water stored for irrigation.

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 121,250 acre-ft, Apr. 30 and May 31, elevation, 3,187.00 ft; minimum, 84,717 acre-ft, Sept. 30, elevation, 3,178.11 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,182.87	103,295	-
Oct. 31	3,185.45	114,288	+10,993
Nov. 30	3,185.41	114,112	-176
Dec. 31	3,185.13	112,887	-1,225
CAL YR 1986	-	-	+50,375
Jan. 31	3,185.66	115,213	+2,326
Feb. 28	3,186.77	120,198	+4,985
Mar. 31	3,186.98	121,158	+960
Apr. 30	3,187.00	121,250	+92
May 31	3,187.00	121,250	0
June 30	3,186.31	118,114	-3,136
July 31	3,182.81	103,047	-15,067
Aug. 31	3,179.08	88,313	-14,734
Sept. 30	3,178.11	84,717	-3,596
WTR YR 1987	-	-	-18,578

06401500 CHEYENNE RIVER BELOW ANGOSTURA DAM, SD

LOCATION.--Lat 43°20'42", long 103°26'12", in NE¼NW¼NW¼ 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 National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Oct. 17, 1946, nonrecording gage and Oct. 17, 1946, to July 7, 1953, water-stage recorder at site 4.8 mi downstream at different datum.

REMARKS.--Records good except for period of estimated record, which is fair. Estimated daily discharge during period: July 31. Flow regulated by Angostura Dam 800 ft upstream since October 1949. Several observations of water temperature and specific conductance were made during period. U.S. Bureau of Reclamation satellite data-collection platform at station.

AVERAGE DISCHARGE.--33 years (water years 1945-78), 78.5 ft³/s, 56,870 acre-ft/yr; median of yearly mean discharges, 52 ft³/s, 37,700 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, 2,650 ft³/s at 2345 hours, Mar. 8, gage height, 7.09 ft; minimum daily discharge, 1.8 ft³/s, Feb. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					1.8	153	231	51	188	5.3		
2					1.9	152	231	61	165	5.3		
3					1.9	147	382	92	111	5.1		
4					2.0	148	410	165	43	4.8		
5					1.9	136	395	173	36	4.8		
6					1.9	107	372	152	42	4.7		
7					2.0	252	339	124	2.8	4.9		
8					2.0	2160	370	73	3.2	4.5		
9					2.0	2480	319	61	32	4.3		
10					2.0	1300	284	44	147	4.0		
11					2.2	999	180	25	336	4.1		
12					2.2	820	217	19	480	4.4		
13					2.2	610	207	18	328	4.4		
14					2.3	596	161	20	208	3.9		
15					2.3	542	168	25	166	3.7		
16					2.3	543	138	19	161	4.5		
17					2.3	553	173	19	134	3.1		
18					112	466	125	19	113	3.3		
19					166	365	98	20	18	3.3		
20					166	522	119	26	6.2	3.2		
21					160	593	113	30	6.7	3.2		
22					163	283	104	18	7.6	3.2		
23					166	281	71	24	7.8	3.1		
24					159	375	53	87	8.0	3.0		
25					156	347	50	141	8.5	2.8		
26					155	301	49	368	8.5	2.9		
27					153	265	50	505	7.1	2.8		
28					153	232	51	107	5.6	2.8		
29					---	221	55	106	5.7	2.7		
30					---	210	53	185	5.7	2.6		
31					---	228	---	313	---	2.6		
TOTAL					1744.2	16387	5568	3090	2791.4	117.3		
MEAN					62.3	529	186	99.7	93.0	3.78		
MAX					166	2480	410	505	480	5.3		
MIN					1.8	107	49	18	2.8	2.6		
AC-FT					3460	32500	11040	6130	5540	233		

06402000 FALL RIVER AT HOT SPRINGS, SD

LOCATION.--Lat 43°25'50", long 103°28'33", in NW¼NW¼ 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 National Geodetic Vertical Datum of 1929. Prior to June 2, 1939, nonrecording gage at site 300 ft upstream at datum 3.00 ft higher.

REMARKS.--Records fair. Estimated daily discharges during water year: Mar. 30 to Apr. 8, June 27 to July 1, July 13-28, 31, Aug. 2, 10-17, 19-20, and Sept. 2-3. Flow regulated by dam forming Coldbrook Reservoir, capacity, 7,200 acre-ft, since September 1952, and dam forming Cottonwood Springs Lake, capacity, 8,385 acre-ft since June 1969. Some diversion above station for municipal supply of Hot Springs. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--50 years, 24.7 ft³/s, 17,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 161 ft³/s at 1845 hours, July 7, gage height, 3.33 ft; minimum daily discharge, 16 ft³/s, Nov. 11-12, Dec. 20.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	19	18	21	19	28	24	20	23	20	23	21
2	29	20	19	20	20	27	24	22	23	20	23	21
3	25	21	18	19	19	28	24	21	23	22	21	21
4	21	20	18	17	21	28	24	20	23	26	21	22
5	22	18	18	17	20	28	25	20	19	24	21	23
6	21	18	17	17	19	29	26	21	19	21	20	22
7	22	19	17	17	21	29	26	20	20	24	22	25
8	20	18	18	18	20	31	25	20	21	23	21	25
9	21	17	17	18	21	38	25	22	24	23	21	24
10	21	17	17	20	22	28	24	22	23	21	20	24
11	21	16	18	18	22	25	25	20	22	21	20	23
12	22	16	17	21	24	26	28	18	22	20	20	23
13	21	17	17	19	22	26	28	20	24	20	20	23
14	21	18	18	19	22	25	27	20	20	20	20	22
15	21	19	18	20	21	24	29	18	20	20	20	22
16	20	19	17	21	21	25	29	18	20	19	21	22
17	19	19	17	22	22	26	31	20	20	21	20	22
18	19	17	17	22	26	26	32	21	20	19	20	22
19	19	19	18	21	27	27	32	20	21	21	20	22
20	19	17	16	20	27	26	32	30	23	20	19	22
21	19	20	20	22	27	26	30	21	22	20	18	22
22	19	21	19	22	26	24	32	22	21	20	21	22
23	18	19	20	22	27	26	31	25	18	20	21	22
24	20	18	20	21	28	27	32	26	20	20	20	22
25	20	18	22	21	29	25	30	26	20	21	20	23
26	21	19	23	21	31	24	21	27	18	20	21	24
27	21	18	24	21	30	25	22	23	19	19	20	23
28	21	18	24	21	30	25	22	22	19	20	20	22
29	21	18	25	21	---	27	23	22	19	21	22	24
30	21	17	23	19	---	27	21	24	20	19	21	24
31	19	---	20	20	---	26	---	24	---	23	24	---
TOTAL	646	550	590	618	664	832	804	675	626	648	641	679
MEAN	20.8	18.3	19.0	19.9	23.7	26.8	26.8	21.8	20.9	20.9	20.7	22.6
MAX	29	21	25	22	31	38	32	30	24	26	24	25
MIN	18	16	16	17	19	24	21	18	18	19	18	21
AC-FT	1280	1090	1170	1230	1320	1650	1590	1340	1240	1290	1270	1350

CAL YR 1986	TOTAL	7763	MEAN	21.3	MAX	38	MIN	16	AC-FT	15400
WTR YR 1987	TOTAL	7973	MEAN	21.8	MAX	38	MIN	16	AC-FT	15810

06402500 BEAVER CREEK NEAR BUFFALO GAP, SD

LOCATION.--Lat 43°28'00", long 103°18'20", in NE¼SE¼ 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 National Geodetic Vertical Datum of 1929, from topographic map. Prior to June 20, 1939, nonrecording gage at site 0.8 mi downstream at different datum.

REMARKS.--Records good. Estimated daily discharges during water year: Nov. 10-14, Dec. 10-12, Jan. 10, 16, 17, 22, and Feb. 4, 5, 27. Nearly all flow is diverted above station during irrigation season. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--50 years, 7.12 ft³/s, 5,160 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft³/s, Sept. 4, 1938, gage height, 16.46 ft, site and datum then in use, from rating curve extended above 11 ft³/s on basis of slope-area measurement of peak flow; no flow at times in some years.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 24 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 27	0600	*56	*5.28	May 24	0600	26	4.70

Minimum daily discharge, 0.30 ft³/s, Aug. 10.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	9.6	11	7.8	8.9	9.6	13	5.3	12	6.2	4.7	5.7
2	11	9.4	11	7.8	8.9	9.4	13	4.3	12	4.5	4.8	5.7
3	13	9.4	11	7.8	8.9	9.6	13	3.2	11	4.5	3.8	5.7
4	11	9.5	11	7.8	8.5	10	12	2.5	11	4.7	.54	5.7
5	10	9.5	11	7.9	8.5	10	12	1.3	11	4.6	.43	6.0
6	10	9.6	11	7.9	9.2	9.8	12	1.1	11	4.5	.35	6.0
7	9.9	10	11	7.9	9.4	9.6	12	1.9	11	4.7	.41	6.4
8	9.9	9.9	11	8.0	9.3	9.3	12	2.5	11	4.7	.40	6.5
9	10	9.8	11	7.9	9.3	9.6	12	2.4	11	4.6	.37	6.3
10	10	10	10	7.5	9.2	9.4	10	1.4	12	4.6	.30	6.2
11	9.9	9.5	11	8.0	9.1	9.3	10	.96	11	4.6	1.4	6.2
12	9.9	9.5	9.5	8.3	9.2	9.2	11	.78	10	4.5	2.7	6.2
13	9.8	9.0	9.4	8.3	9.3	9.2	10	5.8	10	5.6	4.2	6.2
14	9.7	9.5	7.7	8.4	9.5	9.2	10	9.4	9.9	7.6	6.7	6.5
15	9.7	10	7.6	8.5	10	9.2	10	8.2	9.8	9.4	7.1	8.4
16	9.6	10	7.5	8.5	9.7	9.4	10	5.3	9.7	7.3	5.6	8.9
17	9.5	10	7.4	8.5	9.6	9.6	11	6.3	9.7	5.3	5.5	8.9
18	9.4	10	7.5	9.0	9.6	9.4	11	4.2	9.8	5.3	5.6	8.9
19	9.4	11	7.4	8.6	9.5	9.4	11	1.3	9.7	5.2	5.6	8.8
20	9.4	11	7.5	8.4	9.4	10	11	6.7	9.6	4.0	5.7	8.8
21	9.5	11	7.4	8.5	9.5	11	10	8.5	9.5	.52	5.4	8.8
22	9.9	11	7.5	8.5	9.5	13	10	7.2	9.4	.34	5.5	8.8
23	9.9	10	7.6	8.6	9.6	14	11	9.8	9.3	2.5	5.7	8.8
24	9.7	10	7.6	8.8	9.6	14	11	21	9.4	4.7	5.8	8.8
25	9.8	10	7.8	8.8	9.6	14	11	19	9.4	4.7	6.5	8.8
26	9.8	11	7.8	8.6	9.8	14	11	18	9.3	4.6	7.0	8.6
27	9.8	10	7.8	8.7	9.5	14	12	30	9.6	4.6	7.1	8.6
28	9.7	10	7.8	8.7	9.8	13	9.0	16	9.6	4.6	6.7	8.8
29	9.7	11	7.6	8.7	---	13	1.4	14	9.9	4.6	5.6	9.2
30	9.7	11	7.6	8.6	---	13	2.9	14	8.1	4.6	5.6	9.2
31	9.5	---	7.6	8.7	---	13	---	13	---	4.6	5.8	---
TOTAL	308.1	301.2	275.6	258.0	261.9	336.2	315.3	245.34	305.7	146.76	132.90	226.4
MEAN	9.94	10.0	8.89	8.32	9.35	10.8	10.5	7.91	10.2	4.73	4.29	7.55
MAX	13	11	11	9.0	10	14	13	30	12	9.4	7.1	9.2
MIN	9.4	9.0	7.4	7.5	8.5	9.2	1.4	.78	8.1	.34	.30	5.7
AC-FT	611	597	547	512	519	667	625	487	606	291	264	449

CAL YR 1986	TOTAL	3163.79	MEAN	8.67	MAX	22	MIN	.18	AC-FT 6280
WTR YR 1987	TOTAL	3113.40	MEAN	8.53	MAX	30	MIN	.30	AC-FT 6180

06403300 FRENCH CREEK ABOVE FAIRBURN, SD

LOCATION.--Lat 43°43'02", long 103°22'03", in SW¼SW¼NE¼ 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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 7-18, Dec. 3 to Jan. 29, Feb. 14-24, and Mar. 1-3. Flow regulated by dam forming Stockade Reservoir, capacity, 1,820 acre-ft, 21 mi upstream. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--5 years, 6.44 ft³/s, 4,670 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 329 ft³/s, Mar. 7, 1987, gage height, 2.73 ft; minimum daily, 0.25 ft³/s, July 13, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 329 ft³/s at 0545 hours, Mar. 7, gage height, 2.73 ft; minimum daily, 0.40 ft³/s, Aug. 6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	5.7	5.2	2.0	2.1	2.5	9.8	7.4	35	2.7	.55	.86
2	9.8	6.8	5.5	2.5	2.4	2.5	13	6.1	24	2.5	.50	.78
3	22	6.6	5.5	2.5	2.3	3.0	12	6.2	17	2.4	.45	.73
4	29	5.8	5.5	2.5	2.3	3.4	12	8.8	14	2.8	.42	.65
5	23	5.7	5.0	2.5	2.1	3.8	13	9.2	12	2.9	.46	.68
6	17	5.4	4.0	2.5	2.1	13	15	9.6	11	3.7	.40	.67
7	14	5.0	3.5	2.0	2.2	198	17	8.6	11	3.9	.52	.67
8	13	4.5	3.0	2.0	2.2	134	16	8.6	9.6	3.5	.65	.74
9	11	4.0	2.5	2.0	2.0	38	15	8.4	9.7	3.4	.55	.83
10	10	3.5	1.5	2.0	2.1	17	15	7.7	14	4.3	.51	.83
11	8.7	3.0	2.0	2.5	2.1	14	13	7.2	16	4.5	.42	.79
12	8.3	3.0	2.0	3.0	2.2	16	11	6.7	13	4.4	.42	.79
13	7.5	3.5	2.0	3.0	2.2	18	11	6.1	15	3.7	.51	.74
14	7.1	4.0	2.0	3.0	2.0	21	10	5.5	17	3.2	.86	.74
15	7.0	4.5	2.0	2.5	2.0	56	9.7	5.1	16	2.6	.54	.59
16	6.8	4.5	2.5	2.0	1.5	34	9.8	4.8	13	2.2	.49	.56
17	6.6	5.0	2.5	1.0	1.5	18	11	5.3	9.5	1.9	.46	.73
18	6.7	5.5	2.5	.50	2.0	12	12	6.1	8.5	1.8	.42	.68
19	6.5	5.9	2.0	1.0	1.5	9.5	11	7.9	7.9	1.6	.42	.56
20	6.6	6.1	2.5	1.0	1.5	15	11	8.3	6.7	1.5	.44	.56
21	6.7	6.7	2.5	1.0	1.5	19	11	9.4	5.4	1.4	.46	.56
22	6.6	7.0	2.5	1.0	1.5	12	11	11	4.6	1.2	.48	.56
23	6.7	6.1	2.5	.50	1.5	10	11	10	4.1	1.1	.56	.56
24	7.5	6.9	2.5	1.0	1.5	9.4	9.8	9.6	3.8	1.1	.56	.56
25	7.2	6.6	2.5	1.5	1.9	9.4	9.4	18	3.7	1.1	.52	.53
26	6.7	6.0	2.5	2.0	2.1	9.4	9.5	28	3.5	.99	.55	.56
27	6.5	6.2	2.5	2.0	2.6	9.4	9.5	30	3.2	.90	.76	.56
28	6.1	5.5	2.5	2.5	2.7	13	8.6	28	3.1	.83	.85	.48
29	5.7	5.1	2.5	2.5	---	21	8.3	22	2.8	.78	.92	.46
30	5.7	5.0	2.5	2.1	---	14	8.0	21	2.6	.73	.88	.46
31	5.7	---	2.5	2.1	---	12	---	36	---	.65	.86	---
TOTAL	299.9	159.1	90.7	60.20	55.6	767.3	343.4	366.6	316.7	70.28	17.39	19.47
MEAN	9.67	5.30	2.93	1.94	1.99	24.8	11.4	11.8	10.6	2.27	.56	.65
MAX	29	7.0	5.5	3.0	2.7	198	17	36	35	4.5	.92	.86
MIN	5.7	3.0	1.5	.50	1.5	2.5	8.0	4.8	2.6	.65	.40	.46
AC-FT	595	316	180	119	110	1520	681	727	628	139	34	39

CAL YR 1986	TOTAL	1886.51	MEAN	5.17	MAX	37	MIN	.60	AC-FT	3740
WTR YR 1987	TOTAL	2566.64	MEAN	7.03	MAX	198	MIN	.40	AC-FT	5090

06404000 BATTLE CREEK NEAR KEYSTONE, SD

LOCATION.--Lat 43°52'21", long 103°20'10", in SW¼SW¼ sec.18, T.2 S., R.7 E., Pennington County, Hydrologic Unit 10120109, at right downstream end county highway bridge, 0.6 mi downstream from Iron Creek, and 4.5 mi southeast of Keystone.

DRAINAGE AREA.--66 mi².

PERIOD OF RECORD.--July 1945 to July 1947, October 1961 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,800 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Nov. 13, 1961, nonrecording gage at site 250 ft downstream at different datum and Nov. 13 to Dec. 5, 1961, at same site at present datum. Dec. 6, 1961, to June 9, 1972, water-stage recorder at site 210 ft downstream at present datum (destroyed by flood); June 10 to Nov. 20, 1972, nonrecording gage 180 ft downstream at present datum; Nov. 21, 1972, to Nov. 27, 1973, water-stage recorder at present site and datum; Nov. 28, 1973, to Nov. 7, 1974, nonrecording gage 180 ft downstream at present datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 7-15, 18-20, 23, 26, Dec. 3, 4, 8, 10, Jan. 1, 7-9, 14-17, 22-25, Feb. 5, 6, 16-18, 20, 23, 24, Feb. 26 to Mar. 2, and Mar. 10, 28-30. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--27 years (water years 1946, 1962-87), 8.63 ft³/s, 6,250 acre-ft/yr; median of yearly mean discharges, 6.8 ft³/s, 4,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,200 ft³/s, June 9, 1972, gage height, 14.5 ft, from floodmarks, site then in use, from rating curve extended above 550 ft³/s on basis of slope-area measurement of peak flow; no flow for some days in 1961, 1962, 1970, 1974, 1976, 1980-87.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 3	1615	*75	*4.11				

No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	5.2	5.5	2.5	2.5	2.5	17	8.6	21	3.3	.00	.00
2	12	5.0	5.3	2.5	2.2	3.0	15	31	19	3.7	.00	.00
3	52	4.9	5.0	3.9	2.3	3.7	13	23	16	4.0	.00	.00
4	45	4.9	5.0	2.9	2.5	4.5	15	21	15	4.2	.00	.00
5	28	4.9	5.3	3.0	2.5	6.2	17	17	13	3.9	.00	.00
6	21	4.9	4.9	3.1	3.0	15	17	15	12	3.5	.00	.00
7	18	5.0	4.9	3.0	3.4	20	17	12	11	3.1	.22	.00
8	16	5.0	5.0	3.0	2.9	15	16	12	11	3.0	.40	.00
9	15	5.0	4.9	3.0	3.4	11	16	11	11	3.0	.09	.00
10	14	5.0	4.5	3.1	2.9	9.0	15	11	13	3.0	.00	.00
11	12	4.5	4.3	2.6	3.2	8.4	13	9.6	11	2.7	.00	.00
12	11	4.5	4.6	2.8	3.1	8.9	13	9.4	9.3	2.5	.00	.00
13	11	4.5	4.3	2.8	3.2	9.4	13	8.9	8.5	2.3	.00	.00
14	9.7	5.0	5.4	2.5	2.9	13	12	8.5	7.7	2.5	.16	.00
15	9.3	5.0	8.6	2.5	3.1	14	12	8.3	7.0	2.3	.09	.00
16	9.1	5.3	6.4	2.5	3.0	12	12	7.7	6.5	1.5	.00	.00
17	9.1	5.5	6.0	2.5	3.0	11	13	13	6.3	1.2	.00	.01
18	8.4	5.5	3.8	2.7	3.0	9.8	12	13	5.7	1.2	.00	.00
19	7.7	5.5	3.1	2.7	3.1	11	12	10	5.2	1.1	.00	.00
20	7.2	5.5	3.1	3.0	3.5	20	12	11	5.1	.87	.02	.00
21	7.2	5.9	2.9	2.7	3.5	18	11	16	4.8	.64	.00	.00
22	7.2	6.3	2.9	2.5	3.5	18	11	15	4.6	.40	.00	.00
23	7.9	6.0	2.6	2.5	3.5	18	11	13	4.2	.24	.00	.00
24	7.8	5.8	2.8	2.0	2.5	15	11	13	4.0	.26	.00	.00
25	6.8	5.7	3.0	2.0	2.4	17	9.7	25	3.9	.41	.01	.00
26	6.4	5.5	2.8	2.4	2.5	19	9.6	41	4.2	.20	.34	.00
27	6.0	5.5	2.7	2.1	2.5	16	9.1	53	3.8	.00	.59	.00
28	5.6	5.4	3.1	2.1	2.5	16	8.8	40	3.9	.00	.45	.00
29	5.5	5.2	3.2	2.2	---	16	8.5	31	4.0	.00	.26	.00
30	5.5	5.3	2.8	2.4	---	20	8.8	27	3.3	.00	.11	.00
31	5.2	---	3.0	2.2	---	15	---	25	---	.00	.00	---
TOTAL	394.6	157.2	131.7	81.7	81.6	395.4	380.5	560.0	255.0	55.02	2.74	.01
MEAN	12.7	5.24	4.25	2.64	2.91	12.8	12.7	18.1	8.50	1.77	.09	.00
MAX	52	6.3	8.6	3.9	3.5	20	17	53	21	4.2	.59	.01
MIN	5.2	4.5	2.6	2.0	2.2	2.5	8.5	7.7	3.3	.00	.00	.00
AC-FT	783	312	261	162	162	784	755	1110	506	109	5.4	.02

CAL YR 1986	TOTAL	2483.45	MEAN	6.80	MAX	70	MIN	.11	AC-FT	4930
WTR YR 1987	TOTAL	2495.47	MEAN	6.84	MAX	53	MIN	.00	AC-FT	4950

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

LOCATION.--Lat 43°45'40" long 103°21'49", in SW¼NE¼ 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.

GAGE.--Water-stage recorder. Elevation of gage is 4,100 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 9-14, Dec. 4, 9-10, Dec. 16 to Mar. 6, and Mar. 10-11, 29-30. Considerable losses in sinkholes downstream from gage. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--11 years, 3.02 ft³/s, 2,190 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 370 ft³/s, May 18, 1981, gage height, 9.49 ft; maximum gage height, 12.76 ft, Feb. 9, 1979, backwater from ice; no flow June 5-9, July 6, 8, 11, 19, 1977, for part of June 14, 1979, July 8, 28, 1985.

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.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 25 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 21	0645	*102	*8.45	No other peak greater than base discharge.			

Minimum daily discharge, 0.51 ft³/s, Aug. 22.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	3.9	3.0	2.0	3.0	1.0	7.1	7.1	12	2.6	1.0	1.0
2	5.0	3.5	3.1	2.0	2.5	1.0	6.3	11	9.9	3.8	1.1	.94
3	13	3.5	3.0	2.5	2.5	1.5	6.1	7.7	8.9	3.3	.67	1.0
4	13	3.4	2.5	2.5	2.0	2.0	6.3	7.6	8.4	3.5	.72	.96
5	11	3.4	2.8	2.0	2.5	3.0	7.0	6.6	7.7	3.5	1.1	1.1
6	9.1	3.4	2.8	1.5	2.5	4.0	6.9	5.7	7.1	2.9	1.4	1.1
7	8.4	4.1	2.8	1.5	3.0	6.2	6.6	5.1	6.7	2.7	1.7	.96
8	7.3	4.1	2.8	1.5	3.0	6.4	6.6	4.6	6.1	2.8	1.9	1.1
9	6.9	3.5	2.5	1.5	2.5	5.7	6.5	4.1	6.5	3.0	1.1	1.2
10	6.6	3.5	2.0	2.0	2.5	5.0	6.2	4.4	8.8	2.9	1.1	1.2
11	6.6	3.0	2.3	3.0	3.0	4.0	6.0	4.3	6.9	2.8	1.2	.86
12	5.9	2.5	2.5	3.5	3.0	4.0	5.9	3.7	5.8	2.7	1.1	.80
13	5.6	2.0	2.4	2.5	2.5	4.0	5.5	3.4	5.5	2.3	.86	.78
14	5.5	3.5	2.5	1.5	2.5	4.8	5.1	3.4	4.8	2.1	.65	.92
15	5.0	4.8	2.7	.90	2.5	5.3	5.1	3.1	4.3	2.2	.58	.71
16	4.9	3.7	2.5	.70	2.5	4.9	5.1	3.1	4.1	1.9	.60	.65
17	4.9	3.4	2.0	.90	2.0	4.7	5.2	4.6	4.3	1.6	.57	.67
18	4.8	3.4	1.5	1.0	2.0	4.4	5.0	4.4	4.3	1.6	.61	.72
19	4.6	3.4	1.5	1.0	2.0	4.4	5.0	4.1	4.2	1.6	.64	.73
20	4.6	3.7	1.5	1.0	2.0	8.1	4.6	4.7	4.0	1.4	.61	.73
21	4.6	3.7	2.0	1.0	2.0	11	4.1	6.1	3.8	1.4	.55	.73
22	4.3	3.7	2.0	1.0	1.5	6.6	4.2	4.7	3.4	1.3	.51	.72
23	4.8	2.6	2.0	1.5	1.5	6.5	4.1	4.2	3.0	1.3	.55	.73
24	5.8	3.5	2.0	2.0	1.5	6.4	4.1	4.0	2.8	1.2	.58	.79
25	4.4	2.2	2.0	2.5	1.5	6.1	3.9	8.0	2.9	1.3	.69	.97
26	4.1	3.0	2.0	2.5	1.5	6.0	3.8	12	2.6	1.1	.94	.80
27	4.1	2.7	2.0	3.0	1.0	6.5	3.8	14	2.4	1.1	1.2	.73
28	3.9	2.8	2.0	3.0	1.0	5.6	3.6	11	2.4	1.1	1.1	.69
29	3.7	3.1	2.0	3.0	---	5.0	3.5	13	2.4	1.3	1.1	.67
30	3.7	3.0	2.0	3.0	---	5.0	3.4	14	2.3	1.3	1.1	.68
31	3.8	---	1.5	3.0	---	6.0	---	14	---	1.3	1.2	---
TOTAL	183.6	100.0	70.2	60.50	61.5	155.1	156.6	207.7	158.3	64.9	28.73	25.64
MEAN	5.92	3.33	2.26	1.95	2.20	5.00	5.22	6.70	5.28	2.09	.93	.85
MAX	13	4.8	3.1	3.5	3.0	11	7.1	14	12	3.8	1.9	1.2
MIN	3.7	2.0	1.5	.70	1.0	1.0	3.4	3.1	2.3	1.1	.51	.65
AC-FT	364	198	139	120	122	308	311	412	314	129	57	51

CAL YR 1986	TOTAL	1058.39	MEAN	2.90	MAX	19	MIN	.02	AC-FT	2100
WTR YR 1987	TOTAL	1272.77	MEAN	3.49	MAX	14	MIN	.51	AC-FT	2520

06406000 BATTLE CREEK AT HERMOSA, SD

LOCATION.--Lat 43°49'41", long 103°11'44", in NE¼SW¼SW¼ sec.32, T.2 S., R.8 E., Custer County, Hydrologic Unit 10120109, on right bank 50 ft downstream from Chicago and North Western Transportation Company bridge, 0.8 mi south of Hermosa, and 2.9 mi downstream from Grace Coolidge Creek.

DRAINAGE AREA.--178 mi².

PERIOD OF RECORD.--August to December 1903 (gage heights only), July 1949 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,290 ft above National Geodetic Vertical Datum of 1929, from topographic map. Nonrecording gage, August to December 1903, at site 50 ft upstream, July 7, 1949, to Nov. 2, 1950, at site 0.5 mi upstream, Nov. 3, 1950, to Dec. 6, 1961, at site 170 ft downstream, all at different datum. Dec. 7, 1961, to June 10, 1972, water-stage recorder (destroyed by flood), and June 11, 1972, to Aug. 28, 1972, nonrecording gage at site 80 ft downstream at present datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 7-9, Dec. 11-13, and Jan. 14-20. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--38 years, 8.92 ft³/s, 6,460 acre-ft/yr; median of yearly mean discharges, 6.2 ft³/s, 4,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,400 ft³/s, June 10, 1972, gage height, 17.72 ft, 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; no flow at times in 1954-57, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 5	2130	*113	*4.18				

Minimum daily discharge, 3.7 ft³/s, Sept. 3.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	6.7	7.5	6.6	5.7	5.9	9.8	7.1	19	8.7	5.2	4.0
2	7.8	7.0	7.6	7.1	5.7	6.2	9.8	7.8	17	8.8	5.1	3.8
3	9.7	7.1	7.3	6.8	5.4	6.0	9.8	9.3	15	8.9	4.7	3.7
4	25	7.1	6.9	6.8	5.5	6.1	9.3	9.9	13	9.7	4.4	4.4
5	22	7.1	7.2	6.8	5.5	23	9.3	10	12	9.3	5.2	5.2
6	15	7.1	7.3	6.8	5.4	27	9.4	9.9	12	8.9	5.1	5.1
7	12	7.0	7.3	6.6	5.4	11	9.7	9.0	11	9.3	5.8	5.2
8	9.7	6.5	7.2	6.2	5.4	10	9.9	8.8	11	9.2	6.2	5.4
9	8.6	6.5	6.8	6.4	5.4	9.3	10	8.2	12	7.6	5.7	5.2
10	8.0	6.6	6.6	6.1	5.4	8.5	10	7.7	13	7.9	4.7	4.9
11	7.8	6.6	6.5	6.6	5.3	8.5	10	8.0	12	8.6	4.1	4.9
12	7.2	6.5	6.0	6.6	5.2	8.0	10	7.8	11	8.7	4.3	4.9
13	7.0	6.1	7.0	6.6	5.2	8.0	10	7.5	11	8.5	3.8	4.9
14	7.0	6.8	7.4	6.0	5.3	7.8	9.9	7.5	10	7.6	6.6	4.8
15	6.9	6.7	7.5	5.0	5.5	7.7	9.7	7.3	10	8.0	5.9	4.4
16	7.0	6.6	7.7	4.5	5.5	7.9	9.3	6.6	11	7.0	4.7	4.6
17	7.0	6.5	7.5	5.0	5.5	8.4	9.6	7.2	12	6.8	4.2	4.6
18	6.8	6.6	7.1	6.0	5.5	8.5	9.3	7.3	11	6.9	4.8	4.6
19	6.8	7.4	7.1	6.0	5.5	8.5	9.4	7.1	10	7.5	4.0	4.6
20	6.7	7.3	7.0	6.0	5.5	8.9	9.3	8.4	10	7.3	4.5	4.4
21	6.6	7.3	7.1	6.0	5.5	9.9	9.1	8.4	11	6.7	4.2	4.7
22	6.6	7.5	7.2	6.2	5.5	9.7	9.2	7.5	10	5.7	4.5	4.5
23	6.8	7.3	7.3	6.0	5.5	10	9.1	7.3	10	5.8	4.8	4.2
24	6.7	7.3	7.1	5.9	5.7	11	9.2	7.3	10	5.9	5.0	4.1
25	6.9	7.2	7.0	6.2	5.7	11	9.1	14	10	6.0	5.2	4.1
26	6.9	7.1	6.8	5.9	5.5	10	8.8	13	10	6.2	5.7	4.1
27	6.8	7.6	6.8	6.0	5.9	10	8.6	27	8.6	5.9	5.8	4.1
28	6.9	7.5	7.0	6.0	6.1	10	8.3	32	9.8	5.6	5.1	4.1
29	6.6	7.4	7.0	6.0	---	13	7.9	27	10	5.5	4.8	4.1
30	7.3	7.6	7.1	5.7	---	9.6	7.2	25	9.2	5.3	4.3	4.3
31	6.9	---	7.0	5.7	---	10	---	21	---	4.8	4.2	---
TOTAL	269.6	209.6	219.9	190.1	154.2	309.4	280.0	351.9	341.6	228.6	152.6	135.9
MEAN	8.70	6.99	7.09	6.13	5.51	9.98	9.33	11.4	11.4	7.37	4.92	4.53
MAX	25	7.6	7.7	7.1	6.1	27	10	32	19	9.7	6.6	5.4
MIN	6.6	6.1	6.0	4.5	5.2	5.9	7.2	6.6	8.6	4.8	3.8	3.7
AC-FT	535	416	436	377	306	614	555	698	678	453	303	270

CAL YR 1986	TOTAL	2300.9	MEAN	6.30	MAX	60	MIN	2.1	AC-FT	4560
WTR YR 1987	TOTAL	2843.4	MEAN	7.79	MAX	32	MIN	3.7	AC-FT	5640

06407900 SPRING CREEK NEAR ROCKERVILLE, SD

LOCATION.--Lat 43°58'45", long 103°20'46", in SW¼NE¼ sec.12, T.1 S., R.6 E., Pennington County, Hydrologic Unit 10120109, on right bank 0.5 mi above Deadman Creek tributary at bottom of Stratosphere Bowl.

DRAINAGE AREA.--163 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1986 to September 30, 1987.

GAGE.--Water-stage recorder. Elevation of gage is 3,885 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 7-9, 11, 14, 19, Dec. 10, 11, Feb. 15 to Mar. 5, and Mar. 27-30. Considerable loss in sinkholes in reach 1 to 5 mi downstream from station. Flow regulated by dam forming Sheridan Lake, capacity, 12,657 acre-ft, 11.2 mi upstream from station. Several observations of water temperature and specific conductance were made during the year. Recording rain gage at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 120 ft³/s, Apr. 29, 1987, gage height, 6.08 ft; minimum daily discharge, 0.06 ft³/s, Sept. 29, 30, 1987.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 120 ft³/s at 2115 hours, Apr. 29, gage height, 6.08 ft; minimum daily discharge, 0.06 ft³/s, Sept. 29, 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	9.0	9.0	3.5	4.0	3.0	20	67	41	10	3.4	3.3
2	17	8.8	8.0	3.6	3.7	3.0	20	56	37	11	3.3	3.2
3	29	9.0	7.2	4.0	3.3	3.5	22	50	35	11	3.1	3.3
4	28	8.9	6.3	4.2	3.5	5.0	23	45	36	11	3.5	3.1
5	26	8.5	7.0	3.6	4.3	8.0	25	41	33	11	3.3	3.0
6	24	8.6	6.0	3.5	4.7	17	25	34	31	11	3.1	1.4
7	24	7.5	6.4	3.4	4.7	35	26	9.0	29	11	3.6	.84
8	23	7.0	7.1	3.7	4.2	45	27	8.7	27	11	4.4	.58
9	26	7.5	4.8	3.8	4.4	45	29	11	26	11	3.4	.41
10	23	7.5	4.5	3.9	4.3	35	29	13	27	11	3.3	.31
11	21	7.0	3.5	4.1	4.3	26	28	16	23	11	3.1	.27
12	19	6.8	3.6	4.8	4.3	23	28	17	14	9.9	3.0	.23
13	17	7.4	3.9	4.9	4.3	23	27	18	15	9.0	3.5	.19
14	16	7.0	4.1	4.0	4.1	25	27	18	15	8.6	4.5	.15
15	15	6.8	4.3	2.8	4.5	37	26	17	16	8.3	3.1	.14
16	14	7.1	4.4	2.9	4.5	36	25	17	17	8.0	3.1	.13
17	8.2	7.6	4.6	3.4	4.5	33	26	22	17	8.1	3.1	.20
18	8.3	7.6	3.7	3.5	4.0	29	27	22	15	8.1	3.1	.20
19	9.0	7.5	4.5	3.9	4.0	26	28	22	15	7.9	2.8	.15
20	9.5	7.6	4.9	4.1	4.0	28	29	24	14	7.7	2.8	.10
21	9.9	8.3	4.7	4.2	4.0	30	14	27	14	7.7	2.8	.10
22	10	8.7	4.8	4.3	4.0	30	12	30	13	7.5	3.0	.10
23	12	9.3	5.5	4.4	4.0	28	12	44	12	5.2	3.2	.10
24	12	9.7	4.7	4.7	3.5	27	9.3	39	12	3.8	3.0	.10
25	12	9.1	4.0	5.1	3.5	25	8.3	41	11	4.1	3.3	.10
26	11	9.3	3.8	5.9	3.5	23	8.2	42	11	3.7	4.2	.10
27	11	8.5	3.9	5.5	3.5	22	9.4	46	10	3.4	3.9	.10
28	10	8.3	4.0	5.0	3.5	19	8.0	41	10	3.4	3.4	.07
29	10	8.5	3.9	5.0	---	18	25	40	11	3.4	3.4	.06
30	9.5	8.6	3.9	4.6	---	18	96	41	11	3.4	3.2	.06
31	9.6	---	3.9	4.3	---	20	---	41	---	3.3	3.3	---
TOTAL	486.0	243.0	154.9	128.6	113.1	745.5	719.2	959.7	598	244.5	103.2	22.09
MEAN	15.7	8.10	5.00	4.15	4.04	24.0	24.0	31.0	19.9	7.89	3.33	.74
MAX	29	9.7	9.0	5.9	4.7	45	96	67	41	11	4.5	3.3
MIN	8.2	6.8	3.5	2.8	3.3	3.0	8.0	8.7	10	3.3	2.8	.06

WTR YR 1987 TOTAL 4517.79 MEAN 12.4 MAX 96 MIN .06

06407900 SPRING CREEK NEAR ROCKERVILLE, SD--Continued

PRECIPITATION RECORDS

PERIOD OF RECORD.--March to September 1987.

INSTRUMENTATION.--Precipitation recorder. Elevation of gage is 3,885 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for period of no record, Sept. 9-28.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	.01	.01	.00	.00	.00	.00
2						---	.05	.38	.00	.00	.00	.00
3						---	.00	.39	.00	.56	.17	.00
4						---	.00	.01	.00	.01	.09	.00
5						---	.00	.00	.00	.00	.00	.00
6						.00	.00	.00	.00	.00	.02	.00
7						.00	.00	.00	.00	.23	.59	.00
8						.08	.00	.00	.01	.01	.01	.00
9						.04	.00	.02	.31	.00	.00	---
10						.00	.00	.01	.01	.11	.00	---
11						.00	.00	.00	.00	.00	.03	---
12						.00	.01	.35	.00	.00	.00	---
13						.06	.00	.06	.00	.00	.66	---
14						.09	.00	.00	.00	.00	.01	---
15						.00	.00	.00	.00	.00	.00	---
16						.10	.00	.41	.00	.00	.00	---
17						.02	.00	.12	.00	.00	.00	---
18						.02	.00	.01	.00	.00	.00	---
19						.00	.00	.00	.00	.00	.00	---
20						.39	.01	.93	.00	.00	.00	---
21						.05	.00	.00	.00	.00	.00	---
22						.00	.00	.00	.00	.00	.25	---
23						.00	.00	.12	.00	.00	.00	---
24						.00	.00	.84	.00	.03	.00	---
25						.00	.00	.31	.00	.00	.17	---
26						.00	.00	.48	.00	.00	.45	---
27						.02	.00	.00	.00	.00	.00	---
28						.00	.00	.00	.00	.00	.00	.00
29						.00	.00	.00	.00	.00	.00	.00
30						.00	.00	.00	.00	.00	.00	.00
31						.00	---	.00	---	.02	.00	---

06408500 SPRING CREEK NEAR HERMOSA, SD

LOCATION.--Lat 43°56'31", long 103°09'32", in SE¼SE¼SE¼ 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.

REVISED RECORDS.--WSP 1729: 1950.

GAGE.--Water-stage recorder. Datum of gage is 3,265.30 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 30, 1973, nonrecording gage and crest-stage gage 210 ft upstream, and Mar. 30 to Sept. 30, 1973, water-stage recorder at present site, both at datum 2.00 ft higher.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Dec. 9-11, 17-23, Jan. 1 to Feb. 13, and Feb. 24 to Mar. 3. Considerable loss in sinkholes in reach 10 to 15 mi above station. Flow slightly regulated by dam forming Sheridan Lake, capacity, 12,657 acre-ft, 24 mi above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--38 years, 4.76 ft³/s, 3,450 acre-ft/yr; median of yearly mean discharges, 1.5 ft³/s, 1,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s, June 10, 1972, gage height, 13.12 ft, site and datum then in use, from floodmarks, from rating curve extended above 350 ft³/s on basis of contracted-opening measurement of peak flow; no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17 ft³/s at 1645 hours, Mar. 6, gage height, 2.57 ft; no flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.52	.45	.75	.55	.90	.40	.74	.54	.39	.17	.00	.00
2	.84	.40	.72	.60	.90	.40	.62	.54	.32	.15	.00	.00
3	1.3	.45	.72	.55	.80	.65	.64	.62	.40	.12	.00	.00
4	.77	.45	.85	.55	.80	.99	.64	.64	.40	.21	.00	.00
5	.63	.45	.90	.70	.70	1.4	.64	.49	.40	.19	.00	.00
6	.60	.49	1.0	.70	.60	5.2	.64	.40	.43	.06	.00	.00
7	.62	.61	.93	.60	.70	2.3	.69	.37	.47	.01	.00	.00
8	.54	.44	.87	.70	.60	.94	.65	.32	.49	.02	.00	.00
9	.54	.38	.60	.80	.60	.62	.62	.30	.70	.07	.00	.00
10	.54	.99	.60	.90	.50	.54	.54	.25	1.6	.09	.00	.00
11	.54	1.0	.70	1.5	.50	.55	.53	.27	1.2	.10	.00	.00
12	.54	1.3	.75	2.0	.50	.64	.45	.30	.76	.10	.00	.00
13	.54	1.2	.72	1.5	.50	.64	.45	.35	.79	.04	.00	.00
14	.60	1.4	.70	1.0	.46	.64	.45	.30	.64	.02	.00	.00
15	.64	1.1	.64	.80	.55	.61	.45	.58	.64	.00	.00	.00
16	.64	1.0	.58	.80	.52	.48	.45	.60	.83	.00	.00	.00
17	.64	.95	.55	.80	.45	.64	.48	.73	.82	.00	.00	.00
18	.64	.87	.55	.90	.45	.64	.46	.75	.64	.00	.00	.00
19	.69	1.1	.50	.80	.45	.64	.43	.75	.50	.00	.00	.00
20	.75	.86	.50	.80	.44	.70	.37	1.2	.52	.00	.00	.00
21	.75	.88	.50	.70	.37	3.3	.42	1.1	.51	.00	.00	.00
22	.78	.95	.60	.70	.37	.90	.45	.64	.34	.00	.00	.00
23	.87	.75	.70	.60	.37	.66	.45	.60	.21	.00	.00	.00
24	.81	.66	.87	.60	.35	.63	.45	.73	.22	.00	.00	.00
25	.65	.64	.84	.70	.30	.72	.45	1.6	.33	.00	.00	.00
26	.63	.64	.95	.70	.30	.58	.45	.85	.30	.00	.00	.00
27	.54	.64	.77	.70	.35	.70	.39	.75	.23	.00	.00	.00
28	.47	.68	.77	.80	.35	.62	.47	.54	.25	.00	.00	.00
29	.45	.69	.77	.80	---	.64	.59	.40	.33	.00	.00	.00
30	.45	.70	.68	.80	---	.64	.54	.49	.25	.00	.00	.00
31	.45	---	.57	.80	---	.68	---	.49	---	.00	.00	---
TOTAL	19.97	23.12	22.15	25.45	14.68	29.69	15.60	18.49	15.91	1.35	.00	.00
MEAN	.64	.77	.71	.82	.52	.96	.52	.60	.53	.04	.00	.00
MAX	1.3	1.4	1.0	2.0	.90	5.2	.74	1.6	1.6	.21	.00	.00
MIN	.45	.38	.50	.55	.30	.40	.37	.25	.21	.00	.00	.00
AC-FT	40	46	44	50	29	59	31	37	32	2.7	.00	.00

CAL YR 1986	TOTAL	278.52	MEAN	.76	MAX	5.1	MIN	.00	AC-FT	552
WTR YR 1987	TOTAL	186.41	MEAN	.51	MAX	5.2	MIN	.00	AC-FT	370

06408700 RHOADS FORK NEAR ROCHFORD, SD

LOCATION.--Lat 44°08'12", long 103°51'29", in NW¼SE¼NE¼ 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 Rochford.

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges during water year. Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--5 years, 5.95 ft³/s, 4,310 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9.7 ft³/s, Mar. 16, 1985, gage height, 2.00 ft; maximum gage height, 2.19 ft, July 23, 1982, backwater from vegetation; minimum daily discharge, 3.5 ft³/s, Jan. 10, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7.0 ft³/s at 1445 hours, Mar. 15, gage height, 2.00 ft; minimum daily discharge, 4.5 ft³/s, Mar. 28, 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	5.2	5.0	5.0	4.8	4.8	4.6	4.8	5.0	5.1	5.2	5.5
2	5.3	5.2	5.0	5.0	4.8	4.8	4.7	4.8	5.0	5.2	5.2	5.5
3	5.3	5.2	5.0	5.0	4.8	4.9	4.7	4.8	4.9	5.2	5.2	5.5
4	5.3	5.2	4.8	5.0	4.8	5.0	4.8	4.8	4.9	5.2	5.3	5.7
5	5.3	5.2	5.0	5.0	4.8	5.1	4.8	4.8	4.9	5.2	5.2	5.7
6	5.3	5.2	5.0	5.0	4.8	5.0	4.8	4.8	5.0	5.3	5.3	5.6
7	5.3	5.2	5.0	5.0	4.9	5.1	4.7	4.8	5.0	5.4	5.3	5.5
8	5.4	5.2	5.0	5.0	4.9	5.3	4.8	4.7	5.0	5.3	5.4	5.5
9	5.3	5.2	4.9	5.0	4.9	4.9	4.8	4.7	5.0	5.3	5.4	5.5
10	5.3	5.0	4.8	5.0	4.9	5.0	4.7	4.7	5.0	5.3	5.4	5.5
11	5.3	5.2	5.0	5.0	4.9	5.0	4.8	4.7	5.0	5.4	5.4	5.5
12	5.3	5.0	5.0	5.0	4.9	5.1	4.8	4.7	5.0	5.4	5.4	5.5
13	5.3	5.1	5.0	5.0	4.9	5.1	4.7	4.7	5.0	5.4	5.4	5.5
14	5.3	5.2	5.0	5.0	4.9	5.2	4.8	4.8	5.0	5.3	5.4	5.5
15	5.3	5.2	5.0	5.0	5.0	5.5	4.9	4.8	5.0	5.2	5.4	5.7
16	5.3	5.2	5.0	5.0	5.0	5.4	4.9	4.8	5.0	5.2	5.4	5.7
17	5.3	5.2	5.0	5.0	4.8	5.2	5.0	4.9	5.0	5.3	5.4	5.7
18	5.3	5.2	5.0	5.0	4.7	4.9	5.3	4.9	5.0	5.3	5.4	5.7
19	5.3	5.2	5.0	5.0	4.7	4.8	5.4	4.9	5.1	5.2	5.4	5.7
20	5.3	5.2	5.0	4.9	4.8	4.7	5.4	5.0	5.0	5.2	5.4	5.7
21	5.3	5.0	5.0	4.9	4.9	4.6	5.2	5.0	5.0	5.1	5.4	5.7
22	5.3	5.0	5.0	4.9	4.8	4.6	5.0	5.0	5.0	5.1	5.5	5.7
23	5.3	5.0	5.0	4.9	4.8	4.6	5.0	4.9	5.0	5.2	5.4	5.7
24	5.3	5.0	5.0	4.9	4.9	4.6	5.0	4.9	5.0	5.2	5.4	5.6
25	5.3	5.0	5.0	4.9	5.0	4.6	5.0	5.0	5.0	5.2	5.4	5.5
26	5.2	5.0	5.0	4.9	5.1	4.6	4.8	5.0	5.0	5.1	5.5	5.5
27	5.2	5.1	5.0	4.8	5.1	4.6	4.7	5.0	5.1	5.1	5.5	5.5
28	5.2	5.1	5.0	4.8	5.0	4.5	4.8	4.9	5.1	5.3	5.5	5.4
29	5.2	5.1	5.0	4.8	---	4.5	4.8	4.9	5.1	5.2	5.5	5.5
30	5.2	5.1	5.0	4.8	---	4.6	4.8	5.0	5.0	5.2	5.4	5.5
31	5.2	---	5.0	4.8	---	4.6	---	5.0	---	5.2	5.4	---
TOTAL	163.8	153.9	154.5	153.3	136.6	151.2	146.5	150.5	150.1	162.3	166.8	167.3
MEAN	5.28	5.13	4.98	4.95	4.88	4.88	4.88	4.85	5.00	5.24	5.38	5.58
MAX	5.4	5.2	5.0	5.0	5.1	5.5	5.4	5.0	5.1	5.4	5.5	5.7
MIN	5.2	5.0	4.8	4.8	4.7	4.5	4.6	4.7	4.9	5.1	5.2	5.4
AC-FT	325	305	306	304	271	300	291	299	298	322	331	332

CAL YR 1986	TOTAL	1941.4	MEAN	5.32	MAX	7.6	MIN	4.5	AC-FT	3850
WTR YR 1987	TOTAL	1856.8	MEAN	5.09	MAX	5.7	MIN	4.5	AC-FT	3680

06408700 RHOADS FORK NEAR ROCHFORD, SD--Continued

PRECIPITATION RECORDS

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

INSTRUMENTATION.--Shielded weighing-type precipitation recorder. Elevation of gage is 5,965 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.00	.00	.00	.00	.00	.00	.03	.00	.09	.00	.00	.00
2	.40	.00	.00	.00	.00	.00	.07	.30	.00	.00	.07	.00
3	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.20	.12
4	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.24
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.80	.05	.00	.00	.00	.00	.00	.00	.00	.07	.00
7	.00	.35	.00	.00	.00	.00	.00	.00	.00	.00	.18	.28
8	.00	.20	.00	.00	.00	.15	.08	.00	.00	.05	.04	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00
10	.20	.00	.00	.00	.00	.00	.08	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.30	.00	.10
12	.00	.00	.00	.00	.40	.00	.00	.00	.00	.50	.00	.00
13	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.15	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.15	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00
16	.00	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.22	.00	.00	.00	.10
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.15	.08	.00	.00	.15	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.05	.86	.80	.00	.00	.00
21	.00	.00	.00	.40	.00	.50	.00	.00	.00	.00	.00	.00
22	.18	.00	.00	.00	.04	.00	.00	.00	.00	.00	.60	.00
23	.00	.00	.00	.00	.00	.00	.00	.08	.00	.08	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.18	.00	.00	.03	.00
25	.00	.00	.00	.00	.00	.00	.00	.16	.44	.00	.08	.00
26	.00	.00	.00	.00	.45	.00	.00	.40	.00	.00	.12	.00
27	.00	.00	.00	.00	.09	.00	.00	.08	.00	.20	.00	.00
28	.00	.00	.00	.00	.08	.00	.00	.08	.00	.00	.00	.00
29	.00	.00	.00	.30	---	.00	.00	.07	.00	.00	.00	.00
30	.00	.04	.00	.00	---	.00	.00	.38	.00	.00	.00	.00
31	.00	---	.00	.00	---	.10	---	.00	---	.03	.00	---

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

LOCATION.--Lat 44°00'49", long 103°49'48", in NE¼SW¼SW¼ sec.25, T.1 N., R.2 E., Pennington County, Hydrologic Unit 10120110, at downstream end of highway culvert, 330 ft downstream from South Fork Castle Creek, 500 ft upstream from high-water line of Deerfield Reservoir, 2.5 mi southwest of Deerfield Dam, and 14 mi northwest of Hill City.

DRAINAGE AREA.--79.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1948 to current year. Prior to October 1953, published as "above Deerfield Reservoir, near Deerfield".

REVISED RECORDS.--WSP 1917: 1952(M). WDR SD-84-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 5,920 ft, from Highway Department bench mark. Prior to Aug. 31, 1948, nonrecording gage at site 130 ft upstream at datum 2.05 ft higher. Sept. 1, 1948, to May 17, 1983, at same location and datum. May 18, 1983, to Oct. 11, 1985, at site 300 ft upstream at same datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 9-21, 23-28, Dec. 1-24, Jan. 7-11, 15-23, Feb. 4-6, 20-23, Feb. 28 to Mar. 1, and Mar. 28-31.

AVERAGE DISCHARGE.--39 years, 10.7 ft³/s, 7,750 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 ft³/s, May 22, 1952, gage height, 5.81 ft, from rating curve extended above slope-area measurement of gage height, 5.67 ft; minimum, 1.2 ft³/s, Apr. 25, 1969; minimum gage height, 1.35 ft, Nov. 12, 1949, Feb. 19, 1954, Mar. 7, 1957, Mar. 29, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Jan. 16	1030	ice jam	*4.35	Mar. 7	1745	*31	3.04

Minimum daily discharge, 8.2 ft³/s, Aug. 21.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	13	12	10	9.1	10	13	15	13	10	9.1	8.5
2	12	13	11	11	9.1	11	13	15	13	10	9.0	8.4
3	12	13	10	10	9.2	11	15	15	13	10	8.9	8.5
4	14	13	10	10	9.0	11	18	14	12	11	9.3	9.2
5	15	13	11	10	9.0	14	19	14	12	9.8	8.8	9.3
6	14	13	12	9.9	9.0	18	18	14	12	9.8	8.8	8.8
7	13	11	11	9.5	10	19	18	14	13	9.8	8.9	9.3
8	13	9.9	10	9.5	10	15	18	14	13	10	9.1	8.6
9	12	9.5	9.5	9.5	10	13	17	14	12	9.9	8.8	8.5
10	12	9.0	9.0	9.5	10	14	16	14	12	9.9	8.8	8.6
11	12	9.0	9.5	9.5	11	13	16	14	12	10	8.7	8.8
12	15	9.0	10	9.8	11	14	15	14	12	10	8.6	8.6
13	15	8.0	11	9.7	11	15	15	13	12	9.7	8.7	8.7
14	14	9.0	12	9.7	11	14	16	13	11	9.7	8.7	8.5
15	14	10	13	9.5	11	14	17	13	11	9.5	8.8	8.8
16	14	11	13	8.5	11	13	17	13	11	9.3	8.6	8.7
17	14	11	13	9.0	11	13	18	15	11	9.3	8.6	8.9
18	14	12	12	9.5	11	14	19	14	10	9.4	8.5	8.8
19	14	13	11	9.5	10	15	19	13	10	9.3	8.3	8.8
20	14	13	11	9.0	10	14	17	16	10	9.2	8.3	8.8
21	14	13	11	9.0	10	11	17	15	10	9.3	8.2	8.8
22	13	13	12	8.5	10	15	17	14	10	8.9	8.9	9.2
23	13	12	12	8.5	10	15	17	14	10	9.0	8.6	9.5
24	13	12	12	8.6	11	13	16	14	10	9.4	8.6	9.7
25	13	12	12	8.6	11	15	17	15	10	9.3	8.6	9.8
26	13	12	12	8.3	11	15	17	14	10	8.9	8.4	9.8
27	13	12	12	8.3	11	14	16	16	10	9.2	8.3	9.7
28	13	12	13	8.3	10	13	16	14	9.8	10	8.3	9.8
29	13	12	15	9.0	---	12	16	14	10	9.8	8.6	10
30	13	12	13	9.0	---	12	15	15	10	9.6	8.4	10
31	13	---	11	9.1	---	12	---	14	---	9.2	8.4	---
TOTAL	413	344.4	356.0	287.8	286.4	422	498	440	334.8	298.2	268.6	271.4
MEAN	13.3	11.5	11.5	9.28	10.2	13.6	16.6	14.2	11.2	9.62	8.66	9.05
MAX	15	13	15	11	11	19	19	16	13	11	9.3	10
MIN	12	8.0	9.0	8.3	9.0	10	13	13	9.8	8.9	8.2	8.4
AC-FT	819	683	706	571	568	837	988	873	664	591	533	538

CAL YR 1986	TOTAL	4859.4	MEAN	13.3	MAX	26	MIN	8.0	AC-FT	9640
WTR YR 1987	TOTAL	4220.6	MEAN	11.6	MAX	19	MIN	8.0	AC-FT	8370

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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: May 1964 to September 1984.

REMARKS.--Periodic samples obtained for analysis of suspended-sediment concentration most years. Monthly samples obtained for water-quality samples.

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 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	ALKA-LINITY WH WAT TOTAL 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, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT 24...	1500	13	470	8.60	265	11.5	6.5	0.50	617	10.3	104
JAN 29...	1230	9.0	470	8.30	259	-2.5	0.0	11	--	11.4	--
APR 22...	1300	18	440	8.50	253	20.5	10.5	15	--	11.5	--
JUL 15...	1330	9.6	420	8.60	244	26.5	17.0	6.0	--	8.4	--

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)
OCT 24...	K1	K9	270	8	58	31	1.5	1	0.0	1.7	233
JAN 29...	K8	41	270	12	59	30	1.4	1	0.0	1.1	261
APR 22...	<1	<1	260	4	55	29	1.9	2	0.0	1.4	241
JUL 15...	--	--	250	5	50	30	1.5	1	0.0	1.0	216

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
OCT 24...	7.2	1.2	0.20	9.4	268	270	0.36	9.4	<0.010	<0.100
JAN 29...	7.9	0.90	0.10	9.2	251	270	0.34	6.1	<0.010	0.220
APR 22...	7.5	1.2	0.10	9.1	248	260	0.34	12	<0.010	<0.100
JUL 15...	6.3	1.0	0.10	8.2	222	240	0.30	5.8	<0.010	<0.100

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (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)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
OCT 24...	0.020	0.090	0.03	0.40	0.060	0.010	<0.010	<10	<1	61
JAN 29...	0.010	<0.010	0.01	0.80	0.030	0.020	<0.010	<10	1	59
APR 22...	<0.010	<0.010	--	0.40	0.010	0.010	<0.010	20	1	67
JUL 15...	<0.010	0.030	--	0.40	0.020	<0.010	<0.010	<10	2	71

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)
OCT 24...	<0.5	<1	<1	<3	<1	6	<5	8	6	<0.1
JAN 29...	<0.5	<1	2	<3	<1	5	<5	9	7	<0.1
APR 22...	<0.5	<1	<1	<3	<1	6	<5	11	10	<0.1
JUL 15...	<0.5	<1	2	<3	5	6	<5	6	7	0.2

DATE	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 24...	<10	1	<1	11	69	<6	<3	--	--	--
JAN 29...	<10	<1	<1	<1	66	<6	3	96	2.3	51
APR 22...	<10	2	<1	<1	65	<6	5	96	4.6	62
JUL 15...	<10	<1	<1	1	66	<6	6	25	0.65	92

06409500 DEERFIELD RESERVOIR NEAR HILL CITY, SD

LOCATION.--Lat 44°01'41", long 103°47'09", in NE¼SW¼ 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 National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to July 20, 1964, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam. Storage began Dec. 3, 1945; dam completed in 1947. Usable capacity, 15,504 acre-ft between elevations 5,839 ft (lowest outlet) and 5,908 ft (crest of spillway). Dead storage below elevation 5,839 ft, 151 acre-ft. Figures given herein represent usable contents. 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, 15,357 acre-ft, May 31, elevation, 5,907.65 ft; minimum, 13,232 acre-ft, Nov. 30, elevation, 5,902.38 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	5,905.82	14,609	-
Oct. 31	5,903.71	13,756	-853
Nov. 30	5,902.38	13,232	-524
Dec. 31	5,903.58	13,704	+472
CAL YR 1986	-	-	-195
Jan. 31	5,904.86	14,218	+514
Feb. 28	5,906.14	14,739	+521
Mar. 31	5,907.37	15,242	+503
Apr. 30	5,907.60	15,336	+94
May 31	5,907.65	15,357	+21
June 30	5,907.38	15,246	-111
July 31	5,907.29	15,209	-37
Aug. 31	5,904.57	14,101	-1,108
Sept. 30	5,903.48	13,664	-437
WTR YR 1987	-	-	-945

06410000 CASTLE CREEK BELOW DEERFIELD DAM, SD

LOCATION.--Lat 44°01'45", long 103°46'53", in NW¼SE¼ 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 National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Oct. 15, 1947, at site 400 ft downstream at datum 0.23 ft higher. Oct. 15, 1947, to Sept. 1, 1948, at site 550 ft downstream at datum 1.77 ft lower, and Sept. 2, 1948, to Nov. 2, 1971, at site 300 ft upstream at datum 4.0 ft higher.

REMARKS.--No estimated daily discharges during water year. Records good. Flow completely regulated by Deerfield Dam, 1,100 ft upstream. Because of spillway reconstruction during 1986, water flowing over the spillway will bypass gage and is not included in daily values table. There was no flow over the spillway during the 1987 water year. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--37 years (water years 1946 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, 4.99 ft, Sept. 24, 1982, backwater from culverts and heavy moss growth; no flow at times in 1948, 1950-60.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 34 ft³/s at 0915 hours, Apr. 10, gage height, 3.86 ft; minimum daily discharge, 2.2 ft³/s, Mar. 1-4, 8-12.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						2.2	14	18	20	7.7	24	13
2						2.2	14	18	20	7.7	24	13
3						2.2	15	18	20	7.7	24	13
4						2.2	16	18	19	7.8	24	13
5						2.5	16	18	13	7.9	24	13
6						2.8	16	17	9.5	7.9	24	13
7						2.6	23	17	9.5	7.9	24	13
8						2.2	28	17	9.5	7.9	24	13
9						2.2	28	18	9.5	7.9	24	13
10						2.2	32	18	9.5	7.9	24	13
11						2.2	34	17	9.5	7.9	24	13
12						2.2	34	17	9.5	7.9	24	13
13						5.8	33	17	9.5	7.9	24	13
14						8.5	29	13	9.5	7.9	20	13
15						7.9	29	9.8	9.5	7.9	17	13
16						7.9	29	9.5	9.5	7.9	17	16
17						7.9	23	9.2	9.5	7.9	17	18
18						7.9	18	15	9.5	7.9	17	18
19						7.9	18	20	9.5	7.9	17	18
20						12	18	20	9.5	7.9	17	18
21						14	18	19	9.5	7.9	17	18
22						14	18	20	9.6	7.9	17	19
23						14	18	21	9.7	7.9	17	19
24						14	18	21	9.7	7.9	17	19
25						14	18	20	9.7	8.0	18	19
26						14	18	20	8.7	8.1	18	19
27						14	18	21	7.7	8.2	18	20
28						14	18	20	7.7	11	15	20
29						14	18	20	7.7	15	13	19
30						14	18	20	7.7	15	13	19
31						14	---	20	---	20	13	---
TOTAL						247.5	647	546.5	322.2	274.2	610	474
MEAN						7.98	21.6	17.6	10.7	8.85	19.7	15.8
MAX						14	34	21	20	20	24	20
MIN						2.2	14	9.2	7.7	7.7	13	13
AC-FT						491	1280	1080	639	544	1210	940

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

LOCATION.--Lat 44°05'05", long 103°34'48", in SW¼SE¼ 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 National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark).

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 9-20, Dec. 3 to Mar. 10, and Mar. 29-31. Flow regulated by Deerfield Dam on Castle Creek since December 1945. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--34 years, 40.5 ft³/s, 29,340 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,060 ft³/s, May 15, 1965, gage height, 10.44 ft, from rating curve extended above 1,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 2.5 ft³/s, Dec. 2, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 99 ft³/s at 0215 hours, Apr. 9, gage height, 5.10 ft; maximum gage height, 5.87 ft, Jan. 17, backwater from ice; minimum daily discharge, 12.0 ft³/s, Dec. 10.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Nov. 9-20, Dec. 3 to Mar. 10, Mar. 29-31)

4.3	8.9	4.7	40	5.0	76
4.4	14.8	4.8	51	5.1	90
4.5	22	4.9	63	5.2	105
4.6	31				

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	49	30	17	26	14	53	65	64	21	34	18
2	54	46	30	18	25	20	44	75	58	21	37	18
3	64	47	28	19	23	25	44	72	57	21	39	18
4	64	45	28	20	22	32	55	68	55	22	39	18
5	67	45	30	20	21	35	74	64	51	23	39	19
6	65	44	30	19	24	40	79	62	46	23	37	20
7	62	42	24	18	29	43	75	60	43	21	37	21
8	59	40	20	18	29	44	83	58	42	21	39	21
9	57	37	17	18	27	45	88	57	41	24	41	22
10	56	35	12	19	26	48	78	57	40	23	40	22
11	59	33	14	19	25	56	80	56	39	23	39	22
12	61	27	15	23	24	55	81	55	36	24	37	23
13	65	20	16	21	22	55	78	54	35	24	37	23
14	64	24	17	18	21	58	76	53	33	23	37	22
15	63	30	18	15	20	57	79	47	32	22	32	23
16	62	32	18	13	20	59	85	47	31	21	28	23
17	62	34	19	13	21	53	86	60	30	21	27	24
18	59	32	18	13	22	51	84	57	29	21	27	25
19	57	38	18	14	23	54	85	57	30	21	25	25
20	56	40	17	15	23	65	80	62	30	22	25	26
21	56	42	18	16	23	48	76	79	27	22	25	26
22	56	36	20	16	23	57	75	68	26	21	26	26
23	57	30	21	17	21	60	73	64	25	20	28	27
24	53	36	21	18	19	48	73	63	25	21	27	27
25	52	33	21	19	18	45	72	66	25	23	26	27
26	51	36	21	21	18	45	71	72	25	22	25	28
27	51	39	21	22	17	48	69	77	22	21	26	29
28	50	36	21	23	16	37	67	69	21	23	25	29
29	49	35	21	24	---	35	65	65	21	30	21	30
30	49	34	20	25	---	48	64	66	21	31	18	30
31	49	---	18	26	---	55	---	69	---	31	18	---
TOTAL	1778	1097	642	577	628	1435	2192	1944	1060	707	961	712
MEAN	57.4	36.6	20.7	18.6	22.4	46.3	73.1	62.7	35.3	22.8	31.0	23.7
MAX	67	49	30	26	29	65	88	79	64	31	41	30
MIN	49	20	12	13	16	14	44	47	21	20	18	18
AC-FT	3530	2180	1270	1140	1250	2850	4350	3860	2100	1400	1910	1410

CAL YR 1986	TOTAL	14724.0	MEAN	40.3	MAX	115	MIN	5.0	AC-FT	29210
WTR YR 1987	TOTAL	13733	MEAN	37.6	MAX	88	MIN	12	AC-FT	27240

06411000 PACTOLA RESERVOIR NEAR SILVER CITY, SD

LOCATION.--Lat 44°04'20", long 103°29'17", in NE¼SW¼ 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 National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to Feb. 18, 1970, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by an earthfill dam completed August 1956. Storage began Aug. 22, 1956. Conservation capacity, 54,960 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 1,003 acre-ft. Flood storage capacity, 43,050 acre-ft between elevations 4,580.2 ft and 4,621.5 ft (crest of spillway). Surcharge capacity, 15,780 acre-ft between elevations 4,621.5 ft and 4,633.7 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 since initial filling, 40,566 acre-ft, Oct. 2, 1981, elevation, 4,561.50 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 54,712 acre-ft, May 31, elevation, 4,579.91 ft; minimum, 48,484 acre-ft, Sept. 30, elevation, 4,572.30 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	4,578.42	53,445	-
Oct. 31	4,578.85	53,808	+363
Nov. 30	4,578.44	53,462	-346
Dec. 31	4,577.83	52,949	-513
CAL YR 1986	-	-	+9,798
Jan. 31	4,577.67	52,816	-133
Feb. 28	4,578.09	53,167	+351
Mar. 31	4,579.43	54,302	+1,135
Apr. 30	4,579.82	54,635	+333
May 31	4,579.91	54,712	+77
June 30	4,579.27	54,165	-547
July 31	4,574.75	50,423	-3,742
Aug. 31	4,573.07	49,086	-1,337
Sept. 30	4,572.30	48,484	-602
WTR YR 1987	-	-	-4,961

06411500 RAPID CREEK BELOW PACTOLA DAM, SD

LOCATION.--Lat 44°04'36", long 103°28'54", in SW¼NE¼ 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 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; concrete control since Oct. 16, 1962. Datum of gage is 4,406.00 ft above National Geodetic Vertical Datum of 1929, Bureau of Reclamation bench mark. Apr. 19, 1929, to June 30, 1932, nonrecording gage at site 3,500 ft upstream at different datum. July 24, 1946, to Aug. 24, 1947, nonrecording gage and Aug. 25, 1947, to Nov. 18, 1953, water-stage recorder, at site 2 mi upstream at different datum.

REMARKS.--No estimated daily discharges during water year. Records good. Flow regulated by dam on Castle Creek since Dec. 3, 1945 (see station 06409500), and completely regulated by Pactola Dam 2,000 ft upstream since Aug. 22, 1956 (see station 0641100). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--45 years, 44.0 ft³/s, 31,880 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,170 ft³/s, May 22, 1952, gage height, 6.74 ft, site and datum then in use; no flow Oct. 11-17, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 99 ft³/s at 0730 hours, July 31, gage height, 7.91 ft; minimum daily, 14 ft³/s, Oct. 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	71	37	20	16	18	52	57	40	62	96	39
2	29	71	37	20	16	18	53	53	39	92	95	39
3	24	61	37	20	16	18	57	52	45	92	94	39
4	14	58	37	19	16	17	56	59	49	95	85	39
5	18	57	33	19	16	17	57	66	50	96	78	39
6	24	57	33	19	16	17	58	65	50	82	75	39
7	51	57	33	19	16	17	72	66	50	79	69	40
8	67	57	33	19	16	18	82	66	51	81	55	40
9	59	57	33	19	16	18	90	66	49	82	54	29
10	56	57	28	19	16	18	92	65	26	72	56	39
11	68	57	19	19	16	21	92	66	25	65	57	37
12	68	57	20	19	16	24	92	66	36	63	55	27
13	59	57	20	19	17	25	90	55	58	62	51	27
14	51	49	20	19	17	24	79	47	58	61	49	27
15	51	35	20	19	17	24	78	47	58	70	47	27
16	52	34	20	16	17	24	77	61	48	78	46	27
17	43	34	20	15	17	23	77	70	42	78	45	27
18	39	35	20	15	17	34	76	57	41	78	37	27
19	39	35	20	15	17	51	76	48	35	78	37	27
20	40	35	20	15	17	55	77	48	28	83	37	27
21	40	35	20	15	17	53	78	49	28	87	39	28
22	54	35	20	15	17	54	72	48	46	85	41	27
23	62	35	20	15	17	55	62	48	61	85	41	32
24	65	36	20	15	17	53	63	63	65	85	37	37
25	71	36	20	15	17	41	64	71	66	83	33	37
26	70	36	20	15	18	21	65	74	63	82	32	38
27	70	36	20	16	18	36	65	85	58	83	31	37
28	70	36	20	16	18	51	64	90	59	83	32	32
29	70	37	20	16	---	50	64	89	59	89	37	28
30	71	37	20	16	---	50	64	89	55	95	38	28
31	71	---	20	16	---	50	---	83	---	97	39	---
TOTAL	1595	1390	760	534	467	995	2144	1969	1438	2503	1618	986
MEAN	51.5	46.3	24.5	17.2	16.7	32.1	71.5	63.5	47.9	80.7	52.2	32.9
MAX	71	71	37	20	18	55	92	90	66	97	96	40
MIN	14	34	19	15	16	17	52	47	25	61	31	27
AC-FT	3160	2760	1510	1060	926	1970	4250	3910	2850	4960	3210	1960

CAL YR 1986	TOTAL	11144	MEAN	30.5	MAX	76	MIN	14	AC-FT	22100
WTR YR 1987	TOTAL	16399	MEAN	44.9	MAX	97	MIN	14	AC-FT	32530

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

LOCATION.--Lat 44°03'04", long 103°18'47", in NE¼NE¼ sec.18, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on right bank at bridge on State Highway 44, at city limits of Rapid City, and 2.8 mi downstream from Victoria Creek.

DRAINAGE AREA.--371 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 3,405.39 ft above National Geodetic Vertical Datum of 1929, levels by U.S. Army Corps of Engineers. 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 2.0 ft higher. Nov. 3, 1967, to Sept. 30, 1968, nonrecording gage at site 0.2 mi downstream at datum 1.12 ft lower.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 9-13, Dec. 3 to Jan. 12, Jan. 14-28, Jan. 30 to Mar. 12, and Mar. 28-30. Flow regulated by dam on Castle Creek since December 1945 (see station 06409500) and by Pactola Dam 21 mi upstream since August 1956 (see station 06411000). Several observations of water temperature and specific conductance were made during the year. National Weather Service telemeter and recording rain gage at station.

AVERAGE DISCHARGE.--41 years, 39.2 ft³/s, 28,400 acre-ft/yr; median of yearly mean discharges, 36 ft³/s, 26,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,200 ft³/s, June 9, 1972, gage height, 17.77 ft, present datum, from floodmarks, from rating curve extended above 1,300 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1950-51, 1957-60, 1962-63, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 99 ft³/s at 2000 hours, May 29, gage height, 3.85 ft; maximum gage height, 3.95 ft, Nov. 13, backwater from ice; minimum daily, 6.0 ft³/s, Jan. 16.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	70	34	15	15	10	47	53	54	50	79	33
2	28	70	34	17	15	10	48	50	43	71	79	33
3	41	66	31	17	15	14	50	50	40	79	79	33
4	28	56	23	15	14	20	51	50	46	82	77	33
5	15	56	38	15	10	25	50	54	46	82	69	33
6	16	57	34	15	16	30	51	54	47	73	61	33
7	24	59	34	17	25	25	54	53	47	65	63	34
8	67	56	33	18	20	20	65	53	47	64	51	34
9	69	45	30	18	15	17	70	53	47	66	47	34
10	52	40	27	18	20	20	80	54	40	64	46	24
11	67	45	23	17	20	15	79	53	28	53	46	32
12	67	40	17	22	15	11	82	53	27	52	47	26
13	66	35	16	16	15	13	82	52	44	52	45	19
14	49	60	15	10	14	17	72	47	49	51	43	18
15	48	43	17	8.0	14	15	69	46	50	51	39	17
16	48	38	15	6.0	14	16	69	46	50	60	39	17
17	47	37	17	8.0	13	17	69	54	42	62	39	17
18	36	35	15	9.0	13	17	69	53	41	63	36	17
19	34	36	15	10	12	31	68	47	41	62	33	17
20	33	36	15	10	12	41	67	48	31	62	33	17
21	33	36	14	10	13	43	69	47	29	68	32	17
22	36	36	15	10	14	41	69	47	31	68	34	17
23	59	35	16	8.0	15	43	55	47	50	69	35	17
24	59	35	17	12	13	44	53	49	54	70	35	24
25	67	35	18	13	12	42	53	60	56	70	32	27
26	68	34	18	14	11	29	53	59	57	68	32	28
27	70	34	18	14	10	24	53	66	52	68	29	28
28	68	34	18	14	10	24	53	75	51	68	28	28
29	69	34	18	14	---	24	53	78	51	70	29	19
30	70	34	18	14	---	28	53	79	51	77	31	17
31	70	---	18	14	---	47	---	77	---	79	31	---
TOTAL	1525	1327	671	418.0	405	773	1856	1707	1342	2039	1399	743
MEAN	49.2	44.2	21.6	13.5	14.5	24.9	61.9	55.1	44.7	65.8	45.1	24.8
MAX	70	70	38	22	25	47	82	79	57	82	79	34
MIN	15	34	14	6.0	10	10	47	46	27	50	28	17
AC-FT	3020	2630	1330	829	803	1530	3680	3390	2660	4040	2770	1470

CAL YR 1986	TOTAL	9830.4	MEAN	26.9	MAX	83	MIN	4.0	AC-FT	19500
WTR YR 1987	TOTAL	14205.0	MEAN	38.9	MAX	82	MIN	6.0	AC-FT	28180

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

PRECIPITATION RECORDS

PERIOD OF RECORD.--April 1981 to July 1982 (seasonal records) published in Open-File Report 87-45, March 1987 to September 1987.

INSTRUMENTATION.--Precipitation recorder. Elevation of gage is 3,420 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	.00	.00	.00	.04	.00	.00
2						---	.09	.57	.00	.00	.00	.00
3						---	.00	.32	.00	.00	.39	.00
4						---	.00	.01	.00	.08	.15	.06
5						---	.00	.00	.00	.00	.00	.00
6						---	.00	.00	.00	.00	.02	.00
7						---	.00	.00	.05	.16	.61	.33
8						---	.00	.00	.00	.00	.01	.01
9						---	.01	.00	.26	.00	.00	.00
10						---	.00	.00	.03	.08	.00	.00
11						---	.02	.00	.00	.01	.00	.07
12						---	.00	.00	.00	.00	.00	.00
13						---	.00	.01	.00	.00	1.12	.00
14						---	.00	.00	.00	.00	.00	.00
15						---	.00	.00	.00	.00	.00	.00
16						---	.00	.32	.00	.01	.00	.00
17						---	.00	.13	.00	.00	.00	.13
18						---	.00	.00	.00	.01	.00	.00
19						---	.00	.00	.01	.00	.00	.00
20						---	.01	.94	.00	.00	.00	.00
21						---	.00	.00	.00	.00	.00	.00
22						---	.00	.00	.13	.00	.23	.00
23						---	.00	.09	.00	.09	.00	.00
24						---	.00	.90	.00	.07	.00	.00
25						---	.00	.18	.00	.00	.25	.00
26						---	.00	.34	.00	.00	.18	.00
27						---	.00	.00	.00	.00	.04	.00
28						---	.00	.21	.00	.00	.00	.00
29						---	.00	.01	.00	.00	.00	.00
30						---	.00	.00	.00	.00	.00	.00
31						.00	---	.00	---	.00	.00	---

06414000 RAPID CREEK AT RAPID CITY, SD

LOCATION.--Lat 44°05'09", long 103°14'31", in NE¼SE¼SW¼ sec.35, T.2 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on left bank 3,000 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 3,230.00 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 30, 1906, nonrecording gage at site 1 mi downstream at different datum, and June 10, 1972, to Nov. 1, 1972, nonrecording gage at site 800 ft downstream at datum 0.80 ft higher. July 1942 to June 9, 1972, water-stage recorder at site 300 ft downstream at datum 0.80 ft higher (destroyed by flood).

REMARKS.--Records good except for periods of estimated record, which are fair. Estimated daily discharges during water year: Dec. 10, Jan. 15-16, Feb. 28 to Mar. 2, Mar. 9-11, and Mar. 28-30. 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. Several observations of water temperature and specific conductance were made during the year. National Weather Service telemeter at station.

AVERAGE DISCHARGE.--48 years, 60.7 ft³/s, 43,980 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s, June 9, 1972, gage height, 19.66 ft, from floodmarks, on basis of slope-area measurement of peak flow; minimum, 1.6 ft³/s, Apr. 20, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 12, 13, 1920, reached a stage of 14.4 ft present datum, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 388 ft³/s at 1715 hours, June 10, gage height, 5.37 ft; minimum daily discharge, 26 ft³/s, Mar. 1 and Sept. 23.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	90	59	33	32	26	57	57	82	46	98	43
2	71	89	56	35	33	28	59	63	57	65	91	48
3	81	87	54	41	31	33	63	65	53	81	100	37
4	67	76	48	38	33	36	68	62	56	96	116	50
5	69	74	59	40	31	37	66	72	52	93	95	56
6	65	78	57	37	31	39	67	77	51	69	73	57
7	53	78	56	34	32	35	68	70	60	76	100	66
8	72	74	53	32	31	34	82	65	60	76	85	61
9	88	72	49	31	30	29	89	60	65	76	67	61
10	78	65	48	32	30	29	99	65	82	73	56	51
11	80	70	49	36	31	30	101	60	53	70	52	67
12	85	72	52	42	30	32	106	74	42	69	58	62
13	87	73	49	41	29	34	106	75	52	53	78	49
14	80	83	43	38	31	39	95	59	55	46	60	55
15	73	67	43	38	32	35	92	53	54	41	61	32
16	73	57	39	35	29	37	89	49	55	51	55	36
17	71	56	29	29	29	37	90	79	43	53	52	42
18	63	54	28	33	31	36	88	78	36	62	44	44
19	62	56	29	37	31	45	89	65	42	62	41	42
20	58	56	36	31	29	68	92	83	37	59	38	37
21	58	56	37	33	33	69	92	70	28	69	35	30
22	62	54	37	35	28	62	90	65	28	58	55	32
23	69	52	40	31	29	62	69	63	49	67	54	26
24	72	51	40	32	29	62	63	85	56	79	52	32
25	72	52	36	33	32	60	80	112	55	80	53	37
26	67	54	36	33	31	44	73	103	53	63	50	46
27	70	58	37	32	28	35	69	101	46	61	47	44
28	87	58	39	34	27	35	67	112	50	60	45	42
29	87	57	36	33	---	35	57	111	48	59	47	34
30	87	57	38	31	---	40	57	113	50	73	46	27
31	87	---	39	32	---	59	---	113	---	82	40	---
TOTAL	2240	1976	1351	1072	853	1282	2383	2379	1550	2068	1944	1346
MEAN	72.3	65.9	43.6	34.6	30.5	41.4	79.4	76.7	51.7	66.7	62.7	44.9
MAX	88	90	59	42	33	69	106	113	82	96	116	67
MIN	46	51	28	29	27	26	57	49	28	41	35	26
AC-FT	4440	3920	2680	2130	1690	2540	4730	4720	3070	4100	3860	2670

CAL YR 1986	TOTAL	16813	MEAN	46.1	MAX	154	MIN	23	AC-FT	33350
WTR YR 1987	TOTAL	20444	MEAN	56.0	MAX	116	MIN	26	AC-FT	40550

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

LOCATION.--Lat 44°01'24", long 103°05'43", in NW¼NE¼NE¼ sec.25, T.1 N., R.8 E., Pennington County, Hydrologic Unit 10120110, on right bank 80 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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are fair. Estimated daily discharges during water year: Nov. 11-13 and Apr. 9-14. Flow regulated by Pactola Dam 40.9 mi upstream since Aug. 22, 1956. Diversions for irrigation of about 7,000 acres upstream from station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--6 years, 63.7 ft³/s, 46,150 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,680 ft³/s, July 25, 1982, gage height, 9.12 ft; minimum daily, 13 ft³/s, Oct. 4, 7-9, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 504 ft³/s at 2330 hours, June 10, gage height, 5.32 ft; minimum daily, 19 ft³/s, Sept. 4, 16.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	110	76	49	49	52	87	61	83	24	43	24
2	130	110	75	53	49	53	88	66	41	33	43	20
3	166	111	72	58	47	55	89	65	38	43	52	20
4	97	101	66	56	51	61	94	75	45	57	85	19
5	91	100	72	58	48	62	94	80	46	66	56	21
6	86	106	80	56	46	75	95	83	40	49	44	24
7	80	113	74	52	48	72	94	67	46	39	61	41
8	81	105	69	49	47	61	105	59	52	53	90	33
9	112	97	57	51	45	55	110	43	59	51	53	31
10	104	83	64	51	44	52	120	52	117	48	44	28
11	99	80	66	55	45	55	125	52	101	51	39	25
12	105	80	64	58	46	55	130	63	49	48	35	29
13	111	85	63	59	45	57	130	57	43	39	32	22
14	108	114	61	54	45	71	130	44	56	26	71	20
15	97	103	61	46	52	62	109	34	54	24	37	21
16	96	87	59	44	46	63	108	29	55	25	34	19
17	95	86	48	47	43	68	105	48	54	29	31	24
18	90	81	46	49	44	70	103	56	44	32	26	25
19	83	90	47	51	45	68	101	48	33	42	23	23
20	83	89	51	49	44	92	105	88	35	40	24	23
21	82	90	53	47	46	103	104	70	25	40	21	25
22	85	91	54	48	44	95	103	47	25	37	27	21
23	100	82	56	47	45	95	94	44	30	56	36	25
24	98	81	57	46	44	93	80	49	42	82	35	21
25	101	81	53	48	46	92	83	167	36	74	33	26
26	97	78	54	50	46	87	80	98	33	57	48	28
27	93	76	54	49	43	75	79	92	28	49	39	29
28	111	77	56	50	47	71	75	92	22	45	30	35
29	110	76	54	50	---	78	68	94	27	28	28	31
30	110	77	55	49	---	86	60	97	24	30	27	20
31	109	---	56	48	---	91	---	96	---	40	27	---
TOTAL	3066	2740	1873	1577	1290	2225	2948	2116	1383	1357	1274	753
MEAN	98.9	91.3	60.4	50.9	46.1	71.8	98.3	68.3	46.1	43.8	41.1	25.1
MAX	166	114	80	59	52	103	130	167	117	82	90	41
MIN	56	76	46	44	43	52	60	29	22	24	21	19
AC-FT	6080	5430	3720	3130	2560	4410	5850	4200	2740	2690	2530	1490

CAL YR 1986	TOTAL	22090	MEAN	60.5	MAX	229	MIN	17	AC-FT	43820
WTR YR 1987	TOTAL	22602	MEAN	61.9	MAX	167	MIN	19	AC-FT	44830

06421500 RAPID CREEK NEAR FARMINGDALE, SD

LOCATION.--Lat 43°56'31", long 102°51'12", in SW¼SW¼SW¼ 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. Monthly discharge only for December 1958 to July 1959.

GAGE.--Water-stage recorder. Elevation of gage is 2,700 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Sept. 19, 1947, nonrecording gage at same site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 11-16, Dec. 5 to Feb. 16, Feb. 24 to Mar. 3, Mar. 8-10, and Mar. 28-31. Flow regulated by Pactola Dam 67 mi upstream since Aug. 22, 1956. Diversions for irrigation of about 10,000 acres upstream from station. Several observations of water temperature and specific conductance were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--41 years, 56.6 ft³/s, 41,010 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,320 ft³/s, June 10, 1972, gage height, 11.85 ft, from floodmarks, from rating curve extended about 400 ft³/s on basis of contracted-opening and flow-over-road measurement of peak flow; no flow at times in 1949, 1952-56, 1958-63, 1969-71.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 928 ft³/s at 0415 hours, May 27, gage height, 8.91 ft; minimum daily discharge, 3.3 ft³/s, July 18.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	120	75	45	70	45	118	60	122	17	15	40
2	71	119	75	45	65	50	104	65	96	14	23	38
3	204	122	77	50	60	70	103	70	62	10	23	31
4	180	121	76	55	60	79	104	73	59	20	29	25
5	103	115	75	55	55	96	109	74	66	39	63	25
6	96	113	75	50	55	232	106	79	60	37	36	31
7	91	125	75	50	60	186	105	82	57	23	32	36
8	81	122	75	50	60	110	108	76	62	27	93	57
9	93	115	60	50	60	80	120	66	71	20	85	43
10	109	65	55	50	60	70	118	52	99	26	54	32
11	104	60	55	70	60	67	128	55	156	28	33	30
12	101	60	70	80	60	69	130	39	84	32	34	33
13	105	80	70	70	60	69	133	45	62	33	40	43
14	108	100	80	60	55	71	131	38	59	27	63	34
15	100	120	70	50	55	78	121	22	65	18	66	29
16	92	120	70	55	55	67	111	10	63	11	50	29
17	91	111	70	55	54	73	110	21	59	6.5	46	22
18	89	104	60	60	52	78	107	28	53	3.3	43	20
19	81	105	60	60	52	87	105	53	45	8.3	36	27
20	76	120	60	55	52	78	103	66	36	11	32	30
21	76	106	60	55	52	103	108	131	38	11	29	27
22	77	113	65	55	52	125	107	80	30	9.6	23	27
23	84	112	65	55	50	121	107	64	29	15	31	23
24	95	89	65	60	50	116	90	72	30	37	45	23
25	95	85	60	60	50	113	82	216	44	47	46	21
26	94	78	60	70	45	116	84	187	34	49	50	21
27	91	76	55	70	40	120	82	461	24	36	66	24
28	90	76	55	70	40	80	81	153	20	30	55	27
29	107	77	55	70	---	70	74	139	18	22	45	36
30	110	76	55	70	---	70	66	134	13	15	41	40
31	121	---	50	70	---	90	---	130	---	7.3	41	---
TOTAL	3072	3005	2028	1820	1539	2879	3155	2841	1716	690.0	1368	924
MEAN	99.1	100	65.4	58.7	55.0	92.9	105	91.6	57.2	22.3	44.1	30.8
MAX	204	125	80	80	70	232	133	461	156	49	93	57
MIN	57	60	50	45	40	45	66	10	13	3.3	15	20
AC-FT	6090	5960	4020	3610	3050	5710	6260	5640	3400	1370	2710	1830

CAL YR 1986	TOTAL	29377.4	MEAN	80.5	MAX	800	MIN	6.1	AC-FT	58270
WTR YR 1987	TOTAL	25037.0	MEAN	68.6	MAX	461	MIN	3.3	AC-FT	49660

06422500 BOXELDER CREEK NEAR NEMO, SD

LOCATION.--Lat 44°08'38", long 103°27'16", in SE¼SE¼ 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 National Geodetic Vertical Datum of 1929. July 1945 to July 1947 nonrecording gage at site 100 ft upstream at different datum. May 17, 1966, to June 9, 1972, water-stage recorder (destroyed by flood) and June 10, 1972, to Aug. 8, 1972, nonrecording gage, both at site 100 ft upstream at datum 2.00 ft higher.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 9-18, Dec. 2 to Jan. 24, Feb. 2-7, Feb. 20 to Mar. 2, and Mar. 9-11, 28-31. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--22 years (water years 1946, 1967-87), 17.7 ft³/s, 12,820 acre-ft/yr; median of yearly mean discharges, 17 ft³/s, 12,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,100 ft³/s, June 9, 1972, gage height, 20.4 ft, site and datum then in use, 22.0 ft, present site and datum, from floodmarks, from rating curve extended above 600 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 0.70 ft³/s, Dec. 30, 1968.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 6	2115	*123	*2.77	Apr. 5	2300	116	2.68

Minimum daily discharge, 2.3 ft³/s Aug. 21.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	8.5	9.2	2.5	3.5	5.0	12	15	26	7.3	2.9	3.3
2	13	8.2	9.5	3.0	3.5	5.5	10	23	21	7.5	2.4	3.2
3	25	7.8	9.5	3.0	3.5	6.4	9.8	24	19	7.3	2.4	3.1
4	23	7.9	9.5	2.5	3.5	6.8	20	19	17	7.7	3.9	3.1
5	18	7.9	9.5	2.5	3.0	27	62	17	15	8.1	3.8	3.8
6	17	8.5	9.5	3.0	3.5	64	67	14	15	7.8	2.9	4.0
7	15	7.5	8.5	3.0	4.0	53	54	13	15	7.9	3.0	4.6
8	13	7.0	7.5	3.5	6.3	38	48	12	14	7.6	4.1	4.9
9	13	7.0	6.0	3.5	12	15	45	12	14	7.6	3.5	4.8
10	12	7.0	5.0	4.0	11	11	34	12	16	7.3	2.8	4.4
11	12	6.5	5.5	4.0	18	11	31	11	15	7.3	3.0	3.6
12	11	6.5	6.0	4.0	12	15	31	11	13	7.3	2.5	3.8
13	11	6.0	6.0	4.5	9.3	16	28	11	12	6.7	2.7	3.7
14	11	6.5	5.5	3.5	5.9	18	26	11	11	5.9	3.5	3.8
15	11	7.0	5.5	2.5	6.9	13	29	10	11	6.2	2.9	3.8
16	11	8.0	5.0	3.0	13	12	32	9.6	11	5.7	2.7	3.6
17	11	9.5	5.0	3.0	10	9.5	31	18	10	5.2	2.8	4.0
18	9.9	10	4.5	3.0	9.4	8.4	32	17	10	5.2	2.9	4.6
19	9.6	10	4.5	3.5	9.2	9.2	31	14	8.4	5.4	2.6	5.1
20	9.5	10	3.5	3.5	8.5	13	28	15	9.1	5.4	2.4	4.9
21	9.5	9.8	4.0	3.5	7.5	6.7	28	32	9.5	5.1	2.3	3.8
22	9.5	9.8	4.0	3.5	6.5	14	26	18	8.9	4.6	2.5	3.7
23	9.7	10	4.0	3.5	5.5	8.3	24	15	9.1	4.0	3.1	4.0
24	10	8.9	4.5	3.5	5.5	8.6	23	18	9.1	4.0	3.3	3.3
25	10	9.2	4.5	3.6	5.5	9.4	22	19	8.6	4.5	3.8	3.4
26	9.7	11	4.5	3.6	5.5	12	20	21	8.1	4.2	5.3	3.7
27	9.1	9.3	4.5	3.5	5.5	10	19	21	7.6	3.6	5.2	3.9
28	9.1	9.2	4.0	3.5	5.0	9.5	18	17	7.4	3.3	4.9	4.0
29	8.8	8.8	3.5	3.4	---	9.5	17	15	7.3	3.2	4.2	4.0
30	8.8	8.7	3.0	3.4	---	9.5	16	19	7.3	3.3	3.8	4.0
31	8.8	---	2.5	3.5	---	10	---	40	---	3.1	3.6	---
TOTAL	368.2	252.0	177.7	103.5	202.5	464.3	873.8	523.6	365.4	179.3	101.7	117.9
MEAN	11.9	8.40	5.73	3.34	7.23	15.0	29.1	16.9	12.2	5.78	3.28	3.93
MAX	25	11	9.5	4.5	18	64	67	40	26	8.1	5.3	5.1
MIN	8.8	6.0	2.5	2.5	3.0	5.0	9.8	9.6	7.3	3.1	2.3	3.1
AC-FT	730	500	352	205	402	921	1730	1040	725	356	202	234

CAL YR 1986	TOTAL	5023.2	MEAN	13.8	MAX	68	MIN	2.5	AC-FT	9960
WTR YR 1987	TOTAL	3729.9	MEAN	10.2	MAX	67	MIN	2.3	AC-FT	7400

06422500 BOXELDER CREEK NEAR NEMO, SD--Continued

PRECIPITATION RECORDS

PERIOD OF RECORD.--March to September 1987.

INSTRUMENTATION.--Precipitation recorder. Elevation of gage is 4,340 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	.02	.00	.00	.19	.00	.00
2						---	.09	.39	.00	.00	.02	.01
3						---	.00	.05	.00	.01	.54	.05
4						---	.00	.03	.00	.12	.00	.03
5						---	.00	.00	.00	.00	.00	.00
6						.00	.00	.00	.00	.08	.03	.33
7						.00	.00	.00	.00	.05	.38	.01
8						.00	.00	.00	.01	.01	.05	.00
9						.00	.01	.03	.21	.00	.00	.00
10						.15	.02	.02	.03	.05	.00	.07
11						.00	.00	.00	.00	.00	.00	.00
12						.00	.06	.06	.00	.00	.00	.00
13						.05	.00	.01	.00	.00	.07	.00
14						.18	.00	.00	.00	.00	.00	.00
15						.00	.00	.02	.00	.00	.00	.00
16						.00	.00	.34	.00	.06	.00	.04
17						.02	.00	.16	.00	.00	.00	.00
18						.19	.01	.01	.00	.01	.00	.00
19						.00	.03	.07	.00	.01	.00	.00
20						.14	.00	.75	.00	.00	.00	.00
21						.08	.00	.00	.00	.00	.00	.00
22						.00	.00	.00	.04	.00	.29	.00
23						.00	.00	.35	.00	.03	.00	.00
24						.00	.00	.40	.00	.07	.00	.00
25						.02	.00	.15	.00	.00	.30	.00
26						.00	.00	.28	.00	.00	.08	.00
27						.03	.00	.00	.00	.00	.07	.00
28						.00	.00	.03	.00	.00	.00	.00
29						.00	.00	.49	.00	.00	.00	.00
30						.01	.00	.16	.00	.04	.00	.00
31						.00	---	.01	---	.00	.00	---

06423010 BOXELDER CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°07'54", long 103°17'54", in NW¼SE¼ 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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges during water year. Records good. Considerable loss in sinkholes in reach above gage.

AVERAGE DISCHARGE.--9 years, 0.88 ft³/s, 638 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 253 ft³/s, May 18, 1978, gage height, 31.14 ft, from floodmark; maximum gage height, 31.51 ft, May 7, 1983, backwater from small dam; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--No flow during year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.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
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MEAN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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

CAL YR 1986	TOTAL	.00	MEAN	.00	MAX	.00	MIN	.00	AC-FT	.00
WTR YR 1987	TOTAL	.00	MEAN	.00	MAX	.00	MIN	.00	AC-FT	.00

06423500 CHEYENNE RIVER NEAR WASTA, SD

LOCATION.--Lat 44°04'52", long 102°24'03", in NE¼NE¼NW¼ 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 National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1940, nonrecording gage at site 50 ft upstream; Aug. 1, 1940, to Dec. 3, 1940, nonrecording gage and Dec. 4, 1940, to Sept. 30, 1968, water-stage recorder at present site all at datum 2.00 ft higher. Oct. 1, 1968, to Sept. 30, 1972, at datum 1.00 ft higher.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 7-24 and Dec. 6 to Mar. 4. Flow regulated by Angostura Dam 108 mi upstream since October 1949 and by upstream dams on Rapid Creek since August 1956. Several observations of water quality were made during the year. National Weather Service telemeter and U.S. Army Corps of Engineers satellite data-collection platform at station.

AVERAGE DISCHARGE.--56 years (water years 1929-31, 1935-87), 344 ft³/s, 249,200 acre-ft/yr; median of yearly mean discharges, 310 ft³/s, 225,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--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, 0.6 ft³/s, July 27, 1961.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,100 ft³/s at 1130 hours, May 24, gage height, 8.20 ft; minimum daily discharge, 55 ft³/s, July 19, Aug. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	258	218	90	150	95	1620	208	563	83	55	106
2	128	259	246	85	180	100	1190	208	570	86	59	103
3	2380	260	215	85	180	120	1090	319	474	82	67	95
4	1350	255	238	95	200	250	1050	497	400	77	77	86
5	550	257	237	100	180	649	1280	463	366	72	77	82
6	328	260	220	120	200	3050	1150	344	308	90	103	87
7	268	220	220	100	200	3460	973	345	277	88	84	102
8	252	200	220	90	200	2390	840	329	261	105	94	102
9	229	180	210	100	220	1020	755	340	240	190	167	132
10	247	150	200	100	240	2600	716	301	259	100	160	128
11	284	100	210	120	250	2190	636	309	608	87	119	115
12	262	120	240	150	270	1230	607	270	433	81	97	105
13	251	180	230	200	250	1190	530	217	390	82	80	105
14	256	220	200	200	230	994	521	186	464	79	162	106
15	248	250	180	180	220	982	512	162	404	77	243	106
16	242	250	180	150	200	1010	463	143	330	71	136	119
17	234	220	200	100	200	923	448	123	295	60	109	101
18	235	200	150	120	180	966	420	121	287	57	97	96
19	237	220	130	120	150	1420	425	127	261	55	93	92
20	228	200	120	150	150	1510	374	303	371	467	87	95
21	224	220	120	150	180	1010	370	4650	203	313	80	101
22	221	250	120	150	180	977	338	1000	150	105	77	103
23	221	250	120	120	150	1090	358	511	125	69	76	103
24	226	280	150	120	150	1130	338	4550	122	99	82	97
25	237	381	150	100	120	729	307	2600	110	101	106	90
26	237	297	130	120	120	789	274	1360	112	103	120	88
27	236	279	150	120	100	1210	260	3890	113	100	166	88
28	229	264	130	150	100	916	243	2540	103	86	193	85
29	226	245	120	150	---	669	236	1210	96	76	147	83
30	243	231	95	180	---	609	224	776	85	64	123	92
31	249	---	95	150	---	625	---	623	---	61	112	---
TOTAL	10882	6956	5444	3965	5150	35903	18548	29025	8780	3266	3448	2993
MEAN	351	232	176	128	184	1158	618	936	293	105	111	99.8
MAX	2380	381	246	200	270	3460	1620	4650	608	467	243	132
MIN	124	100	95	85	100	95	224	121	85	55	55	82
AC-FT	21580	13800	10800	7860	10220	71210	36790	57570	17420	6480	6840	5940

CAL YR 1986	TOTAL	166142	MEAN	455	MAX	11700	MIN	61	AC-FT	329500
WTR YR 1987	TOTAL	134360	MEAN	368	MAX	4650	MIN	55	AC-FT	266500

06425100 ELK CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°14'25", long 103°09'03", in NE¼NE¼ 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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 7-8, Dec. 1-3, 9, 18-19, Dec. 31 to Jan. 1, Jan. 6-10, 14-19, Feb. 4-7, 9, 11, Feb. 26 to Mar. 4, and Mar. 9-11, 27-31. Some flow is pumped from stream for irrigation. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--8 years, 7.18 ft³/s, 5,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,560 ft³/s, May 20, 1982, gage height, 10.79 ft; maximum gage height, 11.80 ft, Feb. 26, 1986, backwater from ice; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 24	0800	*792	*9.95	No other peak greater than base discharge.			

No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	3.9	7.0	2.0	8.6	4.0	24	4.1	21	.76	.00	.00
2	3.1	3.8	5.0	2.0	4.7	5.0	35	4.3	13	.66	.00	.00
3	6.2	4.0	4.5	3.5	5.7	6.0	24	5.4	9.1	.74	.00	.00
4	14	4.1	5.3	2.4	4.0	8.0	23	6.1	7.9	.72	.00	.00
5	18	4.3	5.1	2.1	4.0	12	24	6.2	6.8	.88	.00	.00
6	8.7	4.5	5.4	2.0	5.0	27	23	5.5	6.0	.75	.00	.00
7	5.6	4.5	5.5	2.0	6.0	66	17	4.8	5.2	.68	.00	.00
8	4.5	4.0	5.7	2.0	5.6	27	14	4.1	4.5	.68	.00	.00
9	4.1	4.0	4.5	1.5	4.5	10	12	3.9	4.3	.74	.00	.00
10	3.9	4.5	3.5	1.5	6.0	7.0	9.9	3.9	5.7	.74	.00	.00
11	4.0	3.8	4.0	1.5	6.0	7.0	9.2	3.7	24	.82	.00	.00
12	3.8	3.0	4.3	1.7	6.2	7.9	8.3	3.4	19	.92	.00	.00
13	3.9	2.8	3.5	1.9	6.1	7.7	8.0	3.6	14	1.1	.00	.00
14	4.0	2.7	3.6	2.0	5.8	7.7	7.6	3.5	8.4	1.2	.00	.00
15	4.0	2.8	3.5	2.0	5.9	7.6	7.3	2.8	5.6	1.0	.00	.00
16	4.0	3.1	3.4	1.5	5.9	7.7	7.1	2.9	4.3	1.1	.00	.00
17	4.0	3.7	3.3	.50	6.2	8.2	6.8	2.9	3.5	.93	.00	.00
18	4.0	4.4	3.0	1.0	6.0	8.5	6.7	2.9	3.2	1.2	.00	.00
19	4.0	4.2	2.5	1.5	6.2	9.6	6.7	3.8	3.7	1.1	.00	.00
20	3.9	4.6	2.4	2.0	6.0	13	6.0	5.2	3.3	.77	.00	.00
21	3.9	5.1	2.3	3.3	6.7	3.4	5.4	6.4	3.0	.76	.00	.00
22	4.0	6.0	2.3	3.5	6.3	2.6	5.2	7.0	2.6	.71	.00	.00
23	4.0	6.4	2.4	3.7	6.1	12	5.3	6.4	2.2	.56	.00	.00
24	4.0	8.3	2.5	3.8	5.8	21	5.2	346	2.1	.56	.00	.00
25	4.0	11	3.2	3.7	5.8	8.7	4.9	113	1.5	.53	.00	.00
26	3.9	15	3.9	4.0	5.0	9.9	4.8	84	1.5	.43	.00	.00
27	3.9	11	2.2	4.4	5.0	10	4.6	58	1.3	.35	.00	.00
28	3.8	9.9	3.8	4.6	4.5	9.0	4.5	37	1.2	.29	.00	.00
29	3.7	8.9	4.3	5.1	---	8.0	4.4	22	1.0	.15	.00	.00
30	3.8	8.0	2.3	11	---	8.0	4.0	30	.93	.00	.00	.00
31	4.0	---	2.0	5.2	---	13	---	44	---	.00	.00	---
TOTAL	152.9	166.3	116.2	88.90	159.6	362.5	327.9	836.8	189.83	21.83	.00	.00
MEAN	4.93	5.54	3.75	2.87	5.70	11.7	10.9	27.0	6.33	.70	.00	.00
MAX	18	15	7.0	11	8.6	66	35	346	24	1.2	.00	.00
MIN	2.2	2.7	2.0	.50	4.0	2.6	4.0	2.8	.93	.00	.00	.00
AC-FT	303	330	230	176	317	719	650	1660	377	43	.00	.00

CAL YR 1986	TOTAL	4174.98	MEAN	11.4	MAX	700	MIN	.00	AC-FT	8280
WTR YR 1987	TOTAL	2422.76	MEAN	6.64	MAX	346	MIN	.00	AC-FT	4810

06425500 ELK CREEK NEAR ELM SPRINGS, SD

LOCATION.--Lat 44°14'54", long 102°30'10", in SW¼NW¼ 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 National Geodetic Vertical Datum of 1929. Prior to Nov. 2, 1976, nonrecording gage, and prior to Feb. 1, 1967, at site 350 ft downstream at present datum.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 7 to Mar. 12. Several observations of specific conductance and water temperature were taken during the year.

AVERAGE DISCHARGE.--38 years, 23.6 ft³/s, 17,100 acre-ft/yr; median of yearly mean discharges, 20 ft³/s, 14,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,540 ft³/s, Mar. 29, 1952, gage height, 10.61 ft, from floodmarks, site and datum then in use, from rating curve extended above 5,100 ft³/s; maximum gage height, 13.25 ft, Feb. 27, 1986, backwater from ice; no flow for long periods in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 17 ft, at former site, in May 1920, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 21	0730	458	7.52	May 27	0415	*718	*8.22

No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.1	9.5	4.5	6.5	1.5	253	7.1	58	.50	.00	.00
2	1.0	1.4	9.0	4.5	6.0	1.0	300	8.8	58	.48	.00	.00
3	3.0	1.7	8.0	5.0	5.5	3.0	255	15	46	.34	18	.00
4	1.3	2.0	7.0	5.5	5.0	6.0	280	19	36	.66	22	.00
5	.69	2.4	6.5	5.5	4.5	10	332	14	29	.77	11	.00
6	.43	2.8	7.0	5.0	6.0	15	265	11	25	.32	6.4	.00
7	.18	3.0	8.0	4.5	7.0	40	185	9.8	28	.81	12	.00
8	.00	3.5	7.5	4.5	8.0	10	143	9.5	20	4.0	21	.06
9	.00	3.5	6.0	4.5	6.0	9.0	111	8.3	17	1.1	15	.21
10	.00	3.0	5.5	5.0	7.0	8.0	82	7.7	24	.43	9.7	.03
11	.00	2.5	4.5	6.0	7.5	9.0	59	6.4	21	.30	5.6	.01
12	.00	2.5	4.0	8.0	8.0	10	48	6.0	26	.18	3.5	.04
13	.04	2.0	4.5	7.5	8.0	32	41	5.2	17	.23	4.0	.02
14	.06	2.5	5.0	5.5	7.0	34	35	4.5	15	.11	6.6	.00
15	.05	3.0	5.5	3.5	6.0	41	32	4.1	19	.05	4.0	.01
16	.07	4.0	5.5	2.5	5.0	36	28	3.9	12	.02	2.2	.04
17	.11	5.0	5.0	3.0	4.0	32	26	22	9.0	.62	.96	.03
18	.11	4.0	4.5	3.5	3.0	40	24	36	7.5	.15	.58	.02
19	.07	4.5	4.0	3.0	2.5	57	19	17	5.6	.03	.46	.02
20	.11	5.0	4.0	2.5	2.5	60	17	82	5.7	.01	.61	.02
21	.21	7.0	4.0	2.0	2.0	46	14	329	4.6	.01	.36	.03
22	.21	9.0	4.5	2.0	2.0	100	14	141	3.3	.00	.25	.00
23	.40	10	4.5	2.0	2.0	109	12	78	2.3	.00	.57	.00
24	.21	15	4.5	2.5	1.5	58	10	123	2.1	.00	.63	.00
25	.30	18	5.0	3.0	1.5	47	9.9	91	1.5	.00	1.1	.00
26	.28	15	5.0	3.5	1.5	55	9.1	228	1.5	.00	2.4	.00
27	.31	14	5.0	4.0	1.5	59	8.5	533	1.4	.00	2.6	.00
28	.27	13	5.5	4.5	1.5	47	8.7	310	1.2	.00	1.7	.00
29	.33	12	5.5	5.0	---	43	7.9	147	.95	.00	.72	.00
30	.43	11	5.5	5.5	---	46	7.7	143	.59	.00	.06	.00
31	.28	---	5.0	6.0	---	86	---	83	---	.00	.02	---
TOTAL	10.45	183.4	174.5	133.5	128.5	1150.5	2636.8	2503.3	498.24	11.12	154.02	.54
MEAN	.34	6.11	5.63	4.31	4.59	37.1	87.9	80.8	16.6	.36	4.97	.02
MAX	3.0	18	9.5	8.0	8.0	109	332	533	58	4.0	22	.21
MIN	.00	1.1	4.0	2.0	1.5	1.0	7.7	3.9	.59	.00	.00	.00
AC-FT	21	364	346	265	255	2280	5230	4970	988	22	305	1.1

CAL YR 1986	TOTAL	24583.63	MEAN	67.4	MAX	1540	MIN	.00	AC-FT	48760
WTR YR 1987	TOTAL	7584.87	MEAN	20.8	MAX	533	MIN	.00	AC-FT	15040

06427000 KEYHOLE RESERVOIR NEAR MOORCROFT, WY

LOCATION.--Lat 44°22'55", long 104°46'45", in NW¼NW¼ 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 National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to May 15, 1958, and Oct. 1, 1968, to Mar. 13, 1970, nonrecording gages, and May 15, 1958, to Sept. 30, 1968, water-stage recorder, all at present site and datum.

REMARKS.--Reservoir is formed by a zoned earth-fill dam completed by the Bureau of Reclamation Oct. 25, 1952. Storage began Feb. 12, 1952. Inactive storage, between elevations 4,036.0 ft and 4,051.0 ft, 7,952 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 active contents. 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, 84,650 acre-ft, May 31, elevation, 4,085.03 ft; minimum, 58,135 acre-ft, Oct. 31, elevation, 4,079.04 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	4,078.47	55,972	-
Oct. 31	4,079.04	58,135	+2,163
Nov. 30	4,079.14	58,519	+384
Dec. 31	4,079.15	58,558	+39
CAL YR 1986	-	-	+10,745
Jan. 31	4,079.15	58,558	0
Feb. 28	4,079.81	61,134	+2,576
Mar. 31	4,083.36	76,487	+15,353
Apr. 30	4,084.05	79,787	+3,300
May 31	4,085.03	84,650	+4,863
June 30	4,084.57	82,341	-2,309
July 31	4,083.21	75,783	-6,558
Aug. 31	4,082.26	71,439	-4,344
Sept. 30	4,082.09	70,682	-757
WTR YR 1987	-	-	+14,710

06428500 BELLE FOURCHE RIVER AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°44'59", long 104°02'49", in NE¼NW¼NW¼ 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 9 to Feb. 19, Feb. 26 to Mar. 3, and Mar. 10, 11, 26-30. Diversions above 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. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--41 years, 89.7 ft³/s, 64,990 acre-ft/yr; median of yearly mean discharges, 85 ft³/s, 61,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,400 ft³/s, June 18, 1962, gage height, 15.59 ft; no flow at times some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 792 ft³/s at 1430 hours, Mar. 9, gage height, 8.12 ft; minimum daily discharge, 12 ft³/s, Jan. 24-27.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	26	30	26	15	65	158	97	184	56	112	39
2	57	23	29	22	15	70	165	95	159	113	105	41
3	117	23	30	19	16	70	172	192	146	121	96	40
4	112	23	29	20	16	71	362	114	133	125	95	29
5	75	24	28	20	14	102	537	99	120	130	96	51
6	117	24	27	19	15	97	578	95	113	127	93	49
7	95	32	28	18	15	102	523	95	106	132	100	38
8	76	34	30	18	16	317	453	93	107	132	114	36
9	65	35	26	16	16	681	432	80	104	137	113	32
10	55	30	20	15	17	500	346	73	102	139	104	31
11	50	27	23	15	20	300	258	68	93	140	105	31
12	45	25	27	16	23	226	214	65	76	147	99	31
13	40	23	27	20	30	165	187	62	71	132	295	30
14	38	20	30	17	33	141	163	58	66	131	143	29
15	43	20	30	16	40	126	147	54	62	126	106	28
16	41	21	31	15	50	123	138	51	55	124	97	27
17	41	21	31	14	56	126	139	58	55	117	94	26
18	39	20	30	13	60	130	144	56	52	114	78	26
19	37	20	30	15	63	126	148	60	48	123	67	25
20	37	21	28	14	64	139	155	98	47	137	60	24
21	34	21	30	14	66	93	154	185	42	158	50	23
22	34	22	31	13	50	33	142	127	42	138	46	22
23	49	25	31	13	46	71	130	210	46	129	47	24
24	43	28	30	12	26	121	121	227	41	126	45	26
25	39	37	30	12	47	123	118	199	33	123	44	27
26	38	32	26	12	70	100	116	262	31	129	44	28
27	35	32	28	12	70	90	117	294	29	116	44	21
28	33	34	30	13	70	80	114	325	25	100	43	19
29	32	33	30	13	---	70	109	377	22	98	41	19
30	29	32	30	14	---	65	105	292	24	98	38	21
31	28	---	30	14	---	75	---	218	---	100	43	---
TOTAL	1639	788	890	490	1039	4598	6645	4379	2234	3818	2657	893
MEAN	52.9	26.3	28.7	15.8	37.1	148	222	141	74.5	123	85.7	29.8
MAX	117	37	31	26	70	681	578	377	184	158	295	51
MIN	28	20	20	12	14	33	105	51	22	56	38	19
AC-FT	3250	1560	1770	972	2060	9120	13180	8690	4430	7570	5270	1770

CAL YR 1986	TOTAL	30079.0	MEAN	82.4	MAX	921	MIN	9.0	AC-FT	59660
WTR YR 1987	TOTAL	30070	MEAN	82.4	MAX	681	MIN	12	AC-FT	59640

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

LOCATION.--Lat 44°34'35", long 104°03'20", in SW¼SW¼ 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 to September 1987.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 3,440 ft above National Geodetic Vertical Datum of 1929, from topographic map. June 1954 to Apr. 22, 1987, water-stage recorder at site 15 ft downstream at same datum (irrigation seasons only prior to October 1959).

REMARKS.--No estimated daily discharges during period of record. Records good. 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. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 26 ft³/s, June 26, 1987; no flow for many days in 1987.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							---	.00	.00	25	9.2	20
2							---	.00	.00	25	10	15
3							---	.00	.00	22	9.1	18
4							---	.00	.00	19	8.7	18
5							---	.00	.00	19	8.5	19
6							---	.00	.00	21	8.5	20
7							---	.00	.00	18	9.0	19
8							---	.00	.00	9.0	7.8	16
9							---	.00	.00	9.0	7.6	16
10							---	.00	4.4	8.7	7.3	11
11							---	.00	7.0	8.7	7.9	.00
12							---	.00	6.9	8.5	10	.00
13							---	.00	6.5	7.7	10	.00
14							---	.00	6.6	7.5	11	.00
15							---	.00	6.5	7.3	15	.00
16							---	.00	6.3	7.3	15	.00
17							---	.00	6.0	7.3	16	.00
18							---	.00	5.9	5.8	18	.00
19							---	.00	5.9	2.5	17	.00
20							---	.00	5.9	7.5	18	.00
21							---	.00	5.9	7.1	18	.00
22							---	.00	5.7	6.9	19	.00
23							.00	.00	6.6	7.8	18	.00
24							.00	.00	11	7.7	18	.00
25							.00	.00	16	7.6	20	.00
26							.00	.00	26	7.6	21	.00
27							.00	.00	24	7.6	21	.00
28							.00	.00	23	7.3	22	.00
29							.00	.00	24	6.9	16	.00
30							.00	.00	25	7.1	14	.00
31							---	.00	---	8.8	19	---
TOTAL							---	.00	235.10	328.2	429.6	172.00
MEAN							---	.00	7.84	10.6	13.9	5.73
MAX							---	.00	26	25	22	20
MIN							---	.00	.00	2.5	7.3	.00

06430000 MURRAY DITCH AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'35", long 104°02'58", in SW¼SW¼ sec.7, T.7 N., R.1 E., Butte County, Hydrologic Unit 10120203, on right bank 15 ft downstream from State line and 12 mi southwest of Belle Fourche, SD.

PERIOD OF RECORD.--June 1954 to April 1987 (discontinued) (irrigation seasons only prior to October 1959).

GAGE.--Water-stage recorder. Elevation of gage is 3,440 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges during period. Records good. 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.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 37 ft³/s, July 17, 1973; no flow for long periods in each year.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00					
2	.00	.00	.00	.00	.00	.00	.00					
3	.00	.00	.00	.00	.00	.00	.00					
4	.00	.00	.00	.00	.00	.00	.00					
5	.00	.00	.00	.00	.00	.00	.00					
6	.00	.00	.00	.00	.00	.00	.00					
7	.00	.00	.00	.00	.00	.00	.00					
8	.00	.00	.00	.00	.00	.00	.00					
9	.00	.00	.00	.00	.00	.00	.00					
10	.00	.00	.00	.00	.00	.00	.00					
11	.00	.00	.00	.00	.00	.00	.00					
12	.00	.00	.00	.00	.00	.00	.00					
13	.00	.00	.00	.00	.00	.00	.00					
14	.00	.00	.00	.00	.00	.00	.00					
15	.00	.00	.00	.00	.00	.00	.00					
16	.00	.00	.00	.00	.00	.00	.00					
17	.00	.00	.00	.00	.00	.00	.00					
18	.00	.00	.00	.00	.00	.00	.00					
19	.00	.00	.00	.00	.00	.00	.00					
20	.00	.00	.00	.00	.00	.00	.00					
21	.00	.00	.00	.00	.00	.00	.00					
22	.00	.00	.00	.00	.00	.00	.00					
23	.00	.00	.00	.00	.00	.00	---					
24	.00	.00	.00	.00	.00	.00	---					
25	.00	.00	.00	.00	.00	.00	---					
26	.00	.00	.00	.00	.00	.00	---					
27	.00	.00	.00	.00	.00	.00	---					
28	.00	.00	.00	.00	.00	.00	---					
29	.00	.00	.00	.00	---	.00	---					
30	.00	.00	.00	.00	---	.00	---					
31	.00	---	.00	.00	---	.00	---					
TOTAL	.00	.00	.00	.00	.00	.00	---					
MEAN	.00	.00	.00	.00	.00	.00	---					
MAX	.00	.00	.00	.00	.00	.00	---					
MIN	.00	.00	.00	.00	.00	.00	---					
AC-FT	.00	.00	.00	.00	.00	.00	---					

CAL YR 1986 TOTAL 621.40 MEAN 1.70 MAX 15 MIN .00 AC-FT 1230

06430500 REDWATER CREEK AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'26", long 104°02'54", in NW¼NW¼ sec.18 T.7 N., R.1 E., Butte County, Hydrologic Unit 10120203, on left bank 800 ft downstream from State line, 5.7 mi upstream from Crow Creek, and 12 mi southwest of Belle Fourche, SD.

DRAINAGE AREA.--471 mi².

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

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

GAGE.--Water-stage recorder. Elevation of gage is 3,410 ft above National Geodetic Vertical Datum of 1929, from topographic map. Apr. 25, 1929, to Sept. 30, 1931, and Feb. 28, 1936, to July 31, 1937, nonrecording gage at site 2 mi upstream at different datum.

REMARKS.--Records good except for periods of estimated record, which are fair. Estimated daily discharges during water year: Nov. 10-14, Dec. 10-11, Jan. 16, and Feb. 26 to Mar. 4. Large diversions for irrigation upstream from station. Total flow passing State line may be obtained by adding flow of Murray ditch (see stations 06429997 and 06430000). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--35 years, 35.4 ft³/s, 25,650 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,440 ft³/s, Aug. 22, 1973, gage height, 12.19 ft, from rating curve extended above 1,000 ft³/s on basis of slope-area measurement at gage height 11.95 ft; no flow Aug. 13-15, 1929.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 7	0415	*400	*5.42	No other peak greater than base discharge.			

Minimum daily discharge, 8.3 ft³/s, July 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	33	32	31	32	32	32	35	43	9.9	20	27
2	34	33	32	31	32	32	32	49	41	9.7	23	27
3	35	33	32	31	32	32	32	62	41	10	28	28
4	32	33	32	31	32	32	33	53	41	8.3	26	29
5	32	33	32	31	32	37	33	46	39	9.0	25	35
6	32	34	32	31	32	141	45	44	35	9.7	24	32
7	32	36	33	31	32	205	55	42	41	19	26	32
8	31	33	33	32	32	63	51	41	41	30	27	32
9	31	32	33	32	32	43	52	35	43	30	26	32
10	30	32	33	32	32	38	53	33	38	26	24	35
11	31	31	32	32	32	33	47	31	36	24	27	38
12	30	30	32	32	32	31	47	31	36	24	28	38
13	30	30	32	32	32	30	44	34	30	23	26	38
14	34	31	32	32	34	31	42	34	29	27	26	38
15	35	32	33	32	35	30	35	32	31	26	26	37
16	34	32	33	32	34	31	38	32	30	19	28	38
17	32	32	32	32	33	35	43	36	30	23	27	38
18	32	31	32	32	33	35	44	41	35	23	27	38
19	35	32	32	32	33	35	46	40	36	28	26	37
20	36	32	32	32	33	32	46	40	38	19	26	37
21	37	32	32	32	33	34	46	38	38	18	26	37
22	37	32	32	32	33	32	44	46	35	18	25	37
23	38	30	32	32	32	32	44	44	34	16	25	35
24	37	31	32	32	32	32	41	44	27	20	25	35
25	37	31	32	32	33	32	33	44	23	20	25	35
26	38	32	32	32	32	32	32	44	15	20	27	35
27	38	32	33	32	32	32	32	43	12	18	28	35
28	38	32	33	32	32	32	33	55	9.0	20	27	35
29	33	32	32	32	---	32	34	49	9.2	21	27	35
30	32	32	32	32	---	32	33	45	10	20	27	35
31	33	---	32	32	---	32	---	43	---	23	27	---
TOTAL	1048	961	1000	985	910	1332	1222	1286	946.2	611.6	805	1040
MEAN	33.8	32.0	32.3	31.8	32.5	43.0	40.7	41.5	31.5	19.7	26.0	34.7
MAX	38	36	33	32	35	205	55	62	43	30	28	38
MIN	30	30	32	31	32	30	32	31	9.0	8.3	20	27
AC-FT	2080	1910	1980	1950	1800	2640	2420	2550	1880	1210	1600	2060

CAL YR 1986	TOTAL	11238	MEAN	30.8	MAX	108	MIN	13	AC-FT	22290
WTR YR 1987	TOTAL	12146.8	MEAN	33.3	MAX	205	MIN	8.3	AC-FT	24090

06431500 SPEARFISH CREEK AT SPEARFISH, SD

LOCATION.--Lat 44°28'57", long 103°51'40", in SE¼NW¼ sec.15, T.6 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on right bank in city park in Spearfish, 500 ft downstream from fish hatchery and nearest tributary, and 9.8 mi upstream from mouth.

DRAINAGE AREA.--168 mi².

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

REVISED RECORDS.--WSP 1116: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,640 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Dec. 5, 1946, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges during water year. 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 10 ft³/s. Figures of daily discharge do not include diversion by Homestake Mining Co. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--41 years, 52.5 ft³/s, 38,040 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,240 ft³/s, May 15, 1965, gage height, 10.53 ft, from rating curve extended above 520 ft³/s on basis of slope-area measurement of peak flow; maximum gage height, 10.54 ft, June 15, 1976; no flow for part of Oct. 18, 1970.

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 mi upstream, drainage area, 157 mi²; discharge about 5,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 86 ft³/s at 2115 hours, Apr. 18, gage height, 6.64 ft; minimum daily, 22 ft³/s, July 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	40	42	32	38	34	45	62	44	22	28	30
2	41	39	40	38	37	36	44	61	45	34	27	29
3	42	41	39	36	36	34	43	61	45	34	25	29
4	41	42	35	37	37	34	48	61	43	34	23	30
5	40	43	39	37	37	38	51	55	42	33	28	36
6	39	43	42	36	36	40	61	52	41	35	26	34
7	40	44	42	34	37	39	62	52	43	35	29	33
8	38	42	42	32	37	43	61	49	42	34	33	33
9	38	40	37	35	37	41	66	49	38	33	30	31
10	39	33	29	35	36	39	61	50	43	33	30	31
11	39	33	40	42	37	38	58	47	43	36	30	31
12	38	33	41	40	38	40	58	43	40	37	30	31
13	37	37	43	40	36	40	53	45	39	36	29	31
14	41	47	43	37	36	41	50	42	38	33	30	31
15	38	44	41	30	37	41	54	41	37	33	30	31
16	40	42	38	35	38	40	65	42	36	32	31	30
17	39	43	38	36	36	40	70	43	37	32	31	31
18	39	42	35	40	36	40	78	43	36	32	31	30
19	40	43	38	38	34	40	84	43	37	32	31	30
20	40	40	37	38	31	40	77	47	38	33	31	30
21	38	42	36	38	35	35	71	52	38	32	31	30
22	38	44	35	37	35	41	70	48	37	31	32	30
23	41	44	34	35	35	43	71	49	35	31	31	30
24	41	42	33	40	32	42	75	50	37	29	31	30
25	41	42	35	40	33	42	79	50	35	31	30	29
26	41	41	35	38	34	41	80	49	34	31	31	27
27	39	42	35	37	33	42	78	49	34	30	33	28
28	40	42	37	38	34	41	74	47	35	31	31	30
29	41	43	35	39	---	41	71	47	34	30	32	30
30	41	41	36	37	---	34	66	48	31	29	31	31
31	41	---	35	36	---	48	---	44	---	29	30	---
TOTAL	1229	1234	1167	1143	998	1228	1924	1521	1157	997	926	917
MEAN	39.6	41.1	37.6	36.9	35.6	39.6	64.1	49.1	38.6	32.2	29.9	30.6
MAX	42	47	43	42	38	48	84	62	45	37	33	36
MIN	37	33	29	30	31	34	43	41	31	22	23	27
AC-FT	2440	2450	2310	2270	1980	2440	3820	3020	2290	1980	1840	1820

CAL YR 1986	TOTAL	17307	MEAN	47.4	MAX	104	MIN	29	AC-FT	34330
WTR YR 1987	TOTAL	14441	MEAN	39.6	MAX	84	MIN	22	AC-FT	28640

06433000 REDWATER RIVER ABOVE BELLE FOURCHE, SD

LOCATION.--Lat 44°40'02", long 103°50'20", in NW¼SE¼ 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 National Geodetic Vertical Datum of 1929, from topographic map. Prior to Dec. 13, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 7-9, Nov. 13 to Dec. 16, Dec. 20-22, Jan. 2, 9, 10, 17-25, and Feb. 27 to Mar. 2. Diversions for irrigation of about 13,000 acres above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--42 years, 136 ft³/s, 98,530 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,400 ft³/s, June 16, 1962, gage height, 11.69 ft, from rating curve extended above 6,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1960, 1968-69, 1981-82.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 7	2100	*425	*3.30				

Minimum daily discharge, 4.7 ft³/s, July 10.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	139	180	133	123	110	162	163	152	6.8	15	88
2	163	136	170	130	126	120	159	175	152	5.9	11	84
3	197	140	160	131	121	130	166	202	152	5.5	7.3	83
4	174	137	170	135	122	155	200	195	147	5.8	11	86
5	160	136	170	135	122	179	262	184	134	5.5	11	120
6	156	147	170	131	122	194	212	169	129	5.9	11	109
7	155	130	170	127	126	304	201	166	115	7.4	20	111
8	150	130	170	131	126	253	191	158	105	6.6	44	111
9	145	120	160	130	126	169	188	158	101	6.6	38	109
10	145	126	150	130	124	149	184	147	100	4.7	36	101
11	147	123	150	132	122	143	169	142	104	7.5	46	109
12	143	126	150	132	125	132	167	137	96	7.2	59	117
13	145	130	150	129	122	132	159	133	90	8.1	58	119
14	148	130	150	124	128	132	156	137	81	7.7	59	118
15	147	130	140	117	142	129	153	143	72	8.8	58	118
16	148	140	140	103	134	129	158	110	74	8.4	74	112
17	146	150	134	110	124	129	173	107	66	8.6	84	116
18	145	160	137	120	122	134	193	112	67	9.0	80	118
19	145	170	137	130	122	135	211	115	62	10	80	120
20	144	170	140	140	120	138	217	156	55	10	79	116
21	143	190	140	150	124	134	195	233	48	11	79	115
22	145	240	140	160	123	120	189	188	45	12	77	111
23	147	280	144	130	124	135	190	180	41	8.9	80	109
24	143	290	142	130	123	132	197	178	41	8.9	80	108
25	144	250	143	130	123	132	204	187	37	48	78	106
26	144	230	144	122	120	131	203	189	30	51	84	105
27	142	220	141	119	120	143	202	184	23	29	88	103
28	144	210	146	121	120	133	195	173	17	11	82	101
29	141	190	141	124	---	127	184	180	13	11	87	104
30	142	190	142	123	---	123	176	172	8.0	11	86	102
31	137	---	139	121	---	137	---	162	---	14	85	---
TOTAL	4623	5060	4660	3980	3476	4543	5616	5035	2357.0	361.8	1787.3	3229
MEAN	149	169	150	128	124	147	187	162	78.6	11.7	57.7	108
MAX	197	290	180	160	142	304	262	233	152	51	88	120
MIN	137	120	134	103	120	110	153	107	8.0	4.7	7.3	83
AC-FT	9170	10040	9240	7890	6890	9010	11140	9990	4680	718	3550	6400

CAL YR 1986	TOTAL	47325.5	MEAN	130	MAX	336	MIN	3.5	AC-FT	93870
WTR YR 1987	TOTAL	44728.1	MEAN	123	MAX	304	MIN	4.7	AC-FT	88720

06433500 HAY CREEK AT BELLE FOURCHE, SD

LOCATION.--Lat 44°40'01", long 103°50'46", in NW¼SW¼ 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 National Geodetic Vertical Datum of 1929 (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 for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 11-17, Dec. 9-11, 20-25, Dec. 28 to Jan. 14, Jan. 28 to Feb. 9, Feb. 15 to Mar. 3, and Mar. 9-11, 26-31. Minor diversion to the stream at times from city reservoir overflow, which enters stream upstream from gage. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--34 years, 1.53 ft³/s, 1,110 acre-ft/yr; median of yearly mean discharges, 1.0 ft³/s, 720 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 930 ft³/s, June 19, 1972, gage height, 9.15 ft; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 5	0245	*30	4.60	May 27	2045	a	*4.65

a Backwater from vegetation.
No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.03	.51	.05	.20	.10	14	1.6	5.2	.02	.00	.00
2	1.6	.07	.49	.05	.20	.20	16	2.5	4.3	.01	.05	.00
3	3.2	.21	.40	.05	.20	.50	13	2.4	3.9	.01	.14	.00
4	.80	.19	.32	.10	.20	8.4	15	1.8	3.7	.01	.24	.24
5	.40	.27	.29	.10	.15	11	18	1.8	3.5	.00	.00	1.0
6	.52	.95	.30	.10	.15	9.4	13	2.6	3.2	.00	.00	.03
7	.42	.66	.32	.00	.20	9.2	11	2.8	2.9	.19	1.6	.01
8	.30	.38	.31	.00	.25	6.9	11	2.7	2.5	.09	.15	.00
9	.26	.19	.30	.00	.35	3.0	9.6	2.3	2.4	.01	.00	.00
10	.33	.12	.20	.05	.46	2.0	7.6	2.0	2.5	.01	.00	.00
11	.28	.10	.20	.05	.44	2.0	6.6	1.7	2.3	1.0	.14	.04
12	.26	.05	.25	.05	.45	1.8	6.2	1.6	2.2	.22	.09	.00
13	.32	.05	.26	.10	.45	1.5	5.3	1.5	2.0	.06	.47	.00
14	.30	.05	.21	.05	.46	1.4	4.6	1.3	1.7	.01	1.8	.18
15	.25	.05	.19	.00	.40	1.2	4.3	1.1	1.5	.00	.36	.01
16	.29	.10	.17	.00	.40	1.2	3.7	1.1	1.3	.00	1.7	.00
17	.28	.20	.21	.00	.35	1.2	3.2	2.2	.90	.00	1.2	.00
18	.28	.33	.17	.00	.35	1.2	3.0	1.5	.87	.00	.35	.00
19	.16	.82	.11	.00	.30	1.2	3.1	1.2	1.2	.00	.02	.00
20	.08	1.5	.10	.00	.30	1.8	3.0	9.7	.75	.00	.00	.00
21	.04	3.8	.10	.00	.25	1.9	2.6	12	.55	.00	.00	.00
22	.24	12	.10	.00	.25	.62	2.4	9.8	.40	.00	.23	.00
23	.14	4.8	.20	.00	.20	.81	2.3	5.5	.25	.00	.01	.00
24	.08	2.7	.20	.00	.20	.80	2.7	5.7	.21	.00	.00	.00
25	.26	2.6	.20	.00	.15	.82	2.6	8.5	.10	.00	.00	.00
26	.22	1.6	.05	.00	.15	.80	2.3	10	.07	.00	.00	.00
27	.26	1.0	.05	.00	.15	.60	2.1	16	.06	.01	.00	.00
28	.28	.79	.05	.05	.15	.60	2.0	13	.03	.02	.00	.00
29	.17	.64	.05	.10	---	.50	1.8	7.6	.03	.01	.00	.00
30	.07	.55	.05	.15	---	1.0	1.6	9.5	.02	.00	.00	.00
31	.04	---	.05	.15	---	3.0	---	6.8	---	.09	.00	---
TOTAL	12.22	36.80	6.41	1.20	7.76	76.65	193.6	149.8	50.54	1.77	8.55	1.51
MEAN	.39	1.23	.21	.04	.28	2.47	6.45	4.83	1.68	.06	.28	.05
MAX	3.2	12	.51	.15	.46	11	18	16	5.2	1.0	1.8	1.0
MIN	.04	.03	.05	.00	.15	.10	1.6	1.1	.02	.00	.00	.00
AC-FT	24	73	13	2.4	15	152	384	297	100	3.5	17	3.0

CAL YR 1986	TOTAL	451.28	MEAN	1.24	MAX	32	MIN	.00	AC-FT	895
WTR YR 1987	TOTAL	546.81	MEAN	1.50	MAX	18	MIN	.00	AC-FT	1080

06434500 INLET CANAL NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°42'14", long 103°49'23", in NE¼NW¼ 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 National Geodetic Vertical Datum of 1929. 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 for periods of estimated record, which are fair. Estimated daily discharges during water year: Nov. 8-9, 12-17, Dec. 11-12, 18-22, Jan. 1-2, 8-10, 16-20, 23-25, and Feb. 26 to Mar. 2. Records show actual diversions to Belle Fourche Reservoir (see station 06435000), from Belle Fourche River and Crow Creek, except for 4,150 acre-ft which was diverted for irrigation from the canal between the station and reservoir.

COOPERATION.--Records of diversion from the canal provided by Bureau of Reclamation.

AVERAGE DISCHARGE.--42 years, 167 ft³/s, 121,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,410 ft³/s, May 16, 1982; no flow for some days in 1946-49, 1963, 1966, 1971-76, 1978-79, 1982-84, 1987.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	237	163	196	150	153	140	480	.00	66	22	107	132
2	241	163	189	150	156	170	711	.00	65	58	120	128
3	360	164	171	152	158	217	639	.00	65	119	113	122
4	472	165	187	150	162	329	770	.00	95	133	109	125
5	384	163	186	152	161	475	1140	.00	126	137	103	166
6	319	177	180	151	162	517	1110	6.3	140	127	106	182
7	335	202	182	151	168	467	1030	195	140	123	126	192
8	289	160	183	150	164	471	895	283	142	127	175	166
9	262	160	180	150	168	765	410	270	191	126	149	142
10	236	153	161	150	170	981	.00	246	231	124	145	130
11	222	155	170	154	171	851	.00	232	218	133	137	135
12	202	160	170	157	173	556	.00	239	211	146	236	145
13	195	150	164	156	177	428	.00	228	183	145	257	147
14	191	150	167	155	182	373	.00	220	158	132	336	143
15	185	150	166	156	190	342	.00	213	142	124	187	142
16	181	150	164	140	191	329	.00	178	141	121	167	134
17	178	170	162	150	194	323	.00	173	127	118	179	135
18	176	179	170	150	183	329	.00	184	125	116	165	140
19	172	182	170	150	191	333	.00	183	117	119	141	141
20	167	195	170	160	180	337	.00	290	111	127	129	141
21	165	240	160	179	206	364	.00	543	100	150	136	139
22	168	287	160	201	191	233	.00	404	97	151	133	135
23	176	307	153	180	178	245	.00	182	113	136	137	131
24	188	314	151	170	157	295	1.8	177	111	135	131	131
25	178	290	151	160	151	338	.00	179	100	166	130	129
26	172	238	153	151	150	318	.00	176	83	172	136	125
27	171	229	152	146	150	330	.00	173	56	151	142	121
28	166	222	154	149	140	306	.00	127	38	111	139	122
29	164	216	153	151	---	280	.00	79	29	112	136	130
30	165	204	152	150	---	267	.00	74	24	108	135	128
31	163	---	152	148	---	292	---	68	---	107	133	---
TOTAL	6880	5858	5179	4819	4777	12001	7186.80	5322.30	3545	3876	4675	4179
MEAN	222	195	167	155	171	387	240	172	118	125	151	139
MAX	472	314	196	201	206	981	1140	543	231	172	336	192
MIN	163	150	151	140	140	140	.00	.00	24	22	103	121
AC-FT	13650	11620	10270	9560	9480	23800	14260	10560	7030	7690	9270	8290

CAL YR 1986	TOTAL	82848	MEAN	227	MAX	1280	MIN	15	AC-FT	164300
WTR YR 1987	TOTAL	68298.10	MEAN	187	MAX	1140	MIN	.00	AC-FT	135500

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. Some water-quality data were not available from the laboratory at publication time.

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; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed daily, 2,080 microsiemens, July 2; minimum observed daily, 750 microsiemens, Mar. 10.
WATER TEMPERATURE: Maximum observed daily, 30.0°C, Aug. 28-30; minimum observed daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT 09...	1800	259	1290	8.50	16.5	13.0	680	510	190
NOV 19...	1215	180	1400	8.40	6.5	3.5	760	550	220
DEC 11...	1130	179	1480	8.30	2.0	0.0	910	690	270
JAN 26...	1330	149	1360	8.30	9.0	1.0	750	540	220
MAR 03...	1400	230	1430	8.20	6.0	4.0	750	550	210
MAY 07...	1130	19	1290	--	23.0	18.5	--	--	--
JUN 04...	1000	65	1220	8.10	21.5	16.0	610	450	170
JUL 09...	0915	126	1340	8.30	21.0	21.0	490	330	130
AUG 14...	1130	342	890	8.10	27.0	20.5	--	--	--

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 09...	49	48	13	0.8	4.6	162	590	11	0.40
NOV 19...	52	31	8	0.5	3.4	213	630	6.1	0.40
DEC 11...	57	35	8	0.5	3.4	222	670	5.6	0.30
JAN 26...	49	26	7	0.4	3.1	212	590	5.3	0.40
MAR 03...	54	49	12	0.8	4.7	196	690	7.4	0.40
MAY 07...	--	--	--	--	--	--	--	--	--
JUN 04...	46	43	13	0.8	5.2	166	560	11	0.40
JUL 09...	40	120	34	2	9.1	163	560	23	0.60
AUG 14...	--	--	--	--	--	--	--	--	--

06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT 09...	10	1000	1.4	700	0.130	0.050	0.040	130	0.030
NOV 19...	9.7	1100	1.5	525	0.400	0.040	0.040	100	<0.010
DEC 11...	10	1200	1.6	573	0.470	0.050	0.040	100	0.030
JAN 26...	9.8	1000	1.4	415	0.420	0.050	0.020	90	0.030
MAR 03...	7.9	1100	1.6	709	0.210	0.050	0.030	130	0.020
MAY 07...	--	--	--	--	--	--	--	--	--
JUN 04...	9.8	950	1.3	167	0.140	0.160	0.040	130	0.020
JUL 09...	6.9	990	1.3	336	<0.100	0.280	0.030	190	0.040
AUG 14...	--	--	--	--	--	--	--	--	--

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1100	---	1310	---	---	---	1350	---	980	1860	1460	1480
2	---	---	---	---	1280	1350	1220	---	1060	2080	1400	1450
3	1070	1370	1300	1350	---	1300	1220	---	1210	1780	1350	1500
4	---	---	---	---	1270	1380	1290	---	1200	1830	1450	1430
5	---	1370	1360	1380	---	---	1220	---	1300	1380	1460	1380
6	1180	---	---	---	1280	1160	1120	---	---	1420	1440	1400
7	---	1300	---	1420	---	---	1090	1290	---	1380	1400	1320
8	1300	---	1430	---	---	---	1010	1230	1290	1380	1330	1300
9	---	---	---	1370	1220	1250	1050	---	1280	1380	1350	1240
10	1280	1430	1530	---	---	750	---	---	1290	1380	1380	1340
11	---	---	---	---	1220	760	---	1330	1300	1350	1380	1360
12	---	1670	1380	1360	---	800	---	---	1300	1340	1190	1280
13	1240	---	---	---	1160	910	---	1350	---	1330	1140	1360
14	---	1540	---	1360	---	---	---	1340	---	1320	1020	1310
15	1260	---	1410	---	---	---	---	---	1390	1360	1120	1260
16	---	---	---	1530	---	1100	---	---	1390	1380	---	1340
17	1320	1370	1430	---	1280	---	---	---	1400	1380	1320	1350
18	---	---	---	---	1280	1220	---	1350	1400	1400	1370	1320
19	---	1400	1420	---	---	---	---	1380	1420	1410	1340	1380
20	1320	---	---	1370	1160	1320	---	1430	1400	1400	1360	1370
21	---	1520	---	1360	---	---	---	1430	1490	1390	1390	1320
22	1320	---	1370	---	---	---	---	1430	1480	1360	1300	1310
23	---	---	---	1400	1180	1180	---	---	1380	1340	1300	1340
24	1340	1340	1420	---	---	---	---	---	1400	1230	1330	1420
25	---	---	---	---	1220	1280	---	---	1400	1420	1330	1400
26	---	1330	---	1350	---	---	---	1380	1550	1400	1340	---
27	1340	---	---	---	1200	1360	---	1100	1600	1440	1350	---
28	---	1350	---	1330	---	---	---	1270	1680	1390	1320	1380
29	1320	---	1030	---	---	---	---	1080	1780	1440	1420	1380
30	---	---	---	1320	---	1990	---	---	1850	1460	1340	1330
31	1360	---	1410	---	---	---	---	---	---	1430	1360	---

06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	.0	---	---	---	5.0	---	19.0	21.0	28.0	18.0
2		---	---	---	4.0	.0	4.0	---	18.0	25.0	27.0	19.0
3		4.0	.0	.0	.0	---	5.0	---	18.0	24.0	24.0	20.0
4		---	---	---	2.0	4.0	5.0	---	17.0	21.0	26.0	18.0
5		7.0	.0	.0	---	---	7.0	---	19.0	22.0	23.0	15.0
6		---	---	---	3.0	6.0	10.0	---	---	24.0	22.0	16.0
7		.0	---	.0	---	---	10.0	17.0	---	23.0	19.0	15.0
8		---	.0	---	---	---	10.0	17.0	20.0	23.0	19.0	15.0
9		---	---	.0	2.0	.0	11.0	---	18.0	22.0	22.0	18.0
10		.0	.0	---	---	.0	---	---	17.0	21.0	23.0	16.0
11		---	---	---	4.0	1.0	---	18.0	19.0	19.0	24.0	13.0
12		.0	.0	.0	---	1.0	---	---	21.0	17.0	19.0	12.0
13		---	---	---	5.0	3.0	---	19.0	---	18.0	20.0	15.0
14		.0	---	.0	---	---	---	22.0	---	21.0	21.0	14.0
15		---	.0	---	---	---	---	---	22.0	27.0	20.0	18.0
16		---	---	.0	---	4.0	---	---	24.0	29.0	---	17.0
17		.0	.0	---	2.0	---	---	---	20.0	24.0	20.0	15.0
18		---	---	---	2.0	3.0	---	13.0	22.0	19.0	18.0	12.0
19		.0	.0	---	---	---	---	15.0	21.0	23.0	17.0	---
20		---	---	.0	1.0	4.0	---	14.0	19.0	27.0	20.0	13.0
21		5.0	---	.0	---	---	---	9.0	21.0	24.0	21.0	14.0
22		---	.0	---	---	---	---	10.0	22.0	27.0	18.0	12.0
23		---	---	.0	.0	2.0	---	---	19.0	27.0	17.0	14.0
24		3.0	.0	---	---	---	---	---	24.0	25.0	18.0	15.0
25		---	---	---	.0	.0	---	---	23.0	22.0	18.0	14.0
26		1.0	---	2.0	---	---	---	16.0	22.0	25.0	16.0	---
27		---	---	---	.0	3.0	---	16.0	19.0	27.0	16.0	---
28		4.0	---	1.0	---	---	---	16.0	19.0	28.0	16.0	14.0
29		---	.0	---	---	---	---	16.0	19.0	30.0	19.0	14.0
30		---	---	2.0	---	1.0	---	---	25.0	30.0	15.0	13.0
31		---	.0	---	---	---	---	---	---	30.0	16.0	---

06435000 BELLE FOURCHE RESERVOIR NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°44'12", long 103°40'27", in SW¼SE¼ 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 National Geodetic Vertical Datum of 1929, 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, 185,170 acre-ft (1949 survey), between elevations 2,927.0 ft (lowest outlet) and 2,975.0 ft (crest of spillway weir). 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, 179,934 acre-ft, May 31, elevation, 2,975.19 ft; minimum, 93,817 acre-ft, Oct. 31, elevation, 2,962.81 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,960.52	80,700	-
Oct. 31	2,962.81	93,817	+13,117
Nov. 30	2,964.96	106,270	+12,453
Dec. 31	2,966.57	116,662	+10,392
CAL YR 1986	-	-	+73,682
Jan. 31	2,967.98	126,066	+9,404
Feb. 28	2,969.42	136,020	+9,954
Mar. 31	2,972.73	160,548	+24,528
Apr. 30	2,975.01	178,429	+17,881
May 31	2,975.19	179,934	+1,505
June 30	2,972.62	159,712	-20,222
July 31	2,967.37	121,979	-37,733
Aug. 31	2,964.72	104,827	-17,152
Sept. 30	2,963.54	97,924	-6,903
WTR YR 1987	-	-	+17,224

06436000 BELLE FOURCHE RIVER NEAR FRUITDALE, SD

LOCATION.--Lat 44°41'27", long 103°44'14", in NW¼NE¼ 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 National Geodetic Vertical Datum of 1929, from topographic map. Prior to Apr. 9, 1947, nonrecording gage and Apr. 10, 1947, to Oct. 14, 1948, water-stage recorder, at site 100 ft upstream at same datum. Oct. 15, 1948, to Dec. 30, 1958, water-stage recorder and Dec. 31, 1958, to Sept. 23, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 9-15 and Jan. 16-17. Flow regulated by Keyhole Dam since Feb. 12, 1952, usable capacity, 191,600 acre-ft, 180 mi upstream. 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. Several observations of water temperature and specific conductance were made during the year. National Weather Service telemeter at station.

AVERAGE DISCHARGE.--42 years, 83.5 ft³/s, 60,500 acre-ft/yr; median of yearly mean discharges, 54 ft³/s, 39,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft³/s, May 20, 1982, gage height, 14.32 ft; no flow at times in 1945, 1948, 1959-62, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 862 ft³/s at 2300 hours, Apr. 9, gage height, 5.59 ft; minimum daily discharge, 0.22 ft³/s, June 24.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	5.1	5.2	3.3	3.6	3.6	4.8	273	307	2.5	6.3	5.1
2	6.3	4.5	5.1	3.3	3.6	3.6	7.3	278	267	3.6	6.1	5.0
3	11	5.7	4.8	3.2	3.6	3.6	7.6	329	238	3.7	5.8	5.6
4	11	6.4	4.6	3.2	3.6	4.4	8.7	396	198	3.9	4.7	5.9
5	8.0	6.1	4.4	3.2	3.6	8.1	14	316	128	4.5	4.5	7.5
6	7.4	5.1	4.2	3.0	3.6	7.6	11	266	102	3.9	5.0	7.1
7	7.3	8.9	4.3	2.9	3.7	6.2	7.9	163	81	8.7	6.8	6.9
8	7.0	10	4.4	2.9	3.7	5.3	6.5	4.4	60	9.8	11	6.9
9	7.0	8.0	4.0	2.9	3.7	4.4	274	2.1	46	8.9	8.0	6.7
10	6.9	7.0	4.0	2.9	3.7	13	746	1.6	5.5	9.2	6.8	6.7
11	7.0	6.5	4.0	2.9	3.7	7.0	632	1.3	4.2	9.6	5.9	7.0
12	6.9	6.0	4.0	2.9	3.7	4.2	520	1.3	4.2	9.2	7.0	7.7
13	6.8	6.0	3.9	2.9	3.8	4.0	463	1.3	3.9	7.5	7.2	8.3
14	6.8	6.0	3.8	2.9	3.8	4.0	420	1.3	3.4	6.4	5.7	7.8
15	7.0	6.5	3.8	4.7	4.0	3.8	383	1.4	3.2	11	5.3	6.2
16	7.5	7.1	3.8	3.5	4.0	3.7	363	1.3	2.9	12	5.4	6.4
17	7.2	7.1	3.8	3.5	3.8	3.7	361	1.5	1.7	9.2	5.2	6.4
18	7.2	7.1	3.8	3.6	3.8	3.7	382	1.6	.79	12	4.5	5.6
19	7.1	6.9	3.8	3.6	3.8	3.8	396	2.9	.50	12	4.3	6.2
20	7.1	6.9	3.7	3.6	3.7	4.1	417	5.4	1.1	11	4.1	6.1
21	6.9	7.3	3.6	3.6	3.7	7.4	402	6.3	.65	9.1	3.8	5.3
22	6.9	8.1	3.6	3.5	3.7	5.0	383	12	.75	11	4.0	5.4
23	4.8	7.4	3.6	3.3	3.6	3.9	364	168	.63	11	4.0	5.7
24	4.4	6.7	3.6	3.4	3.6	3.5	354	256	.22	11	3.7	5.4
25	5.0	6.6	3.5	3.4	3.6	3.4	356	255	2.2	10	3.7	5.6
26	4.4	5.8	3.4	3.4	3.6	3.8	347	252	2.8	6.6	3.7	5.5
27	5.1	5.8	3.4	3.4	3.7	3.9	343	333	2.8	4.5	3.7	5.6
28	5.7	5.8	3.4	3.4	3.8	3.9	335	362	2.7	4.5	3.7	5.6
29	4.6	5.4	3.4	3.4	---	4.0	317	466	2.3	6.1	3.5	5.8
30	4.3	5.2	3.4	3.5	---	4.0	299	515	1.8	6.1	3.2	5.3
31	4.9	---	3.4	3.6	---	4.0	---	372	---	6.1	4.2	---
TOTAL	205.4	197.0	121.7	102.8	103.8	148.6	8924.8	5045.7	1475.24	244.6	160.8	186.3
MEAN	6.63	6.57	3.93	3.32	3.71	4.79	297	163	49.2	7.89	5.19	6.21
MAX	11	10	5.2	4.7	4.0	13	746	515	307	12	11	8.3
MIN	4.3	4.5	3.4	2.9	3.6	3.4	4.8	1.3	.22	2.5	3.2	5.0
AC-FT	407	391	241	204	206	295	17700	10010	2930	485	319	370

CAL YR 1986	TOTAL	3332.8	MEAN	9.13	MAX	620	MIN	1.6	AC-FT	6610
WTR YR 1987	TOTAL	16916.74	MEAN	46.3	MAX	746	MIN	.22	AC-FT	33550

06436170 WHITEWOOD CREEK AT DEADWOOD, SD

LOCATION.--Lat 44°22'48", long 103°43'25", in NW¼NE¼SW¼ 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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 12, 13, Dec. 10, 11, Jan. 14-17, Jan. 26 to Apr. 5, and Sept. 16-29. Flow regulated by Homestake Mining Co. 3.5 mi upstream. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--6 years, 30.2 ft³/s, 21,880 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,660 ft³/s, May 15, 1982, gage height, 5.54 ft; minimum daily, 3.5 ft³/s, Jan. 10, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 368 ft³/s at 1245 hours, May 23, gage height, 4.58 ft; minimum daily discharge, 8.0 ft³/s, Mar. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	14	11	9.6	11	8.0	17	42	36	11	12	12
2	21	13	11	12	11	10	18	41	32	11	12	12
3	26	13	11	10	11	12	23	40	30	12	13	13
4	22	14	10	11	11	13	33	36	28	13	14	14
5	17	14	12	12	10	14	46	34	26	16	11	13
6	14	14	12	13	11	18	60	32	24	14	12	12
7	13	13	11	10	12	20	66	31	24	15	25	14
8	13	14	11	11	12	23	77	30	22	14	15	12
9	13	15	10	11	12	18	71	29	21	15	13	12
10	14	13	11	11	12	17	48	28	21	14	13	12
11	14	14	11	12	12	17	41	26	19	13	13	13
12	13	13	11	14	12	17	37	25	18	13	13	11
13	14	14	11	13	12	17	32	25	18	12	14	12
14	13	15	11	12	13	17	33	25	17	13	13	11
15	13	14	12	10	14	16	44	24	17	13	15	11
16	13	13	12	10	13	16	63	25	16	12	13	10
17	14	12	11	11	12	16	104	28	16	13	12	12
18	14	13	11	13	12	15	136	23	16	13	12	12
19	14	16	11	13	12	15	135	23	19	13	12	11
20	13	14	11	12	13	16	99	46	16	13	13	12
21	13	14	10	13	12	18	74	36	14	13	12	11
22	17	14	10	13	12	20	67	32	15	13	14	10
23	18	13	11	11	12	17	66	55	14	14	13	11
24	17	13	10	12	12	15	68	44	14	15	12	11
25	15	13	10	11	12	15	70	45	13	15	15	11
26	15	12	9.7	12	9.0	14	65	40	14	14	17	11
27	14	12	9.5	13	9.0	15	58	38	12	14	16	11
28	14	12	9.7	14	9.0	15	53	36	12	15	13	12
29	14	11	9.7	12	---	16	49	38	12	13	13	12
30	14	11	10	11	---	17	45	47	11	12	12	11
31	14	---	10	11	---	17	---	38	---	11	12	---
TOTAL	469	400	331.6	363.6	325.0	494.0	1798	1062	567	412	419	352
MEAN	15.1	13.3	10.7	11.7	11.6	15.9	59.9	34.3	18.9	13.3	13.5	11.7
MAX	26	16	12	14	14	23	136	55	36	16	25	14
MIN	13	11	9.5	9.6	9.0	8.0	17	23	11	11	11	10
AC-FT	930	793	658	721	645	980	3570	2110	1120	817	831	698

CAL YR 1986	TOTAL	8799.8	MEAN	24.1	MAX	169	MIN	8.4	AC-FT	17450
WTR YR 1987	TOTAL	6993.2	MEAN	19.2	MAX	136	MIN	8.0	AC-FT	13870

06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD

LOCATION.--Lat 44°26'32", long 103°37'44", in SE¼SE¼NE¼NE¼ sec.33, T.6 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on left bank 90 ft downstream from Crook Mountain Road, 1.1 mi south of Whitewood.

DRAINAGE AREA.--56.3 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 3,680 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 8-19, Dec. 3 to Jan. 12, Jan. 15-31, Feb. 24 to Mar. 2, and Mar. 28-30. Flow affected by transbasin diversions for industrial and municipal water supplies. Several observations of water quality were made during the year. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 684 ft³/s, May 7, 1983, gage height, 4.60 ft; minimum daily discharge, 5.0 ft³/s, Dec. 1, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 20	1745	ice jam	*4.29	May 23	1445	*216	3.50

Minimum daily discharge, 9.5 ft³/s, Jan. 7-9.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	16	16	11	13	11	19	41	53	19	17	15
2	19	16	16	10	13	12	16	39	49	18	16	13
3	23	14	18	10	13	14	19	40	46	20	17	13
4	19	15	20	10	13	16	27	36	44	21	22	16
5	19	16	20	11	12	18	41	34	41	22	16	16
6	17	17	20	12	13	23	49	33	39	23	17	14
7	16	19	20	9.5	13	23	55	31	38	25	26	15
8	15	18	20	9.5	13	25	60	31	37	23	24	14
9	15	16	18	9.5	13	21	63	29	36	22	18	14
10	16	15	15	10	13	18	51	28	35	23	17	14
11	17	16	17	10	13	17	41	27	33	24	16	17
12	15	16	17	13	13	18	38	27	32	22	17	15
13	15	16	16	14	13	19	33	29	30	22	17	15
14	16	15	15	14	14	21	32	29	28	20	18	14
15	15	15	14	14	15	18	39	28	27	21	17	14
16	15	15	13	14	14	19	51	27	26	18	20	14
17	15	16	13	13	13	19	67	32	26	19	16	15
18	15	17	12	13	13	17	82	27	25	20	15	14
19	15	18	12	13	13	18	82	27	29	18	15	14
20	15	18	12	13	14	20	71	52	25	18	16	14
21	15	18	12	13	13	22	61	48	23	17	14	13
22	16	18	12	13	14	26	54	44	22	17	16	13
23	19	17	12	12	13	20	53	66	22	17	15	14
24	17	18	12	12	13	17	54	66	21	17	14	14
25	16	17	12	13	13	17	56	66	21	17	16	14
26	16	18	11	14	12	17	55	61	20	16	20	14
27	16	17	11	15	12	18	52	58	19	15	18	14
28	15	16	12	15	12	17	49	53	18	17	16	14
29	15	16	12	15	---	17	47	55	18	16	15	15
30	16	14	12	13	---	18	43	61	18	16	15	15
31	16	---	12	13	---	19	---	57	---	16	16	---
TOTAL	503	493	454	381.5	366	575	1460	1282	901	599	532	430
MEAN	16.2	16.4	14.6	12.3	13.1	18.5	48.7	41.4	30.0	19.3	17.2	14.3
MAX	23	19	20	15	15	26	82	66	53	25	26	17
MIN	14	14	11	9.5	12	11	16	27	18	15	14	13
AC-FT	998	978	901	757	726	1140	2900	2540	1790	1190	1060	853

CAL YR 1986	TOTAL	9218.6	MEAN	25.3	MAX	152	MIN	6.0	AC-FT	18290
WTR YR 1987	TOTAL	7976.5	MEAN	21.9	MAX	82	MIN	9.5	AC-FT	15820

06436190 WHITEWOOD CREEK NEAR WHITEWOOD, SD

LOCATION.--Lat 44°32'30", long 103°34'16", in SE¼NW¼SE¼NE¼ sec.25, T.7 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on right bank 30 ft downstream from county highway bridge, 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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 8-14, Dec. 2-23, Jan. 1-3, 7-12, 15-18, 21-25, Feb. 5, 20, 22, Feb. 26 to Mar. 4, Mar. 9, 10, and Mar. 25 to Apr. 8. Small diversions above station for irrigation of 256 acres. Several observations of water quality were made during the year.

AVERAGE DISCHARGE.--6 years, 31.7 ft³/s, 22,970 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,050 ft³/s, May 20, 1982, gage height, 4.52 ft; minimum daily, 2.9 ft³/s, July 12, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 23	1800	*158	*1.46	No other peak greater than base discharge.			

Minimum daily discharge, 8.0 ft³/s, Aug. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	17	16	13	15	13	23	53	55	14	8.8	12
2	24	17	16	13	15	14	21	52	50	13	8.2	12
3	39	16	16	13	15	16	25	55	43	14	10	11
4	28	17	18	12	15	18	35	45	40	16	13	13
5	25	17	19	13	14	20	45	40	37	15	9.4	13
6	24	19	19	13	15	26	55	39	33	14	9.7	13
7	21	19	19	12	16	26	60	37	33	17	12	13
8	20	18	19	12	15	27	70	35	29	16	15	13
9	20	17	17	12	15	20	75	35	27	14	10	13
10	18	16	16	12	15	19	68	33	26	14	8.6	12
11	23	16	17	13	15	18	57	31	23	17	8.0	13
12	19	16	18	19	14	18	53	30	21	17	8.5	13
13	20	16	16	15	15	19	47	29	19	15	9.3	13
14	20	16	17	15	15	20	44	28	17	15	11	12
15	19	15	18	15	17	19	50	26	16	15	9.9	12
16	18	15	17	14	15	19	65	25	15	15	14	12
17	18	15	16	13	14	19	79	33	15	15	12	13
18	19	16	15	15	15	19	100	26	15	15	12	13
19	18	20	14	17	15	18	110	25	20	15	13	12
20	18	20	13	17	15	22	98	52	16	15	13	12
21	17	21	13	15	15	19	82	57	15	15	12	11
22	17	24	14	15	13	23	75	38	14	15	13	10
23	22	23	14	15	13	19	78	55	14	15	14	12
24	18	23	14	14	14	18	80	75	13	15	13	12
25	17	22	13	15	13	17	79	78	13	15	13	12
26	17	19	13	15	12	18	76	72	14	14	14	12
27	18	21	13	15	12	18	70	68	14	13	14	11
28	17	18	12	15	13	18	66	55	13	12	13	12
29	17	18	13	15	---	19	59	54	13	9.9	13	12
30	17	17	14	13	---	19	55	64	14	9.0	13	13
31	17	---	13	15	---	22	---	67	---	8.8	13	---
TOTAL	623	544	482	440	405	600	1900	1412	687	442.7	360.4	367
MEAN	20.1	18.1	15.5	14.2	14.5	19.4	63.3	45.5	22.9	14.3	11.6	12.2
MAX	39	24	19	19	17	27	110	78	55	17	15	13
MIN	17	15	12	12	12	13	21	25	13	8.8	8.0	10
AC-FT	1240	1080	956	873	803	1190	3770	2800	1360	878	715	728

CAL YR 1986	TOTAL	11249.7	MEAN	30.8	MAX	153	MIN	7.0	AC-FT	22310
WTR YR 1987	TOTAL	8263.1	MEAN	22.6	MAX	110	MIN	8.0	AC-FT	16390

06436198 WHITEWOOD CREEK ABOVE VALE, SD

LOCATION.--Lat 44°37'04", long 103°28'52", in SE¼NW¼NE¼NW¼ sec.35, T.8 N., R.5 E., Butte County, Hydrologic Unit 10120202, on left bank at point where South Canal crosses creek, 3.2 mi above mouth, and 3.7 mi west of Vale.

DRAINAGE AREA.--102 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 2,840 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for Mar. 5-27 and Mar. 31 to June 12, which are fair, and for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 10-20, Dec. 3, 4, Dec. 10 to Mar. 4, and Mar. 28-30. Diversions upstream from station for irrigation of about 800 acres. Several observations of water quality were made during the year. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,680 ft³/s, Sept. 24, 1986, gage height, 4.32 ft; from rating curve extended above 1,300 ft³/s on basis of slope-area estimate of peak flow; no flow July 21, 22 and Aug. 19, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 170 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 4	2100	*202	*1.56	May 23	2130	171	1.48

Minimum daily discharge, 7.8 ft³/s, Mar. 21.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	20	20	15	17	14	70	49	80	18	12	12
2	24	21	20	15	18	18	55	47	69	16	11	11
3	86	20	20	15	18	25	59	50	64	15	12	9.6
4	41	20	21	15	18	39	102	40	58	18	18	12
5	28	21	22	16	17	50	108	37	56	17	13	15
6	26	22	22	16	19	42	99	37	52	16	10	14
7	24	25	22	16	19	36	95	37	49	18	17	14
8	21	19	21	15	19	31	95	36	46	20	39	15
9	22	17	18	16	17	24	101	35	43	17	20	13
10	19	17	18	17	17	24	83	32	43	18	15	12
11	22	17	19	18	17	22	65	29	36	22	13	14
12	20	18	18	21	17	21	60	27	30	25	13	16
13	20	17	17	20	17	23	52	25	26	21	13	13
14	20	18	17	18	20	23	45	24	23	20	14	13
15	19	18	18	17	17	23	53	23	22	18	11	13
16	19	19	17	16	17	23	69	25	20	18	19	11
17	19	19	17	16	18	24	83	34	21	17	13	11
18	19	20	16	18	19	25	102	29	21	21	13	13
19	18	21	14	20	18	25	107	27	24	19	12	12
20	18	21	14	20	17	31	95	45	23	16	12	12
21	18	22	14	18	18	7.8	80	80	21	16	11	11
22	19	43	14	17	16	30	71	57	20	15	12	11
23	24	34	15	16	16	43	70	72	21	13	16	11
24	21	32	15	16	19	28	74	108	19	16	13	11
25	22	34	15	17	17	26	72	116	17	17	13	11
26	21	24	14	18	15	25	72	110	18	16	22	11
27	21	25	14	19	15	24	67	97	17	14	21	9.9
28	21	22	14	19	14	22	64	85	17	15	17	11
29	20	21	15	17	---	20	57	82	17	15	13	12
30	20	19	16	16	---	25	55	85	18	13	12	13
31	19	---	16	17	---	34	---	95	---	12	13	---
TOTAL	731	666	533	530	486	827.8	2280	1675	991	532	463	367.5
MEAN	23.6	22.2	17.2	17.1	17.4	26.7	76.0	54.0	33.0	17.2	14.9	12.2
MAX	86	43	22	21	20	50	108	116	80	25	39	16
MIN	18	17	14	15	14	7.8	45	23	17	12	10	9.6
AC-FT	1450	1320	1060	1050	964	1640	4520	3320	1970	1060	918	729

CAL YR 1986	TOTAL	12021.6	MEAN	32.9	MAX	390	MIN	6.5	AC-FT	23840
WTR YR 1987	TOTAL	10082.3	MEAN	27.6	MAX	116	MIN	7.8	AC-FT	20000

06436760 HORSE CREEK ABOVE VALE, SD

LOCATION.--Lat 44°39'08", long 103°21'59", in SE¼NE¼SE¼ sec.15, 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, approximately.

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

GAGE.--Water-stage recorder. Elevation of gage is 2,710 ft above National Geodetic Vertical Datum of 1929, from topographic map. April 1962 to September 1980, water-stage recorder, at site 2.7 mi downstream, at different datum.

REMARKS.--Records fair except for periods of estimated record, which are poor. Estimated daily discharges during water year: Oct. 20, Nov. 8-23, Dec. 11-14, Dec. 30 to Jan. 2, Jan. 15-16, Feb. 28 to Mar. 6, and Apr. 7-8. Natural flow of stream affected by diversions for irrigation upstream from station and by return flow from Belle Fourche Irrigation Project. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--7 years, 60.3 ft³/s, 43,690 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,700 ft³/s, May 21, 1982, gage height, 24.80 ft; minimum daily, 0.07 ft³/s, Nov. 7, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 5	0145	217	4.37	Aug. 13	1200	277	4.91
Mar. 8	0445	779	7.76	Sept. 7	0200	215	4.44
Apr. 6	2100	*1,690	*10.72	Sept. 8	1715	213	4.42
May 22	2200	220	4.48				

Minimum daily discharge, 0.48 ft³/s, May 13.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	10	26	2.8	4.1	4.0	42	8.5	31	73	63	106
2	58	8.6	22	2.8	4.6	6.0	249	11	30	95	66	103
3	85	7.1	14	2.9	4.9	7.0	686	15	35	81	71	93
4	155	11	13	2.8	5.5	15	775	9.3	26	85	75	83
5	196	7.5	14	2.6	6.7	20	1050	7.1	23	97	78	117
6	141	16	12	2.3	5.9	90	1450	5.8	16	101	76	166
7	96	41	10	4.4	6.2	574	900	5.7	15	104	97	163
8	65	28	9.8	4.7	12	561	500	5.6	12	99	131	174
9	52	10	8.5	3.4	17	201	335	6.0	13	98	151	61
10	46	5.0	6.1	3.5	26	63	208	3.8	16	81	139	40
11	42	3.0	5.0	10	29	48	143	3.2	17	90	94	48
12	40	2.5	4.5	19	21	36	105	.85	16	96	75	40
13	36	1.0	4.5	3.3	16	28	75	.48	15	89	232	37
14	33	1.5	5.0	6.4	15	22	54	2.9	21	83	127	36
15	31	1.5	5.8	3.5	26	17	45	2.1	28	70	69	36
16	29	2.5	5.9	2.5	23	16	39	13	19	63	58	32
17	26	3.5	5.2	2.6	22	14	33	22	18	71	51	29
18	26	4.5	5.5	2.2	18	13	27	26	25	105	42	36
19	24	4.5	5.6	2.7	19	11	24	27	24	91	40	40
20	17	3.5	3.6	3.0	18	21	23	49	27	82	42	41
21	11	4.0	2.2	2.3	18	13	19	93	27	76	39	39
22	8.6	6.0	2.1	2.0	13	13	16	140	29	71	43	36
23	8.4	8.0	3.8	1.6	14	9.7	15	172	36	73	44	31
24	10	11	4.1	1.5	13	7.0	12	102	39	68	39	31
25	10	14	4.5	1.7	6.7	9.9	10	72	47	65	47	31
26	9.3	26	4.9	2.0	4.8	6.2	9.4	63	53	62	84	32
27	8.1	23	4.6	2.5	3.2	14	8.2	88	67	61	87	31
28	7.9	33	3.3	2.7	6.0	19	8.1	50	71	59	94	28
29	7.1	39	2.9	2.9	---	30	7.6	42	66	60	100	33
30	9.4	37	2.8	3.7	---	32	9.1	37	62	62	102	34
31	13	---	2.8	3.3	---	26	---	34	---	67	104	---
TOTAL	1362.8	373.2	224.0	113.6	378.6	1946.8	6877.4	1117.33	924	2478	2560	1807
MEAN	44.0	12.4	7.23	3.66	13.5	62.8	229	36.0	30.8	79.9	82.6	60.2
MAX	196	41	26	19	29	574	1450	172	71	105	232	174
MIN	7.1	1.0	2.1	1.5	3.2	4.0	7.6	.48	12	59	39	28
AC-FT	2700	740	444	225	751	3860	13640	2220	1830	4920	5080	3580

CAL YR 1986	TOTAL	39700.3	MEAN	109	MAX	5640	MIN	1.0	AC-FT	78750
WTR YR 1987	TOTAL	20162.73	MEAN	55.2	MAX	1450	MIN	.48	AC-FT	39990

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD

LOCATION.--Lat 44°30'47", long 103°08'11", in SE¼NW¼ sec.3, T.6 N., R.8 E., Meade County, Hydrologic Unit 10120202, on right bank near upstream end of bridge on State Highway 34, 0.5 mi upstream from Bear Butte Creek, and 20 mi northeast of Sturgis.

DRAINAGE AREA.--5,870 mi², approximately.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 2,526.13 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 31, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except for Aug. 1 to Sept. 30, which is fair, and periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 7 to Mar. 4 and Mar. 9-11, 21-24, 28-31. Flow regulated by Keyhole Dam, usable capacity, 191,600 acre-ft, 246 mi upstream since February 1952. At a point 75 mi upstream, water is diverted to Belle Fourche Reservoir (see station 06435000), through Inlet Canal (see station 06434500), with other small diversions from the main stem and tributaries for irrigation. Total diversion for irrigation of about 60,000 acres upstream from station. Several observations of water quality were made during the year.

AVERAGE DISCHARGE.--42 years, 276 ft³/s, 200,000 acre-ft/yr; median of yearly mean discharges, 246 ft³/s, 178,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,400 ft³/s, May 21, 1982, gage height, 19.10 ft; no flow for many days in 1945, 1950, and Aug. 9, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,670 ft³/s at 1445 hours, Apr. 5, gage height, 7.32 ft; minimum daily discharge, 20 ft³/s, Feb. 27.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	302	83	80	80	75	50	246	389	538	263	245	245
2	267	84	80	60	65	75	777	377	475	279	230	230
3	346	84	65	60	65	100	1590	407	430	284	256	206
4	847	84	75	70	65	150	1960	430	397	307	299	202
5	601	82	85	80	60	199	2410	482	359	325	314	169
6	411	83	85	80	65	1110	1980	411	301	329	301	197
7	323	75	85	60	70	1390	1660	376	278	332	339	228
8	251	60	80	50	70	991	1080	339	252	351	598	258
9	213	50	55	50	70	300	728	214	231	338	619	290
10	186	40	50	50	75	220	727	226	227	325	544	242
11	167	40	60	65	75	200	906	222	200	314	457	240
12	159	40	80	75	80	187	792	210	163	400	409	227
13	151	35	80	75	75	170	696	182	157	445	437	221
14	140	45	80	65	75	150	601	166	153	436	492	202
15	130	50	80	45	70	139	543	158	152	381	315	185
16	125	65	80	40	75	132	508	150	158	309	277	162
17	121	70	90	35	70	127	491	170	145	257	279	150
18	114	60	70	45	70	126	497	234	141	274	289	171
19	113	60	60	55	75	126	516	260	142	351	249	191
20	109	70	60	55	65	148	528	315	129	365	225	186
21	106	80	60	55	55	270	541	1060	169	357	203	176
22	105	100	60	45	55	280	517	938	160	331	199	179
23	104	150	75	40	55	280	488	670	165	320	221	173
24	101	150	100	35	55	320	467	821	161	310	267	165
25	99	200	100	35	45	326	446	786	155	305	273	165
26	95	200	90	42	30	109	447	777	177	296	272	171
27	90	180	100	50	20	106	435	1070	214	293	270	184
28	90	150	100	60	30	110	429	854	243	285	282	167
29	89	130	100	65	---	100	424	614	237	274	274	176
30	86	100	100	75	---	95	408	655	256	275	240	178
31	83	---	100	75	---	140	---	676	---	269	238	---
TOTAL	6124	2700	2465	1772	1755	8226	23838	14639	6965	9980	9913	5936
MEAN	198	90.0	79.5	57.2	62.7	265	795	472	232	322	320	198
MAX	847	200	100	80	80	1390	2410	1070	538	445	619	290
MIN	83	35	50	35	20	50	246	150	129	257	199	150
AC-FT	12150	5360	4890	3510	3480	16320	47280	29040	13820	19800	19660	11770

CAL YR 1986	TOTAL	122331	MEAN	335	MAX	6520	MIN	35	AC-FT	242600
WTR YR 1987	TOTAL	94313	MEAN	258	MAX	2410	MIN	20	AC-FT	187100

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, 3,850 microsiemens, Nov. 26; minimum observed daily, 1,180 microsiemens, Apr. 6.
WATER TEMPERATURE: Maximum observed daily, 27.0°C, June 26, July 25; minimum observed daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	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)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT												
27...	1434	91	2860	8.36	22.5	12.5	691	9.8	103	1300	1200	250
NOV												
25...	1200	197	3030	8.23	3.5	-0.5	699	11.9	89	1300	1200	260
DEC												
30...	1700	108	2960	8.23	4.0	0.0	694	12.3	93	1500	1200	290
JAN												
27...	1405	49	2790	8.08	9.0	0.0	695	13.2	100	1400	0	300
MAR												
02...	1245	79	2900	8.36	7.5	-0.5	698	12.9	96	1200	960	240
26...	1345	110	2510	8.40	9.0	6.0	688	12.0	108	940	810	180
APR												
27...	1435	434	1330	8.40	23.0	17.0	704	9.3	105	640	460	160
MAY												
20...	1540	319	1960	8.66	7.0	12.5	693	10.2	107	810	640	180
JUN												
29...	1150	--	2000	8.38	--	22.0	700	8.4	106	800	670	180
JUL												
30...	1225	272	1870	8.32	34.5	28.0	692	8.4	119	860	720	200
AUG												
30...	1630	--	1900	8.60	23.5	22.5	702	8.7	110	850	740	200
SEP												
28...	1600	156	1970	8.44	19.5	15.5	701	10.0	110	900	800	210

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT												
27...	160	220	27	3	11	109	1500	27	0.50	4.2	2570	2200
NOV												
25...	170	310	33	4	10	173	1700	30	0.70	6.4	2900	2600
DEC												
30...	180	250	27	3	14	282	1700	19	0.50	4.1	2840	2600
JAN												
27...	150	230	27	3	10	--	1600	33	0.60	4.6	2550	--
MAR												
02...	150	290	34	4	10	256	1600	46	0.50	3.4	2750	2500
26...	120	210	32	3	8.7	138	1200	46	0.50	3.6	2020	1900
APR												
27...	58	60	17	1	5.2	179	590	13	0.50	8.0	1040	1000
MAY												
20...	88	150	28	2	7.6	167	890	21	0.50	2.9	1690	1400
JUN												
29...	85	130	26	2	9.5	131	990	17	0.40	3.6	1640	1500
JUL												
30...	86	110	22	2	9.1	139	920	13	0.50	3.4	1550	1400
AUG												
30...	85	130	25	2	8.6	113	990	15	0.50	3.7	1610	1500
SEP												
28...	91	130	24	2	3.3	95	1000	18	0.50	3.0	1680	1500

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	BORON, DISSOLVED (UG/L AS B)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ARSENIC DISSOLVED (UG/L AS AS)
OCT											
27...	3.5	631	1.90	1.90	0.60	11	<0.010	0.020	--	--	9
NOV											
25...	3.9	1540	7.80	8.10	1.0	40	0.030	0.024	--	--	7
DEC											
30...	3.9	828	3.80	3.80	0.60	19	<0.010	0.010	--	--	13
JAN											
27...	3.5	335	4.30	--	--	--	0.010	0.010	430	<0.010	5
MAR											
02...	3.7	587	1.60	--	--	--	0.010	0.030	370	<0.010	5
26...	2.7	600	3.70	3.70	0.50	19	0.040	0.009	290	<0.010	6
APR											
27...	1.4	1220	0.400	0.400	0.90	5.8	0.020	0.006	150	<0.010	15
MAY											
20...	2.3	1460	1.10	1.10	0.80	8.4	0.100	<0.005	280	<0.010	8
JUN											
29...	2.2	0.0	0.480	0.500	1.1	7.1	0.182	0.046	--	<0.010	11
JUL											
30...	2.1	1140	0.220	--	--	--	0.030	<0.005	290	<0.010	13
AUG											
30...	2.2	0.0	0.560	--	--	--	<0.010	0.006	80	<0.010	31
SEP											
28...	2.3	708	1.00	--	--	--	0.010	<0.005	290	<0.010	10

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	CYANIDE DIS-SOLVED (MG/L AS CN)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)
OCT 27...	<1	--	--	<1	<0.01	20	--	--	260	<0.1	--
NOV 25...	<1	--	--	2	<0.01	20	--	--	400	<0.1	--
DEC 30...	<1	--	--	2	<0.01	360	--	--	520	<0.1	--
JAN 27...	<1	--	--	2	<0.01	20	--	--	520	<0.1	--
MAR 02...	<1	<1	1	5	<0.01	60	<5	190	410	1.1	2
26...	<1	--	--	2	0.02	10	--	--	420	<0.1	--
APR 27...	<1	--	--	1	<0.01	3	--	--	8	<0.1	--
MAY 20...	<1	--	--	1	<0.01	10	--	--	30	<0.1	--
JUN 29...	<1	--	--	5	<0.01	<10	--	--	10	<0.1	--
JUL 30...	<1	<1	<1	2	<0.01	7	<5	110	7	0.1	4
AUG 30...	<1	1	1	<1	<0.01	8	<5	99	7	<0.1	6
SEP 28...	<1	--	--	2	<0.01	3	--	--	17	<0.1	--

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	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)	ZINC, DIS-SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 27...	--	1	--	--	--	--	<10	--	15	3.7	96
NOV 25...	--	<1	--	--	--	--	<10	--	40	21	93
DEC 30...	--	<1	--	--	--	--	10	--	131	38	63
JAN 27...	--	<1	--	--	--	--	10	--	7	0.92	84
MAR 02...	6	<1	12	<1	2800	<14	<10	<0.010	20	4.3	94
26...	--	<1	--	--	--	--	<10	--	22	6.5	93
APR 27...	--	1	--	--	--	--	9	--	153	179	94
MAY 20...	--	2	--	--	--	--	120	--	--	--	--
JUN 29...	--	2	--	--	--	--	<10	--	45	--	95
JUL 30...	3	1	3	<1	2600	1	14	<0.010	46	34	93
AUG 30...	2	1	4	<1	2400	<1	6	<0.010	49	--	96
SEP 28...	--	2	--	--	--	--	<3	--	23	9.7	91

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1790	2840	2790	3000	2570	2900	2900	1230	1210	1820	1850	1830
2	1980	2840	2700	2870	2670	2900	2600	1340	1290	1820	1780	1770
3	2090	2920	2850	2940	2670	2780	1350	1220	1330	1820	1890	1770
4	2320	2920	3260	2830	2700	2780	1330	1360	1300	1760	1870	1790
5	1720	2900	3300	2830	2750	2670	1200	1480	1390	1800	1850	1800
6	1600	2800	2940	2870	2800	2500	1180	1390	1390	1750	1840	1850
7	1710	2730	2940	2870	2760	1500	1220	1550	1520	1740	1830	1900
8	1950	2800	3010	2870	2710	1500	1300	1360	1520	1700	1720	1790
9	2140	3100	2900	2900	2750	1390	1280	1460	1580	1760	1780	1780
10	2320	3100	3070	3010	2800	1440	1450	1500	1600	1750	1720	1780
11	2450	3100	3000	3100	2900	1550	1480	1500	1600	1770	1750	1790
12	2600	3210	2980	2920	3420	1650	1320	1700	1650	1800	1650	---
13	2600	3450	3150	3000	3350	1350	1370	1650	1670	1790	1700	1800
14	2640	3280	3020	2830	2950	1440	1390	1650	1740	1710	1740	1800
15	2660	3270	3200	2730	3110	2050	1960	1750	1710	1700	1570	1800
16	2680	3250	2900	2760	3200	2150	1450	2150	1730	1730	1710	1780
17	2710	3200	3090	2940	3300	2230	1450	1950	1850	1750	1710	1850
18	2700	3190	3030	2980	3220	2300	1440	2330	1800	1800	1790	1940
19	2740	3250	3080	3170	---	2350	1420	---	1840	1890	1710	1950
20	2700	3210	3180	3100	3230	2440	1330	---	2090	1820	1770	1950
21	2800	3130	3130	3070	3200	2600	1320	1950	2140	1700	1850	1860
22	2800	3030	3130	2990	3300	2700	1270	1880	---	1660	1850	1900
23	2780	3130	3150	2930	3220	2800	1270	1740	---	1750	1840	1900
24	2800	3130	3000	2980	3250	2550	1300	1140	1840	1730	1840	1900
25	2800	3170	3000	2920	3300	2650	1270	1800	1890	1750	1790	1870
26	2850	3850	3120	2900	3310	2350	1300	1750	1950	1650	1780	1900
27	2820	3250	3120	2860	3380	2600	1250	1750	1970	1800	1800	1980
28	2860	3140	2990	2860	3370	2600	1200	1600	1860	1800	1890	1970
29	2890	3100	3040	2810	---	2800	1250	1700	1760	1750	1890	1900
30	2880	3180	2910	2730	---	2890	1220	1500	1900	1700	1870	1920
31	2910	---	3000	2700	---	3140	---	1500	---	1800	1830	---

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.5	3.5	1.0	1.0	1.0	1.0	4.5	17.0	18.0	20.5	25.0	17.5
2	12.0	2.5	1.0	1.0	1.0	.5	3.5	16.0	16.0	21.0	25.0	17.5
3	10.0	5.0	1.0	1.0	2.0	.5	1.5	13.0	14.5	20.5	23.0	19.0
4	9.0	3.0	1.0	1.0	2.0	.5	3.5	11.5	16.0	19.5	21.5	17.5
5	10.5	5.0	1.0	1.0	1.0	.5	6.0	13.5	18.0	20.5	22.0	17.0
6	10.0	6.0	1.0	1.0	1.0	1.0	6.0	15.0	20.0	21.0	22.0	15.0
7	10.5	2.0	1.0	1.0	1.0	1.5	7.0	16.0	21.5	20.0	19.5	16.0
8	11.5	1.0	1.0	1.0	1.0	2.0	8.5	16.0	21.5	20.0	19.0	14.5
9	10.0	1.0	1.0	1.0	1.0	.0	9.5	18.0	19.0	22.0	20.0	16.0
10	10.0	.5	1.0	1.0	1.0	.0	7.0	18.5	17.5	20.0	21.0	17.0
11	6.0	1.0	1.0	1.0	1.0	1.0	6.0	19.0	23.5	21.0	21.5	14.0
12	3.5	1.0	1.0	1.0	1.0	1.5	6.5	16.5	20.0	16.0	20.0	---
13	4.0	1.0	1.0	1.0	1.0	2.0	6.0	18.0	22.0	16.0	19.5	13.5
14	5.0	1.0	1.0	1.0	1.0	3.5	6.5	17.0	22.0	19.0	20.5	15.0
15	5.5	1.0	1.0	1.0	1.0	4.0	12.0	18.0	22.5	20.0	21.0	18.5
16	6.5	1.0	1.0	1.0	1.0	3.0	11.0	19.0	22.0	21.5	18.5	16.5
17	7.0	1.0	1.0	1.0	1.0	1.5	12.0	19.5	20.0	22.0	17.5	14.0
18	8.0	1.0	1.0	1.0	.0	2.5	13.0	15.0	23.0	21.5	16.5	11.5
19	8.5	1.0	1.0	1.0	.5	3.0	9.0	---	21.5	21.0	17.0	11.5
20	9.0	1.0	1.0	1.0	.5	4.5	8.5	---	21.5	21.5	19.5	11.0
21	9.5	1.0	1.0	1.0	.5	.0	10.0	8.0	22.0	22.5	21.5	11.0
22	11.5	1.0	1.0	1.0	.0	.5	11.0	14.0	---	23.5	19.5	12.0
23	11.0	1.0	1.0	1.0	.5	1.0	12.0	14.0	---	23.5	16.5	12.5
24	10.0	1.0	1.0	1.0	.5	.5	11.5	12.0	24.0	22.5	16.0	13.5
25	10.0	1.0	1.0	1.0	.5	1.0	12.5	14.0	17.5	27.0	18.0	13.5
26	8.5	1.0	1.0	1.0	.5	1.0	15.0	15.0	27.0	22.5	17.0	15.0
27	9.0	1.0	1.0	1.0	.0	3.5	14.5	15.0	20.0	24.5	15.5	14.0
28	9.5	1.0	1.0	1.0	.5	.5	13.5	16.0	21.5	24.5	16.0	11.0
29	7.5	1.0	1.0	1.0	---	.5	16.0	16.5	19.5	24.5	17.5	10.0
30	10.5	1.0	1.0	1.0	---	1.0	15.5	17.0	19.0	25.0	16.0	11.0
31	5.5	---	1.0	1.0	---	1.0	---	18.0	---	25.5	16.0	---

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD
(National stream-quality accounting network station)

LOCATION.--Lat 44°22'11", long 102°33'56", in NE¼NE¼ sec.29, T.5 N., R.13 E., Meade County, Hydrologic Unit 10120202, on right bank 10 ft downstream from highway bridge, 4.3 mi northwest of Elm Springs, and 4.7 mi downstream from Hay Creek.

DRAINAGE AREA.--7,210 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to June 1932, March 1934 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 926: 1929, 1931(M), 1935, 1937.

GAGE.--Water-stage recorder. Datum of gage is 2,171.60 ft above National Geodetic Vertical Datum of 1929. Prior to July 27, 1939, nonrecording gage at same site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 8-25, Dec. 8-22, Jan. 2, Jan. 7 to Feb. 7, Feb. 22 to Mar. 7, and Mar. 29, 30. 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.

AVERAGE DISCHARGE.--56 years (water years 1929-31, 1935-87), 363 ft³/s, 263,000 acre-ft/yr; median of yearly mean discharges, 360 ft³/s, 261,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,100 ft³/s, June 8, 1964, gage height, 15.90 ft, from rating curve extended above 23,000 ft³/s; maximum gage height, 18.22 ft, May 21, 1982; no flow for many days in 1936-37, 1939-40, 1961-62, 1981.

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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,200 ft³/s at 2245 hours, May 27, gage height, 7.35 ft; minimum daily discharge, 16 ft³/s, Feb. 27.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	444	81	197	127	65	20	643	410	795	229	228	147
2	372	83	185	115	60	70	1070	405	638	251	199	147
3	389	83	98	120	50	80	2410	422	559	241	226	139
4	829	80	84	124	50	80	3760	435	506	271	213	127
5	992	81	92	128	70	80	4720	456	481	313	244	124
6	709	81	120	127	80	70	3530	473	458	339	270	106
7	511	94	134	110	85	700	2440	426	401	330	277	126
8	401	80	65	100	117	2300	1740	400	355	335	380	174
9	323	40	45	90	112	1080	1200	362	320	343	561	217
10	261	40	40	80	111	627	889	213	330	335	536	256
11	219	40	55	85	98	444	952	205	315	332	478	209
12	192	30	70	100	99	345	936	201	299	306	415	198
13	177	30	80	100	109	279	823	187	193	411	382	185
14	168	35	90	100	94	279	731	153	175	453	443	175
15	156	40	100	90	84	291	665	128	165	428	433	149
16	146	50	100	80	90	226	612	118	158	380	267	142
17	137	50	90	70	95	200	571	187	170	302	209	120
18	128	40	70	50	100	225	549	153	156	240	211	114
19	118	50	60	60	75	308	536	231	136	240	215	124
20	114	60	60	60	73	325	534	531	143	341	163	152
21	111	80	75	50	60	348	542	677	129	357	144	154
22	106	100	85	45	50	474	533	1380	167	347	120	141
23	107	130	112	40	34	207	503	966	167	308	115	138
24	101	150	123	35	26	196	483	2440	161	291	120	132
25	96	200	129	35	24	156	466	2200	145	284	185	134
26	97	218	129	40	20	144	457	2080	136	269	220	128
27	92	272	133	45	16	193	451	4460	153	260	219	131
28	90	291	135	50	18	152	445	3060	178	264	198	124
29	86	251	132	55	---	150	438	1340	217	253	199	131
30	85	207	139	60	---	180	425	1020	214	228	191	137
31	86	---	129	65	---	276	---	914	---	242	155	---
TOTAL	7843	3067	3156	2436	1965	10505	34054	26633	8420	9523	8216	4481
MEAN	253	102	102	78.6	70.2	339	1135	859	281	307	265	149
MAX	992	291	197	128	117	2300	4720	4460	795	453	561	256
MIN	85	30	40	35	16	20	425	118	129	228	115	106
AC-FT	15560	6080	6260	4830	3900	20840	67550	52830	16700	18890	16300	8890

CAL YR 1986	TOTAL	194563	MEAN	533	MAX	13300	MIN	30	AC-FT	385900
WTR YR 1987	TOTAL	120299	MEAN	330	MAX	4720	MIN	16	AC-FT	238600

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; 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 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	ALKA-LINITY WH WAT TOTAL 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, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT											
28...	1515	99	2900	8.20	205	15.0	13.0	3.3	711	10.6	109
DEC											
19...	1430	62	3400	8.20	302	-2.0	0.0	3.1	706	14.8	111
MAR											
12...	1230	346	1610	8.20	109	5.5	2.0	600	--	12.4	--
APR											
23...	1400	502	1490	8.40	180	21.0	16.0	100	711	9.6	105
JUN											
29...	1445	207	2290	8.40	145	25.0	24.0	12	700	8.7	114
AUG											
31...	1445	165	1960	8.34	136	29.0	22.5	17	711	9.0	112

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)
OCT											
28...	23	100	1400	1100	260	170	240	28	3	11	186
DEC											
19...	K6	--	1700	1400	360	190	310	28	3	12	275
MAR											
12...	--	--	500	390	110	55	170	42	3	7.6	112
APR											
23...	K16	66	690	510	170	64	91	22	2	6.0	172
JUN											
29...	--	--	870	720	190	95	170	30	3	10	137
AUG											
31...	K10	29	840	700	190	88	140	26	2	8.8	96

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
OCT											
28...	1600	32	0.50	4.5	2650	2900	3.6	705	0.010	1.40	1.39
DEC											
19...	2000	42	0.50	3.4	3250	3100	4.4	544	<0.010	2.70	--
MAR											
12...	760	31	0.30	5.5	1200	1200	1.6	1120	0.030	1.40	1.37
APR											
23...	700	15	0.40	7.7	1230	1200	1.7	1670	<0.010	0.400	--
JUN											
29...	1200	21	0.40	2.5	1930	1800	2.6	1080	<0.010	0.170	--
AUG											
31...	970	18	0.50	3.6	1710	1500	2.3	762	0.020	1.10	1.08

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
OCT 28...	0.090	0.100	0.12	0.80	<0.010	<0.010	<0.010	<10	6	100
DEC 19...	0.130	0.140	0.17	0.90	0.010	<0.010	<0.010	--	--	--
MAR 12...	0.150	0.170	0.19	1.5	0.150	0.020	<0.010	20	2	18
APR 23...	0.060	0.090	0.08	0.70	0.020	0.010	<0.010	10	9	32
JUN 29...	0.110	0.120	0.14	1.0	0.170	0.040	<0.010	<10	5	<100
AUG 31...	0.050	0.050	0.06	0.70	0.340	0.210	<0.010	--	--	--

DATE	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)
OCT 28...	<10	<1	<1	<1	<1	30	<5	160	80	<0.1
DEC 19...	--	--	--	--	--	--	--	--	--	--
MAR 12...	<0.5	1	<1	<3	3	31	<5	120	28	<0.1
APR 23...	<0.5	<1	<1	<3	2	<3	<5	84	4	<0.1
JUN 29...	<10	<1	<1	<1	1	<10	<5	120	10	<0.1
AUG 31...	--	--	--	--	--	--	--	--	--	--

DATE	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 28...	7	<1	4	<1	3300	<1	<10	30	8.0	55
DEC 19...	--	--	--	--	--	--	--	24	4.0	43
MAR 12...	<10	8	4	1	1100	<6	5	1040	972	100
APR 23...	<10	1	3	<1	2000	<6	3	433	587	98
JUN 29...	1	<1	4	<1	2800	<1	<10	--	--	--
AUG 31...	--	--	--	--	--	--	--	86	38	98

06439000 CHERRY CREEK NEAR PLAINVIEW, SD

LOCATION.--Lat 44°44'35", long 102°03'11", in SW¼NE¼ 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 National Geodetic Vertical Datum of 1929, datum in error since 1945 based on NGVD levels of 1963. 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 for periods of estimated record, which are poor. Estimated daily discharges during water year: Oct. 6-29, Nov. 7 to Apr. 13, May 24-29, and June 1-10. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--42 years, 47.9 ft³/s, 34,700 acre-ft/yr; median of yearly mean discharges, 28 ft³/s, 20,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s, Apr. 1, 1952, gage height, 22.63 ft; no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 10	1230	1,160	a 11.42	c	--	*3,060	*13.41
b	--	unknown	unknown				

a Ice jam.
b Sometime during the period Mar. 22-24.
c Sometime during the period Apr. 3-7.
No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	4.6	6.5	4.8	5.2	4.0	210	44	70	2.6	.00	1.0
2	38	4.4	6.2	4.8	5.2	4.5	500	42	60	2.4	.00	.76
3	36	4.3	6.2	4.6	5.0	4.5	1200	42	55	2.2	.00	.57
4	30	4.1	6.0	4.4	5.0	5.0	2500	42	50	2.2	.00	.39
5	30	4.1	5.8	4.2	5.0	5.0	2600	43	45	2.5	.00	.30
6	40	4.1	5.6	4.0	5.3	5.5	1500	44	40	2.5	.00	1.9
7	50	4.0	5.4	3.8	5.5	6.0	1100	45	37	2.5	.00	6.5
8	40	3.7	5.4	3.7	6.2	15	800	44	34	3.3	.00	5.0
9	30	3.5	5.2	3.8	6.5	100	550	44	32	3.5	.00	3.6
10	25	3.3	5.0	4.0	6.5	1100	400	40	30	4.1	.00	2.6
11	20	3.2	4.7	3.8	6.7	1000	300	36	29	3.7	.00	2.1
12	16	3.2	4.7	3.5	6.5	650	250	34	27	3.1	.00	1.6
13	14	3.4	4.8	3.3	5.6	450	200	30	24	2.5	4.1	1.4
14	12	3.6	4.9	3.0	4.5	350	177	29	21	2.1	61	1.0
15	11	4.0	5.0	2.8	4.2	300	155	27	21	1.7	39	.73
16	10	4.5	5.2	2.8	4.0	230	149	26	24	1.6	123	.56
17	9.0	5.0	5.4	3.0	4.0	200	132	24	20	1.2	55	.38
18	8.5	5.3	5.4	3.1	4.0	180	114	24	15	1.3	31	.25
19	7.5	5.7	5.4	3.2	4.2	160	98	23	14	1.5	19	.21
20	7.0	6.1	5.5	3.2	4.3	170	88	28	11	1.8	14	.17
21	6.8	6.4	5.5	3.2	4.1	300	80	49	9.3	2.1	12	.09
22	6.5	6.8	5.7	3.1	4.0	800	73	197	6.9	1.4	9.6	.04
23	6.2	7.4	5.7	3.0	3.9	1500	67	129	6.6	.98	7.7	.02
24	6.0	7.6	5.8	3.0	3.7	1400	61	110	6.1	.72	6.0	.02
25	5.5	7.6	5.8	3.2	3.6	600	59	90	4.8	.48	4.4	.02
26	5.5	7.4	5.5	3.4	3.6	450	53	150	4.3	.32	3.7	.00
27	5.0	7.4	5.5	3.5	3.7	350	49	250	4.2	.15	3.3	.00
28	5.0	7.2	5.5	3.8	3.8	280	51	130	3.7	.06	2.7	.00
29	4.8	6.8	5.2	4.2	---	240	49	180	3.1	.01	2.1	.00
30	4.6	6.8	5.0	4.6	---	210	45	101	2.8	.00	1.7	.00
31	4.7	---	5.0	5.0	---	200	---	90	---	.00	1.3	---
TOTAL	536.6	155.5	168.5	113.8	133.8	11269.5	13610	2187	710.8	54.52	400.60	31.21
MEAN	17.3	5.18	5.44	3.67	4.78	364	454	70.5	23.7	1.76	12.9	1.04
MAX	50	7.6	6.5	5.0	6.7	1500	2600	250	70	4.1	123	6.5
MIN	4.6	3.2	4.7	2.8	3.6	4.0	45	23	2.8	.00	.00	.00
AC-FT	1060	308	334	226	265	22350	27000	4340	1410	108	795	62

CAL YR 1986	TOTAL	43933.00	MEAN	120	MAX	5800	MIN	.00	AC-FT	87140
WTR YR 1987	TOTAL	29371.83	MEAN	80.5	MAX	2600	MIN	.00	AC-FT	58260

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD
(National stream-quality accounting network station)

LOCATION.--Lat 44°36'10", long 101°29'24", in NE¼NW¼ sec.5, T.7 N., R.22 E., Ziebach County, Hydrologic Unit 10120112, on left bank 0.5 mi east of village of Cherry Creek, 0.5 mi downstream from Cherry Creek, and 1.7 mi upstream from Plum Creek. After Oct. 30, 1986; Lat 44°35'59", long 101°29'51", in SE¼NE¼ 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 1,699.29 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 18, 1960, nonrecording gage at present site and datum. After Oct. 30, 1986, at site 0.5 mi upstream, datum of gage is 1,702.87 ft above National Geodetic Vertical Datum of 1929. U.S. Army Corps of Engineers satellite data-collection platform at station.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Oct. 20-22, 24-27, 29, Nov. 11 to Feb. 17, Feb. 28 to Mar. 3, Mar. 9, 10, 30, Apr. 26, 27, Apr. 29 to May 6, and June 9-11. 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. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--27 years, 864 ft³/s, 626,000 acre-ft/yr; median of yearly mean discharges, 740 ft³/s, 536,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,900 ft³/s, May 22, 1982, gage height, 15.77 ft; no flow Jan. 6 to Feb. 2, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,400 ft³/s at 0900 hours, Mar. 22, gage height, 11.63 ft; minimum daily, 180 ft³/s, Jan. 16.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1340	425	530	350	430	260	5270	800	3820	399	319	366
2	2050	427	518	350	370	300	7580	760	2990	401	316	343
3	3620	430	465	350	360	700	7230	750	2400	402	368	325
4	7650	431	400	340	370	1550	8980	1000	2070	408	364	316
5	5050	437	350	340	390	3080	13600	1500	1640	423	348	302
6	1140	439	340	330	400	6340	15700	1450	1390	429	327	293
7	920	446	340	320	380	6650	11500	1030	1250	422	339	291
8	654	468	330	300	350	5500	8560	996	859	480	436	280
9	560	472	320	300	340	4000	6650	932	763	497	466	302
10	539	397	300	320	350	3000	4710	846	723	476	528	322
11	519	340	340	340	500	4900	3810	711	671	519	673	369
12	469	330	380	300	700	3810	3330	566	819	471	620	374
13	441	320	400	250	850	2810	3130	567	1130	453	762	339
14	422	350	420	200	1000	1700	2770	506	784	465	861	328
15	422	380	450	186	950	1130	2450	472	752	513	600	316
16	441	400	430	180	600	1730	2220	427	760	502	735	317
17	370	450	400	190	500	1990	2030	399	663	469	561	306
18	387	450	400	200	392	1910	1830	386	592	729	483	301
19	396	450	385	200	399	1850	1670	411	563	453	433	282
20	390	470	385	190	372	4240	1540	427	536	403	415	269
21	380	500	385	190	353	14300	1490	1090	565	396	376	270
22	370	550	400	190	344	18000	1480	5710	544	930	350	288
23	362	1000	400	190	357	8790	1410	4010	452	524	330	293
24	370	1200	400	190	380	8070	1220	3080	436	423	311	282
25	400	1100	385	200	358	6950	1080	10900	415	391	298	277
26	420	700	370	240	353	6330	1150	8180	404	385	313	271
27	430	600	370	300	286	5660	1100	6610	402	369	391	267
28	427	600	370	350	270	5110	1020	13500	399	362	399	258
29	420	550	360	380	---	4260	950	7920	399	357	408	253
30	422	550	360	420	---	3050	900	5220	399	342	406	253
31	425	---	360	450	---	2100	---	4490	---	325	394	---
TOTAL	32206	15662	12043	8636	12704	140070	126360	85646	29590	14118	13930	9053
MEAN	1039	522	388	279	454	4518	4212	2763	986	455	449	302
MAX	7650	1200	530	450	1000	18000	15700	13500	3820	930	861	374
MIN	362	320	300	180	270	260	900	386	399	325	298	253
AC-FT	63880	31070	23890	17130	25200	277800	250600	169900	58690	28000	27630	17960

CAL YR 1986	TOTAL	620416	MEAN	1700	MAX	21400	MIN	90	AC-FT	1231000
WTR YR 1987	TOTAL	500018	MEAN	1370	MAX	18000	MIN	180	AC-FT	991800

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1971 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976.
SPECIFIC CONDUCTANCE: January 1975 to September 1976.
WATER TEMPERATURE: January 1975 to September 1976, October 1977 to September 1978.

INSTRUMENTATION.--Water-quality monitor June 16, 1977, to September 1979.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 66,000 mg/L, May 25, 1976; minimum daily mean, 80 mg/L, Nov. 15-17, 1972.
SEDIMENT LOAD: Maximum daily, 2,530,000 tons, June 12, 1972; minimum daily, 15 tons, Dec. 14, 1973.
SPECIFIC CONDUCTANCE: Maximum daily, 3,400 microsiemens, Jan. 27, 28, 1975; minimum daily, 620 microsiemens, Apr. 25, 1975.
WATER TEMPERATURE: Maximum daily, 35.0°C, Aug. 26, 1975; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	ALKA-LINITY WH WAT TOTAL 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, DIS-SOLVED (PER-CENT SATUR-ATION)
DEC											
02...	1400	518	2550	8.49	204	5.0	0.0	140	--	13.3	--
FEB											
19...	1305	400	2230	8.48	182	0.0	1.0	78	725	14.0	104
MAY											
14...	1200	527	2210	8.36	137	26.5	21.5	21	724	8.2	99
JUL											
31...	1020	332	2070	8.11	81	33.0	29.5	110	713	7.1	101

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)
DEC											
02...	--	85	1100	850	240	110	290	37	4	11	213
FEB											
19...	--	--	840	650	190	87	240	38	4	8.9	191
MAY											
14...	K17	K23	710	570	160	74	230	41	4	9.8	142
JUL											
31...	K370	K410	790	710	170	89	180	33	3	12	101

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
DEC											
02...	1300	65	0.50	9.0	2290	2200	3.1	3200	0.020	4.90	4.88
FEB											
19...	1200	62	0.50	5.4	1910	1900	2.6	2060	0.020	2.30	2.28
MAY											
14...	1200	59	0.40	4.2	1810	1800	2.5	2580	<0.010	<0.100	--
JUL											
31...	1100	35	0.50	15	1810	1700	2.5	1620	<0.010	<0.100	--

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
DEC 02...	0.140	0.150	0.18	1.0	0.330	0.060	0.040	<10	5	100
FEB 19...	0.040	0.050	0.05	1.2	0.210	0.060	0.050	20	3	<100
MAY 14...	0.090	0.070	0.12	1.8	0.050	0.030	<0.010	10	4	100
JUL 31...	0.020	0.030	0.03	1.3	0.140	0.020	<0.010	<10	6	100

DATE	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)
DEC 02...	<10	<1	<1	<1	6	20	<5	190	50	<0.1
FEB 19...	<10	<1	<1	<1	3	20	<5	140	40	<0.1
MAY 14...	<10	<1	<1	<1	4	20	<5	130	20	0.2
JUL 31...	<10	<1	<1	<1	3	20	11	130	<10	0.2

DATE	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC 02...	4	4	11	<1	2800	2	30	--	--	--
FEB 19...	2	4	6	<1	2300	<22	<10	436	471	92
MAY 14...	5	3	2	<1	2500	<10	20	--	--	--
JUL 31...	6	5	2	<1	2700	2	10	--	--	--

06439430 COTTONWOOD CREEK NEAR CHERRY CREEK, SD

LOCATION.--Lat 44°40'28", long 101°24'16", in NW¼NW¼NE¼ 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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Mar. 9 to Apr. 13. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--5 years, 15.6 ft³/s, 11,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,640 ft³/s, Mar. 30, 1987, gage height, 12.58 ft; no flow for long periods in each year.

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.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 21	--	unknown	unknown	July 19	1730	316	5.95
Mar. 30	--	*3,640	*12.58	Aug. 13	1345	673	7.30

No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	883	.15	.74	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	550	.23	.36	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	250	1.7	.18	.00	5.8	.00
4	.00	.00	.00	.00	.00	.00	140	3.5	.12	.00	5.6	.00
5	.00	.00	.00	.00	.00	.00	80	3.9	.10	.00	2.5	.00
6	.00	.00	.00	.00	.00	.00	40	5.4	.06	.00	1.4	.00
7	.00	.00	.00	.00	.00	.00	25	3.4	.08	.00	.69	.00
8	.00	.00	.00	.00	.00	.00	18	2.1	.08	.00	.84	.00
9	.00	.00	.00	.00	.00	5.0	14	1.6	.08	.00	.41	.00
10	.00	.00	.00	.00	.00	45	10	1.5	.20	.00	.50	.00
11	.00	.00	.00	.00	.00	40	7.0	1.1	.17	.00	.46	.00
12	.00	.00	.00	.00	.00	30	5.5	.60	.10	.00	70	.00
13	.00	.00	.00	.00	.00	24	4.0	.45	.08	.00	410	.00
14	.00	.00	.00	.00	.00	18	3.5	.22	.06	.00	16	.00
15	.00	.00	.00	.00	.00	14	2.9	.14	.05	.00	7.8	.00
16	.00	.00	.00	.00	.00	13	2.3	.10	.04	.00	3.6	.00
17	.00	.00	.00	.00	.00	20	1.9	.08	.09	.00	2.0	.00
18	.00	.00	.00	.00	.00	50	1.7	.06	.02	1.0	1.2	.00
19	.00	.00	.00	.00	.00	100	1.5	.04	.00	132	.69	.00
20	.00	.00	.00	.00	.00	200	1.3	.15	.00	48	.34	.00
21	.00	.00	.00	.00	.00	2450	.97	.51	.00	13	.19	.00
22	.00	.00	.00	.00	.00	1500	.68	.35	.00	4.7	.10	.00
23	.00	.00	.00	.00	.00	1000	.45	.17	.00	2.2	.09	.00
24	.00	.00	.00	.00	.00	600	.39	.15	.00	1.3	.04	.00
25	.00	.00	.00	.00	.00	400	.33	22	.00	.58	.01	.00
26	.00	.00	.00	.00	.00	270	.28	14	.00	.25	.00	.00
27	.00	.00	.00	.00	.00	180	.23	6.4	.00	.10	.00	.00
28	.00	.00	.00	.00	.00	160	.23	3.7	.00	.02	.00	.00
29	.00	.00	.00	.00	---	150	.20	2.3	.00	.00	.00	.00
30	.00	.00	.00	.00	---	2400	.15	1.7	.00	.00	.00	.00
31	.00	---	.00	.00	---	1550	---	1.2	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	11219.00	2045.51	78.90	2.61	203.15	530.26	.00
MEAN	.00	.00	.00	.00	.00	362	68.2	2.55	.09	6.55	17.1	.00
MAX	.00	.00	.00	.00	.00	2450	883	22	.74	132	410	.00
MIN	.00	.00	.00	.00	.00	.00	.15	.04	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	22250	4060	156	5.2	403	1050	.00

CAL YR 1986	TOTAL	10760.49	MEAN	29.5	MAX	1200	MIN	.00	AC-FT	21340
WTR YR 1987	TOTAL	14079.43	MEAN	38.6	MAX	2450	MIN	.00	AC-FT	27930

06439980 LAKE OAHE NEAR PIERRE, SD

LOCATION.--Lat 44°27'30", long 100°23'29", in NE¼ 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.

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, 14,815,000 acre-ft, Sept. 25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 21,542,000 acre-ft, Apr. 19; minimum contents, 18,041,000 acre-ft, Jan. 30.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,610.77	20,087,000	-
Oct. 31	1,609.62	19,684,000	-403,000
Nov. 30	1,608.74	19,415,000	-269,000
Dec. 31	1,605.69	18,485,000	-930,000
CAL YR 1986	-	-	+1,942,000
Jan. 31	1,604.21	18,056,000	-429,000
Feb. 28	1,606.07	18,597,000	+541,000
Mar. 31	1,612.13	20,535,000	+1,938,000
Apr. 30	1,614.60	21,384,000	+849,000
May 31	1,613.70	21,119,000	-265,000
June 30	1,613.29	21,018,000	-101,000
July 31	1,611.58	20,248,000	-770,000
Aug. 31	1,610.11	19,893,000	-355,000
Sept. 30	1,607.77	19,154,000	-739,000
WTR YR 1987	-	-	-933,000

06441000 BAD RIVER NEAR MIDLAND, SD

LOCATION.--Lat 44°04'01", long 101°09'36", in NE¼NW¼ 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 National Geodetic Vertical Datum of 1929. Prior to Feb. 21, 1961, nonrecording gage, and Feb. 21, 1961, to June 14, 1967, water-stage recorder at site 4.2 mi downstream at datum 15.72 ft lower. June 15 to July 26, 1967, nonrecording gage at site 30 ft upstream and July 27, 1967, to June 14, 1971, water-stage recorder at site 60 ft upstream, both at present datum.

REMARKS.--Records fair. Only daily discharges above 100 ft³/s are being published. Several observations of water temperature and specific conductance were made during the year.

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.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 10	2400	505	7.80	Apr. 3	0700	2,050	12.86
Mar. 21	1600	*3,730	*17.10				

No flow for many days.

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

Daily discharge, in cubic feet per second, above 100 ft³/s are given herewith:

Oct. 6	146	Mar. 24	767	Apr. 9	605
Mar. 9	139	Mar. 25	626	Apr. 10	404
Mar. 10	333	Mar. 26	366	Apr. 11	275
Mar. 11	299	Mar. 27	288	Apr. 12	198
Mar. 12	163	Mar. 28	224	Apr. 13	158
Mar. 13	128	Mar. 29	190	Apr. 14	126
Mar. 14	170	Mar. 30	180	Apr. 15	102
Mar. 15	188	Mar. 31	200	May 6	237
Mar. 16	168	Apr. 1	930	May 7	127
Mar. 17	181	Apr. 2	1,520	May 23	109
Mar. 18	237	Apr. 3	1,870	May 26	199
Mar. 19	175	Apr. 4	1,580	May 27	277
Mar. 20	459	Apr. 5	1,790	May 28	133
Mar. 21	2,840	Apr. 6	1,810	May 29	153
Mar. 22	3,060	Apr. 7	1,500	May 30	109
Mar. 23	1,540	Apr. 8	957	June 1	146

06441500 BAD RIVER NEAR FORT PIERRE, SD

LOCATION.--Lat 44°19'36", long 100°23'02", in NW¼NW¼ sec.10, T.4 N., R.31 E., Stanley County, Hydrologic Unit 10140102, on right bank at downstream side of highway bridge, 2.1 mi south of Fort Pierre, 4.3 mi downstream from Willow Creek, and 6.0 mi upstream from mouth.

DRAINAGE AREA.--3,107 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year. Monthly discharge only for July 1932 to February 1934, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 856: 1929(M), 1937.

GAGE.--Water-stage recorder. Datum of gage is 1,427.83 ft above National Geodetic Vertical Datum of 1929. Prior to July 10, 1951, nonrecording gage at same site and datum. U.S. Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite data-collection platform at station.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 7-21, Dec. 6 to Feb. 15, and Feb. 26-28. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--59 years, 155 ft³/s, 112,300 acre-ft/yr; median of yearly mean discharges, 106 ft³/s, 76,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,800 ft³/s, June 18, 1967, gage height, 29.55 ft; no flow for long periods in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1927 reached a stage of 30.89 ft, from floodmarks, discharge, about 55,000 ft³/s. Flood in July 1905 reached a stage about 2 ft higher than that in April 1927.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 21	1130	*13,600	*24.38	Apr. 5	0800	7,440	18.98

No flow Aug. 6, 11-25, Sept. 2-11, 18-30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	5.7	36	13	10	13	3040	62	155	9.2	.24	.12
2	12	5.5	36	13	9.5	14	2910	61	120	8.9	.24	.00
3	13	5.0	30	13	9.0	13	3550	66	166	8.6	.40	.00
4	14	5.5	29	13	8.5	12	5140	302	103	8.2	.24	.00
5	15	5.5	22	12	8.5	10	7010	417	81	8.2	.12	.00
6	14	5.5	18	11	10	12	6620	348	71	8.6	.00	.00
7	14	5.5	16	11	11	46	4710	328	61	8.2	.12	.00
8	69	5.3	14	10	10	173	3270	337	54	7.3	.60	.00
9	48	5.1	12	10	10	178	2300	237	48	7.3	.50	.00
10	28	5.0	11	10	10	91	1670	175	46	7.0	.40	.00
11	20	5.0	11	11	11	180	1090	135	43	7.3	.00	.00
12	17	5.0	12	12	12	448	771	111	39	67	.00	.40
13	13	5.2	12	11	14	559	578	97	35	89	.00	.40
14	12	7.0	13	8.0	16	524	482	88	31	20	.00	.50
15	10	8.0	13	5.0	18	554	402	82	27	11	.00	.24
16	11	10	13	3.5	19	526	337	74	39	7.0	.00	.12
17	7.9	11	12	4.0	17	477	285	69	43	4.8	.00	.12
18	7.9	14	12	4.5	15	447	246	64	38	3.8	.00	.00
19	8.2	16	12	4.5	15	567	211	61	32	2.8	.00	.00
20	7.9	19	12	4.3	14	2930	170	62	25	2.2	.00	.00
21	7.6	21	12	4.3	14	12000	142	91	21	2.1	.00	.00
22	7.0	23	12	4.0	14	11000	121	124	20	1.6	.00	.00
23	7.3	27	13	3.8	12	8210	108	113	19	1.3	.00	.00
24	6.2	34	13	3.7	13	5140	97	104	17	1.0	.00	.00
25	6.8	48	13	3.7	11	2680	91	139	15	1.0	.00	.00
26	7.0	51	13	4.0	12	1640	84	155	13	.88	.12	.00
27	6.2	43	13	5.0	11	1650	80	124	12	.68	.78	.00
28	6.0	49	13	6.0	12	1090	76	285	12	.50	.88	.00
29	5.5	48	13	7.0	---	834	70	297	10	.40	.68	.00
30	6.0	46	14	9.0	---	739	66	193	9.8	.24	.40	.00
31	6.2	---	14	8.0	---	1100	---	207	---	.12	.12	---
TOTAL	426.7	543.8	489	242.3	346.5	53857	45727	5008	1405.8	306.22	5.84	1.90
MEAN	13.8	18.1	15.8	7.82	12.4	1737	1524	162	46.9	9.88	.19	.06
MAX	69	51	36	13	19	12000	7010	417	166	89	.88	.50
MIN	5.5	5.0	11	3.5	8.5	10	66	61	9.8	.12	.00	.00
AC-FT	846	1080	970	481	687	106800	90700	9930	2790	607	12	3.8

CAL YR 1986	TOTAL 207460.00	MEAN	568	MAX	12800	MIN	.00	AC-FT	411500
WTR YR 1987	TOTAL 108360.06	MEAN	297	MAX	12000	MIN	.00	AC-FT	214900

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1945 to September 1953, October 1971 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to current year.
WATER TEMPERATURE: October 1972 to June 1983.

REVISED RECORDS.--WDR SD-81-1: 1979-80.

REMARKS.--Records poor. No flow Aug. 6, 11-25, Sept. 2-10, 18-30. Flow affected by ice Nov. 7-21, Dec. 6 to Feb. 15, and Feb. 26-28. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, U.S. Army Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--
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, 18,400 mg/L, Mar. 21; minimum daily mean, 0 mg/L on many days.
SEDIMENT LOAD: Maximum daily, 596,000 tons, Mar. 9; minimum daily, 0 ton on many days.

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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	13	100	3.5	5.7	80	1.2	36	500	49
2	12	90	2.9	5.5	80	1.2	36	400	39
3	13	100	3.5	5.0	80	1.1	30	400	32
4	14	100	3.8	5.5	80	1.2	29	400	31
5	15	100	4.1	5.5	80	1.2	22	400	24
6	14	100	3.8	5.5	80	1.2	18	400	19
7	14	100	3.8	5.5	80	1.2	16	400	17
8	69	800	149	5.3	80	1.1	14	400	15
9	48	500	65	5.1	80	1.1	12	400	13
10	28	400	30	5.0	80	1.1	11	400	12
11	20	300	16	5.0	80	1.1	11	400	12
12	17	200	9.2	5.0	80	1.1	12	400	13
13	13	100	3.5	5.2	80	1.1	12	400	13
14	12	90	2.9	7.0	80	1.5	13	350	12
15	10	90	2.4	8.0	80	1.7	13	350	12
16	11	90	2.7	10	80	2.2	13	350	12
17	7.9	80	1.7	11	100	3.0	12	300	9.7
18	7.9	80	1.7	14	150	5.7	12	300	9.7
19	8.2	80	1.8	16	160	6.9	12	300	9.7
20	7.9	80	1.7	19	150	7.7	12	300	9.7
21	7.6	80	1.6	21	200	11	12	300	9.7
22	7.0	80	1.5	23	250	16	12	300	9.7
23	7.3	80	1.6	27	350	26	13	300	11
24	6.2	80	1.3	34	430	39	13	270	9.5
25	6.8	80	1.5	48	450	58	13	270	9.5
26	7.0	80	1.5	51	500	69	13	270	9.5
27	6.2	80	1.3	43	500	58	13	270	9.5
28	6.0	80	1.3	49	500	66	13	270	9.5
29	5.5	80	1.2	48	500	65	13	270	9.5
30	6.0	80	1.3	46	500	62	14	270	10
31	6.2	80	1.3	---	---	---	14	270	10
TOTAL	426.7	---	328.4	543.8	---	513.6	489	---	471.2

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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	13	270	9.5	10	150	4.1	13	120	4
2	13	260	9.1	9.5	140	3.6	14	110	4
3	13	260	9.1	9.0	140	3.4	13	110	4
4	13	250	8.8	8.5	130	3.0	12	110	4
5	12	250	8.1	8.5	130	3.0	10	110	3
6	11	250	7.4	10	130	3.5	12	120	4
7	11	250	7.4	11	130	3.9	46	1400	174
8	10	250	6.8	10	130	3.5	173	5400	2520
9	10	200	5.4	10	120	3.2	178	5600	2690
10	10	200	5.4	10	120	3.2	91	4400	1080
11	11	200	5.9	11	120	3.6	180	6500	3160
12	12	200	6.5	12	120	3.9	448	9300	11200
13	11	200	5.9	14	120	4.5	559	9800	14800
14	8.0	200	4.3	16	120	5.2	524	5200	7360
15	5.0	190	2.6	18	120	5.8	554	5350	8000
16	3.5	190	1.8	19	115	5.9	526	4350	6180
17	4.0	190	2.1	17	115	5.3	477	3650	4700
18	4.5	180	2.2	15	115	4.7	447	3250	3920
19	4.5	180	2.2	15	115	4.7	567	5050	7730
20	4.3	170	2.0	14	115	4.3	2930	12200	96500
21	4.3	170	2.0	14	110	4.2	12000	18400	596000
22	4.0	170	1.8	14	110	4.2	11000	16300	484000
23	3.8	166	1.7	12	110	3.6	8210	14100	313000
24	3.7	170	1.7	13	110	3.9	5140	11600	161000
25	3.7	160	1.6	11	110	3.3	2680	8400	60800
26	4.0	160	1.7	12	110	3.6	1640	6100	27000
27	5.0	160	2.2	11	150	4.5	1650	6400	28500
28	6.0	150	2.4	12	140	4.5	1090	4200	12400
29	7.0	150	2.8	---	---	---	834	2410	5430
30	9.0	150	3.6	---	---	---	739	2200	4390
31	8.0	150	3.2	---	---	---	1100	5300	15700
TOTAL	242.3	---	137.2	346.5	---	114.1	53857	---	1878257
		APRIL			MAY			JUNE	
1	3040	16100	132000	62	143	24	155	5100	2130
2	2910	8100	63600	61	114	19	120	1200	389
3	3550	7700	73800	66	172	31	166	2300	1030
4	5140	12300	171000	302	8000	6520	103	1100	306
5	7010	8900	168000	417	6600	7430	81	900	197
6	6620	6300	113000	348	2100	1970	71	710	136
7	4710	5100	64900	328	1000	886	61	270	44
8	3270	4500	39700	337	750	682	54	96	14
9	2300	4300	26700	237	400	256	48	88	11
10	1670	4300	19400	175	196	93	46	80	9.9
11	1090	3500	10300	135	200	73	43	77	8.9
12	771	2700	5620	111	210	63	39	85	9.0
13	578	2300	3590	97	230	60	35	88	8.3
14	482	1500	1950	88	240	57	31	129	11
15	402	1060	1150	82	242	54	27	94	6.9
16	337	1090	992	74	323	65	39	115	12
17	285	894	688	69	296	55	43	112	13
18	246	685	455	64	207	36	38	118	12
19	211	480	273	61	251	41	32	118	10
20	170	486	223	62	117	20	25	118	8.0
21	142	333	128	91	492	121	21	118	6.7
22	121	242	79	124	347	116	20	114	6.2
23	108	200	58	113	510	156	19	203	10
24	97	330	86	104	500	140	17	94	4.3
25	91	64	16	139	1200	450	15	118	4.8
26	84	61	14	155	1110	465	13	137	4.8
27	80	87	19	124	400	134	12	136	4.4
28	76	174	36	285	9000	6930	12	124	4.0
29	70	81	15	297	17300	13900	10	146	3.9
30	66	144	26	193	17100	8910	9.8	205	5.4
31	---	---	---	207	9850	5510	---	---	---
TOTAL	45727	---	897818	5008	---	55267	1405.8	---	4420.5

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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	9.2	77	1.9	.24	218	.14	.12	5	.00
2	8.9	101	2.4	.24	281	.18	.00	0	.00
3	8.6	143	3.3	.40	200	.22	.00	0	.00
4	8.2	120	2.7	.24	100	.06	.00	0	.00
5	8.2	106	2.3	.12	50	.02	.00	0	.00
6	8.6	199	4.6	.00	0	.00	.00	0	.00
7	8.2	110	2.4	.12	50	.02	.00	0	.00
8	7.3	124	2.4	.60	50	.08	.00	0	.00
9	7.3	130	2.6	.50	40	.05	.00	0	.00
10	7.0	104	2.0	.40	30	.03	.00	0	.00
11	7.3	148	2.9	.00	0	.00	.00	299	.00
12	67	3770	682	.00	0	.00	.40	305	.33
13	89	8850	2130	.00	0	.00	.40	300	.32
14	20	3000	162	.00	0	.00	.50	300	.41
15	11	464	14	.00	0	.00	.24	300	.19
16	7.0	327	6.2	.00	0	.00	.12	275	.09
17	4.8	245	3.2	.00	0	.00	.12	275	.09
18	3.8	312	3.2	.00	0	.00	.00	0	.00
19	2.8	378	2.9	.00	0	.00	.00	0	.00
20	2.2	473	2.8	.00	0	.00	.00	0	.00
21	2.1	279	1.6	.00	0	.00	.00	0	.00
22	1.6	394	1.7	.00	0	.00	.00	0	.00
23	1.3	442	1.6	.00	0	.00	.00	0	.00
24	1.0	225	.61	.00	0	.00	.00	0	.00
25	1.0	269	.73	.00	0	.00	.00	0	.00
26	.88	325	.77	.12	10	.00	.00	0	.00
27	.68	298	.55	.78	20	.04	.00	0	.00
28	.50	290	.39	.88	30	.07	.00	0	.00
29	.40	275	.30	.68	20	.04	.00	0	.00
30	.24	260	.17	.40	10	.01	.00	0	.00
31	.12	248	.08	.12	5	.00	---	---	---
TOTAL	306.22	---	3044.30	5.84	---	0.96	1.90	---	1.43

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE WATER (DEG C)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
MAR							
13...	1455	461	1.0	8590	--	81	87
16...	1530	519	0.0	4080	--	73	81
21...	1200	13200	1.0	20500	--	68	81
27...	0745	1740	--	6670	--	66	74
APR							
10...	1140	1660	9.0	4120	--	64	74
22...	1450	120	14.5	225	98	--	--
23...	1400	110	61.0	539	96	--	--
MAY							
26...	1000	163	16.0	1150	97	71	81
JUN							
22...	1035	20	27.5	98	84	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM
MAR						
13...	93	96	99	99	100	--
16...	88	93	98	99	100	--
21...	91	95	100	--	--	--
27...	83	90	99	100	--	--
APR						
10...	83	90	98	99	100	--
22...	--	--	--	--	--	--
23...	--	--	--	--	--	--
MAY						
26...	82	94	--	--	--	--

06442000 MEDICINE KNOLL CREEK NEAR BLUNT, SD

LOCATION.--Lat 44°33'46", long 99°54'50", in NW¼ sec.31, T.113 N., R.75 W., Sully County, Hydrologic Unit 10140103, on left bank at downstream side of highway bridge, 4.8 mi northeast of Blunt, and 5.5 mi upstream from South Fork Medicine Knoll Creek.

DRAINAGE AREA.--317 mi².

PERIOD OF RECORD.--March 1950 to current year. Prior to October 1959, published as Medicine Creek near Blunt.

REVISED RECORDS.--WDR SD-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,611.08 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 31, 1950, nonrecording gage at same site and datum.

REMARKS.--Records poor. Only daily discharges above 25 ft³/s are being published. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,830 ft³/s, Apr. 5, 1952, gage height, 12.34 ft, from floodmarks; maximum gage height, 13.2 ft, between Mar. 26-29, 1959, from floodmarks, backwater from ice; no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 21	1930	*204	*10.45				

No flow for many days.

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

Daily discharge, in cubic feet per second, above 25 ft³/s are given herewith:

Mar. 20	32	Mar. 21	56	Mar. 22	31

06442500 MEDICINE CREEK AT KENNEBEC, SD

LOCATION.--Lat 43°54'17", long 99°52'35", in NW¼NE¼ sec.18, T.105 N., R.75 W., Lyman County, Hydrologic Unit 10140104, on right bank 4 ft downstream from highway bridge, 0.5 mi west of Kennebec, and 0.5 mi downstream from small right-bank tributary.

DRAINAGE AREA.--465 mi², approximately.

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

GAGE.--Water-stage recorder. Datum of gage is 1,659.64 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 28, 1954, nonrecording gage at same site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Feb. 28 to Mar. 3 and Mar. 9-11. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years, 19.4 ft³/s, 14,060 acre-ft/yr; median of yearly mean discharges, 8.3 ft³/s, 6,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,400 ft³/s, May 9, 1986, gage height, 17.26 ft; no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1952 reached a stage of 17.0 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 22	0100	*2,390	13.00	Apr. 5	0830	1,520	11.30

No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	111	1.8	20	1.5	.00	.00
2	.00	.00	.00	.00	.00	.00	267	1.6	17	1.5	.00	.00
3	.00	.00	.00	.00	.00	.50	424	1.5	10	1.4	.00	.00
4	.00	.00	.00	.00	.00	6.4	954	2.0	7.0	1.3	.00	.00
5	.00	.00	.00	.00	.00	15	1310	2.5	5.1	1.2	.00	.00
6	.00	.00	.00	.00	.00	10	1110	2.6	3.9	.89	.00	.00
7	.00	.00	.00	.00	.00	4.4	842	3.5	3.1	.67	.00	.00
8	.00	.00	.00	.00	.00	2.7	505	4.0	2.7	.52	.00	.00
9	.00	.00	.00	.00	.00	1.4	321	3.0	2.0	.52	.00	.00
10	.00	.00	.00	.00	.00	2.0	204	3.5	2.3	.63	.00	.00
11	.00	.00	.00	.00	.00	3.2	135	3.6	1.8	.65	.00	.00
12	.00	.00	.00	.00	.00	7.4	88	3.1	1.6	.50	.00	.00
13	.00	.00	.00	.00	.00	9.9	66	2.4	1.2	.50	.00	.00
14	.00	.00	.00	.00	.00	6.4	50	2.0	.96	.41	.00	.00
15	.00	.00	.00	.00	.00	4.6	38	1.6	.66	.28	.00	.00
16	.00	.00	.00	.00	.00	3.1	31	.99	.45	.06	.00	.00
17	.00	.00	.00	.00	.00	3.6	23	.70	.26	.00	.00	.00
18	.00	.00	.00	.00	.00	3.6	19	.54	.23	.00	.00	.00
19	.00	.00	.00	.00	.00	3.0	15	.39	.32	.00	.00	.00
20	.00	.00	.00	.00	.00	19	11	.37	2.1	.00	.00	.00
21	.00	.00	.00	.00	.00	1280	9.0	.51	1.4	.00	.00	.00
22	.00	.00	.00	.00	.00	1540	7.6	.55	4.6	.00	.00	.00
23	.00	.00	.00	.00	.00	497	6.9	.81	14	.24	.00	.00
24	.00	.00	.00	.00	.00	304	5.3	1.2	8.3	.16	.00	.00
25	.00	.00	.00	.00	.00	229	4.8	1.0	6.0	.00	.00	.00
26	.00	.00	.00	.00	.00	132	4.1	1.1	4.5	.00	.00	.00
27	.00	.00	.00	.00	.00	59	3.1	1.1	3.4	.00	.00	.00
28	.00	.00	.00	.00	.00	40	2.7	1.0	2.5	.00	.00	.00
29	.00	.00	.00	.00	---	39	2.5	.92	2.0	.00	.00	.00
30	.00	.00	.00	.00	---	27	1.8	.84	1.6	.00	.00	.00
31	.00	---	.00	.00	---	24	---	6.9	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	4277.20	6571.8	57.62	130.98	12.93	.00	.00
MEAN	.00	.00	.00	.00	.00	138	219	1.86	4.37	.42	.00	.00
MAX	.00	.00	.00	.00	.00	1540	1310	6.9	20	1.5	.00	.00
MIN	.00	.00	.00	.00	.00	.00	1.8	.37	.23	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	8480	13040	114	260	26	.00	.00

CAL YR 1986	TOTAL	37887.93	MEAN	104	MAX	8510	MIN	.00	AC-FT	75150
WTR YR 1987	TOTAL	11050.53	MEAN	30.3	MAX	1540	MIN	.00	AC-FT	21920

06442700 LAKE SHARPE NEAR FORT THOMPSON, SD

LOCATION.--Lat 44°02'18", long 99°26'45", in SE¼ 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 powerplant about 100,000 ft³/s. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Records of elevation and contents provided by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,829,000 acre-ft, Apr. 22, 1971, affected by wind; minimum since initial filling, 1,448,000 acre-ft, Sept. 17, 1967, affected by wind.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,784,000 acre-ft, Nov. 9; minimum contents, 1,523,000 acre-ft, Oct. 13.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,420.24	1,708,000	-
Oct. 31	1,420.17	1,700,000	-8,000
Nov. 30	1,420.71	1,735,000	+35,000
Dec. 31	1,420.53	1,721,000	-14,000
CAL YR 1986	-	-	-6,000
Jan. 31	1,420.36	1,719,000	-2,000
Feb. 28	1,420.78	1,730,000	+11,000
Mar. 31	1,420.48	1,723,000	-7,000
Apr. 30	1,420.41	1,717,000	-6,000
May 31	1,420.42	1,725,000	+8,000
June 30	1,420.46	1,730,000	+5,000
July 31	1,419.78	1,678,000	-52,000
Aug. 31	1,420.74	1,735,000	+57,000
Sept. 30	1,420.33	1,714,000	-21,000
WTR YR 1987	-	-	+6,000

NOTE.--Lake frozen over Dec. 23 to Mar. 6.

06446000 WHITE RIVER NEAR OGLALA, SD

LOCATION.--Lat 43°15'17", long 102°49'29", in SW¼NE¼ 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 National Geodetic Vertical Datum of 1929. Prior to May 6, 1947, nonrecording gage at same site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 3 to Mar. 11, Mar. 30-31, May 1-5, and Aug. 13-31. Some diversions for irrigation upstream from station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--44 years, 54.1 ft³/s, 39,200 acre-ft/yr; median of yearly mean discharges, 48 ft³/s, 34,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,200 ft³/s, June 21, 1947, gage height, 23.50 ft, from rating curve extended above 2,800 ft³/s on basis of velocity-area studies; maximum gage height, 23.61 ft, June 16, 1967; no flow at times in 1952, 1954, 1957, 1961, 1964, 1965, 1970-76, 1981, 1982, 1984-86.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 6	2115	*1,330	*16.91	No other peak greater than base discharge.			

Minimum daily discharge, 5.0 ft³/s, Aug. 15-18.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	63	85	40	40	60	363	62	116	28	8.8	8.8
2	40	63	75	50	40	65	571	65	103	26	7.7	7.6
3	45	63	70	45	35	70	794	75	89	22	7.1	5.7
4	72	60	70	45	35	80	982	80	79	24	7.6	6.7
5	64	50	70	50	30	100	1210	71	70	26	6.9	6.9
6	75	40	70	40	35	150	1300	76	64	24	6.2	8.6
7	161	40	70	35	45	250	1290	88	61	20	7.3	9.7
8	99	40	70	30	55	220	924	98	58	20	7.8	9.0
9	62	35	70	35	60	200	511	86	57	26	10	7.5
10	48	30	65	45	70	200	386	71	57	23	8.3	5.8
11	41	25	55	50	80	250	307	61	55	21	6.2	11
12	38	20	45	50	70	301	228	56	56	21	6.0	11
13	35	20	50	50	60	258	183	64	52	20	5.5	10
14	35	25	50	45	55	231	166	70	42	20	5.5	12
15	35	40	50	35	45	202	158	67	39	18	5.0	13
16	35	60	55	25	40	272	148	63	37	18	5.0	9.6
17	37	70	55	20	35	357	137	62	35	17	5.0	8.3
18	40	60	50	25	40	312	128	54	36	19	5.0	15
19	38	60	40	30	50	262	120	48	34	18	5.5	16
20	37	65	35	25	50	281	112	122	37	18	6.0	14
21	38	70	30	25	50	291	108	120	34	16	6.5	11
22	40	80	35	25	50	269	101	98	32	15	7.0	11
23	39	70	40	20	55	225	96	130	39	13	7.5	16
24	39	70	40	20	50	162	93	164	52	12	8.0	14
25	48	80	35	25	55	175	91	164	35	10	8.5	12
26	91	70	35	30	65	200	82	131	30	9.6	9.0	11
27	118	70	40	35	55	249	73	230	27	9.3	9.5	9.9
28	80	70	45	40	55	229	67	345	25	9.4	10	8.3
29	67	80	45	40	---	190	65	301	25	12	9.0	5.5
30	63	85	50	40	---	180	64	186	29	12	9.0	5.5
31	62	---	50	35	---	200	---	147	---	9.7	9.0	---
TOTAL	1769	1674	1645	1105	1405	6491	10858	3455	1505	557.0	225.4	300.4
MEAN	57.1	55.8	53.1	35.6	50.2	209	362	111	50.2	18.0	7.27	10.0
MAX	161	85	85	50	80	357	1300	345	116	28	10	16
MIN	35	20	30	20	30	60	64	48	25	9.3	5.0	5.5
AC-FT	3510	3320	3260	2190	2790	12870	21540	6850	2990	1100	447	596

CAL YR 1986	TOTAL	43349.0	MEAN	119	MAX	2550	MIN	2.5	AC-FT	85980
WTR YR 1987	TOTAL	30989.8	MEAN	84.9	MAX	1300	MIN	5.0	AC-FT	61470

06447000 WHITE RIVER NEAR KADOKA, SD

LOCATION.--Lat 43°45'09", long 101°31'28", in SE¼SE¼ sec.30, T.3 S., R.22 E., Black Hills meridian, Jackson County, Hydrologic Unit 10140202, near center of span on downstream side of bridge on State Highway 73, 5.0 mi upstream from Pass Creek, 5.5 mi downstream from Cottonwood Creek, and 5.8 mi south of Kadoka.

DRAINAGE AREA.--5,000 mi², approximately.

PERIOD OF RECORD.--July 1942 to current year.

REVISED RECORDS.--WSP 1279: 1944(M), 1948.

GAGE.--Water-stage recorder. Datum of gage is 2,122.18 ft above National Geodetic Vertical Datum of 1929. Prior to June 14, 1949, nonrecording gage, and June 14, 1949, to Mar. 8, 1955, water-stage recorder at site 0.3 mi downstream at same datum. Mar. 9, 1955, to May 17, 1957, nonrecording gage at present site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Oct. 11-13, 19, 26, Nov. 2, Nov. 10 to Feb. 26, May 24, 27, 31, June 21, 27, 28, and Sept. 21, 26. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--45 years, 275 ft³/s, 199,200 acre-ft/yr; median of yearly mean discharges, 270 ft³/s, 196,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,700 ft³/s, June 7, 1951, gage height, 13.83 ft, site then in use, from rating curve extended above 16,000 ft³/s; maximum gage height, 16.18 ft, May 20, 1982; no flow at times in many years.

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.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 4	0700	4,680	9.22	Mar. 20	2400	5,520	9.73
Mar. 7	2100	3,890	8.73	May 21	1600	*5,570	*9.76

Minimum daily discharge, 2.2 ft³/s, Sept. 10.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156	139	120	60	60	92	1630	167	414	40	14	11
2	259	130	110	60	65	102	2110	154	346	32	13	10
3	1040	117	95	60	65	120	1420	333	237	26	17	6.8
4	3510	91	84	65	62	142	1220	2090	218	25	5.5	4.3
5	1140	91	72	70	60	645	1510	1200	186	27	5.5	3.7
6	800	94	60	66	60	2680	1610	852	160	27	6.1	2.9
7	268	96	53	60	65	3250	1520	337	133	42	12	2.6
8	144	117	50	58	70	2820	1440	294	112	38	223	3.6
9	130	64	50	60	70	1950	1430	225	98	77	243	6.0
10	112	60	45	60	70	979	1270	196	103	262	137	2.2
11	100	50	47	65	75	694	945	184	290	150	68	15
12	90	55	50	70	75	829	698	174	254	81	35	12
13	80	50	50	60	70	1010	613	186	195	43	22	14
14	73	53	50	50	65	916	535	158	127	34	27	15
15	74	60	55	40	60	639	447	137	110	29	32	9.6
16	76	65	55	38	60	775	374	105	150	28	20	118
17	66	70	53	40	60	958	333	88	142	24	60	216
18	60	70	53	40	65	914	310	99	110	186	33	70
19	64	75	52	42	70	1540	280	103	107	169	142	34
20	58	80	50	42	70	3120	254	111	112	17	111	22
21	76	80	50	41	65	3010	263	2840	120	30	43	18
22	76	85	55	40	65	1170	254	1990	180	506	23	15
23	76	80	65	40	62	948	233	549	120	171	15	7.4
24	89	80	65	40	62	1080	222	230	107	91	8.2	3.4
25	100	85	62	42	60	948	216	781	100	62	9.6	14
26	110	80	60	45	68	624	209	708	72	35	12	8.0
27	122	80	60	46	79	653	205	375	70	40	4.9	2.6
28	94	80	62	50	89	1210	202	1270	75	26	5.7	7.4
29	84	90	64	50	---	895	200	966	81	32	11	12
30	110	110	65	55	---	659	182	467	56	22	21	10
31	156	---	65	60	---	647	---	430	---	21	17	---
TOTAL	9393	2477	1927	1615	1867	36019	22135	17799	4585	2393	1396.5	676.5
MEAN	303	82.6	62.2	52.1	66.7	1162	738	574	153	77.2	45.0	22.6
MAX	3510	139	120	70	89	3250	2110	2840	414	506	243	216
MIN	58	50	45	38	60	92	182	88	56	17	4.9	2.2
AC-FT	18630	4910	3820	3200	3700	71440	43900	35300	9090	4750	2770	1340

CAL YR 1986	TOTAL	162055	MEAN	444	MAX	10000	MIN	25	AC-FT	321400
WTR YR 1987	TOTAL	102283.0	MEAN	280	MAX	3510	MIN	2.2	AC-FT	202900

06447500 LITTLE WHITE RIVER NEAR MARTIN, SD

LOCATION.--Lat 43°10'00", long 101°37'47", in NW¼ 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, by barometer. Prior to Aug. 14, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Oct. 1-4, 17, 19, 21, Nov. 1-3, Nov. 10 to Mar. 5, and Mar. 8, 11, 16, 21, 24, 28. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--27 years, 19.4 ft³/s, 14,060 acre-ft/yr; median of yearly mean discharges, 18 ft³/s, 13,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,190 ft³/s, July 19, 1965, 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; maximum gage height, 13.21 ft, Mar. 11, 1966, backwater from ice; minimum daily discharge, 0.6 ft³/s, Aug. 14, 16, 18, 1940; no flow for part of each day Oct. 19, 20, 22, 1962 (regulation caused by construction work above station).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 5, 1932, reached a stage of 13.3 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 10	2300	*137	*4.60	No other peak greater than base discharge.			

Minimum daily discharge, 4.8 ft³/s, July 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	25	19	16	18	14	67	22	16	6.7	5.0	6.8
2	17	25	18	16	19	16	75	21	15	6.5	5.2	6.4
3	19	26	16	15	18	22	82	22	14	6.4	5.0	6.3
4	23	26	15	15	17	30	93	29	14	6.4	5.9	6.1
5	26	27	15	15	16	40	85	44	13	8.0	5.5	6.0
6	28	27	16	15	15	64	82	49	13	7.4	5.0	6.0
7	28	27	17	14	16	96	82	52	12	6.8	5.0	6.0
8	23	27	17	14	18	87	82	45	12	6.9	5.4	6.2
9	21	25	16	13	17	115	67	32	12	7.1	5.6	6.3
10	20	22	14	13	18	109	55	25	12	6.7	5.7	7.0
11	21	18	14	14	19	95	49	23	13	6.4	5.8	7.8
12	23	16	15	15	20	76	46	23	13	6.3	5.5	7.5
13	20	14	16	17	20	75	45	23	12	6.2	5.4	7.3
14	20	15	17	16	19	64	48	21	12	6.3	5.2	7.2
15	20	16	18	14	18	60	48	20	11	6.1	5.2	7.7
16	21	17	19	12	18	59	47	18	11	5.9	5.4	9.1
17	21	19	20	12	17	63	43	17	9.9	5.7	5.4	9.3
18	21	18	19	13	17	65	38	16	10	5.5	5.4	11
19	21	17	18	14	18	64	35	16	10	5.5	5.3	10
20	22	18	17	13	17	66	32	16	9.9	5.4	5.4	10
21	22	19	18	14	18	70	29	16	9.3	5.3	5.6	9.8
22	22	21	19	13	17	83	28	19	9.1	5.0	5.8	9.3
23	24	20	20	12	17	90	27	19	9.5	4.9	6.0	9.2
24	24	19	20	11	17	72	26	18	9.0	4.9	6.1	9.1
25	24	21	19	12	16	93	26	18	8.7	5.1	6.0	9.2
26	26	20	19	13	16	48	26	18	7.9	5.0	6.2	9.2
27	25	20	18	13	15	62	26	18	7.6	5.1	6.5	9.2
28	25	21	18	14	15	56	25	18	7.3	5.1	6.8	9.1
29	25	21	18	15	---	52	24	17	7.0	4.8	7.1	9.2
30	25	20	17	16	---	50	23	17	6.8	4.9	7.2	9.3
31	25	---	17	17	---	56	---	17	---	4.9	7.1	---
TOTAL	699	627	539	436	486	2012	1461	729	327.0	183.2	177.7	242.6
MEAN	22.5	20.9	17.4	14.1	17.4	64.9	48.7	23.5	10.9	5.91	5.73	8.09
MAX	28	27	20	17	20	115	93	52	16	8.0	7.2	11
MIN	17	14	14	11	15	14	23	16	6.8	4.8	5.0	6.0
AC-FT	1390	1240	1070	865	964	3990	2900	1450	649	363	352	481

CAL YR 1986	TOTAL	10022.8	MEAN	27.5	MAX	450	MIN	7.0	AC-FT	19880
WTR YR 1987	TOTAL	7919.5	MEAN	21.7	MAX	115	MIN	4.8	AC-FT	15710

06449000 LAKE CREEK BELOW REFUGE, NEAR TUTHILL, SD

LOCATION.--Lat 43°08'46", long 101°30'38", in SW¼ sec.30, T.37 N., R.35 W., Bennett County, Hydrologic Unit 10140203, on left bank 400 ft downstream from east boundary of LaCreek game refuge, 1.2 mi southwest of Tuthill, and 5.5 mi upstream from mouth.

DRAINAGE AREA.--120 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, by barometer. Prior to Aug. 4, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 10, Dec. 10, Jan. 15, 16, Aug. 17 to Sept. 8, and Sept. 10-28. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--27 years, 16.4 ft³/s, 11,880 acre-ft/yr; median of yearly mean discharges, 17 ft³/s, 12,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 594 ft³/s, Mar. 25, 1987, gage height, 5.57 ft, from rating curve extended above 150 ft³/s; maximum gage height, 5.67 ft, Mar. 28, 1975, backwater from ice; no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 594 ft³/s at 0700 hours, Mar. 25, gage height, 5.57 ft; minimum daily discharge, 1.7 ft³/s, Sept. 21-27.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	13	27	26	23	44	137	18	15	4.9	2.3	1.9
2	8.5	16	29	26	23	39	130	14	14	4.6	2.2	1.9
3	14	15	29	26	23	38	124	22	12	4.6	2.1	1.9
4	18	14	28	26	25	37	124	27	9.8	4.0	2.1	1.9
5	16	15	28	25	27	38	120	30	8.3	3.6	2.1	1.9
6	16	14	28	25	27	42	109	31	8.2	3.6	2.1	1.9
7	15	20	28	25	29	46	102	31	5.2	3.4	2.2	1.9
8	13	21	28	25	27	37	98	32	4.2	3.4	2.1	1.9
9	14	14	29	25	28	29	99	29	5.5	3.4	2.1	1.9
10	15	18	26	24	28	47	91	28	8.8	3.4	2.2	1.9
11	12	21	27	25	28	54	75	25	6.7	3.4	2.2	1.8
12	11	21	26	25	27	60	77	26	5.8	2.9	2.1	1.8
13	9.8	21	26	25	28	66	80	24	5.3	2.9	2.2	1.8
14	11	22	26	24	27	73	82	19	3.5	3.1	2.1	1.8
15	8.4	22	26	23	29	84	80	20	2.7	3.1	2.1	1.8
16	7.7	23	25	24	29	92	76	20	10	3.0	2.1	1.8
17	7.1	23	25	25	29	110	73	15	14	2.9	2.1	1.8
18	7.4	24	25	25	30	118	70	12	13	2.8	2.1	1.8
19	7.3	25	25	25	30	114	63	12	13	2.7	2.1	1.8
20	7.3	25	25	25	32	127	48	16	12	2.7	2.0	1.8
21	7.3	26	25	24	28	205	43	19	12	2.7	2.0	1.7
22	7.9	26	25	24	30	127	41	14	12	2.7	2.0	1.7
23	8.6	26	25	23	28	125	40	15	9.9	2.6	2.0	1.7
24	9.2	27	24	23	30	135	36	15	9.2	2.6	2.0	1.7
25	9.6	25	24	23	29	424	33	16	8.8	2.6	2.0	1.7
26	10	27	24	23	42	304	29	18	8.3	2.5	2.0	1.7
27	11	26	24	23	59	191	26	18	6.8	2.5	2.0	1.7
28	12	26	24	23	56	146	24	17	5.8	2.5	2.0	2.3
29	11	26	24	24	---	144	20	15	5.3	2.6	2.0	2.7
30	12	25	26	23	---	142	19	15	5.0	2.6	2.0	2.7
31	13	---	26	23	---	139	---	15	---	2.5	2.0	---
TOTAL	341.1	647	807	755	851	3377	2169	628	260.1	96.8	64.6	56.6
MEAN	11.0	21.6	26.0	24.4	30.4	109	72.3	20.3	8.67	3.12	2.08	1.89
MAX	18	27	29	26	59	424	137	32	15	4.9	2.3	2.7
MIN	7.1	13	24	23	23	29	19	12	2.7	2.5	2.0	1.7
AC-FT	677	1280	1600	1500	1690	6700	4300	1250	516	192	128	112

CAL YR 1986	TOTAL	10413.5	MEAN	28.5	MAX	203	MIN	2.5	AC-FT	20660
WTR YR 1987	TOTAL	10053.2	MEAN	27.5	MAX	424	MIN	1.7	AC-FT	19940

06449100 LITTLE WHITE RIVER NEAR VETAL, SD

LOCATION.--Lat 43°06'03", long 101°13'49", in NE¼NW¼ sec.17, T.36 N., R.33 W., Bennett County, Hydrologic Unit 10140203, on left bank 120 ft downstream from highway bridge, 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.

WATER-DISCHARGE RECORDS

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 National Geodetic Vertical Datum of 1929. Prior to Nov. 14, 1959, nonrecording gage at same site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 10-17, Dec. 10 to Feb. 2, and July 2-13, 15-20. Some small diversion for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--28 years, 53.4 ft³/s, 38,690 acre-ft/yr; median of yearly mean discharges, 55 ft³/s, 39,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,330 ft³/s, Mar. 13, 1966, gage height, 7.75 ft; minimum daily, 9.0 ft³/s, Dec. 24, 25, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 1	1730	200	4.82	Mar. 22	2130	279	5.25
Mar. 8	0315	172	4.70	Mar. 27	2400	*287	*5.30
Mar. 12	0130	208	4.89	Apr. 6	1630	248	5.07

Minimum daily discharge, 19 ft³/s, Sept. 4-7, 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	44	52	52	50	142	203	71	59	31	22	21
2	39	45	58	50	54	130	193	69	57	30	22	20
3	46	48	62	49	59	107	211	83	55	31	26	20
4	44	48	59	48	60	99	228	112	53	32	25	19
5	46	48	67	47	61	116	223	99	49	36	23	19
6	46	48	60	46	64	133	234	110	46	33	23	19
7	46	49	57	44	68	134	227	103	44	30	25	19
8	46	51	54	43	73	156	213	101	43	28	32	20
9	46	54	62	42	70	106	206	102	39	27	29	21
10	47	50	56	41	74	102	205	103	41	26	26	20
11	47	48	52	42	74	185	186	99	40	25	25	19
12	44	46	52	45	77	195	165	92	40	24	25	21
13	44	44	50	48	78	177	164	89	37	23	25	21
14	43	45	52	43	80	169	160	86	36	23	26	21
15	43	47	54	40	82	162	156	78	34	22	25	22
16	42	49	56	36	84	155	154	74	32	21	23	26
17	41	52	58	37	85	151	152	71	31	21	23	26
18	41	57	56	38	86	164	149	64	49	20	23	23
19	42	58	54	40	86	178	138	60	49	21	23	23
20	39	60	52	39	84	203	125	61	47	23	23	23
21	39	64	54	38	85	218	116	67	44	24	23	23
22	39	67	54	36	81	243	107	67	41	22	22	24
23	40	61	56	34	84	223	105	62	40	22	23	26
24	40	62	56	33	77	192	102	60	39	23	23	26
25	41	63	54	34	69	140	97	61	40	23	24	28
26	41	62	54	36	73	108	92	62	38	22	25	27
27	43	64	54	38	42	226	86	62	36	21	24	27
28	43	65	52	40	87	205	84	63	35	21	24	26
29	45	64	52	41	---	133	82	65	34	21	22	27
30	43	63	52	43	---	155	76	68	32	21	21	28
31	44	---	54	46	---	190	---	65	---	21	21	---
TOTAL	1329	1626	1715	1289	2047	4997	4639	2429	1260	768	746	685
MEAN	42.9	54.2	55.3	41.6	73.1	161	155	78.4	42.0	24.8	24.1	22.8
MAX	47	67	67	52	87	243	234	112	59	36	32	28
MIN	39	44	50	33	42	99	76	60	31	20	21	19
AC-FT	2640	3230	3400	2560	4060	9910	9200	4820	2500	1520	1480	1360

CAL YR 1986	TOTAL	26222	MEAN	71.8	MAX	685	MIN	20	AC-FT	52010
WTR YR 1987	TOTAL	23530	MEAN	64.5	MAX	243	MIN	19	AC-FT	46670

06449100 LITTLE WHITE RIVER NEAR VETAL, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1985 to current year.

REMARKS.--Pesticide and herbicide samples collected two times during water year. Some pesticide values had not been received at publication time. Pesticide sampling was discontinued in water year 1987. Pesticide values missing from the 1986 report are included in these tables.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	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)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
JUL 16...	0845	44	392	8.06	30.0	23.0	684	7.3	95	<0.01	<0.010	<0.10
AUG 13...	0815	40	330	8.00	20.0	19.5	684	7.3	89	<0.01	<0.010	<0.10
SEP 12...	0900	35	360	7.80	17.5	13.5	689	9.3	99	<0.01	<0.010	<0.10

DATE	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)
JUL 16...	<0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
AUG 13...	<0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
SEP 12...	<0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	0.010	<0.01	<0.01

DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
JUL 16...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
AUG 13...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
SEP 12...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JUL 16...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
AUG 13...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
SEP 12...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)
JUL 16...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
AUG 13...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.10	<0.1	<0.1	<0.1
SEP 12...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

06449100 LITTLE WHITE RIVER NEAR VETAL, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	PROPAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMAZINE TOTAL (UG/L)	SIMETRYNE TOTAL (UG/L)	TOXAPHENE, DISSOLVED (UG/L)	TOXAPHENE, TOTAL (UG/L)	TRITHION DISSOLV (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JUL 16...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.02	<0.01	<0.01
AUG 13...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.03	<0.01	<0.01
SEP 12...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.01	<0.01	<0.01

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)
OCT 08...	0900	46	350	8.22	12.0	10.5	42	688	9.4	94	120
NOV 05...	0800	47	360	8.10	8.0	5.0	33	687	10.9	95	120
JAN 07...	0815	44	330	8.00	-4.0	0.0	9.9	695	12.8	96	130
APR 01...	1030	205	336	8.07	3.0	4.0	49	693	11.2	94	120
22...	0720	106	406	7.94	6.0	9.0	35	692	9.8	94	130
JUN 19...	0940	51	372	8.22	25.0	20.0	31	690	8.5	104	130
JUL 14...	1455	23	355	8.31	28.0	28.0	17	690	7.4	105	120
AUG 12...	0800	24	370	8.40	18.5	18.0	7.3	690	8.7	102	120
SEP 08...	1445	21	315	8.58	28.5	22.5	5.3	688	9.3	119	110

DATE	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT 08...	0	37	6.3	28	31	1	16	167	21	2.8	46
NOV 05...	0	38	6.8	27	30	1	11	164	20	2.9	46
JAN 07...	0	39	7.6	28	30	1	13	--	24	3.3	47
APR 01...	0	34	7.4	29	33	1	11	160	25	3.8	34
22...	0	40	8.3	36	34	1	13	179	37	3.7	38
JUN 19...	0	39	6.7	32	33	1	12	171	27	3.6	46
JUL 14...	0	38	6.0	29	32	1	12	164	22	3.4	49
AUG 12...	0	37	5.5	26	31	1	10	156	19	2.3	55
SEP 08...	0	35	5.3	25	31	1	11	146	18	2.9	55

06449100 LITTLE WHITE RIVER NEAR VETAL, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT 08...	266	77	260	0.36	33	<0.010	0.620	--	0.270	60	0.270
NOV 05...	258	54	250	0.35	33	<0.010	0.100	--	0.280	50	0.078
JAN 07...	271	10	--	0.37	32	<0.010	0.650	--	0.270	40	--
APR 01...	236	216	240	0.32	131	<0.010	0.210	--	0.210	30	0.189
22...	281	94	280	0.38	80	<0.010	0.300	--	0.030	40	0.238
JUN 19...	270	35	270	0.37	37	<0.010	0.870	--	0.310	50	0.260
JUL 14...	248	24	260	0.34	15	<0.010	0.540	--	0.190	40	0.161
AUG 12...	243	29	250	0.33	16	0.010	0.700	0.690	0.160	60	0.161
SEP 08...	230	14	240	0.31	13	<0.010	0.420	--	0.090	40	0.073

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	CYANIDE DIS-SOLVED (MG/L AS CN)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT 08...	11	100	<10	<10	1	<50	2	<0.01	60	<5	<10
NOV 05...	10	110	<0.5	3	<1	<3	4	<0.01	23	5	7
JAN 07...	9	100	2	<1	<1	<3	4	<0.01	21	<5	5
APR 01...	7	100	<0.5	<1	<1	<3	<1	<0.01	100	<5	8
22...	9	100	<0.5	1	<1	<3	4	<0.01	55	<5	6
JUN 19...	10	110	<0.5	<1	<1	<3	5	<0.01	23	<5	<1
JUL 14...	9	110	<0.5	<1	<1	<3	1	<0.01	7	<5	3
AUG 12...	10	110	<0.5	8	<1	<3	4	<0.01	55	<5	8
SEP 08...	9	100	<0.5	<1	<1	<3	<1	<0.01	16	<5	2

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	THAL-LIUM, DIS-SOLVED (UG/L AS TL)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 08...	<0.1	2	<1	<1	<1	<1	10	--	--	--
NOV 05...	<0.1	1	3	<1	<1	<1	6	--	--	--
JAN 07...	<0.1	<1	4	<1	<1	<1	7	24	2.9	87
APR 01...	<0.1	1	<1	<1	<1	<1	17	429	237	50
22...	<0.1	<1	3	<1	<1	<1	14	137	39	96
JUN 19...	0.1	<1	5	1	<1	<1	14	139	19	95
JUL 14...	0.1	3	2	<1	2	<1	4	55	3.4	87
AUG 12...	<0.1	<1	2	<1	<1	<1	27	39	2.5	97
SEP 08...	0.1	2	1	1	<1	<1	<3	17	0.96	76

06449100 LITTLE WHITE RIVER NEAR VETAL, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	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)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
MAY												
20...	0800	58	408	8.18	18.5	18.0	684	7.5	89	<0.01	<0.010	--
JUL												
14...	1455	23	355	8.31	28.0	28.0	690	7.4	105	<0.01	--	<0.10
SEP												
08...	1445	21	315	8.58	28.5	22.5	688	9.3	119	--	<0.010	<0.10

DATE	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)
MAY												
20...	--	<0.1	<0.1	--	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
JUL												
14...	<0.10	<0.1	--	<0.10	<0.01	--	<0.01	--	<0.01	--	<0.01	--
SEP												
08...	<0.10	--	<0.1	<0.10	--	<0.010	--	<0.010	--	<0.010	--	<0.01

DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR, TOTAL (UG/L)	PCN DISSOLV (UG/L)
MAY												
20...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
JUL												
14...	<0.01	--	--	<0.01	<0.01	--	<0.01	--	<0.1	--	--	<0.10
SEP												
08...	--	<0.010	<0.010	--	--	<0.010	--	<0.01	--	<0.1	<0.10	--

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
MAY											
20...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
JUL											
14...	<0.01	--	--	<0.01	<0.01	--	<0.01	--	--	<0.01	--
SEP											
08...	--	<0.010	<0.010	--	--	<0.010	--	<0.01	<0.01	--	<0.01

DATE	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)
MAY											
20...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	--	--
JUL											
14...	<0.01	<0.01	--	<0.01	--	<0.01	--	<0.10	--	<0.1	<0.1
SEP											
08...	--	--	<0.01	--	<0.01	--	<0.01	--	<0.1	<0.1	<0.1

DATE	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
MAY											
20...	--	<0.01	--	--	<1.0	<1	<0.01	<0.01	0.05	<0.01	<0.01
JUL											
14...	<0.10	<0.01	<0.10	<0.1	<1.0	--	<0.01	--	<0.01	<0.01	<0.01
SEP											
08...	<0.10	--	<0.10	<0.1	--	<1	--	<0.01	--	--	--

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD

LOCATION.--Lat 43°15'47", long 100°55'02", in NW¼SE¼ 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.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 2,415 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except for periods of estimated record, which are poor. Estimated daily discharges during water year: Oct. 12-15, Nov. 8-24, Dec. 1 to Feb. 3, Mar. 23, 25, 26, June 26, July 15, 16, and Sept. 19, 20. Some small diversions for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--6 years, 107 ft³/s, 77,520 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ft³/s, Aug. 4, 1983, gage height, 3.51 ft; maximum gage height, 4.57 ft, backwater from ice, sometime during period Jan. 20-27, 1987; minimum daily, 30 ft³/s, Sept. 21, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
a	--	ice jam	*4.57	Apr. 4	1315	406	1.59
Mar. 23	--	*b500	unknown				

a Sometime during period Jan. 20-27.
b Mean daily discharge.
Minimum daily discharge, 45 ft³/s, Sept. 2-4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	85	108	105	115	128	299	154	122	69	53	49
2	90	79	105	102	125	150	305	149	110	69	62	45
3	81	74	103	100	120	180	311	127	110	69	76	45
4	64	91	100	102	116	276	332	155	107	73	72	45
5	72	99	96	105	113	276	322	166	104	73	68	48
6	90	103	98	108	108	282	323	152	107	73	59	47
7	92	94	98	106	107	234	316	178	107	69	61	47
8	93	90	100	100	112	224	309	195	110	71	74	49
9	85	88	98	96	123	224	304	187	113	69	82	58
10	89	84	90	92	120	220	292	171	113	71	74	68
11	84	82	92	94	121	215	290	156	116	73	66	47
12	76	82	94	100	123	215	241	157	116	69	65	48
13	70	80	96	110	125	220	251	171	101	66	66	50
14	74	80	98	105	128	239	241	158	101	69	66	52
15	78	82	100	100	140	244	219	154	97	60	66	64
16	83	84	102	95	142	229	218	146	97	56	62	89
17	92	90	104	90	142	224	222	127	100	50	59	65
18	88	88	102	92	144	282	235	100	104	70	54	64
19	88	84	101	96	146	350	254	116	101	67	53	62
20	85	86	100	94	151	424	220	113	100	71	55	58
21	82	92	101	96	150	412	201	95	94	62	61	56
22	82	98	103	92	154	400	181	80	90	53	53	59
23	82	96	105	88	157	500	166	98	86	50	54	61
24	84	94	107	84	153	250	155	101	82	63	58	60
25	83	101	105	88	147	240	156	117	78	112	65	61
26	86	97	103	90	142	180	162	92	74	55	66	60
27	87	98	106	92	122	190	173	108	73	50	64	59
28	90	102	108	94	125	194	130	125	69	46	61	61
29	88	110	108	96	---	201	151	128	71	47	58	58
30	89	114	105	100	---	210	177	127	70	51	54	56
31	95	---	108	105	---	210	---	123	---	52	51	---
TOTAL	2616	2727	3144	3017	3671	7823	7156	4226	2923	1998	1938	1691
MEAN	84.4	90.9	101	97.3	131	252	239	136	97.4	64.5	62.5	56.4
MAX	95	114	108	110	157	500	332	195	122	112	82	89
MIN	64	74	90	84	107	128	130	80	69	46	51	45
AC-FT	5190	5410	6240	5980	7280	15520	14190	8380	5800	3960	3840	3350

CAL YR 1986	TOTAL	43363	MEAN	119	MAX	560	MIN	40	AC-FT	86010
WTR YR 1987	TOTAL	42930	MEAN	118	MAX	500	MIN	45	AC-FT	85150

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD--Continued

WATER-QUALITY RECORDS

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

REMARKS.--Monthly samples of common inorganic constituents collected. Some data were not available from the laboratory at publication time. Water-quality data missing from the 1986 report are included in these tables.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	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)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
JUL 17...	0830	74	334	8.13	30.0	26.0	693	7.7	105	<0.01	--	<0.10
AUG 14...	0735	71	294	8.16	19.0	18.5	695	7.4	87	<0.01	<0.010	<0.10
SEP 10...	1030	88	296	8.12	16.5	17.0	690	8.8	101	<0.01	<0.010	<0.10

DATE	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)
JUL 17...	<0.10	<0.1	--	<0.10	<0.01	--	<0.01	--	<0.01	--	<0.01	--
AUG 14...	<0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
SEP 10...	<0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
JUL 17...	<0.01	--	--	<0.01	<0.01	--	<0.01	--	<0.1	--	--	<0.10
AUG 14...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
SEP 10...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JUL 17...	<0.01	--	--	<0.01	<0.01	--	<0.01	--	--	<0.01	--
AUG 14...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
SEP 10...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)
JUL 17...	<0.01	<0.01	--	<0.01	--	<0.01	--	<0.10	--	<0.1	<0.1
AUG 14...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
SEP 10...	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	PROPAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMAZINE TOTAL (UG/L)	SIMETRYNE TOTAL (UG/L)	TOXAPHENE, DISSOLVED (UG/L)	TOXAPHENE, TOTAL (UG/L)	TRITHION DISSOLV (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JUL 17...	<0.10	<0.01	<0.10	<0.1	<1.0	--	<0.01	--	<0.01	<0.01	<0.01
AUG 14...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.02	<0.01	<0.01
SEP 10...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	<0.01	<0.01	<0.01

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT 08...	1230	92	316	8.17	11.5	12.0	26	702	9.7	98	--
NOV 05...	1000	101	315	7.96	11.0	6.0	22	687	11.8	105	--
JAN 07...	1100	106	240	8.08	-2.0	0.0	12	680	12.7	97	K18
APR 02...	0905	310	327	8.43	0.0	3.5	44	706	11.8	96	K7
22...	0920	195	360	8.10	10.0	9.5	16	700	10.3	98	K15
MAY 20...	1135	117	353	8.24	18.5	20.0	--	693	7.8	95	260
JUN 19...	1110	97	305	8.28	22.0	25.0	55	700	8.4	111	--
AUG 12...	1010	62	295	8.44	17.5	18.0	5.6	689	8.4	98	140
SEP 09...	1200	54	281	8.15	22.0	20.5	4.8	697	8.6	105	K83

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
OCT 08...	120	0	37	5.7	23	28	1	9.7	153	16	2.1
NOV 05...	120	0	37	5.5	22	27	0.9	9.1	149	16	2.2
JAN 07...	120	0	38	6.3	26	30	1	9.5	--	18	2.1
APR 02...	120	0	38	7.1	26	29	1	10	160	21	3.6
22...	130	0	41	7.3	30	31	1	11	169	26	3.5
MAY 20...	--	--	--	--	--	--	--	--	--	--	--
JUN 19...	120	0	39	6.5	30	32	1	12	167	25	4.1
AUG 12...	110	0	37	5.0	20	26	0.9	8.6	143	12	2.0
SEP 09...	100	0	34	4.7	19	26	0.8	8.7	134	14	2.4

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT											
08...	51	242	92	240	0.33	60	<0.010	--	0.610	--	--
NOV											
05...	51	238	47	230	0.32	65	<0.010	--	0.630	--	--
JAN											
07...	47	246	31	--	0.33	70	<0.010	--	0.690	--	--
APR											
02...	38	240	422	240	0.33	201	<0.010	--	0.250	--	--
22...	42	262	170	260	0.36	138	<0.010	--	0.330	--	--
MAY											
20...	--	--	--	--	--	--	--	0.020	--	0.500	0.350
JUN											
19...	48	266	156	270	0.36	70	<0.010	--	0.870	--	--
AUG											
12...	56	226	5	230	0.31	38	<0.010	--	0.480	--	--
SEP											
09...	56	213	28	220	0.29	31	<0.010	--	0.370	--	--

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
OCT											
08...	0.200	50	0.190	--	9	100	<10	<10	<1	<50	3
NOV											
05...	0.150	50	0.133	--	8	110	<0.5	6	<1	<3	3
JAN											
07...	0.180	40	--	--	8	110	2	<1	<1	<3	8
APR											
02...	0.170	30	0.140	--	6	120	<0.5	<1	<1	<3	<1
22...	0.110	40	0.177	--	9	110	<0.5	2	<1	<3	13
MAY											
20...	--	--	--	0.003	--	--	--	--	--	--	--
JUN											
19...	0.230	50	0.210	--	10	110	<0.5	<1	<1	<3	4
AUG											
12...	0.130	50	0.119	--	9	88	<0.5	<1	<1	<3	4
SEP											
09...	0.080	40	0.071	--	7	110	<0.5	<1	<1	<3	<1

DATE	CYANIDE DIS-SOLVED (MG/L AS CN)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	THAL-LIUM, DIS-SOLVED (UG/L AS TL)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT											
08...	<0.01	70	<5	<10	<0.1	<1	<1	<1	<1	<1	<10
NOV											
05...	<0.01	38	5	7	<0.1	2	1	1	<1	<1	18
JAN											
07...	<0.01	12	<5	6	0.3	<1	2	<1	<1	<1	5
APR											
02...	<0.01	23	<5	3	<0.1	1	<1	<1	<1	<1	7
22...	<0.01	46	--	6	<0.1	<1	3	<1	<1	<1	17
MAY											
20...	--	--	--	--	--	--	--	--	--	--	--
JUN											
19...	<0.01	19	<5	1	0.2	<1	2	<1	<1	<1	17
AUG											
12...	<0.01	40	<5	6	<0.1	<1	4	<1	<1	<1	32
SEP											
09...	<0.01	19	<5	1	<0.1	2	1	<1	<1	<1	<3

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CYANIDE TOTAL (MG/L AS CN)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	ANTI-MONY, TOTAL (UG/L AS SB)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	THAL-LIUM, TOTAL (UG/L AS TL)
OCT											
08...	--	--	--	--	--	--	--	--	--	--	--
NOV											
05...	--	--	--	--	--	--	--	--	--	--	--
JAN											
07...	--	--	--	--	--	--	--	--	--	--	--
APR											
02...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
MAY											
20...	8	100	<10	<1	70	<0.010	6	2	<1	<1	<1
JUN											
19...	--	--	--	--	--	--	--	--	--	--	--
AUG											
12...	--	--	--	--	--	--	--	--	--	--	--
SEP											
09...	--	--	--	--	--	--	--	--	--	--	--

06449400 ROSEBUD CREEK AT ROSEBUD, SD

LOCATION.--Lat 43°14'14", long 100°51'26", in SW¼SW¼NE¼ 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 National Geodetic Vertical Datum of 1929. October 1963 to September 1970, low-flow partial-record station 0.26 mi² upstream at different datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 10-17, Dec. 9-13, 20, 21, Jan. 1-27, and Feb. 28 to Mar. 2. 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. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--13 years, 7.50 ft³/s, 5,430 acre-ft/yr; median of yearly mean discharges, 7.5 ft³/s, 5,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 643 ft³/s, July 27, 1976, gage height, 10.34 ft; no flow Apr. 21, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 42 ft³/s at 2045 hours, Mar. 5, gage height, 5.49 ft; minimum daily discharge, 4.3 ft³/s, Sept. 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	8.1	8.5	7.5	8.8	7.6	11	8.0	9.0	7.9	5.4	4.6
2	6.1	8.0	8.0	7.0	8.6	8.0	11	8.2	9.0	7.6	5.3	4.4
3	10	8.2	7.5	6.8	8.4	8.5	11	17	9.0	7.5	8.8	5.5
4	8.0	8.9	7.3	6.6	8.5	9.1	11	18	9.3	8.3	7.1	4.3
5	6.7	9.4	8.4	6.8	8.5	16	12	12	9.0	14	5.8	4.4
6	6.9	9.3	8.2	6.4	8.5	18	11	12	8.9	8.4	5.3	4.6
7	6.5	10	8.2	6.0	8.6	12	11	10	10	8.6	6.5	5.3
8	6.8	9.5	8.1	6.3	8.5	11	11	9.9	10	8.6	7.1	6.3
9	6.8	8.5	7.6	6.5	8.4	9.3	11	9.4	11	7.6	6.6	6.0
10	7.0	8.0	7.2	6.5	8.4	10	13	9.2	11	7.6	5.9	5.7
11	6.7	7.0	7.4	6.7	8.2	9.9	11	9.0	10	9.2	5.6	6.3
12	6.7	7.0	7.6	7.0	7.8	9.7	11	8.9	10	7.9	5.3	6.9
13	6.7	7.5	7.8	7.5	7.7	9.7	13	9.1	10	7.1	6.0	6.8
14	7.0	7.5	8.0	7.2	7.8	9.4	13	9.0	9.7	5.9	5.9	6.9
15	7.0	8.0	8.0	6.8	7.8	9.5	11	8.4	9.8	5.5	5.2	7.4
16	7.0	8.0	8.0	6.2	7.4	9.9	10	7.7	10	4.8	5.6	9.6
17	7.0	8.5	8.0	6.0	7.3	11	10	7.8	14	5.0	5.0	7.8
18	6.9	9.3	7.7	6.0	7.4	10	10	8.8	11	6.3	4.7	8.3
19	7.0	9.6	8.0	6.2	7.3	9.8	9.9	8.5	14	6.0	4.9	8.1
20	7.0	9.8	7.5	6.0	7.4	14	9.9	8.5	12	5.9	5.3	8.3
21	7.9	9.4	7.8	6.2	7.2	15	9.8	7.2	11	5.8	5.2	9.5
22	8.0	9.1	8.1	6.0	7.3	11	13	6.3	9.9	5.2	4.6	9.1
23	8.5	8.6	7.8	5.8	7.2	10	10	6.1	9.9	5.4	5.3	5.5
24	8.6	8.4	8.1	5.8	7.5	9.4	10	6.6	9.9	7.1	5.2	6.0
25	8.6	7.9	8.0	6.0	8.1	7.3	9.4	8.6	9.7	8.2	6.2	5.2
26	8.9	7.7	7.9	6.5	8.6	14	9.1	8.3	9.1	6.1	6.1	4.8
27	8.8	7.8	7.9	7.0	7.9	11	8.5	8.1	9.0	5.7	6.1	6.0
28	8.6	8.2	7.9	8.1	7.8	9.4	8.8	8.7	8.8	5.6	5.3	5.9
29	7.4	8.6	7.9	8.2	---	8.9	9.9	7.7	8.6	5.6	4.9	6.2
30	8.0	8.9	7.6	8.4	---	8.9	8.8	9.2	8.4	5.8	4.5	6.3
31	8.4	---	7.8	8.5	---	10	---	9.5	---	5.5	4.6	---
TOTAL	231.5	254.7	243.8	208.5	222.9	327.3	319.1	285.7	301.0	215.7	175.3	192.0
MEAN	7.47	8.49	7.86	6.73	7.96	10.6	10.6	9.22	10.0	6.96	5.65	6.40
MAX	10	10	8.5	8.5	8.8	18	13	18	14	14	8.8	9.6
MIN	6.0	7.0	7.2	5.8	7.2	7.3	8.5	6.1	8.4	4.8	4.5	4.3
AC-FT	459	505	484	414	442	649	633	567	597	428	348	381

CAL YR 1986	TOTAL	3269.6	MEAN	8.96	MAX	18	MIN	4.5	AC-FT	6490
WTR YR 1987	TOTAL	2977.5	MEAN	8.16	MAX	18	MIN	4.3	AC-FT	5910

06449500 LITTLE WHITE RIVER NEAR ROSEBUD, SD

LOCATION.--Lat 43°19'32", long 100°53'00", in SW¼NW¼ 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 National Geodetic Vertical Datum of 1929. Prior to May 11, 1948, nonrecording gage at same site and datum.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 11 to Feb. 23. Some small diversions for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--44 years, 111 ft³/s, 80,420 acre-ft/yr; median of yearly mean discharges, 110 ft³/s, 79,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,640 ft³/s, June 11, 1967, gage height, 14.09 ft, from rating curve extended above 1,300 ft³/s; minimum daily, 10 ft³/s, Jan. 4, 1949, Feb. 20, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 330 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 23	0830	*495	a*5.45	Apr. 4	1530	415	5.14

a Observed.
Minimum daily discharge, 47 ft³/s, July 23.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	100	128	120	125	168	346	208	175	76	66	63
2	97	95	127	115	135	183	367	214	151	75	61	58
3	99	106	123	110	130	205	369	216	136	72	70	59
4	81	105	120	115	126	199	383	265	146	74	79	58
5	86	108	120	120	124	246	386	250	147	94	73	52
6	86	106	125	125	120	255	377	217	140	81	67	60
7	108	126	130	120	118	252	359	228	133	73	68	60
8	108	112	125	110	120	255	337	220	127	76	78	64
9	106	120	120	99	130	228	329	244	129	82	85	75
10	118	103	110	95	128	129	331	195	134	74	78	78
11	106	100	105	95	129	173	324	200	132	80	73	64
12	87	96	110	105	130	249	301	201	123	79	70	64
13	88	92	110	120	135	255	303	184	119	71	76	67
14	97	90	115	115	145	246	298	193	112	67	80	78
15	108	92	120	105	150	243	290	191	106	63	75	68
16	112	95	125	90	152	231	276	180	102	57	77	86
17	111	100	130	90	154	234	278	159	101	54	73	84
18	110	98	125	95	156	237	268	140	95	65	68	79
19	111	96	120	100	158	255	258	172	105	71	65	77
20	112	98	115	95	160	393	246	168	115	65	68	71
21	109	102	115	100	160	379	236	143	109	64	72	74
22	110	108	120	95	162	382	229	135	102	56	68	77
23	112	106	125	90	166	495	219	141	96	47	61	76
24	113	103	130	85	158	255	210	154	95	66	63	77
25	111	110	125	88	151	255	212	137	90	81	75	78
26	111	112	125	92	106	213	202	131	88	62	78	75
27	109	116	125	94	108	216	193	157	85	56	78	74
28	113	122	120	99	116	318	185	150	84	59	74	82
29	108	128	123	104	---	222	224	172	82	52	71	71
30	110	130	120	110	---	240	215	187	77	54	66	72
31	111	---	123	115	---	308	---	184	---	55	63	---
TOTAL	3243	3175	3754	3211	3852	7919	8551	5736	3436	2101	2219	2121
MEAN	105	106	121	104	138	255	285	185	115	67.8	71.6	70.7
MAX	118	130	130	125	166	495	386	265	175	94	85	86
MIN	81	90	105	85	106	129	185	131	77	47	61	52
AC-FT	6430	6300	7450	6370	7640	15710	16960	11380	6820	4170	4400	4210

CAL YR 1986	TOTAL	47429	MEAN	130	MAX	606	MIN	52	AC-FT	94080	
WTR YR 1987	TOTAL	49318	MEAN	135	MAX	495	MIN	47	AC-FT	97820	

06450500 LITTLE WHITE RIVER BELOW WHITE RIVER, SD

LOCATION.--Lat 43°36'05", long 100°44'58", in SW¼NW¼ 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 National Geodetic Vertical Datum of 1929. Prior to June 8, 1968, at site 0.8 mi downstream at datum 4.50 ft lower.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 11-23 and Dec. 1 to Feb. 10. Diurnal fluctuations caused by small powerplant 2.2 mi upstream. Several small diversions for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--38 years, 129 ft³/s, 93,460 acre-ft/yr; median of yearly mean discharges, 130 ft³/s, 94,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft³/s, June 12, 1967, gage height, 10.02 ft, site and datum then in use; maximum gage height, 11.21 ft, June 7, 1968, site and datum then in use; maximum gage height at present site and datum, 15.46 ft, June 7, 1968, from floodmarks; no flow for parts of several days in 1952, 1954, 1956; minimum daily discharge, 7 ft³/s, July 31, Aug. 31, Sept. 1, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,370 ft³/s at 1230 hours, Apr. 6, gage height, 4.67 ft; maximum gage height, 5.67 ft, Feb. 10, backwater from ice; minimum daily discharge, 32 ft³/s, Aug. 25.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	102	110	115	200	148	419	147	139	76	39	46
2	97	101	90	105	230	163	481	144	122	69	54	47
3	114	99	76	95	220	231	551	260	113	70	102	45
4	117	97	65	100	215	275	736	575	105	70	53	43
5	102	102	60	105	210	263	891	500	97	80	40	42
6	99	89	62	100	205	292	873	316	92	92	45	44
7	93	109	60	90	260	382	643	260	92	76	52	52
8	93	115	60	80	500	318	591	236	89	77	59	45
9	107	90	60	77	700	282	531	189	105	85	55	42
10	78	66	54	70	500	314	470	185	108	108	59	52
11	108	62	52	80	229	225	414	174	105	83	49	54
12	114	60	60	120	224	272	367	162	104	74	49	54
13	116	58	210	220	212	288	387	152	102	70	53	56
14	80	58	260	170	252	288	377	146	100	63	57	57
15	92	60	230	140	272	286	333	133	99	61	53	57
16	92	60	200	110	209	292	308	125	99	56	51	68
17	86	62	180	115	218	300	294	118	97	53	49	68
18	89	64	160	125	205	296	282	122	96	58	49	66
19	89	66	140	135	170	301	269	119	99	72	45	61
20	83	70	120	130	173	424	258	130	120	74	45	60
21	77	85	130	130	163	816	237	146	95	71	50	60
22	88	110	140	125	165	540	227	141	81	60	46	62
23	91	150	150	120	161	468	212	130	89	48	46	64
24	92	143	145	115	179	474	197	126	87	55	64	61
25	94	153	140	120	175	449	191	116	82	69	32	63
26	92	156	135	125	144	373	185	126	79	75	43	60
27	93	150	130	135	117	303	175	119	80	48	56	60
28	95	143	125	145	102	375	167	116	79	40	74	58
29	96	143	120	156	---	378	160	148	80	39	43	55
30	97	116	115	165	---	328	159	279	80	37	42	57
31	100	---	120	180	---	398	---	172	---	34	43	---
TOTAL	2960	2939	3759	3798	6610	10542	11385	5812	2915	2043	1597	1659
MEAN	95.5	98.0	121	123	236	340	380	187	97.2	65.9	51.5	55.3
MAX	117	156	260	220	700	816	891	575	139	108	102	68
MIN	77	58	52	70	102	148	159	116	79	34	32	42
AC-FT	5870	5830	7460	7530	13110	20910	22580	11530	5780	4050	3170	3290

CAL YR 1986	TOTAL	58260	MEAN	160	MAX	1140	MIN	47	AC-FT	115600
WTR YR 1987	TOTAL	56019	MEAN	153	MAX	891	MIN	32	AC-FT	111100

06452000 WHITE RIVER NEAR OACOMA, SD
(National stream-quality accounting network station)

LOCATION.--Lat 43°44'54", long 99°33'22", in SE¼SW¼ 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 National Geodetic Vertical Datum of 1929. See WSP 1709, 1729, or 1917 for history of changes prior to Feb. 27, 1960.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Oct. 5, 13, 19, 26, Nov. 2, Nov. 8 to Feb. 11, Feb. 15, 16, 22, Mar. 1, May 3, July 4, 5, 12, 19, 26, Aug. 2, 9, 16, 23, 30, and Sept. 6, 7, 13, 20, 27.

AVERAGE DISCHARGE.--59 years, 534 ft³/s, 386,900 acre-ft/yr; median of yearly mean discharges, 450 ft³/s, 326,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,900 ft³/s, Mar. 30, 1952, gage height, 15.40 ft, site and datum then in use; maximum gage height, 23.59 ft, Mar. 14, 1978, ice jam; no flow Aug. 14-28, 1971, July 16-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976, July 23 to Aug. 7, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 22	1300	*13,700	10.91	Apr. 6	0500	10,100	a*11.02

a Backwater from channel aggregation.
Minimum daily discharge, 28 ft³/s, Sept. 8.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	650	164	110	180	180	230	3320	410	1870	209	84	69
2	469	166	110	180	170	203	2930	405	1580	185	80	64
3	396	169	90	190	170	227	4670	400	1040	176	112	45
4	365	185	80	200	180	500	6480	460	747	155	109	30
5	340	200	75	190	200	540	7250	495	697	133	88	33
6	1990	227	75	180	250	574	8750	2190	624	122	90	34
7	1540	230	75	180	300	650	7770	3590	540	114	94	31
8	1070	200	75	190	350	3160	6800	1960	485	117	98	28
9	747	180	70	200	400	3840	4900	1520	440	105	100	34
10	574	160	70	200	500	2830	3840	1070	455	125	98	36
11	455	150	80	210	600	2610	3370	826	424	136	82	37
12	365	150	100	250	550	1860	2830	679	405	127	76	45
13	320	140	100	240	465	1480	2580	603	387	109	69	44
14	273	150	120	150	357	1210	2320	545	365	131	139	37
15	248	160	140	120	360	1150	2150	500	345	107	166	40
16	242	160	160	110	360	1550	2010	455	369	203	133	38
17	239	170	160	130	365	1890	1720	414	429	179	100	53
18	212	170	160	140	357	1660	1390	400	429	155	90	55
19	190	180	150	130	365	1840	1150	391	374	112	88	53
20	169	180	150	130	378	3730	966	378	374	88	86	55
21	166	190	150	130	374	10500	806	391	341	76	80	64
22	166	190	150	120	365	11400	734	419	365	94	69	117
23	158	200	160	120	357	6530	656	665	345	317	64	197
24	166	210	160	130	361	4920	603	2960	294	194	64	149
25	164	300	170	140	378	3550	545	1390	378	131	65	120
26	164	270	170	150	337	2640	530	1200	455	96	102	107
27	164	280	170	160	291	2450	490	990	291	185	105	90
28	155	200	180	160	262	2060	460	862	255	224	109	78
29	164	140	190	160	---	1530	440	1410	255	182	102	76
30	164	120	190	170	---	1260	424	1140	227	125	88	64
31	161	---	180	180	---	1780	---	1980	---	100	71	---
TOTAL	12646	5591	4020	5120	9582	80354	82884	31098	15585	4512	2901	1923
MEAN	408	186	130	165	342	2592	2763	1003	520	146	93.6	64.1
MAX	1990	300	190	250	600	11400	8750	3590	1870	317	166	197
MIN	155	120	70	110	170	203	424	378	227	76	64	28
AC-FT	25080	11090	7970	10160	19010	159400	164400	61680	30910	8950	5750	3810

CAL YR 1986	TOTAL	378145	MEAN	1036	MAX	18800	MIN	50	AC-FT	750100
WTR YR 1987	TOTAL	256216	MEAN	702	MAX	11400	MIN	28	AC-FT	508200

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 current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976, October 1981 to current year.

REMARKS.--Sediment-discharge records fair. Flow affected by ice Nov. 9 to Mar. 9, Apr. 15. 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.
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.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum observed daily, 28.0°C, July 29-30, Aug. 1; minimum observed daily, 0.0°C on many days during winter period.
SEDIMENT CONCENTRATION: Maximum daily mean, 42,800 mg/L, Oct. 7; minimum daily mean, 119 mg/L, Feb. 4.
SEDIMENT LOAD: Maximum daily, 960,000 tons, Mar. 22; minimum daily, 17 tons, Sept. 5.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	ALKA-LINITY WH WAT TOTAL 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, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT 09...	1645	697	478	8.20	161	12.5	11.5	1000	732	10.0	96
DEC 05...	1150	76	757	8.23	216	8.0	0.0	150	726	13.5	97
MAR 03...	1400	200	1140	8.10	133	10.0	2.0	210	730	10.9	83
APR 23...	1400	680	959	8.44	183	13.5	16.0	200	729	10.0	106
JUN 18...	1110	394	954	8.49	152	23.0	24.0	190	739	8.0	98
AUG 13...	1000	70	800	9.07	153	20.5	19.5	640	720	8.3	96

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)
OCT 09...	K4000	--	24	0	7.8	1.1	90	87	8	3.2	177
DEC 05...	K69	750	150	0	48	6.5	120	63	5	5.6	--
MAR 03...	K22	400	350	220	100	25	160	49	4	8.6	169
APR 23...	K55	K60	270	86	81	16	120	48	3	8.5	205
JUN 18...	--	--	150	0	49	6.8	150	67	6	11	177
AUG 13...	140	190	97	0	33	3.5	140	74	6	9.3	182

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
OCT 09...	65	4.7	0.60	36	333	310	0.45	627	<0.010	1.60	--
DEC 05...	170	10	0.50	34	540	520	0.73	111	<0.010	0.850	--
MAR 03...	540	24	0.40	23	993	960	1.4	536	0.020	0.940	0.920
APR 23...	300	12	0.40	26	703	670	0.96	1290	<0.010	<0.100	--
JUN 18...	290	13	0.80	34	663	650	0.90	705	<0.010	<0.100	--
AUG 13...	220	19	2.1	36	560	560	0.76	106	<0.010	1.10	--

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (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)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
OCT 09...	<0.010	0.050	--	34	<0.200	<0.200	0.050	910	27	34
DEC 05...	<0.010	0.020	--	0.80	0.330	0.080	0.050	10	13	45
MAR 03...	0.070	0.080	0.09	0.90	0.170	<0.010	0.040	20	5	60
APR 23...	0.020	0.050	0.03	1.8	0.070	0.080	0.050	<10	10	170
JUN 18...	0.030	0.020	0.04	0.40	0.680	0.410	0.030	10	12	47
AUG 13...	0.020	0.060	0.03	--	9.60	0.050	0.020	20	15	43

DATE	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)
OCT 09...	<0.5	<1	<1	<3	6	1200	<5	28	38	<0.1
DEC 05...	<0.5	<1	<1	<3	4	7	<5	54	5	<0.1
MAR 03...	<0.5	1	<1	<3	6	13	<5	130	18	0.5
APR 23...	<0.5	1	<1	<3	13	17	<5	66	9	<0.1
JUN 18...	<0.5	<1	<1	<3	28	7	<5	58	2	0.1
AUG 13...	<0.5	<1	<1	<3	24	5	<5	46	<1	<0.1

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	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)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 09...	<10	<1	4	<1	55	35	11	26900	50600	--
DEC 05...	<10	2	3	<1	380	12	5	420	86	100
MAR 03...	<10	6	4	<1	950	<6	33	870	470	100
APR 23...	<10	2	3	<1	580	7	13	539	990	96
JUN 18...	10	3	3	<1	430	18	12	1110	1180	100
AUG 13...	<10	<1	4	<1	280	22	<3	11800	2230	100

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	4.0	1.0	---	---	---	4.0	20.0	21.0	21.0	28.0	17.0
2	13.0	---	---	1.0	---	1.0	4.0	18.0	19.0	22.0	---	18.0
3	11.0	6.0	---	---	---	2.0	3.5	---	17.0	21.0	21.0	20.0
4	10.0	7.0	---	---	.0	5.0	6.0	16.0	19.0	---	23.0	18.0
5	---	8.0	.0	---	---	6.0	---	15.0	22.0	---	24.0	20.0
6	13.0	7.5	---	---	---	10.0	10.0	17.0	23.0	24.0	22.0	---
7	13.0	5.0	---	.0	---	9.0	8.0	16.0	---	25.0	23.0	---
8	12.0	---	---	.5	---	---	11.0	17.0	22.0	21.0	20.0	15.0
9	11.5	---	---	---	---	.0	10.0	19.0	19.0	24.0	---	18.0
10	9.0	.0	---	---	---	.0	9.0	---	20.0	23.0	24.0	19.0
11	7.0	---	---	---	1.0	.0	9.0	19.0	24.0	24.0	23.0	12.0
12	---	---	.0	---	1.0	2.0	---	18.0	25.0	---	19.0	13.0
13	9.0	---	---	---	1.0	5.0	8.0	20.0	25.0	18.0	19.5	---
14	3.0	---	---	1.0	.0	3.0	9.0	18.0	---	21.0	22.0	16.0
15	3.0	---	---	---	---	---	10.0	19.0	24.0	22.0	25.0	19.0
16	4.0	---	---	---	---	2.0	14.0	---	24.0	27.0	---	18.0
17	9.0	.0	---	---	.0	1.0	14.0	---	23.0	25.0	21.0	15.0
18	12.0	---	---	---	1.0	1.0	18.0	16.0	24.0	24.0	19.0	13.0
19	---	---	.0	---	1.0	3.0	---	17.0	21.0	---	18.0	12.0
20	13.0	---	---	---	2.0	7.0	12.0	20.0	24.0	26.0	19.0	---
21	14.0	---	---	.0	---	6.0	10.0	13.0	26.0	26.0	24.0	13.0
22	13.0	---	---	---	---	---	11.0	11.0	26.0	25.0	17.0	13.0
23	12.0	---	---	---	1.0	3.0	16.0	16.0	21.0	27.0	---	14.0
24	10.0	---	---	---	1.0	2.0	14.0	---	20.0	27.0	16.0	15.0
25	11.0	3.0	---	---	1.0	---	16.0	21.0	21.0	26.0	15.0	17.0
26	---	---	.0	---	1.0	2.0	---	15.0	20.0	---	16.0	20.0
27	12.0	---	---	---	---	3.0	17.0	18.0	20.0	27.0	16.0	---
28	12.0	---	---	---	1.0	.0	17.0	19.0	---	27.0	17.0	13.0
29	8.0	---	---	---	---	---	18.0	21.0	19.0	28.0	19.0	11.0
30	10.0	---	---	.0	---	.0	16.0	21.0	20.0	28.0	---	11.0
31	6.0	---	---	---	---	3.0	---	---	---	27.0	15.0	---

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE WATER (DEG C)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
OCT							
09...	1645	697	11.5	26900	--	74	84
NOV							
06...	1440	228	7.5	708	98	57	68
DEC							
05...	1150	76	0.0	420	100	--	--
JAN							
30...	1035	169	0.0	85	95	--	--
MAR							
23...	1525	6230	3.0	20000	--	39	45
APR							
06...	1720	7860	10.0	10200	--	31	36
23...	1400	680	16.0	539	96	--	--
MAY							
22...	0945	411	11.0	980	--	57	75
JUN							
18...	1130	404	24.0	1110	100	65	80
AUG							
13...	1010	70	19.5	11800	100	81	93
SEP							
11...	0900	36	12.0	316	100	--	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM
OCT						
09...	94	98	99	100	--	--
NOV						
06...	--	94	--	--	--	--
DEC						
05...	--	--	--	--	--	--
JAN						
30...	--	--	--	--	--	--
MAR						
23...	51	59	90	96	99	100
APR						
06...	40	46	83	95	99	100
23...	--	--	--	--	--	--
MAY						
22...	85	92	98	98	100	--
JUN						
18...	92	96	--	--	--	--
AUG						
13...	98	99	--	--	--	--
SEP						
11...	--	--	--	--	--	--

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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	650	19800	34700	164	447	198	110	5680	1690
2	469	13500	17100	166	900	403	110	3500	1040
3	396	13000	13900	169	1700	776	90	1500	364
4	365	13600	13400	185	449	224	80	410	89
5	340	14100	12900	200	435	235	75	399	81
6	1990	32400	174000	227	700	429	75	380	77
7	1540	42800	178000	230	690	428	75	360	73
8	1070	39600	114000	200	530	286	75	350	71
9	747	26800	54100	180	370	180	70	330	62
10	574	11600	18000	160	212	92	70	310	59
11	455	10700	13100	150	200	81	80	300	65
12	365	10600	10400	150	190	77	100	291	79
13	320	10500	9070	140	180	68	100	290	78
14	273	10400	7670	150	170	69	120	295	96
15	248	8500	5690	160	170	73	140	300	113
16	242	6300	4120	160	160	69	160	320	138
17	239	6350	4100	170	159	73	160	340	147
18	212	4850	2780	170	160	73	160	360	156
19	190	3820	1960	180	165	80	150	387	157
20	169	2800	1280	180	165	80	150	385	156
21	166	1750	784	190	170	87	150	380	154
22	166	900	403	190	170	87	150	375	152
23	158	880	375	200	180	97	160	365	158
24	166	460	206	210	2500	1420	160	355	153
25	164	440	195	300	6300	5100	170	345	158
26	164	485	215	270	5700	4160	170	341	157
27	164	526	233	280	5800	4380	170	330	151
28	155	470	197	200	5750	3110	180	310	151
29	164	440	195	140	5700	2150	190	290	149
30	164	454	201	120	5690	1840	190	270	139
31	161	486	211	---	---	---	180	250	121
TOTAL	12646	---	693485	5591	---	26425	4020	---	6434
		JANUARY			FEBRUARY			MARCH	
1	180	230	112	180	128	62	230	460	286
2	180	226	110	170	125	57	203	454	249
3	190	220	113	170	122	56	227	800	490
4	200	220	119	180	119	58	500	6250	8440
5	190	200	103	200	120	65	540	3700	5390
6	180	180	87	250	130	88	574	2300	3560
7	180	160	78	300	150	121	650	2200	3860
8	190	140	72	350	200	189	3160	16700	142000
9	200	131	71	400	300	324	3840	31300	325000
10	200	130	70	500	500	675	2830	25000	191000
11	210	130	74	600	3550	5750	2610	19200	135000
12	250	130	88	550	2850	4230	1860	15000	75300
13	240	130	84	465	950	1190	1480	11000	44000
14	150	130	53	357	852	821	1210	7900	25800
15	120	125	40	360	780	758	1150	6900	21400
16	110	120	36	360	730	710	1550	6210	26000
17	130	125	44	365	694	684	1890	5950	30400
18	140	130	49	357	755	728	1660	4450	19900
19	130	200	70	365	1430	1410	1840	3710	18400
20	130	850	298	378	1420	1450	3730	10000	101000
21	130	1330	467	374	1360	1370	10500	21000	595000
22	120	1000	324	365	1300	1280	11400	31200	960000
23	120	800	259	357	1270	1220	6530	21700	383000
24	130	600	211	361	1020	994	4920	14800	197000
25	140	400	151	378	951	971	3550	11800	113000
26	150	200	81	337	849	773	2640	8000	57000
27	160	180	78	291	630	495	2450	6150	40700
28	160	160	69	262	466	330	2060	5200	28900
29	160	140	60	---	---	---	1530	4300	17800
30	170	131	60	---	---	---	1260	3350	11400
31	180	130	63	---	---	---	1780	3050	14700
TOTAL	5120	---	3594	9582	---	26859	80354	---	3595975

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE, IN TONS PER DAY, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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)
		APRIL			MAY			JUNE	
1	3320	7710	69100	410	513	568	1870	21400	108000
2	2930	6650	52600	405	428	468	1580	17300	73800
3	4670	10800	136000	400	515	556	1040	15000	42100
4	6480	14100	247000	460	650	807	747	12100	24400
5	7250	14900	292000	495	656	877	697	9750	18300
6	8750	11500	272000	2190	2750	16300	624	7950	13400
7	7770	8420	177000	3590	21500	208000	540	5450	7950
8	6800	7080	130000	1960	23700	125000	485	3000	3930
9	4900	6120	81000	1520	20800	85400	440	1980	2350
10	3840	4850	50300	1070	17400	50300	455	1580	1940
11	3370	4260	38800	826	14800	33000	424	1110	1270
12	2830	3550	27100	679	11200	20500	405	960	1050
13	2580	2790	19400	603	9070	14800	387	931	973
14	2320	2760	17300	545	6590	9700	365	750	739
15	2150	2330	13500	500	5090	6870	345	574	535
16	2010	1890	10300	455	4150	5100	369	684	681
17	1720	1400	6500	414	3350	3740	429	1150	1330
18	1390	1150	4320	400	2290	2470	429	1190	1380
19	1150	1040	3230	391	1340	1410	374	3500	3530
20	966	931	2430	378	1260	1290	374	4750	4800
21	806	736	1600	391	1180	1250	341	5100	4700
22	734	669	1330	419	1020	1150	365	5910	5820
23	656	560	992	665	2150	3860	345	6750	6290
24	603	656	1070	2960	39000	312000	294	5450	4330
25	545	491	723	1390	38800	146000	378	7450	7600
26	530	489	700	1200	33000	107000	455	13700	16800
27	490	487	644	990	26400	70600	291	11500	9040
28	460	462	574	862	22300	51900	255	12700	8740
29	440	461	548	1410	23100	87900	255	18100	12500
30	424	423	484	1140	18700	57600	227	16800	10300
31	---	---	---	1980	25100	134000	---	---	---
TOTAL	82884	---	1658545	31098	---	1560416	15585	---	398578
		JULY			AUGUST			SEPTEMBER	
1	209	13800	7790	84	18300	4150	69	7850	1460
2	185	9950	4970	80	15200	3280	64	2150	372
3	176	8800	4180	112	15000	4540	45	800	97
4	155	6600	2760	109	12500	3680	30	440	36
5	133	4400	1580	88	8750	2080	33	224	20
6	122	2920	962	90	7000	1700	34	320	29
7	114	1920	591	94	6150	1560	31	410	34
8	117	1800	569	98	3250	860	28	503	38
9	105	1340	380	100	1850	499	34	282	26
10	125	1520	513	98	3150	833	36	282	27
11	136	1760	646	82	5000	1110	37	322	32
12	127	1540	528	76	9450	1940	45	310	38
13	109	1290	380	69	11600	2160	44	260	31
14	131	2500	884	139	15300	5740	37	213	21
15	107	2750	794	166	33500	15000	40	291	31
16	203	5600	3070	133	27700	9950	38	316	32
17	179	6750	3260	100	21200	5720	53	500	72
18	155	9250	3870	90	18100	4400	55	385	57
19	112	9900	2990	88	15600	3710	53	409	59
20	88	10600	2520	86	14900	3460	55	402	60
21	76	11800	2420	80	14100	3050	64	396	68
22	94	10500	2660	69	10900	2030	117	8250	2610
23	317	20100	17200	64	5650	976	197	29000	15400
24	194	25700	13500	64	4750	821	149	32500	13100
25	131	33900	12000	65	5750	1010	120	22300	7230
26	96	28100	7280	102	14100	3880	107	16600	4800
27	185	23200	11600	105	19400	5500	90	11700	2840
28	224	28000	16900	109	14700	4330	78	8150	1720
29	182	31000	15200	102	14900	4100	76	9150	1880
30	125	30400	10300	88	13200	3140	64	5000	864
31	100	26200	7070	71	11500	2200	---	---	---
TOTAL	4512	---	159367	2901	---	107409	1923	---	53084

06452380 ANDES CREEK NEAR ARMOUR, SD

LOCATION.--Lat 43°15'23", long 98°24'08", in SW¼NW¼ sec.3, T.98 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, at bridge 2.8 mi east of U.S. Highway 281 and 2 mi north of Lake Andes.

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

REMARKS.--The stream flows only during the wet season. Samples are collected only when flow is greater than 2 ft^3/s.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	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, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)
APR 07...	1245	38	1250	8.17	20.0	14.0	4.5	726	16.0	164	540

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)
APR 07...	380	120	58	59	18	1	22	159	500	21	12

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
APR 07...	926	17	890	1.3	95	0.020	0.020	0.680	0.660	0.700	0.250

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
APR 07...	0.180	110	0.180	0.190	3	50	<0.5	<1	<1	<3	2

DATE	CYANIDE DIS-SOLVED (MG/L AS CN)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	THAL-LIUM, DIS-SOLVED (UG/L AS TL)	ZINC, DIS-SOLVED (UG/L AS ZN)
APR 07...	<0.01	11	<5	300	<0.1	5	<1	6	<1	<1	7

DATE	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CYANIDE TOTAL (MG/L AS CN)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	ANTI-MONY, TOTAL (UG/L AS SB)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	THAL-LIUM, TOTAL (UG/L AS TL)
APR 07...	3	100	<10	<1	120	<0.010	4	<1	6	<1	<1

06452386 LAKE ANDES TRIBUTARY NO. 2 NEAR LAKE ANDES, SD

LOCATION.--Lat 43°12'43", long 98°26'45", in SE¼SE¼SE¼ sec.18, T.97 N., R.64 W., Charles Mix County, Hydrologic Unit 10140101, at culvert 3 mi north and 4.6 mi east of town of Lake Andes.

PERIOD OF RECORD.--October 1984 to September 1987.

REMARKS.--Streamflow occurs only during wet season. Water-quality samples are taken only when streamflow exceeds 2.0 ft³/s.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	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, DIS-SOLVED (PER-CENT SATUR-ATION)	SODIUM, DIS-SOLVED (MG/L AS NA)
APR 08...	0900	3.4	1580	7.77	15.0	13.0	15	723	11.6	117	68

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
APR 08...	168	700	28	15	1250	35	<0.010	0.020	0.750	0.700	0.150

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
APR 08...	0.080	80	0.004	0.078	2	<100	<10	<10	<1	<50	2

DATE	CYANIDE DIS-SOLVED (MG/L AS CN)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	THAL-LIUM, DIS-SOLVED (UG/L AS TL)	ZINC, DIS-SOLVED (UG/L AS ZN)
APR 08...	<0.01	20	<5	620	<0.1	7	<1	17	<1	<1	<10

DATE	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CYANIDE TOTAL (MG/L AS CN)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	ANTI-MONY, TOTAL (UG/L AS SB)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	THAL-LIUM, TOTAL (UG/L AS TL)
APR 08...	3	100	<10	<1	70	<0.010	7	<1	17	<1	<1

06452410 LAKE ANDES BELOW LAKE ANDES, SD

LOCATION.--Lat 43°08'27", long 98°32'57", in SW¼SE¼SE¼ sec.8, T.96 N., R.65 W., Charles Mix County, Hydrologic Unit 101040101, on upstream side of concrete culvert, 1 mi south and 0.25 mile west of town of Lake Andes.

PERIOD OF RECORD.--May to September 1987.

REMARKS.--This site was selected as an alternative to site 06453292 during periods of high lake levels. Streamflow values are those discharges from Lake Andes at its outlet. Water-quality data missing from the 1986 report are included in these tables.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	ALDRIN, DISSOLVED (UG/L)	AMETRYNE TOTAL	ATRAZINE, TOTAL (UG/L)
JUL 09...	1335	84	1630	8.81	28.0	26.5	720	6.5	86	<0.01	--	--
SEP 26...	0800	--	1500	8.69	12.5	16.5	--	--	--	<0.01	<0.10	<0.10

DATE	CHLORDANE, DISSOLVED (UG/L)	CYANAZINE TOTAL (UG/L)	DDD, DISSOLVED (UG/L)	DDE, DISSOLVED (UG/L)	DDT, DISSOLVED (UG/L)	DIAZINON, DISSOLVED (UG/L)	DIELDRIN DISSOLVED (UG/L)	ENDOSULFAN DISSOLV (UG/L)	ENDRIN, DISSOLVED (UG/L)	ETHION DISSOLV (UG/L)	PCB, DISSOLVED (UG/L)
JUL 09...	<0.1	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1
SEP 26...	<0.1	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1

DATE	PCN DISSOLV (UG/L)	HEPTACHLOR EPOXIDE DISSOLVED (UG/L)	HEPTACHLOR, DISSOLVED (UG/L)	LINDANE DISSOLVED (UG/L)	MALATHION, DISSOLVED (UG/L)	METHOXYCHLOR DISSOLV (UG/L)	METHYL PARATHION, DISSOLVED (UG/L)	METHYLTRITHION DISSOLV (UG/L)	MIREX, DISSOLVED (UG/L)	PARATHION, DISSOLVED (UG/L)	PERTHANE DISSOLV (UG/L)
JUL 09...	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10
SEP 26...	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10

DATE	PROMETONE TOTAL (UG/L)	PROMETRYNE TOTAL (UG/L)	PROPAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMAZINE TOTAL (UG/L)	SIMETRYNE TOTAL (UG/L)	TOXAPHENE, DISSOLVED (UG/L)	TRITHION DISSOLV (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JUL 09...	--	--	--	<0.01	--	--	<1.0	<0.01	0.11	<0.01	<0.01
SEP 26...	<0.1	<0.1	<0.10	<0.01	<0.10	<0.1	<1.0	<0.01	0.05	<0.01	<0.01

06452410 LAKE ANDES BELOW LAKE ANDES, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	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, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)
OCT											
08...	1100	47	1500	8.54	10.0	14.5	2.5	724	8.2	85	670
NOV											
06...	0910	32	1580	8.39	8.0	8.0	2.7	715	10.0	91	640
DEC											
03...	1110	18	1600	8.50	0.0	1.0	3.5	727	13.0	96	640
JAN											
08...	1115	2.7	1720	8.10	4.0	3.0	3.6	726	13.4	105	770
FEB											
13...	0910	1.5	1850	7.55	11.0	6.0	2.1	718	10.0	86	880
MAR											
12...	1050	1.3	1850	7.75	5.5	8.0	2.6	731	10.8	96	880
APR											
08...	1210	109	1340	8.83	23.5	10.0	9.0	723	16.0	150	580
MAY											
12...	1045	98	1120	8.11	22.5	19.5	6.4	722	8.2	95	530
JUN											
04...	1020	35	1300	8.25	22.0	19.5	3.2	727	9.2	106	560
JUL											
22...	1105	9.3	1350	7.64	29.0	26.0	8.0	719	4.8	63	550
AUG											
05...	1055	2.8	1500	7.06	29.0	26.0	1.6	719	2.6	34	650
31...	1110	0.24	2360	7.50	23.0	18.5	2.6	729	4.0	45	1200

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT											
08...	490	180	54	63	16	1	40	182	590	51	1.9
NOV											
06...	450	170	53	63	17	1	39	191	580	50	4.5
DEC											
03...	0	170	53	62	16	1	39	--	590	48	4.8
JAN											
08...	0	200	65	69	16	1	38	--	690	48	7.6
FEB											
13...	660	230	75	71	14	1	29	220	770	42	12
MAR											
12...	650	230	75	75	15	1	34	232	820	44	13
APR											
08...	410	150	49	56	16	1	32	168	530	42	7.7
MAY											
12...	380	130	50	58	18	1	30	149	510	43	2.5
JUN											
04...	520	140	50	57	17	1	33	33	530	44	7.1
JUL											
22...	430	130	54	64	20	1	2.7	113	580	40	15
AUG											
05...	540	160	62	69	18	1	32	114	640	42	16
31...	950	310	94	80	13	1	27	214	1100	35	27

06452410 LAKE ANDES BELOW LAKE ANDES, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT 08...	1220	9	1100	1.7	155	0.010	--	<0.100	--	--	--
NOV 06...	1110	7	1100	1.5	96	<0.010	--	<0.100	--	--	--
DEC 03...	1110	8	--	1.5	54	<0.010	--	<0.100	--	--	--
JAN 08...	1300	17	--	1.8	9.5	<0.010	--	0.300	--	--	--
FEB 13...	1420	3	1400	1.9	5.8	0.010	--	0.750	0.740	--	--
MAR 12...	1470	6	1400	2.0	5.2	<0.010	--	0.540	--	--	--
APR 08...	982	28	970	1.3	289	<0.010	0.010	0.130	--	0.200	0.170
MAY 12...	938	11	910	1.3	248	<0.010	0.010	<0.100	--	<0.100	0.230
JUN 04...	974	<1	880	1.3	92	<0.010	--	<0.100	--	--	--
JUL 22...	1010	20	950	1.4	25	0.060	--	0.220	0.160	--	--
AUG 05...	1130	6	1100	1.5	8.5	0.030	0.030	0.260	0.230	0.200	0.490
31...	2060	8	1800	2.8	1.3	0.150	--	1.90	1.75	--	--

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
OCT 08...	0.140	240	0.150	--	5	51	<0.5	<1	<1	<3	2
NOV 06...	0.150	230	0.069	--	3	46	<0.5	<1	<1	<3	1
DEC 03...	0.090	230	0.077	--	3	43	<0.5	<1	<1	<3	1
JAN 08...	0.050	250	0.042	--	3	43	<0.5	<1	<1	<3	2
FEB 13...	0.090	280	0.072	--	2	39	0.5	<1	<1	<3	1
MAR 12...	0.100	260	0.085	--	2	43	<0.5	<1	<1	<3	<1
APR 08...	0.070	180	0.051	0.049	2	41	<0.5	<1	<1	<3	<1
MAY 12...	0.140	180	0.117	0.144	3	38	<0.5	<1	<1	<3	1
JUN 04...	0.350	200	0.300	--	7	31	1	<1	1	<3	<1
JUL 22...	0.350	210	0.330	--	8	71	<0.5	<1	<1	<3	1
AUG 05...	0.300	250	0.260	0.320	8	<100	<10	<10	<1	<50	1
31...	0.230	330	0.194	--	4	<100	<10	<10	<1	<50	<1

06452410 LAKE ANDES BELOW LAKE ANDES, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	CYANIDE DIS-SOLVED (MG/L AS CN)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	THAL-LIUM, DIS-SOLVED (UG/L AS TL)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT											
08...	<0.01	3	8	1000	<0.1	4	<1	1	<1	<1	6
NOV											
06...	<0.01	3	5	340	<0.1	4	<1	1	<1	<1	<3
DEC											
03...	<0.01	31	<5	160	<0.1	3	<1	1	<1	<1	<3
JAN											
08...	<0.01	5	<5	610	<0.1	3	<1	7	<1	<1	10
FEB											
13...	<0.01	17	<5	2200	<0.1	5	<1	11	<1	<1	19
MAR											
12...	<0.01	5	<5	1500	<0.1	6	<1	16	<1	<1	4
APR											
08...	<0.01	3	<5	29	<0.1	7	<1	2	<1	<1	4
MAY											
12...	<0.01	6	<5	720	<0.1	3	<1	2	<1	<1	7
JUN											
04...	<0.01	5	<5	800	<0.1	<1	<1	2	<1	<1	4
JUL											
22...	<0.01	6	27	2	<0.1	<1	2	3	<1	<1	5
AUG											
05...	<0.01	30	<5	2200	3.6	3	1	8	<1	<1	<10
31...	<0.01	20	<5	4400	0.1	10	1	52	<1	<1	10

DATE	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CYANIDE TOTAL (MG/L AS CN)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	ANTI-MONY, TOTAL (UG/L AS SB)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	THAL-LIUM, TOTAL (UG/L AS TL)
OCT											
08...	--	--	--	--	--	--	--	--	--	--	--
NOV											
06...	--	--	--	--	--	--	--	--	--	--	--
DEC											
03...	--	--	--	--	--	--	--	--	--	--	--
JAN											
08...	--	--	--	--	--	--	--	--	--	--	--
FEB											
13...	--	--	--	--	--	--	--	--	--	--	--
MAR											
12...	--	--	--	--	--	--	--	--	--	--	--
APR											
08...	2	100	<10	<1	3400	<0.010	5	<1	3	<1	<1
MAY											
12...	4	<100	<10	<1	180	<0.010	5	2	2	<1	<1
JUN											
04...	--	--	--	--	--	--	--	--	--	--	--
JUL											
22...	--	--	--	--	--	--	--	--	--	--	--
AUG											
05...	10	200	<10	<1	220	<0.010	6	2	8	<1	<1
31...	--	--	--	--	--	--	--	--	--	--	--

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	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)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
MAY												
12...	1045	98	1120	8.11	22.5	19.5	722	8.2	95	--	<0.010	<0.10
JUL												
22...	1105	9.3	1350	7.64	29.0	26.0	719	4.8	63	<0.01	<0.010	<0.10
AUG												
31...	1110	0.24	2360	7.50	23.0	18.5	729	4.0	45	<0.01	<0.010	<0.10

06452410 LAKE ANDES BELOW LAKE ANDES, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	ATRAZINE, TOTAL (UG/L)	CHLORDANE, DISSOLVED (UG/L)	CHLORDANE, TOTAL (UG/L)	CYANAZINE TOTAL (UG/L)	DDD, DISSOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DISSOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DISSOLVED (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, DISSOLVED (UG/L)	DIAZINON, TOTAL (UG/L)
MAY												
12...	0.30	--	<0.1	<0.10	--	<0.010	--	<0.010	--	<0.010	<0.01	<0.01
JUL												
22...	0.30	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
AUG												
31...	0.20	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

DATE	DIELDRIN DISSOLVED (UG/L)	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDOSULFAN DISSOLV (UG/L)	ENDRIN, DISSOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DISSOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR, TOTAL (UG/L)	PCN DISSOLV (UG/L)
MAY												
12...	--	<0.010	<0.010	--	--	<0.010	<0.01	<0.01	--	<0.1	<0.10	--
JUL												
22...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
AUG												
31...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTACHLOR EPOXIDE DISSOLVED (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, DISSOLVED (UG/L)	LINDANE DISSOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, DISSOLVED (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR DISSOLV (UG/L)	METHYL PARATHION, TOTAL (UG/L)
MAY											
12...	--	<0.010	<0.010	--	--	<0.010	<0.01	<0.01	<0.01	--	<0.01
JUL											
22...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
AUG											
31...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL PARATHION, DISSOLVED (UG/L)	METHYL-TRITHION DISSOLV (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, DISSOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, DISSOLVED (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE DISSOLV (UG/L)	PERTHANE TOTAL (UG/L)	PROMETONE TOTAL (UG/L)	PROMETRYNE TOTAL (UG/L)
MAY											
12...	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01	--	<0.1	<0.1	<0.1
JUL											
22...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
AUG											
31...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

DATE	PROPAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMAZINE TOTAL (UG/L)	SIMETRYNE TOTAL (UG/L)	TOXAPHENE, DISSOLVED (UG/L)	TOXAPHENE, TOTAL (UG/L)	TRITHION DISSOLV (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
MAY											
12...	<0.10	<0.01	<0.10	<0.1	--	<1	<0.01	<0.01	0.03	<0.01	<0.01
JUL											
22...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.03	<0.01	<0.01
AUG											
31...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.01	<0.01	<0.01

06452500 LAKE FRANCIS CASE AT PICKSTOWN, SD

LOCATION.--Lat 43°04'05", long 98°33'15", in SE¼ 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, 4,328,000 acre-ft, Apr. 9; minimum contents, 2,379,000 acre-ft, Dec. 8.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,356.88	3,843,000	-
Oct. 31	1,348.71	3,151,000	-692,000
Nov. 30	1,337.80	2,424,000	-727,000
Dec. 31	1,344.70	2,605,000	+181,000
CAL YR 1986	-	-	-211,000
Jan. 31	1,348.90	3,174,000	+569,000
Feb. 28	1,352.77	3,474,000	+300,000
Mar. 31	1,361.51	4,255,000	+781,000
Apr. 30	1,357.51	3,894,000	-361,000
May 31	1,358.86	4,017,000	+123,000
June 30	1,355.14	3,684,000	-333,000
July 31	1,357.75	3,916,000	+232,000
Aug. 31	1,353.29	3,528,000	-388,000
Sept. 30	1,352.60	3,484,000	-44,000
WTR YR 1987	-	-	-359,000

NOTE.--Lake frozen over Dec. 30 to Mar. 5.

06453010 MISSOURI RIVER AT GREENWOOD, SD

STAGE RECORDS

LOCATION.--Lat 42°55'11", long 98°23'01", in SE¼NW¼NW¼ sec.35, T.94 N., R.64 W., Charles Mix County, Hydrologic Unit 10170101, on left bank 0.25 mi southeast of Greenwood at mile 865.0.

PERIOD OF RECORD.--1957 to July 25, 1985, Feb. 18 to Sept. 30, 1987.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Stage regulated by Fort Randall Dam 15.0 mi upstream. Prior to Oct. 1, 1980, gage heights in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					---	25.08	24.24	26.88	24.97	27.22	27.20	27.06
2					---	24.92	24.40	26.89	25.64	27.18	27.23	27.19
3					---	24.99	24.21	26.93	26.37	27.28	27.41	27.32
4					---	25.08	24.14	26.90	26.34	27.20	27.43	27.09
5					---	25.39	24.36	26.48	26.92	27.25	27.32	26.72
6					---	25.30	24.10	26.24	26.98	27.23	27.52	27.06
7					---	25.83	23.78	---	26.97	26.92	27.54	27.00
8					---	25.26	26.37	---	26.95	26.87	27.58	27.08
9					---	24.95	25.93	---	27.01	26.64	27.25	27.04
10					---	---	26.57	---	27.05	26.37	27.03	27.12
11					---	---	27.27	---	27.11	26.30	26.97	27.09
12					---	25.57	27.32	26.98	26.88	25.84	26.85	27.05
13					---	25.25	27.23	26.78	26.96	25.18	26.77	27.07
14					---	25.38	26.69	26.81	26.22	25.93	27.01	27.10
15					---	25.70	26.70	26.83	27.09	26.52	27.10	27.27
16					---	25.44	26.80	26.87	27.14	26.74	26.87	26.53
17					---	25.66	26.86	26.87	27.28	27.04	26.99	24.80
18					26.02	24.86	26.52	26.84	27.23	26.85	26.88	25.15
19					25.37	23.83	25.57	26.90	26.61	27.19	26.99	27.23
20					25.30	24.20	25.12	26.90	26.51	27.11	27.19	27.07
21					25.20	24.32	25.00	26.62	26.65	27.19	27.13	26.96
22					25.30	24.22	25.34	26.64	26.68	27.21	27.03	27.23
23					25.34	23.72	25.52	26.61	26.70	27.22	26.98	27.17
24					25.32	22.79	25.74	26.50	26.80	27.26	27.06	27.20
25					25.16	23.03	25.79	26.57	26.91	27.19	26.90	27.27
26					25.14	22.83	25.85	26.43	26.93	27.08	26.79	27.20
27					25.06	22.38	26.08	25.49	26.90	26.57	26.65	26.95
28					24.76	22.28	26.31	24.28	26.93	26.97	26.77	26.83
29					---	22.24	26.42	23.92	26.90	26.96	26.93	26.58
30					---	22.61	26.65	24.21	27.00	26.90	26.79	26.99
31					---	23.22	---	25.13	---	27.06	27.00	---
MEAN					---	---	25.76	---	26.75	26.85	27.07	26.91
MAX					---	---	27.32	---	27.28	27.28	27.58	27.32
MIN					---	---	23.78	---	24.97	25.18	26.65	24.80

06453200 CHOTEAU CREEK NEAR WAGNER, SD

LOCATION.--Lat 43°05'52", long 98°17'15", on section line between sec.27 and 28, T.95 N., R.63 W., Charles Mix County, Hydrologic Unit 10170101, at bridge on section line road 1.1 mi north of State Route 46.

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	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, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)
OCT 08...	1400	--	1730	8.13	11.5	14.0	12	725	5.4	55	790
NOV 06...	1130	--	2000	8.30	14.0	8.0	22	717	10.4	94	880
DEC 03...	1400	--	2050	8.56	6.0	1.5	7.9	726	9.5	72	880
MAR 13...	1330	9.8	2350	8.28	21.5	10.0	3.8	716	15.0	143	980
APR 09...	0900	154	1600	8.37	13.0	12.0	15	719	11.0	109	730
MAY 14...	1045	1.3	2330	8.19	21.5	20.0	42	727	8.3	97	1000

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 08...	540	180	82	95	20	2	21	246	730	28	18
NOV 06...	580	200	92	120	22	2	20	294	830	36	9.4
DEC 03...	560	200	92	130	24	2	15	315	830	33	12
MAR 13...	740	210	110	160	26	2	14	241	1000	80	11
APR 09...	550	150	86	88	20	1	17	176	710	26	1.3
MAY 14...	670	220	110	150	24	2	22	331	1000	38	5.3

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
OCT 08...	1340	29	1300	1.8	0.0	<0.010	--	<0.100	--	--	0.110
NOV 06...	1570	62	1500	2.1	0.0	<0.010	--	<0.100	--	--	0.090
DEC 03...	1440	22	1500	2.0	0.0	<0.010	--	<0.100	--	--	0.060
MAR 13...	1880	10	1700	2.6	50	<0.010	--	<0.100	--	--	0.050
APR 09...	1290	78	1200	1.8	536	<0.010	<0.010	<0.100	<0.100	0.730	0.030
MAY 14...	1960	78	1700	2.7	6.9	<0.010	<0.010	<0.100	<0.100	0.350	0.090

06453200 CHOTEAU CREEK NEAR WAGNER, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	BORON, DIS-SOLVED (UG/L AS B)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	CYANIDE DIS-SOLVED (MG/L AS CN)
OCT 08...	210	0.122	--	5	73	<0.5	<1	<1	<3	2	<0.01
NOV 06...	220	0.083	--	2	73	<0.5	<1	<1	<3	1	<0.01
DEC 03...	210	0.058	--	2	37	<0.5	<1	<1	<3	2	<0.01
MAR 13...	250	0.047	--	1	<100	<10	<10	<1	<50	1	<0.01
APR 09...	150	0.012	0.034	2	61	<0.5	<1	<1	<3	<1	<0.01
MAY 14...	320	0.006	0.145	4	200	<10	<10	<1	<50	<1	<0.01

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	THAL-LIUM, DIS-SOLVED (UG/L AS TL)	ZINC, DIS-SOLVED (UG/L AS ZN)	ARSENIC TOTAL (UG/L AS AS)
OCT 08...	4	6	140	0.1	6	<1	1	<1	<1	12	--
NOV 06...	3	<5	400	<0.1	7	<1	1	<1	<1	8	--
DEC 03...	7	<5	87	<0.1	3	<1	<1	<1	<1	7	--
MAR 13...	20	<5	330	<0.1	3	<1	1	<1	<1	10	--
APR 09...	8	<5	150	<0.1	2	1	9	<1	<1	10	2
MAY 14...	20	<5	2700	<0.1	6	2	2	<1	<1	10	6

DATE	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CYANIDE TOTAL (MG/L AS CN)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	ANTI-MONY, TOTAL (UG/L AS SB)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	THAL-LIUM, TOTAL (UG/L AS TL)
OCT 08...	--	--	--	--	--	--	--	--	--	--
NOV 06...	--	--	--	--	--	--	--	--	--	--
DEC 03...	--	--	--	--	--	--	--	--	--	--
MAR 13...	--	--	--	--	--	--	--	--	--	--
APR 09...	100	<10	<1	--	<0.010	6	<1	9	<1	<1
MAY 14...	200	<10	<1	260	<0.010	12	2	2	<1	<1

06453252 CHOTEAU CREEK NEAR DANTE, SD

LOCATION.--Lat 43°01'32", long 98°10'03", on section line between sec.21 and 22, T.95 N., R.62 W., Charles Mix County, Hydrologic Unit 10170101, at bridge on section line road 0.9 mi southeast of Dante.

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

REMARKS.--Water-quality data missing from the 1986 report are included in these tables.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	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)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
JUL 11...	1040	96	1140	8.15	22.5	25.0	717	7.0	91	<0.01	<0.010	<0.10
SEP 26...	0930	--	1060	7.82	15.5	17.0	--	--	--	<0.01	<0.010	<0.10

DATE	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)
JUL 11...	<0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
SEP 26...	<0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
JUL 11...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
SEP 26...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JUL 11...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
SEP 26...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)
JUL 11...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
SEP 26...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

DATE	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JUL 11...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.14	<0.01	<0.01
SEP 26...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.10	<0.01	<0.01

06453252 CHOTEAU CREEK NEAR DANTE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	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, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)
OCT											
09...	0830	25	1850	8.10	7.5	10.0	22	735	8.7	80	790
NOV											
06...	1310	11	2200	8.41	8.0	8.0	5.2	719	15.3	138	1000
DEC											
04...	0830	0.48	2500	8.46	-3.0	0.5	5.4	735	10.1	73	1100
JAN											
09...	0915	1.4	3500	7.94	2.0	2.0	4.0	720	14.3	111	1400
FEB											
12...	1120	2.7	1840	8.16	3.5	3.0	2.9	730	18.0	141	770
MAR											
13...	1055	14	2400	8.37	14.0	9.0	4.2	720	15.4	142	910
APR											
09...	1310	208	1600	8.44	16.5	14.5	30	720	8.8	92	740
MAY											
14...	0725	3.3	2400	7.87	18.0	18.0	36	727	6.5	73	1000
JUN											
05...	0715	0.61	2800	7.48	19.5	20.0	48	726	5.0	58	1300
JUL											
23...	0720	0.11	2460	7.07	24.5	25.0	26	720	4.0	52	1000
AUG											
07...	0730	0.44	2200	7.05	21.5	23.0	38	724	4.4	54	1100
SEP											
01...	0730	0.47	2430	7.73	19.0	18.0	22	727	4.2	47	1300

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT											
09...	550	180	83	100	21	2	24	239	790	37	18
NOV											
06...	720	220	110	150	24	2	20	286	950	49	7.0
DEC											
04...	780	260	110	160	24	2	17	322	1100	53	8.9
JAN											
09...	1000	330	150	240	26	3	19	406	1500	89	6.2
FEB											
12...	580	180	79	110	23	2	11	196	750	49	2.7
MAR											
13...	720	200	100	200	32	3	17	196	1200	68	4.4
APR											
09...	560	160	83	86	20	1	21	181	690	29	3.3
MAY											
14...	800	220	120	160	25	2	22	240	1200	51	2.2
JUN											
05...	1100	320	130	190	23	2	21	202	1400	110	4.7
JUL											
23...	900	230	110	110	18	2	22	130	1500	32	8.7
AUG											
07...	960	260	110	83	14	1	18	138	1300	--	14
SEP											
01...	1100	280	140	86	13	1	17	168	1300	--	16

06453252 CHOTEAU CREEK NEAR DANTE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT 09...	1430	45	1400	1.9	97	0.020	--	0.820	0.800	--	--
NOV 06...	1750	18	1700	2.4	52	<0.010	--	<0.100	--	--	--
DEC 04...	1960	17	1900	2.7	2.5	<0.010	--	0.110	--	--	--
JAN 09...	2750	3	2600	3.7	10	0.020	--	0.780	0.760	--	--
FEB 12...	1430	7	1300	1.9	10	<0.010	--	<0.100	--	--	--
MAR 13...	1970	9	1900	2.7	74	<0.010	--	<0.100	--	--	--
APR 09...	1270	60	1200	1.7	713	<0.010	<0.010	<0.100	--	<0.100	0.290
MAY 14...	2070	110	1900	2.8	18	<0.010	0.010	<0.100	--	<0.100	0.390
JUN 05...	2480	140	2300	3.4	4.1	<0.010	--	<0.100	--	--	--
JUL 23...	2220	115	2100	3.0	0.66	<0.010	--	<0.100	--	--	--
AUG 07...	1950	76	--	--	--	<0.010	<0.010	<0.100	--	<0.100	0.460
SEP 01...	2200	51	--	--	--	<0.010	--	<0.100	--	--	--

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
OCT 09...	0.250	240	0.202	--	6	80	<0.5	<1	1	<3	3
NOV 06...	0.100	300	0.013	--	3	100	<10	10	<1	<50	2
DEC 04...	0.070	290	0.074	--	2	100	<10	<10	<1	<50	1
JAN 09...	0.060	440	0.045	--	2	100	10	10	<1	50	1
FEB 12...	0.010	270	0.007	--	1	24	<0.5	<1	<1	<3	2
MAR 13...	0.250	330	0.034	--	2	<100	<10	<10	<1	<50	1
APR 09...	0.050	150	0.034	0.084	2	66	<0.5	<1	<1	<3	3
MAY 14...	0.030	430	0.006	0.140	2	200	<10	<10	<1	<50	<1
JUN 05...	0.030	660	0.009	--	5	100	<10	<10	1	<50	1
JUL 23...	0.040	540	0.009	--	6	<100	<10	<10	<1	<50	<1
AUG 07...	0.030	510	0.012	0.083	4	<100	<10	<10	<1	<50	1
SEP 01...	<0.010	510	0.008	--	4	<100	<10	<10	<1	<50	<1

06453252 CHOTEAU CREEK NEAR DANTE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	CYANIDE DIS-SOLVED (MG/L AS CN)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	THAL-LIUM, DIS-SOLVED (UG/L AS TL)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 09...	<0.01	7	<5	1200	<0.1	6	<1	2	1	<1	9
NOV 06...	<0.01	30	<5	890	<0.1	6	<1	2	<1	<1	20
DEC 04...	<0.01	20	<5	680	0.1	3	<1	2	<1	<1	10
JAN 09...	<0.01	30	<5	2800	<0.1	5	<1	5	<1	<1	10
FEB 12...	<0.01	15	<5	1300	<0.1	5	<1	<1	<1	<1	10
MAR 13...	<0.01	30	<5	600	<0.1	7	1	2	<1	<1	10
APR 09...	<0.01	8	<5	280	<0.1	3	<1	10	1	<1	8
MAY 14...	<0.01	30	<5	1700	<0.1	7	1	7	<1	<1	<10
JUN 05...	<0.01	20	<5	2000	<0.1	9	1	10	<1	<1	10
JUL 23...	<0.01	30	<5	1800	0.1	7	3	11	<1	<1	10
AUG 07...	<0.01	20	<5	80	<0.1	<1	<1	18	<1	<1	<10
SEP 01...	<0.01	30	<5	1700	0.2	8	2	11	<1	<1	10

DATE	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CYANIDE TOTAL (MG/L AS CN)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	ANTI-MONY, TOTAL (UG/L AS SB)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	THAL-LIUM, TOTAL (UG/L AS TL)
OCT 09...	--	--	--	--	--	--	--	--	--	--	--
NOV 06...	--	--	--	--	--	--	--	--	--	--	--
DEC 04...	--	--	--	--	--	--	--	--	--	--	--
JAN 09...	--	--	--	--	--	--	--	--	--	--	--
FEB 12...	--	--	--	--	--	--	--	--	--	--	--
MAR 13...	--	--	--	--	--	--	--	--	--	--	--
APR 09...	3	100	<10	<1	170	<0.010	5	1	10	<1	<1
MAY 14...	4	200	<10	<1	400	<0.010	15	2	6	<1	<1
JUN 05...	--	--	--	--	--	--	--	--	--	--	--
JUL 23...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	8	200	<10	<1	550	<0.010	11	4	16	1	<1
SEP 01...	--	--	--	--	--	--	--	--	--	--	--

06453255 CHOTEAU CREEK NEAR AVON, SD

LOCATION.--Lat 42°55'24", long 98°06'21", in NW¼NW¼NW¼ 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: (M).

GAGE.--Water-stage recorder. Elevation of gage is 1,290 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for Oct. 1 to Jan. 10, which are fair and periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 6, June 21-25, and Aug. 21-31. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--5 years, 109 ft³/s, 78,970 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,280 ft³/s, June 12, 1984, gage height, 13.93 ft; minimum daily discharge, 0.83 ft³/s, Oct. 1, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 27	1000	*5,530	*13.29	July 12	0245	131	3.42
Mar. 31	1045	1,880	9.52	July 25	0215	588	5.55
May 25	2115	168	3.67	Sept. 16	1600	270	3.88
May 29	2330	154	3.58				

Minimum daily discharge, 3.2 ft³/s, Sept. 11, 12, 14.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	20	16	8.5	7.7	26	1550	65	16	5.7	7.3	4.1
2	81	19	17	8.0	8.0	29	1180	65	14	6.1	6.5	4.0
3	69	20	7.6	8.2	7.7	22	860	64	14	5.5	6.2	3.8
4	61	17	9.5	8.2	6.6	21	668	53	12	6.2	6.1	3.6
5	54	14	16	8.1	6.8	20	574	44	10	5.5	5.2	4.0
6	47	14	16	8.0	6.8	21	491	33	8.7	5.0	6.4	4.2
7	42	16	14	7.6	7.2	22	420	32	7.9	4.3	5.6	3.9
8	34	17	14	7.2	7.2	23	371	26	9.3	6.1	5.5	3.6
9	33	14	14	6.4	7.6	21	332	25	8.3	5.2	5.3	3.6
10	47	14	13	6.4	8.0	21	315	24	11	7.7	4.8	3.7
11	55	12	11	6.7	8.1	21	304	22	10	52	4.7	3.2
12	57	10	11	7.4	7.9	20	266	15	7.7	52	5.1	3.2
13	55	11	9.5	8.3	8.0	20	258	18	6.6	16	5.2	3.3
14	47	11	9.0	8.2	7.5	15	260	18	5.8	11	4.7	3.2
15	47	12	9.0	7.6	7.6	12	250	15	5.4	9.2	5.5	7.7
16	49	12	9.7	6.9	7.5	11	238	16	4.8	8.3	27	156
17	47	12	9.5	7.1	7.9	162	231	20	8.5	6.4	29	55
18	44	11	9.5	5.5	7.7	690	229	17	6.2	6.6	9.9	18
19	39	10	9.5	5.9	8.1	722	212	14	5.6	6.3	5.5	8.7
20	34	11	9.3	5.6	8.2	1020	193	20	12	6.2	4.1	6.8
21	29	12	8.5	6.4	8.0	1670	178	22	11	6.3	4.1	5.6
22	27	14	8.6	5.6	8.0	1540	152	14	9.0	5.5	4.1	4.9
23	25	14	8.5	5.1	7.3	1330	139	13	8.0	5.2	4.0	4.3
24	24	14	8.0	5.0	7.7	1440	134	11	7.0	41	4.5	4.2
25	23	16	7.2	5.2	9.0	2220	127	51	5.0	350	4.7	4.6
26	23	15	7.2	5.3	8.8	3820	107	61	3.9	90	4.6	4.0
27	24	16	7.6	5.6	11	5020	90	33	4.2	29	4.5	3.9
28	24	19	8.0	5.5	29	3600	94	19	4.8	18	4.4	3.7
29	22	21	8.5	6.1	---	1560	90	21	5.1	13	4.3	3.7
30	21	18	8.5	7.2	---	1370	79	40	4.8	10	4.2	3.3
31	21	---	8.5	7.6	---	1840	---	20	---	7.7	4.1	---
TOTAL	1301	436	323.2	210.4	240.9	28329	10392	911	246.6	807.0	207.1	345.8
MEAN	42.0	14.5	10.4	6.79	8.60	914	346	29.4	8.22	26.0	6.68	11.5
MAX	96	21	17	8.5	29	5020	1550	65	16	350	29	156
MIN	21	10	7.2	5.0	6.6	11	79	11	3.9	4.3	4.0	3.2
AC-FT	2580	865	641	417	478	56190	20610	1810	489	1600	411	686

CAL YR 1986 TOTAL 62201.7 MEAN 170 MAX 2880 MIN 2.2 AC-FT 123400
WTR YR 1987 TOTAL 43750.0 MEAN 120 MAX 5020 MIN 3.2 AC-FT 86780

06464100 KEYA PAHA RIVER NEAR KEYAPAHA, SD

LOCATION.--Lat 43°07'45", long 100°06'24", in NW¼SW¼SW¼ sec.17, T.96 N., R.78 W., Tripp County, Hydrologic Unit 10140203, 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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 8 to Feb. 7 and Mar. 24 to Apr. 4. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--6 years, 45.2 ft³/s, 32,750 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 820 ft³/s, May 3, 1983, gage height, 7.95 ft; maximum gage height, 9.45 ft, Feb. 20, 1982; minimum daily discharge, 3.4 ft³/s, Feb. 10, 1982.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1952 reached a stage of about 14 ft, at present datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 6	--	260	5.13	Apr. 5	2345	*381	5.89
Apr. 3	1115	300	a*6.73				

a Backwater from ice.
Minimum daily discharge, 12 ft³/s, Sept. 3-5, 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	27	25	29	25	44	260	48	64	20	15	15
2	24	28	24	28	27	46	280	46	57	19	14	13
3	27	27	25	27	26	51	290	49	50	18	16	12
4	30	27	25	28	25	55	320	62	46	17	20	12
5	32	27	26	29	24	109	340	94	42	19	19	12
6	33	27	26	28	26	232	334	125	39	22	18	18
7	32	28	26	26	28	220	278	119	36	20	18	17
8	32	28	26	25	32	140	230	106	34	20	20	17
9	31	27	26	25	31	97	201	88	35	22	17	16
10	31	25	25	25	31	82	172	74	38	40	16	16
11	30	23	25	26	32	80	149	64	37	51	15	13
12	26	22	25	27	32	68	134	57	35	46	15	14
13	28	21	25	29	31	63	141	51	34	48	16	14
14	29	23	25	27	32	64	167	48	31	50	17	14
15	28	24	26	25	32	59	163	45	29	40	17	14
16	27	25	27	23	31	57	136	43	27	32	17	16
17	26	26	27	24	31	63	119	40	28	28	16	16
18	29	26	27	25	32	64	107	39	30	28	16	15
19	28	26	27	26	32	76	95	40	28	26	15	15
20	30	26	27	26	32	199	84	38	28	24	15	15
21	31	26	28	26	32	368	74	41	26	23	15	14
22	31	27	29	25	31	305	70	45	22	21	15	14
23	31	26	30	24	32	279	70	44	21	19	15	14
24	29	25	30	23	33	200	68	41	20	21	16	14
25	29	25	29	24	32	170	68	45	19	25	16	14
26	29	25	29	25	35	140	64	58	18	23	15	14
27	29	25	29	26	39	200	61	65	17	22	14	13
28	29	26	29	25	42	230	57	65	17	20	14	13
29	29	27	30	24	---	220	54	68	23	18	15	12
30	28	26	30	24	---	230	51	71	22	17	15	13
31	28	---	30	25	---	240	---	68	---	16	15	---
TOTAL	901	771	838	799	868	4451	4637	1887	953	815	497	429
MEAN	29.1	25.7	27.0	25.8	31.0	144	155	60.9	31.8	26.3	16.0	14.3
MAX	33	28	30	29	42	368	340	125	64	51	20	18
MIN	24	21	24	23	24	44	51	38	17	16	14	12
AC-FT	1790	1530	1660	1580	1720	8830	9200	3740	1890	1620	986	851

CAL YR 1986	TOTAL	18370.0	MEAN	50.3	MAX	432	MIN	9.5	AC-FT	36440
WTR YR 1987	TOTAL	17846	MEAN	48.9	MAX	368	MIN	12	AC-FT	35400

06464500 KEYA PAHA RIVER AT WEWELA, SD

LOCATION.--Lat 43°01'44", long 99°46'49", in SE¼ sec.24, T.95 N., R.76 W., Tripp County, Hydrologic Unit 10150006, on right bank at downstream side of bridge on U.S. Highway 183, 1.0 mi north of Wewela, 4.5 mi upstream from Holt Creek, and 11.5 mi downstream from Lost Creek.

DRAINAGE AREA.--1,070 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 National Geodetic Vertical Datum of 1929. Prior to June 21, 1957, nonrecording gage at site 13 ft upstream at same datum. Prior to Aug. 23, 1984, recording gage on left bank 13 ft downstream from bridge at same datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 10 to Feb. 15 and Feb. 27, 28. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--42 years (water years 1939-40, 1948-87), 71.3 ft³/s, 51,660 acre-ft/yr; median of yearly mean discharges, 59 ft³/s, 42,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,430 ft³/s, Mar. 31, 1952, gage height, 13.08 ft; maximum gage height, 13.5 ft, Mar. 25, 1950, from floodmark, backwater from ice; no flow Jan. 10 to Feb. 15, 1949, Aug. 19 to Sept. 14, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 8	0145	278	2.50	Apr. 14	0230	644	3.71
Mar. 21	1300	*1,400	*5.59	July 11	1845	292	2.56
Apr. 5	unknown	1,170	5.05				

Minimum daily discharge, 30 ft³/s, Sept. 29, 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	69	55	61	65	119	435	108	120	47	39	34
2	62	69	55	61	65	130	487	110	110	44	39	32
3	64	70	54	61	65	157	554	110	102	44	50	32
4	77	71	52	63	63	215	687	136	95	43	55	31
5	74	71	52	65	62	243	961	160	90	43	51	33
6	76	71	54	65	65	241	787	193	81	43	47	32
7	79	72	54	64	75	245	691	209	76	44	45	34
8	67	72	52	62	85	259	537	193	75	48	46	35
9	63	66	52	62	90	193	454	171	81	54	50	35
10	63	60	50	62	95	155	409	149	94	111	47	35
11	62	55	52	65	90	143	343	130	96	219	46	37
12	60	50	52	65	90	138	319	117	98	227	54	37
13	58	50	52	70	85	130	387	108	95	185	51	36
14	59	53	55	68	85	126	504	101	77	138	49	35
15	60	55	55	55	85	121	473	93	70	115	49	35
16	60	57	57	50	86	124	399	89	68	92	48	45
17	60	57	60	50	84	142	328	84	71	73	45	45
18	62	57	60	51	84	173	283	80	74	64	42	43
19	64	60	58	52	85	190	248	80	77	70	41	40
20	64	61	58	54	86	457	216	80	73	62	40	39
21	67	63	60	54	86	1170	186	80	68	58	39	38
22	78	65	63	52	83	1120	171	87	64	51	37	37
23	103	65	65	50	81	969	163	92	60	49	37	36
24	113	65	65	50	84	702	154	89	58	49	39	34
25	104	65	65	52	86	280	145	91	54	58	44	33
26	93	62	65	53	100	182	139	104	51	59	44	32
27	85	62	63	55	110	236	132	115	49	55	43	32
28	80	62	63	55	115	240	125	123	46	50	40	31
29	76	60	63	55	---	245	120	122	45	46	39	30
30	76	57	63	58	---	268	112	135	47	43	36	30
31	74	---	63	62	---	300	---	132	---	40	35	---
TOTAL	2260	1872	1787	1802	2335	9413	10949	3671	2265	2324	1367	1058
MEAN	72.9	62.4	57.6	58.1	83.4	304	365	118	75.5	75.0	44.1	35.3
MAX	113	72	65	70	115	1170	961	209	120	227	55	45
MIN	58	50	50	50	62	119	112	80	45	40	35	30
AC-FT	4480	3710	3540	3570	4630	18670	21720	7280	4490	4610	2710	2100

CAL YR 1986	TOTAL	39226	MEAN	107	MAX	700	MIN	24	AC-FT	77800
WTR YR 1987	TOTAL	41103	MEAN	113	MAX	1170	MIN	30	AC-FT	81530

06466700 LEWIS AND CLARK LAKE AT SPRINGFIELD, SD

STAGE RECORDS

LOCATION.--Lat 42°51'21", long 97°53'06", in SW¼NE¼SW¼ 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for Jan. 16 to Feb. 12, which are poor. Stage regulated by Gavins Point Dam 21.2 mi downstream. Prior to Oct. 1, 1980, gage heights in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.96	9.72	9.27	8.98	8.97	7.23	6.82	7.82	7.02	8.15	8.62	8.90
2	9.08	9.70	9.11	9.03	8.96	7.13	7.21	7.96	6.93	8.22	8.67	8.95
3	9.22	9.65	9.08	8.99	9.11	7.10	7.17	8.07	7.36	8.30	8.73	9.05
4	9.27	9.66	9.06	9.01	9.07	7.04	7.12	8.10	7.54	8.38	8.82	9.07
5	9.26	9.59	9.04	9.01	9.04	7.12	7.07	8.05	7.65	8.35	8.89	9.02
6	9.27	9.60	9.08	8.98	8.96	7.15	7.08	7.91	7.86	8.43	8.98	8.95
7	9.28	9.66	9.15	8.98	8.89	7.21	6.97	7.76	7.89	8.44	9.11	8.98
8	9.35	9.47	9.28	9.02	8.86	7.25	7.08	7.68	7.93	8.36	9.18	8.99
9	9.52	9.55	9.25	8.97	8.79	7.31	7.47	7.62	7.98	8.36	9.30	9.02
10	9.45	9.56	9.26	9.03	8.67	7.39	7.72	7.61	8.07	8.43	9.33	9.01
11	9.40	9.53	9.23	9.30	8.45	7.32	8.10	7.59	8.10	8.50	9.32	9.03
12	9.49	9.43	9.11	8.84	8.33	7.08	8.35	7.56	8.11	8.43	9.23	9.11
13	9.61	9.42	9.15	8.50	8.22	6.95	8.44	7.71	8.02	8.11	9.21	9.16
14	9.72	9.33	9.60	8.55	8.18	7.25	8.47	7.85	8.08	7.71	9.13	9.21
15	9.79	9.38	9.19	8.61	8.12	7.35	8.31	7.89	7.76	7.83	9.13	9.35
16	9.79	9.41	9.05	9.65	7.95	7.42	8.25	7.88	8.05	7.97	9.11	9.53
17	9.83	9.56	8.96	10.61	7.81	7.80	8.28	7.87	8.24	8.09	9.10	9.39
18	9.79	9.68	8.77	10.63	7.73	8.18	8.32	7.90	8.36	8.19	9.06	8.72
19	9.72	9.76	8.61	10.57	7.70	8.02	8.01	7.93	8.31	8.21	9.07	8.54
20	9.63	9.86	8.83	10.26	7.66	7.85	7.53	7.96	8.16	8.30	9.12	8.84
21	9.67	9.90	8.96	10.08	7.57	7.53	7.30	7.89	8.09	8.44	9.14	8.87
22	9.88	9.81	8.95	9.94	7.57	7.61	7.23	7.85	8.04	8.44	9.15	8.88
23	10.02	9.83	8.90	9.45	7.55	7.70	7.26	7.85	7.98	8.45	9.13	8.98
24	10.06	9.80	8.83	9.53	7.57	7.77	7.35	7.81	7.99	8.58	9.15	9.04
25	10.08	9.70	8.95	9.70	7.46	8.17	7.36	7.83	7.97	8.75	9.20	9.15
26	10.03	9.68	9.06	9.83	7.39	8.56	7.42	7.95	8.05	8.82	9.12	9.20
27	9.90	9.54	9.15	9.90	7.39	8.58	7.44	7.85	8.07	8.79	9.10	9.22
28	9.73	9.47	9.23	9.58	7.29	8.40	7.53	7.43	8.04	8.66	9.02	9.15
29	9.76	9.41	9.16	9.19	---	8.01	7.65	7.05	8.02	8.67	8.98	9.12
30	9.79	9.47	9.05	9.03	---	7.55	7.72	6.90	8.04	8.65	8.93	9.06
31	9.69	---	8.98	8.99	---	6.89	---	6.85	---	8.62	8.90	---
MEAN	9.61	9.60	9.07	9.38	8.19	7.55	7.60	7.74	7.92	8.38	9.06	9.05
MAX	10.08	9.90	9.60	10.63	9.11	8.58	8.47	8.10	8.36	8.82	9.33	9.53
MIN	8.96	9.33	8.61	8.50	7.29	6.89	6.82	6.85	6.93	7.71	8.62	8.54

WTR YR 1987 MEAN 8.60 MAX 10.63 MIN 6.82

06467000 LEWIS AND CLARK LAKE NEAR YANKTON, SD

LOCATION.--Lat 42°50'56", long 97°28'54", in SW¼ sec.7, T.33 N., R.1 W., Cedar County, NE, Hydrologic Unit 10170101, in powerhouse of Gavins Point Dam on Missouri River, 3.75 mi southwest of Yankton, 13.6 mi upstream from James River, 32.5 mi downstream from Niobrara River, and at mile 811.0.

DRAINAGE AREA.--279,500 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, 462,000 acre-ft, Oct. 15; minimum, 327,000 acre-ft, Apr. 9.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,208.14	446,000	-
Oct. 31	1,208.24	449,000	+3,000
Nov. 1	1,208.24	439,000	-10,000
Nov. 30	1,207.09	406,000	-33,000
Dec. 31	1,208.15	436,000	+30,000
CAL YR 1986	-	-	-6,000
Jan. 31	1,208.16	436,000	0
Feb. 28	1,205.93	374,000	-62,000
Mar. 31	1,205.76	372,000	-2,000
Apr. 30	1,204.97	351,000	-21,000
May 31	1,205.52	369,000	+18,000
June 30	1,206.19	384,000	+15,000
July 31	1,207.28	411,000	+27,000
Aug. 31	1,207.77	427,000	+16,000
Sept. 30	1,208.06	435,000	+8,000
WTR YR 1987	-	-	-11,000

NOTE.--Lake frozen over Dec. 15 to Feb. 27.

06467500 MISSOURI RIVER AT YANKTON, SD

LOCATION.--Lat 42°51'58", long 97°23'37", in SW¼SW¼ 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 National Geodetic Vertical Datum of 1929. Prior to Sept. 20, 1932, nonrecording gage, and Sept. 20, 1932, to Mar. 9, 1967, water-stage recorder at present site and at datum 20.0 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated by Gavins Point Dam 5.2 mi upstream since July 1955. Many diversions for irrigation and water supply above station. U.S. Army Corps of Engineers gage-height telemeter and satellite data-collection platform at station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--57 years, 26,640 ft³/s, 19,300,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 50.5 ft, Apr. 5, 1881, ice jam, present datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50,500 ft³/s at 1015 hours, Oct. 21, gage height, 18.73 ft; minimum daily discharge, 17,300 ft³/s, May 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37300	46200	46900	32000	23000	22300	27900	29500	21100	29600	31900	29600
2	37400	46200	43400	32200	22800	22600	27100	29800	24900	30000	32100	29600
3	37200	46200	42800	32200	23000	22500	27000	29600	23600	30100	32200	29800
4	37200	46400	42800	32300	22900	22200	26800	29600	23900	30300	32100	29700
5	37100	46300	43000	32300	22900	22500	26600	29100	28100	30100	32100	29700
6	37300	46300	40900	32100	22800	22500	26400	28400	28400	30100	32400	29900
7	37700	46300	38500	32100	22700	22400	27000	28500	28500	30300	32400	29900
8	37000	46100	38500	32400	22700	22100	28900	28500	28500	30400	31800	29700
9	37500	45900	38400	32400	22900	22300	30700	28500	28400	30200	31100	29800
10	39900	45900	38500	32200	23100	22400	31700	28500	28300	29300	31200	29800
11	39700	46100	38900	32200	22600	22200	33200	29400	28200	29200	31200	29700
12	39600	45700	39900	29900	22900	22400	33300	29600	28700	29700	31000	29700
13	39800	45700	44300	25300	22700	22300	33100	29500	28900	29900	31000	29900
14	39700	45600	41000	22900	22900	22300	33500	29400	28900	30000	30900	29900
15	39700	45600	39800	23000	22900	22100	33800	29400	28800	30000	30900	30000
16	43400	46400	39800	23200	22800	22400	33400	29400	28900	29900	30700	29800
17	46200	47900	39700	22900	22600	22500	32500	29400	29000	30000	30600	29700
18	47300	48000	35600	23300	22800	22900	30800	29300	28900	30200	30500	29800
19	48200	48700	30600	22900	22800	23400	29600	29400	28700	30600	30500	29700
20	49300	48000	32400	23100	22500	25200	28100	29400	28800	30800	30400	29700
21	50200	46800	32500	22800	22500	25100	27900	29100	28700	31400	30300	29800
22	50300	46700	32600	22800	22700	24200	26000	29100	28700	31800	30100	29900
23	50300	46700	32600	23000	22700	21500	25800	29200	28600	32000	30100	30000
24	50200	46700	31800	23200	23000	19500	25800	29300	28800	32100	30700	29900
25	50100	47000	30100	23000	22600	19800	25800	29200	28700	32000	29700	29900
26	48300	47100	30100	23000	23000	19800	25800	26700	28500	31400	28100	30000
27	46300	46900	30100	22500	22900	19900	25700	20700	29000	31400	29100	30000
28	46200	47000	30000	22600	22400	24300	27400	19000	29100	31800	29600	29900
29	46300	47000	30800	22200	---	25300	28700	17300	29100	31800	29500	30000
30	46400	47300	32100	22400	---	25800	28700	19400	29300	31700	29500	30000
31	46200	---	32100	22900	---	26500	---	21100	---	31600	29600	---
TOTAL	1339300	1398700	1140500	821300	638100	703200	869000	854300	840000	949700	953300	894800
MEAN	43200	46620	36790	26490	22790	22680	28970	27560	28000	30640	30750	29830
MAX	50300	48700	46900	32400	23100	26500	33800	29800	29300	32100	32400	30000
MIN	37000	45600	30000	22200	22400	19500	25700	17300	21100	29200	28100	29600
AC-FT	2657000	2774000	2262000	1629000	1266000	1395000	1724000	1695000	1666000	1884000	1891000	1775000

CAL YR 1986 TOTAL 11490500 MEAN 31480 MAX 50300 MIN 15700 AC-FT22791000
WTR YR 1987 TOTAL 11402200 MEAN 31240 MAX 50300 MIN 17300 AC-FT22616000

06470875 JAMES RIVER AT DAKOTA LAKE DAM NEAR LUDDEN, ND

LOCATION.--Lat 45°56'52", long 98°10'29", in SE¼NE¼NE¼ sec.34, T.129 N., R.60 W., Dickey County, Hydrologic Unit 10160003, on left bank, 10 ft upstream from dam, 4.5 mi southwest of Ludden and 0.8 mi upstream from North Dakota-South Dakota state line.

DRAINAGE AREA.--5,480 mi², of which about 3,300 mi² are noncontributing.

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage height record, Oct. 2-15, and period of variable backwater conditions, Mar. 19 to May 11, which are fair. Estimated daily discharges during water year: Oct. 2-15. Flow regulated by upstream reservoirs, Jamestown Reservoir (station 06469000), Pipestem Lake, capacity 147,000 acre-ft, and Lake LaMoure.

AVERAGE DISCHARGE.--6 years, 177 ft³/s, 128,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 2,300 ft³/s, Mar. 28, 1987, gage height, 13.76 ft, no flow at times during some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 2,300 ft³/s, Mar. 28, gage height, 13.76 ft; minimum daily discharge, 32 ft³/s, Jan. 26 to Feb. 1, 4-5.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	178	104	92	64	32	71	1530	610	538	173	235	206
2	200	76	92	64	35	68	1410	600	531	250	229	145
3	220	137	92	64	33	65	1340	595	522	227	243	50
4	200	66	96	58	32	67	1300	590	468	209	227	219
5	190	81	93	57	32	71	1290	580	457	236	153	237
6	180	180	92	56	33	96	1280	580	426	227	213	214
7	170	133	92	54	36	135	1260	580	442	237	220	218
8	160	95	89	51	40	168	1250	550	430	229	220	217
9	150	83	88	51	40	175	1230	560	389	188	211	248
10	140	64	80	51	40	198	1170	550	350	209	138	245
11	130	60	75	49	42	246	1150	560	386	255	96	241
12	120	60	74	49	48	339	1070	438	397	266	233	216
13	110	62	68	51	48	439	1040	492	388	220	197	218
14	90	67	64	51	48	471	990	591	395	218	157	222
15	78	67	64	51	49	534	930	513	349	176	203	216
16	113	70	63	45	54	587	905	513	324	60	191	215
17	103	71	60	45	56	646	874	667	359	234	164	214
18	54	75	58	45	59	741	731	614	375	233	182	214
19	75	75	57	41	62	840	780	536	363	247	161	240
20	127	75	59	40	65	980	900	545	332	268	145	244
21	116	75	60	37	68	1060	823	693	329	240	204	232
22	116	75	60	37	71	1120	740	641	319	207	188	216
23	154	75	60	37	71	1250	720	584	315	302	169	238
24	115	79	60	37	71	1490	700	582	308	271	154	251
25	100	83	60	35	69	1710	690	620	319	266	168	228
26	82	80	60	32	69	1810	670	635	312	256	185	228
27	101	81	60	32	71	2000	660	603	272	233	185	218
28	144	86	64	32	71	2210	630	547	278	238	165	181
29	124	92	64	32	---	1900	640	602	274	236	174	168
30	67	92	64	32	---	1700	620	605	236	214	217	112
31	124	---	64	32	---	1600	---	569	---	212	181	---
TOTAL	4031	2519	2224	1412	1445	24787	29323	17945	11183	7037	5808	6311
MEAN	130	84.0	71.7	45.5	51.6	800	977	579	373	227	187	210
MAX	220	180	96	64	71	2210	1530	693	538	302	243	251
MIN	54	60	57	32	32	65	620	438	236	60	96	50
AC-FT	8000	5000	4410	2800	2870	49170	58160	35590	22180	13960	11520	12520

CAL YR 1986 TOTAL 58894 MEAN 161 MAX 880 MIN 3.1 AC-FT 116800
WTR YR 1987 TOTAL 114025 MEAN 312 MAX 2210 MIN 32 AC-FT 226200

06470985 MUD LAKE NEAR HOUGHTON, SD

LOCATION.--Lat 45°46'36", long 98°14'45", in NW¼NW¼ sec.36, T.127 N., R.62 W., Brown County, Hydrologic Unit 10160003, 1.5 mi northwest of Houghton.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: June 1985 to current year, seasonal records only.
pH: June to September 1985.
WATER TEMPERATURE: June 1985 to current year, seasonal records only.
DISSOLVED OXYGEN: June to September 1985.

REMARKS.--Water temperature and specific conductance were determined at hourly intervals by a water-quality monitor.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,260 microsiemens, Nov. 11, 1986; minimum daily, 330 microsiemens, Apr. 5, 6, 1987.
WATER TEMPERATURE: Maximum daily, 33.5°C, July 31, 1987; minimum daily, 0.0°C on several days in 1985-87.

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25°C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	900	880	890	830	810	821						
2	890	880	886	830	820	821						
3	880	870	873	850	820	830						
4	880	870	876	840	830	835						
5	890	880	884	840	830	835						
6	890	880	887	850	840	842						
7	890	880	886	860	840	848						
8	900	880	890	850	840	848						
9	880	870	878	870	850	855						
10	880	850	871	880	860	868						
11	870	850	863	900	880	886						
12	870	860	863	980	900	924						
13	870	850	855	1000	980	988						
14	860	840	851	1020	990	1010						
15	860	850	856	1040	1020	1030						
16	860	840	850	1060	1040	1050						
17	840	830	833	1070	1060	1060						
18	830	820	826	1080	1070	1080						
19	830	780	799									
20	810	780	794									
21	800	790	794									
22	800	780	790									
23	810	790	801									
24	810	790	800									
25	800	790	796									
26	810	800	802									
27	810	800	805									
28	810	800	809									
29	820	800	812									
30	820	810	811									
31	820	810	818									

06470985 MUD LAKE NEAR HOUGHTON, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25°C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	FEBRUARY MAX	FEBRUARY MIN	FEBRUARY MEAN	MARCH MAX	MARCH MIN	MARCH MEAN	APRIL MAX	APRIL MIN	APRIL MEAN	MAY MAX	MAY MIN	MAY MEAN
1							380	350	360	660	640	652
2							370	350	358	670	650	659
3							360	340	351	670	650	665
4							370	340	347	680	670	671
5							350	330	341	680	670	675
6							350	330	340	690	670	680
7							360	340	348	690	680	682
8							360	350	356	690	670	683
9							380	360	370	700	680	695
10							400	380	385	700	690	695
11							400	380	394	710	690	701
12							420	390	400	710	680	697
13							430	400	417	710	690	701
14							440	400	419	700	690	697
15							440	420	430	700	690	697
16							460	430	440	710	690	702
17							460	440	451	720	700	708
18							470	450	458	720	700	710
19							480	470	474	710	690	704
20							490	470	481	700	680	694
21							510	480	492	690	650	668
22							520	500	512	680	650	664
23							550	520	533	660	650	654
24							580	530	562	670	660	666
25							590	550	568	670	650	660
26				400	390	395	610	580	593	660	640	655
27				420	390	406	620	590	609	650	640	647
28				410	390	402	630	610	619	660	620	641
29				420	400	412	640	620	625	650	620	637
30				420	400	407	650	630	640	650	630	643
31				410	370	392				660	630	644

DAY	JUNE MAX	JUNE MIN	JUNE MEAN	JULY MAX	JULY MIN	JULY MEAN	AUGUST MAX	AUGUST MIN	AUGUST MEAN	SEPTEMBER MAX	SEPTEMBER MIN	SEPTEMBER MEAN
1	670	640	658	670	660	662	650	620	636	660	630	654
2	650	620	635	670	650	662	650	630	642	660	650	654
3	640	620	630	670	660	666	650	620	634	670	650	660
4	630	620	626	670	660	665	650	640	643	670	660	667
5	650	620	634	690	660	673	650	630	638	680	650	663
6	680	650	663	700	680	693	640	620	637	690	660	665
7	690	670	678	710	700	705	640	620	632	670	650	662
8	670	660	665	710	690	697	640	620	632	700	650	673
9	710	660	680	690	680	685	640	620	630	710	660	676
10	730	710	718	690	660	675	640	630	634	700	660	685
11	780	730	750	670	650	659	650	630	638	710	660	683
12	840	770	804	680	630	652	650	630	641	700	660	684
13	890	850	868	680	670	677	650	630	638	710	630	681
14	940	890	911	680	660	669	650	630	640	700	630	672
15	980	930	951	670	660	660	650	640	645	740	610	677
16	1010	970	990	670	660	664	660	640	653	740	650	695
17	1050	1010	1030	680	660	670	660	650	656	690	630	650
18	1080	1050	1060	680	660	671	660	650	656	700	640	675
19	1090	1070	1080	680	650	665	670	650	658	690	640	672
20	1100	1080	1090	670	650	660	670	650	660	730	630	676
21	1110	1090	1100	660	630	640	670	650	663	750	630	666
22	1110	1090	1100	650	630	638	680	650	664	700	630	659
23	1120	1030	1090	640	630	635	670	660	665	720	630	669
24	1110	900	995	650	630	637	680	660	672	740	630	678
25	900	830	855	650	620	639	670	660	663	770	620	678
26	840	770	813	650	620	633	670	650	657	710	640	668
27	770	690	724	660	630	643	670	650	659	710	630	671
28	700	670	685	660	640	650	660	650	655	720	620	678
29	680	670	673	650	630	643	660	640	653	730	650	683
30	680	660	670	660	640	649	660	650	653	740	640	684
31				660	640	646	660	650	655			

06470985 MUD LAKE NEAR HOUGHTON, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	15.5	14.5	15.0	4.5	3.0	4.0						
2	15.0	13.5	14.0	4.0	2.5	3.0						
3	13.5	11.0	11.5	4.0	2.5	3.5						
4	12.0	10.0	11.0	3.0	1.5	2.5						
5	12.5	11.0	11.5	5.0	2.5	3.5						
6	12.5	10.5	11.0	5.0	3.5	4.5						
7	14.0	11.0	12.0	3.5	2.0	2.5						
8	13.0	11.0	11.5	2.5	.0	.5						
9	11.0	9.0	10.0	.5	.0	.0						
10	10.0	9.0	9.5	.5	.5	.5						
11	9.0	6.5	7.5	1.0	.5	.5						
12	6.0	5.0	5.0	1.5	1.0	1.0						
13	5.5	3.5	4.5	1.5	1.5	1.5						
14	6.5	3.5	5.0	2.5	1.5	2.0						
15	7.5	5.0	6.0	3.0	2.5	2.5						
16	10.5	6.5	8.0	3.0	2.5	3.0						
17	10.5	8.5	9.5	3.0	1.5	2.5						
18	11.5	9.5	10.5	1.5	1.5	1.5						
19	12.5	11.0	11.5									
20	15.5	11.5	13.0									
21	13.5	12.5	13.0									
22	13.5	12.5	13.0									
23	13.0	9.5	11.0									
24	9.5	8.5	9.0									
25	9.5	8.0	8.5									
26	9.0	7.5	8.0									
27	9.5	7.5	8.5									
28	10.0	9.0	9.5									
29	9.0	7.5	8.0									
30	8.0	7.0	7.5									
31	8.5	5.0	7.0									

	FEBRUARY			MARCH			APRIL			MAY		
1							1.5	1.0	1.5	19.0	15.5	17.5
2							3.0	.5	1.5	18.5	16.0	16.5
3							3.5	2.0	3.0	17.5	15.0	16.0
4							4.5	2.5	3.5	18.5	15.5	17.0
5							5.5	3.5	4.5	20.0	17.5	18.5
6							8.0	5.5	7.0	21.0	17.5	19.0
7							10.0	7.5	8.5	21.0	17.5	19.0
8							12.0	9.0	10.0	21.0	18.5	19.5
9							11.5	10.5	11.0	23.5	19.5	21.5
10							10.5	9.0	10.0	23.0	21.0	22.0
11							10.5	8.0	9.5	21.5	18.5	20.0
12							11.5	9.0	10.0	20.0	18.0	18.5
13							10.5	9.5	10.0	21.0	17.5	19.0
14							11.0	8.0	9.5	22.0	17.5	19.5
15							12.5	10.0	11.0	22.0	18.5	20.0
16							14.0	11.5	12.5	24.0	20.5	22.0
17							15.0	13.0	13.5	22.0	15.5	18.0
18							17.5	14.5	16.0	15.0	13.5	14.0
19							18.0	16.0	17.0	16.0	13.0	14.5
20							17.0	13.5	15.0	17.5	15.5	16.0
21							14.0	11.5	13.0	17.5	10.0	13.0
22							15.5	12.5	13.5	12.5	9.0	10.5
23							15.5	13.5	14.5	14.0	11.0	12.0
24							15.0	13.0	14.0	15.0	13.5	14.0
25							17.5	13.5	15.0	15.0	14.0	14.5
26				1.5	1.0	1.5	17.5	15.5	16.5	16.5	14.0	15.0
27				1.5	.5	1.0	17.0	14.5	16.0	21.0	16.5	18.5
28				1.0	.0	.5	17.5	14.5	16.0	22.5	19.5	21.0
29				2.0	.5	1.0	17.0	15.0	16.0	23.0	20.5	21.5
30				2.5	1.5	2.0	17.0	14.5	16.0	24.0	20.5	22.0
31				2.5	2.0	2.0				25.0	21.5	23.0

06470985 MUD LAKE NEAR HOUGHTON, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	23.0	20.5	22.0	21.5	20.5	21.0	31.5	27.5	29.5	20.0	16.5	18.0
2	20.5	18.5	19.5	23.0	19.0	21.0	30.0	27.0	28.5	20.0	17.0	18.5
3	19.5	16.5	18.0	24.5	19.5	22.0	28.0	25.0	26.5	21.0	17.5	19.0
4	22.0	17.0	19.5	23.5	21.5	22.5	29.0	22.5	25.5	22.0	19.0	20.5
5	24.0	19.5	21.5	27.5	21.5	24.0	26.0	23.5	25.0	22.0	18.5	20.5
6	26.0	22.0	23.5	27.5	24.5	26.0	25.5	22.5	24.0	21.5	19.0	20.5
7	26.0	24.0	25.0	28.0	24.0	26.0	24.0	22.5	23.0	20.0	18.5	19.0
8	23.5	21.5	22.5	26.5	24.0	25.0	23.0	21.5	22.0	19.5	16.5	18.0
9	21.5	19.0	20.5	26.0	23.0	24.5	25.5	20.5	23.0	21.0	17.5	19.0
10	21.5	19.5	20.5	27.5	23.0	25.5	24.5	22.5	23.5	20.0	18.0	18.5
11	25.0	20.5	22.5	26.5	24.0	25.0	26.0	22.0	23.5	17.5	16.0	16.5
12	26.5	22.0	24.0	24.0	21.0	22.0	24.5	21.0	22.5	16.5	15.0	15.5
13	27.0	23.5	25.5	24.0	19.0	21.0	24.0	21.0	22.5	17.5	14.5	16.0
14	27.5	23.5	25.5	23.0	20.5	22.0	24.5	22.0	23.0	22.0	15.0	17.5
15	26.5	23.5	25.0	24.0	21.5	22.5	25.5	22.5	23.5	20.0	18.5	19.0
16	27.5	23.5	25.5	25.0	22.5	23.5	23.5	21.5	22.5	20.5	18.5	19.5
17	28.0	24.0	25.5	26.5	23.5	25.0	23.0	20.0	21.5	19.5	17.5	18.5
18	28.0	24.0	26.0	25.0	24.5	25.0	21.0	18.5	20.0	17.0	15.5	16.0
19	28.0	24.5	26.0	29.0	22.5	25.5	22.0	18.0	20.0	16.0	14.5	15.0
20	28.5	25.0	26.5	29.0	25.0	26.5	22.0	19.0	20.5	15.5	13.5	14.5
21	30.0	26.0	27.5	28.5	26.0	27.5	23.5	20.5	21.5	16.0	13.5	14.5
22	29.5	26.5	28.0	28.5	25.5	27.0	21.0	18.0	19.5	16.5	14.0	15.5
23	28.0	25.0	26.5	28.5	25.5	27.0	22.5	17.5	19.5	18.0	14.5	16.5
24	26.5	23.5	24.5	27.5	24.0	25.5	20.5	18.5	19.5	17.5	15.5	16.5
25	24.0	21.5	22.5	29.0	25.0	27.0	18.0	16.0	17.0	17.5	15.0	16.0
26	22.5	19.0	21.0	30.0	25.5	27.5	16.0	15.5	15.5	19.0	16.0	17.5
27	23.5	19.0	21.0	32.5	27.5	29.5	16.5	15.0	15.5	18.5	17.5	18.0
28	24.0	21.0	22.5	33.0	29.0	30.5	18.0	14.5	16.0	17.0	14.5	15.5
29	23.5	20.5	22.0	30.5	28.5	29.5	20.0	16.5	18.0	15.5	12.5	14.0
30	22.5	20.5	21.5	31.0	27.5	29.5	19.5	16.5	18.0	15.0	12.5	14.0
31				33.5	28.0	30.5	19.0	15.5	17.5			

06470992 SAND LAKE NEAR COLUMBIA, SD

LOCATION.--Lat 45°40'10", long 98°18'31", in NW¼SW¼ sec.4, T.125 N., R.62 W., Brown County, Hydrologic Unit 10160003, near outlet control structure 3 mi north of Columbia.

PERIOD OF RECORD.--April to September 1986.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1985 to current year, seasonal records only.
pH: May to September 1985.
WATER TEMPERATURE: May 1985 to current year, seasonal records only.
DISSOLVED OXYGEN: May to September 1985.

REMARKS.--Specific conductance and water temperature were determined at hourly intervals by a water-quality monitor. Pesticide and herbicide samples collected three times during water year. Water-quality data missing from the 1986 report are included in these tables.

EXTREMES FOR PERIOD OF DAILY RECORD:
SPECIFIC CONDUCTANCE: Maximum daily, 1,140 microsiemens, Nov. 20, 1986; minimum daily, 380 microsiemens, Apr. 13-17, 1987.
WATER TEMPERATURE: Maximum daily, 32.5°C, July 31, 1987; minimum daily, 0.0°C on several days during 1985-87.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	ALDRIN, DISSOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AMETRYNE TOTAL	ATRAZINE, TOTAL (UG/L)	CHLORDANE, DISSOLVED (UG/L)	CHLORDANE, TOTAL (UG/L)
APR											
23...	0900	580	--	13.0	9.0	<0.01	<0.010	<0.10	0.10	<0.1	<0.1
JUL											
16...	0900	780	--	23.0	24.0	<0.01	<0.010	<0.10	0.10	<0.1	<0.1
SEP											
24...	0945	780	7.69	16.5	15.5	<0.01	<0.010	<0.10	<0.10	<0.1	<0.1

DATE	CYANAZINE TOTAL (UG/L)	DDD, DISSOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DISSOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DISSOLVED (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, DISSOLVED (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN DISSOLVED (UG/L)	DIELDRIN TOTAL (UG/L)
APR											
23...	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010
JUL											
16...	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010
SEP											
24...	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010

DATE	ENDOSULFAN, TOTAL (UG/L)	ENDOSULFAN DISSOLV (UG/L)	ENDRIN, DISSOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DISSOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)	HEPTACHLOR EPOXIDE DISSOLVED (UG/L)
APR											
23...	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.01
JUL											
16...	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.01
SEP											
24...	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.01

DATE	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, DISSOLVED (UG/L)	LINDANE DISSOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, DISSOLVED (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR DISSOLV (UG/L)	METHYL PARATHION, TOTAL (UG/L)	METHYL PARATHION, DISSOLVED (UG/L)
APR											
23...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
JUL											
16...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SEP											
24...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

06470992 SAND LAKE NEAR COLUMBIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)
APR 23...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1	<0.10
JUL 16...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1.0	<0.1	<0.1	<0.1	<0.10
SEP 24...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1	<0.10

DATE	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
APR 23...	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.03	<0.01	<0.01
JUL 16...	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.05	<0.01	<0.01
SEP 24...	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.02	<0.01	<0.01

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)
MAY 28...	0745	660	7.88	17.0	18.5	<0.01	<0.010	--	--	<0.1	<0.1
JUL 09...	1400	750	7.79	28.0	24.5	<0.01	<0.010	<0.10	<0.10	<0.1	<0.1
SEP 15...	1300	690	8.43	18.5	18.0	<0.01	<0.010	<0.10	<0.10	<0.1	<0.1

DATE	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)
MAY 28...	--	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010
JUL 09...	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	0.01	<0.01	<0.01	<0.010
SEP 15...	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010

DATE	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)
MAY 28...	<0.010	0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.01
JUL 09...	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.01
SEP 15...	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.01

06470992 SAND LAKE NEAR COLUMBIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, DISSOLVED (UG/L)	LINDANE DISSOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, DISSOLVED (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR DISSOLV (UG/L)	METHYL PARATHION, TOTAL (UG/L)	METHYL PARATHION, DISSOLVED (UG/L)
MAY 28...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
JUL 09...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SEP 15...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL-TRITHION DISSOLV (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, DISSOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, DISSOLVED (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE DISSOLV (UG/L)	PERTHANE TOTAL (UG/L)	PROMETONE TOTAL (UG/L)	PROMETRYNE TOTAL (UG/L)	PROPAZINE TOTAL (UG/L)
MAY 28...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	--	--	--
JUL 09...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1	<0.10
SEP 15...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1	<0.10

DATE	SILVEX, TOTAL (UG/L)	SIMAZINE TOTAL (UG/L)	SIMETRYNE TOTAL (UG/L)	TOXAPHENE, DISSOLVED (UG/L)	TOXAPHENE, TOTAL (UG/L)	TRITHION DISSOLV (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
MAY 28...	<0.01	--	--	<1.0	<1	<0.01	<0.01	0.07	<0.01	<0.01
JUL 09...	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.03	<0.01	<0.01
SEP 15...	<0.01	<0.10	<0.1	<1.0	<1	<0,01	<0.01	<0.01	<0.01	<0.01

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	870	860	867	890	880	883						
2	880	860	871	890	880	882						
3	870	850	863	900	880	885						
4	850	840	846	900	880	885						
5	840	830	836	900	880	888						
6	840	830	832	890	880	883						
7	840	830	833	890	880	886						
8	840	830	830	890	880	882						
9	830	820	825	900	880	893						
10	830	820	824	920	900	913						
11	830	820	824	930	900	912						
12	840	800	826	980	920	934						
13	830	800	803	1000	930	982						
14	830	800	810	1010	980	999						
15	830	800	813	1020	1000	1000						
16	900	820	878	1000	990	998						
17	900	880	895	1010	1000	1000						
18	880	820	837	1010	1000	1000						
19	890	830	860									
20	910	880	893									
21	920	900	908									
22	920	900	905									
23	910	880	891									
24	880	810	825									
25	820	810	814									
26	820	810	811									
27	820	800	811									
28	830	810	824									
29	880	820	828									
30	880	820	829									
31	880	830	868									

06470992 SAND LAKE NEAR COLUMBIA, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25° CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	FEBRUARY MAX	FEBRUARY MIN	FEBRUARY MEAN	MARCH MAX	MARCH MIN	MARCH MEAN	APRIL MAX	APRIL MIN	APRIL MEAN	MAY MAX	MAY MIN	MAY MEAN
1							640	620	634	500	490	498
2							630	590	617	510	500	505
3							570	520	543	520	500	511
4							550	500	524	560	520	538
5							520	480	503	570	550	556
6							510	500	502	570	560	565
7							500	470	486	580	560	572
8							470	450	465	580	560	572
9							470	440	452	590	570	582
10							440	410	426	600	580	590
11							420	390	406	600	590	595
12							400	390	393	610	600	603
13							390	380	387	620	600	616
14							390	380	385	640	620	628
15							390	380	383	650	630	638
16							390	380	384	660	630	645
17							400	380	389	650	640	648
18							410	390	398	660	650	653
19							410	400	406	660	650	658
20							410	400	408	660	620	644
21							420	410	412	630	610	619
22							440	420	425	630	610	623
23							430	420	427	640	630	635
24							440	430	433	640	630	639
25							450	430	440	640	620	632
26				750	730	734	460	440	449	640	630	634
27				730	680	710	460	450	454	660	630	643
28				690	610	672	470	450	462	660	640	647
29				680	660	670	480	460	474	660	640	651
30				680	660	669	500	480	488	660	640	645
31				670	630	651				650	630	645

DAY	JUNE MAX	JUNE MIN	JUNE MEAN	JULY MAX	JULY MIN	JULY MEAN	AUGUST MAX	AUGUST MIN	AUGUST MEAN	SEPTEMBER MAX	SEPTEMBER MIN	SEPTEMBER MEAN
1	650	640	646	700	690	699	750	720	737	690	660	676
2	650	640	646	710	690	702	770	660	738	690	670	682
3	660	640	650	720	700	708	670	640	654	750	680	709
4	670	640	654	720	700	708	660	630	645	800	740	762
5	670	650	660	720	700	712	660	630	643	750	720	735
6	670	650	658	720	710	715	660	650	654	740	730	735
7	660	640	650	730	710	721	660	650	655	770	740	755
8	650	630	640	730	710	719	670	650	660	780	760	770
9	650	630	641	730	700	718	680	650	664	790	770	775
10	650	640	647	720	700	712	700	660	674	780	730	759
11	650	640	648	710	700	710	710	650	682	730	690	705
12	660	650	655	710	700	704	710	680	695	720	680	698
13	670	650	663	710	700	702	710	660	686	700	670	687
14	670	660	663	710	700	704	750	690	715	690	680	684
15	670	660	661	710	690	700	740	690	723	690	670	682
16	670	640	659	720	690	699	770	740	749	690	680	687
17	670	660	664	730	710	715	740	680	715	690	660	679
18	670	660	664	710	670	696	690	670	678	670	640	657
19	680	650	668	700	670	685	680	640	660	660	650	655
20	680	660	672	680	640	660	680	630	661	670	650	662
21	690	660	674	650	630	638	690	640	669	680	660	674
22	690	670	683	670	640	653	680	650	667	690	670	682
23	690	670	675	670	660	667	660	630	651	700	680	687
24	680	670	678	670	660	665	660	630	646	700	670	691
25	680	670	676	670	660	667	700	660	685	700	680	690
26	690	680	683	670	650	659	720	690	706	690	670	680
27	700	680	689	690	650	668	710	650	683	700	670	691
28	700	680	690	690	660	676	670	650	656	700	680	686
29	700	680	693	710	660	681	680	650	661	690	670	680
30	710	690	697	700	650	678	690	660	675	680	660	673
31				730	670	703	690	660	677			

06470992 SAND LAKE NEAR COLUMBIA, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	OCTOBER MAX	OCTOBER MIN	OCTOBER MEAN	NOVEMBER MAX	NOVEMBER MIN	NOVEMBER MEAN	DECEMBER MAX	DECEMBER MIN	DECEMBER MEAN	JANUARY MAX	JANUARY MIN	JANUARY MEAN
1	15.5	14.5	15.0	5.5	4.0	4.5						
2	15.0	14.0	14.0	4.5	2.5	3.5						
3	14.0	12.0	12.5	4.5	3.0	4.0						
4	12.5	10.5	11.5	4.0	2.0	3.0						
5	12.5	11.5	12.0	5.5	3.0	4.0						
6	12.5	10.5	11.5	5.0	4.0	4.5						
7	14.0	11.0	12.5	4.0	2.5	3.0						
8	13.0	11.5	12.0	3.0	.0	1.0						
9	11.5	10.0	10.5	1.0	.0	.5						
10	10.5	9.5	10.0	.5	.0	.5						
11	10.0	7.5	8.5	.5	.0	.0						
12	7.0	6.0	6.0	.5	.0	.0						
13	6.0	4.5	5.5	.5	.0	.0						
14	6.5	4.0	5.0	.5	.0	.0						
15	7.5	5.0	6.0	.5	.0	.0						
16	9.5	6.5	8.0	.5	.0	.0						
17	10.5	7.5	9.0	.5	.0	.0						
18	12.0	9.0	10.5	.0	.1	.0						
19	13.0	10.0	11.5									
20	13.0	10.5	12.0									
21	13.5	11.0	12.0									
22	13.0	12.0	12.5									
23	12.5	10.0	11.0									
24	10.0	8.5	9.0									
25	9.5	8.0	8.5									
26	9.0	7.5	8.5									
27	10.0	7.5	9.0									
28	10.0	9.0	9.5									
29	9.5	8.0	8.5									
30	9.0	7.0	8.0									
31	9.0	6.0	7.5									

DAY	FEBRUARY MAX	FEBRUARY MIN	FEBRUARY MEAN	MARCH MAX	MARCH MIN	MARCH MEAN	APRIL MAX	APRIL MIN	APRIL MEAN	MAY MAX	MAY MIN	MAY MEAN
1							2.5	1.5	2.0	19.5	15.5	17.0
2							3.0	1.0	2.0	17.5	16.0	16.5
3							4.5	2.5	3.5	16.5	15.0	16.0
4							6.0	3.5	4.5	18.5	15.5	17.0
5							7.0	4.5	6.0	19.5	16.5	17.5
6							9.0	6.0	7.5	20.0	16.5	18.0
7							10.5	7.5	9.0	20.5	16.5	18.5
8							11.0	8.5	9.5	21.0	18.0	19.5
9							10.5	9.5	9.5	22.5	18.5	20.5
10							9.5	8.5	9.0	22.5	20.0	21.0
11							9.5	7.5	8.5	21.0	18.5	19.5
12							10.5	8.5	9.5	19.5	17.5	18.5
13							10.0	9.0	9.5	21.0	17.0	19.0
14							10.5	8.0	9.5	22.0	17.5	19.5
15							12.0	9.5	11.0	22.5	18.0	20.0
16							13.0	11.0	12.0	24.0	20.0	22.0
17							14.5	12.0	13.5	21.0	15.5	18.0
18							16.5	13.5	15.0	15.5	14.0	14.5
19							17.5	15.0	16.0	16.5	13.5	15.0
20							16.0	13.0	14.5	18.0	15.5	17.0
21							14.0	11.5	13.0	17.5	11.0	13.5
22							15.5	12.0	14.0	13.5	9.5	11.5
23							15.0	13.0	14.0	15.5	12.0	13.0
24							15.0	12.5	13.5	15.0	14.0	14.5
25							16.5	13.0	15.0	14.5	13.5	14.0
26				3.0	2.0	2.5	17.5	15.0	16.0	17.0	13.5	15.0
27				2.0	.5	1.5	17.0	14.5	15.5	21.5	16.0	18.5
28				1.0	.0	.5	17.5	14.5	16.0	22.5	18.5	20.5
29				1.0	.0	.5	17.0	15.0	16.0	23.0	20.0	21.5
30				1.5	.5	1.0	17.0	15.0	16.0	23.0	20.0	21.5
31				3.0	.5	1.5				24.0	19.5	21.5

06470992 SAND LAKE NEAR COLUMBIA, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	22.5	20.5	21.5	22.5	20.5	21.0	31.5	28.0	30.0	20.0	16.5	18.5
2	21.0	18.0	19.5	22.0	19.5	20.5	30.5	28.0	29.0	21.0	17.5	19.0
3	20.5	17.0	18.5	23.5	19.5	21.5	28.5	26.0	27.0	22.0	17.5	19.5
4	22.5	18.0	20.0	22.5	21.0	22.0	27.5	23.5	25.5	21.5	19.5	20.5
5	24.5	19.5	22.0	24.0	21.0	22.5	27.0	23.5	25.0	21.5	18.5	20.0
6	26.0	21.5	23.5	25.5	22.5	24.0	26.0	22.5	24.0	22.5	19.0	20.5
7	24.0	22.5	23.5	26.0	23.5	24.5	24.0	22.5	23.0	21.0	18.5	19.5
8	24.0	20.5	22.0	25.0	23.5	24.0	23.0	21.5	22.0	20.0	16.5	18.5
9	23.0	20.0	21.5	25.5	23.0	24.0	26.0	21.0	23.0	20.5	17.0	19.0
10	22.0	20.5	21.0	26.0	23.0	24.5	26.0	23.0	24.5	19.5	18.0	18.5
11	25.0	20.5	23.0	25.5	23.5	24.0	26.0	22.0	24.0	18.0	16.0	16.5
12	27.0	22.0	24.5	23.5	21.5	22.5	25.0	21.5	23.5	17.0	15.0	16.0
13	27.5	23.5	25.5	23.0	19.5	21.5	25.0	21.5	23.0	18.0	14.5	16.5
14	27.5	24.0	26.0	23.0	20.5	21.5	25.5	22.5	23.5	19.0	15.5	17.5
15	27.0	23.5	25.5	25.0	21.0	22.5	26.0	23.0	24.5	19.0	17.5	18.0
16	27.0	24.0	25.5	25.5	21.5	23.5	24.5	22.0	23.0	20.0	17.5	19.0
17	27.0	24.5	25.5	27.0	23.5	25.0	23.5	21.0	22.0	19.5	18.5	19.0
18	28.0	24.5	26.0	25.5	24.0	25.0	22.0	18.5	20.5	18.0	16.0	16.5
19	27.0	24.5	25.5	26.5	22.5	24.5	23.5	19.5	21.0	16.0	14.5	15.5
20	28.0	25.0	26.5	27.5	24.0	25.5	23.0	20.0	21.5	16.0	13.5	15.0
21	29.0	25.5	27.0	29.0	25.5	27.0	23.0	20.5	21.5	16.5	14.0	15.0
22	30.0	26.5	28.0	29.0	25.5	27.0	21.0	18.0	19.5	18.0	14.0	16.0
23	27.5	25.5	26.5	28.0	26.0	27.0	22.0	18.0	20.0	18.5	15.0	16.5
24	26.5	24.0	24.5	27.0	25.0	26.0	20.5	17.5	19.0	18.5	15.0	17.0
25	24.0	22.0	23.0	28.5	24.5	26.5	17.5	16.0	16.5	19.0	15.0	17.0
26	22.5	20.0	21.5	30.0	26.0	28.0	17.0	15.5	16.0	19.0	16.5	17.5
27	23.0	20.0	21.5	31.0	27.5	29.0	17.5	15.5	16.0	18.5	17.0	17.5
28	23.5	21.5	22.5	31.5	28.0	29.5	19.5	15.0	17.0	17.0	14.5	15.5
29	23.0	21.0	22.0	31.0	28.5	29.5	21.0	16.5	18.5	15.5	12.5	14.0
30	24.5	20.5	22.5	31.5	28.5	30.0	19.5	17.0	18.0	16.0	12.5	14.5
31				32.5	28.5	30.0	19.5	16.0	18.0			

06471000 JAMES RIVER AT COLUMBIA, SD
(National stream-quality accounting network station)

LOCATION.--Lat 45°36'13", long 98°18'36", in NW¼NW¼ sec.33, T.125 N., R.62 W., Brown County, Hydrologic Unit 10160003, on left bank 20 ft downstream from highway bridge, 0.6 mi south of Columbia, 0.9 mi downstream from Chicago and North Western Transportation Company bridge, 0.3 mi upstream from Elm River, and 12.7 mi downstream from Columbia Road Dam.

DRAINAGE AREA.--5,857 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. Datum of gage is 1,272.91 ft above National Geodetic Vertical Datum of 1929. From Oct. 1, 1945, to Oct. 4, 1957, nonrecording gage. From Oct. 5, 1957, to Sept. 30, 1980, water-stage recorder. Both gages described above at site 3.3 mi upstream from present site and at different datum.

REMARKS.--Records fair except for period of estimated daily discharge, which is poor. Estimated daily discharges during water year: Nov. 8 to Apr. 17. 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. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--42 years, 115 ft³/s, 83,320 acre-ft/yr; median of yearly mean discharges, 76 ft³/s, 55,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,420 ft³/s, May 24, 25, 1950, gage height, 16.89 ft, from graph based on gage readings; maximum gage height, 17.09 ft, Apr. 22, 1969; maximum daily reverse flow, 1,860 ft³/s, Apr. 8, 1952, backwater from Elm River.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,260 ft³/s at 1915 hours, Apr. 11, gage height, 15.58 ft, backwater from Elm River; maximum gage height, 17.11 ft, Mar. 24, backwater from Elm River; maximum daily reverse flow, 100 ft³/s, Mar. 23, backwater from Elm River; minimum daily discharge, 10 ft³/s, Dec. 3.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121	194	20	45	45	60	920	976	547	258	381	116
2	122	194	20	35	45	60	980	953	546	257	390	115
3	123	194	10	40	45	60	970	936	534	253	408	105
4	128	194	20	40	40	60	950	917	522	248	395	98
5	131	193	40	40	40	60	1000	892	514	247	372	94
6	143	192	40	40	40	65	1050	866	498	245	328	92
7	152	194	40	35	40	75	1090	837	484	242	314	90
8	165	190	40	30	40	150	1100	805	477	233	295	89
9	178	175	40	25	25	140	1150	779	469	234	276	89
10	189	200	45	25	40	190	1200	755	458	239	256	89
11	199	210	45	30	40	400	1200	732	453	241	236	109
12	207	210	45	35	40	500	1250	706	435	241	225	124
13	210	200	45	40	35	500	1250	678	414	241	215	128
14	212	200	45	45	25	400	1220	655	395	241	211	128
15	213	200	45	45	25	400	1210	631	377	241	205	132
16	212	200	45	45	25	300	1200	606	359	238	190	140
17	207	200	45	45	50	200	1200	582	341	238	171	145
18	207	190	50	45	30	100	1180	577	324	232	157	147
19	204	170	50	45	30	50	1170	581	310	234	150	151
20	201	140	50	45	30	10	1170	583	300	246	144	151
21	201	90	50	45	30	-20	1160	598	291	253	140	152
22	200	60	50	45	25	-50	1150	614	285	257	134	152
23	199	50	50	45	25	-100	1140	617	276	268	125	156
24	199	40	50	45	25	-50	1120	611	272	285	119	161
25	199	35	50	45	25	-20	1110	605	269	300	117	163
26	199	30	50	45	30	300	1090	606	267	317	117	162
27	197	30	50	45	30	600	1070	602	267	332	120	162
28	195	30	45	45	55	700	1050	591	267	345	121	162
29	194	25	45	45	---	800	1030	579	266	356	120	162
30	194	20	45	45	---	850	1000	568	260	370	118	162
31	194	---	45	45	---	870	---	556	---	380	117	---
TOTAL	5695	4250	1310	1270	975	7660	33380	21594	11477	8312	6667	3926
MEAN	184	142	42.3	41.0	34.8	247	1113	697	383	268	215	131
MAX	213	210	50	45	55	870	1250	976	547	380	408	163
MIN	121	20	10	25	25	-100	920	556	260	232	117	89
AC-FT	11300	8430	2600	2520	1930	15190	66210	42830	22760	16490	13220	7790

CAL YR 1986	TOTAL	58383	MEAN	160	MAX	950	MIN	-120	AC-FT	115800
WTR YR 1987	TOTAL	106516	MEAN	292	MAX	1250	MIN	-100	AC-FT	211300

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.
WATER TEMPERATURE: October 1966 to September 1981; April 1986 to current year, seasonal records only.

REMARKS.--Water temperature and specific conductance were determined at hourly intervals by a water-quality monitor. Some data were not available from the laboratory at publication time. Water-quality data missing from the 1986 report are included in these tables.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,500 microsiemens, Mar. 1, 1974, Jan. 27-29, Jan. 31, 1979; minimum daily, 240 microsiemens, Mar. 17, 1972.
WATER TEMPERATURE: Maximum daily, 32.0°C, June 29, July 10, 1970, July 31, 1987; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	ALDRIN, DISSOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AMETRYNE TOTAL	ATRAZINE, TOTAL (UG/L)	CHLORDANE, DISSOLVED (UG/L)	CHLORDANE, TOTAL (UG/L)
APR											
23...	1020	570	--	17.0	10.5	<0.01	<0.010	<0.10	0.10	<0.1	<0.1
JUL											
16...	1000	810	--	26.5	25.5	<0.01	<0.010	<0.10	<0.10	<0.1	<0.1
SEP											
24...	1045	790	7.59	16.5	15.5	<0.01	<0.010	<0.10	<0.10	<0.1	<0.1

DATE	CYANAZINE TOTAL (UG/L)	DDD, DISSOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DISSOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DISSOLVED (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, DISSOLVED (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN DISSOLVED (UG/L)	DIELDRIN TOTAL (UG/L)
APR											
23...	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010
JUL											
16...	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010
SEP											
24...	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01	<0.010

DATE	ENDOSULFAN, TOTAL (UG/L)	ENDOSULFAN DISSOLV (UG/L)	ENDRIN, DISSOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DISSOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)	HEPTACHLOR EPOXIDE DISSOLVED (UG/L)
APR											
23...	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.01
JUL											
16...	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.01
SEP											
24...	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10	<0.01

DATE	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, DISSOLVED (UG/L)	LINDANE DISSOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, DISSOLVED (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR DISSOLV (UG/L)	METHYL PARATHION, TOTAL (UG/L)	METHYL PARATHION, DISSOLVED (UG/L)
APR											
23...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
JUL											
16...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SEP											
24...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	METHYL-TRITHION DISSOLV (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, DISSOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, DISSOLVED (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE DISSOLV (UG/L)	PERTHANE TOTAL (UG/L)	PROMETONE TOTAL (UG/L)	PROMETRYNE TOTAL (UG/L)	PROPAZINE TOTAL (UG/L)
APR											
23...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1	<0.10
JUL											
16...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1	<0.10
SEP											
24...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1	<0.10

DATE	SILVEX, TOTAL (UG/L)	SIMAZINE TOTAL (UG/L)	SIMETRYNE TOTAL (UG/L)	TOXAPHENE, DISSOLVED (UG/L)	TOXAPHENE, TOTAL (UG/L)	TRITHION DISSOLV (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
APR										
23...	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.07	<0.01	<0.01
JUL										
16...	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.03	<0.01	<0.01
SEP										
24...	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	<0.01	<0.01	<0.01

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	ALKALINITY WH WAT TOTAL FIELD MG/L AS CACO3	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)
OCT												
23...	1035	200	890	8.09	292	7.5	10.0	2.5	732	6.2	57	K30
DEC												
10...	1230	45	1200	8.10	367	-3.0	1.0	9.1	720	11.4	85	K40
JAN												
28...	1505	45	1400	8.13	--	8.5	1.0	4.8	717	12.6	95	--
MAR												
05...	1015	58	1160	8.29	329	11.5	5.5	6.0	729	12.0	100	--
APR												
23...	0955	1150	425	8.10	161	16.0	16.0	3.7	730	7.3	77	K58
MAY												
28...	1030	594	660	7.97	--	19.0	19.5	--	718	8.2	95	--
JUN												
24...	1000	272	700	7.80	273	16.0	22.0	1.8	727	4.7	57	260
JUL												
09...	1010	233	750	7.47	--	26.0	23.0	2.2	720	--	--	--
AUG												
27...	1215	117	670	8.24	277	16.0	16.5	8.7	732	4.2	45	K700

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
OCT												
23...	K100	280	0	51	37	83	38	2	16	282	140	35
DEC												
10...	K8	390	21	76	48	100	35	2	17	363	210	45
JAN												
28...	--	470	52	96	57	110	32	2	19	423	260	58
MAR												
05...	92	400	66	79	48	97	34	2	16	348	220	50
APR												
23...	K35	160	0	37	16	26	24	0.9	13	151	60	12
MAY												
28...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
24...	K900	240	0	52	27	51	30	1	14	261	93	17
JUL												
09...	--	260	0	54	30	60	32	2	14	277	110	18
AUG												
27...	K1100	220	0	39	29	57	34	2	17	235	91	17

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
OCT 23...	0.60	16	600	7	550	0.82	324	<0.010	--	<0.100	--	--
DEC 10...	0.30	23	755	28	740	1.0	92	0.010	--	0.210	0.200	--
JAN 28...	--	18	889	16	870	1.2	108	<0.010	--	<0.100	--	--
MAR 05...	0.20	11	747	35	720	1.0	117	0.010	--	0.100	0.090	--
APR 23...	0.10	4.7	273	35	270	0.37	848	<0.010	<0.010	<0.100	--	<0.100
MAY 28...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 24...	0.20	19	449	7	440	0.61	330	<0.010	--	<0.100	--	--
JUL 09...	--	18	483	16	470	0.66	304	<0.010	--	<0.100	--	--
AUG 27...	0.20	28	433	15	450	0.59	137	0.030	0.040	<0.100	--	<0.100

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	BORON, DISSOLVED (UG/L AS B)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
OCT 23...	0.020	0.100	0.03	1.4	0.130	0.090	200	0.090	--	--	8	75
DEC 10...	0.200	0.190	0.26	1.9	0.170	0.090	170	0.050	--	<10	3	98
JAN 28...	--	--	--	--	--	0.060	250	0.051	--	--	6	120
MAR 05...	0.260	0.250	0.33	1.9	0.340	0.210	200	0.180	--	<10	2	95
APR 23...	0.030	0.050	0.04	2.3	0.130	0.110	120	0.060	0.121	<10	2	44
MAY 28...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 24...	0.050	0.020	0.06	0.90	0.350	0.320	170	0.290	--	<10	3	67
JUL 09...	--	--	--	--	0.310	0.330	140	0.295	--	--	2	71
AUG 27...	1.40	1.40	1.8	3.8	0.390	0.290	180	0.240	0.194	--	6	77

DATE	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	CYANIDE DISSOLVED (MG/L AS CN)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)
OCT 23...	<0.5	1	<1	--	<1	<0.01	10	<5	--	30	<1.0	--
DEC 10...	<0.5	<1	<1	<3	1	<0.01	9	<5	76	250	<0.1	<10
JAN 28...	<0.5	<1	<1	<3	<1	<0.01	12	<5	--	100	<0.1	--
MAR 05...	<0.5	1	<1	<3	2	<0.01	31	<5	69	430	<0.1	<10
APR 23...	<0.5	1	<1	<3	<1	<0.01	35	<5	30	55	<0.1	<10
MAY 28...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 24...	0.9	<1	<1	<3	<1	<0.01	21	<5	44	150	<0.1	<10
JUL 09...	0.9	<1	<1	<3	<1	<0.01	26	<5	--	130	<0.1	--
AUG 27...	<0.5	<1	<1	--	<1	<0.01	15	<5	--	750	<0.1	--

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	THAL-LIUM, DIS-SOLVED (UG/L AS TL)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE)
OCT 23...	3	<1	<1	<1	<1	--	--	<3	--	--	--
DEC 10...	3	<1	<1	<1	<1	380	<6	6	--	--	--
JAN 28...	1	<1	<1	<1	<1	--	--	13	--	--	--
MAR 05...	6	<1	<1	<1	<1	390	<6	9	--	--	--
APR 23...	1	<1	<1	<1	<1	160	<6	5	3	100	<10
MAY 28...	--	--	--	--	--	--	--	--	--	--	--
JUN 24...	4	<1	<1	<1	<1	250	<6	12	--	--	--
JUL 09...	<1	<1	<1	<1	<1	--	--	9	--	--	--
AUG 27...	<1	<1	<1	<1	<1	--	--	<3	7	100	<10

DATE	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CYANIDE TOTAL (MG/L AS CN)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	ANTI-MONY, TOTAL (UG/L AS SB)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	THAL-LIUM, TOTAL (UG/L AS TL)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 23...	--	--	--	--	--	--	--	--	17	9.2	95
DEC 10...	--	--	--	--	--	--	--	--	--	--	--
JAN 28...	--	--	--	--	--	--	--	--	95	12	78
MAR 05...	--	--	--	--	--	--	--	--	98	15	86
APR 23...	<1	110	<0.010	7	<1	<1	<1	<1	45	140	56
MAY 28...	--	--	--	--	--	--	--	--	20	32	61
JUN 24...	--	--	--	--	--	--	--	--	8	5.9	92
JUL 09...	--	--	--	--	--	--	--	--	17	11	95
AUG 27...	<1	180	<0.010	5	1	<1	<1	<1	--	--	--

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	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)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
MAY 28...	1030	594	660	7.97	19.0	19.5	718	8.2	95	<0.01	<0.010	--
JUL 09...	1010	233	750	7.47	26.0	23.0	720	--	--	<0.01	<0.010	<0.10
SEP 14...	1050	129	700	8.05	21.0	17.0	--	--	--	<0.01	<0.010	<0.10

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	ATRAZINE, TOTAL (UG/L)	CHLORDANE, DISSOLVED (UG/L)	CHLORDANE, TOTAL (UG/L)	CYANAZINE TOTAL (UG/L)	DDD, DISSOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DISSOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DISSOLVED (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, DISSOLVED (UG/L)	DIAZINON, TOTAL (UG/L)
MAY 28...	--	<0.1	<0.1	--	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
JUL 09...	<0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
SEP 14...	<0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

DATE	DIELDRIN DISSOLVED (UG/L)	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDOSULFAN DISSOLV (UG/L)	ENDRIN, DISSOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DISSOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
MAY 28...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
JUL 09...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
SEP 14...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTACHLOR EPOXIDE DISSOLVED (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, DISSOLVED (UG/L)	LINDANE DISSOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, DISSOLVED (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR DISSOLV (UG/L)	METHYL PARATHION, TOTAL (UG/L)
MAY 28...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
JUL 09...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
SEP 14...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL PARATHION, DISSOLVED (UG/L)	METHYLTRITHION DISSOLV (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, DISSOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, DISSOLVED (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE DISSOLV (UG/L)	PERTHANE TOTAL (UG/L)	PROMETONE TOTAL (UG/L)	PROMETRYNE TOTAL (UG/L)
MAY 28...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	--	--
JUL 09...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
SEP 14...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

DATE	PROPAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMAZINE TOTAL (UG/L)	SIMETRYNE TOTAL (UG/L)	TOXAPHENE, DISSOLVED (UG/L)	TOXAPHENE, TOTAL (UG/L)	TRITHION DISSOLV (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
MAY 28...	--	<0.01	--	--	<1.0	<1	<0.01	<0.01	0.03	<0.01	<0.01
JUL 09...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.02	<0.01	<0.01
SEP 14...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	<0.02	<0.01	<0.01

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25°C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	OCTOBER MAX	OCTOBER MIN	OCTOBER MEAN	NOVEMBER MAX	NOVEMBER MIN	NOVEMBER MEAN	DECEMBER MAX	DECEMBER MIN	DECEMBER MEAN	JANUARY MAX	JANUARY MIN	JANUARY MEAN
1	900	890	892									
2	910	890	899									
3	910	890	900									
4	900	890	895									
5	900	890	894									
6	900	890	893									
7	900	890	897									
8	900	890	897									
9	900	890	891									
10	900	890	895									
11	920	900	910									
12	930	910	923									
13	940	920	929									
14	940	920	933									
15	950	940	942									
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												

DAY	FEBRUARY MAX	FEBRUARY MIN	FEBRUARY MEAN	MARCH MAX	MARCH MIN	MARCH MEAN	APRIL MAX	APRIL MIN	APRIL MEAN	MAY MAX	MAY MIN	MAY MEAN
1							690	670	681	510	480	485
2							720	660	680	500	480	492
3							660	640	650	510	490	500
4							640	620	629	520	500	507
5							620	590	607	540	510	520
6							600	570	584	560	520	539
7										600	550	561
8										580	560	573
9										590	570	584
10										600	580	591
11										600	580	591
12										600	590	595
13										610	590	604
14										630	600	616
15										640	620	627
16										650	630	640
17										650	640	642
18										660	640	646
19										670	640	652
20										660	640	648
21										650	620	636
22										650	620	629
23							430	420	424	660	630	642
24							440	430	433	670	640	664
25							470	430	446	670	670	670
26				430	380	402	480	440	450	670	640	658
27				610	430	480	460	450	455	660	640	651
28				730	620	691	470	450	462	670	650	656
29				780	700	744	470	460	466	680	650	666
30				780	750	768	480	460	470	690	660	676
31				740	690	719				690	670	678

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25°C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	690	670	683	720	690	704	710	680	690	730	690	700
2	680	670	674	730	700	711	770	670	683	790	690	710
3	680	660	670	750	690	715	710	670	674	730	710	723
4	690	670	676	720	710	713	680	670	673	750	720	733
5	700	670	685	760	660	721	670	660	667	740	720	728
6	720	680	693	780	680	726	670	660	664	760	720	732
7	700	690	695	770	730	736	670	660	665	770	700	712
8	690	670	683	770	720	739	680	660	669	750	700	717
9	690	660	675	750	710	731	790	670	690	730	710	722
10	710	640	665	750	710	727	700	680	689	730	720	729
11	660	620	644	740	700	721	710	680	697	780	700	733
12	680	650	663	730	680	716	710	680	692	720	700	710
13	680	660	671	730	710	721	690	680	687	730	700	704
14	700	660	675	730	710	720	740	690	708	740	700	705
15	700	670	680	740	710	724	730	700	714			
16	750	680	696	760	720	728	760	710	718			
17	690	670	681	750	710	737	750	720	735	760	680	705
18	690	680	686	740	710	729	750	730	743	710	670	681
19	730	680	691	740	710	732	760	730	747	680	660	668
20	720	680	694	740	700	713	750	710	730	680	660	667
21	720	690	700	720	700	714	750	700	715	680	670	673
22	720	690	702	720	670	706	780	700	717	690	670	683
23	740	690	705	750	690	703	750	700	713	720	670	685
24	710	670	693	700	690	697	730	710	715	700	680	691
25	720	670	696	720	680	701	760	710	721	710	680	693
26	740	690	698	720	690	708				700	680	688
27	700	680	693	760	710	725	680	670	679	690	670	678
28	750	670	703	740	720	727	690	670	680	670	660	669
29	710	680	700	740	720	728	690	670	680	670	660	663
30	710	690	702	730	710	721	700	680	690	660	650	659
31				730	710	713	740	690	703			

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	16.0	14.5	15.0	5.5	3.5	4.5						
2	15.0	14.0	14.5	4.0	2.5	3.0						
3	14.0	12.5	13.0	4.0	3.0	3.5						
4	13.5	11.0	12.0	3.5	2.0	2.5						
5	14.0	12.0	12.5	4.5	2.5	3.5						
6	13.0	11.0	12.0	4.5	4.0	4.0						
7	14.5	11.5	13.0	4.0	2.5	3.0						
8	13.5	12.0	12.5	2.5	.0	1.0						
9	12.0	10.5	11.0	.0	.0	.0						
10	11.0	10.0	10.5	.0	.0	.0						
11	10.5	8.0	9.0	.0	.0	.0						
12	8.0	6.5	7.0	.0	.0	.0						
13	7.0	5.0	6.0	.0	.0	.0						
14	7.0	4.5	6.0	.0	.0	.0						
15	7.5	5.5	6.0	.0	.0	.0						
16				.0	.0	.0						
17				.0	.0	.0						
18				.0	.0	.0						
19												
20												
21												
22												
23												
24												
25												
26												
27												
28	9.5	8.5	9.0									
29	8.5	7.0	8.0									
30	8.0	7.0	7.5									
31	8.0	5.5	7.0									

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1							3.0	2.0	2.5	19.5	16.0	17.5
2							4.0	1.0	2.5	18.0	16.5	17.0
3							5.0	2.5	3.5	17.0	16.0	16.5
4							6.5	3.5	5.0	18.5	16.0	17.0
5							8.0	5.0	6.5	19.5	17.0	18.5
6							9.5	7.0	8.0	21.0	17.5	19.0
7										21.0	18.0	19.5
8										21.5	18.5	20.0
9										23.5	19.5	21.0
10										23.5	20.5	22.0
11										22.5	19.5	21.0
12										20.5	18.5	19.0
13										21.0	17.0	19.0
14							11.0	10.0	10.5	22.5	18.0	20.0
15							12.5	10.0	11.0	23.0	19.0	21.0
16							14.0	11.5	13.0	24.5	21.0	22.5
17							16.0	13.0	14.5	23.0	17.0	19.5
18							17.0	14.5	15.5	17.0	15.0	15.5
19							18.0	16.0	17.0	17.0	14.0	15.5
20							17.0	14.0	15.5	18.5	16.0	17.0
21							15.0	12.5	13.5	18.0	11.5	14.5
22							16.5	12.5	14.0	14.0	10.0	12.0
23							15.0	13.5	14.5	15.5	12.0	13.5
24							15.5	13.0	14.0	15.5	14.5	15.0
25							17.5	13.5	15.5	15.5	14.5	15.0
26				3.5	2.5	3.0	17.5	15.0	16.5	17.5	14.5	15.5
27				2.5	1.0	2.0	17.0	15.0	16.0	21.5	17.0	19.0
28				.5	.0	.5	18.0	15.0	16.5	23.0	19.5	21.0
29				1.0	.0	.5	17.5	16.0	17.0	24.0	21.0	22.5
30				2.0	.5	1.0	17.5	15.5	16.5	24.0	21.0	22.5
31				3.5	1.0	2.5				25.0	21.5	23.0
	JUNE			JULY			AUGUST			SEPTEMBER		
1	24.0	22.0	23.0	23.0	20.5	21.5	31.0	28.0	29.5	21.0	17.5	19.5
2	22.0	19.5	21.0	23.5	19.5	21.5	30.0	28.0	29.0	21.5	17.5	19.0
3	21.5	18.0	19.5	25.0	20.0	22.5	28.5	26.0	27.0	22.5	15.5	19.5
4	23.5	18.5	21.0	23.0	21.0	22.0	27.0	24.0	25.5	22.0	20.0	21.5
5	25.5	20.0	22.5	26.0	21.0	23.0	26.0	23.0	24.5	22.0	19.5	21.0
6	27.0	22.0	24.5	27.0	22.5	24.5	25.5	23.0	24.5	23.5	19.5	21.5
7	26.5	25.0	25.5	27.5	23.0	25.0	24.5	23.0	23.5	22.5	19.0	20.5
8	25.0	22.5	23.5	25.5	23.0	24.0	23.0	22.0	22.5	20.5	15.5	18.5
9	24.0	21.0	22.5	26.5	22.5	24.0	25.0	21.0	23.0	21.0	17.5	19.5
10	23.5	21.0	22.0	27.0	22.5	24.5	26.0	23.0	24.5	19.5	18.0	19.0
11	26.5	21.5	24.0	26.0	23.5	24.5	26.5	22.5	24.5	18.0	15.5	16.5
12	28.0	23.0	25.5	24.5	21.5	23.0	25.5	23.0	24.0			
13	28.5	24.5	26.5	25.0	20.0	22.5	24.5	22.0	23.5			
14	29.0	25.0	27.0	24.0	20.5	22.5	25.0	23.0	24.0	20.0	17.0	19.5
15	28.5	24.5	26.5	25.5	20.5	23.0	26.0	23.5	25.0	20.0	18.0	19.0
16	28.5	24.5	26.5	26.0	21.5	23.5	25.0	23.0	24.0	20.5	18.0	19.0
17	29.0	25.0	26.5	28.0	23.5	25.5	24.0	21.5	22.5	20.0	18.5	19.0
18	29.0	24.5	27.0	26.5	24.5	25.0	22.5	20.0	21.5	18.0	16.0	16.5
19	28.0	24.5	26.5	28.0	23.0	25.0	23.5	19.5	21.5	16.0	15.0	15.5
20	29.0	24.5	26.5	28.0	24.0	26.0	23.5	20.5	22.0	16.0	14.0	15.0
21	30.5	25.5	28.0	29.0	25.0	27.0	24.0	21.5	23.0	16.5	14.0	15.5
22	31.0	26.5	28.5	29.0	25.0	27.0	22.0	19.5	20.5	18.0	14.0	16.0
23	29.5	25.5	27.5	29.0	25.5	27.0	22.5	18.0	20.5	18.5	15.0	17.0
24	27.5	24.0	25.5	27.0	25.0	26.0	21.0	18.5	19.5	18.5	15.5	17.0
25	25.0	22.5	24.0	29.5	24.5	26.5	18.0	16.5	17.0	18.5	15.0	17.0
26	24.5	20.5	22.5	30.5	26.0	28.0	17.0	16.0	16.5	19.5	16.5	18.0
27	25.0	20.5	22.5	31.0	27.0	29.0	17.5	16.0	16.5	19.0	17.0	18.0
28	25.0	21.5	23.0	31.0	27.5	29.0	19.5	15.5	17.5	17.5	14.5	15.5
29	25.0	21.0	23.0	31.0	28.0	29.5	22.0	16.5	19.5	15.5	12.5	14.0
30	25.0	20.5	23.0	31.5	28.5	29.5	21.0	18.0	19.5	16.0	13.0	14.5
31				32.0	28.5	30.0	20.5	15.5	18.5			

06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'20", long 98°27'08", in SW¼SE¼ sec.33, T.129 N., R.62 W., Dickey County, ND, Hydrologic Unit 10160004, on left bank 0.4 mi upstream from State line, 7.8 mi northeast of Frederick, SD, and 15.7 mi upstream from mouth.

DRAINAGE AREA.--716 mi², of which about 332 mi² is probably noncontributing.

PERIOD OF RECORD.--June 1956 to current year.

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

GAGE.--Water-stage recorder. Elevation of gage is 1,365 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to June 14, 1962, nonrecording gage at site 0.4 mi downstream at datum 0.94 ft lower.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Mar. 5-10. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--31 years, 21.0 ft³/s, 15,210 acre-ft/yr; median of yearly mean discharges, 14 ft³/s, 10,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft³/s, Apr. 11, 1969; maximum gage height, 16.05 ft, Apr. 11, 1969, backwater from ice; no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 10	--	1,060	ice jam	Apr. 4	2215	255	6.04
Mar. 23	1700	*1,690	*10.32	May 29	1245	96	5.04
Mar. 28	1000	401	6.76				

No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	8.0	5.8	1.5	.89	3.3	193	16	58	.43	.00	.00
2	16	7.2	6.2	1.5	.94	3.3	159	15	48	.39	.00	.00
3	21	6.7	6.5	1.5	.89	3.3	169	13	42	.29	.00	.00
4	30	5.7	6.0	1.5	.89	4.2	236	13	38	.20	.00	.00
5	37	4.8	5.8	1.5	.93	10	247	12	33	.17	.00	.00
6	38	4.7	5.5	1.5	1.2	20	208	12	27	.09	.00	.00
7	37	4.8	6.2	1.5	1.5	25	180	12	27	.05	.00	.00
8	32	5.7	6.8	1.4	1.6	50	162	11	23	.02	.00	.00
9	27	4.7	7.1	1.4	1.5	400	150	10	19	.00	.00	.00
10	26	7.5	6.9	1.4	1.4	1000	132	10	17	.01	.00	.00
11	25	8.1	6.5	1.3	1.5	908	117	9.7	16	.10	.00	.00
12	23	8.2	5.5	1.4	1.5	795	102	8.2	15	.11	.00	.00
13	21	7.6	4.5	1.5	1.5	765	92	8.8	13	.07	.00	.00
14	20	7.3	4.5	1.5	1.3	537	81	8.5	12	.04	.00	.00
15	18	7.2	4.0	1.4	1.4	355	73	7.7	9.7	.01	.00	.00
16	17	7.2	3.6	1.2	1.4	233	66	7.3	7.2	.00	.00	.00
17	16	7.0	3.2	1.2	1.4	175	60	6.6	6.1	.00	.00	.00
18	14	6.8	3.1	1.1	1.4	185	50	4.9	5.1	.26	.00	.00
19	14	6.6	3.2	1.1	1.4	230	49	3.9	4.1	.67	.00	.00
20	13	6.7	3.1	1.1	1.4	334	47	6.1	3.3	.46	.00	.00
21	13	6.3	2.9	1.0	1.5	537	41	11	2.8	.30	.00	.00
22	12	6.2	2.9	1.0	1.6	1030	37	10	2.0	.17	.00	.00
23	11	5.5	2.5	.85	1.6	1600	37	11	1.3	.23	.00	.00
24	10	5.1	2.6	.84	1.7	1250	38	12	.71	.14	.00	.00
25	10	5.9	2.4	.71	1.8	628	33	12	.92	.11	.00	.00
26	9.4	6.2	2.2	.70	3.3	404	29	13	1.0	.07	.00	.00
27	9.3	5.5	2.2	.70	3.3	319	25	12	.86	.04	.00	.00
28	9.3	5.8	1.9	.66	3.1	360	21	28	.67	.01	.00	.00
29	8.8	6.2	1.9	.64	---	281	20	90	.62	.00	.00	.00
30	8.5	5.8	1.7	.67	---	267	18	85	.56	.00	.00	.00
31	8.7	---	1.7	.75	---	231	---	71	---	.00	.00	---
TOTAL	568.0	191.0	128.9	36.02	43.84	12943.1	2872	550.7	434.94	4.44	.00	.00
MEAN	18.3	6.37	4.16	1.16	1.57	418	95.7	17.8	14.5	.14	.00	.00
MAX	38	8.2	7.1	1.5	3.3	1600	247	90	58	.67	.00	.00
MIN	8.5	4.7	1.7	.64	.89	3.3	18	3.9	.56	.00	.00	.00
AC-FT	1130	379	256	71	87	25670	5700	1090	863	8.8	.00	.00

CAL YR 1986	TOTAL	10993.59	MEAN	30.1	MAX	599	MIN	.00	AC-FT	21810
WTR YR 1987	TOTAL	17772.94	MEAN	48.7	MAX	1600	MIN	.00	AC-FT	35250

06471500 ELM RIVER AT WESTPORT, SD

LOCATION.--Lat 45°39'22", long 98°29'48", in SW¼NW¼ 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 National Geodetic Vertical Datum of 1929. Prior to Aug. 6, 1951, and Apr. 8 to Sept. 9, 1952, nonrecording gage 12 ft upstream at same datum. Aug. 6, 1951, to Apr. 7, 1952, water-stage recorder at present site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 23, Nov. 29 to Dec. 3, and Mar. 6-13. Flow regulated for Aberdeen municipal water supply by dam forming Elm Lake and other small reservoirs upstream, combined capacity, about 16,000 acre-ft. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--42 years, 47.8 ft³/s, 34,630 acre-ft/yr; median of yearly mean discharges, 30 ft³/s, 21,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s, Apr. 10, 1969, gage height, 22.11 ft; no flow for many days in most years prior to 1960.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 11	0930	1,150	9.33	Mar. 24	0100	*3,450	*13.87

Minimum daily discharge, 2.5 ft³/s, Nov. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	9.2	14	4.9	5.0	17	375	30	62	4.1	9.4	6.2
2	18	9.0	13	4.9	5.9	15	318	27	54	4.9	9.2	5.9
3	18	9.2	11	4.8	5.3	12	278	26	48	4.2	11	5.8
4	19	8.2	9.9	4.8	5.3	15	265	26	44	4.4	9.8	5.9
5	20	8.6	11	4.9	5.3	37	306	24	40	4.7	10	6.3
6	22	8.4	11	4.9	5.4	150	303	22	39	4.5	11	6.5
7	30	8.0	11	4.8	5.9	160	268	21	36	4.5	10	6.4
8	34	8.6	11	4.7	5.6	200	238	19	32	4.3	11	6.4
9	36	6.4	9.5	4.8	6.1	450	215	17	29	4.8	11	6.3
10	34	3.0	10	4.7	5.9	650	194	15	28	5.9	10	6.4
11	29	2.5	9.4	4.8	6.2	1000	177	14	26	5.9	10	6.1
12	26	4.9	8.8	4.9	6.0	900	156	13	24	5.7	12	6.0
13	25	5.4	8.4	5.0	6.0	750	143	13	23	5.5	12	6.1
14	24	6.5	8.5	4.8	5.7	663	128	11	20	5.6	13	6.2
15	24	7.1	8.4	4.1	5.5	495	117	10	18	5.6	13	6.3
16	26	7.4	8.2	4.0	5.6	374	106	9.9	16	5.5	12	6.5
17	26	7.1	8.0	4.0	5.4	299	97	9.5	14	5.4	11	7.0
18	27	12	7.8	4.0	5.4	292	90	8.5	13	8.9	10	6.6
19	26	12	7.4	4.0	5.1	354	80	8.3	12	11	9.3	7.2
20	24	12	7.1	4.0	5.2	509	73	11	11	9.2	9.2	6.6
21	22	12	6.7	4.0	5.4	800	64	14	11	9.4	8.6	6.1
22	22	12	6.5	4.0	5.3	1930	61	19	9.6	9.9	7.2	6.2
23	19	12	6.5	3.9	5.3	3210	61	23	8.7	11	6.4	6.3
24	17	12	6.6	3.9	5.7	3290	53	19	7.0	9.8	6.2	6.3
25	15	13	6.1	4.1	6.4	2120	50	19	6.9	9.6	6.2	6.3
26	14	13	5.9	4.3	12	1090	50	22	5.6	8.9	6.6	6.2
27	15	14	5.8	4.3	18	674	45	23	4.7	7.9	7.0	6.7
28	15	15	5.7	4.3	19	473	40	21	4.6	7.6	7.4	6.7
29	12	15	5.4	4.5	---	434	36	18	4.6	7.0	7.2	6.3
30	12	14	5.2	4.4	---	441	34	19	4.4	7.0	7.4	5.9
31	12	---	5.2	4.6	---	440	---	56	---	7.1	6.3	---
TOTAL	679	287.5	259.0	138.1	188.9	22244	4421	588.2	656.1	209.8	290.4	189.7
MEAN	21.9	9.58	8.35	4.45	6.75	718	147	19.0	21.9	6.77	9.37	6.32
MAX	36	15	14	5.0	19	3290	375	56	62	11	13	7.2
MIN	12	2.5	5.2	3.9	5.0	12	34	8.3	4.4	4.1	6.2	5.8
AC-FT	1350	570	514	274	375	44120	8770	1170	1300	416	576	376

CAL YR 1986	TOTAL	36762.1	MEAN	101	MAX	1490	MIN	2.5	AC-FT	72920
WTR YR 1987	TOTAL	30151.7	MEAN	82.6	MAX	3290	MIN	2.5	AC-FT	59810

06473000 JAMES RIVER AT ASHTON, SD

LOCATION.--Lat 44°59'54", long 98°28'50", in NW¼NW¼NE¼ 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, approximately, of which about 4,069 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1209: 1947. WDR SD-84-1: Drainage area. WDR SD-86-1: 1985; Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,244.4 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 26, 1957, nonrecording gage at present site and Nov. 26, 1957, to Oct. 7, 1974, water-stage recorder at site 900 ft upstream all at present datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Oct. 19, Nov. 8 to Mar. 11, Mar. 28 to Apr. 7, June 6, 14, and Aug. 16, 23. 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. Several observations of water temperature and specific conductance were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--42 years, 169 ft³/s, 122,400 acre-ft/yr; median of yearly mean discharges, 120 ft³/s, 86,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,680 ft³/s, Apr. 24, 1969, gage height, 20.63 ft; maximum gage height, 21.17 ft, Apr. 13, 1969, backwater from Snake Creek; maximum daily reverse flow, 2,100 ft³/s, Apr. 9, 1969, backwater from Snake Creek.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,370 ft³/s at 1530 hours, Apr. 25, gage height, 12.52 ft, minimum daily discharge, 50 ft³/s, Feb. 20-25.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	208	85	80	55	55	840	1290	767	394	214	114
2	156	206	80	80	55	60	860	1270	752	379	221	112
3	161	206	75	80	55	65	890	1250	732	362	230	110
4	159	206	75	80	55	70	1010	1230	718	348	234	110
5	157	206	75	80	55	80	1040	1220	704	339	240	111
6	159	210	75	80	55	90	1070	1200	691	328	249	110
7	168	217	70	75	55	100	1100	1190	680	316	257	110
8	165	210	70	75	55	110	1130	1170	663	300	269	110
9	162	200	70	75	55	120	1150	1150	652	289	280	108
10	166	190	70	75	55	140	1160	1140	637	291	286	104
11	168	180	70	75	55	160	1170	1120	642	279	289	101
12	172	160	70	73	55	208	1190	1100	635	270	293	99
13	181	140	65	70	55	233	1200	1080	630	261	290	98
14	171	130	65	65	55	262	1220	1070	620	250	284	97
15	185	130	65	65	55	294	1230	1040	609	241	275	98
16	194	130	65	65	55	335	1230	1020	590	232	270	102
17	197	130	65	65	55	371	1250	999	582	224	260	112
18	199	130	65	65	55	417	1260	974	572	215	253	118
19	200	130	65	65	55	459	1280	955	560	210	245	123
20	210	130	65	65	50	509	1290	937	549	207	229	122
21	216	130	65	65	50	550	1310	920	539	204	211	127
22	219	130	70	65	50	580	1330	907	528	200	196	131
23	216	130	70	60	50	606	1350	891	515	198	180	134
24	212	130	70	60	50	640	1360	878	503	193	163	138
25	213	130	70	60	50	673	1360	865	490	193	152	140
26	214	120	70	60	55	708	1360	855	474	193	142	140
27	215	120	75	55	55	747	1360	843	457	193	138	141
28	214	110	75	55	55	760	1350	828	443	194	129	141
29	212	100	75	55	---	780	1330	813	428	196	125	146
30	211	90	80	55	---	800	1310	797	411	200	120	148
31	209	---	80	55	---	810	---	783	---	206	116	---
TOTAL	5833	4639	2205	2098	1510	11792	35990	31785	17773	7905	6840	3555
MEAN	188	155	71.1	67.7	53.9	380	1200	1025	592	255	221	119
MAX	219	217	85	80	55	810	1360	1290	767	394	293	148
MIN	152	90	65	55	50	55	840	783	411	193	116	97
AC-FT	11570	9200	4370	4160	3000	23390	71390	63050	35250	15680	13570	7050

CAL YR 1986	TOTAL	130653	MEAN	358	MAX	1920	MIN	-135	AC-FT	259200
WTR YR 1987	TOTAL	131925	MEAN	361	MAX	1360	MIN	50	AC-FT	261700

06473000 JAMES RIVER AT ASHTON, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: June 1985 to current year, seasonal records only.
pH: June to September 1985.
WATER TEMPERATURE: October 1977 to current year, seasonal records only.
DISSOLVED OXYGEN: June to September 1985.

REMARKS.--Specific conductance and water temperature were determined at hourly intervals by a water-quality monitor. Pesticide and herbicide samples collected three times during water year. Some sediment data were not available from the laboratory at publication time. Water-quality data missing from the 1986 report are included in these tables.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,020 microsiemens, Nov. 18, 1986; minimum daily, 510 microsiemens, Apr. 7, 1986.
pH: Maximum daily, 9.2 units, July 24, 25, 1985; minimum daily, 8.0 units, Sept. 23, 1985.
WATER TEMPERATURE: Maximum observed daily, 32.5°C, July 31, 1987; minimum daily, 0.0°C on several days during 1978-80, 1983, 1984.
DISSOLVED OXYGEN: Maximum observed daily, 13.7 mg/L, June 6, 1985; minimum daily, 5.7 mg/L, Sept. 25, 1985.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)
APR											
23...	1250	--	720	--	20.0	12.0	<0.01	<0.010	<0.10	0.10	<0.1
JUL											
16...	1245	173	1200	--	32.5	28.0	<0.01	--	<0.10	0.20	<0.1
SEP											
24...	1345	--	970	8.15	22.0	18.0	<0.01	<0.010	<0.10	<0.10	<0.1

DATE	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN DIS-SOLVED (UG/L)
APR											
23...	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01
JUL											
16...	--	<0.10	<0.01	--	<0.01	--	<0.01	--	<0.01	--	<0.01
SEP											
24...	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
APR											
23...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
JUL											
16...	--	--	<0.01	<0.01	--	<0.01	--	<0.1	--	--	<0.10
SEP											
24...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
APR											
23...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
JUL											
16...	<0.01	--	--	<0.01	<0.01	--	<0.01	--	--	<0.01	--
SEP											
24...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

06473000 JAMES RIVER AT ASHTON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)
APR											
23...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
JUL											
16...	<0.01	<0.01	--	<0.01	--	<0.01	--	<0.10	--	<0.1	<0.1
SEP											
24...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

DATE	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
APR											
23...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.07	<0.01	<0.01
JUL											
16...	<0.10	<0.01	<0.10	<0.1	<1.0	--	<0.01	--	0.05	<0.01	<0.01
SEP											
24...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.04	<0.01	<0.01

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	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, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
OCT												
24...	0945	213	940	8.36	7.0	9.0	13	734	9.4	85	270	0
DEC												
12...	0945	693	1360	7.94	-7.0	0.0	4.8	736	13.2	94	490	0
JAN												
12...	1145	73	1380	8.16	13.0	2.0	5.6	724	14.2	109	460	84
MAR												
06...	1000	89	1030	8.29	17.0	5.0	18	725	15.6	129	370	88
APR												
24...	0945	1340	590	7.78	17.5	14.0	4.0	727	7.0	71	210	31
MAY												
29...	0900	816	690	7.89	28.5	20.5	21	722	8.0	94	240	0
JUN												
25...	0920	510	780	7.99	23.0	24.0	32	727	6.3	79	270	0
JUL												
10...	0900	286	780	7.69	24.0	25.0	44	--	--	--	280	9
AUG												
28...	1020	131	730	8.46	28.5	18.0	28	731	9.9	109	260	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)
OCT												
24...	50	36	88	39	2	17	274	150	45	15	625	59
DEC												
12...	100	59	120	33	2	22	--	270	60	19	928	50
JAN												
12...	93	55	110	33	2	20	375	260	43	17	890	33
MAR												
06...	77	44	110	38	3	14	286	240	67	6.2	728	<1
APR												
24...	47	22	46	31	1	12	177	100	32	7.0	384	65
MAY												
29...	52	26	50	30	1	16	239	95	22	10	456	46
JUN												
25...	57	31	62	32	2	15	270	130	25	17	516	79
JUL												
10...	61	32	68	33	2	13	275	120	23	17	519	104
AUG												
28...	51	31	64	33	2	17	268	100	19	26	462	70

06473000 JAMES RIVER AT ASHTON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT 24...	570	0.85	359	<0.010	--	<0.100	--	--	--	0.180	200	0.181
DEC 12...	--	1.3	1740	<0.010	--	0.120	--	--	--	0.250	220	0.118
JAN 12...	820	1.2	175	<0.010	--	<0.100	--	--	--	0.070	250	0.064
MAR 06...	730	0.99	175	<0.010	--	0.160	--	--	--	0.330	200	0.323
APR 24...	370	0.52	1390	<0.010	<0.010	<0.100	--	<0.100	0.160	0.140	110	0.117
MAY 29...	410	0.62	1000	<0.010	0.010	<0.100	--	<0.100	0.360	0.590	140	0.024
JUN 25...	500	0.70	711	<0.010	--	<0.100	--	--	--	0.310	170	0.288
JUL 10...	500	0.71	401	<0.010	--	<0.100	--	--	--	0.180	160	0.157
AUG 28...	470	0.63	163	0.040	0.050	0.200	0.160	0.200	0.250	0.170	140	0.163

DATE	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	CYANIDE DIS-SOLVED (MG/L AS CN)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
OCT 24...	--	3	64	<0.5	<1	<1	<3	1	<0.01	7	<5
DEC 12...	--	2	85	<0.5	<1	<1	<3	1	<0.01	13	<5
JAN 12...	--	3	82	<0.5	<1	<1	<3	1	<0.01	8	<5
MAR 06...	--	1	62	<0.5	2	<1	<3	3	<0.01	8	<5
APR 24...	0.167	3	74	<0.5	<1	<1	<3	4	<0.01	27	<5
MAY 29...	0.248	4	51	<0.5	<1	3	<3	2	<0.01	5	<5
JUN 25...	--	4	60	<0.5	1	<1	<3	2	<0.01	14	<5
JUL 10...	--	3	100	<10	<10	1	<50	4	<0.01	10	<5
AUG 28...	0.192	6	61	<0.5	1	<1	<3	1	<0.01	6	<5

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	THAL-LIUM, DIS-SOLVED (UG/L AS TL)	ZINC, DIS-SOLVED (UG/L AS ZN)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE)
OCT 24...	12	<1.0	3	<1	<1	1	<1	8	--	--	--
DEC 12...	450	<0.1	2	<1	<1	<1	<1	9	--	--	--
JAN 12...	54	<0.1	2	<1	<1	<1	<1	7	--	--	--
MAR 06...	360	<0.1	6	<1	<1	<1	<1	7	--	--	--
APR 24...	24	<0.1	2	<1	<1	<1	<1	9	2	100	<10
MAY 29...	140	<0.1	3	<1	<1	1	<1	3	4	100	<10
JUN 25...	54	0.4	<1	<1	<1	<1	<1	3	--	--	--
JUL 10...	150	<0.1	<1	2	<1	<1	<1	<10	--	--	--
AUG 28...	95	<0.1	3	2	<1	<1	<1	<3	6	100	<10

06473000 JAMES RIVER AT ASHTON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CYANIDE TOTAL (MG/L AS CN)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	ANTI-MONY, TOTAL (UG/L AS SB)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	THAL-LIUM, TOTAL (UG/L AS TL)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 24...	--	--	--	--	--	--	--	--	112	64	67
DEC 12...	--	--	--	--	--	--	--	--	145	271	93
JAN 12...	--	--	--	--	--	--	--	--	124	24	91
MAR 06...	--	--	--	--	--	--	--	--	280	67	56
APR 24...	<1	140	<0.010	5	<1	<1	<1	<1	76	275	74
MAY 29...	<1	120	<0.010	30	3	<1	<1	<1	86	189	97
JUN 25...	--	--	--	--	--	--	--	--	138	190	97
JUL 10...	--	--	--	--	--	--	--	--	173	134	98
AUG 28...	<1	180	<0.010	5	1	2	<1	<1	--	--	--

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	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)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
MAY 29...	0900	816	690	7.89	28.5	20.5	722	8.0	94	<0.01	<0.010	<0.10
JUL 10...	0900	286	780	7.69	24.0	25.0	--	--	--	<0.01	<0.010	<0.10
SEP 16...	0930	101	680	8.14	17.5	19.0	--	--	--	<0.01	<0.010	<0.10

DATE	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)
MAY 29...	0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
JUL 10...	0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	0.01	0.01
SEP 16...	<0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

06473000 JAMES RIVER AT ASHTON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
MAY												
29...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
JUL												
10...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
SEP												
16...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
MAY											
29...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
JUL											
10...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
SEP											
16...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL PARA-THION, DIS-SOLVED (UG/L)	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)
MAY											
29...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
JUL											
10...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
SEP											
16...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

DATE	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
MAY											
29...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.22	<0.01	0.02
JUL											
10...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.03	<0.01	<0.01
SEP											
16...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.01	<0.01	<0.01

06473000 JAMES RIVER AT ASHTON, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25°C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1				980	960	971						
2				980	960	972						
3				970	960	969						
4				980	960	970						
5				980	960	973						
6				980	970	973						
7				980	960	967						
8				980	970	973						
9				980	970	970						
10				990	970	980						
11				1020	990	1010						
12				1050	1020	1030						
13				1070	1050	1060						
14				1090	1060	1080						
15				1090	1080	1080						
16				1100	1090	1090						
17				1100	1090	1090						
18				1110	1090	1100						
19				1110	1030	1090						
20												
21												
22												
23												
24	930	920	924									
25	940	930	933									
26	960	940	954									
27	970	960	961									
28	970	960	963									
29	980	970	972									
30	980	960	971									
31	980	960	970									

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1							600	590	595	590	540	561
2							600	540	565	590	540	561
3							550	540	546	590	530	563
4							550	530	539	580	530	555
5							540	530	536	580	560	573
6							550	540	541	570	560	569
7							610	540	582	570	540	568
8							640	610	626	570	560	568
9							660	640	644	570	540	550
10							660	630	653	550	540	544
11							660	630	639	560	540	549
12							650	640	644	560	550	555
13							650	640	648	560	550	555
14							660	640	647	570	560	565
15							660	640	652			
16							660	650	657			
17							670	660	666			
18												
19												
20												
21												
22												
23												
24							550	540	543			
25				620	600	614	550	540	546			
26				660	590	601	560	540	548			
27				680	610	659	600	540	550			
28				670	660	665	600	540	553			
29				670	650	659	600	540	555			
30				660	630	638	590	540	550			
31				630	600	607						

06473000 JAMES RIVER AT ASHTON, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25°C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1							810	790	797	760	760	760
2							810	790	802	760	680	745
3							810	790	802	690	680	688
4							810	790	792	690	670	681
5							810	790	799	690	670	686
6							810	780	794	690	670	687
7							800	780	791	700	680	685
8							800	800	800	700	680	686
9							800	780	798	700	680	690
10				800	780	731	800	780	783	710	680	697
11				800	780	788	800	780	783	710	710	710
12				810	770	793	800	770	780	710	690	709
13				800	770	779	790	770	772	710	690	708
14				830	770	782	790	770	772	720	690	704
15				850	760	809	790	770	778	720	700	708
16	790	760	776	870	840	851	790	770	785	720	700	702
17				890	860	867	790	770	789	700	680	699
18				890	860	876	790	770	788	710	690	706
19				890	860	875	790	760	772	710	690	708
20				890	870	878	760	760	760	710	690	709
21				890	870	880	760	760	760	740	710	720
22				910	870	896	760	740	750	740	720	734
23				890	870	882	760	740	748	740	720	737
24				870	810	848	760	740	743	800	720	744
25				820	790	803	740	730	734	740	720	731
26				820	790	810	730	730	730	730	710	729
27				830	790	806	730	730	730	750	730	733
28				800	780	795	750	730	736	760	710	736
29				810	780	795	750	730	744	760	740	741
30	830	770	804	820	800	810	760	730	753	740	720	738
31				820	790	805	760	760	760			

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1				7.5	6.0	6.5						
2				6.0	4.5	5.5						
3				6.0	5.5	5.5						
4				5.5	4.5	5.0						
5				5.5	4.5	5.0						
6				5.5	5.0	5.0						
7				5.0	4.0	4.5						
8				4.0	1.5	2.5						
9				1.5	.0	.5						
10				.0	.0	.0						
11				.0	.0	.0						
12				.0	.0	.0						
13				.0	.0	.0						
14				.0	.0	.0						
15				.0	.0	.0						
16				.0	.0	.0						
17				.0	.0	.0						
18				.0	.0	.0						
19				.0	.0	.0						
20												
21												
22												
23												
24	10.0	9.5	10.0									
25	9.5	9.0	9.5									
26	9.5	8.5	9.0									
27	10.0	8.5	9.0									
28	10.5	9.5	10.0									
29	9.5	8.5	9.0									
30	9.5	8.5	9.0									
31	9.5	7.5	8.5									

06473000 JAMES RIVER AT ASHTON, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	FEBRUARY MAX	FEBRUARY MIN	FEBRUARY MEAN	MARCH MAX	MARCH MIN	MARCH MEAN	APRIL MAX	APRIL MIN	APRIL MEAN	MAY MAX	MAY MIN	MAY MEAN
1							3.5	2.5	3.0	19.5	16.5	18.0
2							3.5	2.0	3.0	19.0	17.5	18.0
3							5.5	3.0	4.0	18.0	17.0	17.5
4							6.0	4.5	5.5	17.5	16.5	17.0
5							7.5	5.5	6.5	18.0	16.5	17.0
6							9.0	7.0	8.0	19.0	16.5	17.5
7							10.5	8.5	9.5	19.5	17.5	18.5
8							12.0	10.0	11.0	20.5	18.5	19.5
9							12.0	11.0	11.5	21.5	19.5	20.5
10							11.5	10.5	11.0	22.5	20.5	21.5
11							11.0	9.5	10.5	22.0	20.5	21.0
12							11.0	10.0	10.5	21.0	19.5	20.5
13							10.5	9.0	9.5	21.5	19.5	20.5
14							10.5	8.5	9.5	21.5	20.0	21.0
15							12.5	9.5	11.0	21.5	19.5	20.5
16							13.5	11.5	12.5	23.0	21.0	22.0
17							16.0	13.0	14.5	22.5	20.5	21.5
18							17.5	15.0	16.0	20.5	18.5	19.5
19							18.5	16.5	17.5	18.5	18.0	18.5
20							18.0	15.0	16.5	19.0	18.0	18.5
21							15.0	13.0	14.0	18.5	15.5	17.0
22							15.5	13.0	14.5	15.5	14.5	15.0
23							16.0	14.0	15.0	16.5	14.5	15.5
24							16.0	13.5	15.0	16.0	15.5	16.0
25				3.0	2.5	2.5	17.5	14.5	16.0	15.5	15.0	15.0
26				4.0	2.5	3.0	17.5	16.0	17.0	16.5	15.0	15.5
27				3.5	2.0	3.0	17.5	15.5	16.5	18.5	16.0	17.5
28				2.0	1.0	1.5	18.5	15.5	17.0	20.5	18.0	19.0
29				2.0	.5	1.5	18.5	17.0	18.0	21.5	19.5	20.5
30				2.0	1.0	1.5	18.0	16.5	17.0	22.5	20.5	21.5
31				3.5	1.5	2.5				23.5	21.5	22.5

DAY	JUNE MAX	JUNE MIN	JUNE MEAN	JULY MAX	JULY MIN	JULY MEAN	AUGUST MAX	AUGUST MIN	AUGUST MEAN	SEPTEMBER MAX	SEPTEMBER MIN	SEPTEMBER MEAN
1	23.0	22.5	22.5	24.5	22.5	23.5	31.5	29.5	30.5	21.5	18.5	20.0
2	22.5	21.0	22.0	24.5	22.5	23.5	30.5	29.5	30.0	21.5	19.0	20.0
3	22.0	20.5	21.0	25.0	23.0	24.0	29.5	28.0	28.5	22.0	19.0	20.5
4	22.5	20.5	21.5	24.5	23.5	24.0	28.5	26.5	27.5	22.0	20.5	21.5
5	23.5	21.0	22.0	25.5	23.0	24.0	27.5	25.5	26.5	22.5	20.5	21.5
6	24.5	22.0	23.5	26.5	24.0	25.0	27.0	25.0	26.0	23.0	20.0	21.5
7	25.0	23.5	24.0	27.5	25.0	26.0	26.0	25.0	25.5	21.5	19.5	21.0
8	24.5	23.5	24.0	26.5	25.0	25.5	25.0	24.0	24.5	20.5	18.0	19.5
9	23.5	22.5	23.0	27.0	24.0	25.5	26.0	23.0	24.5	21.5	18.5	20.0
10	23.5	22.5	23.0	27.0	25.0	26.0	26.0	24.0	25.0	21.5	19.5	20.5
11	25.0	23.0	24.0	27.0	25.5	26.0	26.5	24.0	25.0	19.5	17.5	18.5
12	26.0	23.5	24.5	26.0	24.5	25.0	25.5	24.0	25.0	18.0	16.0	17.0
13	26.5	24.5	25.5	25.0	22.5	24.0	25.5	23.5	24.5	18.5	15.5	17.0
14	27.0	25.5	26.5	25.5	23.5	24.5	26.0	24.0	25.0	19.5	16.5	18.0
15	27.5	25.5	26.5	26.5	23.5	25.0	27.0	24.5	26.0	20.5	19.0	19.5
16	27.5	26.0	26.5	26.5	23.5	25.0	26.0	25.0	25.5	20.0	19.0	19.5
17	28.0	26.0	27.0	28.0	25.0	26.5	25.0	23.5	24.0	19.5	18.5	19.0
18	27.5	26.0	27.0	27.0	26.0	26.5	24.0	22.0	23.0	18.5	17.0	18.0
19	27.0	26.0	26.5	28.5	25.0	26.5	24.5	22.5	23.5	18.0	16.0	17.0
20	28.0	26.0	27.0	28.5	27.0	28.0	24.5	22.0	23.0	18.0	16.0	17.0
21	29.0	26.5	27.5	29.0	26.5	28.0	24.5	23.0	23.5	17.5	16.0	17.0
22	29.5	27.5	28.5	29.0	27.0	28.0	23.0	21.5	22.0	18.0	16.0	17.0
23	29.0	27.0	28.0	29.5	27.0	28.0	22.0	20.0	21.0	18.5	16.0	17.5
24	28.0	26.0	27.0	28.0	26.5	27.5	21.5	20.0	20.5	19.0	17.0	18.0
25	26.0	25.0	25.5	29.5	26.5	28.0	19.5	18.0	18.5	18.5	17.0	18.0
26	25.0	24.0	24.5	30.5	28.0	29.0	18.0	17.5	18.0	19.5	17.5	18.5
27	25.0	23.0	24.5	31.0	28.5	30.0	18.5	17.5	18.0	19.0	18.5	18.5
28	25.5	23.5	24.5	31.5	29.0	30.0	20.0	16.5	18.5	18.5	16.0	17.0
29	25.0	23.5	24.5	32.0	30.0	31.0	21.5	18.0	19.5	16.5	14.5	15.5
30	25.0	23.0	24.0	32.0	30.0	31.0	21.0	19.0	20.0	16.5	14.5	15.5
31				32.5	29.5	31.0	20.5	18.0	19.5			

06473700 SNAKE CREEK NEAR ASHTON, SD

LOCATION.--Lat 44°57'33", long 98°30'55", in SE¼NE¼SE¼ sec.10, T.117 N., R.64 W., Spink County, Hydrologic Unit 10160006, on right bank 500 ft upstream from U.S. Highway 281 bridge, 2.7 mi south of Ashton, and 2.7 mi upstream from mouth.

DRAINAGE AREA.--2,657 mi², of which 48.4 mi² is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1955 to September 1969, October 1976 to September 1979 (October 1969 to September 1972 maximum discharge only). October 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,265 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 1, 1957, water-stage recorder at site 7.6 mi upstream at different datum. Oct. 1, 1957, to May 26, 1958, wire-weight gage; May 27, 1958, to Sept. 30, 1969, water-stage recorder; Oct. 1, 1969, to Sept. 30, 1972, crest-stage gage; and Oct. 1, 1976, to Sept. 30, 1979, water-stage recorder at site 18.3 mi upstream at different datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 8-20, Dec. 3, Jan. 14-28, and Mar. 1, 8-15, 28. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--20 years, 29.4 ft³/s, 21,300 acre-ft/yr; median of yearly mean discharges, 9.3 ft³/s, 6,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,980 ft³/s, Apr. 10, 1969, gage height, 17.21 ft; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 75 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 3	1900	*128	*5.21	No other peak greater than base discharge.			

No flow June 24 to Sept. 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	7.3	5.2	1.3	1.3	4.5	76	24	6.3	.00	.00	.00
2	14	7.6	5.6	1.1	1.6	4.1	105	23	5.7	.00	.00	.00
3	13	8.1	4.7	1.1	1.6	4.1	123	22	5.3	.00	.00	.00
4	13	7.7	4.4	1.1	1.7	4.8	125	20	5.0	.00	.00	.00
5	13	7.2	4.0	1.1	1.8	4.9	119	21	4.4	.00	.00	.00
6	14	7.2	4.4	1.3	2.2	5.6	112	21	4.0	.00	.00	.00
7	14	8.8	4.5	1.3	2.6	6.9	104	20	3.8	.00	.00	.00
8	13	8.8	4.4	1.1	3.1	7.5	99	18	3.4	.00	.00	.00
9	12	9.0	4.0	.92	2.6	8.2	93	18	3.3	.00	.00	.00
10	11	8.8	3.5	1.0	2.5	9.0	87	17	3.1	.00	.00	.00
11	10	8.0	3.7	1.1	2.6	9.0	83	15	3.3	.00	.00	.00
12	10	7.5	3.2	2.0	2.5	10	80	12	2.8	.00	.00	.00
13	9.6	7.0	2.7	2.1	2.3	10	81	12	2.3	.00	.00	.00
14	8.3	6.6	2.9	1.7	1.8	11	80	11	1.6	.00	.00	.00
15	7.1	6.5	2.8	1.3	1.7	12	80	8.2	1.2	.00	.00	.00
16	9.0	6.2	2.6	1.1	1.6	13	78	7.3	.83	.00	.00	.00
17	8.1	5.8	2.6	1.0	1.4	14	76	6.8	.64	.00	.00	.00
18	7.8	5.4	2.5	.91	1.3	20	70	6.4	.47	.00	.00	.00
19	8.7	5.0	2.1	.90	1.3	24	66	6.4	.36	.00	.00	.00
20	8.4	5.2	2.1	.88	1.3	32	58	6.4	.26	.00	.00	.00
21	7.7	5.5	2.0	.81	1.3	41	50	7.1	.17	.00	.00	.00
22	7.9	5.9	1.8	.80	1.4	42	49	6.8	.10	.00	.00	.00
23	8.0	5.8	1.7	.79	1.3	42	48	6.7	.03	.00	.00	.00
24	7.8	6.1	1.4	.75	1.3	46	42	6.8	.00	.00	.00	.00
25	7.8	7.0	1.4	.75	1.4	48	37	7.2	.00	.00	.00	.00
26	8.2	6.3	1.4	.77	2.0	52	34	7.3	.00	.00	.00	.00
27	9.2	6.3	1.4	.77	2.8	61	32	7.2	.00	.00	.00	.00
28	9.0	6.3	1.5	.78	4.1	67	30	6.8	.00	.00	.00	.00
29	8.2	6.0	1.5	.84	---	61	29	6.8	.00	.00	.00	.00
30	7.1	5.9	1.4	.90	---	68	25	6.9	.00	.00	.00	.00
31	7.7	---	1.5	1.1	---	67	---	6.6	---	.00	.00	---
TOTAL	307.6	204.8	88.9	33.37	54.4	809.6	2171	371.7	58.36	.00	.00	.00
MEAN	9.92	6.83	2.87	1.08	1.94	26.1	72.4	12.0	1.95	.00	.00	.00
MAX	15	9.0	5.6	2.1	4.1	68	125	24	6.3	.00	.00	.00
MIN	7.1	5.0	1.4	.75	1.3	4.1	25	6.4	.00	.00	.00	.00
AC-FT	610	406	176	66	108	1610	4310	737	116	.00	.00	.00

CAL YR 1986	TOTAL	58985.60	MEAN	162	MAX	1520	MIN	.00	AC-FT	117000
WTR YR 1987	TOTAL	4099.73	MEAN	11.2	MAX	125	MIN	.00	AC-FT	8130

06473700 SNAKE CREEK NEAR ASHTON, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1984 to September 1987 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	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, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT 23...	0855	8.0	1280	8.10	6.0	11.5	120	732	6.3	60
DEC 11...	1005	3.4	1960	9.10	-7.5	0.0	11	726	15.0	108
JAN 13...	0925	1.8	--	8.10	9.0	0.0	4.5	723	16.8	--
MAR 10...	0800	8.6	1040	8.43	0.0	1.5	6.0	737	14.2	--
APR 22...	0900	48	1350	8.10	3.0	10.5	11	729	9.2	87
MAY 13...	0935	11	1550	8.30	18.0	18.0	35	719	6.6	74

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 23...	320	0	65	38	150	49	4	19	340	150
DEC 11...	480	0	97	57	260	53	5	22	484	290
JAN 13...	690	0	160	70	110	25	2	13	--	460
MAR 10...	300	56	63	35	120	45	3	12	245	210
APR 22...	360	88	79	40	160	47	4	18	274	280
MAY 13...	420	24	88	48	200	49	4	21	393	260

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
OCT 23...	140	4.8	815	49	770	1.1	18	<0.010	<0.100	0.170
DEC 11...	230	6.0	1270	28	1300	1.7	12	0.010	<0.100	0.140
JAN 13...	64	15	1140	24	--	1.6	5.5	<0.010	<0.100	0.020
MAR 10...	97	2.4	690	4	690	0.94	16	<0.010	<0.100	0.090
APR 22...	130	16	904	28	890	1.2	117	<0.010	<0.100	0.330
MAY 13...	180	9.7	1070	70	1000	1.5	32	0.030	<0.100	0.360

DATE	BORON, DIS-SOLVED (UG/L AS B)	ARSENIC DIS-SOLVED (UG/L AS AS)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 23...	220	3	<3	1	9	<5	590	<0.1	<1	10
DEC 11...	330	--	<50	2	10	<5	740	<0.1	<1	<10
JAN 13...	190	--	<3	2	15	<5	800	<0.1	<1	10
MAR 10...	290	--	<3	4	11	<5	810	<0.1	<1	10
APR 22...	290	--	<3	<1	15	<5	1300	<0.1	<1	<3
MAY 13...	410	--	<3	<1	7	<5	2200	<0.1	<1	<3

06473750 WOLF CREEK NEAR REE HEIGHTS, SD

LOCATION.--Lat 44°36'25", long 99°13'54", in SW¼SW¼SW¼ sec.11, T.113 N., R.70 W., Hand County, Hydrologic Unit 10160009, on left bank on downstream side of highway bridge, 0.3 mi downstream from small left-bank tributary, 6.5 mi north of Ree Heights, and 13.8 mi upstream from Lake Louise dam.

DRAINAGE AREA.--334 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1959 to September 1981, October 1984 to current year.

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

GAGE.--Water-stage recorder. Datum of gage is 1,614.16 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1981, water-stage recorder on right downstream side of bridge at present datum.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Mar. 25-29. Flow regulated by small reservoir 0.5 mi upstream, capacity, about 1,100 acre-ft. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--25 years, 4.05 ft³/s, 2,930 acre-ft/yr; median of yearly mean discharges, 0.11 ft³/s, 80 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 990 ft³/s, Apr. 5, 1969, gage height, 9.33 ft; maximum gage height, 9.57 ft, Mar. 14, 1966, backwater from ice; no flow for many days each year.

EXTREMES FOR PERIOD OF RECORD.--Peak discharges greater than base discharge of 40 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 31	2315	*8.6	*5.40				

No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	5.9	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	2.5	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	1.8	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	1.4	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.39	1.0	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.45	.70	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.24	.48	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.11	.31	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.02	.35	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.18	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.09	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.05	.06	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.79	.04	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	1.8	.03	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	1.5	.01	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	1.4	.01	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	1.7	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	1.7	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.69	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.35	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.55	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.55	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.98	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	1.8	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	4.2	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	19.27	15.42	.00	.00	.00	.00	.00
MEAN	.00	.00	.00	.00	.00	.62	.51	.00	.00	.00	.00	.00
MAX	.00	.00	.00	.00	.00	4.2	5.9	.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	38	31	.00	.00	.00	.00	.00

CAL YR 1986	TOTAL	5671.64	MEAN	15.5	MAX	209	MIN	.00	AC-FT	11250
WTR YR 1987	TOTAL	34.69	MEAN	.09	MAX	5.9	MIN	.00	AC-FT	69

06473750 WOLF CREEK NEAR REE HEIGHTS, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1984 to September 1987 (discontinued).

REMARKS.--No flow from Oct. 1, 1986, to Mar. 4, 1987, Mar. 10-17, Apr. 23 to Sept. 30, 1987.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	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, DIS-SOLVED (PER-CENT SATUR-ATION)	HARD-NESS (MG/L AS CACO3)
APR 21...	0930	0.01	1320	7.70	4.0	9.0	12	729	7.3	66	400

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)
APR 21...	190	100	37	150	43	3	19	216	410	71	20

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)	COBALT, DIS-SOLVED (UG/L AS CO)
APR 21...	966	46	940	1.3	0.03	<0.010	<0.100	0.190	700	<3

DATE	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
APR 21...	<1	44	<5	340	0.5	1	11	50	0.00	96

06474000 TURTLE CREEK NEAR TULARE, SD

LOCATION.--Lat 44°44'06", long 98°35'09", in SE¼SE¼ sec.25, T.115 N., R.65 W., Spink County, Hydrologic Unit 10160009, on left bank at downstream side of highway bridge, 3.9 mi west of Tulare, and 8.9 mi downstream from Wolf Creek.

DRAINAGE AREA.--1,124 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1953 to September 1956, September 1965 to September 1981, October 1984 to current year.

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

GAGE.--Water-stage recorder. Elevation of gage is 1,300 ft, by barometer. Prior to Oct. 6, 1965, nonrecording gage at same site and datum. Oct. 7, 1965, to Sept. 30, 1981, water-stage recorder at present site and datum.

REMARKS.--Records good except those below 2.0 ft³/s, which are fair, and for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 8-14, Dec. 2-9, Feb. 15-17, and Mar. 29, 30. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--22 years, 18.9 ft³/s, 13,690 acre-ft/yr; median of yearly mean discharges, 3.0 ft³/s, 2,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 6,000 ft³/s, Apr. 5, 1969; maximum gage height, 18.51 ft, Apr. 5, 1969, backwater from ice; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 29	1000	a	*7.65	No other peak greater than base discharge.			
Mar. 31	1300	*293	6.82				

a Backwater from ice.
Minimum daily discharge, 0.05 ft³/s, Aug. 5, 6, 8.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	13	13	5.2	3.9	5.8	254	26	14	1.2	.10	.50
2	59	11	12	5.1	3.9	5.6	210	26	9.4	1.3	.08	.60
3	55	13	10	4.8	3.8	5.6	171	25	6.4	1.1	.08	.45
4	50	11	10	4.6	3.9	6.2	146	24	3.7	1.0	.07	.55
5	47	13	10	4.5	3.9	6.5	132	24	2.8	1.1	.05	.52
6	41	14	9.0	4.8	4.0	6.8	125	24	2.5	1.0	.05	.48
7	39	14	9.0	4.8	4.2	7.4	121	21	3.8	1.0	.06	.46
8	37	12	9.0	4.7	4.0	10	114	18	2.8	.88	.05	.43
9	32	12	8.0	4.5	3.9	7.9	109	18	2.3	.91	.06	.43
10	30	12	7.7	4.2	4.2	8.2	98	17	2.3	1.1	.09	.45
11	32	11	8.6	4.2	4.2	9.5	91	18	3.4	1.3	.12	.39
12	27	11	8.6	4.3	4.2	9.9	85	15	3.4	1.6	.10	.40
13	23	11	8.2	4.3	4.2	10	84	23	3.2	1.3	.11	.37
14	23	11	8.0	4.2	4.2	12	82	26	2.5	1.3	.14	.37
15	21	11	8.0	4.2	4.2	12	79	18	1.9	1.2	.14	.37
16	21	9.8	8.0	4.2	4.2	11	78	15	1.5	.80	.14	.40
17	18	9.2	8.0	4.2	4.2	14	76	17	1.6	.71	.16	.51
18	15	9.2	7.9	4.1	4.2	19	66	15	1.6	.68	.14	.41
19	15	9.3	7.3	3.9	4.2	32	63	14	1.5	.69	.21	.65
20	16	9.2	7.0	3.8	4.2	39	65	14	1.5	.61	.25	.57
21	15	9.6	7.0	3.6	4.2	42	58	21	1.5	.45	.23	.55
22	14	9.8	7.0	3.6	4.2	59	55	17	1.4	.35	.26	.41
23	15	9.8	7.0	3.6	4.2	71	50	14	1.4	.36	.29	.40
24	14	9.7	6.4	3.6	4.2	91	47	15	1.4	.31	.33	.37
25	14	9.9	6.0	3.6	5.0	122	44	15	1.8	.28	.38	.31
26	14	10	6.0	3.5	5.3	164	41	15	1.6	.26	.38	.26
27	13	9.8	5.7	3.6	5.6	218	38	13	1.4	.22	.36	.37
28	15	11	5.6	3.7	6.0	261	34	14	1.5	.20	.39	.31
29	13	13	5.6	3.9	---	270	31	14	1.6	.18	.37	.22
30	10	13	5.2	3.8	---	270	26	18	1.4	.14	.36	.16
31	17	---	5.2	3.8	---	281	---	20	---	.12	.45	---
TOTAL	818	332.3	244.0	128.9	120.4	2087.4	2673	574	87.1	23.65	6.00	12.67
MEAN	26.4	11.1	7.87	4.16	4.30	67.3	89.1	18.5	2.90	.76	.19	.42
MAX	63	14	13	5.2	6.0	281	254	26	14	1.6	.45	.65
MIN	10	9.2	5.2	3.5	3.8	5.6	26	13	1.4	.12	.05	.16
AC-FT	1620	659	484	256	239	4140	5300	1140	173	47	12	25

CAL YR 1986	TOTAL	49417.08	MEAN	135	MAX	1490	MIN	.29	AC-FT	98020
WTR YR 1987	TOTAL	7107.42	MEAN	19.5	MAX	281	MIN	.05	AC-FT	14100

06474000 TURTLE CREEK NEAR TULARE, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1984 to September 1987 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE* CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	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, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT 22...	1510	15	1050	8.50	11.0	14.0	100	725	11.9	122
DEC 10...	1520	7.8	1430	9.30	-12.0	1.0	4.2	724	19.7	147
JAN 12...	1540	4.3	--	8.30	13.0	0.5	7.1	725	16.9	--
MAR 09...	1525	7.9	930	8.49	2.0	2.0	8.1	739	14.2	106
APR 21...	1555	59	1470	8.40	13.5	14.5	10	733	12.3	126
MAY 12...	1355	14	1700	8.40	17.0	18.0	16	724	9.5	106
JUL 14...	1430	1.3	1350	8.70	30.0	23.0	15	726	10.8	133
AUG 05...	0830	0.04	1450	8.30	21.0	22.5	--	723	6.8	83
SEP 17...	1115	0.66	1730	8.35	15.0	17.0	23	725	8.4	92

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)
OCT 22...	0	410	150	95	43	68	25	1	16	263
DEC 10...	--	680	320	160	68	99	24	2	13	355
JAN 12...	--	600	0	120	73	340	54	6	27	624
MAR 09...	--	400	190	91	43	61	24	1	8.3	218
APR 21...	--	550	240	120	62	130	33	2	18	311
MAY 12...	--	620	270	130	72	140	32	3	17	355
JUL 14...	--	540	140	130	52	250	49	5	16	394
AUG 05...	--	--	--	--	--	--	--	--	--	--
SEP 17...	--	630	340	98	93	150	33	3	22	284

06474000 TURTLE CREEK NEAR TULARE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
OCT 22...	250	39	12	719	13	680	0.98	29	<0.010	<0.100
DEC 10...	400	61	14	954	13	1000	1.3	20	<0.010	<0.100
JAN 12...	430	280	5.6	1700	22	1700	2.3	20	<0.010	<0.100
MAR 09...	290	38	5.4	685	14	670	0.93	15	<0.010	<0.100
APR 21...	430	75	17	1070	35	1000	1.5	170	<0.010	<0.100
MAY 12...	490	92	18	1220	37	1200	1.7	46	0.030	<0.100
JUL 14...	510	140	24	1250	43	1400	1.7	4.4	<0.010	<0.100
AUG 05...	--	--	--	--	--	--	--	--	--	--
SEP 17...	520	--	11	1210	58	--	--	--	<0.010	<0.100

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 22...	0.120	160	<3	2	5	5	290	<0.1	<1	6
DEC 10...	0.040	180	<50	1	10	<5	460	<0.1	<1	<10
JAN 12...	0.050	500	<50	4	20	<5	1000	<0.1	<1	<10
MAR 09...	0.040	110	<3	2	10	<5	250	<0.1	<1	7
APR 21...	0.190	230	<3	<1	10	<5	1900	<0.1	<1	5
MAY 12...	0.140	280	<3	<1	13	<5	2300	<0.1	<1	10
JUL 14...	0.140	560	<50	13	30	<5	940	0.2	<1	10
AUG 05...	--	--	--	--	--	--	--	--	--	--
SEP 17...	0.080	320	<3	1	5	<5	240	0.2	<1	8

06474300 MEDICINE CREEK NEAR ZELL, SD

LOCATION.--Lat 44°45'52", long 98°42'13", in NW¼NW¼ sec.19, T.115 N., R.65 W., Spink County, Hydrologic Unit 10160009, on right bank at downstream side of bridge on State Highway 26, 3.8 mi upstream from Cottonwood Lake, and 9.2 mi south of Zell.

DRAINAGE AREA.--202 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1959 to September 1981, October 1984 to current year.

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

GAGE.--Water-stage recorder. Elevation of gage is 1,320 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 1, 1981, water-stage recorder on downstream side at center of bridge at present datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 8-20, Dec. 4-14, Jan. 7-10, 14-28, Feb. 14-20, and Mar. 1, 9, 29-31. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--25 years, 6.46 ft³/s, 4,680 acre-ft/yr; median of yearly mean discharges, 2.0 ft³/s, 1,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,210 ft³/s, Apr. 5, 1969, gage height, 12.41 ft; no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 40 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 28	0830	*55	*5.19	No other peak greater than base discharge.			

No flow Aug. 22, 29, 30, Sept. 2-5, 10.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	1.6	2.0	.75	.64	1.7	24	3.4	.99	.09	.03	.01
2	4.3	1.6	2.0	.75	.65	1.8	24	3.2	.87	.08	.02	.00
3	4.1	1.6	2.0	.79	.61	1.8	22	3.1	.74	.09	.03	.00
4	3.8	1.6	1.8	.75	.60	1.9	18	3.0	.70	.08	.02	.00
5	3.5	1.7	1.7	.71	.62	2.4	15	2.8	.64	.08	.01	.00
6	3.2	1.7	1.4	.73	.64	5.4	14	2.6	.53	.08	.01	.01
7	3.1	1.8	1.4	.70	.69	7.5	12	2.4	.48	.09	.01	.01
8	2.9	1.8	1.4	.68	.67	8.1	12	2.1	.43	.09	.01	.01
9	2.7	1.7	1.3	.65	.67	8.2	11	1.9	.39	.11	.01	.01
10	2.6	1.6	1.3	.64	.66	7.5	10	1.6	.46	.12	.01	.00
11	2.6	1.5	1.2	.65	.72	8.7	9.6	1.4	.45	.16	.01	.01
12	2.5	1.4	1.1	.68	.71	8.0	9.3	1.3	.32	.13	.01	.01
13	2.5	1.4	1.1	.69	.76	9.2	10	1.2	.30	.10	.01	.01
14	2.5	1.4	1.1	.65	.80	9.3	11	1.1	.23	.10	.01	.01
15	2.5	1.5	1.1	.58	.81	8.7	11	.92	.19	.10	.01	.01
16	2.4	1.5	1.0	.53	.82	8.1	11	.85	.15	.09	.01	.02
17	2.3	1.6	1.0	.48	.80	9.4	9.8	.75	.12	.09	.01	.02
18	2.4	1.4	.95	.46	.80	12	9.1	.67	.11	.09	.01	.01
19	2.2	1.3	.90	.45	.80	20	8.0	.75	.10	.10	.01	.01
20	2.0	1.4	.88	.45	.82	26	7.2	.94	.10	.09	.01	.01
21	1.9	1.4	.86	.42	.86	27	6.3	1.2	.10	.09	.01	.01
22	1.8	1.5	.85	.39	.85	24	6.2	1.2	.10	.09	.00	.01
23	1.7	1.5	.86	.37	.84	21	5.7	1.4	.09	.09	.01	.01
24	1.7	1.6	.81	.36	.88	22	5.2	1.7	.10	.08	.01	.01
25	1.7	1.8	.79	.36	.88	25	4.8	1.7	.09	.08	.01	.01
26	1.7	1.8	.78	.35	1.0	36	4.6	1.7	.08	.08	.01	.01
27	1.7	1.9	.83	.38	1.2	47	4.1	1.7	.08	.08	.01	.01
28	1.7	1.9	.81	.46	1.7	39	4.1	1.6	.08	.07	.01	.01
29	1.7	1.9	.79	.54	---	32	3.7	1.4	.08	.06	.00	.01
30	1.7	1.9	.78	.55	---	28	3.4	1.2	.08	.05	.00	.01
31	1.7	---	.77	.59	---	22	---	1.1	---	.04	.01	---
TOTAL	78.0	48.3	35.56	17.54	22.50	488.7	306.1	51.88	9.18	2.77	.34	.27
MEAN	2.52	1.61	1.15	.57	.80	15.8	10.2	1.67	.31	.09	.01	.01
MAX	4.9	1.9	2.0	.79	1.7	47	24	3.4	.99	.16	.03	.02
MIN	1.7	1.3	.77	.35	.60	1.7	3.4	.67	.08	.04	.00	.00
AC-FT	155	96	71	35	45	969	607	103	18	5.5	.7	.5

CAL YR 1986	TOTAL	10471.47	MEAN	28.7	MAX	1200	MIN	.09	AC-FT	20770
WTR YR 1987	TOTAL	1061.14	MEAN	2.91	MAX	47	MIN	.00	AC-FT	2100

06474300 MEDICINE CREEK NEAR ZELL, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1984 to September 1987 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	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, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT 22...	1320	1.9	1730	8.20	10.5	13.5	110	725	7.6	77
DEC 10...	1200	1.3	2150	8.60	-14.0	1.0	3.1	724	13.8	103
JAN 12...	1245	0.69	2100	8.00	14.0	0.5	1.9	725	18.2	134
MAR 09...	1220	8.2	1570	8.54	3.0	0.5	5.0	739	17.4	125
APR 21...	1320	6.6	2320	8.30	8.0	14.0	17	735	11.1	113
MAY 12...	1130	1.3	2220	8.20	14.5	15.5	12	725	6.7	71
JUL 14...	1100	0.10	2100	8.30	25.5	20.5	8.0	726	6.2	73
AUG 05...	1115	0.01	1990	8.00	24.0	21.5	--	720	4.9	59
SEP 16...	1510	0.01	2000	8.08	23.0	19.0	22	716	6.3	73

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
OCT 22...	480	61	110	49	220	49	5	17	415	410
DEC 10...	590	44	130	64	290	51	5	15	544	540
JAN 12...	530	280	120	57	230	48	4	14	254	540
MAR 09...	350	22	81	37	190	53	5	11	333	340
APR 21...	550	57	110	67	340	56	6	16	494	560
MAY 12...	620	83	130	72	330	53	6	17	538	530
JUL 14...	470	240	77	67	120	35	2	16	230	420
AUG 05...	--	--	--	--	--	--	--	--	--	--
SEP 16...	520	280	120	54	250	50	5	10	240	490

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
OCT 22...	120	27	1210	28	1200	1.6	6.2	<0.010	<0.100	0.190
DEC 10...	140	26	1540	9	1500	2.1	5.4	<0.010	<0.100	0.160
JAN 12...	120	21	1400	19	1300	1.9	2.6	<0.010	<0.100	0.080
MAR 09...	97	17	975	9	970	1.3	22	<0.010	<0.100	0.110
APR 21...	200	20	1630	43	1600	2.2	29	<0.010	<0.100	0.220
MAY 12...	190	23	1490	18	1600	2.0	5.2	0.030	<0.100	0.250
JUL 14...	67	7.5	934	21	910	1.3	0.25	<0.010	<0.100	0.230
AUG 05...	--	--	--	--	--	--	--	--	--	--
SEP 16...	140	23	1330	47	1200	1.8	0.04	<0.010	<0.100	0.050

06474300 MEDICINE CREEK NEAR ZELL, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	BORON, DIS-SOLVED (UG/L AS B)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 22...	380	<3	2	11	<5	440	<0.1	5	<1	4
DEC 10...	370	<50	3	20	<5	510	<0.1	--	<1	10
JAN 12...	310	<50	2	30	<5	670	<0.1	--	<1	<10
MAR 09...	240	<3	2	21	<5	360	<0.1	--	<1	8
APR 21...	320	<50	<1	20	<5	1500	<0.1	--	<1	<10
MAY 12...	370	<50	1	30	<5	1300	<0.1	--	<1	<10
JUL 14...	310	<50	3	20	<5	150	0.2	--	<1	<10
AUG 05...	--	--	--	--	--	--	--	--	--	--
SEP 16...	470	<50	8	80	<5	760	110	--	<1	<10

06475000 JAMES RIVER NEAR REDFIELD, SD

LOCATION.--Lat 44°54'38", long 98°28'18", in NW¼NW¼NW¼ sec.31, T.117 N., R.63 W., Spink County, Hydrologic Unit 10160006, on right bank near county highway bridge, 2.8 mi northeast of Redfield, and 0.7 mi downstream from Turtle Creek. Prior to Oct. 9, 1986, at site 0.6 mi downstream.

DRAINAGE AREA.--13,911 mi², of which about 4,118 mi² is probably noncontributing.

PERIOD OF RECORD.--March 1950 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-84-1: Datum. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,239.50 ft above National Geodetic Vertical Datum of 1929. From March 1950 to July 25, 1951, nonrecording gage. From July 26, 1951, to Sept. 30, 1981, water-stage recorder. Both gages described above at site 4.5 mi downstream from present site and at different datum. From Oct. 1, 1981, to Oct. 8, 1986, water-stage recorder at site 0.6 mi downstream at same datum.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 8 to Mar. 13. Low flow regulated by dams forming Arrowwood and Jim Lakes, combined capacity, 16,530 acre-ft, and by dam forming Jamestown Reservoir, capacity, 229,470 acre-ft, since May 1953, and by dam forming Pipestem Reservoir, capacity, 147,000 acre-ft, since 1973. Flow below 100 ft³/s for water years 1964-79 may be unreliable because of wind effect. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--37 years, 209 ft³/s, 151,400 acre-ft/yr; median of yearly mean discharges, 130 ft³/s, 94,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,310 ft³/s, Apr. 13, 1969, gage height, 24.93 ft; no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,650 ft³/s at 1530 hours, Apr. 24, gage height, 10.95 ft; minimum daily discharge, 62 ft³/s, Feb. 22, 23.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	225	203	110	80	78	71	1260	1560	744	328	190	127
2	224	201	95	80	78	70	1320	1520	710	314	196	125
3	219	202	95	80	77	70	1390	1490	681	302	201	124
4	212	200	95	80	77	72	1420	1470	663	292	206	123
5	205	203	90	80	76	75	1420	1450	644	283	212	122
6	196	203	85	80	76	85	1410	1420	626	273	218	123
7	196	204	82	80	75	100	1430	1400	601	265	222	123
8	197	200	80	79	75	115	1440	1370	575	250	231	122
9	190	190	78	78	75	120	1450	1350	557	243	241	123
10	192	180	78	78	75	125	1440	1320	554	246	249	120
11	188	170	78	78	75	140	1440	1290	546	236	258	117
12	181	160	78	77	75	145	1450	1260	533	227	259	114
13	184	150	78	77	73	157	1490	1250	521	220	257	114
14	189	150	78	76	73	182	1510	1200	509	215	256	114
15	191	150	78	74	73	212	1530	1170	499	210	255	114
16	200	150	78	70	70	246	1540	1140	491	205	247	116
17	204	150	78	71	69	298	1550	1100	481	201	240	122
18	210	150	78	71	68	368	1580	1040	469	195	236	125
19	213	150	78	73	67	421	1590	1010	459	189	231	129
20	213	150	78	73	65	479	1560	999	450	187	224	133
21	213	150	79	73	63	560	1560	985	441	186	214	137
22	214	150	80	73	62	611	1600	959	433	185	199	139
23	215	150	80	72	62	640	1620	944	417	183	187	143
24	213	150	80	72	63	691	1630	930	408	178	175	145
25	212	145	80	72	63	766	1630	910	400	177	165	146
26	212	140	80	74	64	875	1630	891	386	178	156	147
27	213	135	80	76	66	976	1610	880	373	179	149	147
28	212	130	80	78	69	1040	1600	859	364	180	144	142
29	209	125	80	78	---	1080	1590	826	350	181	139	143
30	210	120	80	78	---	1160	1570	795	337	183	134	144
31	210	---	80	78	---	1220	---	770	---	186	130	---
TOTAL	6362	4911	2547	2359	1982	13170	45260	35558	15222	6877	6421	3863
MEAN	205	164	82.2	76.1	70.8	425	1509	1147	507	222	207	129
MAX	225	204	110	80	78	1220	1630	1560	744	328	259	147
MIN	181	120	78	70	62	70	1260	770	337	177	130	114
AC-FT	12620	9740	5050	4680	3930	26120	89770	70530	30190	13640	12740	7660

CAL YR 1986	TOTAL	258570.8	MEAN	708	MAX	4030	MIN	1.7	AC-FT	512900
WTR YR 1987	TOTAL	144532	MEAN	396	MAX	1630	MIN	62	AC-FT	286700

06476000 JAMES RIVER AT HURON, SD

LOCATION.--Lat 44°21'49", long 98°11'56", in SW¼SE¼NE¼ 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 about 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, 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 and concrete dam. Datum of gage is 1,223.44 ft above National Geodetic Vertical Datum of 1929. Aug. 29, 1928, to Mar. 15, 1929, nonrecording gage at site 100 ft downstream at about same datum. Mar. 16, 1929, to June 30, 1932, nonrecording gage 165 ft downstream at present datum. Aug. 3, 1943, to Oct. 17, 1951, nonrecording gage at site 15 ft downstream at present datum.

REMARKS.--Records good above 100 ft³/s and fair below except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 8-13 and Mar. 7, 8. 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.

AVERAGE DISCHARGE.--48 years, 251 ft³/s, 181,800 acre-ft/yr; median of yearly mean discharges, 159 ft³/s, 115,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,000 ft³/s, Apr. 13, 1969, gage height, 16.70 ft; no flow for long periods in most years.

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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,190 ft³/s at 1600 hours, Mar. 27, gage height, 11.36 ft; minimum daily discharge, 73 ft³/s, Jan. 30, Feb. 2-5.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	297	229	169	91	74	95	1740	1450	894	344	134	136
2	304	211	162	90	73	98	1670	1480	850	370	123	123
3	316	229	158	91	73	91	1640	1440	825	339	139	101
4	288	205	173	92	73	98	1630	1420	768	313	133	115
5	290	210	152	93	73	97	1630	1400	752	331	123	121
6	261	231	142	94	74	98	1620	1380	713	306	148	116
7	263	200	137	95	76	100	1610	1350	757	328	151	116
8	261	200	131	99	75	104	1570	1280	712	314	186	107
9	239	200	126	104	75	106	1550	1300	657	289	190	106
10	222	200	121	113	75	111	1510	1280	640	296	184	106
11	259	190	116	120	75	115	1500	1270	770	305	170	111
12	248	180	112	120	77	114	1470	1170	718	304	226	106
13	228	180	111	120	78	118	1520	1200	672	264	232	100
14	226	179	106	120	79	129	1490	1200	651	249	226	96
15	219	180	103	116	80	137	1470	1110	617	224	229	94
16	219	181	102	108	81	156	1500	1110	564	177	251	100
17	214	185	101	103	81	262	1490	1170	583	174	251	99
18	198	188	98	101	81	476	1410	1110	586	190	247	98
19	218	185	97	95	81	606	1470	1000	561	213	226	100
20	234	185	96	92	79	630	1570	765	549	197	222	101
21	230	183	95	88	82	680	1490	956	534	177	228	100
22	234	185	93	86	82	861	1460	949	501	154	221	99
23	244	187	92	86	78	960	1470	919	505	169	208	101
24	241	184	92	84	79	1130	1460	941	486	166	182	103
25	237	187	91	82	78	1520	1500	975	496	156	176	100
26	230	186	90	80	83	1930	1500	949	466	149	177	98
27	225	185	86	76	87	2160	1500	916	427	144	173	110
28	236	185	86	75	93	1970	1470	921	438	142	156	112
29	223	184	86	74	---	1540	1490	957	438	139	152	120
30	182	180	87	73	---	1650	1420	954	393	136	145	115
31	240	---	88	74	---	1710	---	890	---	129	137	---
TOTAL	7526	5794	3499	2935	2195	19852	45820	35212	18523	7188	5746	3210
MEAN	243	193	113	94.7	78.4	640	1527	1136	617	232	185	107
MAX	316	231	173	120	93	2160	1740	1480	894	370	251	136
MIN	182	179	86	73	73	91	1410	765	393	129	123	94
AC-FT	14930	11490	6940	5820	4350	39380	90880	69840	36740	14260	11400	6370

CAL YR 1986 TOTAL 349251 MEAN 957 MAX 4980 MIN 20 AC-FT 692700
WTR YR 1987 TOTAL 157500 MEAN 432 MAX 2160 MIN 73 AC-FT 312400

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. Water-quality data missing from the 1986 report are included in these tables.

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, 31.0°C, June 2, 1968; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed daily, 1,800 microsiemens, Jan. 28; minimum observed daily, 650 microsiemens, May 14.
WATER TEMPERATURE: Maximum observed daily, 29.0°C, July 30 to Aug. 4; minimum observed daily, 0.0°C on many days during winter flow period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	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)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
APR												
24...	0750	--	710	--	10.0	11.0	--	--	--	<0.01	<0.010	<0.10
JUL												
17...	1430	--	1100	--	36.0	29.5	--	--	--	<0.01	<0.010	<0.10
SEP												
22...	1120	463	940	7.98	17.5	16.5	727	6.8	73	<0.01	<0.010	<0.10

DATE	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)
APR												
24...	0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
JUL												
17...	0.30	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
SEP												
22...	0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
APR												
24...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
JUL												
17...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
SEP												
22...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
APR											
24...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
JUL											
17...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
SEP											
22...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

06476000 JAMES RIVER AT HURON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	METHYL PARATHION, DISSOLVED (UG/L)	METHYL-TRITHION DISSOLV (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, DISSOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, DISSOLVED (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE DISSOLV (UG/L)	PERTHANE TOTAL (UG/L)	PROMETONE TOTAL (UG/L)	PROMETRYNE TOTAL (UG/L)
APR 24...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
JUL 17...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1
SEP 22...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

DATE	PROPAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMAZINE TOTAL (UG/L)	SIMETRYNE TOTAL (UG/L)	TOXAPHENE, DISSOLVED (UG/L)	TOXAPHENE, TOTAL (UG/L)	TRITHION DISSOLV (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
APR 24...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.06	<0.01	<0.01
JUL 17...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.14	<0.01	<0.01
SEP 22...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.05	<0.01	<0.01

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3
OCT 17...	1100	222	1180	8.55	17.5	11.0	10	730	10.4	99	350	91
NOV 21...	1230	177	1150	8.64	5.5	2.0	3.9	718	13.2	102	350	42
JAN 26...	1330	79	1830	8.16	6.0	2.0	3.6	725	18.0	138	580	140
APR 01...	1045	1850	1100	8.11	4.5	4.0	15	728	14.0	112	320	130
27...	1145	1480	760	--	18.0	17.5	14	736	8.0	87	250	50
MAY 22...	0820	872	670	8.21	7.5	14.0	17	734	8.4	85	240	18
JUN 11...	1010	772	760	7.91	29.5	24.0	26	721	7.8	98	260	8
JUL 15...	0945	237	880	--	28.0	25.0	20	723	9.6	123	300	6
AUG 19...	0945	228	840	8.48	22.0	23.0	38	728	7.3	89	290	8

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)
OCT 17...	73	41	120	41	3	20	260	270	66	13	792	22
NOV 21...	70	43	110	39	3	16	310	220	56	15	737	5
JAN 26...	120	68	160	36	3	24	439	420	100	17	1180	9
APR 01...	68	36	100	39	3	19	191	280	60	12	712	43
27...	54	27	62	34	2	14	196	150	34	8.5	489	88
MAY 22...	52	26	54	31	2	16	219	110	36	9.1	432	43
JUN 11...	57	28	59	32	2	15	250	120	29	13	502	76
JUL 15...	64	34	73	33	2	14	294	140	29	19	567	30
AUG 19...	61	33	76	35	2	12	280	150	26	19	556	89

06476000 JAMES RIVER AT HURON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	BORON, DIS-SOLVED (UG/L AS B)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT												
17...	760	1.1	475	0.010	--	0.140	0.130	--	--	0.160	270	0.164
NOV												
21...	720	1.0	352	<0.010	--	<0.100	--	--	--	0.180	240	0.141
JAN												
26...	1200	1.6	252	<0.010	--	<0.100	--	--	--	0.090	340	0.072
APR												
01...	690	0.97	3560	0.030	0.030	1.50	1.47	1.40	0.500	0.240	180	0.200
27...	470	0.67	1950	<0.010	0.010	<0.100	--	<0.100	0.160	0.060	140	0.097
MAY												
22...	440	0.59	1020	<0.010	0.010	<0.100	--	<0.100	0.360	0.210	160	0.194
JUN												
11...	470	0.68	1050	0.010	--	<0.100	--	--	--	0.180	170	0.153
JUL												
15...	550	0.77	363	0.010	--	<0.100	--	--	--	0.290	190	0.020
AUG												
19...	550	0.76	342	0.020	--	0.110	0.090	--	--	0.300	180	0.260

DATE	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	CYANIDE DIS-SOLVED (MG/L AS CN)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
OCT											
17...	--	<1	70	<0.5	<1	<1	<3	2	<0.01	6	<5
NOV											
21...	--	3	47	<0.5	<1	<1	<3	1	<0.01	<3	<5
JAN											
26...	--	2	72	<0.5	<1	<1	<3	2	<0.01	<3	<5
APR											
01...	0.200	2	39	<0.5	<1	<1	<3	3	<0.01	26	<5
27...	0.167	2	53	<0.5	<1	<1	<3	2	<0.01	20	<5
MAY											
22...	0.210	4	50	<0.5	<1	<1	<3	1	<0.01	9	<5
JUN											
11...	--	4	60	0.9	<1	<1	<3	3	<0.01	9	<5
JUL											
15...	--	7	65	<0.5	<1	<1	<3	3	0.01	<3	<5
AUG											
19...	--	7	<100	<10	<10	<1	<50	2	<0.01	<10	<5

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	THAL-LIUM, DIS-SOLVED (UG/L AS TL)	ZINC, DIS-SOLVED (UG/L AS ZN)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE)
OCT											
17...	32	<0.1	3	<1	<1	<1	<1	3	--	--	--
NOV											
21...	21	<0.1	4	<1	<1	<1	<1	9	--	--	--
JAN											
26...	76	<0.1	4	<1	<1	<1	<1	<3	--	--	--
APR											
01...	97	<0.1	6	<1	<1	<1	<1	<3	2	100	<10
27...	200	<0.1	3	<1	<1	<1	<1	10	3	100	<10
MAY											
22...	180	<0.1	6	<1	<1	<1	<1	<3	3	<100	<10
JUN											
11...	280	<0.1	1	<1	<1	<1	<1	3	--	--	--
JUL											
15...	600	0.2	<1	2	<1	<1	<1	<3	--	--	--
AUG											
19...	670	<0.1	8	1	<1	<1	<1	<10	--	--	--

06476000 JAMES RIVER AT HURON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CYANIDE TOTAL (MG/L AS CN)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	ANTI-MONY, TOTAL (UG/L AS SB)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	THAL-LIUM, TOTAL (UG/L AS TL)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
17...	--	--	--	--	--	--	--	--	20	12	94
NOV											
21...	--	--	--	--	--	--	--	--	36	17	95
JAN											
26...	--	--	--	--	--	--	--	--	115	25	76
APR											
01...	<1	230	<0.010	8	<1	<1	<1	<1	78	390	55
27...	<1	140	<0.010	8	<1	<1	<1	<1	301	1200	28
MAY											
22...	<1	160	<0.010	8	1	<1	<1	<1	73	172	74
JUN											
11...	--	--	--	--	--	--	--	--	354	738	27
JUL											
15...	--	--	--	--	--	--	--	--	110	70	55
AUG											
19...	--	--	--	--	--	--	--	--	--	--	--

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	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)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
MAY												
22...	0820	872	670	8.21	7.5	14.0	734	8.4	85	<0.01	<0.010	<0.10
JUL												
15...	0945	237	880	--	28.0	25.0	723	9.6	123	<0.01	<0.010	<0.10
SEP												
17...	1430	99	770	8.34	18.5	19.0	--	--	--	<0.01	<0.010	<0.10

DATE	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)
MAY												
22...	0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
JUL												
15...	0.60	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
SEP												
17...	<0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01

06476000 JAMES RIVER AT HURON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
MAY												
22...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
JUL												
15...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
SEP												
17...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL PARA-THION, DIS-SOLVED (UG/L)
MAY												
22...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
JUL												
15...	<0.01	<0.010	<0.010	<0.01	0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SEP												
17...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAY												
22...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1	<0.10	<0.01
JUL												
15...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1	<0.10	<0.01
SEP												
17...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1	<0.10	<0.01

DATE	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	TUR-BID-ITY (NTU)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
MAY												
22...	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.08	<0.01	<0.01	17	240	18
JUL												
15...	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.04	<0.01	<0.01	20	300	6
SEP												
17...	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.02	<0.01	<0.01	--	--	--

06476000 JAMES RIVER AT HURON, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25°C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1060	1160	1120	1360	1660	1460	1080	730	780	800	890	790
2	1050	1150	1150	1380	1650	1440	1100	710	800	800	900	780
3	1050	1140	1160	1400	1650	1470	1080	730	790	830	900	770
4	1060	1120	1210	1420	1620	1430	1080	720	800	830	900	770
5	1060	1110	1220	1420	1560	1430	1040	710	790	830	900	770
6	1160	1110	1230	1400	1530	1380	990	700	790	830	900	770
7	---	1110	1240	1440	1530	1420	1030	680	800	830	910	770
8	1180	1110	1230	1440	1550	1440	970	680	760	830	880	770
9	1180	1100	1240	1470	1470	1450	880	680	760	830	910	770
10	1180	1100	1280	1480	1420	1450	850	680	770	850	900	780
11	1180	1110	1280	1530	1430	1450	820	680	760	850	930	770
12	1180	1160	1280	1530	1450	1420	790	670	760	850	930	770
13	1160	1180	1280	1540	1400	1400	800	680	780	850	880	770
14	1170	1180	1280	1550	1380	1470	810	650	800	870	880	770
15	1180	1180	1300	1580	1400	1460	830	660	800	860	890	780
16	1190	1160	1300	1650	1410	1460	840	670	800	870	890	770
17	1190	1160	1300	1700	1420	1270	830	660	830	880	870	780
18	1200	1160	1320	1700	1420	1270	840	660	840	910	850	780
19	1200	1170	1300	1680	1430	1320	850	660	820	870	850	780
20	1200	1150	1300	1720	1440	1430	860	660	830	880	860	780
21	1210	1130	1320	1700	1460	1420	830	680	830	880	850	780
22	1200	1120	1320	1700	1460	1400	830	690	830	880	830	790
23	1190	1120	1340	1710	1470	1360	830	700	830	870	810	780
24	1190	1120	1320	1730	1500	1280	840	710	850	870	810	790
25	1190	1110	1320	1730	1490	1240	820	710	810	890	810	800
26	1170	1110	1340	1740	1530	1160	800	710	800	890	810	810
27	1190	1110	1360	1680	1460	1020	780	710	810	890	810	820
28	1170	1140	1380	1800	1470	990	780	730	830	890	800	830
29	1170	1140	1380	1760	---	980	780	740	820	880	810	840
30	1170	1140	1340	1720	---	990	730	730	820	880	810	850
31	1180	---	1360	1700	---	1060	---	740	---	900	800	---

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
RANDOM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	7.0	.0	.0	.0	.0	1.0	17.0	18.0	25.0	29.0	23.0
2	15.0	6.0	.0	.0	.0	.0	3.0	17.0	20.0	25.0	29.0	23.0
3	15.0	6.0	.0	.0	.0	.0	3.0	17.0	20.0	25.0	29.0	23.0
4	12.0	5.0	.0	.0	.0	.0	3.0	17.0	20.0	25.0	29.0	23.0
5	13.0	5.0	.0	.0	.0	.0	3.0	17.0	21.0	25.0	27.0	23.0
6	13.0	5.0	.0	.0	.0	3.0	5.0	17.0	21.0	25.0	27.0	23.0
7	13.0	4.0	.0	.0	.0	3.0	7.0	17.0	21.0	25.0	26.0	23.0
8	13.0	3.0	.0	.0	.0	3.0	9.0	18.0	21.0	25.0	24.0	23.0
9	12.0	1.0	.0	.0	.0	1.0	10.0	18.0	22.0	25.0	22.0	23.0
10	12.0	1.0	.0	.0	.0	1.0	9.0	19.0	22.0	25.0	24.0	23.0
11	12.0	.0	.0	.0	.0	2.0	9.0	19.0	22.0	25.0	24.0	23.0
12	10.0	.0	.0	.0	.0	3.0	9.0	19.0	23.0	25.0	24.0	20.0
13	7.0	.0	.0	.0	.0	2.0	9.0	19.0	23.0	25.0	24.0	20.0
14	6.0	.0	.0	.0	.0	3.0	9.0	19.0	23.0	25.0	24.0	20.0
15	7.0	.0	.0	.0	.0	4.0	9.0	19.0	23.0	25.0	23.0	20.0
16	7.0	.0	.0	.0	.0	3.0	10.0	19.0	25.0	25.0	24.0	20.0
17	8.0	.0	.0	.0	.0	3.0	14.0	20.0	25.0	25.0	24.0	20.0
18	9.0	.0	.0	.0	.0	4.0	14.0	20.0	25.0	25.0	25.0	20.0
19	9.0	.0	.0	.0	.0	4.0	15.0	20.0	25.0	25.0	25.0	20.0
20	11.0	.0	.0	.0	.0	5.0	13.0	20.0	25.0	25.0	25.0	20.0
21	12.0	.0	.0	.0	.0	6.0	13.0	20.0	25.0	25.0	25.0	20.0
22	13.0	.0	.0	.0	.0	7.0	14.0	20.0	25.0	27.0	25.0	19.0
23	12.0	.0	.0	.0	.0	7.0	14.0	18.0	25.0	27.0	24.0	19.0
24	11.0	.0	.0	.0	.0	7.0	14.0	18.0	25.0	27.0	24.0	19.0
25	11.0	.0	.0	.0	.0	5.0	14.0	18.0	25.0	27.0	24.0	18.0
26	10.0	.0	.0	.0	.0	3.0	14.0	18.0	25.0	27.0	24.0	18.0
27	10.0	.0	.0	.0	.0	2.0	16.0	18.0	25.0	27.0	24.0	18.0
28	10.0	.0	.0	.0	.0	.0	16.0	17.0	25.0	27.0	24.0	18.0
29	9.0	.0	.0	.0	---	.0	16.0	19.0	25.0	28.0	23.0	18.0
30	9.0	.0	.0	.0	---	.0	16.0	18.0	25.0	29.0	23.0	18.0
31	9.0	---	.0	.0	---	.0	---	18.0	---	29.0	23.0	---

06476500 SAND CREEK NEAR ALPENA, SD

LOCATION.--Lat 44°09'15", long 98°26'06", in NE¼NE¼ sec.19, T.108 N., R.63 W., Jerauld County, Hydrologic Unit 10160006, on left bank 5 ft downstream from highway bridge, 4.0 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.

DRAINAGE AREA.--261 mi².

PERIOD OF RECORD.--March 1950 to current year.

REVISED RECORDS.--WSP 1309: 1950(M). WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,315 ft. Prior to Sept. 17, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 10-13 and Mar. 29 to Apr. 6. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--37 years, 9.35 ft³/s, 6,770 acre-ft/yr; median of yearly mean discharges, 6.0 ft³/s, 4,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,240 ft³/s, Mar. 28, 1960, gage height, 13.35 ft; maximum gage height, 14.1 ft, Mar. 28, 1950, backwater from ice; no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	1945	139	9.78	Apr. 16	1415	76	9.06
Mar. 28	1045	*409	*11.37				

No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	4.1	6.6	1.6	1.9	6.1	150	5.0	3.0	.00	.00	.00
2	28	3.6	5.4	1.6	2.5	8.6	110	6.4	1.3	.00	.00	.00
3	24	3.9	5.6	1.6	2.9	8.1	100	5.4	.54	.00	.00	.00
4	22	4.1	5.3	1.6	2.9	9.1	90	4.1	.63	.00	.00	.00
5	19	4.1	4.4	1.6	2.9	9.2	75	3.0	1.3	.00	.00	.00
6	19	3.7	4.1	1.7	3.0	8.8	60	2.8	1.2	.00	.00	.00
7	17	3.7	4.3	1.8	3.3	8.8	50	2.7	1.2	.00	.00	.00
8	16	3.4	4.2	1.6	3.0	9.3	44	2.4	1.2	.00	.00	.00
9	15	2.9	3.8	1.6	3.8	11	37	2.1	1.4	.00	.00	.00
10	15	2.9	3.0	1.5	3.9	13	33	1.8	2.5	.00	.00	.00
11	11	2.9	2.7	1.5	3.7	13	30	1.5	2.6	.00	.00	.00
12	9.6	2.9	2.8	1.8	3.7	10	25	1.3	2.7	.00	.00	.00
13	9.1	2.9	2.7	2.0	4.0	8.3	23	.97	3.0	.00	.00	.00
14	8.2	3.0	2.5	2.0	4.2	7.1	23	.53	3.0	.00	.00	.00
15	7.0	2.9	2.6	2.1	4.1	6.6	42	.60	2.7	.00	.00	.00
16	6.6	2.9	2.5	2.0	3.9	6.3	70	.73	2.5	.00	.00	.00
17	5.9	3.3	2.5	1.8	3.8	15	56	.73	2.2	.00	.00	.00
18	5.9	3.5	2.7	1.6	3.8	62	41	.54	2.1	.00	.00	.00
19	5.5	3.4	2.7	1.6	3.8	101	29	.99	2.0	.00	.00	.00
20	5.3	3.4	2.7	1.5	3.8	130	18	1.5	1.8	.00	.00	.00
21	5.6	3.5	2.5	1.5	3.9	135	16	1.5	1.9	.00	.00	.00
22	5.1	4.1	2.3	1.4	3.8	119	14	1.3	1.8	.00	.00	.00
23	4.9	4.2	2.3	1.2	3.7	109	12	1.3	1.5	.00	.00	.00
24	5.1	4.5	2.3	1.1	4.1	104	11	1.6	1.3	.00	.00	.00
25	4.2	4.8	2.1	1.0	4.1	148	9.1	1.8	1.3	.00	.00	.00
26	4.3	5.2	1.8	1.1	4.6	214	8.2	1.7	1.1	.00	.00	.00
27	4.6	5.6	1.6	1.2	5.7	281	7.3	1.6	.85	.00	.00	.00
28	4.5	6.6	1.6	1.2	6.4	328	6.5	1.6	.56	.00	.00	.00
29	4.3	7.3	1.6	1.4	---	300	5.8	2.4	.38	.00	.00	.00
30	6.0	7.3	1.6	1.5	---	250	5.6	5.9	.10	.00	.00	.00
31	4.9	---	1.7	1.6	---	200	---	7.4	---	.00	.00	---
TOTAL	336.6	120.6	94.5	48.3	105.2	2639.3	1201.5	73.19	49.66	.00	.00	.00
MEAN	10.9	4.02	3.05	1.56	3.76	85.1	40.0	2.36	1.66	.00	.00	.00
MAX	34	7.3	6.6	2.1	6.4	328	150	7.4	3.0	.00	.00	.00
MIN	4.2	2.9	1.6	1.0	1.9	6.1	5.6	.53	.10	.00	.00	.00
AC-FT	668	239	187	96	209	5240	2380	145	99	.00	.00	.00

CAL YR 1986	TOTAL	15668.02	MEAN	42.9	MAX	1520	MIN	.00	AC-FT	31080
WTR YR 1987	TOTAL	4668.85	MEAN	12.8	MAX	328	MIN	.00	AC-FT	9260

06477000 JAMES RIVER NEAR FORESTBURG, SD

LOCATION.--Lat 43°58'26", long 98°04'14", in SW¼SW¼NW¼ 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 National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Sept. 5, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 11-27, Dec. 3, 5-7, Dec. 10 to Feb. 25, and Mar. 8, 9. 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. Several observations of water temperature and specific conductance were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--37 years, 314 ft³/s, 227,500 acre-ft/yr; median of yearly mean discharges, 210 ft³/s, 152,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft³/s, Apr. 9, 1969, gage height, 17.16 ft; no flow at times in 1950, 1955, 1959, 1961, 1970, 1976, 1977, 1981, 1982.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in March 1920 and March 1922 reached a stage of about 18 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,530 ft³/s at 1345 hours, Mar. 29, gage height, 14.59 ft; minimum daily discharge, 90 ft³/s, Feb. 16.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	715	293	280	100	110	144	4220	1450	867	381	135	154
2	672	298	267	100	110	145	3880	1430	836	356	133	145
3	645	292	260	100	110	144	3500	1440	812	343	128	127
4	630	283	254	100	100	147	3200	1440	786	333	124	110
5	604	279	250	110	100	154	2970	1420	750	317	130	115
6	579	278	240	110	100	158	2770	1410	720	311	133	119
7	550	293	230	110	100	161	2610	1380	697	320	148	120
8	519	298	227	110	100	170	2470	1350	696	324	164	115
9	495	291	215	120	100	170	2350	1310	681	319	193	110
10	474	279	200	120	100	171	2220	1280	660	309	203	105
11	445	260	190	130	100	170	2120	1240	648	305	189	102
12	427	250	180	150	100	173	2030	1210	679	298	183	103
13	420	250	160	160	100	175	1950	1170	688	294	193	110
14	403	250	160	170	100	179	1900	1140	658	279	214	107
15	383	250	150	170	100	189	1840	1120	629	257	221	101
16	371	250	140	160	90	199	1780	1090	601	234	222	100
17	360	250	130	150	100	268	1750	1050	571	207	228	100
18	345	250	120	130	100	491	1720	1050	558	192	235	104
19	331	260	110	130	100	805	1690	1040	562	195	237	103
20	326	270	110	130	100	1060	1670	995	553	205	228	104
21	330	280	100	130	100	1180	1660	875	538	232	218	105
22	330	280	100	120	100	1260	1640	855	521	224	214	104
23	330	280	100	120	100	1380	1600	875	493	196	211	104
24	330	290	100	120	110	1570	1570	872	481	184	204	102
25	330	290	100	120	110	1930	1540	878	477	182	192	102
26	337	290	100	120	112	2400	1530	901	463	178	184	100
27	339	290	100	120	120	2930	1520	904	446	170	180	99
28	335	290	100	110	134	3750	1510	889	421	163	185	102
29	329	289	100	110	---	4280	1490	876	409	155	181	109
30	317	286	100	110	---	4300	1470	893	407	149	172	114
31	299	---	100	110	---	4390	---	901	---	143	163	---
TOTAL	13300	8289	4973	3850	2906	34643	64170	34734	18308	7755	5745	3295
MEAN	429	276	160	124	104	1118	2139	1120	610	250	185	110
MAX	715	298	280	170	134	4390	4220	1450	867	381	237	154
MIN	299	250	100	100	90	144	1470	855	407	143	124	99
AC-FT	26380	16440	9860	7640	5760	68710	127300	68890	36310	15380	11400	6540

CAL YR 1986 TOTAL 505520 MEAN 1385 MAX 7630 MIN 11 AC-FT 1003000
WTR YR 1987 TOTAL 201968 MEAN 553 MAX 4390 MIN 90 AC-FT 400600

06477500 FIRESTEEL CREEK NEAR MOUNT VERNON, SD

LOCATION.--Lat 43°46'30", long 98°14'33", in SW¼SW¼ sec.26, T.104 N., R.62 W., Davison County, Hydrologic Unit 10160011, near center of span on downstream side of highway bridge, 4.5 mi north of Mount Vernon, 5.2 mi downstream from West Firesteel Creek, and 12 mi northwest of Mitchell.

DRAINAGE AREA.--521 mi².

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

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

GAGE.--Water-stage recorder. Datum of gage is 1,297.22 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1972, nonrecording gage and crest-stage gage.

REMARKS.--No estimated daily discharge. Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--32 years, 26.8 ft³/s, 19,420 acre-ft/yr; median of yearly mean discharges, 9.9 ft³/s, 7,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,610 ft³/s, Apr. 4, 1969, gage height, 15.34 ft; maximum gage height, 17.12 ft, Apr. 3, 1969, backwater from ice; no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 28	0300	*2,330	*11.96	No other peak greater than base discharge.			

Minimum daily discharge, 0.02 ft³/s, for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	4.3	3.8	1.4	1.3	7.8	767	18	3.6	.80	.03	.02
2	35	4.0	3.5	1.3	1.3	9.1	588	16	3.3	1.2	.03	.02
3	34	3.7	3.0	1.4	1.3	9.9	407	15	2.8	.83	.03	.02
4	31	3.6	3.0	1.4	1.2	10	307	14	2.4	.72	.03	.02
5	28	3.5	2.7	1.4	1.3	9.9	240	13	2.1	.89	.03	.13
6	24	3.1	2.5	1.5	1.4	9.9	196	14	1.8	.41	.04	.04
7	22	2.5	2.4	1.6	1.5	9.8	169	13	1.5	.53	.04	.03
8	20	3.3	2.4	1.7	1.6	12	146	11	2.4	.66	.06	.03
9	18	3.2	2.4	1.6	1.7	13	126	11	5.4	.74	.08	.02
10	13	3.3	2.1	1.6	1.7	13	108	9.5	6.5	.62	.04	.02
11	12	2.8	2.0	1.5	1.9	14	91	8.4	5.4	.72	.03	.02
12	10	2.8	2.1	1.6	2.0	13	79	7.8	6.6	.70	.02	.03
13	9.7	2.4	2.0	1.7	2.1	13	74	7.3	4.1	.64	.03	.03
14	9.2	2.2	1.9	1.7	2.1	14	77	6.9	3.0	.49	.03	.03
15	8.4	2.3	1.9	1.8	2.1	13	73	5.9	2.5	.38	.03	.03
16	9.1	2.2	1.9	1.5	2.3	12	70	5.4	2.3	.28	.03	.04
17	8.4	2.5	2.0	1.4	2.3	29	73	5.0	1.9	.26	.02	.03
18	7.7	3.0	2.0	1.3	2.2	143	67	5.4	1.8	.19	.02	.03
19	7.1	3.0	2.0	1.3	2.2	299	59	5.1	1.5	.20	.03	.03
20	6.8	3.3	1.8	1.2	2.1	575	56	4.3	1.4	.16	.04	.03
21	6.6	3.4	1.6	1.2	2.2	646	49	4.4	2.8	.10	.03	.03
22	6.4	3.8	1.6	1.1	2.2	664	41	4.8	1.7	.07	.03	.03
23	6.2	4.0	1.6	.92	2.2	624	36	4.4	1.3	.05	.02	.03
24	5.8	4.1	1.6	.90	2.4	609	32	3.7	1.8	.05	.02	.03
25	5.3	4.4	1.6	.86	2.6	838	29	4.3	1.7	.14	.03	.03
26	5.3	4.7	1.5	.92	3.1	1490	27	4.6	1.3	.12	.03	.02
27	5.4	4.5	1.5	1.0	4.4	2040	25	4.8	.98	.06	.03	.02
28	5.3	4.7	1.5	1.0	7.4	1920	24	4.8	1.0	.04	.03	.02
29	5.2	4.8	1.5	1.2	---	1010	22	4.3	.94	.04	.03	.02
30	5.2	4.5	1.5	1.1	---	1080	19	4.7	.80	.04	.03	.02
31	4.6	---	1.5	1.2	---	1000	---	4.2	---	.03	.02	---
TOTAL	398.7	103.9	64.4	41.30	62.1	13150.4	4077	245.0	76.62	12.16	.99	.90
MEAN	12.9	3.46	2.08	1.33	2.22	424	136	7.90	2.55	.39	.03	.03
MAX	35	4.8	3.8	1.8	7.4	2040	767	18	6.6	1.2	.08	.13
MIN	4.6	2.2	1.5	.86	1.2	7.8	19	3.7	.80	.03	.02	.02
AC-FT	791	206	128	82	123	26080	8090	486	152	24	2.0	1.8

CAL YR 1986	TOTAL	43984.49	MEAN	121	MAX	3670	MIN	.12	AC-FT	87240
WTR YR 1987	TOTAL	18233.47	MEAN	50.0	MAX	2040	MIN	.02	AC-FT	36170

06478052 ENEMY CREEK NEAR MITCHELL, SD

LOCATION.--Lat 43°38'33", long 97°59'09", in NW¼NW¼ sec.13, T.102 N., R.60 W., Davison County, Hydrologic Unit 10160011, on left bank 3 ft downstream from highway bridge, 4.5 mi southeast of Mitchell, and 7.3 mi upstream from mouth.

DRAINAGE AREA.--163 mi².

PERIOD OF RECORD.--October 1975 to Sept. 30, 1987 (discontinued).

REVISED RECORDS.--WDR SD-78-1: 1977. WDR SD-86-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,280 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 11 and Nov. 16 to Dec. 12. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--12 years, 18.2 ft³/s, 13,200 acre-ft/yr; median of yearly mean discharges, 6.3 ft³/s, 4,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,280 ft³/s, June 22, 1984, gage height, 15.15 ft; no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 19	0015	589	8.97	Apr. 20	2145	46	5.98
Mar. 27	1300	*1,780	*12.10				

No flow July 29 to Sept. 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	7.4	5.5	2.8	3.2	12	261	16	3.6	.17	.00	.00
2	12	7.1	5.0	2.7	3.3	14	215	15	2.9	.17	.00	.00
3	11	7.0	4.5	2.7	3.0	14	179	15	2.4	.16	.00	.00
4	11	6.9	4.5	2.9	3.1	13	154	14	2.2	.33	.00	.00
5	12	7.9	4.5	2.9	3.3	13	126	13	1.9	.59	.00	.00
6	12	7.3	4.5	3.0	3.6	14	108	12	1.7	.32	.00	.00
7	11	7.4	4.0	3.0	4.1	15	99	12	1.4	.21	.00	.00
8	10	7.0	4.0	2.9	4.0	16	88	10	1.2	.44	.00	.00
9	10	6.6	4.0	3.1	4.4	14	78	9.3	1.0	.67	.00	.00
10	9.7	5.8	4.0	2.9	5.1	14	68	8.6	.96	.32	.00	.00
11	9.8	5.5	4.0	2.9	5.4	14	62	7.4	1.0	.21	.00	.00
12	9.2	5.4	4.0	3.1	5.7	13	59	6.5	.96	.20	.00	.00
13	9.0	5.0	4.0	3.4	6.1	13	60	6.5	.82	.17	.00	.00
14	8.9	4.9	3.9	3.7	6.2	13	67	5.5	.70	.15	.00	.00
15	8.7	5.0	3.7	3.3	6.2	15	66	5.0	.55	.12	.00	.00
16	8.7	5.0	3.5	3.3	6.4	14	59	4.9	.52	.11	.00	.00
17	8.8	5.0	3.5	3.2	5.9	86	51	4.7	.43	.10	.00	.00
18	8.2	5.0	3.9	3.0	6.2	381	45	3.9	.35	.07	.00	.00
19	7.7	5.0	3.9	3.0	6.1	525	40	3.8	.30	.06	.00	.00
20	7.5	5.0	3.4	2.8	5.9	382	36	3.6	.30	.05	.00	.00
21	7.0	5.0	3.1	2.8	5.9	308	40	3.9	.34	.04	.00	.00
22	7.8	5.5	3.0	2.6	6.0	304	34	3.9	.34	.04	.00	.00
23	7.4	5.5	3.0	2.1	5.5	306	30	3.7	.27	.03	.00	.00
24	7.2	6.0	3.0	2.0	6.6	432	27	3.7	.22	.01	.00	.00
25	7.1	7.0	3.1	1.9	6.6	915	25	3.8	.24	.02	.00	.00
26	7.2	7.0	3.0	2.0	6.8	1560	23	4.4	.23	.03	.00	.00
27	8.1	7.0	2.9	2.1	7.6	1680	20	4.8	.23	.02	.00	.00
28	7.2	7.0	2.8	2.1	9.9	1110	20	5.1	.25	.01	.00	.00
29	7.0	6.5	2.8	2.4	---	499	18	4.7	.22	.00	.00	.00
30	6.7	6.0	2.8	2.4	---	445	16	4.3	.15	.00	.00	.00
31	7.1	---	2.8	2.7	---	356	---	4.1	---	.00	.00	---
TOTAL	278.0	183.7	114.6	85.7	152.1	9510	2174	223.1	27.68	4.82	.00	.00
MEAN	8.97	6.12	3.70	2.76	5.43	307	72.5	7.20	.92	.16	.00	.00
MAX	13	7.9	5.5	3.7	9.9	1680	261	16	3.6	.67	.00	.00
MIN	6.7	4.9	2.8	1.9	3.0	12	16	3.6	.15	.00	.00	.00
AC-FT	551	364	227	170	302	18860	4310	443	55	9.6	.00	.00

CAL YR 1986	TOTAL	21793.70	MEAN	59.7	MAX	1530	MIN	.20	AC-FT	43230
WTR YR 1987	TOTAL	12753.70	MEAN	34.9	MAX	1680	MIN	.00	AC-FT	25300

06478390 WOLF CREEK NEAR CLAYTON, SD

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

DRAINAGE AREA.--396 mi².

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

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

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

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

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

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

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 25	1915	*1,310	*11.82	July 5	1115	202	6.95

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

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

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

CAL YR 1986	TOTAL	35518.7	MEAN	97.3	MAX	1760	MIN	3.0	AC-FT	70450
WTR YR 1987	TOTAL	15193.7	MEAN	41.6	MAX	1240	MIN	3.9	AC-FT	30140

06478500 JAMES RIVER NEAR SCOTLAND, SD
(National stream-quality accounting network station)

LOCATION.--Lat 43°11'09", long 97°38'07", in SW¼SW¼ 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 about 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.

GAGE.--Water-stage recorder and rock and earth control. Datum of gage is 1,168.07 ft 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 for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 12, Nov. 24 to Dec. 13, and Mar. 18-22. 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. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--59 years, 434 ft³/s, 314,400 acre-ft/yr; median of yearly mean discharges, 220 ft³/s, 159,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft³/s, June 23, 1984, gage height, 20.45 ft; no flow for many days in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,500 ft³/s at 2300 hours, Mar. 26, gage height, 17.90 ft; minimum daily discharge, 129 ft³/s, Sept. 27.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2570	510	360	143	158	276	7800	1970	942	466	172	248
2	2330	512	350	139	163	284	7230	1910	920	449	167	231
3	2100	498	340	150	166	288	6880	1860	900	451	165	205
4	1840	488	320	150	164	295	6510	1810	883	542	162	182
5	1600	476	280	150	165	302	6060	1780	856	1720	148	179
6	1360	470	310	154	169	301	5740	1750	828	1230	151	181
7	1140	469	330	158	184	300	5460	1730	797	682	163	190
8	999	466	330	149	180	311	5200	1710	775	516	187	194
9	911	457	330	146	173	326	4930	1680	746	481	214	171
10	846	449	320	148	198	328	4730	1660	729	505	201	156
11	808	330	310	145	209	316	4530	1640	715	577	186	145
12	783	380	300	158	210	316	4350	1610	714	711	175	144
13	737	345	280	165	208	319	4150	1570	702	680	202	134
14	690	368	250	167	206	313	3960	1500	680	560	228	137
15	658	391	257	163	197	309	3800	1450	664	467	236	135
16	639	381	237	143	197	308	3580	1380	661	406	243	160
17	621	387	222	166	194	399	3370	1310	648	365	252	198
18	599	388	211	171	180	800	3240	1300	640	331	264	199
19	576	385	200	180	167	1950	3090	1300	697	320	279	186
20	556	407	194	177	179	2500	2960	1220	669	305	285	178
21	540	394	184	177	187	2800	2820	1170	639	265	296	165
22	526	415	178	172	195	3250	2700	1160	684	227	310	154
23	527	417	177	160	194	3620	2600	1130	641	207	313	146
24	530	410	173	153	186	4540	2510	1040	597	221	314	138
25	535	400	167	151	181	8110	2400	1010	578	269	311	137
26	533	390	159	150	185	10500	2320	1010	560	267	306	132
27	531	390	158	146	205	11200	2250	998	535	246	305	129
28	529	390	155	145	243	10600	2190	979	515	222	300	130
29	530	380	154	145	---	9350	2120	963	499	207	289	134
30	518	360	145	145	---	8330	2040	982	490	192	268	130
31	505	---	145	151	---	8370	---	982	---	180	256	---
TOTAL	28167	12503	7526	4817	5243	91211	121520	43564	20904	14267	7348	4948
MEAN	909	417	243	155	187	2942	4051	1405	697	460	237	165
MAX	2570	512	360	180	243	11200	7800	1970	942	1720	314	248
MIN	505	330	145	139	158	276	2040	963	490	180	148	129
AC-FT	55870	24800	14930	9550	10400	180900	241000	86410	41460	28300	14570	9810

CAL YR 1986	TOTAL	785114	MEAN	2151	MAX	12200	MIN	47	AC-FT 1557000
WTR YR 1987	TOTAL	362018	MEAN	992	MAX	11200	MIN	129	AC-FT 718100

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 Sept. 30, 1981; June 1985 to current year, seasonal records only.
pH: June to August 1985.
WATER TEMPERATURE: January 1953 to September 1969, October 1974 to Sept. 30, 1983; June 1985 to current year, seasonal records only.
DISSOLVED OXYGEN: June to August 1985.
SUSPENDED-SEDIMENT DISCHARGE: Oct. 1, 1981, to Sept. 30, 1983.

REMARKS.--Prior to October 1969, continuous temperature thermograph at station. From June to August 1985, four-parameter water-quality monitor with hourly readings at station. From October 1985 to current year, two-parameter water-quality monitor with hourly readings at station. Some trace element data were not available from the laboratory at publication time. Water-quality data missing from the 1986 report are included in these tables.

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 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)
APR											
24...	1115	54	690	--	12.0	12.5	--	<0.010	<0.10	0.20	--
JUL											
17...	0915	--	1240	--	28.0	27.5	<0.01	<0.010	<0.10	<0.10	<0.1
SEP											
25...	1215	3600	760	7.58	23.0	18.0	<0.01	<0.010	<0.10	<0.10	<0.1

DATE	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN DIS-SOLVED (UG/L)
APR											
24...	<0.1	<0.10	--	<0.010	--	<0.010	--	<0.010	--	<0.01	--
JUL											
17...	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01
SEP											
25...	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01	<0.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
APR											
24...	<0.010	<0.010	--	--	<0.010	--	<0.01	--	<0.1	<0.10	--
JUL											
17...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
SEP											
25...	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	HEPTACHLOR EPOXIDE DISSOLVED (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, DISSOLVED (UG/L)	LINDANE DISSOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, DISSOLVED (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR DISSOLV (UG/L)	METHYL PARATHION, TOTAL (UG/L)
APR 24...	--	<0.010	<0.010	--	--	<0.010	--	<0.01	<0.01	--	<0.01
JUL 17...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01
SEP 25...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01

DATE	METHYL PARATHION, DISSOLVED (UG/L)	METHYLTRITHION DISSOLV (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, DISSOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, DISSOLVED (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE DISSOLV (UG/L)	PERTHANE TOTAL (UG/L)	PROMETONE TOTAL (UG/L)	PROMETRYNE TOTAL (UG/L)
APR 24...	--	--	<0.01	--	<0.01	--	<0.01	--	<0.1	<0.1	<0.1
JUL 17...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<1.0	<0.1	<0.1
SEP 25...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1

DATE	PROPAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMAZINE TOTAL (UG/L)	SIMETRYNE TOTAL (UG/L)	TOXAPHENE, DISSOLVED (UG/L)	TOXAPHENE, TOTAL (UG/L)	TRITHION DISSOLV (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
APR 24...	<0.10	<0.01	<0.10	<0.1	--	<1	--	<0.01	0.10	<0.01	<0.01
JUL 17...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.26	<0.01	<0.01
SEP 25...	<0.10	<0.01	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.10	<0.01	<0.01

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	ALKALINITY WH WAT TOTAL FIELD MG/L AS CACO3	TEMPERATURE AIR (DEG C)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT 15...	1130	655	1300	8.30	--	6.0	7.5	20	737	11.6	100	--
NOV 05...	1125	468	1500	8.55	315	15.0	8.5	13	725	12.7	115	220
DEC 15...	1445	252	1710	8.80	--	7.5	0.5	4.1	733	16.4	119	--
JAN 20...	1425	175	2030	8.40	--	2.0	0.0	5.4	--	15.9	--	--
FEB 11...	1105	195	1900	8.36	--	7.0	2.0	4.7	727	14.6	111	K28
MAR 26...	0940	10000	950	7.72	--	4.5	4.0	85	726	12.2	98	--
MAY 13...	0915	1580	950	8.34	227	24.5	22.0	82	720	11.7	142	K100
JUL 21...	1215	260	1230	8.10	--	32.0	29.0	25	732	8.2	112	--
AUG 06...	0835	155	1280	8.24	--	20.5	24.0	38	726	8.2	103	350

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
OCT 15...	--	530	280	120	56	95	27	2	16	249	420	50
NOV 05...	330	630	310	140	67	120	29	2	17	293	520	60
DEC 15...	--	750	400	170	80	130	27	2	17	356	580	54
JAN 20...	--	790	0	180	82	130	26	2	16	--	630	63
FEB 11...	84	780	400	180	80	130	26	2	16	255	680	69
MAR 26...	--	380	270	83	43	46	20	1	13	114	370	18
MAY 13...	K40	330	100	72	36	74	32	2	16	219	240	37
JUL 21...	--	520	240	120	54	81	25	2	16	281	370	30
AUG 06...	430	500	200	110	54	89	27	2	16	295	370	36

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
OCT 15...	--	19	1080	60	930	1.5	1910	<0.010	--	0.130	--	--
NOV 05...	0.30	15	1140	45	1100	1.6	1440	<0.010	--	<0.100	--	--
DEC 15...	--	17	1260	10	1300	1.7	857	<0.010	--	0.180	--	--
JAN 20...	--	15	1400	14	--	1.9	661	<0.010	--	<0.100	--	--
FEB 11...	0.40	16	1370	10	1400	1.9	721	<0.010	--	<0.100	--	--
MAR 26...	--	11	650	185	650	0.88	17600	0.040	0.050	2.20	2.16	2.20
MAY 13...	0.20	7.7	633	212	620	0.86	2700	0.030	0.040	<0.100	--	<0.100
JUL 21...	--	12	876	81	850	1.2	615	<0.010	--	<0.100	--	--
AUG 06...	0.30	15	905	85	870	1.2	379	<0.010	0.020	<0.100	--	<0.100

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	BORON, DISSOLVED (UG/L AS B)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
OCT 15...	--	--	--	--	--	<0.200	270	0.167	--	--	4	59
NOV 05...	0.060	0.040	0.08	1.3	0.210	0.100	320	0.060	--	<10	3	70
DEC 15...	--	--	--	--	--	0.100	350	<0.001	--	--	3	57
JAN 20...	--	--	--	--	--	0.040	400	0.026	--	--	3	58
FEB 11...	0.060	0.060	0.08	2.1	0.010	0.050	390	0.030	--	<10	2	47
MAR 26...	--	--	--	--	0.260	0.230	110	0.200	0.210	--	2	50
MAY 13...	0.060	0.330	0.08	2.9	<0.010	0.130	180	0.130	0.219	<10	4	47
JUL 21...	--	--	--	--	--	0.110	310	0.087	--	--	6	74
AUG 06...	0.070	0.070	0.09	2.8	0.300	0.130	350	0.100	0.134	30	8	79

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	CYANIDE DISSOLVED (MG/L AS CN)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)
OCT 15...	<0.5	<1	<1	<3	2	<0.01	11	<5	--	220	<0.1	--
NOV 05...	<0.5	<1	<1	<3	2	<0.01	4	<5	100	150	<0.1	<10
DEC 15...	<0.5	<1	<1	<3	1	<0.01	10	<5	--	450	<0.1	--
JAN 20...	<0.5	<1	<1	<3	2	<0.01	7	<5	--	490	<0.1	--
FEB 11...	<0.5	<1	<1	<3	3	<0.01	36	<5	120	450	<0.1	<10
MAR 26...	<0.5	<1	<1	<3	2	<0.01	35	<5	--	200	<0.1	--
MAY 13...	<0.5	<1	<1	<3	2	<0.01	7	<5	52	10	<0.1	<10
JUL 21...	<0.5	<1	<1	<3	<1	<0.01	4	<5	--	200	<0.1	--
AUG 06...	<0.5	<1	<1	<3	2	<0.01	89	<5	76	770	0.1	<10

DATE	NICKEL, DISSOLVED (UG/L AS NI)	ANTIMONY, DISSOLVED (UG/L AS SB)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	THALLIUM, DISSOLVED (UG/L AS TL)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)
OCT 15...	3	<1	<1	<1	<1	--	--	12	--	--	--
NOV 05...	3	<1	1	<1	<1	1100	<6	9	--	--	--
DEC 15...	2	<1	1	<1	<1	--	--	8	--	--	--
JAN 20...	6	<1	2	<1	<1	--	--	7	--	--	--
FEB 11...	3	<1	1	<1	<1	1400	<6	13	--	--	--
MAR 26...	3	<1	2	<1	<1	--	--	<3	4	200	<10
MAY 13...	6	1	<1	<1	<1	480	<6	<3	--	100	<10
JUL 21...	7	2	<1	<1	<1	--	--	3	--	--	--
AUG 06...	<1	--	1	<1	<1	920	8	11	9	100	<10

DATE	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	BORON, TOTAL RECOVERABLE (UG/L AS B)	CYANIDE TOTAL (MG/L AS CN)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	ANTIMONY, TOTAL (UG/L AS SB)	SELENIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	THALLIUM, TOTAL (UG/L AS TL)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 15...	--	--	--	--	--	--	--	--	66	117	94
NOV 05...	--	--	--	--	--	--	--	--	155	196	89
DEC 15...	--	--	--	--	--	--	--	--	194	132	95
JAN 20...	--	--	--	--	--	--	--	--	--	--	--
FEB 11...	--	--	--	--	--	--	--	--	175	92	72
MAR 26...	<1	90	<0.010	11	<1	2	<1	<1	267	7210	92
MAY 13...	--	140	--	--	--	--	--	<1	322	1370	90
JUL 21...	--	--	--	--	--	--	--	--	196	138	99
AUG 06...	<1	350	<0.010	9	2	1	<1	<1	--	--	--

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	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)	ALDRIN, DIS-SOLVED (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL
MAY												
13...	0915	1580	950	8.34	24.5	22.0	720	11.7	142	--	<0.010	<0.10
JUN												
23...	1215	646	970	--	25.0	27.0	--	--	--	--	--	--
JUL												
16...	1030	--	1120	8.14	28.0	26.0	--	--	--	<0.01	<0.010	<0.10
21...	1215	260	1230	8.10	32.0	29.0	732	8.2	112	--	--	--
AUG												
06...	0835	155	1280	8.24	20.5	24.0	726	8.2	103	--	--	--
SEP												
18...	1045	--	1220	8.13	15.0	17.0	--	--	--	<0.01	<0.010	<0.10
29...	1155	137	1430	--	19.0	17.5	--	--	--	--	--	--

DATE	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, DIS-SOLVED (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	DDD, DIS-SOLVED (UG/L)	DDD, TOTAL (UG/L)	DDE, DIS-SOLVED (UG/L)	DDE, TOTAL (UG/L)	DDT, DIS-SOLVED (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-AZINON, TOTAL (UG/L)
MAY												
13...	0.10	--	<0.1	<0.10	--	<0.010	--	<0.010	--	<0.010	<0.01	<0.01
JUN												
23...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
16...	1.1	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	<0.01	<0.01
21...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
06...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
18...	0.10	<0.1	<0.1	<0.10	<0.01	<0.010	<0.01	<0.010	<0.01	<0.010	--	<0.01
29...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	DI-ELDRIN DIS-SOLVED (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN DISSOLV (UG/L)	ENDRIN, DIS-SOLVED (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION DISSOLV (UG/L)	ETHION, TOTAL (UG/L)	PCB, DIS-SOLVED (UG/L)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN DISSOLV (UG/L)
MAY												
13...	--	<0.010	<0.010	--	--	<0.010	<0.01	<0.01	--	<0.1	<0.10	--
JUN												
23...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
16...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	<0.01	<0.01	<0.1	<0.1	<0.10	<0.10
21...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
06...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
18...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	--	<0.01	<0.1	<0.1	<0.10	<0.10
29...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	HEPTA-CHLOR EPOXIDE DIS-SOLVED (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, DIS-SOLVED (UG/L)	LINDANE DIS-SOLVED (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR DISSOLV (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL PARA-THION, DIS-SOLVED (UG/L)
MAY												
13...	--	<0.010	<0.010	--	--	<0.010	<0.01	<0.01	<0.01	--	<0.01	<0.01
JUN												
23...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
16...	<0.01	<0.010	<0.010	<0.01	<0.01	0.020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
06...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
18...	<0.01	<0.010	<0.010	<0.01	<0.01	<0.010	--	<0.01	<0.01	<0.01	<0.01	--
29...	--	--	--	--	--	--	--	--	--	--	--	--

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	METHYL-TRI-THION DISSOLV (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, DIS-SOLVED (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, DIS-SOLVED (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE DISSOLV (UG/L)	PER-THANE TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAY												
13...	<0.01	<0.01	--	<0.01	<0.01	<0.01	--	<0.1	<0.1	<0.1	<0.10	<0.01
JUN												
23...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
16...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.1	<0.1	<0.1	<0.10	<0.01
21...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
06...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
18...	--	<0.01	<0.01	<0.01	--	<0.01	<0.10	<0.1	<0.1	<0.1	<0.10	<0.01
29...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, DIS-SOLVED (UG/L)	TOX-APHENE, TOTAL (UG/L)	TRI-THION DISSOLV (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	TUR-BID-ITY (NTU)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
MAY												
13...	<0.10	<0.1	--	<1	<0.01	<0.01	0.14	<0.01	<0.01	227	82	K100
JUN												
23...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
16...	<0.10	<0.1	<1.0	<1	<0.01	<0.01	0.16	<0.01	<0.01	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	25	--
AUG												
06...	--	--	--	--	--	--	--	--	--	--	38	350
SEP												
18...	<0.10	<0.1	<1.0	<1	--	<0.01	0.04	<0.01	<0.01	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25°C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	920	900	910	1510	1500	1510						
2	940	900	918	1510	1500	1510						
3	970	920	945	1510	1500	1510						
4	1020	980	997	1510	1500	1510						
5	1060	1010	1040	1510	1500	1500						
6	1120	1060	1090	1510	1500	1500						
7	1160	1120	1140	1510	1500	1510						
8	1190	1150	1170	1520	1510	1510						
9	1220	1190	1200	1520	1510	1510						
10	1230	1210	1220	1520	1510	1520						
11	1260	1230	1240	1520	1510	1520						
12	1270	1250	1260	1520	1510	1520						
13	1280	1260	1270	1530	1520	1520						
14	1300	1280	1290	1530	1520	1520						
15	1330	1300	1310	1530	1520	1530						
16	1330	1300	1330	1530	1520	1530						
17	1330	1300	1310	1530	1500	1520						
18	1390	1320	1350	1530	1500	1510						
19	1410	1380	1390	1530	1500	1510						
20	1430	1400	1420									
21	1430	1400	1420									
22	1430	1410	1420									
23	1490	1430	1460									
24	1500	1480	1490									
25	1510	1490	1500									
26	1510	1500	1500									
27	1510	1510	1510									
28	1520	1510	1520									
29	1520	1510	1520									
30	1520	1510	1510									
31	1520	1500	1510									

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19										890	830	870
20										930	880	908
21										980	880	918
22										990	930	967
23										990	920	958
24										930	880	916
25										930	880	887
26										910	880	895
27										930	900	920
28										910	900	902
29										920	900	908
30										930	900	913
31										930	900	917

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

SPECIFIC CONDUCTANCE, IN MICROSIEMENS PER CENTIMETER AT 25°C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	930	900	914	1020	1000	1010	1210	1200	1210	1230	1200	1210
2	930	900	906	1030	1000	1010	1230	1210	1220	1230	1190	1210
3	930	900	918	1030	1000	1010	1290	1230	1260	1220	1200	1210
4	930	900	924	1030	1000	1020	1300	1280	1290	1220	1200	1220
5	930	910	924	1020	620	808	1310	1290	1300	1220	1210	1220
6	930	920	925	720	600	651	1320	1280	1300	1230	1210	1220
7	930	900	917	930	730	890	1320	1300	1320	1230	1210	1230
8	930	900	923	1000	930	974	1320	1300	1310	1230	1210	1220
9	930	900	916	1030	990	1010	1320	1290	1310	1220	1210	1220
10	930	910	925	1030	1000	1010	1320	1290	1310	1230	1210	1220
11	980	920	938	1090	1020	1050	1310	1280	1300	1230	1220	1220
12	990	920	964	1030	930	992	1300	1290	1290	1230	1220	1230
13	990	920	978	1030	1000	1020	1310	1230	1300	1230	1200	1230
14	990	920	961	1110	1030	1100	1320	1280	1300	1230	1200	1200
15	1020	990	1000	1100	1030	1090	1330	1280	1310	1230	1200	1210
16	1020	980	1000	1110	1000	1060	1330	1300	1310	1230	1200	1220
17	990	890	973	1300	1110	1210	1330	1300	1310	1230	1200	1220
18	990	880	960	1300	1220	1270	1330	1300	1320	1230	1200	1200
19	980	880	934	1280	1210	1230	1330	1300	1320	1280	1200	1230
20	930	900	917				1320	1280	1310	1290	1230	1260
21	980	910	932	1230	1200	1220	1300	1280	1290	1280	1220	1240
22	980	910	922	1280	1220	1230	1300	1280	1290	1290	1220	1250
23	980	910	935	1230	1210	1220	1290	1220	1250	1320	1300	1310
24	980	910	936	1220	1210	1210	1230	1200	1210	1320	1300	1310
25	1020	980	998	1230	1200	1220	1230	1200	1220	1390	1330	1370
26	1030	1000	1010	1230	1200	1220	1210	1180	1200	1410	1390	1400
27	1030	1000	1020	1220	1210	1210	1210	1180	1200	1420	1400	1410
28	1030	1000	1010	1220	1200	1210	1200	1190	1200	1430	1400	1420
29	1030	1010	1020	1220	1200	1210	1220	1200	1210	1430	1400	1410
30	1030	1000	1020	1230	1210	1220	1230	1200	1220	1420	1410	1410
31				1220	1200	1210	1230	1210	1220			

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	17.0	17.0	17.0	10.5	8.5	9.5						
2	17.5	16.5	17.0	8.5	7.0	7.5						
3	16.5	15.5	16.0	8.0	7.0	7.5						
4	15.5	14.5	15.0	8.0	7.0	7.5						
5	15.0	14.5	14.5	8.0	7.0	7.5						
6	15.0	13.5	14.5	8.0	7.0	7.5						
7	15.5	14.0	15.0	8.0	7.0	7.5						
8	15.5	14.5	15.0	7.5	4.5	6.0						
9	15.0	14.0	14.5	4.5	2.5	3.5						
10	14.0	13.0	13.5	2.5	.0	1.0						
11	13.0	11.0	12.0	.0	.0	.0						
12	10.5	9.0	9.5	.0	.0	.0						
13	9.0	8.0	8.5	.0	.0	.0						
14	8.5	7.5	8.0	.0	.0	.0						
15	8.5	7.5	8.0	.0	.0	.0						
16	9.5	8.0	8.5	.0	.0	.0						
17	10.5	9.0	10.0	.0	.0	.0						
18	11.5	10.0	11.0	.0	.0	.0						
19	12.5	11.0	11.5	.0	.0	.0						
20	13.0	11.5	12.5									
21	13.5	12.0	13.0									
22	13.5	13.0	13.5									
23	13.5	13.0	13.0									
24	13.0	12.0	12.5									
25	12.5	12.0	12.0									
26	12.5	11.5	12.0									
27	12.5	11.0	12.0									
28	12.5	11.5	12.0									
29	12.0	11.5	12.0									
30	12.0	11.0	11.5									
31	12.0	10.0	11.5									

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER TEMPERATURE, IN DEGREES CELSIUS, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	FEBRUARY MAX	FEBRUARY MIN	FEBRUARY MEAN	MARCH MAX	MARCH MIN	MARCH MEAN	APRIL MAX	APRIL MIN	APRIL MEAN	MAY MAX	MAY MIN	MAY MEAN
1										20.5	20.0	20.0
2										21.5	19.0	20.0
3										20.0	19.0	19.5
4										19.0	17.5	18.5
5										18.0	17.0	17.5
6										19.0	17.0	18.0
7										20.0	18.0	19.0
8										20.5	18.5	19.5
9										21.5	19.0	20.5
10										23.0	20.0	21.5
11										23.5	21.5	22.5
12										23.0	21.5	22.5
13										22.5	21.0	21.5
14										22.0	20.5	21.5
15										22.0	20.5	21.5
16										22.5	21.0	21.5
17										22.5	21.5	22.0
18										22.0	21.0	21.5
19										21.0	19.5	20.5
20										21.0	20.0	20.5
21										20.5	18.5	19.5
22										18.5	17.0	17.5
23										17.0	16.0	16.5
24										17.0	16.5	16.5
25										16.5	16.0	16.0
26										16.5	15.0	16.0
27										17.5	16.0	16.5
28										19.0	17.0	18.0
29										20.5	18.5	19.5
30										21.0	19.5	20.5
31										22.5	20.5	21.0

DAY	JUNE MAX	JUNE MIN	JUNE MEAN	JULY MAX	JULY MIN	JULY MEAN	AUGUST MAX	AUGUST MIN	AUGUST MEAN	SEPTEMBER MAX	SEPTEMBER MIN	SEPTEMBER MEAN
1	22.5	21.5	22.0	24.0	22.5	23.0	32.5	30.5	31.5	22.0	20.5	21.5
2	22.0	20.5	21.0	25.0	23.0	24.0	32.5	30.5	31.5	22.5	20.5	21.5
3	20.5	19.5	20.0	24.5	23.0	24.0	31.5	29.0	30.0	23.0	21.5	22.0
4	20.5	19.0	19.5	24.5	22.5	23.5	29.0	27.0	28.5	23.5	22.0	22.5
5	21.5	19.5	20.5	22.0	19.5	20.5	29.0	27.0	28.0	24.0	22.5	23.0
6	22.5	20.5	21.5	24.0	20.5	22.0	27.5	26.0	26.5	24.0	22.5	23.5
7	23.5	21.5	22.5	26.0	24.0	25.0	27.0	25.5	26.5	24.0	22.5	23.0
8	23.5	22.0	23.0	25.5	24.5	25.0	26.5	25.0	26.0	22.5	21.5	22.0
9	23.0	21.5	22.0	26.0	24.5	25.0	27.0	24.5	25.5	23.0	21.5	22.0
10	21.5	21.0	21.5	26.0	24.5	25.5	27.5	26.0	26.5	23.0	21.5	22.0
11	23.0	21.0	22.0	26.0	22.0	25.0	27.5	26.0	26.5	22.0	20.0	21.0
12	24.5	22.0	23.5	25.0	23.5	24.0	27.5	23.0	26.5	20.0	18.5	19.5
13	25.5	23.5	24.5	24.5	22.5	23.5	26.5	24.5	25.5	20.5	18.5	19.5
14	26.5	24.5	25.5	24.5	22.5	23.5	26.5	25.0	26.0	20.5	19.0	19.5
15	26.5	24.5	25.5	25.5	23.5	24.5	28.0	25.5	26.5	20.0	19.5	20.0
16	26.0	24.5	25.5	26.5	24.0	25.0	27.5	26.5	27.0	19.5	19.0	19.5
17	26.0	24.5	25.5	26.0	25.0	25.5	27.0	26.0	26.5	19.5	19.0	19.0
18	26.0	25.0	25.5	25.5	24.5	25.0	26.5	23.5	25.5	19.0	18.0	18.5
19	25.5	24.0	25.0				25.5	23.0	24.0	18.0	17.0	17.5
20	25.5	24.0	24.5				23.5	22.0	23.0	18.0	16.5	17.5
21	26.5	24.5	25.5	29.5	28.0	29.0	25.0	23.0	24.0	18.0	17.0	17.5
22	27.0	25.5	26.0	29.5	28.0	28.5	24.5	23.5	24.0	18.5	16.5	17.5
23	27.0	26.0	26.5	29.0	27.0	28.5	23.0	22.0	22.5	19.0	17.0	18.0
24	26.5	25.0	25.5	29.0	27.5	28.5	22.0	20.0	21.0	19.0	17.0	18.0
25	25.0	24.0	24.5	29.0	26.5	27.5	20.0	19.0	19.5	19.5	18.0	19.0
26	24.5	23.0	23.5	30.0	27.5	29.0	19.0	18.5	18.5	20.5	19.0	19.5
27	24.0	22.5	23.5	30.5	28.5	30.0	19.0	18.0	18.5	21.0	19.5	20.5
28	24.5	23.0	24.0	31.5	29.5	30.5	20.0	18.0	19.0	20.5	19.0	20.0
29	24.5	23.0	23.5	32.0	30.0	31.0	21.5	19.5	20.5	19.0	17.5	18.5
30	24.0	22.5	23.0	32.0	30.5	31.5	21.5	20.5	21.0	18.5	17.0	18.0
31				32.0	30.5	31.5	21.5	20.0	21.0			

06478513 JAMES RIVER NEAR YANKTON, SD

LOCATION.--Lat 42°59'45", long 97°22'10", in NE¼NW¼ 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 mi northeast of Yankton.

DRAINAGE AREA.--20,942 mi², of which about 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 11 to Feb. 19. 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. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--6 years, 1,070 ft³/s, 775,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,400 ft³/s, June 23, 1984, gage height, 24.34 ft; minimum daily discharge, 0.78 ft³/s, Oct. 4, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,100 ft³/s at 0345 hours, Mar. 29, gage height, 19.98 ft; minimum daily discharge, 143 ft³/s, Sept. 29.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2960	487	370	170	180	271	8760	2200	1020	499	217	233
2	2840	489	360	170	180	291	8400	2120	984	480	207	226
3	2700	487	360	170	180	303	7910	2030	963	459	198	220
4	2520	471	350	170	180	309	7500	1970	947	464	194	212
5	2340	460	300	170	180	315	7120	1910	933	722	191	196
6	2050	448	340	170	180	322	6780	1860	906	1410	197	187
7	1790	442	350	170	190	323	6410	1810	873	1120	186	186
8	1320	445	360	170	190	320	6040	1780	847	765	183	188
9	1150	431	380	170	190	320	5700	1760	811	706	186	194
10	1030	427	350	170	195	336	5360	1730	798	553	201	187
11	961	400	370	170	205	343	5050	1690	773	550	202	174
12	919	400	370	170	220	337	4730	1650	755	712	191	165
13	883	400	360	170	220	337	4480	1610	747	771	183	160
14	841	420	340	180	215	338	4280	1550	726	705	191	157
15	793	410	310	180	210	337	4080	1500	702	596	213	154
16	775	410	290	190	200	338	3930	1450	691	509	224	172
17	737	400	280	180	200	375	3770	1400	771	449	224	182
18	702	400	270	180	200	550	3600	1340	740	407	230	197
19	668	400	270	190	210	1160	3440	1340	785	373	237	201
20	633	400	260	195	216	1930	3310	1320	730	352	246	192
21	606	410	250	200	215	2220	3130	1260	694	332	251	183
22	585	420	240	200	216	2400	3000	1220	669	310	252	176
23	577	420	230	200	225	2700	2890	1210	678	281	261	168
24	563	430	220	190	232	3380	2780	1160	653	265	270	161
25	555	430	210	180	232	4490	2690	1130	623	268	271	157
26	553	430	200	180	233	5630	2590	1120	582	284	267	155
27	548	420	190	180	235	7920	2500	1100	563	286	264	151
28	537	410	180	180	253	10600	2410	1070	548	271	261	146
29	525	400	180	180	---	10600	2340	1040	526	254	260	143
30	522	380	170	180	---	9780	2270	1040	509	239	253	144
31	513	---	170	180	---	9010	---	1030	---	228	240	---
TOTAL	34696	12777	8880	5555	5782	77885	137250	46400	22547	15620	6951	5367
MEAN	1119	426	286	179	207	2512	4575	1497	752	504	224	179
MAX	2960	489	380	200	253	10600	8760	2200	1020	1410	271	233
MIN	513	380	170	170	180	271	2270	1030	509	228	183	143
AC-FT	68820	25340	17610	11020	11470	154500	272200	92030	44720	30980	13790	10650

CAL YR 1986 TOTAL 807481 MEAN 2212 MAX 10900 MIN 56 AC-FT 1602000
WTR YR 1987 TOTAL 379710 MEAN 1040 MAX 10600 MIN 143 AC-FT 753200

06478515 MISSOURI RIVER NEAR GAYVILLE, SD

STAGE RECORDS

LOCATION.--Lat 42°51'01", long 97°13'12", in SW¼NW¼ 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 National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records fair except for Oct. 1 to Dec. 15 and Mar. 24 to Sept. 30, which are poor. Stage regulated by Gavins Point Dam 15.0 mi upstream. 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 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49.76	50.38	50.36	48.65	47.58	47.37	48.98	48.73	47.74	48.58	48.55	48.73
2	49.75	50.38	50.13	48.68	47.56	47.39	48.77	48.74	47.98	48.59	48.57	48.74
3	49.71	50.40	50.13	48.67	47.56	47.38	48.71	48.71	48.09	48.59	48.57	48.77
4	49.76	50.44	50.15	48.68	47.55	47.36	48.65	48.71	47.90	48.60	48.58	48.77
5	49.74	50.45	50.12	48.67	47.55	47.36	48.54	48.72	48.49	48.60	48.60	48.75
6	49.77	50.38	49.99	48.64	47.53	47.38	48.46	48.60	48.58	48.65	48.69	48.73
7	49.78	50.39	---	48.64	47.52	47.34	48.53	48.61	48.59	48.64	48.68	48.78
8	49.66	50.35	---	48.67	47.50	47.29	48.74	48.63	48.55	48.62	48.63	48.71
9	49.68	50.38	---	48.66	47.54	47.29	48.92	48.66	48.55	48.59	48.58	48.73
10	49.96	50.34	---	48.67	47.53	47.30	49.08	48.65	48.57	48.47	48.59	48.74
11	49.90	50.38	---	48.67	47.50	47.30	49.18	48.73	48.56	48.38	48.62	48.72
12	49.89	50.32	---	48.47	47.51	47.30	49.19	48.82	48.58	48.42	48.56	48.73
13	49.90	50.37	---	48.06	47.50	47.29	49.15	48.86	48.61	48.47	48.58	48.72
14	49.88	50.36	---	47.78	47.48	47.24	49.20	48.72	48.59	48.48	48.58	48.71
15	49.87	50.30	---	47.79	47.49	47.25	49.24	48.77	48.59	48.45	48.60	48.69
16	50.13	50.39	49.60	48.01	47.48	47.25	49.19	48.81	48.58	48.45	48.55	48.69
17	50.51	50.16	49.57	47.76	47.48	47.27	49.05	48.72	48.64	48.47	45.57	48.68
18	50.61	50.59	49.21	47.78	47.49	47.37	49.90	---	48.65	48.42	---	48.68
19	50.73	50.70	48.72	47.70	47.49	47.45	48.91	---	48.65	48.42	---	48.68
20	50.87	50.60	48.75	47.87	47.45	47.76	48.65	48.73	48.65	48.48	---	48.67
21	50.98	50.49	48.79	47.68	47.45	47.94	48.56	48.71	48.65	48.48	---	48.67
22	50.97	50.46	48.78	47.84	47.46	47.79	48.42	48.70	48.62	48.50	---	48.69
23	50.88	50.49	48.77	47.85	47.45	47.57	48.35	48.73	---	48.43	---	48.68
24	50.88	50.52	48.72	47.78	47.48	47.30	48.39	48.74	48.55	48.47	---	48.67
25	50.87	50.45	48.53	47.78	47.43	47.54	48.46	48.78	48.56	48.48	---	48.68
26	50.69	50.43	48.51	47.64	47.43	47.72	48.35	48.61	48.50	48.45	48.49	48.69
27	50.39	50.42	48.50	47.59	47.42	47.89	48.28	47.94	48.55	48.43	48.62	48.69
28	50.36	50.41	48.48	47.55	47.40	48.78	48.47	47.59	48.56	48.50	48.72	48.66
29	50.38	50.40	48.54	47.54	---	48.98	48.60	47.28	48.56	48.50	48.78	48.65
30	50.44	50.39	48.66	47.52	---	48.97	48.63	47.50	48.56	48.52	48.77	48.73
31	50.41	---	48.67	47.59	---	48.82	---	47.70	---	48.52	48.74	---
MEAN	50.23	50.42	---	48.09	47.49	47.62	48.78	---	---	48.50	---	48.71
MAX	50.98	50.70	---	48.68	47.58	48.98	49.90	---	---	48.65	---	48.78
MIN	49.66	50.16	---	47.52	47.40	47.24	48.28	---	---	48.38	---	48.65

06478533 LAKE THOMPSON NEAR RAMONA, SD

STAGE RECORDS

LOCATION.--Lat 44°07'53", long 97°23'09", in SE¼SW¼NW¼ sec.25, T.108 N., R.55 W., Miner County, Hydrologic Unit 10170103, on right bank 70 ft upstream from half-mile section line, 8.3 mi northwest of Ramona, and about 0.25 mi upstream from the outlet.

DRAINAGE AREA.--494 mi².

PERIOD OF RECORD.--Nov. 4, 1986, to Sept. 30, 1987.

GAGE.--Water-stage recorder. An accurate elevation of the gage is not known at the time of this report.

REMARKS.--Records good. Because of the large surface area of the lake, wind conditions have a drastic affect on stage at this point; such as a northerly wind increasing the stage and a southerly wind decreasing the stage.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	---	3.00	3.06	3.02	3.65	3.37	3.34	2.93	2.83	2.81
2		---	---	3.00	3.05	3.02	3.81	3.49	3.45	2.91	2.83	2.81
3		---	---	3.00	3.06	3.03	3.61	3.54	3.53	2.90	2.86	2.75
4		2.65	---	2.98	3.05	3.03	3.47	3.52	3.46	2.91	2.86	2.72
5		---	---	2.96	3.05	3.03	3.46	3.54	3.36	2.97	2.85	2.94
6		---	---	2.97	3.04	3.03	3.51	3.60	3.27	2.95	2.83	2.91
7		2.66	---	3.00	3.04	3.02	3.54	3.64	3.18	2.97	2.82	2.89
8		---	---	3.00	3.02	3.01	3.54	3.56	3.16	2.99	2.84	2.88
9		---	---	3.03	3.02	3.08	3.51	3.44	3.21	3.03	2.86	2.87
10		---	2.62	3.05	3.01	3.12	3.55	3.52	3.21	3.06	2.84	2.85
11		---	---	3.03	3.02	3.07	3.64	3.62	3.17	3.11	2.80	2.84
12		---	---	2.99	3.00	3.06	3.63	3.48	3.17	3.22	2.78	2.85
13		---	---	2.98	3.00	3.05	3.75	3.21	3.18	3.32	2.78	2.84
14		---	---	2.98	3.00	3.03	3.86	3.23	3.20	3.27	2.78	2.82
15		---	---	3.01	2.99	3.03	3.75	3.33	3.21	3.21	2.78	2.80
16		---	---	3.04	2.99	3.01	3.66	3.16	3.18	3.11	2.80	2.82
17		---	---	3.07	2.99	3.01	3.60	3.08	3.13	3.00	2.80	2.87
18		---	---	3.07	3.00	3.04	3.38	3.25	3.10	2.93	2.80	2.86
19		---	---	3.07	3.00	3.05	3.16	3.41	3.09	2.92	2.80	2.85
20		---	---	3.08	3.00	3.00	3.47	3.38	3.09	2.93	2.80	2.85
21		---	---	3.09	3.00	2.98	3.81	3.45	3.08	3.02	2.79	2.84
22		---	2.97	3.10	3.00	2.98	3.75	3.70	3.08	2.95	2.79	2.84
23		---	---	3.11	3.00	3.08	3.70	3.46	3.07	2.89	2.80	2.82
24		---	2.94	3.12	3.00	3.71	3.51	3.34	3.07	2.86	2.82	2.81
25		---	2.96	3.12	2.99	3.96	3.54	3.27	3.10	2.86	2.80	2.79
26		---	2.96	3.12	2.99	3.77	3.60	3.34	3.09	2.86	2.80	2.77
27		---	2.96	3.12	2.99	3.57	3.71	3.23	3.08	2.86	2.79	2.75
28		---	2.97	3.12	3.00	3.93	3.59	3.14	3.04	2.85	2.80	2.77
29		---	2.98	3.10	---	4.06	3.62	3.15	3.00	2.85	2.79	2.78
30		---	2.99	3.08	---	3.65	3.54	3.36	2.97	2.85	2.79	2.78
31		---	2.99	3.07	---	3.54	---	3.41	---	2.85	2.79	---
MEAN		---	---	3.05	3.01	3.22	3.60	3.39	3.18	2.98	2.81	2.83
MAX		---	---	3.12	3.06	4.06	3.86	3.70	3.53	3.32	2.86	2.94
MIN		---	---	2.96	2.99	2.98	3.16	3.08	2.97	2.85	2.78	2.72

06478535 EAST FORK VERMILLION RIVER NEAR RAMONA, SD

LOCATION.--Lat 44°06'35", long 97°23'13", in NE¼NW¼NW¼ sec.1, T.107 N, R.55 W, Miner County, Hydrologic Unit 10170103, near right downstream wingwall of bridge, 8.3 mi west of Ramona, and 1.9 mi downstream from Lake Thompson outlet.

DRAINAGE AREA.--508 mi².

PERIOD OF RECORD.--Nov. 5, 1986, to Sept. 30, 1987.

GAGE.--Water-stage recorder. An accurate elevation of the gage is not known at the time of this report.

REMARKS.--Record good except for period of estimated record, which is poor. Estimated daily discharge during period: Nov. 9 to Mar. 5. Because of the large surface area of Lake Thompson, wind conditions have a drastic effect on outflow, such as a northerly wind increasing the discharge and a southerly wind decreasing the discharge. There is also some inflow from unnamed tributaries between Lake Thompson and this gage. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 90 ft³/s at 2015 hours, Mar. 24, gage height, 6.17 ft; maximum gage height, 6.41 ft, Mar. 29, backwater from ice; minimum daily discharge, 1.0 ft³/s, Jan. 25, 26.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	3.0	2.5	2.5	7.0	15	15	8.1	2.8	3.1	2.0
2		---	3.0	2.0	2.5	8.0	25	17	7.9	2.4	3.2	2.0
3		---	2.5	2.0	2.5	9.0	23	20	9.9	2.3	3.7	1.9
4		---	2.5	2.0	2.5	10	22	20	10	2.6	3.7	1.5
5		2.9	2.5	2.0	2.5	9.0	19	20	7.3	3.4	3.7	7.1
6		2.8	2.5	2.0	2.5	8.9	21	23	5.3	3.0	3.3	3.3
7		2.7	2.5	2.0	2.5	6.7	23	26	3.5	3.2	3.2	2.6
8		2.8	2.5	2.0	2.5	5.8	23	25	3.2	3.3	3.6	2.3
9		2.5	2.0	2.0	2.6	6.0	20	17	3.6	4.0	4.1	2.2
10		2.0	1.5	2.0	2.6	6.8	21	19	4.6	5.1	3.9	2.1
11		2.0	1.5	2.0	3.0	6.8	27	23	4.0	6.2	3.7	2.0
12		2.0	1.5	2.0	2.5	6.3	28	25	3.8	7.4	3.1	2.2
13		2.0	1.5	2.4	2.5	6.5	36	14	4.1	10	3.1	2.2
14		2.0	1.5	2.5	2.5	6.7	49	9.3	4.6	11	3.0	2.2
15		2.0	1.5	2.0	2.5	6.3	41	13	4.8	9.8	2.9	2.1
16		2.0	1.5	2.0	2.5	6.0	31	9.8	4.6	8.7	3.0	2.2
17		2.0	2.0	2.0	2.5	8.1	27	6.6	4.0	6.3	3.2	2.4
18		2.0	2.0	2.0	2.5	10	21	6.9	3.5	4.4	3.2	2.4
19		2.0	2.0	1.5	2.5	10	12	13	3.3	3.6	3.1	2.6
20		2.0	2.0	1.5	2.5	10	15	14	3.2	3.8	2.9	2.7
21		2.0	2.0	1.5	2.5	10	38	13	3.2	6.4	2.8	2.7
22		2.5	2.0	1.5	2.5	8.4	38	23	3.2	5.1	2.7	2.7
23		2.5	2.0	1.5	2.5	11	33	20	3.1	3.7	2.7	2.7
24		3.0	2.0	1.5	2.5	57	26	14	3.5	3.2	2.8	2.5
25		3.0	2.0	1.0	3.0	82	20	11	4.0	3.3	2.7	2.2
26		3.0	2.0	1.0	4.0	62	24	11	3.9	3.3	2.5	1.9
27		3.0	2.0	1.5	5.0	36	29	9.9	3.9	3.2	2.5	1.4
28		3.5	2.0	1.5	6.0	30	26	6.5	3.7	3.2	2.4	1.4
29		3.0	2.0	2.0	---	25	23	4.8	3.4	3.2	2.4	1.7
30		3.0	2.0	2.0	---	20	24	7.1	3.1	3.2	2.3	1.8
31		---	2.5	2.0	---	15	---	10	---	3.2	2.1	---
TOTAL		---	64.0	57.4	78.7	510.3	780	466.9	138.3	144.3	94.6	71.0
MEAN		---	2.06	1.85	2.81	16.5	26.0	15.1	4.61	4.65	3.05	2.37
MAX		---	3.0	2.5	6.0	82	49	26	10	11	4.1	7.1
MIN		---	1.5	1.0	2.5	5.8	12	4.8	3.1	2.3	2.1	1.4
AC-FT		---	127	114	156	1010	1550	926	274	286	188	141

06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD
(Hydrologic bench-mark station)

LOCATION.--Lat 43°47'39", long 97°22'02", in SW¼ sec.19, T.104 N., R.54 W., McCook County, Hydrologic Unit 10170102, on right wingwall at 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.--77.7 mi², approximately.

PERIOD OF RECORD.--October 1966 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area.

GAGE.--Water-stage recorder and concrete dam. Elevation of gage is 1,510 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except for periods of estimated record, which are poor. Estimated daily discharge during water year: Oct. 1-19, 21, Nov. 13-24, Dec. 6-14, and Dec. 16 to Feb. 11. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--21 years, 4.92 ft³/s, 3,560 acre-ft/yr; median of yearly mean discharges, 2.3 ft³/s, 1,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ft³/s, June 20, 1984, gage height, 9.88 ft, backwater from tributary; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 26	0600	*217	*7.23	July 11	2330	56	5.44

No flow for many days.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	3.7	3.5	.30	.10	1.6	48	.82	.72	.00	.00	.00
2	50	3.6	3.3	.20	.09	1.5	38	.77	.29	.00	.00	.00
3	50	3.2	3.0	.20	.10	1.6	31	1.3	.02	.00	.00	.00
4	45	3.0	2.7	.20	.10	1.5	27	1.3	.00	.00	.00	.00
5	45	2.7	2.1	.20	.10	1.4	23	1.4	.00	.00	.00	.00
6	40	2.5	1.8	.20	.50	1.4	19	1.2	.00	.00	.00	.00
7	40	2.4	1.6	.17	1.0	2.1	15	.93	.00	.00	.00	.00
8	35	2.3	1.2	.15	1.0	2.4	12	.63	.00	.00	.00	.00
9	35	2.3	1.0	.15	1.2	1.6	10	.45	.00	.00	.00	.00
10	30	2.3	1.0	.15	1.3	1.8	8.7	.32	.00	.00	.00	.00
11	30	2.2	.90	.15	1.8	1.8	8.2	.29	.03	6.6	.00	.00
12	25	2.2	.90	.15	2.4	1.8	7.5	.03	.00	41	.00	.00
13	25	2.2	.80	.15	2.5	1.9	7.3	.00	.00	24	.00	.00
14	20	2.2	.75	.15	2.7	1.9	7.1	.00	.00	17	.00	.00
15	20	2.5	.74	.15	2.7	1.7	6.0	.00	.00	10	.00	.00
16	15	2.5	.70	.15	2.7	1.7	5.3	.00	.00	5.1	.00	.00
17	15	2.5	.70	.15	2.7	2.9	4.4	.00	.00	3.5	.00	.00
18	10	2.5	.70	.10	2.5	7.8	3.6	.00	.00	3.7	.00	.00
19	8.0	2.5	.65	.10	2.4	9.1	2.9	.00	.00	3.8	.00	.00
20	7.5	2.5	.65	.10	2.2	11	2.2	.00	.00	3.3	.00	.00
21	7.0	2.5	.65	.10	2.0	21	1.6	.00	.00	2.6	.00	.00
22	6.8	3.0	.60	.10	1.9	26	1.5	.00	.00	2.0	.00	.00
23	6.8	3.0	.60	.10	1.9	34	1.3	.00	.00	1.5	.00	.00
24	6.5	3.0	.60	.10	1.8	76	1.3	.00	.00	.96	.00	.00
25	6.2	3.0	.50	.10	1.8	160	1.3	.00	.00	.63	.00	.00
26	6.2	3.2	.50	.10	1.7	209	1.3	.99	.00	.30	.00	.00
27	5.7	3.1	.40	.10	1.6	162	1.3	.00	.00	.04	.00	.00
28	5.4	3.2	.40	.10	1.7	111	1.2	1.4	.00	.00	.00	.00
29	5.0	3.3	.30	.10	---	87	1.2	1.3	.00	.00	.00	.00
30	4.5	3.5	.30	.10	---	65	.93	1.5	.00	.00	.00	.00
31	4.4	---	.30	.10	---	55	---	1.1	---	.00	.00	---
TOTAL	665.0	82.6	33.84	4.37	44.49	1064.5	299.13	15.73	1.06	126.03	.00	.00
MEAN	21.5	2.75	1.09	.14	1.59	34.3	9.97	.51	.03	4.07	.00	.00
MAX	55	3.7	3.5	.30	2.7	209	48	1.5	.72	41	.00	.00
MIN	4.4	2.2	.30	.10	.09	1.4	.93	.00	.00	.00	.00	.00
AC-FT	1320	164	67	8.7	88	2110	593	31	2.1	250	.00	.00

CAL YR 1986	TOTAL	6694.96	MEAN	18.3	MAX	305	MIN	.00	AC-FT	13280
WTR YR 1987	TOTAL	2336.75	MEAN	6.40	MAX	209	MIN	.00	AC-FT	4630

06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD

LOCATION.--Lat 43°24'55", long 97°12'18", in NE¼NE¼ sec.10, T.99 N., R.54 W., Turner County, Hydrologic Unit 10170102, on left downstream wingwall of bridge, 3.7 mi northwest of Parker, and 13.9 mi upstream from confluence with East Fork Vermillion River.

DRAINAGE AREA.--370 mi², approximately.

PERIOD OF RECORD.--August 1961 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,340 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 11, 1973, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 8-11 and Dec. 4, 5, 9. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--26 years, 35.7 ft³/s, 25,860 acre-ft/yr; median of yearly mean discharges, 15 ft³/s, 10,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,800 ft³/s, June 16, 1984, gage height, 12.57 ft; no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 25	2230	*1,760	*9.92	No other peak greater than base discharge.			

Minimum daily discharge, 0.15 ft³/s, Sept. 10-17, 22-30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	18	18	5.9	4.8	6.8	314	13	8.6	.56	.33	.30
2	93	16	18	5.8	4.8	6.6	233	13	6.1	.55	.23	.30
3	82	16	16	5.6	4.8	7.1	174	13	4.7	.49	.28	.30
4	71	15	15	5.6	4.8	7.5	127	12	3.7	.51	.27	.31
5	63	15	14	5.3	4.8	7.9	101	11	3.0	5.2	.27	.28
6	55	15	13	5.0	4.6	7.5	85	11	2.4	19	.42	.21
7	50	15	13	5.0	5.1	8.0	73	11	1.9	15	.37	.19
8	46	15	12	5.2	5.9	8.3	63	9.9	1.6	14	.47	.19
9	43	14	12	5.0	5.1	8.2	57	8.7	1.5	14	.62	.16
10	40	14	12	4.9	4.9	7.9	52	7.8	1.7	14	.71	.15
11	39	14	11	4.9	5.2	7.7	48	6.7	2.1	14	.40	.15
12	39	13	10	5.0	5.6	7.9	45	5.5	2.0	16	.40	.15
13	38	12	10	5.1	5.3	7.9	44	5.0	1.7	13	.35	.15
14	36	11	9.7	5.3	5.3	7.7	44	4.8	1.7	11	.33	.15
15	34	11	9.0	5.1	5.5	8.4	43	4.4	1.5	18	.33	.15
16	33	11	8.6	4.8	5.1	8.7	41	4.1	1.4	13	.46	.15
17	31	11	8.5	4.8	5.0	12	39	3.9	1.9	8.2	.36	.15
18	30	11	8.1	4.4	5.1	59	37	3.6	2.0	5.5	.34	.18
19	28	12	7.8	4.3	5.0	84	34	3.3	1.8	4.7	.34	.20
20	28	11	7.6	4.4	4.7	78	31	3.7	1.6	3.6	.34	.23
21	26	13	7.1	4.4	4.4	93	29	4.4	1.6	1.5	.34	.23
22	25	12	7.1	4.2	4.3	98	28	4.1	1.5	1.7	.31	.15
23	27	14	6.9	3.9	4.2	173	28	5.1	1.2	1.1	.30	.15
24	28	14	6.6	3.9	4.6	898	25	5.5	.87	.75	.31	.15
25	26	17	6.4	3.9	5.5	1480	23	6.5	.92	.81	.34	.15
26	25	19	6.4	3.9	5.9	1580	22	7.3	.79	.57	.34	.15
27	24	18	6.6	4.0	6.2	1140	19	6.2	.62	.33	.31	.15
28	23	18	6.6	4.1	6.8	815	17	5.7	.64	.30	.30	.15
29	21	18	6.5	4.2	---	471	15	6.4	.66	.27	.30	.15
30	20	18	6.2	4.4	---	427	14	9.2	.56	.43	.34	.15
31	20	---	6.0	4.6	---	378	---	10	---	.46	.32	---
TOTAL	1255	431	305.7	146.9	143.3	7910.1	1905	225.8	62.26	198.53	11.13	5.63
MEAN	40.5	14.4	9.86	4.74	5.12	255	63.5	7.28	2.08	6.40	.36	.19
MAX	111	19	18	5.9	6.8	1580	314	13	8.6	19	.71	.31
MIN	20	11	6.0	3.9	4.2	6.6	14	3.3	.56	.27	.23	.15
AC-FT	2490	855	606	291	284	15690	3780	448	123	394	22	11

CAL YR 1986	TOTAL	44529.74	MEAN	122	MAX	1480	MIN	.80	AC-FT	88320
WTR YR 1987	TOTAL	12600.35	MEAN	34.5	MAX	1580	MIN	.15	AC-FT	24990

06479010 VERMILLION RIVER NEAR VERMILLION, SD

LOCATION.--Lat 42°49'02", long 96°55'26", in SE¼SE¼NW¼ 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.--1,779 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 1,125 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 12 to Feb. 7 and Mar. 21-24. Several observations of water temperature and specific conductance were made during the year. U.S. Army Corps of Engineers satellite data-collection platform at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,400 ft³/s, June 23, 1984, gage height, 31.77 ft; minimum daily discharge, 30 ft³/s, Feb. 24, 26, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 30	1845	*2,350	*16.37	No other peak greater than base discharge.			

Minimum daily discharge, 35 ft³/s, Sept. 12, 14.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2100	284	240	80	80	146	2290	244	180	88	86	44
2	1960	269	240	80	90	151	2230	239	171	86	81	42
3	1650	262	230	80	90	152	2150	231	159	82	77	40
4	1340	254	190	80	90	151	2060	230	147	80	73	39
5	1130	245	160	80	90	150	1870	231	138	81	69	38
6	960	238	160	80	90	150	1590	228	129	86	68	38
7	827	234	160	70	100	153	1350	217	122	99	65	37
8	723	248	160	70	118	164	1150	208	114	122	64	36
9	638	256	160	70	116	169	973	201	115	207	65	36
10	581	255	160	60	117	170	843	191	116	331	67	36
11	542	278	160	60	125	171	764	179	117	294	63	36
12	525	300	160	70	133	168	695	167	115	247	61	35
13	504	330	160	80	134	164	647	161	112	238	59	37
14	493	350	160	70	138	161	619	153	108	268	58	35
15	465	320	160	70	135	161	597	143	103	224	55	36
16	433	200	150	60	130	162	580	127	99	256	55	47
17	406	180	150	60	129	170	550	103	98	344	55	60
18	382	160	140	60	115	201	518	121	104	365	57	70
19	361	150	130	60	122	300	486	119	312	333	56	63
20	344	160	120	60	127	513	452	123	191	285	56	64
21	329	160	120	60	132	700	421	152	129	233	53	61
22	321	170	120	50	129	1000	395	156	158	195	50	55
23	313	180	110	50	127	1300	377	142	143	167	50	50
24	310	190	100	50	120	1600	358	135	126	150	48	47
25	339	200	100	60	127	1740	341	149	116	135	48	45
26	345	220	100	60	133	1890	323	209	113	127	50	43
27	343	220	100	60	131	2020	303	240	107	118	50	42
28	335	230	100	70	137	2150	289	252	105	111	50	41
29	320	250	90	80	---	2260	275	240	99	105	50	40
30	308	240	90	80	---	2330	260	215	94	99	48	39
31	299	---	90	80	---	2320	---	194	---	93	46	---
TOTAL	19926	7033	4470	2100	3305	23037	25756	5700	3940	5649	1833	1332
MEAN	643	234	144	67.7	118	743	859	184	131	182	59.1	44.4
MAX	2100	350	240	80	138	2330	2290	252	312	365	86	70
MIN	299	150	90	50	80	146	260	103	94	80	46	35
AC-FT	39520	13950	8870	4170	6560	45690	51090	11310	7810	11200	3640	2640

CAL YR 1986	TOTAL	238063	MEAN	652	MAX	2900	MIN	30	AC-FT	472200
WTR YR 1987	TOTAL	104081	MEAN	285	MAX	2330	MIN	35	AC-FT	206400

06479215 BIG SIOUX RIVER NEAR FLORENCE, SD

LOCATION.--Lat 45°10'51", long 97°11'09", in NE¼NE¼NE¼ 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. Elevation of gage is 1,780 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 11 to Dec. 20, Jan. 14-25, and Mar. 7-11, 29-31. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,810 ft³/s, Mar. 29, 1986, gage height, 9.08 ft; no flow Aug. 9-11, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 40 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 25	2300	*177	*7.51	No other peak greater than base discharge.			

Minimum daily discharge, 0.04 ft³/s, Aug. 5, 6.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	5.0	4.3	1.7	.83	3.6	39	8.8	1.8	.24	.05	.07
2	20	5.0	4.7	1.7	.86	4.7	28	8.0	1.1	.25	.05	.07
3	18	5.0	4.7	1.7	.93	4.2	27	7.4	.95	.22	.05	.07
4	17	4.7	4.3	1.7	.92	5.5	25	6.9	.81	.46	.06	.07
5	16	4.6	4.0	1.7	.94	11	25	7.0	.70	.60	.04	.07
6	15	4.5	3.7	1.7	1.1	20	23	6.6	.60	.30	.04	.07
7	15	4.7	3.4	1.7	1.3	28	21	5.7	.55	.25	.05	.07
8	14	5.1	3.1	1.7	1.4	20	20	4.9	.50	.23	.09	.07
9	13	5.5	2.7	1.7	1.3	13	20	4.5	.46	.35	.07	.07
10	12	5.2	2.5	1.7	1.4	11	20	3.9	.48	.77	.07	.08
11	11	5.0	2.4	1.7	1.5	11	20	3.6	.60	.31	.05	.09
12	9.9	4.7	2.3	1.6	1.7	10	20	2.9	.51	.25	.08	.09
13	9.6	4.3	2.1	1.7	1.7	10	21	3.3	.47	.22	.08	.09
14	9.6	3.7	2.0	1.6	1.6	9.5	22	4.0	.40	.21	.06	.10
15	9.3	3.5	2.0	1.6	1.6	8.1	22	2.8	.35	.19	.08	.09
16	9.1	3.5	2.0	1.4	1.6	8.6	23	2.2	.33	.17	.11	.14
17	8.9	3.7	2.0	1.3	1.4	7.4	23	2.0	.33	.15	.08	.20
18	8.7	3.6	2.0	1.2	1.3	7.9	23	2.2	.32	.15	.09	.13
19	8.4	3.5	2.0	1.1	1.3	16	22	2.2	.31	.17	.07	.12
20	8.0	3.5	2.0	.95	1.3	45	26	2.2	.32	.15	.07	.13
21	8.0	3.3	2.0	.90	1.3	52	28	2.4	.32	.17	.07	.11
22	7.7	3.2	1.9	.85	1.3	48	27	2.5	.31	.10	.07	.11
23	7.3	3.2	1.9	.75	1.3	70	24	2.4	.31	.10	.07	.11
24	6.7	3.3	1.9	.70	1.4	80	21	2.7	.31	.10	.07	.11
25	6.4	3.5	1.9	.72	1.6	134	18	3.5	.31	.10	.07	.10
26	6.1	3.7	1.8	.71	1.9	137	16	3.7	.29	.09	.07	.11
27	5.7	3.8	1.8	.71	3.3	118	14	3.6	.25	.10	.07	.11
28	5.7	3.9	1.8	.71	3.6	83	13	3.4	.25	.08	.07	.11
29	5.5	4.1	1.8	.71	---	55	12	3.6	.24	.09	.07	.11
30	5.3	4.2	1.8	.71	---	47	9.7	3.2	.23	.07	.07	.11
31	5.3	---	1.8	.74	---	44	---	2.0	---	.06	.07	---
TOTAL	323.2	124.5	78.6	39.36	41.68	1122.5	652.7	124.1	14.71	6.70	2.11	2.98
MEAN	10.4	4.15	2.54	1.27	1.49	36.2	21.8	4.00	.49	.22	.07	.10
MAX	21	5.5	4.7	1.7	3.6	137	39	8.8	1.8	.77	.11	.20
MIN	5.3	3.2	1.8	.70	.83	3.6	9.7	2.0	.23	.06	.04	.07
AC-FT	641	247	156	78	83	2230	1290	246	29	13	4.2	5.9

CAL YR 1986	TOTAL	11480.79	MEAN	31.5	MAX	1140	MIN	.25	AC-FT	22770
WTR YR 1987	TOTAL	2533.14	MEAN	6.94	MAX	137	MIN	.04	AC-FT	5020

06479438 BIG SIOUX RIVER NEAR WATERTOWN, SD

LOCATION.--Lat 45°00'22", long 97°09'53", in NE¼NE¼NE¼ 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 Manoney Creek, 6.5 mi upstream from inlet-outlet to Lake Kampeska, and 7.5 mi northwest of Watertown.

DRAINAGE AREA.--1,007 mi², approximately, of which about 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. Datum of gage is 1,725.81 ft above National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 8 to Feb. 4, Feb. 8, 9, 11, 14-18, Feb. 27 to Mar. 5, and Mar. 9-15, 30, 31. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--15 years, 26.5 ft³/s, 19,200 acre-ft/yr; median of yearly mean discharge, 13 ft³/s, 9,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,970 ft³/s, Mar. 30, 1986, gage height, 11.08 ft; no flow at times in 1974-82, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 25	1400	*601	*8.01	No other peak greater than base discharge.			

Minimum daily discharge, 0.71 ft³/s, Aug. 1.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	24	17	7.0	6.5	12	114	34	36	3.3	.71	3.3
2	51	24	18	6.5	6.5	13	92	32	26	3.1	.74	2.8
3	49	24	17	7.0	6.5	14	80	30	18	3.4	.84	2.6
4	46	24	16	7.0	6.5	15	74	28	13	4.2	.80	2.3
5	43	24	15	7.0	6.8	18	67	25	9.6	6.8	.79	2.6
6	41	24	14	7.0	7.2	26	64	25	8.3	7.2	.75	2.6
7	39	24	14	6.5	7.5	45	61	23	6.8	7.4	.80	2.5
8	38	23	13	7.0	7.5	56	59	21	6.0	5.7	2.7	2.5
9	36	23	13	7.0	7.5	58	58	20	5.7	4.7	8.6	2.4
10	35	22	12	7.0	7.6	45	58	18	5.7	6.2	12	2.0
11	33	19	11	7.0	8.0	33	60	16	9.2	5.5	8.2	1.9
12	32	16	10	7.0	8.4	28	61	15	8.5	5.3	6.3	1.9
13	31	14	10	7.0	8.7	25	64	13	7.0	5.2	6.0	1.7
14	30	15	9.5	7.0	9.0	24	66	12	6.0	4.1	5.8	1.8
15	30	17	9.5	6.0	9.0	23	67	11	5.1	3.5	5.1	1.6
16	30	17	9.0	6.5	9.1	25	69	9.8	4.7	3.1	6.1	1.8
17	29	17	9.0	7.0	8.9	24	70	8.9	4.2	3.1	6.8	3.0
18	29	17	9.0	7.0	9.0	25	70	7.9	3.9	3.3	6.7	5.1
19	29	17	9.0	7.0	9.0	29	69	7.9	3.6	3.4	5.7	5.8
20	28	17	9.0	7.0	8.7	73	71	8.8	3.8	3.3	4.1	5.8
21	28	17	8.5	7.0	8.7	212	76	13	4.0	4.4	3.6	5.3
22	28	17	8.5	7.0	9.1	172	80	16	3.7	3.5	3.2	5.0
23	28	17	8.0	6.5	9.3	129	77	17	3.6	2.9	2.9	4.1
24	26	17	8.0	6.5	9.5	204	70	14	3.8	2.6	2.7	2.5
25	26	17	8.0	6.5	10	501	61	13	3.8	2.3	2.4	2.4
26	26	16	8.0	6.5	10	532	54	14	3.4	1.9	2.2	2.5
27	26	17	8.0	7.0	11	381	49	15	3.5	1.6	2.1	2.0
28	25	17	7.5	7.0	11	244	44	14	3.6	1.6	2.2	1.8
29	25	17	7.5	6.5	---	181	40	12	3.2	1.6	2.1	2.3
30	25	17	7.0	6.5	---	140	36	17	3.2	1.2	2.0	2.4
31	24	---	7.0	6.5	---	120	---	29	---	.94	3.1	---
TOTAL	1022	571	330.0	211.0	236.5	3427	1981	540.3	226.9	116.34	118.03	86.3
MEAN	33.0	19.0	10.6	6.81	8.45	111	66.0	17.4	7.56	3.75	3.81	2.88
MAX	56	24	18	7.0	11	532	114	34	36	7.4	12	5.8
MIN	24	14	7.0	6.0	6.5	12	36	7.9	3.2	.94	.71	1.6
AC-FT	2030	1130	655	419	469	6800	3930	1070	450	231	234	171

CAL YR 1986	TOTAL	36278.90	MEAN	99.4	MAX	4300	MIN	.50	AC-FT	71960
WTR YR 1987	TOTAL	8866.37	MEAN	24.3	MAX	532	MIN	.71	AC-FT	17590

06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD

LOCATION.--Lat 44°43'54", long 97°02'39", in SW¼SW¼ 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, approximately, of which about 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. Datum of gage is 1,667.52 ft above National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 9 to Mar. 5 and Mar. 10, 11, 29-31. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--11 years, 71.2 ft³/s, 51,580 acre-ft/yr; median of yearly mean discharges, 59 ft³/s, 42,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,250 ft³/s, Mar. 30, 1986, gage height, 11.73 ft; no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 450 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 25	2115	*517	*7.88	No other peak greater than base discharge.			

Minimum daily discharge, 4.9 ft³/s, Sept. 2.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	84	65	40	50	50	191	122	44	5.9	6.9	5.1
2	121	85	60	40	50	60	181	99	45	6.1	6.4	4.9
3	120	86	60	40	50	60	178	90	45	6.5	6.4	5.2
4	120	78	60	40	60	60	178	92	37	7.5	6.5	5.3
5	125	82	55	40	60	60	176	94	33	27	6.5	7.9
6	116	80	50	40	60	53	171	96	27	20	5.9	7.9
7	96	70	45	40	60	61	170	87	28	12	6.2	6.7
8	90	128	45	40	55	59	171	85	25	11	8.1	5.9
9	87	80	45	40	50	51	176	93	22	11	34	5.9
10	92	80	45	35	50	65	184	79	20	13	16	5.8
11	94	75	45	35	50	50	174	79	24	20	10	6.0
12	87	70	45	35	50	45	166	62	24	14	8.8	6.4
13	90	60	45	40	45	42	165	68	20	12	7.7	5.8
14	91	60	45	45	40	38	160	63	19	9.7	6.9	5.7
15	94	60	45	40	35	34	172	54	17	10	6.4	6.0
16	95	60	45	40	45	38	175	60	13	9.1	15	6.1
17	88	60	45	35	45	40	191	58	11	8.7	16	11
18	89	60	45	30	45	51	192	39	11	7.8	9.4	11
19	93	60	45	35	45	78	187	36	11	9.8	8.2	7.8
20	91	60	45	35	45	156	195	37	11	13	7.4	7.4
21	89	60	45	35	45	186	184	51	9.2	30	7.2	6.5
22	93	65	45	30	45	152	184	52	8.5	20	7.2	6.2
23	91	70	45	30	45	147	175	45	8.6	14	6.5	5.9
24	90	70	45	35	55	240	157	44	8.1	13	5.8	5.7
25	91	70	45	40	55	449	160	44	8.1	12	5.7	5.8
26	95	60	45	40	50	379	153	46	7.5	9.7	5.8	6.1
27	95	80	45	40	45	256	150	49	6.8	7.8	6.2	6.0
28	93	75	45	40	40	188	143	49	7.3	7.6	5.9	5.6
29	91	75	45	45	---	230	136	49	6.6	7.6	5.8	6.2
30	86	70	45	45	---	250	117	50	5.9	8.3	5.6	5.4
31	97	---	45	45	---	200	---	48	---	9.1	5.5	---
TOTAL	3012	2173	1475	1190	1370	3828	5112	2020	563.6	373.2	265.9	193.2
MEAN	97.2	72.4	47.6	38.4	48.9	123	170	65.2	18.8	12.0	8.58	6.44
MAX	125	128	65	45	60	449	195	122	45	30	34	11
MIN	86	60	45	30	35	34	117	36	5.9	5.9	5.5	4.9
AC-FT	5970	4310	2930	2360	2720	7590	10140	4010	1120	740	527	383

CAL YR 1986	TOTAL	93517	MEAN	256	MAX	2020	MIN	10	AC-FT	185500
WTR YR 1987	TOTAL	21575.9	MEAN	59.1	MAX	449	MIN	4.9	AC-FT	42800

06479980 MEDARY CREEK NEAR BROOKINGS, SD

LOCATION.--Lat 44°13'27", long 96°46'06", in NE¼NE¼NE¼ 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.

DRAINAGE AREA.--200 mi².

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

REVISED RECORDS.--WDR SD-82-1: 1981. WDR SD-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,570.20 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Oct. 8-14, Oct. 16 to Dec. 17, Jan. 17-30, Feb. 8, 16-18, Mar. 22-24, Apr. 8-14, and May 14 to June 2. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--7 years, 72.8 ft³/s, 52,740 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,590 ft³/s, June 21, 1984, gage height, 11.27 ft; no flow at times in 1981, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 25	1030	*542	*7.40	Apr. 15	2400	159	4.89
Mar. 30	1800	163	4.93	July 14	0230	202	5.25

Minimum daily discharge, 2.4 ft³/s, Sept. 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	65	60	24	22	36	126	41	45	9.3	8.5	2.6
2	142	65	55	24	21	33	116	39	40	9.0	7.4	2.6
3	138	65	55	27	21	32	106	39	30	10	7.4	2.6
4	137	65	50	26	21	36	105	39	28	8.3	6.9	2.4
5	139	65	50	26	22	39	103	37	26	9.2	5.9	5.5
6	137	65	45	26	23	51	102	35	22	14	5.6	25
7	131	65	45	26	24	65	100	32	20	17	5.2	14
8	130	75	40	24	24	72	100	31	20	16	6.2	8.7
9	130	90	35	24	24	64	100	29	18	16	9.8	8.8
10	130	70	35	22	26	51	100	28	19	19	9.3	7.2
11	125	60	35	26	29	47	110	25	24	44	7.3	6.5
12	125	55	35	26	32	43	120	24	28	111	6.3	6.0
13	125	45	30	25	33	40	130	22	27	179	6.1	7.5
14	120	45	30	25	32	40	140	25	24	188	5.8	7.6
15	116	45	30	19	29	41	160	22	20	111	4.9	7.1
16	110	45	30	18	29	40	156	20	18	65	4.6	12
17	100	45	30	18	28	41	138	19	17	46	4.6	19
18	95	45	31	15	28	57	122	19	18	41	4.6	23
19	95	45	30	15	27	111	111	20	17	36	4.1	21
20	90	45	29	15	27	192	101	25	15	30	3.7	20
21	90	45	27	15	28	263	93	30	14	30	3.7	18
22	90	50	28	13	29	250	87	35	14	29	3.6	16
23	90	50	28	12	27	300	82	30	12	25	3.4	15
24	95	55	28	13	28	400	73	30	13	21	3.4	14
25	95	55	27	15	29	520	65	40	13	19	3.4	12
26	90	55	26	15	31	445	61	50	12	17	3.4	11
27	85	60	28	17	33	384	55	60	12	15	3.4	10
28	80	60	27	18	36	248	52	50	11	13	3.4	9.3
29	75	60	27	19	---	130	48	40	11	12	3.4	9.0
30	70	60	27	20	---	143	44	60	9.9	10	3.1	8.9
31	70	---	27	21	---	141	---	50	---	9.6	2.9	---
TOTAL	3397	1715	1080	629	763	4355	3006	1046	597.9	1179.4	161.3	332.3
MEAN	110	57.2	34.8	20.3	27.3	140	100	33.7	19.9	38.0	5.20	11.1
MAX	152	90	60	27	36	520	160	60	45	188	9.8	25
MIN	70	45	26	12	21	32	44	19	9.9	8.3	2.9	2.4
AC-FT	6740	3400	2140	1250	1510	8640	5960	2070	1190	2340	320	659

CAL YR 1986	TOTAL	52413.2	MEAN	144	MAX	1710	MIN	4.2	AC-FT	104000
WTR YR 1987	TOTAL	18261.9	MEAN	50.0	MAX	520	MIN	2.4	AC-FT	36220

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD

LOCATION.--Lat 44°10'48", long 96°44'55", in NW¼NW¼ 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, approximately, of which about 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. Datum of gage is 1,551.91 ft above National Geodetic Vertical Datum of 1929. Prior to May 30, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 12 to Feb. 23. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--34 years, 224 ft³/s, 162,300 acre-ft/yr; median of yearly mean discharges, 150 ft³/s 109,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,900 ft³/s, Apr. 9, 1969, gage height, 14.77 ft; no flow at times in 1956, 1959, 1976, 1977, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 27	1730	*2,400	*8.02	No other peak greater than base discharge.			

Minimum daily discharge, 51 ft³/s, Sept. 4..

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1290	536	280	190	180	258	1310	425	237	89	98	56
2	1200	524	260	190	180	259	1230	400	209	87	91	55
3	1130	521	240	190	180	262	1130	387	187	87	88	53
4	1070	509	220	220	180	264	1050	366	175	87	80	51
5	1030	508	220	230	190	278	991	347	170	92	75	77
6	988	500	210	230	190	303	950	337	163	94	73	106
7	953	496	210	220	190	338	916	327	155	109	72	101
8	913	509	210	200	200	367	889	314	148	117	79	86
9	862	481	210	180	200	333	872	307	141	116	93	77
10	811	430	210	170	200	304	859	294	146	128	87	69
11	783	412	210	160	205	309	861	287	156	167	83	66
12	758	400	210	160	205	319	869	271	159	306	86	69
13	748	380	210	170	205	321	884	268	154	382	79	76
14	731	370	210	170	190	313	898	253	145	410	74	71
15	712	350	210	170	170	303	906	237	137	362	70	67
16	694	330	210	170	180	295	903	224	128	297	78	78
17	677	310	210	170	180	298	875	215	127	248	74	103
18	664	290	200	170	180	350	845	235	125	219	72	107
19	643	280	200	170	190	510	803	229	121	206	74	104
20	623	280	190	170	190	724	757	218	116	185	73	103
21	611	270	190	170	200	934	711	239	112	191	69	103
22	604	270	190	150	210	1100	683	234	109	186	66	96
23	601	270	190	140	220	1270	658	228	104	197	63	91
24	596	260	190	150	228	1510	635	232	103	183	60	83
25	594	270	200	170	244	1870	603	239	108	160	60	75
26	592	280	200	170	248	2140	558	262	102	146	61	72
27	591	300	200	180	258	2350	526	280	97	133	62	70
28	589	300	200	180	263	2280	498	280	97	127	60	66
29	578	300	190	180	---	1770	473	263	93	120	60	62
30	571	300	190	180	---	1530	445	256	92	111	58	61
31	569	---	190	180	---	1390	---	250	---	107	57	---
TOTAL	23776	11236	6460	5550	5656	24852	24588	8704	4116	5449	2275	2354
MEAN	767	375	208	179	202	802	820	281	137	176	73.4	78.5
MAX	1290	536	280	230	263	2350	1310	425	237	410	98	107
MIN	569	260	190	140	170	258	445	215	92	87	57	51
AC-FT	47160	22290	12810	11010	11220	49290	48770	17260	8160	10810	4510	4670

CAL YR 1986	TOTAL	430812	MEAN	1180	MAX	6270	MIN	88	AC-FT	854500
WTR YR 1987	TOTAL	125016	MEAN	343	MAX	2350	MIN	51	AC-FT	248000

06480400 SPRING CREEK NEAR FLANDREAU, SD

LOCATION.--Lat 44°07'18", long 96°35'19", in SE¼NE¼NE¼ sec.33, T.108 N., R.47 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. Elevation of gage is 1,580 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 8 to Mar. 4. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--5 years, 32.3 ft³/s, 23,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,030 ft³/s, June 20, 1984, gage height, 15.72 ft; minimum daily discharge, 2.1 ft³/s, Feb. 23, 24, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 24	0945	280	11.90	July 11	2400	*676	*13.50

Minimum daily discharge, 3.0 ft³/s, Aug. 4, 5.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	20	15	8.5	8.0	13	28	7.3	7.3	3.8	3.5	3.6
2	25	19	14	8.0	8.0	14	23	7.8	7.1	3.8	3.3	3.6
3	25	20	10	8.5	8.0	15	23	9.6	6.3	3.6	3.2	3.5
4	28	20	8.0	9.0	8.0	17	21	9.1	5.6	3.7	3.0	3.6
5	27	20	9.0	9.0	8.5	21	21	7.9	5.3	5.5	3.0	4.5
6	25	21	9.5	9.0	8.5	23	22	7.9	4.9	5.6	3.2	4.9
7	25	21	9.5	9.0	9.5	22	24	7.4	4.6	5.6	3.2	5.1
8	23	26	8.5	8.5	9.5	20	26	6.8	4.5	5.6	4.4	4.7
9	23	19	7.0	8.5	9.5	11	28	6.5	4.6	5.1	7.9	4.3
10	23	16	5.5	6.5	9.0	15	28	6.2	7.0	8.7	6.0	4.0
11	26	13	8.5	8.5	9.5	14	30	5.9	8.0	67	4.5	4.1
12	31	8.5	10	9.0	9.5	12	36	5.7	7.8	255	4.1	4.7
13	30	5.0	10	9.0	9.5	11	36	5.5	6.6	119	4.1	4.6
14	28	8.0	7.5	8.5	8.5	13	41	5.3	6.0	82	3.9	4.3
15	26	6.5	8.0	7.5	6.5	12	39	5.0	5.1	43	3.9	4.3
16	25	7.0	9.0	6.5	8.0	11	32	4.6	4.5	16	6.0	7.8
17	24	7.5	9.5	7.5	8.5	11	25	4.4	4.4	11	6.5	14
18	23	8.0	12	8.0	7.5	30	20	4.7	4.7	9.2	5.1	15
19	22	8.0	11	8.0	7.5	72	17	5.3	4.6	8.2	4.6	12
20	22	7.5	10	8.0	8.0	61	15	5.5	4.6	7.2	4.3	9.9
21	22	9.0	9.5	8.0	8.5	68	14	6.7	4.8	14	4.2	8.6
22	22	11	9.5	7.5	9.0	55	14	7.0	4.6	13	4.0	7.2
23	23	11	9.5	7.0	9.0	101	13	6.7	4.3	8.2	3.9	6.4
24	24	11	9.5	6.0	9.5	198	12	6.2	4.3	6.6	3.7	5.9
25	23	13	9.5	5.5	10	180	11	7.4	5.2	6.1	3.8	5.7
26	23	16	9.5	6.5	11	142	11	12	4.8	5.6	4.2	5.4
27	23	16	9.5	6.0	12	83	11	12	4.3	5.0	4.2	5.1
28	23	15	9.5	6.5	12	54	9.7	11	4.1	4.6	4.3	5.1
29	22	15	9.5	7.5	---	32	8.3	9.2	4.0	4.4	4.1	5.0
30	21	15	9.5	8.0	---	43	7.5	9.6	4.0	4.0	3.9	4.8
31	21	---	9.5	8.5	---	33	---	8.2	---	3.8	3.7	---
TOTAL	753	413.0	296.0	242.0	250.5	1407	646.5	224.4	157.9	743.9	131.7	181.7
MEAN	24.3	13.8	9.55	7.81	8.95	45.4	21.6	7.24	5.26	24.0	4.25	6.06
MAX	31	26	15	9.0	12	198	41	12	8.0	255	7.9	15
MIN	21	5.0	5.5	5.5	6.5	11	7.5	4.4	4.0	3.6	3.0	3.5
AC-FT	1490	819	587	480	497	2790	1280	445	313	1480	261	360

CAL YR 1986	TOTAL	16708.7	MEAN	45.8	MAX	866	MIN	2.1	AC-FT	33140
WTR YR 1987	TOTAL	5447.6	MEAN	14.9	MAX	255	MIN	3.0	AC-FT	10810

06480650 FLANDREAU CREEK ABOVE FLANDREAU, SD

LOCATION.--Lat 44°03'45", long 96°29'15", in SE¼NE¼NE¼ sec.20, T.107 N., R.47 W., Moody County, Hydrologic Unit 10170203, on right bank 500 ft downstream from county highway bridge, 5.9 mi upstream from mouth, and 5.2 mi east of Flandreau.

DRAINAGE AREA.--100 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 1,555 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 10 to Jan. 8, Jan. 15 to Feb. 18, and Feb. 23, 25, 27. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--6 years, 50.9 ft³/s, 36,880 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,650 ft³/s, June 20, 1984, gage height, 11.02 ft; no flow at times in 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 24	0600	*445	*7.16	July 13	0430	389	6.97

Minimum daily discharge, 2.6 ft³/s, Sept. 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	45	35	13	9.0	16	61	22	31	5.9	7.2	3.1
2	66	43	35	13	10	19	55	23	25	5.4	6.4	2.9
3	66	43	30	12	10	18	53	28	19	5.0	5.8	2.8
4	68	44	28	12	10	18	51	32	16	3.0	5.2	2.6
5	68	44	25	13	11	22	51	27	14	9.3	4.7	3.0
6	64	44	23	13	12	30	51	24	12	27	4.2	2.9
7	61	45	20	13	14	40	52	22	11	24	3.5	2.9
8	58	53	18	14	15	42	54	20	9.4	24	4.7	3.7
9	56	67	17	14	14	30	57	18	8.3	19	6.6	3.2
10	54	50	16	14	14	31	58	17	11	24	8.6	3.2
11	56	40	15	13	16	22	60	16	17	49	8.0	3.5
12	66	30	14	13	17	21	64	15	24	152	7.1	3.6
13	70	20	13	14	18	19	69	14	20	314	6.5	3.6
14	68	20	13	14	19	21	75	16	17	160	5.6	3.6
15	61	20	13	13	20	22	81	15	13	80	6.0	3.7
16	58	20	13	10	19	20	71	14	9.6	46	7.0	9.3
17	56	20	13	9.0	17	21	61	12	8.6	32	9.5	15
18	53	20	13	9.0	16	33	55	11	9.5	24	8.5	19
19	52	20	13	9.0	14	76	51	12	10	21	7.4	18
20	51	20	13	8.0	13	107	47	13	10	20	6.2	18
21	50	25	13	8.0	11	111	43	15	15	22	5.1	16
22	50	25	12	8.0	8.6	102	41	22	13	44	4.5	14
23	51	25	12	8.0	10	172	38	21	9.9	34	3.8	12
24	55	25	13	8.0	9.9	401	36	19	8.9	23	3.6	11
25	56	30	13	8.0	12	350	32	21	9.0	18	3.4	9.4
26	55	35	13	8.0	13	283	31	38	9.3	15	3.5	8.5
27	53	35	12	8.0	16	170	29	45	8.5	13	4.2	7.8
28	52	35	13	8.0	17	110	27	35	7.2	11	4.8	7.2
29	50	35	13	8.0	---	72	25	30	6.9	9.8	4.4	6.7
30	48	35	12	9.0	---	75	23	43	6.3	8.9	4.0	6.4
31	47	---	13	9.0	---	66	---	38	---	7.9	3.4	---
TOTAL	1789	1013	519	333.0	385.5	2540	1502	698	389.4	1251.2	173.4	226.6
MEAN	57.7	33.8	16.7	10.7	13.8	81.9	50.1	22.5	13.0	40.4	5.59	7.55
MAX	70	67	35	14	20	401	81	45	31	314	9.5	19
MIN	47	20	12	8.0	8.6	16	23	11	6.3	3.0	3.4	2.6
AC-FT	3550	2010	1030	661	765	5040	2980	1380	772	2480	344	449

CAL YR 1986	TOTAL	27065.2	MEAN	74.2	MAX	1110	MIN	4.9	AC-FT	53680
WTR YR 1987	TOTAL	10820.1	MEAN	29.6	MAX	401	MIN	2.6	AC-FT	21460

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD

LOCATION.--Lat 43°47'25", long 96°44'42", in NW¼NW¼ sec.29, T.104 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on left bank at downstream side of highway bridge, 0.2 mi downstream from confluence of divided channels, and 3.0 mi southwest of Dell Rapids.

DRAINAGE AREA.--4,483 mi², approximately, of which about 1,479 mi² is probably noncontributing.

PERIOD OF RECORD.--May 1948 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,455.99 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 11, 1949, nonrecording gage and Nov. 11, 1949, to Sept. 30, 1951, water-stage recorder, at present site at datum 0.04 ft lower.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 8 to Feb. 18. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--39 years, 333 ft³/s, 241,300 acre-ft/yr; median of yearly mean discharges, 210 ft³/s, 152,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,300 ft³/s, Apr. 9, 1969, gage height, 16.47 ft; no flow Aug. 25 to Oct. 17, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 26	0730	*2,910	*10.57	July 13	0200	1,780	8.39

Minimum daily discharge, 90 ft³/s, Sept. 3, 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2110	726	520	260	180	340	1930	570	343	120	168	103
2	1840	709	520	250	180	328	1700	564	319	111	166	93
3	1670	690	500	250	190	319	1570	562	298	110	163	90
4	1570	676	450	240	190	320	1470	539	280	108	150	90
5	1480	673	400	240	200	332	1370	520	288	108	149	94
6	1390	671	400	240	210	348	1290	501	244	109	149	112
7	1330	669	400	240	220	386	1240	485	222	110	124	108
8	1270	660	400	240	240	416	1200	465	293	134	126	118
9	1210	650	370	250	280	425	1160	445	206	143	126	126
10	1150	600	310	250	290	423	1120	424	201	178	138	123
11	1110	500	300	260	300	403	1110	403	222	189	147	118
12	1100	450	300	260	320	387	1100	387	220	818	139	118
13	1070	450	300	250	330	389	1100	376	217	1660	130	115
14	1040	500	310	240	330	396	1130	354	215	1240	131	115
15	1010	560	320	230	320	396	1140	344	199	900	128	106
16	982	570	320	220	320	394	1140	328	194	700	128	117
17	949	570	310	220	310	390	1110	311	188	550	128	126
18	923	520	300	210	300	460	1070	297	184	447	126	131
19	891	510	300	200	299	753	1020	285	182	387	123	156
20	871	500	290	200	318	905	953	294	174	352	113	171
21	849	500	290	200	317	1050	902	291	168	389	112	170
22	835	500	290	190	340	1220	861	283	163	325	109	166
23	826	500	280	190	320	1530	824	294	148	304	104	157
24	818	500	280	190	338	2250	795	295	144	282	103	148
25	813	500	270	190	323	2580	760	308	145	268	104	138
26	809	510	270	190	320	2890	729	328	150	240	102	136
27	798	510	270	190	331	2830	686	345	147	215	102	128
28	789	510	260	180	333	2770	651	361	143	196	103	113
29	773	510	260	180	---	2600	621	364	139	191	104	108
30	763	510	260	180	---	2390	621	385	127	182	105	107
31	744	---	260	180	---	2210	---	379	---	178	105	---
TOTAL	33783	16904	10310	6810	7949	32830	32373	12087	6163	11244	3905	3701
MEAN	1090	563	333	220	284	1059	1079	390	205	363	126	123
MAX	2110	726	520	260	340	2890	1930	570	343	1660	168	171
MIN	744	450	260	180	180	319	621	283	127	108	102	90
AC-FT	67010	33530	20450	13510	15770	65120	64210	23970	12220	22300	7750	7340

CAL YR 1986	TOTAL	578622	MEAN	1585	MAX	8600	MIN	120	AC-FT	1148000
WTR YR 1987	TOTAL	178059	MEAN	488	MAX	2890	MIN	90	AC-FT	353200

06481480 SKUNK CREEK NEAR CHESTER, SD

LOCATION.--Lat 43°50'53", long 96°50'10", in NE¼NW¼NE¼ sec.4, T.104 N., R.50 W., Minnehaha County, Hydrologic Unit 10170203, on right bank near downstream side of county highway bridge, 5.6 mi southeast of Chester.

DRAINAGE AREA.--53.2 mi².

PERIOD OF RECORD.--Aug. 16, 1984, to Sept. 30, 1987 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,557.23 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 9-11, 13 to Dec. 14, Dec. 16 to Jan. 8, Jan. 10 to Feb. 3, Feb. 5 to Mar. 3, Mar. 5-22, 23-26, and Aug. 18. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,060 ft³/s, Sept. 21, 1986, gage height, 6.95 ft; minimum daily discharge, 0.42 ft³/s, Jan. 2, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 30	1145	*455	*5.78	July 15	1245	210	4.47
May 2	2015	60	2.78				

Minimum daily discharge, 1.1 ft³/s, July 3.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	411	74	75	27	15	20	263	38	11	1.5	17	1.3
2	390	70	65	26	16	20	250	45	9.4	1.3	12	1.2
3	377	67	50	25	16	25	243	51	8.8	1.1	8.3	1.2
4	364	63	40	25	17	25	225	45	8.0	1.9	6.0	1.2
5	347	60	45	25	18	25	215	40	7.5	2.7	4.8	1.2
6	330	57	50	25	20	30	208	36	6.5	1.9	5.0	1.3
7	317	55	50	25	22	30	202	33	5.4	2.7	3.8	1.6
8	300	66	50	25	25	30	194	33	4.3	2.7	4.4	1.5
9	286	70	45	27	28	30	187	38	3.5	3.7	5.5	1.4
10	270	65	40	27	30	30	178	33	5.7	4.4	6.4	1.3
11	259	65	35	25	35	25	170	23	7.4	9.7	6.2	1.3
12	253	65	35	25	30	25	163	20	7.6	65	4.8	1.5
13	235	70	33	25	30	25	160	17	6.6	166	4.0	1.5
14	218	70	32	25	25	25	162	12	5.6	186	3.5	1.8
15	202	70	32	27	25	25	158	12	4.1	205	3.2	1.3
16	186	70	32	27	25	30	149	11	3.7	192	3.0	2.2
17	171	70	32	25	25	30	140	9.2	3.8	153	2.6	2.0
18	159	70	32	25	25	45	131	8.0	3.4	118	2.5	2.2
19	149	70	31	25	25	70	118	8.3	2.9	91	2.1	2.4
20	141	70	30	22	25	85	110	9.0	3.0	69	1.9	2.3
21	132	75	30	20	25	90	103	9.6	2.8	75	1.8	2.0
22	124	75	30	20	20	95	97	9.6	2.6	73	1.6	1.8
23	120	80	30	18	20	150	84	10	2.3	65	1.5	1.8
24	113	80	30	18	20	300	75	10	2.2	55	1.5	1.7
25	109	80	30	15	20	340	67	11	2.4	53	1.6	1.6
26	104	85	30	15	20	380	69	13	1.9	49	1.7	1.5
27	99	85	30	15	20	368	62	13	1.7	42	1.6	1.5
28	94	85	30	15	20	328	53	11	2.0	36	1.8	1.5
29	89	80	30	15	---	346	47	11	2.2	31	1.7	1.3
30	86	75	30	15	---	381	42	11	1.7	26	1.6	1.2
31	79	---	28	15	---	294	---	11	---	22	1.4	---
TOTAL	6514	2137	1162	689	642	3722	4325	641.7	140.0	1805.6	124.8	47.6
MEAN	210	71.2	37.5	22.2	22.9	120	144	20.7	4.67	58.2	4.03	1.59
MAX	411	85	75	27	35	381	263	51	11	205	17	2.4
MIN	79	55	28	15	15	20	42	8.0	1.7	1.1	1.4	1.2
AC-FT	12920	4240	2300	1370	1270	7380	8580	1270	278	3580	248	94

CAL YR 1986	TOTAL	50003.75	MEAN	137	MAX	813	MIN	.42	AC-FT 99180
WTR YR 1987	TOTAL	21950.7	MEAN	60.1	MAX	411	MIN	1.1	AC-FT 43540

06481500 SKUNK CREEK AT SIOUX FALLS, SD

LOCATION.--Lat 43°32'01", long 96°47'26", in NW¼SW¼ sec.24, T.101 N., R.50 W., Minnehaha County, Hydrologic Unit 10170203, on right 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, approximately, of which about 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. Datum of gage is 1,405.10 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Oct. 24, 1949, nonrecording gage, and Oct. 24, 1949, to Apr. 28, 1972, water-stage recorder, both at site 1.9 mi upstream at datum 10.19 ft higher.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 12, 13, Feb. 18, and Sept. 22-30. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--39 years, 71.7 ft³/s, 51,950 acre-ft/yr; median of yearly mean discharges, 39 ft³/s, 28,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft³/s, June 17, 1957, gage height, 17.78 ft, site and datum then in use, from rating curve extended above 8,100 ft³/s on basis of slope-area measurement of peak flow; no flow at times in many years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 26	0415	*1,470	*6.27	Mar. 31	0045	811	4.71

Minimum daily discharge, 6.2 ft³/s, Sept. 9.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	707	206	186	63	44	76	616	95	63	23	41	11
2	660	194	170	67	48	71	629	102	50	25	35	8.8
3	636	190	132	55	55	77	583	117	41	24	28	12
4	615	186	110	53	52	79	521	141	37	26	23	9.7
5	596	178	146	53	51	82	493	134	33	28	20	8.2
6	560	180	149	57	57	86	467	113	30	28	18	8.1
7	533	176	140	60	62	96	434	98	27	35	17	7.3
8	511	210	127	62	104	102	417	84	24	37	17	7.3
9	487	190	115	62	117	83	400	78	23	44	19	6.2
10	471	155	107	58	133	71	370	74	26	135	29	6.3
11	466	96	114	56	148	87	359	68	27	158	26	7.3
12	473	100	85	52	90	94	353	61	30	129	21	11
13	451	120	75	53	82	87	339	56	31	165	18	8.5
14	422	123	81	58	89	87	372	55	27	252	17	7.7
15	397	117	74	62	108	89	356	45	23	230	16	11
16	374	118	77	60	84	86	326	40	22	192	15	18
17	357	121	80	48	94	93	305	38	23	192	14	19
18	334	123	82	47	85	284	273	35	30	196	13	20
19	313	119	81	47	86	562	245	35	30	203	14	21
20	298	118	79	45	86	528	220	37	31	192	14	18
21	289	123	78	46	86	567	202	39	31	112	13	17
22	275	132	67	42	68	574	191	42	29	120	12	17
23	282	141	65	40	71	735	192	41	27	121	11	16
24	286	147	65	39	60	1280	171	39	29	106	11	15
25	291	165	67	37	60	1280	152	58	31	93	13	14
26	276	173	68	37	61	1300	139	113	31	82	13	13
27	262	176	65	38	71	1020	128	125	30	75	14	12
28	250	192	65	38	78	854	125	108	26	67	14	11
29	246	184	65	39	---	529	114	89	24	59	15	11
30	229	188	67	41	---	639	103	79	22	51	13	10
31	216	---	65	42	---	711	---	78	---	46	12	---
TOTAL	12563	4641	2947	1557	2230	12309	9595	2317	908	3246	556	362.4
MEAN	405	155	95.1	50.2	79.6	397	320	74.7	30.3	105	17.9	12.1
MAX	707	210	186	67	148	1300	629	141	63	252	41	21
MIN	216	96	65	37	44	71	103	35	22	23	11	6.2
AC-FT	24920	9210	5850	3090	4420	24410	19030	4600	1800	6440	1100	719

CAL YR 1986	TOTAL	130308.8	MEAN	357	MAX	3360	MIN	6.4	AC-FT	258500
WTR YR 1987	TOTAL	53231.4	MEAN	146	MAX	1300	MIN	6.2	AC-FT	105600

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD

LOCATION.--Lat 43°34'01", long 96°42'39", in SW¼NW¼ 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, approximately, of which about 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. Datum of gage is 1,294.18 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Dec. 15, 1971, nonrecording gage 20 ft upstream at same datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Oct. 17-20, Nov. 8-12, 18, and Dec. 29 to Jan. 7. National Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite data-collection platform at station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--16 years, 571 ft³/s, 413,700 acre-ft/yr; median of yearly mean discharges, 460 ft³/s, 333,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,600 ft³/s, June 22, 1984, gage height, 25.40 ft; minimum daily discharge, 0.81 ft³/s, Feb. 13, 1982.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 10, 1969, reached a stage of 27.45 ft, discharge, 40,700 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 25	2215	*4,770	*14.97	July 13	2245	1,780	10.28

Minimum daily discharge, 84 ft³/s, Sept. 3.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3100	1010	796	350	232	403	2830	747	442	166	199	98
2	2720	993	783	350	238	392	2570	784	402	180	188	90
3	2470	969	683	340	237	385	2330	761	379	156	169	84
4	2280	937	536	340	246	388	2150	734	356	157	153	86
5	2140	922	549	340	249	402	2010	706	305	175	141	87
6	2010	906	593	330	255	414	1890	661	291	160	146	85
7	1910	890	569	330	271	448	1800	617	286	164	147	86
8	1810	850	578	325	305	510	1720	575	262	224	152	87
9	1720	800	492	321	338	527	1650	532	256	219	167	112
10	1650	700	440	311	340	480	1610	497	260	307	159	127
11	1620	650	462	318	335	471	1570	482	261	349	161	123
12	1600	600	471	322	333	466	1540	441	261	430	162	124
13	1560	527	450	318	348	462	1540	419	256	1580	150	116
14	1510	620	448	317	371	464	1580	404	257	1570	144	110
15	1470	670	465	300	395	466	1580	386	243	1240	144	117
16	1440	689	480	294	406	458	1550	371	230	990	147	153
17	1400	656	472	299	422	477	1510	359	256	813	142	154
18	1350	655	460	286	428	752	1450	354	227	699	141	148
19	1300	655	443	283	409	1190	1380	354	220	618	151	147
20	1250	634	426	270	397	1370	1320	422	216	544	144	167
21	1230	619	409	272	384	1520	1240	380	213	567	131	169
22	1210	636	402	260	366	1740	1180	365	216	451	124	165
23	1200	644	392	241	368	2300	1140	366	194	425	124	162
24	1220	654	384	235	357	3320	1080	374	234	401	120	158
25	1190	687	375	234	359	4510	1040	463	222	361	131	150
26	1170	695	365	231	360	4480	994	455	191	335	116	141
27	1140	725	365	234	377	4150	943	500	183	327	110	133
28	1120	770	362	228	390	3780	891	499	185	269	111	128
29	1090	779	360	230	---	3360	845	491	186	266	112	115
30	1060	795	360	228	---	3200	790	491	175	233	106	112
31	1050	---	350	230	---	3150	---	495	---	208	102	---
TOTAL	48990	22337	14720	8967	9516	46435	45723	15485	7665	14584	4394	3734
MEAN	1580	745	475	289	340	1498	1524	500	256	470	142	124
MAX	3100	1010	796	350	428	4510	2830	784	442	1580	199	169
MIN	1050	527	350	228	232	385	790	354	175	156	102	84
AC-FT	97170	44310	29200	17790	18870	92100	90690	30710	15200	28930	8720	7410

CAL YR 1986	TOTAL	750388	MEAN	2056	MAX	9660	MIN	139	AC-FT	1488000
WTR YR 1987	TOTAL	242550	MEAN	665	MAX	4510	MIN	84	AC-FT	481100

06482610 SPLIT ROCK CREEK AT CORSON, SD

LOCATION.--Lat 43°36'59", long 96°33'54", in NE¼NW¼ sec.26, T.102 N., R.48 W., Minnehaha County, Hydrologic Unit 10170203, on left bank 6 ft downstream from highway bridge, 0.3 mi east of Corson, and 3.4 mi upstream from mouth.

DRAINAGE AREA.--464 mi², approximately.

PERIOD OF RECORD.--October 1965 to current year. February 1951 to September 1965 (gage heights and discharge measurements only in files of U.S. Army Corps of Engineers).

REVISED RECORDS.--WDR SD-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,304.22 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Aug. 15, 1964, nonrecording gage at datum 0.15 ft higher and Aug. 15, 1964, to Sept. 3, 1970, nonrecording gage at present site and datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 7 to Feb. 23 and Aug. 31 to Sept. 9. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--22 years, 106 ft³/s, 76,800 acre-ft/yr; median of yearly mean discharges, 62 ft³/s, 44,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,800 ft³/s, Apr. 8, 1969, gage height, 15.00 ft; no flow at times some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1951, 15.41 ft, June 17, 1957, discharge, 19,300 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 24	1245	*1,840	*6.62	No other peak greater than base discharge.			

Minimum daily discharge, 17 ft³/s, Sept. 9.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	365	218	97	57	45	71	340	78	163	39	45	30
2	327	167	95	57	48	66	288	146	126	37	48	28
3	315	159	92	57	50	66	249	198	106	31	41	27
4	294	155	92	55	56	68	232	126	92	30	39	25
5	275	151	91	54	57	73	218	115	84	35	35	24
6	262	150	88	53	58	75	213	105	75	39	44	23
7	247	149	82	53	63	81	213	94	67	41	42	20
8	234	192	75	53	64	84	211	84	132	42	42	18
9	222	215	65	53	73	80	209	77	120	62	98	17
10	212	196	58	52	64	68	204	74	101	59	76	22
11	215	120	58	52	66	71	204	71	87	122	57	19
12	228	90	58	53	68	74	203	64	84	219	50	22
13	240	150	62	53	67	75	205	64	71	227	43	24
14	235	140	63	50	63	73	218	67	62	278	40	23
15	230	130	63	46	62	74	221	64	56	278	39	23
16	223	120	61	47	65	72	212	63	51	348	38	39
17	215	95	60	50	65	75	198	60	53	342	37	64
18	206	90	60	47	60	133	180	71	53	240	34	61
19	197	98	60	47	61	192	158	63	51	154	32	54
20	193	105	60	46	65	228	143	64	49	116	31	55
21	189	105	60	45	70	293	132	93	55	208	33	51
22	187	105	58	44	64	359	125	96	52	188	31	46
23	198	105	57	43	67	812	121	86	46	117	29	44
24	199	105	57	43	66	1740	113	83	43	119	30	42
25	197	105	57	43	66	1790	107	130	54	108	34	39
26	196	100	57	43	65	1730	99	209	62	92	36	38
27	195	100	58	42	70	1300	94	193	48	80	39	35
28	189	100	58	42	71	928	89	176	42	68	39	33
29	189	100	58	42	---	499	84	155	43	60	37	32
30	250	100	58	43	---	420	80	316	43	53	35	29
31	249	---	58	44	---	354	---	223	---	47	32	---
TOTAL	7173	3915	2076	1509	1759	12024	5363	3508	2171	3879	1286	1007
MEAN	231	131	67.0	48.7	62.8	388	179	113	72.4	125	41.5	33.6
MAX	365	218	97	57	73	1790	340	316	163	348	98	64
MIN	187	90	57	42	45	66	80	60	42	30	29	17
AC-FT	14230	7770	4120	2990	3490	23850	10640	6960	4310	7690	2550	2000

CAL YR 1986	TOTAL	125439	MEAN	344	MAX	6740	MIN	18	AC-FT	248800
WTR YR 1987	TOTAL	45670	MEAN	125	MAX	1790	MIN	17	AC-FT	90590

06482848 BEAVER CREEK AT CANTON, SD

LOCATION.--Lat 43°17'12", long 96°35'46", in SW¼SW¼SE¼ 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.

DRAINAGE AREA.--124 mi².

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

REVISED RECORDS.--WDR SD-84-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,225 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 10 to Jan. 11, Jan. 14-30, and Feb. 9, 15-21, 23. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--5 years, 61.0 ft³/s, 44,190 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,570 ft³/s, June 17, 1984, gage height, 13.72 ft; maximum gage height, 14.61 ft, June 20, 1983; minimum daily discharge, 1.7 ft³/s, Feb. 5, 6, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 25	1415	*621	*5.95	No other peak greater than base discharge.			

Minimum daily discharge, 1.8 ft³/s, Aug. 4.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	15	10	7.0	7.5	8.4	55	7.4	6.0	2.9	2.0	2.7
2	35	14	9.0	7.0	7.1	8.2	42	8.0	5.0	2.8	2.0	3.4
3	33	14	9.0	7.0	9.2	8.0	36	8.3	5.3	2.7	1.9	2.7
4	31	14	8.0	7.0	7.1	8.2	33	7.8	4.6	2.9	1.8	2.8
5	27	13	8.0	7.0	5.3	8.4	32	7.8	4.4	5.0	1.9	2.7
6	28	13	8.0	7.0	7.6	8.7	30	7.6	4.3	4.2	2.2	2.6
7	27	14	8.0	7.0	6.9	9.1	26	6.8	4.1	4.7	2.8	2.2
8	24	19	8.0	7.0	7.5	9.0	25	6.4	4.1	4.2	4.0	2.7
9	22	15	7.0	7.0	10	8.2	24	6.5	3.7	3.8	4.4	2.4
10	20	10	7.0	7.0	8.7	8.5	23	7.9	4.2	5.1	3.7	2.3
11	21	9.0	7.0	7.0	6.7	8.6	23	6.8	4.8	5.7	3.2	2.3
12	22	8.0	7.0	7.9	6.6	8.3	22	5.8	4.8	7.0	2.9	2.3
13	20	8.0	7.0	7.6	6.9	8.4	23	5.6	3.6	5.5	2.8	2.5
14	19	8.0	8.0	7.0	6.7	8.7	24	5.4	3.0	4.3	3.1	2.5
15	19	7.0	8.0	7.0	7.0	8.6	23	5.3	2.8	3.6	2.9	2.9
16	18	7.0	9.0	7.0	7.0	9.0	21	4.9	2.7	3.4	4.1	12
17	17	7.0	8.0	7.0	7.0	9.4	19	4.7	3.2	3.2	3.3	22
18	16	7.0	8.0	7.0	7.0	22	17	5.3	3.7	3.1	2.9	8.5
19	14	7.0	8.0	7.0	7.0	30	14	5.7	7.6	3.4	2.5	4.9
20	14	7.0	8.0	7.0	7.0	42	14	6.4	5.6	3.3	2.5	4.4
21	13	7.0	8.0	7.0	7.0	51	13	8.1	4.7	2.9	2.7	4.2
22	14	8.0	8.0	7.0	6.9	53	13	7.3	4.0	2.7	2.8	3.8
23	16	8.0	7.0	7.0	7.0	189	12	7.0	3.3	2.6	2.8	3.3
24	17	8.0	8.0	7.0	7.6	306	11	7.3	3.6	2.5	2.8	3.2
25	20	9.0	8.0	7.0	7.6	523	9.7	12	6.0	2.8	4.0	3.2
26	20	10	9.0	7.0	7.6	536	9.2	14	4.6	2.7	4.4	3.1
27	19	10	9.0	7.0	8.1	375	8.7	11	3.4	2.3	4.2	3.0
28	18	10	9.0	7.0	8.6	198	8.7	9.4	3.2	2.2	3.9	2.8
29	18	10	8.0	8.0	---	65	8.4	8.3	3.0	2.2	3.2	2.6
30	16	10	8.0	8.0	---	75	7.5	6.4	3.0	2.2	2.8	2.6
31	16	---	8.0	7.9	---	67	---	6.4	---	2.0	2.6	---
TOTAL	654	306.0	250.0	221.4	206.2	2677.7	627.2	227.6	126.3	107.9	93.1	122.6
MEAN	21.1	10.2	8.06	7.14	7.36	86.4	20.9	7.34	4.21	3.48	3.00	4.09
MAX	40	19	10	8.0	10	536	55	14	7.6	7.0	4.4	22
MIN	13	7.0	7.0	7.0	5.3	8.0	7.5	4.7	2.7	2.0	1.8	2.2
AC-FT	1300	607	496	439	409	5310	1240	451	251	214	185	243

CAL YR 1986	TOTAL	21456.1	MEAN	58.8	MAX	947	MIN	4.0	AC-FT	42560
WTR YR 1987	TOTAL	5620.0	MEAN	15.4	MAX	536	MIN	1.8	AC-FT	11150

06485500 BIG SIOUX RIVER AT AKRON, IA
(National stream-quality accounting network station)

LOCATION.--Lat 42°50'14", long 96°33'41", in SW¼SE¼SW¼ sec.30, T.93 N., R.48 W., Plymouth County, 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, approximately, of which about 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. Datum of gage is 1,118.90 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 3, 1934, nonrecording gage at bridge 0.5 mi downstream at same datum. From Dec. 3, 1934, to Oct. 31, 1985, water-stage recorder at site 0.6 mi downstream at same datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges during water year: Nov. 12-29 and Dec. 4 to Feb. 21. U.S. Army Corps of Engineers satellite data-collection platform at station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--59 years, 1,050 ft³/s, 760,700 acre-ft/yr; median of yearly mean discharges, 790 ft³/s, 572,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,800 ft³/s, Apr. 9, 1969, gage height, 22.99 ft; minimum daily, 4.0 ft³/s, Jan. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 27	1700	*12,200	*18.50	No other peak greater than base discharge.			

Minimum daily discharge, 323 ft³/s, Sept. 11.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9310	2570	2410	900	700	1080	6930	1880	1660	697	795	397
2	7630	2520	2410	900	800	1090	6610	1810	1550	670	725	384
3	6790	2460	2350	800	800	1090	6110	1770	1410	633	727	374
4	6160	2400	2000	800	800	1070	5580	1950	1300	605	669	364
5	5680	2360	1800	800	800	1070	5170	2000	1200	695	607	356
6	5290	2320	1700	800	800	1090	4830	1840	1130	639	580	349
7	4960	2290	1700	800	850	1130	4570	1740	1090	696	547	341
8	4600	2380	1700	750	900	1170	4360	1650	1040	978	547	334
9	4330	2540	1700	700	900	1220	4160	1550	1040	1050	550	329
10	4070	2720	1200	700	900	1240	4000	1470	1040	1100	535	326
11	3880	2600	800	700	900	1220	3910	1430	1060	1370	554	323
12	3820	1500	800	700	1000	1190	3810	1320	1040	1420	606	334
13	3820	1000	900	800	1000	1200	3740	1250	1020	1520	570	341
14	3860	1000	1200	900	1000	1200	3720	1190	993	1830	534	336
15	3740	1000	1200	800	1000	1190	3710	1140	966	2630	514	345
16	3550	1500	1250	750	900	1190	3720	1110	940	2780	579	454
17	3380	1800	1300	700	800	1190	3640	1060	914	2400	567	789
18	3250	1800	1300	600	750	1250	3490	1030	895	2150	518	869
19	3140	1700	1300	700	900	1400	3330	997	899	2070	505	1370
20	3040	1600	1200	700	1000	1910	3150	1030	913	1870	485	1270
21	2950	1700	1100	700	1000	2530	2970	1140	879	1590	475	1040
22	2900	1800	1050	700	1050	2940	2840	1170	862	1440	468	929
23	2880	1900	1000	700	1030	3900	2720	1200	848	1440	450	872
24	2860	1900	1000	700	1020	5720	2610	1170	826	1570	432	810
25	2860	1900	950	700	1010	7600	2500	1210	858	1430	429	751
26	2890	2000	950	700	1050	10100	2390	1450	852	1300	432	710
27	2830	2000	900	700	1050	11800	2270	1570	898	1190	443	667
28	2790	2100	900	700	1050	11900	2160	1740	834	1090	444	624
29	2710	2300	900	700	---	10300	2080	1760	770	1000	430	587
30	2640	2420	900	700	---	8600	1970	1700	723	936	420	555
31	2590	---	900	700	---	7360	---	1610	---	851	406	---
TOTAL	125200	60080	40770	23000	25760	106940	113050	44937	30450	41640	16543	17530
MEAN	4039	2003	1315	742	920	3450	3768	1450	1015	1343	534	584
MAX	9310	2720	2410	900	1050	11900	6930	2000	1660	2780	795	1370
MIN	2590	1000	800	600	700	1070	1970	997	723	605	406	323
AC-FT	248300	119200	80870	45620	51090	212100	224200	89130	60400	82590	32810	34770

CAL YR 1986 TOTAL 1542350 MEAN 4226 MAX 22400 MIN 470 AC-FT 3059000
WTR YR 1987 TOTAL 645900 MEAN 1770 MAX 11900 MIN 323 AC-FT 1281000

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.

REMARKS.--Some data were not available at publication time.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	ALKA-LINITY WH WAT TOTAL 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, DIS-SOLVED (PER-CENT SATUR-ATION)
NOV											
06...	1100	2330	972	8.47	306	10.0	5.0	12	726	9.2	76
FEB											
23...	1340	1020	830	8.20	326	12.5	3.0	5.0	732	14.2	110
MAY											
21...	1050	1150	800	8.10	203	15.0	20.0	330	730	5.6	65
AUG											
27...	0945	446	900	8.84	197	18.0	16.0	18	736	10.8	114

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)
NOV											
06...	190	--	510	210	120	52	28	10	0.6	4.9	307
FEB											
23...	2200	K35	490	160	120	46	30	12	0.6	4.2	281
MAY											
21...	>6000	>6000	370	160	79	41	24	12	0.6	6.3	200
AUG											
27...	K190	K110	410	210	87	46	39	17	0.9	5.7	196

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	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 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
NOV											
06...	220	23	0.40	16	680	650	0.92	4280	0.010	4.90	4.89
FEB											
23...	220	29	0.40	13	648	660	0.88	1780	<0.020	5.60	--
MAY											
21...	180	22	0.40	7.3	511	480	0.69	1590	0.070	3.60	3.53
AUG											
27...	200	42	0.40	7.6	560	550	0.76	674	0.030	2.00	1.97

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
NOV 06...	0.030	0.030	0.04	0.80	0.180	0.100	0.110	10	3	95
FEB 23...	0.060	0.070	0.08	1.0	0.190	0.140	0.150	<10	2	82
MAY 21...	0.140	0.150	0.18	9.5	1.40	0.090	0.060	10	4	120
AUG 27...	0.020	0.020	0.03	2.2	0.120	0.030	<0.010	<10	2	72

DATE	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)
NOV 06...	<0.5	<1	<1	<3	3	3	<5	43	21	0.1
FEB 23...	1	<1	<1	<3	1	6	<5	39	26	<0.1
MAY 21...	<0.5	<1	<1	<3	3	22	<5	36	5	<0.1
AUG 27...	<0.5	1	1	<3	1	8	<5	33	11	<0.1

DATE	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 06...	<10	4	3	<1	440	<6	3	128	805	84
FEB 23...	<10	<1	4	<1	420	<6	12	121	--	74
MAY 21...	<10	3	3	<1	370	<6	10	1420	4410	100
AUG 27...	10	5	<1	<1	410	<6	3	--	--	--

06485696 BRULE CREEK NEAR ELK POINT, SD

LOCATION.--Lat 42°48'32", long 96°41'11", in SW¼SW¼ 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. Elevation of gage is 1,150 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for period of estimated record, which is poor. Estimated daily discharges during water year: Nov. 10 to Feb. 25. Several observations of specific conductance and water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 100 ft³/s, 72,450 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,290 ft³/s, June 28, 1983, gage height, 22.39 ft; minimum daily discharge, 4.9 ft³/s, Sept. 10, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 24	0815	*567	*8.89	No other peak greater than base discharge.			

Minimum daily discharge, 4.9 ft³/s, Sept. 10.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	42	40	30	30	35	126	37	37	14	11	7.1
2	47	40	40	25	30	34	106	42	33	14	11	6.5
3	57	39	40	25	30	32	90	52	32	12	10	6.5
4	77	41	35	25	20	34	86	55	31	11	12	6.0
5	78	40	40	25	20	37	84	58	30	12	11	6.0
6	60	41	40	25	25	39	76	51	28	12	10	5.7
7	53	44	40	25	25	43	73	45	26	15	10	5.4
8	49	72	40	20	25	46	70	41	25	41	11	5.0
9	46	97	40	20	30	46	66	39	27	82	10	5.2
10	45	50	35	20	30	39	64	38	30	49	10	4.9
11	47	30	35	20	35	38	65	35	37	38	9.4	5.1
12	63	20	35	35	35	39	73	32	33	34	8.7	6.1
13	71	30	30	30	30	40	71	33	25	31	8.4	6.0
14	59	40	30	30	30	41	84	32	22	27	8.6	5.3
15	53	40	30	25	25	44	83	30	20	22	8.5	5.1
16	49	40	30	20	20	44	69	28	18	20	9.5	17
17	47	40	30	15	25	45	62	28	19	18	8.3	95
18	46	40	30	10	35	97	57	28	20	18	7.9	71
19	44	40	30	10	45	201	53	28	28	19	8.8	30
20	42	40	30	10	45	141	49	29	23	21	10	20
21	41	45	30	10	40	138	47	32	21	20	10	15
22	42	50	30	10	35	158	47	30	21	16	9.4	12
23	47	60	35	10	30	317	47	30	19	14	8.3	11
24	58	60	35	10	29	550	47	31	19	17	8.0	10
25	53	60	35	10	30	452	44	37	27	20	10	11
26	50	60	35	10	30	330	43	62	18	15	10	10
27	48	60	35	10	30	223	41	81	19	13	9.1	9.3
28	46	55	35	15	33	174	39	64	21	13	9.5	7.2
29	44	55	35	15	---	104	40	52	22	12	9.3	7.5
30	41	40	30	20	---	127	38	44	15	12	8.8	12
31	42	---	30	25	---	128	---	40	---	17	7.7	---
TOTAL	1600	1411	1065	590	847	3816	1940	1264	746	679	294.2	423.9
MEAN	51.6	47.0	34.4	19.0	30.3	123	64.7	40.8	24.9	21.9	9.49	14.1
MAX	78	97	40	35	45	550	126	81	37	82	12	95
MIN	41	20	30	10	20	32	38	28	15	11	7.7	4.9
AC-FT	3170	2800	2110	1170	1680	7570	3850	2510	1480	1350	584	841

CAL YR 1986	TOTAL	30987.7	MEAN	84.9	MAX	1560	MIN	8.9	AC-FT	61460
WTR YR 1987	TOTAL	14676.1	MEAN	40.2	MAX	550	MIN	4.9	AC-FT	29110

06486000 MISSOURI RIVER AT SIOUX CITY, IA
(National stream-quality accounting network station)

LOCATION.--Lat 42°29'09", long 96°24'49", in NW¼SE¼ 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 AREA.--314,600 mi², approximately.

PERIOD OF RECORD.--October 1897 to current year in reports of Geological Survey. Prior to October 1928 and October 1931 to September 1938, monthly discharges only, publisned in WSP 1310. January 1879 to December 1890 (monthly discharges only) in House Document 238, 73rd Congress, 2d session, Missouri River. Gage-height records collected in this vicinity September 1878 to December 1899 are contained in reports of Missouri River Commission and since July 1889 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 716: 1929-30. WSP 876: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,056.98 ft above National Geodetic Vertical Datum of 1929. Sept. 2, 1878, to Dec. 31, 1905, nonrecording gages at various locations within 1.7 mi of present site and at various datums. Jan. 1, 1906, to Feb. 14, 1935, nonrecording gage, and Feb. 15, 1935, to Sept. 30, 1969, water-stage recorder at site 227 ft downstream at datum 19.98 ft higher, and Oct. 1, 1969, to Sept. 30, 1970, at datum 20.00 ft higher. Oct. 1, 1970, to Jan. 30, 1981, water-stage recorder at site 227 ft downstream at present datum.

REMARKS.--Records good except for periods of estimated record, which are poor. Estimated daily discharges: Nov. 11, Jan. 15-27, and May 21. Flow regulated by upstream main-stem reservoirs. U.S. National Weather Service gage-height telemeter at station. U.S. Army Corps of Engineers rain gage and gage-height satellite data-collection platform at station. Water-quality records for some prior periods nave been collected at this location.

AVERAGE DISCHARGE.--90 years, 32,090 ft³/s, 23,250,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discnarge, 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, 9.00 ft, Jan. 8, 1980, based on gage readings at site 14 mi downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharges, 57,000 ft³/s, Oct. 1, gage-height, 23.19 ft; minimum daily discnarge, 22,800 ft³/s, May 30; minimum gage height, 13.66 ft, May 30.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55600	46300	47400	31200	24300	24600	43000	34200	25500	30700	31000	31000
2	52500	46100	46800	30700	24300	24300	43500	34500	25200	30900	31200	30900
3	50200	45900	44100	31400	24100	24500	41000	34800	27300	31000	31300	30800
4	48300	45700	43200	31600	24100	24600	40600	35000	28700	30800	31800	30400
5	46300	45800	42000	30900	24200	24600	40100	35100	27100	31300	31800	30100
6	45100	45800	41800	31100	24100	24700	39400	34700	30900	31600	32000	29800
7	44400	45900	39700	31200	24200	25000	38400	34000	31500	31900	32700	30500
8	43900	46700	38000	31200	24200	24800	38000	33900	31200	31700	33000	31100
9	42700	46200	37500	31600	24100	24700	39300	33500	31100	31900	32300	30700
10	42300	45200	35800	31200	24300	24400	40600	33200	31500	32100	31400	30900
11	44700	45300	36100	31000	24500	24500	41300	32600	31700	30700	31300	30800
12	44200	44700	37800	33000	24400	24600	41600	32700	31500	30600	31500	30900
13	43000	44000	36200	31200	24600	24600	41600	32600	31600	31000	31800	30700
14	42800	44300	35700	28100	24600	24600	41100	32500	31500	31700	31600	30700
15	42700	44100	41200	27000	24500	24500	40400	32200	31000	31900	31500	30800
16	42400	44100	39300	26000	24400	24300	40500	32100	30700	32300	31500	31400
17	43900	45200	38300	25500	24200	24300	40000	32100	31000	32000	31400	32500
18	46000	46700	38200	26500	24000	25000	39300	32200	31300	32000	31200	31600
19	47200	47200	34800	26000	24200	25600	37300	32100	31100	31700	30900	31500
20	48100	48600	32600	25500	24500	26200	36100	32000	31200	31900	31000	31700
21	49200	47500	33400	25000	24400	29400	34500	31900	30800	31600	30700	31600
22	50400	46500	34400	24500	24400	31300	33500	32000	30700	31300	30700	31600
23	51300	46100	34300	24000	24400	33700	32100	31400	30800	31400	30800	31500
24	51700	45500	33900	23500	24400	34900	31600	31200	31000	32000	30800	31400
25	51500	45100	33000	24000	24700	34500	31800	32000	31700	32700	31600	31400
26	51200	46500	31100	24500	24500	36400	31800	33900	31600	31800	31600	31400
27	49400	47600	30900	24600	24700	38700	31400	32300	31100	30900	29900	31400
28	46800	48600	30500	24700	24700	40400	31400	26400	31400	30700	30500	31500
29	46800	48500	30200	24300	---	46600	32800	24300	31400	31000	31200	31500
30	46600	47900	30400	24300	---	46100	33900	22800	31000	31200	30900	31200
31	46600	---	31300	23900	---	44200	---	24700	---	31100	31100	---
TOTAL	1457800	1383600	1139900	859200	682000	910600	1127900	988900	914100	975400	972000	933300
MEAN	47030	46120	36770	27720	24360	29370	37600	31900	30470	31460	31350	31110
MAX	55600	48600	47400	33000	24700	46600	43500	35100	31700	32700	33000	32500
MIN	42300	44000	30200	23500	24000	24300	31400	22800	25200	30600	29900	29800
AC-FT	2892000	2744000	2261000	1704000	1353000	1806000	2237000	1961000	1813000	1935000	1928000	1851000

CAL YR 1986 TOTAL 13664600 MEAN 37440 MAX 56600 MIN 13600 AC-FT 27100000
WTR YR 1987 TOTAL 12344700 MEAN 33820 MAX 55600 MIN 22800 AC-FT 24490000

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. The water samples were collected by USGS personnel and analyzed by the USGS laboratory in Arvada, Colorado during the 1987 water year.

STATION NAME	STATION NUMBER	DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	SPECIFIC CONDUCTANCE LAB (US/CM)	PH (STANDARD UNITS)	PH LAB (STANDARD UNITS)
LAGOON 1	434415096371501	04-30-87	1045	1880	1970	7.67	6.38
EROS LAKE	434405096365501	04-30-87	1320	1350	1420	8.53	8.40
WELL 1	434508096372701	04-30-87	1445	1300	1350	7.60	7.59
WELL 7	434400096362201	05-01-87	0810	1900	1920	--	7.55
WELL 9	434332096371501	05-01-87	0950	875	932	--	7.53

STATION NAME	BROMIDE DISSOLVED (MG/L AS BR)	IODIDE, DISSOLVED (MG/L AS I)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	CHROMIUM, DISSOLVED (UG/L AS CR)	SILVER, DISSOLVED (UG/L AS AG)	CYANIDE TOTAL (MG/L AS CN)
LAGOON 1	6.9	0.010	12.0	20	1	0.250
EROS LAKE	3.9	0.040	0.016	<10	<1	<0.010
WELL 1	0.23	0.002	0.119	<10	<1	0.030
WELL 7	0.42	0.013	5.60	<10	<1	0.060
WELL 9	0.060	0.009	0.061	<10	<1	<0.010

00430061 HURON WELL FIELD
(National Trends Network Acid Precipitation Station)

LOCATION.--Lat 44°21'18", long 98°17'38", 3 mi west of the City of Huron at the City of Huron Municipal Well Field.

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

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.

EXTREMES FOR PERIOD OF RECORD.--
Rainfall, accumulated: 3.47 in. week of June 5-12, 1984.
pH, field: 4.00 week of Feb. 4-11, 1986; 6.93 week of Apr. 30 to May 7, 1985.

PRECIPITATION CHEMISTRY, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	PRECIP-ITATION TOTAL INCHES/ WEEK	ATM DEP WET TOTAL FOR PERIOD (IN)	COL-LECTOR EFFI-CIENCY WET DEPOS. PERCENT	SAMPLE SIZE (ML)	PH (STAND-ARD UNITS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT 07-14	1400	0.11	0.11	93	180	6.07	6	0.29	0.09
OCT 14-21	1400	0.0	0.0	--	0	--	--	--	--
OCT 21-28	1330	0.02	0.02	66	23	--	--	0.30	0.07
OCT 28-NOV 04	1500	0.02	0.02	44	15	--	--	0.62	0.11
NOV 04-12	1500	0.06	0.06	10	10	--	--	0.48	0.11
NOV 12-18	1500	0.23	0.23	24	95	5.45	6	0.45	0.11
NOV 18-25	1630	0.02	0.02	124	43	--	--	0.17	0.03
NOV 25-DEC 02	1500	0.0	0.0	--	2	--	--	--	--
DEC 02-09	1500	0.0	0.0	--	0	--	--	--	--
DEC 09-16	1500	0.0	0.0	--	0	--	--	--	--
DEC 16-23	1500	0.0	0.0	--	1	--	--	--	--
DEC 23-30	1500	0.0	0.18	41	130	5.59	10	0.28	0.06
JAN 06-13	1500	0.0	0.0	--	0	--	--	--	--
JAN 13-20	1500	0.0	0.0	--	0	--	--	--	--
JAN 20-27	1500	0.0	0.0	--	6	--	--	--	--
JAN 27-FEB 03	1500	0.0	0.0	--	0	--	--	--	--
FEB 03-10	1500	0.03	0.03	65	33	--	--	0.26	0.05
FEB 10-17	1500	0.27	0.27	22	100	5.41	3	0.11	0.03
FEB 17-24	1517	0.03	0.03	110	57	--	--	0.59	0.10
FEB 24-MAR 03	1400	0.67	0.67	104	1200	4.51	22	0.16	0.03
MAR 03-10	1545	0.0	0.0	--	1	--	--	--	--
MAR 10-17	1500	1.46	1.46	101	2500	4.41	20	0.07	0.02
MAR 17-25	1915	1.73	2.76	82	3900	4.36	25	0.15	0.03
MAR 25-31	1620	1.03	0.0	--	7	--	--	--	--
MAR 31-APR 07	1500	0.01	0.01	64	11	--	--	0.36	0.07
APR 07-14	1320	0.30	0.30	95	490	4.32	40	0.41	0.09
APR 14-21	1330	0.10	0.10	88	150	6.37	32	1.6	0.23
APR 21-28	1400	0.0	0.0	--	0	--	--	--	--
APR 28-MAY 05	1515	0.19	0.19	102	330	6.35	31	1.2	0.22
MAY 05-12	1400	0.06	0.06	68	70	--	--	2.0	0.40
MAY 12-19	1832	0.25	0.25	103	450	6.39	12	0.60	0.06
MAY 19-26	1400	0.49	0.49	--	--	--	12	0.44	0.06
MAY 26-JUN 02	1400	0.78	0.78	102	1400	--	6	0.12	0.03
JUN 02-09	1400	0.0	0.0	--	0	--	--	--	--

MISCELLANEOUS WATER QUALITY DATA

00430061 HURON WELL FIELD--Continued

PRECIPITATION CHEMISTRY, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	PRECIP-ITATION TOTAL INCHES/ WEEK	ATM DEP WET TOTAL FOR PERIOD (IN)	COL-LECTOR EFFI-CIENCY WET DEPOS. PERCENT	SAMPLE SIZE (ML)	PH (STAND-ARD UNITS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
JUN 09-16	1400	0.74	0.74	101	1300	5.79	4	0.17	0.02
JUN 16-23	1400	0.04	0.04	114	79	6.24	18	0.93	0.20
JUN 23-30	1400	0.92	0.92	96	1500	6.20	7	0.22	0.04
JUN 30-JUL 07	1400	0.64	0.64	99	1100	6.05	16	0.48	0.09

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SULFATE DIS-SOLVED (MG/L AS SO4)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO3)	PHOS-PHATE, DIS-SOLVED (MG/L AS PO4)	PH LAB (STAND-ARD UNITS)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)
OCT 07-14	0.02	0.02	<0.03	0.4	0.11	0.43	<0.01	6.48	5
OCT 14-21	--	--	--	--	--	--	--	--	--
OCT 21-28	0.65	0.05	<0.12	2.0	0.12	1.0	0.08	6.19	12
OCT 28-NOV 04	0.29	0.05	0.29	2.0	<0.14	2.1	<0.07	5.69	32
NOV 04-12	0.42	<0.06	<0.63	2.1	<0.42	1.7	<0.21	6.96	28
NOV 12-18	0.18	0.02	0.11	0.8	0.20	0.76	<0.01	6.64	8
NOV 18-25	0.43	0.05	0.22	0.8	0.19	0.83	<0.02	6.64	9
NOV 25-DEC 02	--	--	--	--	--	--	--	--	--
DEC 02-09	--	--	--	--	--	--	--	--	--
DEC 09-16	--	--	--	--	--	--	--	--	--
DEC 16-23	--	--	--	--	--	--	--	--	--
DEC 23-30	0.42	0.02	0.10	1.1	0.81	2.3	<0.01	6.41	11
JAN 06-13	--	--	--	--	--	--	--	--	--
JAN 13-20	--	--	--	--	--	--	--	--	--
JAN 20-27	--	--	--	--	--	--	--	7.07	32
JAN 27-FEB 03	--	--	--	--	--	--	--	--	--
FEB 03-10	0.21	0.09	0.31	0.6	0.33	0.83	0.06	6.57	10
FEB 10-17	0.17	0.03	0.12	0.2	0.16	0.51	<0.01	6.03	4
FEB 17-24	0.10	0.04	0.19	1.5	1.3	1.6	<0.01	6.82	15
FEB 24-MAR 03	0.03	0.01	0.08	2.4	0.84	2.1	<0.01	4.64	19
MAR 03-10	--	--	--	--	--	--	--	--	--
MAR 10-17	0.07	0.01	0.14	1.7	0.42	1.2	<0.01	4.55	17
MAR 17-25	0.04	0.02	0.09	2.5	0.45	2.2	<0.01	4.52	21
MAR 25-31	--	--	--	--	--	--	--	4.28	76
MAR 31-APR 07	0.58	<0.05	<0.55	1.6	0.91	1.8	<0.18	7.20	37
APR 07-14	0.04	0.03	0.16	4.9	2.1	4.8	<0.01	4.51	34
APR 14-21	0.34	0.17	0.15	4.5	2.5	2.7	<0.01	7.12	32
APR 21-28	--	--	--	--	--	--	--	--	--
APR 28-MAY 05	0.06	0.08	0.15	3.1	2.5	5.0	<0.01	6.83	29
MAY 05-12	0.40	0.19	0.39	3.9	2.8	6.2	<0.01	7.02	37
MAY 12-19	0.10	0.07	0.11	1	0.90	2.0	<0.01	6.55	13

MISCELLANEOUS WATER QUALITY DATA

00430061 HURON WELL FIELD--Continued

PRECIPITATION CHEMISTRY, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SULFATE DIS-SOLVED (MG/L AS SO4)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO3)	PHOS-PHATE, DIS-SOLVED (MG/L AS PO4)	PH LAB (STAND-ARD UNITS)	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)
MAY 19-26	0.15	0.05	0.11	1.4	1.1	2.1	<0.01	6.59	14
MAY 26-JUN 02	0.04	0.02	0.08	0.6	0.52	1.0	<0.01	5.97	6
JUN 02-09	--	--	--	--	--	--	--	--	--
JUN 09-16	0.03	<0.00	<0.03	0.5	0.19	0.53	<0.02	5.50	5
JUN 16-23	0.19	0.09	0.30	2.2	0.99	4.0	<0.02	6.20	19
JUN 23-30	0.05	0.05	0.10	0.6	0.54	1.0	<0.02	6.20	8
JUN 30-JUL 07	0.08	0.10	0.18	1.1	1.4	2.6	<0.02	6.70	16

PRECIPITATION RECORDS

LOCATION.--Lat 44°18'59", long 103°38'56", in NW¼SE¼SW¼ sec.9, T.4 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, about 0.25 mi west of USFS Road 534, about 2.5 mi northeast of U.S. Highway 385, and 5.5 mi southeast of Lead.

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

INSTRUMENTATION.--Non-shielded weighing-type precipitation recorder. Elevation of gage is 5,020 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.04	.00	.02	.00	.00	.00
2	.95	.00	.00	.00	.00	.00	.08	.28	.00	.00	.20	.00
3	.50	.00	.00	.03	.00	.00	.00	.00	.00	.40	.10	.36
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.20
5	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.75	.00	.00	.00	.00	.00	.00	.75	.00	.07	.00
7	.00	.50	.05	.00	.00	.00	.00	.00	.00	.25	.00	.26
8	.06	.17	.00	.00	.00	.20	.03	.00	.05	.00	.00	.02
9	.00	.00	.00	.00	.00	.02	.10	.00	.07	.00	.00	.02
10	.29	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.03	.05	1.00	.37
12	.00	.00	.00	.00	.43	.00	.14	.00	.00	.00	.00	.00
13	.00	.03	.00	.00	.07	.00	.00	.00	.00	.00	.72	.00
14	.00	.22	.00	.16	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00
16	.00	.00	.00	.00	.00	.11	.00	.50	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.09	.00	.20	.00	.00	.00	.11
18	.00	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00	.00
19	.00	.00	.08	.05	.00	.00	.20	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.87	.02	1.37	.00	.00	.00	.00
21	.00	.00	.00	.20	.00	.38	.00	.03	.00	.00	.00	.00
22	.40	.00	.00	.00	.07	.00	.00	.00	.00	.00	.54	.00
23	.00	.00	.00	.00	.00	.02	.00	.04	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.34	.00	.17	.00	.00	.00	.00
25	.00	.00	.00	.00	.04	.09	.00	.12	.00	.00	.23	.00
26	.00	.00	.00	.00	.47	.02	.00	.13	.00	.10	.22	.00
27	.00	.00	.00	.00	.05	.50	.00	.00	.00	.06	.22	.00
28	.00	.00	.00	.00	.09	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.28	---	.00	.00	.21	.00	.08	.00	.00
30	.00	.00	.00	.00	---	.18	.00	.04	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---

PRECIPITATION RECORDS

LOCATION.--Lat 43°40'02", long 103°21'45", in SW¼SE¼SE¼ sec.26, T.4 S., R.6 E., Custer County, Hydrologic Unit 10120109, on Wildlife Loop Road, Custer State Part #1, about 7 mi south of U.S. Highway 16 and Game Lodge.

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

INSTRUMENTATION.--Non-shielded weighing-type precipitation recorder. Elevation of gage is 3,970 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.00	.00	.00	.00	.04	.00	.00	.00	.12	.00	.00
2	.85	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.00
3	.67	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.44	.00	.00	.00	.00	.05	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00
6	.00	.27	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00
7	.00	.18	.00	.00	.00	.05	.00	.00	.02	.40	.00	.34
8	.00	.00	.00	.00	.00	.10	.00	.00	.02	.10	.00	.15
9	.00	.08	.00	.00	.00	.04	.00	.00	.57	.05	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.05	.03	.00	.00
11	.00	.00	.00	.00	.00	.00	.08	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.14
13	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.30	.00
14	.00	.00	.00	.04	.36	.07	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.07	.03	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.22	.00	.58	.16	.00	.00	.00
17	.00	.00	.00	.00	.00	.10	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00	.00
19	.00	.23	.00	.00	.00	.14	.00	1.15	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.35	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.03	.05	.00	.00	.00	.00	.00	.00
22	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00
23	.05	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00	.00
24	.00	.00	.00	.00	.07	.00	.00	.54	.00	.00	.00	.00
25	.00	.00	.00	.00	.08	.00	.50	.19	.00	.04	.00	.00
26	.00	.00	.00	.00	.39	.00	.00	.22	.00	.00	.48	.00
27	.00	.00	.00	.00	.08	.06	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.17	.00	.00	---	.05	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---

PRECIPITATION RECORDS

LOCATION.--Lat 43°44'44", long 103°28'20", in NW¼NE¼SW¼ sec.36, T.3 S., R.5 E., Custer County, Hydrologic Unit 10120109, on S.D. Hignway 87, 0.25 mi south and 0.25 mi east of the entrance to Mt. Coolidge lookout tower, 2.0 mi north of Blue Belle.

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

INSTRUMENTATION.--Non-shielded weighing-type precipitation recorder. Elevation of gage is 5,400 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.65	.00	.00	.00	.00	.18	.00	.00	.00	.08	.00	.00
2	.75	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00	.00
3	.70	.00	.00	.00	.00	.00	.00	.00	.00	.12	.03	.20
4	.65	.00	.00	.00	.43	.00	.00	.00	.00	.03	.02	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00
6	.00	.34	.00	.00	.00	.00	.00	.00	.18	.00	.10	.24
7	.00	.35	.02	.00	.00	.08	.00	.00	.00	.35	.30	.07
8	.00	.00	.00	.00	.00	.07	.00	.00	.00	.10	.13	.05
9	.00	.20	.00	.00	.00	.14	.00	.00	.55	.12	.00	.00
10	.00	.00	.00	.00	.00	.03	.00	.00	.03	.06	.00	.00
11	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.08	.00
12	.00	.00	.00	.00	.00	.00	.02	.00	.23	.00	.00	.00
13	.00	.00	.00	.00	.00	.08	.00	.00	.00	.00	.35	.00
14	.00	.00	.00	.06	.60	.09	.00	.00	.00	.00	.05	.00
15	.00	.00	.00	.00	.05	.03	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.03	.16	.00	.35	.00	.00	.04	.00
17	.00	.00	.00	.00	.00	.19	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.15	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.45	.00	.85	.08	.00	.00	.00
21	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00
22	.40	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00
24	.00	.00	.00	.00	.12	.00	.00	1.07	.00	.00	.00	.00
25	.00	.00	.00	.00	.13	.03	.25	.65	.00	.15	.02	.00
26	.00	.00	.00	.00	.62	.00	.00	.27	.00	.00	.50	.00
27	.00	.00	.00	.00	.23	.07	.00	.00	.00	.00	.06	.00
28	.00	.00	.00	.00	.08	.00	.00	.07	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.45	.00	.00	.00	.00
30	.00	.30	.00	.00	---	.05	.00	.00	.00	.03	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.03	.00	---

441037103292701 OX BOW RANCH NEAR NEMO, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°10'37", long 103°29'27", in SW¼NW¼SW¼ sec.35, T.3 N., R.5 E., Lawrence County, Hydrologic Unit 10120111, 0.2 mi northeast of Nemo Road on gravel road, and 1.7 mi southeast of Nemo.

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

INSTRUMENTATION.--Shielded weighing-type precipitation gage. Elevation of gage is 4,560 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.15	.00	.00	.00	.00	.08	.00	.00	.02	.00	.00	.00
2	.40	.00	.00	.00	.00	.00	.02	.50	.00	.00	.00	.00
3	.05	.00	.00	.00	.00	.00	.00	.08	.00	.15	.00	.03
4	.00	.00	.00	.00	.28	.00	.00	.00	.00	.00	.00	.07
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.60	.00	.00	.00	.00	.00	.00	.40	.00	.00	.04
7	.00	.30	.30	.00	.00	.00	.00	.00	.00	.00	.00	.15
8	.00	.00	.00	.00	.00	.05	.00	.00	.02	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.02	.00	.07	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00
11	.08	.00	.00	.00	.00	.00	.00	.00	.00	.02	.60	.07
12	.00	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.18	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.32	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.07	.00	.50	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00	.00	.00
18	.00	.00	.00	.00	.10	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.15	.00	.80	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.10	.00	.00	.00	.00	.00	.00
22	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.40	.00
23	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.11	.00	.34	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.04	.00	.11	.00	.00	.30	.00
26	.00	.00	.00	.00	.36	.00	.00	.48	.00	.00	.14	.00
27	.00	.00	.00	.00	.30	.07	.00	.00	.00	.00	.16	.00
28	.00	.00	.00	.00	.30	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.02	.00	.20	.00	.44	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.07	.00	---

404241032540000 RIMROCK HEIGHTS NEAR RAPID CITY, SD

PRECIPITATION RECORDS

LOCATION.--Lat 44°04'24", long 103°25'40", in NE¼NW¼SW¼ sec.5, T.1 N., R.6 E., Pennington County, Hydrologic Unit 10120110, in Rimrock Heights subdivision, 3.0 mi east of Pactola Dam, or 5.9 mi west of city limits of Rapid City.

PERIOD OF RECORD.--April to September 1987.

INSTRUMENTATION.--Precipitation recorder. Elevation of gage is 4,300 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good.

ACCUMULATED PRECIPITATION, IN INCHES, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							---	.00	.00	.10	.00	.00
2							---	.43	.00	.00	.01	.00
3							---	.12	.00	.01	.42	.00
4							---	.00	.00	.17	.10	.04
5							---	.00	.00	.00	.00	.02
6							---	.00	.00	.00	.01	.00
7							---	.00	.00	.08	.67	.25
8							---	.00	.02	.13	.01	.03
9							---	.02	.22	.00	.00	.00
10							---	.00	.03	.04	.00	.00
11							---	.00	.00	.02	.00	.05
12							---	.00	.00	.00	.00	.00
13							---	.15	.00	.00	.10	.00
14							---	.00	.00	.00	.00	.00
15							---	.00	.00	.00	.00	.00
16							---	.26	.05	.09	.00	.00
17							---	.12	.00	.00	.00	.06
18							---	.01	.00	.00	.00	.00
19							---	.00	.00	.00	.00	.00
20							---	.48	.00	.00	.00	.00
21							---	.00	.00	.00	.00	.00
22							---	.00	.05	.00	.26	.00
23							---	.16	.00	.17	.00	.00
24							---	.35	.00	.16	.00	.00
25							---	.12	.00	.00	.35	.00
26							---	.40	.00	.00	.04	.00
27							---	.00	.00	.00	.01	.00
28							---	.00	.00	.00	.00	.00
29							---	1.36	.00	.00	.00	.00
30							.00	.10	.00	.07	.00	.00
31							---	.00	---	.00	.00	---

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06334500 - LITTLE MISSOURI R AT CAMP CROOK SD (LAT 45 32 49N LONG 103 58 23W)					
OCT 1986					
07...	1230	346	12.0	19.0	700
NOV					
06...	1000	35	6.0	3.5	1220
DEC					
09...	1330	36	0.0	-15.5	1380
JAN 1987					
14...	1200	16	0.0	-2.0	2270
FEB					
24...	1445	36	0.0	-4.0	1730
APR					
06...	1645	1870	17.0	7.0	650
MAY					
04...	1700	29	19.0	18.0	1160
JUN					
02...	1515	41	18.5	16.5	1380
JUL					
07...	1115	6.3	21.0	25.5	2000
06354860 - SPRING CR NEAR HERREID SD (LAT 45 48 52N LONG 100 06 28W)					
OCT 1986					
21...	1615	0.0	15.0	21.0	770
06354882 - OAK CR NEAR WAKPALA SD (LAT 45 42 43N LONG 100 33 32W)					
OCT 1986					
21...	1300	0.56	10.5	--	810
NOV					
19...	0830	2.6	1.0	-2.0	1350
DEC					
17...	0800	1.7	0.0	-0.5	1250
JAN 1987					
14...	1100	3.9	1.0	0.0	1100
FEB					
10...	1335	11	0.0	3.0	910
MAR					
12...	0800	28	0.0	-4.0	570
APR					
07...	0810	195	--	1.0	260
MAY					
12...	1600	4.3	21.0	26.0	1000
JUN					
09...	1355	3.4	22.0	--	720
30...	1310	--	--	25.0	1100
JUL					
29...	0715	0.1	26.0	26.5	1150
AUG					
26...	0700	0.0	--	12.0	--
06355500 - NORTH FORK GRAND R NEAR WHITE BUTTE SD (LAT 45 48 10N LONG 102 21 45W)					
OCT 1986					
22...	1515	15	12.5	20.0	3500
NOV					
19...	1525	12	1.0	5.0	--
DEC					
18...	0930	12	0.0	-1.5	4200
JAN 1987					
14...	1550	13	0.5	-1.0	3100
FEB					
11...	1440	16	0.0	15.0	2500
MAR					
11...	1225	31	0.0	-5.0	1600
APR					
08...	1030	849	8.0	11.0	1700
MAY					
06...	1400	47	19.0	21.0	2100
JUN					
11...	0925	19	22.5	19.0	2800
JUL					
02...	0910	2.5	18.5	19.0	2890
29...	1315	7.9	29.5	38.5	1720
AUG					
26...	1330	0.34	18.0	18.5	2200
SEP					
16...	1320	3.8	18.5	21.5	2580

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06356000 - SOUTH FORK GRAND R AT BUFFALO SD (LAT 45 34 34N LONG 103 32 38W)					
OCT 1986					
07...	1615	4.2	15.0	17.5	1100
NOV					
06...	1230	3.2	5.0	2.5	1760
DEC					
09...	1630	2.2	0.0	-19.0	1750
JAN 1987					
14...	1530	3.8	0.0	-6.0	1640
FEB					
24...	1730	4.0	0.0	-6.0	1650
APR					
07...	1100	17	7.5	16.0	550
MAY					
04...	1345	8.9	17.0	18.5	1620
JUN					
02...	1215	4.2	15.0	16.0	1410
JUL					
07...	1500	3.0	24.0	23.0	1750
06356500 - SOUTH FORK GRAND R NEAR CASH SD (LAT 45 38 56N LONG 102 38 27W)					
OCT 1986					
22...	1330	19	12.0	15.0	1950
NOV					
19...	1410	14	1.0	2.0	2500
DEC					
17...	1525	15	0.0	1.0	2600
JAN 1987					
14...	1450	14	0.5	0.0	2350
FEB					
11...	1305	33	0.0	14.5	1700
MAR					
11...	1045	31	0.0	-5.0	1150
APR					
08...	1235	243	10.0	12.5	710
MAY					
06...	1130	56	19.0	21.0	1800
JUN					
10...	1645	18	23.5	25.0	1910
JUL					
02...	1010	13	20.0	22.0	1830
29...	1110	20	27.0	34.5	2230
AUG					
26...	1240	13	17.0	18.5	2150
SEP					
16...	1125	16	18.5	23.0	1880
06357500 - GRAND R AT SHADEHILL SD (LAT 45 45 23N LONG 102 11 44W)					
OCT 1986					
22...	1635	95	--	19.5	1850
NOV					
20...	0810	60	2.0	-2.0	1700
DEC					
18...	0745	43	2.0	-4.0	1920
JAN 1987					
15...	0750	49	1.0	-21.0	--
FEB					
11...	1610	44	3.0	11.0	1950
MAR					
11...	1330	47	1.0	4.0	1850
APR					
08...	0850	1150	6.0	4.0	1750
MAY					
06...	1510	174	10.0	22.0	1550
JUN					
11...	0700	86	15.0	16.0	1550
JUL					
02...	0755	53	18.0	18.0	1560
29...	1555	78	25.5	34.0	1680
AUG					
27...	0715	118	17.0	15.0	--
SEP					
16...	1550	87	18.0	17.0	1760

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06357800 - GRAND R AT LITTLE EAGLE SD (LAT 45 30 28N LONG 100 49 04W)					
NOV 1986					
19...	1045	82	1.5	0.0	--
DEC					
17...	1100	52	0.0	1.0	2200
FEB 1987					
11...	0900	96	0.0	-2.0	1500
MAY					
05...	1215	261	15.0	16.0	1500
JUN					
10...	0755	174	18.0	17.0	1570
JUL					
28...	1435	90	31.0	34.0	1470
AUG					
26...	0905	94	16.0	17.5	1750
SEP					
16...	0800	88	17.5	17.5	1800
06359500 - MOREAU R NEAR FAITH SD (LAT 45 11 52N LONG 102 09 22W)					
OCT 1986					
23...	0905	32	12.0	10.5	1920
NOV					
20...	1020	26	1.0	10.0	2400
DEC					
18...	1240	22	0.0	7.5	3080
JAN 1987					
15...	0950	16	0.5	-20.0	2750
FEB					
12...	0840	28	0.0	-2.5	2100
MAR					
11...	0830	368	0.0	-6.0	840
APR					
08...	1440	1650	10.0	18.0	1060
MAY					
07...	0700	60	12.5	9.0	1600
JUN					
10...	1320	48	21.0	22.0	1460
JUL					
02...	1145	20	21.0	23.0	1700
30...	1000	11	26.5	32.0	2480
AUG					
27...	0855	23	15.5	16.0	1500
SEP					
17...	0825	29	13.5	10.5	1850
06360500 - MOREAU R NEAR WHITEHORSE SD (LAT 45 15 21N LONG 100 50 33W)					
OCT 1986					
21...	1045	62	11.5	17.0	1680
DEC					
16...	1110	39	0.0	5.0	4700
FEB 1987					
10...	1040	46	0.0	1.0	2350
JUN					
09...	1055	159	19.0	24.0	1370
JUL					
28...	1155	96	29.5	33.0	800
AUG					
25...	1115	39	18.0	19.0	--
06395000 - CHEYENNE R AT EDGEMONT SD (LAT 43 18 20N LONG 103 49 14W)					
NOV 1986					
04...	1015	42	4.0	5.0	4000
DEC					
11...	1300	21	0.0	3.0	5000
JAN 1987					
21...	1145	24	0.0	-1.0	5200
FEB					
25...	1030	51	0.0	-4.5	2780
APR					
09...	1030	137	7.5	8.0	2450
MAY					
06...	0930	114	13.0	17.5	2440
JUN					
03...	1030	116	14.0	18.0	1950

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06400000 - HAT CR NEAR EDGEMONT SD (LAT 43 14 46N LONG 103 35 16W)					
OCT 1986					
08...	1545	11	13.0	10.0	820
NOV					
05...	0930	4.5	5.0	9.0	2050
DEC					
10...	1600	4.9	0.0	4.0	2350
JAN 1987					
20...	1700	4.7	0.0	-2.0	1950
FEB					
25...	1300	4.7	0.0	-3.0	2060
MAR					
11...	1430	45	1.0	6.0	1320
APR					
09...	1345	15	11.0	10.0	2200
MAY					
06...	1315	16	18.0	22.0	2820
JUN					
03...	1330	26	19.5	23.0	2500
06400497 - CASCADE SPRINGS NEAR HOT SPRINGS SD (LAT 43 20 20N LONG 103 33 08W)					
DEC 1986					
11...	0845	21	20.0	2.0	2700
FEB 1987					
25...	1430	20	20.0	-2.0	2680
MAY					
06...	1530	22	22.5	23.0	2600
JUL					
07...	1515	23	21.0	30.0	2700
AUG					
12...	1200	21	20.0	17.0	2700
06400875 - HORSEHEAD CR AT OELRICHS SD (LAT 43 11 17N LONG 103 13 34W)					
NOV 1986					
03...	1515	0.16	7.0	9.5	2210
DEC					
10...	1400	0.15	0.0	3.0	2600
JAN 1987					
20...	1345	0.28	1.0	0.0	3400
FEB					
24...	1520	0.12	2.0	-4.0	2800
APR					
08...	1530	90	11.5	22.0	1150
MAY					
05...	1530	1.6	12.5	21.0	2260
JUN					
02...	1345	1.5	19.0	20.5	1920
06401500 - CHEYENNE R BELOW ANGOSTURA DAM SD (LAT 43 20 42N LONG 103 26 12W)					
FEB 1987					
24...	1345	162	3.0	-4.0	2150
APR					
08...	1345	393	6.5	20.0	2000
MAY					
05...	1345	179	12.5	22.0	2130
JUN					
03...	1600	143	16.0	21.5	2150
JUL					
08...	0930	4.2	20.0	21.5	2100
AUG					
12...	1500	2.7	20.5	18.0	2220
06402000 - FALL R AT HOT SPRINGS SD (LAT 43 25 50N LONG 103 28 33W)					
NOV 1986					
05...	1345	18	23.5	15.0	1310
JAN 1987					
21...	0830	22	20.0	2.0	1320
APR					
09...	0815	22	22.0	5.0	1280
JUN					
03...	0830	19	24.0	14.5	1370

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06402500 - BEAVER CR NEAR BUFFALO GAP SD (LAT 43 27 56N LONG 103 18 22W)					
OCT 1986					
14...	1130	9.8	9.0	22.0	2250
NOV					
05...	1700	9.5	9.5	3.5	2470
DEC					
11...	1545	12	3.0	1.0	2500
JAN 1987					
21...	1545	8.5	2.0	0.5	2500
FEB					
24...	1045	9.5	1.0	-2.0	2500
APR					
08...	1100	12	10.5	19.5	2440
MAY					
05...	1030	1.2	12.0	24.0	2850
JUN					
02...	1130	12	15.0	18.5	2580
JUL					
06...	1130	4.6	20.0	28.0	2500
AUG					
13...	0945	3.0	17.0	22.5	2450
SEP					
30...	1100	9.2	12.0	23.0	--
06403300 - FRENCH CR ABOVE FAIRBURN SD (LAT 43 43 02N LONG 103 22 03W)					
OCT 1986					
14...	1415	7.0	17.0	8.5	260
NOV					
06...	1130	5.3	4.0	0.5	300
DEC					
15...	1245	2.3	0.0	5.0	320
JAN 1987					
22...	1445	1.1	0.0	5.5	340
FEB					
26...	1600	2.1	0.0	-6.0	220
MAR					
07...	1600	190	1.0	14.0	--
10...	1200	14	0.0	3.0	230
APR					
10...	1345	15	7.0	13.0	240
MAY					
11...	1345	7.2	16.5	22.0	280
JUN					
05...	1445	12	20.0	32.0	280
JUL					
08...	1245	3.3	22.5	28.5	270
AUG					
13...	1245	0.43	18.5	26.0	290
SEP					
30...	1330	0.44	16.0	25.5	290
06404000 - BATTLE CR NEAR KEYSTONE SD (LAT 43 52 18N LONG 103 20 09W)					
OCT 1986					
07...	1500	18	13.0	21.0	170
30...	1545	5.4	9.0	18.0	240
DEC					
09...	1400	4.9	0.5	-7.0	260
31...	1415	3.0	0.5	1.5	270
FEB 1987					
13...	1400	3.0	2.5	11.5	250
APR					
07...	1400	18	10.0	20.5	175
MAY					
04...	1500	21	12.0	16.0	175
27...	1400	54	16.5	20.5	125
JUL					
01...	1430	3.7	21.5	21.0	300
AUG					
14...	1315	0.33	25.0	29.5	305

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06404998 - GRACE COOLIDGE CR NR GAME LODGE NR CUSTER SD (LAT 43 45 40N LONG 103 21 49W)					
OCT 1986					
14...	1600	5.4	8.5	14.5	130
NOV					
06...	1445	3.4	3.5	1.5	160
FEB 1987					
26...	1200	1.4	0.0	-2.0	180
APR					
10...	1200	6.7	6.5	14.0	135
MAY					
11...	1115	4.3	16.0	20.0	160
JUN					
05...	1230	8.0	18.5	27.0	160
JUL					
08...	1415	3.0	23.5	25.0	170
AUG					
13...	1445	0.57	21.0	26.0	200
SEP					
30...	1500	0.67	17.5	28.5	210
06406000 - BATTLE CR AT HERMOSA SD (LAT 43 49 41N LONG 103 11 44W)					
OCT 1986					
07...	1300	12	12.5	16.5	500
NOV					
10...	1345	7.0	0.0	-15.0	660
DEC					
09...	1200	7.7	1.5	-8.0	660
31...	1300	6.9	2.5	2.0	650
FEB 1987					
13...	1230	5.1	6.0	16.0	630
APR					
07...	1230	9.6	10.0	22.0	570
MAY					
04...	1245	9.8	11.0	14.5	535
27...	1200	25	14.5	18.0	420
JUL					
01...	1300	8.6	19.5	21.0	590
AUG					
14...	1115	7.1	19.0	28.5	640
SEP					
28...	1215	4.0	13.0	20.5	660
06408500 - SPRING CR NEAR HERMOSA SD (LAT 43 56 30N LONG 103 09 33W)					
OCT 1986					
07...	1045	0.62	12.0	15.0	1080
NOV					
10...	1600	0.91	0.0	-15.0	1220
DEC					
09...	1000	0.68	0.0	-10.0	1260
31...	1045	0.65	0.0	1.0	1240
FEB 1987					
13...	1045	0.48	0.5	17.0	1010
APR					
07...	1015	0.69	9.5	16.5	1170
MAY					
04...	1045	0.66	11.0	9.5	1180
27...	1030	0.74	16.0	18.5	1020
JUL					
01...	1030	0.22	22.5	26.0	850
06408700 - RHOADS FORK NEAR ROCHFORD SD (LAT 44 08 12N LONG 103 51 29W)					
OCT 1986					
21...	1500	5.3	8.5	12.5	440
NOV					
20...	1515	5.2	5.0	6.5	450
FEB 1987					
09...	1000	4.7	4.0	3.5	460
APR					
14...	1000	4.7	7.0	7.0	445
MAY					
19...	1515	4.8	12.0	23.5	440
JUN					
23...	1115	5.0	11.0	17.5	440
JUL					
21...	1330	5.2	11.5	30.5	455
AUG					
25...	1545	5.4	10.0	--	440

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06409000 - CASTLE CR ABOVE DEERFIELD RES NEAR HILL CITY SD (LAT 44 00 49N LONG 103 49 48W)					
NOV 1986					
19...	1330	13	0.0	1.5	450
DEC					
16...	1130	13	1.0	9.5	480
MAR 1987					
23...	1430	12	0.5	0.0	490
MAY					
19...	1115	13	12.0	19.0	570
JUN					
23...	1815	9.9	16.0	18.0	420
AUG					
25...	1100	8.6	11.0	13.5	460
06410000 - CASTLE CR BELOW DEERFIELD DAM SD (LAT 44 01 45N LONG 103 46 53W)					
OCT 1986					
17...	1000	34	6.5	8.0	370
FEB 1987					
09...	1300	2.6	5.0	12.0	430
MAR					
23...	1615	14	3.5	-2.5	450
APR					
14...	1300	30	4.5	15.5	435
24...	1300	18	5.0	21.0	430
MAY					
19...	1330	20	6.5	19.0	400
JUN					
23...	1515	9.7	7.0	22.0	410
06410500 - RAPID CR ABOVE PACTOLA RES NEAR SILVER CITY SD (LAT 44 05 05N LONG 103 34 48W)					
OCT 1986					
21...	1245	56	8.0	13.5	370
NOV					
21...	1515	43	2.0	4.5	380
DEC					
16...	1530	18	0.0	4.0	420
JAN 1987					
21...	1200	16	0.0	-7.0	410
MAR					
24...	1315	51	0.5	-1.5	360
APR					
15...	1200	79	4.5	20.5	340
MAY					
21...	1400	75	9.0	11.5	350
JUN					
26...	1000	25	11.5	18.0	370
JUL					
21...	1530	22	20.5	29.0	375
AUG					
27...	1330	26	12.0	14.0	390
06411500 - RAPID CR BELOW PACTOLA DAM SD (LAT 44 04 36N LONG 103 28 54W)					
OCT 1986					
21...	1045	40	9.0	9.5	360
NOV					
19...	1615	35	5.5	3.5	360
DEC					
16...	1345	20	4.0	9.5	360
JAN 1987					
21...	1615	14	0.0	-8.0	360
MAR					
23...	1145	56	4.0	4.5	370
APR					
15...	1515	80	4.5	18.0	370
MAY					
21...	1530	51	5.5	7.5	370
JUN					
25...	1100	66	6.0	19.5	370
JUL					
21...	1745	86	5.0	35.0	365
AUG					
27...	1015	33	7.0	13.5	380

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD (LAT 44 03 04N LONG 103 18 47W)					
OCT 1986					
29...	1515	69	8.0	11.5	370
NOV					
26...	1615	34	4.0	13.0	370
DEC					
15...	1345	15	1.0	5.0	380
JAN 1987					
12...	1400	21	1.0	15.0	370
MAR					
10...	1615	21	1.5	3.5	370
26...	1000	29	2.0	15.0	360
27...	1145	24	4.0	1.0	360
MAY					
11...	1500	51	14.0	21.0	350
JUN					
05...	0945	45	13.0	25.0	360
JUL					
02...	1545	79	17.0	27.0	350
SEP					
30...	1630	15	13.5	23.0	360
06414000 - RAPID CR AT RAPID CITY SD (LAT 44 05 09N LONG 103 14 31W)					
OCT 1986					
31...	1715	90	7.5	5.0	480
NOV					
26...	1515	57	6.0	13.0	510
DEC					
15...	1545	42	5.0	5.0	550
JAN 1987					
12...	1600	43	<6.0	17.0	530
FEB					
27...	1115	27	1.0	-5.0	580
MAR					
26...	1400	36	8.5	10.5	530
MAY					
11...	1245	55	16.0	21.5	440
JUN					
05...	1700	54	20.5	29.0	450
JUL					
02...	1230	71	19.0	25.0	410
AUG					
18...	1245	35	18.5	20.0	460
SEP					
30...	1315	27	15.0	24.0	470
06418900 - RAPID CR BELOW SEWAGE PLANT NR RAPID CITY SD (LAT 44 01 24N LONG 103 05 43W)					
OCT 1986					
29...	1115	114	10.0	13.0	770
NOV					
26...	1345	81	5.0	15.0	1070
DEC					
15...	1015	64	2.5	4.5	890
JAN 1987					
12...	1045	68	2.5	9.0	870
FEB					
27...	1500	53	1.5	-7.0	950
APR					
14...	1445	125	9.5	19.0	630
MAY					
11...	1000	54	16.0	18.0	870
JUN					
05...	1445	47	21.0	29.0	960
JUL					
02...	1015	27	20.0	22.0	1330
AUG					
18...	1015	21	18.5	20.5	1220
SEP					
30...	0945	21	15.5	15.0	1300

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06421500 - RAPID CR NEAR FARMINGDALE SD (LAT 43 56 31N LONG 102 51 12W)					
OCT 1986					
15...	1115	104	7.0	18.0	780
NOV					
14...	1645	105	0.0	-4.0	840
DEC					
12...	1030	70	0.0	0.0	1080
30...	1115	54	1.0	14.5	940
FEB 1987					
12...	1515	56	0.5	16.5	1060
APR					
06...	1130	110	9.0	17.5	860
MAY					
07...	1215	87	18.5	24.5	910
JUN					
04...	1030	62	17.5	22.0	900
JUL					
09...	1145	16	23.5	25.5	980
AUG					
10...	1130	65	22.0	29.0	730
SEP					
29...	1245	40	13.0	22.0	1330
06422500 - BOXELDER CR NEAR NEMO SD (LAT 44 08 38N LONG 103 27 16W)					
OCT 1986					
06...	1615	17	10.0	17.5	270
30...	1345	8.8	8.5	13.5	310
NOV					
25...	1515	9.2	0.5	0.5	300
DEC					
22...	1415	3.9	1.0	15.0	355
JAN 1987					
16...	1545	2.8	0.0	-6.0	390
MAR					
03...	1500	7.1	0.0	11.5	320
06...	1500	47	2.0	22.5	170
APR					
14...	1100	27	3.5	11.5	220
MAY					
21...	1145	38	8.5	9.0	210
JUN					
25...	1400	8.8	20.0	22.5	270
JUL					
21...	1045	5.2	20.5	30.0	310
AUG					
27...	1600	5.2	16.0	16.0	300
06423500 - CHEYENNE RIVER NEAR WASTA SD (LAT 44 04 52N LONG 102 24 03W)					
OCT 1986					
15...	1430	246	9.5	19.0	1700
NOV					
14...	1345	242	0.0	2.0	2120
DEC					
12...	1300	255	0.0	-1.5	2050
30...	1530	99	0.0	16.5	2060
FEB 1987					
12...	1245	229	0.5	18.5	1750
MAR					
07...	1015	--	5.0	18.0	--
17...	1400	967	3.0	0.0	1800
APR					
06...	1600	1150	9.5	18.5	1600
MAY					
07...	1500	352	21.5	25.0	1900
JUN					
04...	1330	407	22.0	27.0	2050
23...	1300	--	24.0	--	2280
29...	1445	98	24.5	21.5	2350
AUG					
10...	1345	158	25.0	33.0	1700
SEP					
17...	1245	103	15.5	18.0	2100

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06425100 - ELK CR NR RAPID CITY SD (LAT 44 14 25N LONG 103 09 03W)					
OCT 1986					
20...	1300	3.8	11.5	--	1260
NOV					
25...	1145	11	0.0	5.0	1320
DEC					
09...	1415	4.8	--	--	--
JAN 1987					
22...	1200	3.6	1.0	2.0	1200
MAR					
18...	1230	8.4	4.0	5.5	1230
APR					
21...	1215	5.4	10.5	16.5	1380
MAY					
26...	1130	76	14.0	17.0	580
JUN					
04...	1545	7.7	21.5	28.5	1130
JUL					
09...	1415	E0.77	25.0	27.5	1460
06425500 - ELK CR NEAR ELM SPRINGS SD (LAT 44 14 54N LONG 102 30 10W)					
NOV 1986					
24...	1145	14	0.5	15.0	2420
DEC					
19...	1100	4.2	0.0	-4.0	2380
JAN 1987					
27...	1130	3.7	0.0	5.0	2080
MAR					
17...	1615	33	4.5	0.0	2000
APR					
23...	1030	12	13.5	17.0	2150
MAY					
20...	1230	23	9.5	12.5	2200
26...	1400	241	16.0	18.0	1800
JUN					
24...	1445	2.2	26.0	25.5	2530
AUG					
31...	1145	0.05	22.5	27.0	4200
06428500 - BELLE FOURCHE R AT WY-SD STATE LINE (LAT 44 44 59N LONG 104 02 49W)					
OCT 1986					
08...	1045	77	11.5	12.5	1530
NOV					
07...	0930	34	2.5	0.0	1850
DEC					
10...	1045	20	0.0	3.0	2350
JAN 1987					
13...	1445	18	0.0	6.0	2140
MAR					
03...	1030	73	0.0	2.5	1620
APR					
07...	1745	502	10.5	20.0	880
MAY					
07...	0930	97	17.0	17.0	1360
JUN					
03...	1030	151	15.0	16.0	1270
JUL					
09...	1500	134	24.0	27.5	1320
AUG					
13...	1130	474	20.0	E23.0	1130
06429997 - MURRAY DITCH ABOVE HEADGATE AT WY-SD STATE LINE (LAT 44 34 35N LONG 104 03 20W)					
JUN 1987					
10...	1215	14	17.5	24.0	1320
JUL					
06...	1430	20	19.5	24.5	1360
AUG					
11...	1400	6.8	21.0	26.0	1400

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06430500 - REDWATER CR AT WY-SD STATE LINE (LAT 44 34 26N LONG 104 02 54W)					
OCT 1986					
06...	1500	32	12.5	20.0	1440
NOV					
04...	1400	34	9.0	16.5	1450
DEC					
08...	1600	33	4.0	-2.0	1510
JAN 1987					
16...	0930	29	0.0	-10.0	1520
MAR					
02...	1515	34	7.0	3.5	1500
APR					
08...	1330	48	12.0	19.5	1390
MAY					
05...	1445	45	15.5	20.0	1260
JUN					
01...	1430	43	16.5	15.0	1150
JUL					
06...	1630	9.7	21.0	24.0	1550
AUG					
11...	1545	25	20.5	26.5	1460
SEP					
29...	1045	34	10.0	15.5	1460
06431500 - SPEARFISH CR AT SPEARFISH SD (LAT 44 28 57N LONG 103 51 40W)					
OCT 1986					
06...	1230	40	6.5	20.0	430
NOV					
05...	1300	44	5.5	21.5	420
DEC					
08...	1230	41	2.0	-2.0	440
JAN 1987					
26...	1030	35	1.5	9.0	440
MAR					
02...	1145	36	2.0	5.0	440
APR					
08...	1445	61	5.5	18.0	373
MAY					
06...	1700	54	10.0	22.5	380
JUN					
01...	1100	45	10.0	15.0	380
JUL					
06...	1130	34	12.0	20.0	420
AUG					
11...	1100	30	12.0	25.0	410
SEP					
29...	1445	31	7.5	19.5	440
06433000 - REDWATER RIVER ABOVE BELLE FOURCHE SD (LAT 44 40 02N LONG 103 50 20W)					
OCT 1986					
08...	1400	148	11.5	10.0	1180
NOV					
05...	1600	140	9.5	13.0	1160
DEC					
16...	1100	140	1.0	6.5	1250
JAN 1987					
15...	1645	114	0.0	-14.0	1250
MAR					
04...	1400	149	7.0	17.0	1250
APR					
09...	1230	185	9.0	8.0	1210
MAY					
05...	1800	176	16.5	21.5	1030
JUN					
04...	1515	141	19.0	23.0	1140
JUL					
08...	1430	5.0	25.0	26.5	1650
AUG					
14...	1615	59	23.5	27.0	1290

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06433500 - HAY CR AT BELLE FOURCHE SD (LAT 44 40 01N LONG 103 50 46W)					
OCT 1986					
10...	1000	0.18	8.5	8.0	2790
NOV					
05...	1430	0.28	6.5	18.0	2950
DEC					
10...	1630	0.19	0.0	1.0	3050
JAN 1987					
13...	1630	0.1	0.0	5.0	3520
20...	1345	0.28	1.0	0.0	3400
MAR					
04...	1615	7.7	0.0	15.0	1830
APR					
09...	1515	10	10.5	12.0	1250
MAY					
07...	1445	2.9	20.0	25.0	2550
26...	1245	11	16.0	21.0	1410
JUN					
03...	1730	3.9	19.0	22.0	1530
JUL					
08...	1545	0.02	25.0	27.5	2490
AUG					
14...	1745	1.1	23.0	28.5	1950
06434500 - INLET CANAL NEAR BELLE FOURCHE (LAT 44 42 14N LONG 103 49 23W)					
MAY 1987					
07...	1130	19	18.5	23.0	1290
06436000 - BELLE FOURCHE R NEAR FRUITDALE SD (LAT 44 41 27N LONG 103 44 14W)					
OCT 1986					
09...	1445	7.0	14.5	15.5	2380
NOV					
07...	1315	10	3.0	-4.0	2300
DEC					
10...	1515	4.3	0.0	1.5	2550
JAN 1987					
15...	1415	3.9	0.5	-10.0	2500
MAR					
04...	1115	4.2	3.0	10.0	2350
APR					
10...	1445	697	7.5	10.0	1110
MAY					
06...	1000	295	16.0	19.0	1250
JUN					
03...	1430	252	17.0	20.5	1120
JUL					
08...	1130	10	23.0	24.0	2140
AUG					
13...	1630	7.4	25.0	26.0	2140
06436170 - WHITEWOOD CREEK AT DEADWOOD (LAT 44 22 48N LONG 103 43 25W)					
OCT 1986					
10...	1415	14	9.0	3.0	930
NOV					
14...	1100	16	5.0	3.0	950
DEC					
17...	1515	11	5.0	-1.5	1020
JAN 1987					
20...	1630	12	4.0	-3.5	1050
MAR					
11...	1145	12	6.5	2.0	840
APR					
07...	1100	51	6.5	--	530
MAY					
22...	1145	33	11.0	11.0	650
JUN					
08...	1600	23	15.5	20.0	650
JUL					
10...	1615	13	18.5	18.5	920
AUG					
19...	1530	13	20.0	23.0	940
SEP					
29...	1730	12	14.5	16.0	980

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06436180 - WHITEWOOD CR ABOVE WHITEWOOD SD (LAT 44 26 32N LONG 103 37 44W)					
OCT 1986					
21...	1340	15	10.5	16.0	876
NOV					
24...	1050	17	3.5	17.0	828
DEC					
22...	1451	14	-0.5	11.0	850
JAN 1987					
09...	1515	9.4	-0.5	-1.0	871
FEB					
11...	1355	13	3.5	16.0	901
MAR					
19...	1230	21	6.0	7.5	852
APR					
08...	2005	E70	9.0	E11.0	470
21...	1530	--	11.0	20.0	425
MAY					
19...	1615	27	15.5	19.5	680
20...	1645	--	11.5	7.5	1010
JUN					
26...	1500	23	23.0	28.5	787
JUL					
15...	1420	22	24.0	31.0	904
AUG					
30...	1145	--	15.5	21.0	947
SEP					
28...	1115	14	9.5	18.0	911
06436190 - WHITEWOOD CREEK NEAR WHITEWOOD SD (LAT 44 32 30N LONG 103 34 16W)					
OCT 1986					
22...	1445	17	10.5	11.0	1110
NOV					
14...	1345	17	1.5	3.0	1100
DEC					
17...	1215	17	0.5	3.5	1080
JAN 1987					
20...	1430	16	0.0	0.5	1100
MAR					
05...	1500	21	11.0	15.0	960
APR					
08...	1700	73	14.0	--	648
MAY					
06...	1430	38	19.5	20.5	730
JUN					
08...	1345	27	16.5	20.5	800
JUL					
10...	1330	15	19.0	22.0	970
AUG					
19...	1330	14	20.0	25.5	970
SEP					
28...	1400	13	15.0	17.0	1030
06436198 - WHITEWOOD CR ABOVE VALE SD (LAT 44 37 04N LONG 103 28 52W)					
OCT 1986					
22...	1309	18	11.0	14.0	1210
NOV					
24...	1510	33	6.0	18.5	1080
DEC					
05...	1430	--	0.0	1.5	1080
19...	1535	12	-0.5	-8.0	1340
JAN 1987					
08...	1555	15	-0.5	--	1330
FEB					
13...	1615	17	6.5	14.0	879
MAR					
24...	1245	28	0.0	0.0	1170
APR					
06...	1500	--	11.5	18.0	855
15...	1650	--	13.0	22.5	--
23...	1540	80	16.0	18.5	675
MAY					
19...	1235	30	14.5	15.0	1010
20...	1100	--	13.0	7.0	959
21...	1230	--	9.0	8.5	894
JUN					
18...	1335	23	24.0	30.0	1060

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06439000 - CHERRY CR NEAR PLAINVIEW SD (LAT 44 44 35N LONG 102 03 11W)					
OCT 1986					
23...	1135	6.3	12.0	14.0	2700
NOV					
20...	1240	6.1	2.0	12.5	--
DEC					
18...	1450	5.4	0.0	9.0	4300
APR 1987					
08...	1700	--	12.0	24.0	--
MAY					
07...	0920	45	10.5	13.0	--
JUN					
11...	1230	30	19.0	27.5	1800
JUL					
02...	1315	2.3	25.0	25.0	1900
AUG					
27...	1015	3.2	17.0	16.0	--
SEP					
17...	1020	0.4	17.0	15.0	1850
06439300 - CHEYENNE RIVER AT CHERRY CREEK SD (LAT 44 36 10N LONG 101 29 24W)					
OCT 1986					
23...	1400	360	14.5	13.0	2260
28...	1240	--	12.0	21.0	2270
DEC					
02...	1310	521	0.0	4.0	2550
18...	1630	--	-0.5	5.0	2570
19...	1215	385	0.0	3.0	2650
JAN 1987					
11...	1410	--	-0.5	20.0	2570
15...	1400	186	0.5	-14.0	--
FEB					
19...	1225	400	1.0	0.0	2330
MAR					
20...	1330	4000	1.0	10.0	2000
APR					
01...	1650	5460	3.5	2.0	1480
28...	1255	--	18.0	30.0	1890
MAY					
26...	1245	7880	--	18.0	920
JUN					
01...	1425	--	22.0	--	1800
12...	1055	642	25.0	29.0	2200
19...	1200	--	23.5	--	2250
24...	1800	--	24.0	--	2280
JUL					
06...	1055	431	22.0	26.0	2100
23...	1135	--	26.5	34.0	1230
AUG					
27...	1115	460	17.0	16.5	--
31...	1040	--	17.0	22.0	1950
SEP					
17...	1235	301	18.0	17.5	2190
30...	1115	--	14.0	--	2350
06439430 - COTTONWOOD CR NR CHERRY CR SD (LAT 44 40 28N LONG 101 24 16W)					
MAR 1987					
10...	1015	41	0.0	-4.0	1080
APR					
01...	1430	842	2.0	4.0	--
MAY					
14...	1345	0.17	24.0	26.5	2100
JUN					
12...	1250	0.1	30.0	30.0	3700
06441000 - BAD R NEAR MIDLAND SD (LAT 44 04 01N LONG 101 09 36W)					
MAR 1987					
31...	1045	200	1.0	10.0	1000
APR					
08...	1410	930	10.0	23.0	860

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06439000 - CHERRY CR NEAR PLAINVIEW SD (LAT 44 44 35N LONG 102 03 11W)					
OCT 1986					
23...	1135	6.3	12.0	14.0	2700
NOV					
20...	1240	6.1	2.0	12.5	--
DEC					
18...	1450	5.4	0.0	9.0	4300
APR 1987					
08...	1700	--	12.0	24.0	--
MAY					
07...	0920	45	10.5	13.0	--
JUN					
11...	1230	30	19.0	27.5	1800
JUL					
02...	1315	2.3	25.0	25.0	1900
AUG					
27...	1015	3.2	17.0	16.0	--
SEP					
17...	1020	0.4	17.0	15.0	1850
06439300 - CHEYENNE RIVER AT CHERRY CREEK SD (LAT 44 36 10N LONG 101 29 24W)					
OCT 1986					
23...	1400	360	14.5	13.0	2260
28...	1240	--	12.0	21.0	2270
DEC					
02...	1310	521	0.0	4.0	2550
18...	1630	--	-0.5	5.0	2570
19...	1215	385	0.0	3.0	2650
JAN 1987					
11...	1410	--	-0.5	20.0	2570
15...	1400	186	0.5	-14.0	--
FEB					
19...	1225	400	1.0	0.0	2330
MAR					
20...	1330	4000	1.0	10.0	2000
APR					
01...	1650	5460	3.5	2.0	1480
28...	1255	--	18.0	30.0	1890
MAY					
26...	1245	7880	--	18.0	920
JUN					
01...	1425	--	22.0	--	1800
12...	1055	642	25.0	29.0	2200
19...	1200	--	23.5	--	2250
24...	1800	--	24.0	--	2280
JUL					
06...	1055	431	22.0	26.0	2100
23...	1135	--	26.5	34.0	1230
AUG					
27...	1115	460	17.0	16.5	--
31...	1040	--	17.0	22.0	1950
SEP					
17...	1235	301	18.0	17.5	2190
30...	1115	--	14.0	--	2350
06439430 - COTTONWOOD CR NR CHERRY CR SD (LAT 44 40 28N LONG 101 24 16W)					
MAR 1987					
10...	1015	41	0.0	-4.0	1080
APR					
01...	1430	842	2.0	4.0	--
MAY					
14...	1345	0.17	24.0	26.5	2100
JUN					
12...	1250	0.1	30.0	30.0	3700
06441000 - BAD R NEAR MIDLAND SD (LAT 44 04 01N LONG 101 09 36W)					
MAR 1987					
31...	1045	200	1.0	10.0	1000
APR					
08...	1410	930	10.0	23.0	860

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06441500 - BAD R NEAR FORT PIERRE SD (LAT 44 19 36N LONG 100 23 02W)					
OCT 1986					
22...	0840	7.0	13.5	13.5	--
NOV					
24...	1200	34	0.0	12.0	3600
DEC					
22...	1410	12	1.0	10.0	--
JAN 1987					
23...	1425	3.8	0.0	-4.0	4400
FEB					
23...	1405	12	0.0	0.0	3400
MAR					
06...	0900	--	1.0	6.0	--
13...	1455	--	1.0	6.0	--
16...	1530	519	0.0	0.5	1900
21...	1200	13200	1.0	4.0	1240
APR					
10...	1105	1660	9.0	6.0	1200
22...	1450	120	14.5	19.5	2150
MAY					
26...	1000	163	16.0	12.5	--
JUN					
22...	1035	20	27.5	31.5	2150
JUL					
27...	0945	0.73	27.5	27.0	--
AUG					
24...	1405	0.04	19.0	17.0	3140
SEP					
21...	1000	0.0	--	10.0	--
06442500 - MEDICINE CR AT KENNEBEC SD (LAT 43 54 17N LONG 099 52 35W)					
MAR 1987					
23...	1200	459	1.0	5.5	550
APR					
06...	1240	1070	6.0	14.0	570
23...	1700	6.5	16.5	15.0	1310
MAY					
22...	1220	0.56	13.5	14.0	1950
JUN					
18...	1430	0.0	--	32.0	--
06446000 - WHITE R NEAR OGLALA SD (LAT 43 15 17N LONG 102 49 29W)					
OCT 1986					
08...	1130	94	10.0	16.0	1320
NOV					
03...	1300	63	6.0	8.5	680
DEC					
10...	1145	65	0.0	3.0	840
JAN 1987					
20...	1245	27	0.0	2.0	930
FEB					
24...	1700	53	0.0	-5.0	980
APR					
09...	1730	461	11.0	14.0	1070
MAY					
05...	1830	71	15.0	20.0	1150
JUN					
02...	1630	102	19.0	20.5	980
JUL					
06...	1715	22	25.5	30.0	1180
AUG					
11...	1345	6.0	24.5	35.5	1550
06447000 - WHITE R NEAR KADOKA SD (LAT 43 45 09N LONG 101 31 28W)					
OCT 1986					
07...	1230	266	14.0	20.0	415
NOV					
04...	1230	92	9.5	16.5	860
DEC					
02...	1250	163	--	--	790
JAN 1987					
06...	1200	66	1.0	0.0	760
27...	1140	46	0.0	11.0	720

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06447000 - WHITE R NEAR KADOKA SD (LAT 43 45 09N LONG 101 31 28W)--Continued					
FEB 1987					
24...	1055	62	0.5	-2.0	480
MAR					
31...	1345	496	1.5	11.0	510
APR					
08...	1130	1460	11.0	16.0	780
21...	1125	263	8.5	10.5	750
MAY					
19...	1225	104	--	19.0	1050
JUN					
16...	1130	151	28.5	30.0	620
JUL					
14...	1135	34	24.0	23.5	810
AUG					
11...	1130	73	29.0	30.0	550
SEP					
08...	1215	3.3	23.0	22.0	935
06447500 - LITTLE WHITE R NEAR MARTIN SD (LAT 43 10 00N LONG 101 37 47W)					
OCT 1986					
07...	1635	27	13.5	20.5	240
NOV					
04...	1605	26	10.5	17.0	280
DEC					
03...	0805	16	0.0	-6.5	265
JAN 1987					
06...	1520	15	1.0	1.0	250
27...	1540	13	0.0	7.5	260
FEB					
24...	1350	17	0.5	0.0	250
APR					
01...	0755	64	0.0	1.0	450
21...	1500	29	10.0	14.0	430
MAY					
19...	1625	16	22.0	21.5	450
JUN					
17...	0610	10	15.0	15.0	350
JUL					
15...	1720	6.3	19.0	16.5	315
AUG					
11...	1430	5.7	34.0	35.0	240
SEP					
09...	0815	6.4	15.0	14.0	212
06449000 - LAKE CR BELOW REFUGE NEAR TUTHILL SD (LAT 43 08 46N LONG 101 30 38W)					
OCT 1986					
07...	1500	16	15.0	21.5	475
NOV					
04...	1415	16	9.0	16.0	480
DEC					
02...	1450	29	0.5	1.0	470
JAN 1987					
06...	1425	25	1.5	2.0	450
27...	1355	24	4.0	8.5	450
FEB					
24...	1250	32	0.5	0.5	345
MAR					
31...	1650	140	2.5	7.0	340
APR					
08...	0830	98	8.0	9.0	330
21...	1350	43	10.0	13.0	360
MAY					
19...	1440	12	23.0	28.0	400
JUN					
17...	0655	16	14.5	15.0	430
JUL					
15...	0840	3.2	21.0	22.0	585
AUG					
11...	1335	2.2	31.0	35.0	670
SEP					
09...	0950	1.9	17.0	18.0	615

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06449100 - LITTLE WHITE R NEAR VETAL SD (LAT 43 06 03N LONG 101 13 49W)					
DEC 1986					
03...	1005	58	0.0	-1.5	370
JAN 1987					
28...	0810	40	0.0	0.0	360
FEB					
25...	0840	70	0.5	-2.0	310
JUN					
17...	0800	--	--	21.0	--
SEP					
08...	1445	21	22.5	28.5	315
06449300 - LITTLE WHITE R ABV ROSEBUD SD (LAT 43 15 47N LONG 100 55 02W)					
DEC 1986					
03...	1140	103	0.0	0.5	325
FEB 1987					
05...	1220	115	2.0	1.5	320
25...	1015	147	1.0	-2.0	280
JUN					
19...	1150	97	22.0	25.0	305
AUG					
12...	0101	62	18.0	17.5	295
06449400 - ROSEBUD CR AT ROSEBUD SD (LAT 43 14 09N LONG 100 51 12W)					
OCT 1986					
08...	1440	6.6	12.0	10.0	355
NOV					
05...	1230	9.0	10.0	16.0	350
DEC					
03...	1315	6.9	3.0	1.5	360
JAN 1987					
07...	1200	6.0	1.0	0.0	340
28...	1140	7.8	2.5	5.0	350
FEB					
25...	1105	7.7	1.0	-1.0	340
APR					
02...	0740	12	3.0	-3.0	330
22...	1135	9.6	11.0	13.0	360
MAY					
20...	1505	9.4	19.0	20.5	340
JUN					
17...	1040	15	24.5	25.0	300
JUL					
15...	1305	6.1	24.0	32.0	375
AUG					
12...	1110	5.2	18.0	18.0	330
SEP					
09...	1450	6.2	20.5	24.0	316
06449500 - LITTLE WHITE R NEAR ROSEBUD SD (LAT 43 19 32N LONG 100 53 00W)					
OCT 1986					
08...	1625	108	12.0	8.0	330
NOV					
05...	1325	107	9.0	16.0	315
DEC					
03...	1440	123	0.0	2.0	330
JAN 1987					
09...	1050	99	0.5	0.0	370
12...	1200	--	--	15.5	--
28...	1430	99	0.0	6.0	310
FEB					
05...	1105	--	0.0	-1.0	--
25...	1240	154	0.5	-1.0	240
APR					
01...	1700	362	6.0	1.0	340
22...	1240	228	10.5	14.5	380
MAY					
21...	0730	148	12.5	6.5	340
JUN					
17...	0950	100	21.0	22.0	325
JUL					
15...	1420	61	27.5	31.0	360
AUG					
12...	1220	69	18.0	19.0	310
SEP					
09...	1610	64	23.0	27.0	281

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06450500 - LITTLE WHITE R BELOW WHITE RIVER SD (LAT 43 36 05N LONG 100 44 58W)					
OCT 1986					
08...	1805	97	10.5	5.5	350
NOV					
05...	1500	99	10.5	16.0	345
DEC					
04...	0830	65	0.0	-6.0	380
JAN 1987					
09...	1300	77	0.5	2.5	360
29...	0930	156	0.0	4.0	330
FEB					
25...	1400	186	0.5	-2.0	300
APR					
02...	1605	453	5.0	6.0	480
22...	1340	219	11.0	14.0	450
MAY					
20...	1520	144	19.5	11.0	495
JUN					
26...	1105	79	24.0	25.0	370
JUL					
15...	1630	62	29.5	34.0	398
AUG					
12...	1350	59	18.5	19.0	320
SEP					
10...	0725	52	17.0	14.5	295
06452000 - WHITE R NEAR OACOMA SD (LAT 43 44 54N LONG 099 33 22W)					
NOV 1986					
06...	1440	228	7.5	5.0	800
JAN 1987					
08...	1540	188	0.5	1.0	--
30...	1035	169	0.0	2.0	640
MAR					
23...	1525	6230	3.0	7.0	700
APR					
06...	1625	7860	10.0	19.0	700
MAY					
22...	0945	411	11.0	7.5	940
JUL					
16...	1450	219	27.0	36.0	1080
SEP					
11...	0900	36	12.0	9.0	970
06453255 - CHOTEAU CR NR AVON SD (LAT 42 55 24N LONG 098 06 21W)					
OCT 1986					
09...	1125	32	11.5	12.0	1800
NOV					
07...	0935	16	7.5	9.5	2150
DEC					
04...	1050	10	0.5	-3.0	2300
JAN 1987					
09...	1205	6.3	2.0	4.0	2450
FEB					
12...	0945	8.0	2.0	1.0	2060
MAR					
13...	0835	19	5.0	4.0	2400
20...	1005	868	7.5	14.0	1580
27...	0905	5260	4.0	5.0	980
APR					
10...	0920	326	11.5	10.0	1660
MAY					
15...	0750	12	17.5	18.0	2000
JUN					
05...	0955	10	18.5	25.0	1950
JUL					
01...	0925	5.0	19.0	21.0	1740
23...	1010	4.8	26.0	29.0	1750
AUG					
07...	1000	5.6	22.5	24.5	1540
SEP					
01...	1115	3.7	20.0	28.0	1750

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06464100 - KEYA PAHA R NEAR KEYAPAHA SD (LAT 43 07 45N LONG 100 06 24W)					
OCT 1986					
09...	0820	31	8.0	2.0	465
NOV					
06...	0835	27	--	5.0	460
DEC					
04...	1300	25	0.0	-0.5	520
JAN 1987					
08...	0920	25	0.0	-5.0	470
29...	1355	24	0.5	9.5	430
FEB					
26...	1010	35	0.5	-2.5	440
APR					
03...	0730	--	0.0	-4.0	--
07...	1100	280	6.5	12.5	410
23...	0815	70	10.0	9.5	500
MAY					
21...	1120	40	12.0	10.5	410
JUN					
17...	1235	27	--	--	430
JUL					
16...	0815	33	20.0	23.0	488
AUG					
13...	0735	16	17.0	17.5	440
SEP					
10...	1205	15	18.5	20.0	411
06464500 - KEYA PAHA R AT WEWELA SD (LAT 43 01 44N LONG 099 46 49W)					
OCT 1986					
09...	1025	64	8.5	4.0	460
NOV					
06...	1005	71	6.0	4.5	460
DEC					
04...	1500	52	0.0	-0.5	530
JAN 1987					
08...	1030	62	0.5	-5.0	440
29...	1610	56	0.5	10.0	410
FEB					
26...	1150	102	0.5	-4.0	440
APR					
03...	0935	560	0.0	3.5	480
23...	0925	166	10.0	11.0	550
MAY					
21...	1315	80	12.0	11.0	475
JUN					
17...	1435	72	25.0	27.0	440
JUL					
16...	0955	92	22.0	27.5	495
AUG					
13...	0840	51	17.5	18.0	400
SEP					
10...	1350	34	21.5	21.0	398
06467500 - MISSOURI R AT YANKTON SD (LAT 42 51 58N LONG 097 23 37W)					
OCT 1986					
16...	1020	44200	11.0	10.5	770
NOV					
05...	1050	46300	10.5	12.5	780
DEC					
16...	1015	39800	0.5	-9.0	820
JAN 1987					
21...	1030	23000	1.5	9.5	750
FEB					
25...	1015	22400	1.5	3.5	680
MAR					
31...	1200	29800	4.0	12.0	900
APR					
23...	1040	25800	13.5	21.0	760
MAY					
20...	1030	29400	17.5	21.0	880
JUN					
23...	1710	28500	25.0	31.0	850
JUL					
22...	1030	31600	26.0	26.0	790
AUG					
26...	1015	28200	20.5	15.5	800
SEP					
30...	1115	30100	19.5	18.5	760

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06471000 - JAMES R AT COLUMBIA SD (LAT 45 36 13N LONG 098 18 36W)					
MAR 1987					
27...	0900	591	3.0	0.0	470
31...	1040	866	3.0	4.0	800
APR					
02...	1610	978	4.5	5.0	690
03...	1215	972	5.0	1.5	680
07...	1040	1090	9.5	10.0	550
14...	1315	1220	10.0	16.0	430
06471200 - MAPLE R AT ND-SD STATE LINE (LAT 45 56 20N LONG 098 27 08W)					
OCT 1986					
22...	1230	12	12.0	17.0	1350
NOV					
18...	1115	6.9	0.0	9.0	--
DEC					
11...	1200	6.6	0.0	-2.0	1880
JAN 1987					
28...	1115	0.73	1.0	0.0	2300
MAR					
04...	1240	3.5	1.0	10.0	1830
25...	1710	565	2.0	0.5	270
APR					
22...	1245	36	13.5	20.0	880
MAY					
27...	1200	12	19.5	32.0	1170
JUN					
09...	1315	19	20.5	25.0	1220
JUL					
08...	1155	0.03	24.0	29.0	1350
06471500 - ELM R AT WESTPORT SD (LAT 45 39 22N LONG 098 29 48W)					
OCT 1986					
22...	1400	23	11.5	14.0	960
NOV					
18...	0845	12	0.0	8.0	--
DEC					
11...	1330	9.2	0.0	-1.0	1680
JAN 1987					
29...	0825	4.4	1.0	-1.0	1800
MAR					
04...	1425	12	6.0	13.0	1180
26...	0935	1150	2.0	4.0	350
APR					
03...	0935	282	4.5	-2.0	480
22...	1435	63	17.0	21.0	810
MAY					
27...	1010	24	19.0	23.5	1130
JUN					
09...	0915	29	20.0	15.0	1210
JUL					
08...	1345	4.3	24.0	31.5	1390
AUG					
26...	1410	6.9	17.0	15.0	650
SEP					
15...	0900	6.2	17.0	16.0	660
06473000 - JAMES R AT ASHTON SD (LAT 45 00 02N LONG 098 28 57W)					
MAR 1987					
25...	1235	673	3.0	0.5	590
31...	1300	814	3.5	10.0	580
APR					
14...	0940	1200	8.0	8.0	680
06473700 - SNAKE CR NEAR ASHTON SD (LAT 45 01 50N LONG 098 34 26W)					
NOV 1986					
19...	1005	5.0	0.0	8.0	--
FEB 1987					
12...	0840	2.3	1.0	0.0	780
MAR					
23...	1700	43	5.0	5.5	1330
APR					
02...	0905	102	2.5	0.0	1530
JUN					
10...	0945	3.1	18.5	18.0	1820

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06473750 - WOLF CR NEAR REE HEIGHTS SD (LAT 44 36 25N LONG 099 13 54W)					
MAR 1987					
23...	1220	1.8	3.0	4.5	90
31...	1500	3.8	5.5	15.5	--
06474000 - TURTLE CR NEAR TULARE SD (LAT 44 44 06N LONG 098 35 09W)					
NOV 1986					
17...	1420	10	1.0	-1.0	1420
FEB 1987					
12...	1045	4.2	2.5	2.5	1140
MAR					
23...	1530	73	5.0	4.5	1260
31...	1740	284	6.0	14.0	970
JUN					
08...	1525	2.8	23.0	22.0	1330
06474300 - MEDICINE CR NEAR ZELL SD (LAT 44 45 52N LONG 098 42 13W)					
NOV 1986					
17...	1245	1.6	1.0	-1.0	2150
FEB 1987					
12...	1140	0.69	1.0	3.0	1310
MAR					
23...	1400	21	N5.0	4.5	1760
JUN					
08...	1255	0.44	21.5	26.0	2050
06475000 - JAMES R NEAR REDFIELD SD (LAT 44 54 33N LONG 098 27 34W)					
OCT 1986					
22...	1820	215	13.0	8.0	990
DEC					
11...	1325	78	0.0	-7.0	1390
JAN 1987					
13...	1325	77	0.0	11.0	1450
FEB					
11...	1715	75	0.5	12.0	1400
MAR					
10...	1225	128	0.5	3.0	1110
27...	1210	978	4.0	1.5	960
APR					
02...	1145	1320	2.5	3.5	890
22...	1535	1610	15.5	18.5	680
MAY					
13...	1345	1250	21.0	26.5	530
JUN					
10...	1150	553	22.0	22.5	760
JUL					
15...	1030	209	22.0	25.0	820
AUG					
04...	1630	208	28.5	24.5	740
SEP					
17...	0930	122	18.0	15.0	680
06476500 - SAND CR NEAR ALPENA SD (LAT 44 09 15N LONG 098 26 06W)					
OCT 1986					
10...	1310	15	11.0	16.0	1080
DEC					
08...	0950	4.4	1.5	1.5	1820
JAN 1987					
08...	0950	1.7	0.5	-15.0	2210
FEB					
05...	0850	2.9	0.0	-2.0	1540
MAR					
03...	0830	7.9	1.0	-1.0	1290
26...	1020	172	3.0	3.0	1180
APR					
07...	1150	50	12.0	23.0	1200
MAY					
26...	0935	1.7	17.0	15.5	2060
JUN					
30...	1035	0.11	21.0	23.0	2140

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06477000 - JAMES R NEAR FORESTBURG SD (LAT 43 58 26N LONG 098 04 14W)					
OCT 1986					
10...	1120	477	12.0	11.5	1150
DEC					
08...	1445	224	1.0	6.0	1420
JAN 1987					
08...	1440	112	1.0	4.0	1460
FEB					
05...	1400	105	0.0	2.0	1640
MAR					
03...	1405	145	2.5	7.0	1480
26...	1245	2410	5.0	7.0	1070
MAY					
26...	1445	905	18.0	27.0	710
JUL					
01...	1720	372	25.0	30.0	830
28...	0855	158	29.0	25.0	930
AUG					
28...	1340	190	20.5	25.0	830
06477500 - FIRESTEEL CR NEAR MOUNT VERNON SD (LAT 43 46 30N LONG 098 14 33W)					
OCT 1986					
10...	0855	16	10.5	11.5	1170
DEC					
08...	1200	2.7	2.0	3.0	2010
JAN 1987					
08...	1200	1.5	0.5	4.0	2120
FEB					
05...	1110	1.3	0.0	-0.5	1700
MAR					
03...	1050	9.8	2.5	9.5	1650
25...	1130	831	2.0	4.0	660
27...	1500	2090	5.0	9.0	500
APR					
07...	1445	168	13.0	24.0	1180
MAY					
26...	1150	4.3	17.0	20.0	1950
JUN					
30...	1340	0.94	26.5	27.5	2250
JUL					
28...	1025	0.04	30.0	28.0	2400
AUG					
28...	1035	0.03	19.5	22.0	2530
06478052 - ENEMY CR NEAR MITCHELL SD (LAT 43 38 33N LONG 097 59 09W)					
OCT 1986					
09...	1510	10	12.5	17.0	2460
NOV					
04...	0910	6.8	4.5	4.0	2000
DEC					
15...	0930	3.9	0.0	-11.0	2930
JAN 1987					
23...	1400	1.9	0.0	6.0	2800
FEB					
26...	0915	6.6	1.5	2.5	2150
MAR					
19...	1200	517	4.5	8.0	1260
25...	1445	923	2.5	4.0	1080
APR					
24...	1000	28	14.0	18.0	2450
MAY					
19...	0905	3.6	19.0	16.0	2550
JUN					
22...	1015	0.33	27.5	26.0	2500
JUL					
21...	0920	0.04	24.5	26.0	--

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06478390 - WOLF CR NEAR CLAYTON SD (LAT 43 22 18N LONG 097 36 12W)					
OCT 1986					
17...	1250	42	11.0	20.0	1580
NOV					
04...	1115	25	5.5	13.0	1460
DEC					
15...	1235	12	0.0	0.0	2670
JAN 1987					
23...	1055	4.7	0.0	-22.0	2600
FEB					
25...	1400	13	2.0	5.0	2000
MAR					
19...	1405	117	6.5	13.0	2350
25...	1125	1250	4.0	2.5	1700
APR					
21...	1105	37	10.0	10.5	2000
MAY					
19...	1055	40	16.0	23.0	1040
JUN					
22...	1230	11	29.0	31.0	2100
JUL					
23...	1350	6.3	31.0	34.5	2140
AUG					
25...	1510	5.9	15.5	15.0	2270
06478500 - JAMES R NEAR SCOTLAND SD (LAT 43 11 09N LONG 097 38 07W)					
MAR 1987					
19...	1700	2150	5.0	11.0	1470
APR					
21...	1415	2840	13.5	10.5	1120
JUN					
23...	1215	646	27.0	25.0	970
SEP					
29...	1155	137	17.5	19.0	1430
06478513 - JAMES RIVER NR YANKTON SD (LAT 42 59 45N LONG 097 22 10W)					
OCT 1986					
15...	1700	817	10.0	8.0	1370
NOV					
04...	1410	475	7.5	5.5	1300
JAN 1987					
21...	1415	200	0.5	11.0	1950
FEB					
24...	1455	235	3.0	10.0	1800
MAR					
26...	1840	5850	4.0	3.5	930
31...	1430	8860	6.0	14.0	870
APR					
23...	1310	2920	16.0	22.0	1160
MAY					
19...	1505	1300	21.5	30.5	950
JUN					
22...	1640	702	30.0	37.5	940
JUL					
22...	0725	316	28.0	23.5	1280
AUG					
25...	1715	273	18.0	16.0	1290
SEP					
29...	1425	145	19.5	22.0	1410

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06478535 - EAST FORK VERMILLION RIVER NEAR RAMONA, SD (LAT 44 06 35N LONG 097 23 13W)					
NOV 1986					
05...	1630	3.0	8.0	11.0	930
07...	1245	2.8	5.5	3.0	900
DEC					
22...	1115	2.0	0.0	4.0	1660
JAN 1987					
13...	1535	2.4	0.0	15.0	1830
FEB					
10...	1340	2.6	0.0	6.0	1760
MAR					
23...	1510	11	3.0	0.0	1390
APR					
02...	0845	16	0.5	1.5	1180
14...	1305	51	10.5	23.5	1520
MAY					
11...	1520	25	22.0	26.0	1090
JUN					
04...	1350	11	22.5	26.0	1130
JUL					
06...	1330	3.0	30.0	30.0	1180
AUG					
06...	0800	3.4	20.0	19.0	--
SEP					
03...	0755	1.9	14.5	16.0	1310
06478540 - LITTLE VERMILLION R NEAR SALEM SD (LAT 43 47 39N LONG 097 22 02W)					
OCT 1986					
20...	1055	7.5	11.0	16.0	1060
NOV					
12...	1105	2.2	0.5	2.0	1620
DEC					
15...	1100	0.74	0.0	1.0	1520
JAN 1987					
07...	1120	0.17	0.5	-4.0	1400
FEB					
02...	1040	0.09	0.5	5.0	1080
MAR					
02...	1140	1.4	1.5	5.0	1180
27...	1105	165	3.5	6.0	710
APR					
29...	1125	1.2	18.0	23.0	1500
JUL					
20...	1125	3.5	30.0	26.0	1000
06478690 - WEST FORK VERMILLION R NEAR PARKER SD (LAT 43 24 55N LONG 097 12 18W)					
OCT 1986					
22...	1155	26	13.5	13.0	1520
NOV					
12...	1640	14	--	--	1920
DEC					
15...	1540	8.6	0.0	9.0	2250
JAN 1987					
07...	1310	5.1	0.0	-4.0	2490
FEB					
02...	1245	4.9	1.0	7.0	1910
MAR					
02...	1330	6.4	4.0	8.5	1650
27...	1505	1030	4.5	6.5	--
APR					
29...	1330	15	19.5	24.0	1810
MAY					
19...	1030	3.0	17.0	24.0	1750
JUN					
16...	1225	1.4	23.0	--	1770
JUL					
20...	1340	4.3	30.0	33.0	1430
AUG					
18...	1120	0.34	21.5	19.0	1310
SEP					
09...	1045	0.15	18.5	18.5	1280

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06479010 - VERMILLION RIVER NR VERMILLION SD (LAT 42 49 02N LONG 096 55 26W)					
OCT 1986					
16...	1515	435	11.0	18.5	1540
NOV					
05...	1440	243	8.0	14.0	1650
DEC					
16...	1655	155	0.0	6.0	1880
JAN 1987					
22...	1005	50	0.0	1.5	1750
FEB					
24...	1120	117	3.5	10.0	1620
MAR					
25...	1535	1740	5.5	3.0	990
30...	1635	2330	3.0	5.0	1420
APR					
22...	0845	398	12.5	9.0	1730
MAY					
20...	1445	122	21.5	27.0	1580
JUN					
25...	0920	116	21.0	19.5	1550
JUL					
22...	1450	190	28.0	34.0	1380
AUG					
26...	1425	50	15.5	21.0	1460
06479215 - BIG SIOUX RIVER NR FLORENCE SD (LAT 45 10 51N LONG 097 11 09W)					
OCT 1986					
16...	0910	9.1	5.5	16.0	680
DEC					
23...	1135	1.8	0.0	9.5	840
JAN 1987					
12...	1045	1.6	0.0	5.0	780
FEB					
12...	1055	1.6	0.0	7.0	580
MAR					
26...	1220	134	2.0	12.0	390
APR					
16...	0955	22	10.5	15.0	650
MAY					
14...	0945	3.9	15.0	21.0	--
JUN					
02...	1140	1.1	17.5	24.0	620
JUL					
08...	0740	0.23	19.5	20.0	760
AUG					
04...	1035	0.06	17.0	19.5	810
SEP					
01...	1235	0.07	18.0	21.5	640
06479438 - BIG SIOUX R NEAR WATERTOWN SD (LAT 45 00 22N LONG 097 09 53W)					
OCT 1986					
15...	1430	29	6.0	9.0	--
DEC					
23...	0900	8.3	0.0	0.0	750
JAN 1987					
12...	1220	7.0	0.0	10.0	720
FEB					
12...	0815	8.3	0.0	-2.5	500
MAR					
26...	0925	547	2.0	7.0	540
APR					
16...	0750	70	11.0	6.5	700
MAY					
14...	1115	12	18.0	21.0	680
JUN					
02...	1325	26	20.0	19.0	650
JUL					
08...	0940	5.8	23.0	23.5	620
AUG					
04...	1210	0.8	18.0	21.5	620
SEP					
01...	1115	3.2	17.0	21.0	590

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06479525 - BIG SIOUX R NEAR CASTLEWOOD SD (LAT 44 43 54N LONG 097 02 39W)					
OCT 1986					
15...	1145	93	5.5	4.0	--
DEC					
22...	1500	45	0.0	8.0	830
JAN 1987					
12...	1420	35	0.0	12.0	810
FEB					
12...	1415	51	0.0	13.0	660
MAR					
25...	1500	469	2.5	3.0	820
APR					
16...	1230	177	12.0	22.0	730
MAY					
13...	1445	66	22.0	32.0	680
JUN					
02...	1525	46	20.5	20.5	720
JUL					
08...	1150	11	25.0	23.5	600
AUG					
04...	1430	6.6	25.0	22.5	810
SEP					
01...	1510	5.2	23.5	23.0	950
06479980 - MEDARY CR NEAR BROOKINGS, SD (LAT 44 13 27N LONG 096 46 06W)					
OCT 1986					
15...	0855	116	5.0	3.0	--
DEC					
18...	1025	29	0.0	3.0	910
JAN 1987					
12...	1640	25	0.0	13.5	860
FEB					
11...	1510	40	0.5	7.0	790
MAR					
25...	1100	530	3.0	6.0	830
APR					
15...	1540	155	12.0	21.5	910
MAY					
13...	1220	24	17.0	27.0	820
JUN					
03...	1250	30	18.0	18.5	890
JUL					
07...	1255	17	26.5	31.0	730
AUG					
04...	0830	6.9	19.5	18.0	800
SEP					
02...	0915	2.5	16.0	20.0	760
06480000 - BIG SIOUX RIVER NEAR BROOKINGS SD (LAT 44 10 48N LONG 096 44 55W)					
OCT 1986					
14...	1645	719	7.0	13.0	960
DEC					
17...	1445	209	0.0	0.0	1100
JAN 1987					
13...	0910	170	0.0	3.5	990
FEB					
11...	1305	206	0.0	7.5	930
MAR					
24...	1410	1510	4.5	8.0	860
APR					
15...	1305	918	12.5	22.0	1020
MAY					
12...	1800	261	19.0	27.0	910
JUN					
03...	1455	183	20.0	21.5	900
JUL					
07...	1050	108	25.5	30.5	850
AUG					
05...	1005	78	22.0	19.0	940
SEP					
02...	1045	55	18.5	18.0	930

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06480400 - SPRING CR NEAR FLANDREAU SD (LAT 44 07 18N LONG 096 35 19W)					
OCT 1986					
14...	1350	28	6.0	17.5	840
JAN 1987					
13...	1120	9.0	0.0	7.5	760
FEB					
11...	1100	E9.6	0.0	7.0	750
MAR					
24...	1130	244	3.0	5.0	610
APR					
15...	1020	39	9.5	12.0	860
MAY					
12...	1445	5.6	18.0	23.5	710
JUN					
03...	1615	6.1	21.0	20.5	700
JUL					
07...	0855	5.4	24.0	22.0	690
AUG					
05...	1140	3.2	21.0	23.5	690
SEP					
02...	1215	3.6	17.5	21.0	660
06480650 - FLANDREAU CR ABOVE FLANDREAU SD (LAT 44 03 45N LONG 096 29 14W)					
OCT 1986					
14...	1155	69	6.0	9.0	860
DEC					
17...	1055	13	--	1.0	950
JAN 1987					
13...	1310	14	0.0	12.0	890
FEB					
11...	0845	16	0.0	12.0	830
MAR					
24...	0940	426	3.5	3.0	500
APR					
15...	0800	79	9.0	6.0	830
MAY					
12...	1150	15	15.5	22.0	760
JUN					
04...	0910	16	15.5	18.0	840
JUL					
06...	1620	28	--	32.0	710
AUG					
05...	1405	5.0	25.0	27.0	720
SEP					
02...	1425	3.3	22.0	24.0	810
06481000 - BIG SIOUX R NEAR DELL RAPIDS SD (LAT 43 47 25N LONG 096 44 42W)					
OCT 1986					
21...	1455	845	14.5	22.0	950
JAN 1987					
09...	0945	251	0.0	-6.5	1040
FEB					
03...	1205	187	0.5	-0.5	940
MAR					
03...	0900	316	1.0	-3.0	850
27...	1515	2830	5.0	8.0	400
APR					
01...	1320	1920	3.5	5.0	1010
MAY					
01...	0940	569	16.5	14.5	1010
20...	1100	296	20.0	23.0	900
JUN					
18...	1040	174	27.5	28.5	830
JUL					
21...	1055	426	26.0	25.0	950
AUG					
17...	1405	127	24.5	26.0	790
SEP					
08...	1325	122	22.0	21.0	740

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06481480 - SKUNK CR NR CHESTER SD (LAT 43 50 53N LONG 096 50 10W)					
OCT 1986					
20...	1350	141	13.0	19.5	1040
NOV					
12...	1400	65	0.5	4.0	1420
DEC					
15...	1320	32	0.0	8.0	2200
JAN 1987					
09...	1135	27	0.0	-4.0	1430
FEB					
04...	1000	17	0.5	-2.5	1160
MAR					
04...	1105	25	4.0	12.5	1090
27...	1305	369	6.0	10.0	990
MAY					
01...	1105	36	16.5	17.0	1280
20...	1325	9.0	20.5	26.0	1100
JUN					
18...	1215	3.5	27.5	28.0	1170
JUL					
22...	1105	74	25.0	28.0	1180
AUG					
17...	1130	2.8	19.0	21.0	950
SEP					
08...	1120	1.3	16.0	19.0	820
06481500 - SKUNK CR AT SIOUX FALLS SD (LAT 43 32 01N LONG 096 47 26W)					
OCT 1986					
20...	1740	297	13.0	15.0	1020
NOV					
14...	0830	108	1.5	10.0	1460
DEC					
16...	1430	73	0.0	7.0	1510
JAN 1987					
08...	1625	60	0.0	3.0	1320
FEB					
03...	1620	50	0.5	0.0	1180
MAR					
04...	0835	76	3.5	7.0	1050
31...	1135	687	2.0	12.0	1320
APR					
30...	0935	102	15.0	10.0	1320
MAY					
18...	1030	34	19.0	15.0	1120
JUN					
17...	1035	29	23.0	25.5	950
JUL					
21...	1620	112	28.5	32.0	1200
AUG					
18...	1455	14	25.0	25.5	930
SEP					
09...	1540	6.5	23.0	25.0	960
06482020 - BIG SIOUX R AT NORTH CLIFF AVE AT SIOUX FALLS SD (LAT 43 34 01N LONG 096 42 39W)					
OCT 1986					
21...	1000	1230	12.5	14.0	1040
NOV					
13...	1030	494	0.5	6.0	1320
DEC					
16...	0935	469	0.0	-8.0	1400
JAN 1987					
08...	1140	329	0.5	-3.5	1140
FEB					
03...	1435	228	1.5	3.0	1140
MAR					
03...	1600	393	4.5	11.5	1000
31...	1435	3150	5.0	14.5	1110
APR					
30...	1435	789	17.5	21.5	1090
MAY					
19...	1330	355	20.5	23.0	990
JUN					
17...	1850	248	26.5	30.0	900
JUL					
21...	1400	527	28.0	33.0	1050
AUG					
19...	0830	133	22.0	15.0	1060
SEP					
09...	1335	121	21.5	25.0	1020

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06482610 - SPLIT ROCK CR AT CORSON SD (LAT 43 36 59N LONG 096 33 54W)					
OCT 1986					
21...	1150	187	12.5	16.5	820
NOV					
13...	1300	151	0.5	10.0	960
DEC					
16...	1220	61	0.0	5.0	1020
JAN 1987					
08...	1440	53	0.0	3.0	790
FEB					
03...	0935	50	0.0	-2.0	750
MAR					
03...	1310	64	4.5	8.0	690
APR					
01...	0840	349	3.0	2.0	740
30...	1150	80	16.0	16.0	730
MAY					
20...	0815	66	20.5	19.5	730
JUN					
17...	1515	56	27.0	27.5	690
JUL					
21...	0855	161	24.0	22.0	720
AUG					
19...	1130	31	22.0	19.0	540
SEP					
10...	0945	19	18.0	17.5	630
06482848 - BEAVER CR AT CANTON SD (LAT 43 17 12N LONG 096 35 46W)					
OCT 1986					
22...	0855	13	13.5	16.0	2020
JAN 1987					
07...	1540	6.8	0.0	-4.0	2500
FEB					
02...	1525	6.8	1.0	9.0	2220
MAR					
02...	1545	8.4	5.0	11.0	2200
27...	1215	378	4.5	9.5	1380
APR					
29...	1605	8.2	21.0	25.0	2460
MAY					
19...	0800	5.5	16.0	18.0	2200
JUN					
16...	1720	2.7	28.0	35.0	2250
JUL					
20...	1555	3.2	31.5	34.0	2200
AUG					
18...	0850	2.9	19.5	14.0	2350
SEP					
09...	0805	2.4	17.0	15.0	2450
06485500 - BIG SIOUX R AT AKRON IA (LAT 42 49 42N LONG 096 33 45W)					
OCT 1986					
17...	0945	3390	9.0	5.0	1000
DEC					
17...	1340	1320	0.0	1.0	1250
MAR 1987					
26...	1230	9790	5.5	6.0	830
APR					
22...	1525	2830	13.5	10.0	1000
JUN					
24...	1710	846	26.5	26.5	780
25...	1200	826	24.5	28.5	770
JUL					
23...	1025	1430	27.0	28.5	870

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
06485696 - BRULE CREEK NR ELK POINT SD (LAT 42 48 32N LONG 096 41 11W)					
OCT 1986					
16...	1640	48	10.0	18.0	1200
DEC					
17...	0955	29	0.0	0.5	1250
JAN 1987					
22...	1655	10	0.0	4.0	1240
FEB					
24...	0840	29	0.5	4.5	1020
MAR					
26...	0850	353	4.5	3.0	1040
APR					
22...	1120	46	11.5	15.0	1060
MAY					
21...	0845	33	19.5	12.5	1030
JUN					
24...	1305	17	26.0	27.0	890
JUL					
23...	0800	14	26.0	25.5	880
AUG					
26...	1640	9.5	17.5	21.0	960

The following miscellaneous discharge measurements were made in the Black Hills area. Sites are listed by latitude beginning with the furthest south site.

DATE	TIME	STREAM-FLOW INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
4317231034926 - COTTONWOOD CREEK AT EDGEMONT SD (LAT 43 17 23 LONG 103 49 26)				
OCT , 1986				
9...	1345	3.58	14.0	3200
NOV				
4...	1730	2.00	--	--
DEC				
11...	1015	1.19	0.0	4900
JAN , 1987				
21...	1215	0.75	1.0	4600
APR				
9...	1145	4.74	9.5	6000
MAY				
6...	1100	1.75	12.0	6500
JUN				
3...	1145	2.11	18.5	5800
JUL				
7...	1045	0.09	22.5	5800
AUG				
12...	0900	0.14	17.5	6400
4348431031530 - GRACE COOLIDGE CREEK NEAR HERMOSA SD (LAT 43 48 43 LONG 103 15 30)				
APR , 1987				
10...	--	2.56	9.5	590
MAY				
11...	--	3.21	19.0	535
JUN				
5...	--	4.31	16.5	520
JUL				
8...	--	3.90	20.5	530
AUG				
13...	--	1.96	20.0	600
SEP				
30...	--	1.41	14.5	680
4403221031812 - RAPID CREEK ABOVE CLEGHORN CANYON AT RAPID CITY SD LAT 44 03 22 LONG 103 18 12)				
MAR , 1987				
26...	--	28.1	3.0	370
27...	--	24.5	4.5	360
4403281031754 - RAPID CREEK ABOVE CONFLUENCE OF FISH HATCHERY OUTFLOW AT RAPID CITY SD (LAT 44 03 28 LONG 103 17 54)				
MAR , 1987				
26...	--	30.1	4.0	370
27...	--	25.9	5.0	360
4403321031750 - CLEGHORN SPRINGS OUT FLOW AT RAPID CITY SD (LAT 44 03 32 LONG 103 17 50)				
MAR , 1987				
26...	--	9.97	12.0	360
4403321031750 - RAPID CREEK ABOVE CANYON LAKE AT RAPID CITY SD (LAT 44 03 32 LONG 103 17 50)				
MAR , 1987				
26...	1230	43.0	8.0	370
4403321031701 - RAPID CREEK BELOW PARK DRIVE AT RAPID CITY SD (LAT 44 03 32 LONG 103 17 01)				
MAR , 1987				
26...	0945	38.4	4.0	370
4404031031612 - STORY BOOK DITCH AT RAPID CITY SD (LAT 44 04 03 LON 103 16 12)				
MAR , 1987				
26...	1145	5.12	--	---
4404041031613 - RAPID CREEK BELOW 32 ND STREET AT RAPID CITY SD (LAT 44 04 04 LONG 103 16 13)				
MAR ,1987				
26...	1100	38.1	6.0	370

DATE	TIME	STREAM-FLOW INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (US/CM)
440430103154O - RAPID CREEK ABOVE WATER TREATMENT PLANT AT RAPID CITY SD (LAT 44 04 30 LONG 103 15 40)				
MAR , 1987				
26...	1230	39.5	7.5	440
442134103442001 - GOLD RUN ABOVE MOUTH AT DEADWOOD SD (LAT 44 21 34 LONG 103 44 20)				
MAY , 1987				
12...	1530	7.56	20.5	1050
442134103443501 - GOLD RUN AT DEADWOOD SD (LAT 44 21 34 LONG 103 44 35)				
AUG , 1987				
13...	0600	7.60	--	---
13...	1600	6.64	--	---
442134103441901 - WHITEWOOD CREEK ABOVE GOLD RUN AT DEADWOOD SD (LAT 44 21 34 LONG 103 44 19)				
AUG , 1987				
13...	0630	7.90	--	---
13...	1530	4.78	--	---
443524103314O - WHITEWOOD CREEK AT CUSTER CAMP NEAR VALE SD (LAT 44 35 24 LONG 103 31 40)				
AUG , 1987				
13...	0130	14.9	--	---
13...	1130	14.5	--	---
13...	1700	12.6	--	---
443720103281S - WHITEWOOD CREEK NEAR VALE SD (LAT 44 37 20 LONG 103 28 15)				
AUG , 1987				
13...	1400	13.5	--	---
443758103272S - WHITEWOOD CREEK NEARVALE SD (LAT 44 37 58 LONG 103 27 25)				
AUG , 1987				
13...	1130	15.1	--	---
452023103451901 - YELLOW CREEK NEAR LEAD SD (LAT 45 20 23 LONG 103 45 19)				
MAY , 1987				
12...	1315	0.86	--	284

The following miscellaneous discharge measurements were made in Lake Henry, Lake Thompson, and Lake Whitewood areas in Kingsbury and Miner Counties in eastern South Dakota. Sites are listed by latitude beginning with the furthest south site.

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)
4407450972306 - EAST FORK VERMILLION RIVER TRIBUTARY NEAR RAMONA SD (LAT 44 07 45 LONG 94 23 06)		
NOV , 1986		
7...	1045	2.45
DEC		
10...	1025	0.28
JAN , 1987		
13...	1645	0.73
4407540972211 - EAST FORK VERMILLION RIVER TRIBUTARY NEAR RAMONA SD (LAT 44 07 54 LONG 97 22 11)		
NOV , 1986		
7...	1210	2.49
DEC		
10...	1120	0.80
JAN , 1987		
13...	1715	0.64
FEB		
10...	1505	0.90
MAR		
23...	1625	4.80
APR		
2...	0950	0.95
14...	1205	3.58
MAY		
11...	1235	0.04
JUN		
4...	----	0.00
JUL		
6...	----	0.00
4419190972736 - LAKE HENRY OUTFLOW INTO LAKE THOMPSON NEAR DE SMET SD (LAT 44 19 19 LONG 97 27 36)		
OCT , 1986		
6...	----	27.1
NOV		
5...	0935	19.8
4419280972326 - LAKE WHITEWOOD OUTFLOW INTO LAKE THOMPSON NEAR LAKE PRESTON SD (LAT 44 19 28 LONG 97 23 26)		
OCT , 1986		
6...	1110	168
NOV		
5...	1030	125
JAN , 1987		
14...	0855	46.6
FEB		
10...	1125	28.3
MAR		
23...	1220	25.5
APR		
2...	1230	78.0
14...	1055	96.4
MAY		
11...	1200	12.9
JUN		
4...	1145	-10.9
4419350972214 - LAKE WHITEWOOD OUTFLOW INTO LAKE THOMPSON NEAR LAKE PRESTON SD (LAT 44 19 35 LONG 97 22 14)		
JUL , 1987		
6...	1015	-0.20
AUG		
6...	1010	0.00
SEP		
3...	0945	0.00
OCT		
7...	1220	0.12
4421150972958 - UNNAMED TRIBUTARY INFLOW TO LAKE HENRY NEAR DE SMET SD (LAT 44 21 15 LONG 97 29 58)		
OCT , 1986		
6...	1410	30.8

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)
4422340973039 - UNNAMED TRIBUTARY INFLOW TO LAKE HENRY NEAR DE SMET SD (LAT 44 22 34 LONG 97 30 39)		
JAN , 1987		
14...	1040	2.42
FEB		
10...	0930	5.48
MAR		
23...	0950	60.5
APR		
2...	1345	82.9
14...	0915	58.1
MAY		
11...	1045	10.0
JUN		
4...	1510	1.20
JUL		
6...	0940	0.00
AUG		
6...	1105	0.00
SEP		
3...	1020	0.74
OCT		
7...	1255	0.59
4423010973039 - UNNAMED TRIBUTARY INFLOW TO LAKE HENRY NEAR DE SMET SD (LAT 44 23 01 LONG 97 30 39)		
MAR , 1987		
23...	1030	8.09

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. Wells in Hughes and Sully Counties are measured periodically with chalked tape by USGS personnel.

AURORA COUNTY

435039098263403.
LOCATION.--Lat 43°50'39", long 98°26'34", in SW¼SW¼SW¼NW¼ 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.
INSTRUMENTATION.--Digital water-level recorder -- 60-minute punch.
WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 134 ft, perforated 114 to 134 ft.
DATUM.--Elevation of land-surface datum is 1,418 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 2.0 ft above land-surface datum.
PERIOD OF REOCRD.--April 1979 to current year.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	52.37	52.30	52.10	52.18	51.91	51.50	51.44	---	---	65.11	68.28
10	52.54	52.47	52.26	52.16	52.05	51.99	51.34	51.31	---	---	66.05	69.45
15	52.54	52.28	52.21	52.24	52.04	51.85	51.30	51.45	---	---	66.99	69.03
20	52.51	52.25	52.27	52.12	52.06	51.56	51.43	51.40	---	60.40	67.56	65.18
25	52.49	52.24	52.22	52.07	51.99	51.39	51.38	51.45	---	61.87	68.23	63.50
EOM	52.52	52.29	52.19	52.07	51.88	51.43	51.36	51.37	---	63.95	69.10	62.43
MAX	---	52.57	52.31	52.25	52.18	51.99	51.51	51.54	---	---	69.10	69.86

WTR YR 1987 HIGH 51.26 APR 17 AND OTHERS

NOTE: Instantaneous observations are the maximum depths below land surface.

BEADLE COUNTY

442112098174001.
LOCATION.--Lat 44°21'12", long 98°17'40", in SW¼SW¼SW¼NW¼ 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.
INSTRUMENTATION.--Digital water-level recorder -- 60-minute punch.
WELL CHARACTERISTICS.--Drilled unused public supply artesian well, diameter 12 in, depth 74 ft, perforated 38 to 74 ft.
DATUM.--Elevation of land-surface datum is 1,306.93 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of platform 2.00 ft above land-surface datum.

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

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	35.42	33.67	32.91	31.65	31.15	30.88	31.79	30.04	30.49	31.49	36.20	35.26
10	35.07	33.65	32.68	31.73	30.76	30.90	30.96	29.97	30.16	32.40	36.27	35.77
15	34.72	33.41	32.46	31.62	30.75	31.28	30.58	29.85	29.93	32.86	35.95	35.58
20	34.53	33.17	32.40	31.30	30.64	31.43	30.48	29.83	29.96	33.98	36.18	35.38
25	34.39	32.93	32.13	31.22	30.49	31.60	30.53	30.65	29.67	34.39	35.76	34.97
EOM	34.17	32.90	31.82	31.02	30.41	32.60	30.22	30.62	29.77	35.43	35.23	34.76
MAX	35.66	34.28	32.91	31.92	31.15	32.60	32.81	30.70	30.56	35.43	36.32	35.91

WTR YR 1987 HIGH 29.49 JUN 28

NOTE: Instantaneous observations are the maximum depths below land surface.

FALL RIVER COUNTY

432015103535801.
LOCATION.--Lat 43°20'15", long 103°53'58", in SW¼SW¼NE¼SE¼ sec.20, T.8 S., R.2 E., Hydrologic Unit 10120106, 5 mi northwest of Edgemont. Owner: D. Heldman.
AQUIFER.--Lakota.
INSTRUMENTATION.--Periodically measured with chalked tape by USGS personnel.
WELL CHARACTERISTICS.--Drilled artesian stock well, diameter 5 in, depth 410 ft.
DATUM.--Elevation of land-surface datum is 3,532 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 0.60 ft above land-surface datum.
PERIOD OF RECORD.--September 1956 to current year.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

APR 23, 1987 39.85

HUGHES COUNTY

SITE NUMBER 442451100155501 LOCAL NUMBER 111N78W18DCBA

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	44.88

SITE NUMBER 442504100160001 LOCAL NUMBER 111N78W18DBBB

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	12.90

SITE NUMBER 442504100163201 LOCAL NUMBER 111N78W18CBBA

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	15.43

SITE NUMBER 443018099580301 LOCAL NUMBER 112N76W16DAAA

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	9.58

SITE NUMBER 443018099594901 LOCAL NUMBER 112N76W17DBBB

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	17.50

SITE NUMBER 443026099592101 LOCAL NUMBER 112N76W17ADDB

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	7.78

SITE NUMBER 443039099575901 LOCAL NUMBER 112N76W15BBBC

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	6.76

SITE NUMBER 443039099575902 LOCAL NUMBER 112N76W15BBBC2

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	6.57

HUGHES COUNTY--Continued

SITE NUMBER 443049099565901 LOCAL NUMBER 112N76W10DDCD

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	6.60

SITE NUMBER 443049099585801 LOCAL NUMBER 112N76W 9CCDD

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	2.43

SITE NUMBER 443102099594401 LOCAL NUMBER 112N76W 8DBCD

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	8.51

SITE NUMBER 443108099585801 LOCAL NUMBER 112N76W 9CBAA

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	7.41

SITE NUMBER 443134099575801 LOCAL NUMBER 112N76W10BBBB

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	7.67

SITE NUMBER 443142099472901 LOCAL NUMBER 112N75W 1DCDC

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	4.07

SITE NUMBER 443157099565001 LOCAL NUMBER 112N76W 3DADA

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	11.91

SITE NUMBER 443226099550501 LOCAL NUMBER 112N76W 1BAAB

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	9.84

HUGHES COUNTY--Continued

SITE NUMBER 443226099560401 LOCAL NUMBER 112N76W 2ABBA

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	5.33

SITE NUMBER 443226099560501 LOCAL NUMBER 112N76W 2ABBB

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	1.58

SITE NUMBER 443226099563701 LOCAL NUMBER 112N76W 2BBAB

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	2.96

SITE NUMBER 443226099564601 LOCAL NUMBER 112N76W 2BBBB

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	2.37

SITE NUMBER 443255099472401 LOCAL NUMBER 113N76W35CCDC

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	32.25

LAWRENCE COUNTY

443515103513901.
LOCATION.--Lat 44°35'15", long 103°51'39", in SE¼NE¼NW¼ sec.10, T.7 N., R.2 E., Hydrologic Unit 10120203, 4.5 mi north of Spearfish. Owner: South Dakota Department of Water and Natural Resources.
AQUIFER.--Minnelusa.
WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 5 in, depth 1,306 ft, perforated 1,266 to 1,306 ft.
DATUM.--Elevation of land-surface datum is 3,205 ft above National Geodetic Vertical Datum of 1929. Measuring point: Base of gage 2.5 ft above land-surface datum.
PERIOD OF RECORD.--April 1963 to current year.

WATER LEVEL, IN FEET ABOVE LAND SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 05, 1986	+272.23	JAN 10, 1987	+272.23	APR 10, 1987	+276.84	JUL 10, 1987	+268.31
10	+272.00	15	+276.84	15	+276.84	15	+267.62
15	+272.23	20	+275.10	20	+279.15	20	+274.54
20	+276.84	25	+272.23	25	+276.84	25	+272.23
25	+272.23	31	+274.54	30	+279.15	31	+267.62
31	+272.23	FEB 05	+273.38	MAY 05	+276.38	AUG 05	+267.62
NOV 05	+276.84	10	+272.23	10	+281.46	10	+267.62
10	+273.38	15	+276.84	15	+279.15	15	+267.62
15	+272.92	20	+276.84	20	+276.84	20	+267.62
20	+280.30	25	+275.69	25	+276.84	25	+268.08
25	+277.31	28	+281.46	31	+281.46	31	+267.62
30	+280.30	MAR 05	+281.46	JUN 05	+276.84	SEP 05	+267.15
DEC 05	+279.61	10	+275.09	10	+276.84	10	+272.23
10	+276.84	15	+279.15	15	+281.96	15	+268.08
15	+279.15	20	+275.23	20	+274.54	20	+272.00
20	+276.84	25	+276.84	25	+275.69		
25	+276.84	31	+276.61	30	+273.38		
JAN 05, 1987	+275.69	APR 05	+281.23	JUL 05	+272.73		

NOTE: Instantaneous observations are minimum height above land surface.

LINCOLN COUNTY

431619096460202.
LOCATION.--Lat 43°16'19", long 96°46'02", in NE¼NE¼NE¼NE¼ 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.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 383 ft, screened 363 to 383 ft.
DATUM.--Elevation of land-surface datum is 1,320 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder platform 3.0 ft above land-surface datum.
PERIOD OF RECORD.--August 1979 to current year.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	163.56	163.58	163.26	161.84	160.86	161.43	162.05	162.70	163.27	163.92	164.46
10	---	163.61	163.58	163.01	161.63	160.95	161.40	162.09	162.78	163.32	163.96	164.50
15	---	163.62	163.60	162.75	161.35	160.99	161.47	162.26	162.86	163.42	---	164.53
20	---	163.48	163.60	162.53	161.24	161.03	161.61	162.30	162.94	163.52	---	164.47
25	---	163.46	163.55	162.28	161.02	161.02	161.76	162.50	163.09	163.67	---	164.51
EOM	163.56	163.50	163.45	161.98	160.91	161.27	161.87	162.51	163.21	163.75	164.47	164.58
MAX	---	163.71	163.63	163.42	161.89	161.27	161.87	162.51	163.21	163.75	---	164.58

WTR YR 1987 HIGH 160.82 MAR 2

NOTE: Instantaneous observations are the maximum depths below land surface.

MARSHALL COUNTY

454745097450401.
LOCATION.--Lat 45°47'45", long 97°45'04", in SE¼NE¼SE¼ 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 unused public supply artesian well, diameter 8 in, depth 1,060 ft.
DATUM.--Elevation of land-surface datum is 1,360 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder platform 2.50 ft above land-surface datum.
PERIOD OF RECORD.--July 1970 to current year.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	41.86	41.80	41.96	41.87	42.00	41.86	41.91	42.03	41.88	42.02	42.09	42.11
10	41.82	42.06	41.95	41.99	41.89	42.01	41.68	41.79	41.90	42.01	42.10	42.18
15	41.89	41.89	41.92	42.15	41.90	41.87	41.70	42.10	41.83	41.98	42.04	42.04
20	41.94	41.86	41.98	42.00	41.92	41.72	41.95	41.89	41.83	42.02	42.16	42.12
25	41.92	41.90	41.98	42.30	41.84	41.70	41.87	41.90	41.97	42.03	42.22	42.12
EOM	42.09	42.06	42.01	41.89	41.76	41.68	41.86	41.78	42.10	42.09	42.22	42.14
MAX	42.09	42.14	42.07	42.31	42.05	42.04	42.09	42.18	42.10	42.11	42.32	42.19

WTR YR 1987 HIGH 41.63 MAR 21

NOTE: Instantaneous observations are the maximum depths below land surface.

SULLY COUNTY

SITE NUMBER 443340099550801 LOCAL NUMBER 113N76W31BBBB

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	2.85

SITE NUMBER 443433099551201 LOCAL NUMBER 113N76W25AAAA

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	19.74

SITE NUMBER 443439099535901 LOCAL NUMBER 113N75W19DDDD

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
JUN 05, 1987	13.91

*U. S. GOVERNMENT PRINTING OFFICE: 1988: 556-774

October 1, 1978

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
	Length	
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)
	Area	
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)
	Volume	
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)
	Flow	
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)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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